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CYCLOPÆDIA.

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CYCLOPÆDIA:
OR, AN
UNIVERSAL DICTIONARY
OF
ARTS AND SCIENCES.

CONTAINING
An EXPLANATION of the TERMS, and an ACCOUNT
OF THE SEVERAL SUBJECTS,
IN THE
LIBERAL AND MECHANICAL ARTS,
AND THE
SCIENCES, HUMAN and DIVINE.

Intended as a COURSE of ANCIENT and MODERN LEARNING.

By E. ^{pharmac}CHAMBERS, F.R.S.

*Floriferis ut apes in saltibus omnia libant,
Omnia nos—*

LUCRET.

WITH THE
SUPPLEMENT,
AND
MODERN IMPROVEMENTS,
Incorporated in one ALPHABET.

By ABRAHAM REES, D.D.

IN FOUR VOLUMES.

VOLUME THE FIRST.

LONDON,

Printed for W. Strahan, J. F. and C. Rivington, A. Hamilton, J. Hinton, T. Payne, W. Owen, B. White, B. Collins,
T. Caflon, T. Longman, B. Law, T. Durham, T. Becket, C. Rivington, E. and C. Dilly, H. Baldwin, J. Wilkie,
W. Nicoll, H. S. Woodfall, J. Robson and Co. J. Knox, W. Denville, T. Cadell, G. Robinson, R. Baldwin, W. Otridge,
W. Davis, N. Conant, W. Stuart, J. Murray, J. Bell, W. Fox, S. Hayes, J. Donaldson, E. Johnson, and J. Richardson.

MDCCLXXXI.

T O T H E
K I N G.

S I R,

TH E patronage of works of Universal Science is one of the prerogatives which pertain to Your MAJESTY's high station. The nature of this work, therefore, prompted the Editor to request the honour of Your MAJESTY's protection, and his views could consistently be directed to no other Patron.

AS the sovereign of a country, in which every kind of Science is industriously pursued and so liberally encouraged, they who labour in promoting it, even in the humbler occupation of collecting and recording the discoveries of others, may hope to obtain the favour of Your Royal countenance.

TH E original compiler of this Dictionary introduced it to the public notice under the sanction of Your Royal Grandfather. The Editor of it, in its present enlarged state, feels a like ambition: and whilst he gratefully acknowledges Your MAJESTY's condescension in permitting him to present it to the public under Your Royal Patronage, he is doubly anxious, that the work itself, in the execution of it, may appear worthy of Your MAJESTY's approbation.

YOUR MAJESTY's known judgment in many of the subjects, which the Dictionary comprehends, might justly alarm his diffidence. He is encouraged, however, by the reflection, that he has recorded discoveries and improvements, many of which were unknown and unthought of at the time of Your MAJESTY's happy accession: discoveries and improvements, which, by extending the boundaries of Science and enlarging the empire of the human mind, diffuse a glory over this country, unattainable by conquest or dominion.

IN the progress of this work, the Editor has impartially sought out and recorded every kind of information, which may do justice to the merit of those, of *every country*, who have distinguished themselves in the cause of Science: but he has been more particularly

larly folicitous to pay a due respect to the genius of Britain; and he has felt a peculiar pride, as well as pleasure, in recording those inventions and improvements, which do honour to *his own country*, and to the distinguished munificence of his Sovereign.

THE scene, which the Editor's predecessor in this literary labour contemplated only in imagination, has been realized under the auspices of Your MAJESTY. Whilst some have successively traversed the globe, and "erected trophies" to Your MAJESTY in the various departments of Geography, Navigation, and Natural History; others, with a skill and assiduity which have been honoured with Your MAJESTY's peculiar patronage, have explored the heavens, ascertained with an accuracy unknown before, and extended, far beyond their imagined limits, the dimensions of the solar system, and furnished the Astronomer with new views and ideas of the material universe.

SUCH, Sir, are the numerous and important discoveries, which have been already made, and which we have yet reason to hope for, under Your Royal sanction and encouragement, as must secure to Your MAJESTY a tribute of grateful recollection from the learned of the present age, and, in the future history of Science, stamp a lustre on the æra of Your MAJESTY's reign to the latest generations.

THAT Your MAJESTY's government, for the farther encouragement of every useful art, and for the universal benefit of Your subjects, may be long and happy: that You may uninterruptedly enjoy every personal and domestic blessing: that You may transmit to succeeding Princes of Your illustrious Family the affectionate attachment of a free and grateful people: and that, after having been long continued in the faithful discharge of the duties of Your earthly crown, You may finally receive the reward of a heavenly one, are the fervent prayers of the Editor, who is happy in every occasion of expressing his own attachment to Your Person and Family, and who with the profoundest respect subscribes himself,

Your M A J E S T Y's most faithful,

Most obedient and most devoted

Subject and Servant,

OLD JEWRY,
January 24, 1786,

A B R A H A M R E E S.

P R E F A C E

T O T H E

N E W E D I T I O N.

TH E R E are few works in the English language which have been more generally and more deservedly esteemed than the *CYCLOPÆDIA* of Mr. CHAMBERS. As a *DICTIONARY* of universal literature and science, comprehending a variety of subjects in a small compass, and in alphabetical order, it is adapted to a very numerous class of readers. We need not fear incurring the charge of exaggerated praise, when we assert, that it has contributed more to the diffusion of knowledge than any other publication in our language. In its extent and arrangement, it is suited to the occasions and to the convenience of many persons, who have neither leisure nor opportunity to recur to those different sources of information, whence the materials of which it is compiled are collected. The spirit of inquiry that prevails among such persons merits attention and encouragement. To them a work of this kind, that facilitates their acquisition of knowledge, cannot fail of being peculiarly acceptable; and from them the compiler of a *DICTIONARY*, humble and subordinate in the scale of literary labourers as some may think his occupation, will receive a tribute of respect and praise.

TO others, whose acquaintance with particular branches of science precludes the necessity of their application to such a work, it will communicate general information concerning subjects, to which their attention has not been so immediately directed; and thus afford them leisure for gratifying their taste or inclination in researches, which they may deem more important or more pleasing, and in which they may be more ambitious of excelling.

TH E inquisitive and studious, whatever be the peculiar object of their investigation, will think it no inconsiderable advantage to be directed by references, subjoined to a variety of articles, where they may prosecute their inquiries with satisfaction: whilst those, who are proficient in science, will find it useful, on many occasions, to consult a *DICTIONARY*, as they would refer to a common-place book, in order to assist their memories, without the labour and the loss of time, which it would require to recur to a great number of distinct treatises, whence their knowledge was originally derived. Although a professed mathematician would not study mathematics, nor a philosopher philosophy, nor a divine theology, nor any professional man the subjects that form the basis of his profession, in a *DICTIONARY*; yet all persons may receive benefit from it, even in the line of their profession or favourite pursuit; and much more in disquisitions and inquiries, remote from the course of studies, to which their situation or inclination leads them. The knowledge, with regard to many subjects, which a *DICTIONARY* supplies, will bound their views, and answer all their purposes.

IT is, likewise, a consideration of no small moment, in estimating the importance and utility of a *SCIENTIFIC DICTIONARY*, that it supplies in some degree the want of a large library; by furnishing the inquisitive and curious with hints and abstracts of science, that are dispersed in many volumes, which cannot be procured without difficulty, and without considerable expence.

IN enumerating the advantages recommending this work, we must not forget to mention, that it records and transmits to future ages many inventions and improvements, which might otherwise sink into oblivion; that it forms a compendious history of science; that it furnishes the outlines of its gradual progress and advancement; and that, by preserving a summary of what has been already done and discovered, it lays a foundation for farther discoveries and improvements. In this latter view of its importance and use, it may not be improperly compared to a map of science, in which the line that terminates the *terra cognita* is distinctly marked out for the direction of those, whose ingenuity and industry are employed in extending the boundaries of knowledge, and in exploring those regions that are still unknown.

A *DICTIONARY* of *SCIENCE* must appear, from this brief account of its design and use, to be a work of great importance; and its importance, in every country, will be estimated by the degree in which knowledge is pursued and promoted. The first work of this kind, formed on a scale sufficiently extensive to answer most of the purposes that have been now recited, which any country can boast, was the *CYCLOPÆDIA* of Mr. CHAMBERS: a work, not only excellent in its general plan and design, but executed in a manner that has preserved its reputation for more than half a century.

AS to the plan, it was admirably adapted to the nature and necessary limits of a popular work; designed not merely for public libraries and for the use of those who spare no expence in obtaining the best means of information, but for disseminating literature and science through the subordinate classes of mankind. With this view Mr. CHAMBERS seems to have adopted the happy medium between a work consisting merely of definitions, etymologies, and references, and a voluminous collection of diffuse and elaborate treatises on various subjects, the price of which must restrict it to a few purchasers, and the perusal of which would be thought tedious by many, who had occasion for consulting it.

IN judging of the execution of the CYCLOPÆDIA, there are many circumstances which ought to be considered, before we shall be able to form a candid or even a just opinion. The limits of two volumes in folio, to which the author, probably doubtful of the success of his undertaking, thought proper to confine himself, would prevent his admitting, or allow only his cursorily mentioning, many articles, which he might think of inferior importance, or the omission of which, at the time of the first publication of the Dictionary, the purchasers would not much regret. This seems to be one reason why Natural History makes so inconsiderable a part of this work, in its original state. The success of the first edition, which appeared in 1728, enlarged the views of the author; and, previously to the publication of the second edition in 1738, he had formed a design of publishing a new work on a more extensive scale, and had actually prepared a considerable part of the copy with this view. This design, however, was frustrated by a bill agitated in parliament (which indeed passed the house of commons, but was rejected in the house of lords), containing a clause, that obliged the publishers of all improved editions of books to print the improvements separately. Accordingly the second edition was published with corrections and additions, and with an apology to the public for disappointing their expectations of a larger work. Mr. CHAMBERS was, therefore, far from imagining, that two volumes would allow sufficient scope for the execution of the comprehensive plan which he had formed for a Dictionary of universal literature and science; and he was prevented, merely by collateral circumstances, from pursuing his own ideas of its perfection to their utmost extent.

IT deserves also to be considered, that, in a work of such variety and magnitude, adapted to readers of every description, the same articles will be thought needlessly diffuse or concise, according to the particular views and taste of the reader; and the only just standard is that of their real importance, of which, perhaps, the author himself is not, in all cases, a proper judge. Besides, subjects that engage the public attention, at the time when a work of this kind is compiled, will naturally be extended beyond the limits, which those who do not consider the circumstances that might first attend them, may be disposed to allow; and a writer, who studies to gratify the curiosity of his contemporaries, as well as that of posterity, will be in danger of erring on the side of excess. This observation will probably furnish an apology for some prolonged articles that occur in the original CYCLOPÆDIA.

AFTER all, when we consider that this was the work of a single person, who had the labour of collecting, as well as of arranging its principal materials, it will be thought the most wonderful production, both of judgment and application, which this or any other country can boast. And, therefore, instead of complaining of the defects and imperfections to which it is unavoidably subject, the judicious and candid will make every reasonable allowance for the numberless difficulties attending its execution.

SUCH, indeed, has been the opinion of the public, with regard to the merit of the CYCLOPÆDIA, that the sale of it has exceeded that of any other publication of equal price. The second edition in 1738 was so favourably received, as to require the publication of a third in 1739, of a fourth in 1741, and of a fifth in 1746. These repeated testimonies of the public approbation amply justify the character given of it by one, who well knew its value, and who calls it "the pride of booksellers, and the honour of the English nation." The proprietors, therefore, were induced, by motives of respect and gratitude to the public, as well as by their own interest in so valuable a work, to correct the errors, and to supply the defects of the original Dictionary: errors and defects which time had discovered and which subsequent investigations and improvements had occasioned. Accordingly, in the prospect of a demand for the sixth edition, they engaged the late George Lewis Scott, esq. to prepare a SUPPLEMENT in two additional folio volumes. This gentleman had not proceeded far in the execution of this design, when he was diverted from it by other avocations; so that the completion of the business was entrusted with Dr. Hill, whose voluminous publications in natural history are well known. The SUPPLEMENT undoubtedly contained many important and valuable articles, relating to subjects that had been either wholly omitted or slightly mentioned by Mr. CHAMBERS. But the rapidity with which Dr. Hill executed the province assigned him, and the freedom with which he transcribed from his own writings and those of others, were not favourable either to the reputation of the work, or to the interest of the proprietors.

THE ORIGINAL WORK and the SUPPLEMENT remained in this separate state for many years. However, the inconvenience of a double alphabet continued to be the subject of renewed complaints; and it was thought that the SUPPLEMENT, when properly abridged and corrected, might be incorporated, to the satisfaction of the public, with the ORIGINAL WORK.

BUT

But the views of the proprietors extended much farther than to this single object. They were not apprized of the rapid progress of science; and they wished that a work, in the reputation and success of which they were so much interested, might be a comprehensive and complete register of modern discoveries and improvements.

AFTER some unsuccessful attempts to execute this laudable design, the work was entrusted to the care of the present Editor. The course of his studies and official engagements had led him into a general acquaintance with the contents of the *CYCLOPÆDIA*: and having had frequent occasions for consulting it, he was not altogether ignorant either of its excellencies or defects. Having been accustomed to scientific researches, he was not unacquainted with the sources of information, to which he must recur in the progress of the work: he had also access to some valuable libraries, that would furnish him with books, both ancient and modern, to which he might have occasion often to refer: he was happy in an intimate acquaintance with several learned friends, by whose advice he might profit, and of whose assistance he could avail himself on many occasions: and the habits of his life were such as would dispose him to submit to the application and labour, which the execution of such a work must unavoidably require.

NOTWITHSTANDING these advantages, the recital of which seems to be necessary, in order to vindicate him from the charge of presumption in this undertaking, he engaged in it with great diffidence and anxiety; fearful lest he should disappoint the views of the Proprietors and the just expectations of the Public. Having embarked, however, he determined to persevere; and to make every effort, of which he was capable, for improving the work and for securing the approbation of the judicious and candid. With an industry and ardour, which the hope of giving satisfaction to the public animated, and which the extent and importance of the undertaking both deserved and required, he devoted to the accomplishment of it all that time and attention, in the course of many years, which his other engagements would allow: and he thinks himself happy, that no accident has prevented the uninterrupted progress of a publication, to the completion as well as the reputation and success of which his wishes and labours have been uniformly directed.

IT was the Editor's intention to recite, at the close of the work, the principal Amendments which the *CYCLOPÆDIA* has received, and the Additions which it has been thought necessary to introduce into this new edition. But they have been so numerous, that the recital, however it might redound to the credit of his industry, would be tedious and uninteresting to the reader. Those who have either inclination or leisure to compare the *CYCLOPÆDIA* in its present state with the *ORIGINAL WORK* and *SUPPLEMENT*, will find, that many of the original articles in both have been either abridged or enlarged, as their respective nature and importance required; and that many new articles have been inserted in their alphabetical order; so that it would not be easy, if it were thought necessary or useful, to recount the alterations which the former have undergone, and the additions of which the latter consist.

IT will be sufficient to observe, in general, from a regular account which the Editor has preserved, that the number of *NEW ARTICLES* amounts to more than *FOUR THOUSAND FOUR HUNDRED*; several of which do not occur in any *DICTIONARY* of *SCIENCE* which he has had an opportunity of consulting: some of them are of considerable length; many comprehend subjects of moment; and the least important were thought too interesting to be omitted. The *ORIGINAL ARTICLES*, which seemed to require correction, abridgment, or addition, many of which have been very much altered or enlarged, are more numerous than those that are altogether new.

FROM this brief detail it will not be thought surprising, that, whilst the number of volumes remain the same, agreeably to the proposals of the Proprietors, the size of each volume should be much increased. Besides, by the union of the two alphabets, the combination of articles under the same title, the abridging of those that were needlessly diffuse, an alteration in the references by cancelling some that were of no importance, and printing the subject of reference in a different character in the body of the article itself, and by a minute attention to many other circumstances, the Editor has made room for introducing a variety of new matter within the same compass.

THE Editor reflects with pleasure, and with grateful respect to the numerous purchasers of this new edition of the *CYCLOPÆDIA*, that his labours in the cause of science have been so favourably received. He trusts, that he may be allowed to interpret the extensive sale with which it has been honoured, as a testimony of the approbation, as it is a full proof of the candour, of the public. Acknowledging that candour, and confiding in it, it is needless to urge those apologies which are furnished by the magnitude of this publication, and the variety of subjects it comprehends; but he would be unworthy of the indulgence he has experienced, and to which he farther appeals, if he had not considered it as an encouragement to unremitting application.

HOPING that the errors and defects, which have escaped the most diligent attention, will not be thought very considerable, either in their number or in their nature, by those who are disposed to judge of the execution of this work by the unavoidable difficulties attending it; and that the numerous corrections and additions, in the various departments of science, which this enlarged

larged edition of the CYCLOPÆDIA contains, will be regarded as important and valuable improvements: the Editor submits it, entire, to the candid judgment of the Public. Their approbation will be esteemed as the greatest recompence which he can receive: and the consciousness of having contributed, in any degree, to the spreading of useful knowledge, will afford him peculiar satisfaction.

THE Editor gratefully acknowledges the hints and communications which he has received both in conversation and writing, for the improvement of this work. It will appear, by the articles to which they refer, and by the subjoined list of CORRIGENDA & ADDENDA, that they have not been disregarded. But he is under peculiar obligations to the friendship of the Rev. Dr. Price, to whom the public are indebted for several articles, that will be thought to enrich this edition, on the subjects of ANNUITIES, ASSURANCE, FUNDS, LIFE-*Annuities*, *Bills of* MORTALITY, and SURVIVORSHIP.

SEVERAL flattering testimonies of approbation from unknown correspondents demand also the respectful acknowledgments of the Editor: as they have served to animate his assiduity and perseverance in the prosecution of an undertaking, which required resolution and patience; and in which he must have been singularly fortunate, if he had escaped every kind of reflection.

THE Proprietors think themselves happy, that the extensive sale of this edition has enabled them to cancel most of the old Plates, and to be at the expence of new engravings; and to increase the number of new plates, far beyond their original design. The ingenious artist, who has had the conduct of this business, has executed it with an attention and accuracy which, it is hoped, will give satisfaction to the Public.

THE scheme of annexing an INDEX to this edition was previously suggested to several judicious friends, and approved by them: and experience will evince its utility. The labour of compiling it was undertaken, independently of any regard to the interest of the Proprietors, with the sole view of improving the work, and from a full conviction that it would serve as a directory in the use of it; and answer the purpose of informing the reader, where any particular kind of knowledge, which his occasions or curiosity might dispose him to seek, was to be found, and of conducting him from one subject to another, much better than any number of references incorporated in the work itself. Besides, it contains an analysis of several articles; so that by merely running the eye over each column, the reader will readily discover where he may meet with miscellaneous information on a variety of subjects, which the general titles of such articles could not have suggested to him. To readers, therefore, who consult the DICTIONARY in order to obtain a general acquaintance with any science or subject, and who are not conversant with the terms that occur in it, the INDEX cannot fail of being useful: and to others, to whom the terms of any science are more familiar, it will be of service in directing them to a variety of observations and facts, which are interspersed through the several volumes of the DICTIONARY, and to which no term, however apposite or comprehensive in itself, or readily occurring to their recollection, could immediately lead them. If we may be allowed to compare the DICTIONARY to a library, consisting of a number of books on various subjects, the INDEX, which comprehends an alphabetical arrangement of the several terms contained in it, referred to those heads of science to which they belong, is similar, in its use, to that of an Alphabetical and Scientific Catalogue, containing not only an arrangement of the books, under their proper titles, in the order of the alphabet, but an analysis of their contents, distributed in the same order, under the distinct science or subject to which they relate.

THOUGH the Editor was satisfied of the importance and use of such an INDEX, he was fearful of trespassing on the patience of the public, who, as well as himself, could not but wish to see a speedy termination of this work: he is happy, however, that it is comprised in seven numbers; and hopes the purchasers will be of opinion, that the DICTIONARY derives a value from it much more than adequate to the additional expence with which it is attended.

T O T H E
K I N G.

S I R,

THE ARTS and SCIENCES humbly crave audience of Your Majesty. The near connexion they have with the happiness of a people, promises them a favourable reception from a Prince who makes his people's happiness the basis of his own. 'Tis by them the parsimony of nature is supplied, and life rendered easy and agreeable under its numerous infirmities. By them the mind is reclaimed from its native wildness, and enriched with sentiments which lead to virtue and glory. 'Tis they, in fine, that make the difference between your Majesty's Subjects, and the savages of Canada, or the Cape of Good Hope.

THE protection of ARTS has been ever esteemed the proper province of the Great. 'Tis a branch of the regal office, which a prince, equal to the whole charge of a Crown, will not suffer to be alienated into other hands. From this, do the first and most distinguished names in history derive a large share of their glory: and if there be any age or nation conspicuous above the rest, and which is looked on with envy by our own, it is that wherein the Sovereigns have signalized themselves most in this quality.—But, the time is now at hand, when we are no longer to envy Rome her AUGUSTUS and AUGUSTAN AGE; but Rome, in her turn, shall envy ours.

SOMETHING extraordinary seems intended by Providence, in placing such a Prince at the head of such a people; a Prince inspired with a generous passion, to devote his cares to the welfare of mankind; and a people conspiring with unexampled ardor and unanimity to all his glorious views. Some of our best Princes have had their hands tied down; checked by reluctant factions, which opposed every nobler design: Your Majesty has found the happy secret to make even contention do You homage; and turn opposition itself into approbation and applause.

THERE is a time reserved in fate for every nation to arrive at its height; and the uppermost place on the terrestrial ball is held successively by several states. May not the numerous presages, which usher in Your Majesty's reign, give us room to

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expect that our turn is next; and that what Greece was under ALEXANDER, and Rome under AUGUSTUS CÆSAR, Britain shall be under Your Majesty's government and protection.

BUT even this were to under-rate our hopes, which are raised by your Majesty to something still more truly glorious. Greatness, so fondly coveted, has already cost the world very dear; and though still pursued by unthinking Men under almost every shape, is only desirable in a few. Of itself it is rather an object of terror and alarm, than delight; and at best only pleases, when joined with something naturally amiable. From the practice of Your Majesty, men may correct their sentiments, and learn, that greatness has no charm, except when founded in goodness. To be Great and a King, is but a small matter with Your Majesty; it is a quality many others enjoy in common with you, and to which some have even been doomed to their infamy: it is what Herod was; and what Nebuchadnezzar was;—and what Nero, and Domitian, were. But, while some Princes chuse to be great in what is destructive, and others in things wholly indifferent; it is Your Majesty's praise to be great in what is the perfection of our nature, and that whereby we approach nearest the Deity. Happy choice! to use power only as the means of rendering your beneficence more diffusive; and thus to make Royalty minister to the happiness of mankind, which it has been used to invade.

YOUR Majesty commands a people capable of every thing. Not more fitted to shine in arms, or maintain an extended commerce; than to succeed in the stiller pursuits of philosophy, and literature. And it will be Your Majesty's glory, not to let any of their talents lie unemployed. If Your Majesty gives the word, while some of them are busied in avenging Your cause, by humbling some turbulent monarch; some in extending Your dominions by new settlements, and some in increasing Your people's wealth, by new trades: others will be employed in enlarging our knowledge by new discoveries in nature, or new contrivances in art; others in refining our language; others in improving our morals; and others in recording the glories of Your reign in immortal song.

THE Work I here presume to lay at Your Majesty's feet, is an attempt towards a survey of the republic of learning, as it stands in Your Majesty's most auspicious reign. We have here somewhat of the boundary that circumscribes our present prospect; and separates the known, from the unknown parts of the intelligible world. Under Your Majesty's princely influence and encouragement, we promise ourselves this boundary will be removed, and the prospect extended far into the other hemisphere.—Methinks I see trophies erecting to Your Majesty in the yet undiscovered regions of Science, and Your Majesty's Name inscribed to inventions at present held impossible.

I am, with all sincerity and devotion,

May it please Your MAJESTY,

Your Majesty's most dutiful,

and obedient Subject,

and Servant,

GRAY'S-INN,
October 13th,
1727.

EPHRAIM CHAMBERS.

P R E F A C E.

IT is not without some concern that I put this work in the reader's hands; a work so seemingly disproportionate to any single person's experience, and which might have employed an academy. What adds to my apprehensions, is the scanty measure of time that could be employed in a performance, which a man's whole life scarce appears equal to. The Vocabulary of the academy *della Crusca* was above forty years in compiling; and the Dictionary of the French Academy much longer; and yet the present work will be found more extensive than either of them in its subject and design, as much as it falls short of them in respect of years, or of hands employed in it.

HERE, the reader might be led to suspect something of dissimulatio; and think I first offer him a book, and then give him reasons why I should not have done it. But his suspicions will abate, when he is apprised of some advantages under which I engaged; which are superior to what had been known in any former work of the kind: since all that had been done in them accrued, of course, to the benefit of this. I come, like an heir, to a large patrimony, gradually raised by the industry and endeavours of a long race of ancestors. What the French and Italian academists, the abbé Furetiere, the editors of Trevoux, Savary, Chauvin, Harris, Wolfius, Daviler, and others have done, has been subservient to my purpose; to say nothing of an inferior class of books of this kind, which contributed their share; dictionaries on almost every subject, from medicine and law, down to heraldry and the manege.

YET this is but a part: I am far from having contented myself to take what was ready collected; but have augmented it with a large accession from other quarters. Few parts of the commonwealth of learning, but have been trafficked to on this occasion. Recourse has been frequently had to the originals themselves on the several arts; and, not to mention what small matters could be furnished from my own stock, the reader will here have extracts and accounts from a great number of books of all kinds, either overlooked by former lexicographers, or not then extant; and a multitude of improvements in the several parts, especially of natural knowledge, made in these last years. If instances hereof were required, I hope there are few pages which will not afford several.

SUCH are the sources from whence the materials of the present work were derived; which, it must be allowed, were more than sufficiently ample: so that the difficulty lay in the form and œconomy of it; so to dispose such a multitude of materials, as not to make a confused heap of incoherent parts, but one consistent whole. And here it must be confessed there was little assistance to be had. Former lexicographers have scarce attempted any thing like structure in their works; nor seem to have been aware, that a dictionary was, in some measure, capable of the advantages of a continued discourse. Hence it is that we see nothing like a whole in what they have done; and, for this reason, such materials as they did afford for the present work, generally needed farther preparation, ere they became fit for our purpose; which was as different from most of theirs, as a system from a cento.

OUR view was, to consider the several matters, not only in themselves, but relatively, or as they respect each other: both to treat them as so many wholes, and as so many parts of some greater whole; their connexion with which to be pointed out by a reference. So that by a course of references, from generals to particulars; from premises to conclusions; from cause to effect, and vice versa, i. e. from more to less complex; and from less to more; a communication might be opened between the several parts of the work; and the several articles be, in some measure, replaced in their natural order of science, out of which the alphabetical order had removed them.

FOR an instance.—The article ANATOMY, is not only to be considered as a whole, i. e. as a particular system, or branch of knowledge; and accordingly divided into its parts, *human*, and *comparative*; and human, again, subdivided into the *analysis of solids*, and *fluids* (to be referred to in their several places in the book, where they themselves being treated of, refer to others still lower, and so on); but also as a part of MEDICINE; which, accordingly, it refers to; and which, itself, refers to another higher, &c. By such means, a chain may be carried on from one end of an art to the other, i. e. from the first or simplest complication of ideas, appropriated to the art, which we call the *elements*, or principles thereof, to the most complex, or general one, the name or term that represents the whole.

NOR is the pursuit to be dropped here: but as the elements or data, in one art, are ordinarily quæsitæ in some other subordinate one, and are furnished thereby (as here, for instance, the elements of anatomy are furnished by *natural history*, *physics*, and *mechanics*; and anatomy itself may be considered as a datum furnished to *medicine*); we may carry on the view farther, and refer out of one art or province into the adjoining ones; and thus lay, as it were, the whole land of knowledge open. It may appear, indeed, with the face of a wilderness; but it should be a wilderness through which a reader might find his way as securely, though not so expeditiously and easily, as through a regular parterre.

IT may be even said, that if the system be an improvement upon the Dictionary, the Dictionary is some advantage to the System; and that this is, perhaps, the only way wherein the whole circle, or body of knowledge, with all its parts and dependencies, can well be delivered. In any other form, many thousand lesser things must needs be concealed: all the pins, the joints, the binding of the fabric, must be invisible of course: all the lesser parts, one might say, all the parts whatsoever, must be, in some

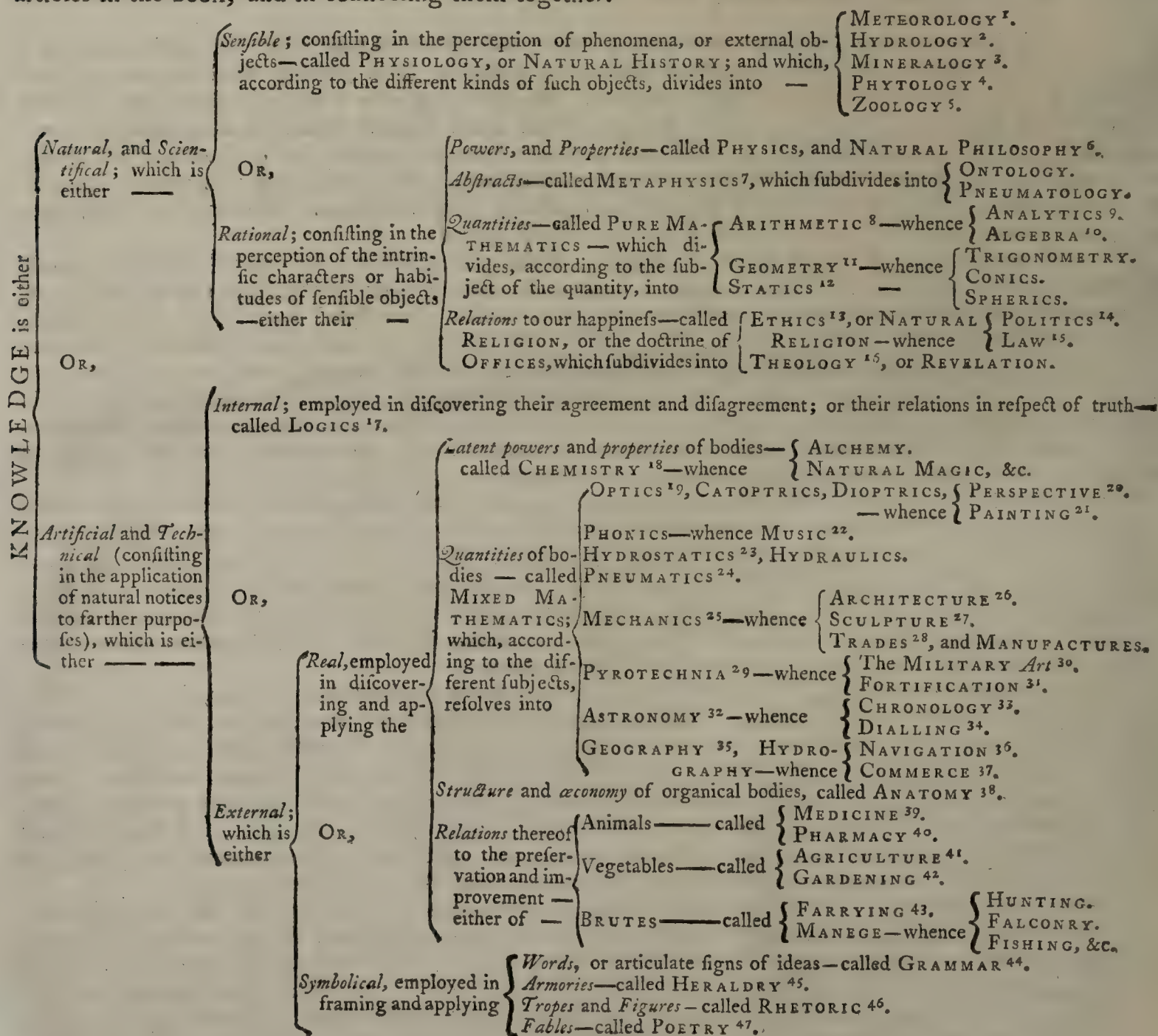
measure, swallowed up in the whole. The imagination, stretched and amplified to take in so large a structure, can have but a very general, undistinguishing perception of any of the component parts. Whereas the parts are not less matter of knowledge when taken separately, than when put together. Nay, and as our ideas are all individuals; and as every thing that exists is one; it may seem more natural to consider knowledge in its parts, i. e. as divided into separate articles, denoted by so many different terms, than to consider the whole assemblage in its utmost composition; which is a thing merely artificial, and the work of imagination.

AND yet the latter way must be allowed to have many and real advantages over the former; which, in truth, is only of use and significance, as it partakes of it. Whence it should follow, that the most advantageous way is, to make use of both: to consider every point, both as a part, to help the imagination to the whole; and as a whole, to help the understanding to each part.—Which is the view in the present Work.—So far, we mean, as the many and great difficulties we had to labour under would allow us to pursue it.

IN this view we have endeavoured to give the substance of what has been hitherto discovered in the several branches of knowledge, both natural and artificial: that is, in the knowledge of *nature*, first, as she appears to our senses, either spontaneously, as in *natural history*; or with the assistance of art, as in *anatomy, chemistry, medicine, agriculture, &c.* Secondly, to our imagination, as in *grammar, rhetoric, poetry, &c.* Thirdly, to our reason; as in *physics, metaphysics, logics, and mathematics*: with the several subordinate arts arising from each; as *agriculture, painting, sculpture, trade, manufactures, policy, law, &c.* and numerous remote particulars, not immediately reducible to any of these heads; as *heraldry, philology, antiquities, customs, &c.*

THE plan of the work, then, I hope, may be allowed to be good, whatever exceptions be taken to the execution of it. It would look extravagant to say, that half the men of letters of an age might be employed in it to advantage; and yet it will appear, that a work accomplished as it ought to be, on the footing of this, would answer most of the purposes of a library, except parade; and contribute more to the propagating of useful knowledge through the body of a people, than half the books extant. After this, let the reader judge how far I may deserve censure for engaging in it, even under some disadvantages; and whether to have failed in such a design may not be some degree of praise.

BUT it will be here necessary to carry on the division of knowledge, just laid down, a little farther; and make a more precise partition of the body thereof, in the formal way of an analysis: the rather, as an analysis, by shewing the origin and derivation of the several parts, and the relation in which they stand to their common stock, and to each other, will assist, both in reinstating the scattered articles in the book, and in connecting them together.



THIS is a view of knowledge, as it were in *stamine*; exhibiting only the grand constituent parts thereof: it would be needless to pursue it into all its members and ramifications; which is the proper business

¹ METEOROLOGY, or the history of AIR, and the ATMOSPHERE: including, 1. That of its contents, ÆTHER, FIRE, VAPOUR, EXHALATION, &c. 2. METEORS formed therein; as CLOUD, RAIN, SHOW-

business of the book itself. It might here, therefore, seem sufficient to refer, from the several branches thus deduced, to the same in the course of the work; where their division is carried on. And yet this would

² **HYDROLOGY**, or the history of *WATER*; including that of SPRINGS, RIVERS, ACIDULÆ, BATHS, &c. of LAKE, SEA, OCEAN, &c. of TIDES, DELUGE, and the like.

³ **MINERALOGY**, or the history of *EARTH*; 1. Its parts; as MOUNTAIN, MINE, MOSS, BOG, GROTTO; and their phenomena, as EARTHQUAKE, VOLCANO, CONFLAGRATION, &c. Its STRATA, as CLAY, BOLE, SAND, &c. 2. FOSSILS or MINERALS, as METALS, GOLD, SILVER, MERCURY, &c. with operations relating to them; as FUSION, REFINING, PURIFYING, PARTING, ESSAYING, &c. LITHARGE, LAVATORY, &c. SALTS, as NITRE, NATRON, GEMMA, ALUM, ARMONIAC, BORAX, &c. SULPHURS, as ARSENIC, AMBER, AMBERGRISE, COAL, BITUMEN, NAPHTHA, PETROL, &c. SEMI-METALS, as ANTIMONY, CINNABAR, MARCASITE, MAGNET, BISMUTH, CALAMINE, COBALT, &c. STONES, as MARBLE, PORPHYRY, SLATE, ASBESTOS, &c. GEMS, as DIAMOND, RUBY, EMERALD, OPAL, TURCOISE, &c. EMERY, LAPIS LAZULI, whence ULTRAMARINE, AZURE, &c. PETRIFACTIONS, as CRYSTAL, SPAR, STALACTITES, TROCHITES, CORNU AMMONIS, and the like.

⁴ **PHYTOLOGY**, or the history of *PLANTS*; their origin in the SEED, FRUIT, &c. Their kinds; as TREE, HERB, &c. Extraordinary species; as TEA, COFFEE, PARAGUAY, VINE, GINSENG, COTTON, TOBACCO, &c. CORAL, MUSHROOM, TRUFFLE, PARASITES, MISTLETO, MOSS, &c. Parts; as ROOT, STONE, FLOWER, WOOD; as GUAIAECUM, SASSAFRAS, EBONY, ALOES, &c. LEAVES, FOLIATION, ROLL, &c. BARK; as QUINQUINA, &c. also PISTIL, FARINA, STAMINA, &c. Operations thereof; as VEGETATION, GERMINATION, CIRCULATION, &c. Circumstances; as PERPENDICULARITY, PARALLELISM, FECUNDITY, &c. Productions; as HONEY, WAX, BALSAM, SUGAR, MANNA, &c. GUM, RESIN, CAMPHOR, &c. INDIGO, OPIUM, GALLS, and the like.

⁵ **ZOOLOGY**, or the history of *ANIMALS*; their origin in EGG, EMBRYO, FOETUS, GENERATION, CONCEPTION, GESTATION, HATCHING, MIGRATION, &c. Their kinds; as QUADRUPED, BIRD, FISH, INSECT, REPTILE, RUMINANT, CARNIVOROUS, &c. Extraordinary species; as UNICORN, TORPEDO, TARANTULA, TORTOISE, CAMELION, SALAMANDER, BARNACLE, ANCHOVY, DEATH-WATCH, &c. MONSTERS; as DOUBLE ANIMALS, HERMAPHRODITE, MULE, PYGMY, GIANT, &c. Metamorphoses; as AURELIA, METEMPSYCHOSIS, &c. Parts; as HEAD, HAND, FOOT, FINGER, TAIL, FIN, WING, GILLS, &c. Covering; as HAIR, WOOL, SILK, FEATHERS, &c. Armature; as NAIL, STING, HORN, TOOTH, SHELL, PROBOSCIS, WEB, &c. Productions; as PEARL, BEZOARD, CASTOREUM, CIVET, MUMMY, USNEA, KERMES, COCHINEAL, &c. Motion; as FLYING, SWIMMING, and the like.

⁶ **PHYSICS**, or the doctrine of *CAUSES*; as NATURE, LAW, &c. Occasions or means; as PRINCIPLE, MATTER, FORM, &c. Their composition, or constitution, in ELEMENT, ATOM, PARTICLE, BODY, CHAOS, WORLD, UNIVERSE, SPACE, VACUUM, &c. Properties of body; as EXTENSION, SOLIDITY, FIGURE, DIVISIBILITY, &c. Powers thereof; as ATTRACTION, COHESION, GRAVITATION, REPULSION, ELASTICITY, ELECTRICITY, MAGNETISM, &c. Qualities; as FLUIDITY, FIRMNESS, DUCTILITY, HARDNESS, VOLATILITY, DENSITY, POLARITY, LIGHT, HEAT, COLD, &c. Operations or effects thereof; as MOTION, RAREFACTION, DILATATION, CONDENSATION, DISSOLUTION, EBULLITION, FREEZING, EVAPORATION, FERMENTATION, DIGESTION, EFFERVESCENCE, &c. Vision, SEEING, HEARING, FEELING, SMELLING, &c. Modifications or changes; as ALTERATION, CORRUPTION, PUTREFACTION, GENERATION, DEGENERATION, TRANSMUTATION, &c. Systems or hypotheses thereof; CORPUSCULAR, EPICUREAN, ARISTOTELIAN, PERIPATETIC, CARTESIAN, NEWTONIAN, &c. Occult and fictitious qualities, powers, and operations; ANTIPERISTASIS, SYMPATHY, ANTIPATHY, ARCHÆUS, &c. MAGIC, WITCHCRAFT, FASCINATION, VIRGULA DIVINA, LIGATURE, TALISMAN, CABALA, &c. DRUID, BARD, BRACHMAN, GYMNO-SOPHIST, MAGI, ROSICRUCIAN, and the like.

⁷ **METAPHYSICS**, or the doctrine of *ENS*; ESSENCE, EXISTENCE, POWER, ACT, UNDERSTANDING, &c. The *MIND*, its FACULTIES; APPREHENSION, JUDGMENT, IMAGINATION, REASON, WIT, &c. Its OPERATIONS; RETENTION, REFLECTION, ASSOCIATION, ABSTRACTION, &c. Its PERCEPTIONS; as SUBSTANCE, ACCIDENT, MODE, &c. RELATIONS; as UNITY, MULTITUDE, INFINITY, UNIVERSAL, &c. QUANTITY, QUALITY, WHOLE, PART, &c. GENUS, SPECIES, DIFFERENCE, &c. PROPER, OPPOSITE, CIRCUMSTANCE, EXTERNAL, &c. Effects hereof; KNOWLEDGE, SCIENCE, ART, EXPERIENCE, &c. Conditions; PROBABILITY, CERTAINTY, FALLACY, &c. Systems hereof; NOMINALS, SCOTISTS, &c.

⁸ **ARITHMETIC**, including the doctrine of *DISCRETE* or DISCONTINUOUS *QUANTITY*; viz. NUMBER, RATIO, PROPORTION, &c. Kinds; as INTEGER, FRACTION, DECIMAL, SURD, &c. Relations; as ROOT, POWER, SQUARE, CUBE, &c. RULES or operations thereof; as NOTATION, NUMERATION, ADDITION, SUBTRACTION, &c. REDUCTION, PRACTICE, POSITION, &c. EXTRACTION, APPROXIMATION, &c. Instruments subservient thereto; as LOGARITHMS, NEPER'S BONES, &c.

⁹ **ANALYTICS**, or the resolution of *PROBLEMS* by SPECIES, or symbolical expressions: RULES or operations hereof; as ADDITION, SUBTRACTION, MULTIPLICATION, &c. Application thereof, in COMBINATION, PERMUTATIONS, MAGIC SQUARES, CHANCES, GAMING, &c. SERIES, PROGRESSIONS, &c. METHODS DE MAXIMIS, FLUXIONS, EXPONENTIALS, TANGENTS, &c.

¹⁰ **ALGEBRA**, or the doctrine of *EQUATIONS*; SIMPLE, QUADRATIC, CUBIC, &c. Operations thereof; as REDUCTION, CONSTRUCTION. Objects thereof; PROBLEMS, RESOLUTION, &c.

¹¹ **GEOMETRY**, or the doctrine of *EXTENDED* or CONTINUOUS *QUANTITY*; viz. 1. LINES; RIGHT, PERPENDICULAR, PARALLEL, OBLIQUE, &c. ANGLES; ACUTE, SCALENOUS, VERTICAL, OPPOSITE, &c. 2. FIGURES or SURFACES; TRIANGLE, SQUARE, PARALLELOGRAM, POLYGON, &c. Circumstances hereof; as PERIMETER, AREA, &c. Operations relating hereto; as BISECTING, DIVIDING, MULTIPLYING, MEASURING, &c. Instruments used therein; as COMPASSES, RULER, SQUARE, PARALLELISM, SCALE, &c. CURVES; as CIRCLE, CYCLOID, CISSOID, CATENARIA, CAUSTIC, EVOLUTE, QUADRATRIX, &c. Circumstances thereof; as AXIS, DIAMETER, RADIUS, CENTRE, CIRCUMFERENCE, ABSCISS, ORDINATE, &c. ARCH, CHORD, SINE, TANGENT, SECANT, &c. Instruments used herein; as artificial LINES, CANONS, &c. Operations arising herefrom; as SURVEYING, taking ANGLES or BEARINGS, &c. with QUADRANT, PLAIN-TABLE, SEMICIRCLE, CIRCUMFERENTOR, &c. taking DISTANCES, with CHAIN, PERAMBULATOR, &c. PLOTTING into DRAUGHT, MAP, &c. with PROTRACTOR, &c. 3. SOLIDS, or bodies; as CUBE, PARALLELEPIPED, PRISM, PYRAMID, CYLINDER, POLYHEDRON, &c. Their SUPERFICIES, SOLIDITY, &c. Operations relating hereto; as CUBATURE, measuring of TIMBER, GAUGING, &c. Instruments used herein; as CARPENTERS RULE, SECTOR, SLIDING RULE, GAUGING ROD, &c. The SPHERE; its doctrine, PROJECTION, &c. Application thereof; in PLANISPHERE, ANALEMMA, &c. The CONE; its SECTIONS, ELLIPSIS, PARABOLA, HYPERBOLA, &c. with its ASYMPTOTES, FOCI, &c. Their CONSTRUCTION; QUADRATURE, RECTIFICATION, &c.

¹² **STATICS**, or the doctrine of *MOTION*: its laws; VELOCITY, MOMENTUM, &c. Causes; as GRAVITY, PERCUSSION, COMMUNICATION, &c. Modifications; as COMPOSITION, ACCELERATION, RETARDATION, REFLECTION, REFRACTION, &c. Kinds; as ASCENT, DESCENT, CENTRAL, CENTRIPETAL, &c. OSCILLATION, UNDULATION, PROJECTION, &c. POWERS, or application thereof; in LEVER, SCREW, &c. PENDULUM, PROJECTILE, &c. Operations directed hereby; as GUNNERY, the MECHANICAL ARTS, &c. enumerated hereafter.

¹³ **ETHICS**, or the consideration of *NATURAL INCLINATIONS*,

would sometimes prove inconvenient for the reader; who, to find some particular matter, would go a long circuit, and be referred backwards and forwards, from one end of the book to another: to say nothing

NATIONS, PASSIONS, TASTES, &c. Objects thereof; as GOOD, EVIL, VIRTUE, VICE, BEAUTY, DEFORMITY, &c. PLEASURE, PAIN, &c. RECTITUDE, EQUITY, CONSCIENCE, &c. LAW, OBLIGATION, &c. WILL, LIBERTY, ACTION, ASSENT, &c. NECESSITY, PROMOTION, PROVIDENCE, &c. Systems hereof; STOICS, PLATONISM, ACADEMY, CYNIC, and the like.

¹⁴ POLICY, or the consideration of *SOCIETY* and *GOVERNMENT*: its origin; in CONTRACT, &c. Constitutions and forms thereof; as, 1. MONARCHY, DESPOTISM, &c. Powers thereof; KING, QUEEN, PRINCE, DUKE, EMPEROR, SULTAN, SOPHY, CALIPH, CÆSAR, CZAR, YNCA, ETHNARCH, TETRARCH, DESPOT, and the like. Their TITLES and QUALITIES; MAJESTY, HIGHNESS, GRACE, EXCELLENCE, and the like. Their REGALIA; CROWN, SCEPTRE, TIARA, FACES, &c. 2. ARISTOCRACY, its powers; as ARCHON, DICTATOR, DOGE, SENATE, COUNCIL, &c. 3. DEMOCRACY, STATES GENERAL, STADTHOLDER, PROTECTOR, &c. Their SUCCESSION, ELECTIVE, HEREDITARY, by PRIMOGENITURE, &c. Their transactions; as PEACE, WAR, TREATY, UNION, CROISADE, &c. By ARMIES, FLEETS, EMBASSIES, SECRETARY, PLENIPOTENTIARY, ENVOY, LEGATE, NUNCIO, &c. Their TERRITORIES, EMPIRE, SIGNORY, &c. Their ESTATES, NOBLES, COMMONS, CLERGY, CENSUS, ENUMERATION, TRIBE, QUARTER, &c. PROVINCE, CIRCLE, COUNTY, CITY, TOWN, &c. Magistrature, CHANCELLOR, JUDGE, SHERIFF, JUSTICE, MAYOR, ALDERMAN, BAILIFF, CONSTABLE, INTERREX, CONSUL, PRÆTOR, CENSOR, VISIER, TRIBUNE, TRIUMVIR, PROVOST, EPHORI, ÆDILE, PREFECT, QUESTOR, PROCONSUL, VICEROY, LIEUTENANT, STEWARD, WARDEN, KEEPER, JURISCONSULTUS, PROCURATOR, ADVOCATE, BARRISTER, PROTHONOTARY, CUSTOS, PHILAZER, CHIROGRAPHER, USHER, CLERK, &c. Their jurisdiction; COURTS; as AREOPAGUS, COMITIA, &c. PARLIAMENT, DIET, DIVAN, CHAMBER, ASSIZE, PRIVY-COUNCIL, &c. CHANCERY, KING'S-BENCH, EXCHEQUER, ADMIRALTY, VERGE, SESSIONS, TURN, COUNTY COURT, LEET, EYRE, &c. TERMS, CIRCUITS, COMMISSIONS, OYER, CONVOCATION, ARCHES, PREROGATIVE, FACULTIES, DELEGATES, ROTA, INQUISITION, &c. Their REVENUES, TREASURY, FISC, EXCHEQUER, TALLY, POLITICAL ARITHMETIC, DUTIES, CUSTOMS, GABEL, EXCISE, &c. COINAGE, MONEY, INTEREST, USURY, &c. Their HOUSEHOLD, CHAMBER, GREEN-CLOTH, WARDROBE, &c. Under STEWARD, CHAMBERLAIN, COMPTROLLER, COFFERER, AGA, ODA, &c. GUARDS, ORDNANCE, &c. directed by CAPTAIN, MASTER, EQUERRY, &c. MILITIA, NAVY, POST, TIMARIOT, ARRIERE BAND, &c. DIGNITIES; DAUPHIN, ELECTOR, PALATINE, GRAVE, PALSgrave, THANE, EARL, COUNT, KNIGHT, GARTER, BARONET, BATH, TEUTONIC, MALTA, ELEPHANT, &c. GENTLEMAN, YEOMAN, &c. Their NAMES, SURNAMES, TITLES, PRECEDENCE, &c. FACTIONS, PATRICIAN, GUELPH, TORY, &c. CORPORATIONS, or lesser COMMUNITIES, UNIVERSITY, ACADEMY, COLLEGE, SOCIETY, CHAPTER, SCHOOL, HOSPITAL, INN, Public BUILDINGS; HALL, BASILICA, GUILDHALL, PRISON, TOWER, ARSENAL, LIBRARY, MUSEUM, CIRCUS, &c. Solemn CEREMONIES; as TRIUMPH, TOURNAMENT, CARROUSAL, QUADRIL, DONATIVE, MEDAL, TROPHY, MONUMENT, FUNERAL, TOMB, CATACOMB, &c.

¹⁵ LAW, or the rules and measures of *SOCIETY*; published in ACT, STATUTE, CHARTER, RESCRIPT, CONSTITUTION, DECRETAL, SENATUS-CONSULTUM, PRAGMATIC SANCTION, &c. Recorded in INSTITUTES, CODE, NOVEL, REGISTER, PANDECT, CORPUS, DOMESDAY, &c. Kinds; CIVIL, CANON, SUMPTUARY, respecting, 1. Persons; as the KING; his PREROGATIVE, ROYALTIES, &c. viz. Granting DISPENSATION, PARDON, COMMENDAM, EXEMPTION, DIGNITIES, FRANCHISES, FOREST, PARK, PURLIEU, VERT, CHASE, IMPOST, SUBSIDY, TOLL, TAX, AID, HIDAGE, SCUTAGE, PRISAGE, WAIF, ESTRAY, ESCHEAT, TREASURE TROVE, &c. OFFICERS and Magistrates; created by WRIT, WARRANT, COMMISSION, &c. Their OATH, TEST, DECLARATION, VISITATION, PROCURATION, &c. CORPORATIONS; REGULAR, SECULAR, &c. made by CHARTER, PATENT, &c. dissolved by Quo WARRANTO, MANDAMUS, &c. SUBJECTS; as DENIZEN, ALIEN, NATURALIZATION, HUSBAND, WIFE, MAR-

RIAGE, CONCUBINE, SEPARATION, ALIMONY, DOWER, AFFINITY, BASTARD, ADOPTION, EMANCIPATION, LORD, TENANT, VILLAIN, VASSAL, CLIENT, PATRON, SERVANT, SLAVE, RETAINER, MANUMISSION, ENFRANCHISING, &c. TENURE, SERVICE, HOMAGE, FEALTY, SERJEANTY, ESCUAGE, RELIEF, GUARDIAN, WARDSHIP, SOCAGE, HEIR, INTESTATE, ANCESTOR, &c. 2. ESTATES, or things; either real, as TENEMENTS, HEREDITAMENTS, FREEHOLD, FEE, CUSTOMARY, TAIL, GAVELKIND, COURTESY, &c. In REVERSION, MORTGAGE, HYPOTHECA, &c. MANOR, DEMESNE, HONOURS, COMMON, GLEBE, ADVOWSON, &c. Acquired by OCCUPANCY, PRESCRIPTION, DESCENT, CONVEYANCE, FEOFFMENT, FINE, RECOVERY, DEFEIZANCE, LEASE, DEVISE, ATTOURNMENT, INVESTITURE, LIVERY, &c. Lost by ALIENATION, MORTMAIN, DISSEISIN, ABATEMENT, SURRENDER, DISCONTINUANCE, DISCLAIMER, FORFEITURE, RESIGNATION, DEPRIVATION, LAPSE, &c. Or personal; as GOODS, CHATTELS, EMBLEMENTS, ANNUITY, DEBTS, SPECIALTY, RECOGNIZANCE, &c. Acquired by SUCCESSION, HERIOT, MORTUARY, HEIRLOOM, TESTAMENT, EXECUTOR, ADMINISTRATOR, ORDINARY, JUDGMENT, FIERI FACIAS, &c. 3. WRONGS or INJURIES; either to persons; as CRIMES, TREASON, PARRICIDE, MURDER, FELONY, ASSAULT, RAPE, ASSASSIN, ADULTERY, FORNICATION, DEFLORATION, POLYGAMY, HERESY, &c. Prosecuted by INDICTMENT, ACCUSATION, ACTIONS OF CONSPIRACY, and UPON THE CASE, HABEAS CORPUS, &c. Punished with HANGING, CRUCIFIXION, WHEEL, FURCA, SCALA, PILLORY, TRANSPORTATION, DIVORCE, SCAPHISM, &c. Or CIVIL, and to things; as TRESPASS, NUISANCE, DEFORCEMENT, &c. Remedied by WRITS of QUARE IMPEDIT, DARREIN PRESENTMENT, APPEAL, ATTEINT, ERROR, RIGHT, DISCEIT, SUPERSEDEAS, AUDITA QUERELA, &c. SUIT, or course of proceedings, whereby redress is procured; including, 1. PROCESS; either by BILL, SUMMONS, SUBPOENA, ATTACHMENT, CAPIAS, EXIGENT, &c. to which belong APPEARANCE, ATTORNEY, BAIL, ESSEIN, DEFAULT, NONSUIT, ARRAIGNMENT, &c. 2. PLEADING; whence COUNT, DECLARATION, AID Prier, VOUCHER, AGE Prier, BAR, ABATE, RELEASE, REPLICATION, OUTLAWRY, SEQUESTRATION, &c. 3. ISSUE; whence DEMURRER. 4. TRIAL; whence PROOF, EVIDENCE, PRESUMPTION, OATH, AFFIDAVIT, AFFIRMATION, JURY, CHALLENGE, ARRAY, VERDICT, BATTEL, DUEL, CHAMPION, PURGATION, ORDEAL, &c. PAINÉ FORT ET DURE, RACK, TORTURE, &c. 5. JUDGMENT; whence ARREST, &c. 6. EXECUTION; whence SCIRE FACIAS, REPRIEVE, &c.

¹⁶ THEOLOGY, or the consideration of *GOD*: his nature and ATTRIBUTES; as ETERNITY, UBIQUITY, &c. His UNITY, TRINITY, &c. PERSONS, HYPOSTASIS, &c. Our duty to him discovered by INSPIRATION, REVELATION, PROPHECY, &c. by the MESSIAH, EVANGELISTS, APOSTLES, &c. In the BIBLE, PENTATEUCH, HAGIOGRAPHIA, PSALTER, GOSPEL, APOCALYPSE, &c. CANON, DEUTEROCANONICAL, APOCRYPHA, &c. Circumstances thereof; STYLE, ALLEGORY, TYPE, PARABLE, MYSTICAL, &c. TEXT, VERSION, SEPTUAGINT, VULGATE, &c. PARAPHRASE, TARGUM, &c. POINTS, QUOTATIONS, &c. Matter thereof; Declarations, of INCARNATION, PASSION, CRUCIFIXION, MIRACLES, &c. Injunctions; as WORSHIP, PRAYER, SACRIFICE, &c. SACRAMENTS, as EUCHARIST, BAPTISM, &c. PROMISES; as GRACE, JUSTIFICATION, &c. DECREES; as PREDESTINATION, ELECTION, REPROBATION, &c. Breaches on our part; SIN, FALL, IMPUTATION, &c. Remedies thereof; by PENITENCE, CONFESSION, &c. Rewards and punishments allotted thereto; HEAVEN, HELL, RESURRECTION, IMMORTALITY, &c. His MINISTERS; ANGELS, DEVIL, &c. His CHURCH; either TRIUMPHANT; as SAINTS, MARTYRS, CONFESSORS, FATHERS, DOCTORS, &c. or MILITANT, &c. Its OFFICES, CREED, LITURGY, DECALOGUE, DOXOLOGY, TRISAGION, &c. Discipline and rites; as ABSOLUTION, ANATHEMA, EXCOMMUNICATION, &c. CATECHUMEN, CONFIRMATION, GENUFLEXION, &c. Its HIERARCHY; as BISHOP, PRIEST, DEACON, &c. PATRIARCH, ARCHBISHOP, PRIMATE, DEAN, CANON, PREBEND, ARCHDEACON, CHANTER, &c. Their ensigns; MITRE, CROSIER, PALLIUM, &c. Their ORDINATION,

P R E F A C E.

nothing of the interruptions which may frequently happen in the series of references. To obviate this, we have taken a middle course, and carried on the distribution farther, in the way of *notes* at the bottom

tion, consecration, collation, imposition, &c. BENEFICES, REVENUES, TITHES, &c. Places set apart; as CHURCH, CHAPEL, ORATORY, &c. CATHEDRAL, PAROCHIAL, CARDINAL, &c. CHOIR, NAVE, ALTAR, FONT, &c. DIOCESE, PROVINCE, &c. ASSEMBLIES; as SYNOD, COUNCIL, CONVOCATION, CONSISTORY, CHAPTER, PRESBYTER, &c. FEASTS, FASTS, LENT, VIGILS, &c. EASTER, EPIPHANY, PENTECOST, ANNUNCIATION, PURIFICATION, PRESENTATION, &c. Particular SYSTEMS, or professions thereof; viz. REFORMED, or PROTESTANT, as the CHURCH OF ENGLAND, LUTHERANISM, CALVINISM, &c. Romish, or LATIN; its MASS, BREVIARY, LEGEND, &c. TRANSUBSTANTIATION, EXTREME UNCTION, SUPEREROGATION, PENANCE, &c. HIERARCHY; POPE, CARDINAL, &c. SECULAR, REGULAR, MONK, RELIGIOUS, ABBOT, PRIOR, &c. ORDER, CONGREGATION, MONASTERY, GENERAL, &c. JESUIT, CARTHUSIAN, CARMELITE, AUGUSTINE, DOMINICAN, &c. THIRD order; COENOBITE, ANACHORET, HERMIT, RECLUSE, MONASTERY, CELL, RULE, VOW, REFORM, NOVICIATE, &c. IMAGE, RELICS, SAINT, VIRGIN, ROSARY, &c. CANONIZATION, BEATIFICATION, &c. INDULGENCE, JUBILEE, EXORCISM, &c. GREEK; its ANTHOLOGION, PROTHESIS, PARTICLES, &c. MARONITE, JACOBITE, THOMÆAN, &c. ARMENIAN, COPHTI, SOLITARY, &c. SECTS, and HERESIES; as MANICHEES, GNOSTICS, ARIANS, &c. EBIONITES, NESTORIANS, MILLENNARIES, QUARTODECIMANS, &c. MONTANISTS, SOCINIANS, ARMINIANS, &c. PRESBYTERIANS, ANABAPTISTS, INDEPENDENTS, QUAKERS, &c. QUIETISTS, SERVETISTS, PRE-ADAMITES, &c. DEIST, ATHEIST, SPINOSISM, &c. Jewish; its TALMUD, TRADITION, &c. TEMPLE, TABERNACLE, SANCTUARY, ARK, &c. PONTIFF, LEVITE, TRIBE, &c. EPHOD, THERAPHIM, CIRCUMCISION, SABBATH, SANHEDRIN, &c. RABBIN, DOCTOR, CABBALA, MASSORA, &c. PHARISEE, SADDUCEE, ESSEAN, CARAITES, &c. NAZARITE, THERAPEUTA, &c. SAMARITAN, DOSITHEAN, HELLENIST, &c. PASSOVER, SCENOPEGIA, GEHENNA, &c. MAHOMETAN; their AL-CORAN, MUFTI, DERVIS, MOSQUE, MUSSULMAN, &c. Heathen; their IDOLATRY, THEOGONY, &c. Their GODS; PENATES, LARES, LEMURES, &c. SATYRS, SYLVANS, NYMPHS, TRITONS, &c. DEMI-GOD, HERO, FORTUNE, DESTINY, DEMON, GENIUS, &c. APOTHEOSIS, SACRIFICE, &c. FEAST, LUSTRATION, &c. as ELEUSINIA, SATURNALIA, CEREALIA, &c. Ministers thereof; REX, PONTIFEX, FLAMEN, VESTAL, CORYBANTES, &c. GAMES; OLYMPIC, ISTH-MIA, &c. DIVINATION, ORACLE, PYTHIAN, SIBYL, &c. AUGUR, AUSPEX, &c. TEMPLE, FANE, PAGOD, &c. SECTS; as BANIAN, BRACHMAN, SAKYAS, &c.

¹⁷ LOGICS, or the consideration of *IDEAS* or *NOTIONS*: their kinds; SIMPLE, COMPLEX, ADEQUATE, &c. Disposition into classes or CATEGORIES, PREDICAMENTS, PREDICATES, &c. Their composition, or association into AXIOMS, PROPOSITIONS, PROBLEMS, THEOREMS, THESES, HYPOTHESES, ARGUMENTS; as SYLLOGISM, ENTHYMEME, SORITES, SOPHISM, DILEMMA, CROCODILUS, &c. Their RESOLUTION; DEFINITION, DIVISION, &c. into PREMISES, CONSEQUENCES, TERMS, &c. Their TRUTH, FALSHOOD, EVIDENCE, DEMONSTRATION, &c. Operations therewith; as ARGUMENTATION, INDUCTION, DISCOURSING, PHILOSOPHIZING, &c. DISPUTATION, DISTINCTION, CONTRADICTION, REDUCTIO AD ABSURDUM, &c.

¹⁸ CHEMISTRY, including the use of *FIRE*, *WATER*, *BATHS*, *FERMENTS*, *MENSTRUUMS*, *FURNACES*, *RETORTS*, and other instruments; to change ANIMAL, VEGETABLE, and FOSSILE bodies, by inducing FUSION, PUTREFACTION, FERMENTATION, DISSOLUTION, EXHALATION, &c. and hereby procuring SPIRITS, SALTS, OILS, ACID, ALCALINE, AROMATIC, URINOUS, WINES, VINEGARS, FLOWERS, CALCES, CRYSTALS, SOAPS, TARTARS, REGULUS, MAGISTERY, EXTRACT, ELIXIR, CERUSS, MINIUM, LITHARGE, QUINTESSENCE, PHOSPHORUS, ALCHEMIST, PHILOSOPHER'S STONE, and the like; by the operations of DISTILLATION, EXPRESSION, COHOBATION, SUBLIMATION, RECTIFICATION, CRYSTALLIZATION, CALCINATION, AMALGAMATION, DIGESTION, PRECIPITATION, VITRIFICATION, FIXATION, TRANSMUTATION, and the

like. ARBOR DIANA, AURUM FULMINANS, artificial EARTHQUAKE, MAGIC, DIVINATION, &c.

¹⁹ OPTICS, including the laws and consideration of *VISION*, and *VISIBLE OBJECTS*; effected by means of *LIGHT*: its *RAYS*; their *REFRANGIBILITY*, *REFLEXIBILITY*, &c. *FOCUS*, *TRANSPARENCY*, *OPACITY*, *SHADOW*, &c. *REFLECTION* thereof, in *MIRROR*, *LOOKING-GLASS*, *CATOPTRIC*, *CISTULA*, &c. *REFRACTION*, in *LENS*, *PRISM*, *GLASS*, &c. Application, in *TELESCOPE*, *MICROSCOPE*, *MAGIC LANTERN*, &c. *SPECTACLE*, *POLESCOPE*, *POLYHEDRON*, *CAMERA OBSCURA*, &c.

²⁰ PERSPECTIVE, or the projection of *POINTS*, *LINES*, *PLANES*, &c. in *SCENOGRAPHY*, *ORTHOGRAPHY*, *ICHOGRAPHY*, *ANAMORPHOSIS*, &c.

²¹ PAINTING, or the *DESIGNING* of objects in *CLAIR-OBSCURE*, *PROPORTION*, &c. with *ORDONNANCE*, *EXPRESSION*, &c. Circumstances hereof, *ATTITUDE*, *CONTRAST*, *GROUP*, &c. Kinds; *LIMNING*, *MINIATURE*, *CAMIEUX*, *FRESCO*, &c. *ENAMELLING*, *MOSAIC*, &c.

²² PHONICS, or the doctrine of *SOUNDS*, *VOICE*, &c. Their modifications, in *ECHO*, *RESONANCE*, *WHISPERING PLACE*, *SPEAKING TRUMPET*, &c. Their *TUNE*, *GRAVITY*, *INTERVAL*, &c. *TIME*, *TRIPLE*, &c. expressed by *NOTE*, *CHORD*, &c. Comparisons thereof; *CONCORD*, as *UNISON*, *OCTAVE*, *THIRD*, *FOURTH*, *DISCORD*, &c. *COMPOSITION*; as *MELODY*, *HARMONY*, *COUNTERPOINT*, *SYMPHONY*, *SYNAULIA*, *CHIME*, *SONG*, *RHYTHMUS*, &c. Kinds; *GENUS*, *MODE*, &c. Circumstances; *KEY*, *CLEFF*, *SIGNATURE*, *TRANSPOSITION*, &c. *STAFF*, *SCALE*, *GAMMUT*, *SOLFAING*, *MODULATION*, &c. Instruments; *ORGAN*, *BELL*, *TRUMPET*, *LYRE*, *CYMBAL*, *VIOLIN*, *HARPSICORD*, &c.

²³ HYDROSTATICS, or the consideration of *FLUIDS*; their *SPECIFIC GRAVITY*, *DENSITY*, *EQUILIBRIUM*, &c. Instruments to measure the same; as *AREOMETER*, *HYDROSTATICAL BALANCE*, &c. *SIPHON*, *TORRICELLIAN*, &c. Motion thereof; in *PUMP*, *FOUNTAIN*, *SPIRAL SCREW*, *HYDROCANISTERIUM*, *HYDROMANTIC*, &c.

²⁴ PNEUMATICS, or the consideration of the *AIR*; its *WEIGHT*, *DENSITY*, *PRESSURE*, *ELASTICITY*, &c. *CONDENSATION*, *RAREFACTION*, *MOTION*, *WIND*, &c. in *AIR PUMP*, *SUCTION*, *VACUUM*, &c. Measured by *BAROMETER*, *THERMOMETER*, *HYGROMETER*, *MANOMETER*, &c. *ANEMOMETER*, *WINDMILL*, &c.

²⁵ MECHANICS, including the structure and contrivance of *MACHINES*; as *BALANCE*, *STEELYARD*, *PULLY*, *POLYPAST*, &c. *WHEEL*, *CLOCK*, *WATCH*, *PENDULUM*, *SPRING*, *FUSEE*, &c. *CLEPSYDRA*, *COACH*, *ROTA ARISTOTELICA*, *PERPETUAL MOTION*, &c. *MILL*, *PRESS*, *VICE*, *LATHE*, *LOOM*, *WINDLASS*, &c. Operations of *SWIMMING*, *DIVING*, *FLYING*, &c.

²⁶ ARCHITECTURE, including the construction of *BUILDINGS*; as *HOUSE*, *TEMPLE*, *CHURCH*, *HALL*, *PALACE*, *THEATRE*, &c. *SHIP*, *GALLY*, *GALLEON*, *ARK*, *BUCENTAURO*, *BOAT*, &c. *PYRAMID*, *MAUSOLEUM*, *PANTHEON*, &c. *CAPITOL*, *SERAGLIO*, *ESCURIAL*, &c. *ARCH*, *VAULT*, *BRIDGE*, *MONUMENT*, *TOMB*, &c. Forms thereof; *ROTUNDO*, *PLAT-FORM*, *PINNACLE*, &c. *PLANS*, *DESIGN*, *ICHOGRAPHY*, *PROFILE*, &c. Parts; as *FOUNDATION*, *WALL*, *ROOF*, &c. *DOOR*, *WINDOW*, *STAIRS*, *CHIMNEY*, &c. *ORDERS*; as *TUSCAN*, *DORIC*, *CORINTHIAN*, &c. *CARYATIDES*, *RUSTIC*, *GOTHIC*, &c. *COLUMN*; *PILASTER*, *ATTIC*, &c. Parts thereof; *ENTABLATURE*, *CAPITAL*, *PEDESTAL*, &c. *CORNICE*, *FRIEZE*, *BASE*, &c. *VOLUTE*, *PEDIMENT*, *MODILLION*, *CONSOLE*, &c. *MOULDINGS*; *OGEE*, *TORSE*, *ASTRAGAL*, *SCOTIA*, *ABACUS*, *OVOLO*, &c. Materials; as *BRICK*, *STONE*, *TYLE*, *SLATE*, *SHINGLE*, &c. *TIMBER*, *WAINSCOT*, *GLASS*, *LEAD*, *PLASTER*, &c. *BEAM*, *RAFTER*, *MORTAR*, *NAIL*, *HINGE*, *KEY*, *LOCK*, &c. *QUARRY*, *MASONRY*, &c.

²⁷ SCULPTURE, or the framing of *STATUE*, *FIGURE*, *ORNAMENT*, &c. in *RELIEVO*, *CREUX*, &c. as *CARVING*,

tom of the pages ; but this is in a looser manner, to prevent the embarrass of a strict analysis, so complex and diffusive as this must otherwise prove. Some of the principal articles in every branch of science

CARVING, POTTERY, PORCELAIN, &c. ENGRAVING ; SEAL, DYE, &c. ETCHING, CUTTING, MEZZOTINTO, &c. FOUNDERY ; of BELL, LETTER, ORDNANCE, &c. COINING ; MONEY, MEDAL, MEDALLION, &c. PILE, LEGEND, &c. LAPIDARY, TURNING, INLAYING, VANEERING, DAMASQUEENING, ENCHASING, &c.

²⁸ TRADES and MANUFACTURES ; as PRINTING, PAPER-MAKING, BOOK-BINDING, &c. GILDING, JAPANING, GLASS-MAKING, GRINDING, &c. PLUMBERY, FORGING, HAMMERING, &c. WEAVING, BLEACHING, WHITENING, &c. FULLING, DYING, PRESSING, SHEERING, CALENDERRING, TABBYING, FRIEZING, &c. WOOLLEN, SILK, LINUM INCOMBUSTIBLE, &c. CLOTH, SERGE, TAFFETY, STOCKING, &c. VELVET, TAPESTRY, HAT, &c. TANNING, CURRYING, TAWING, &c. SHAMOISING, SHAGREEN, MOROCCO, &c. Making PARCHMENT, GLUE, GUNPOWDER, SMALT, SOAP, STARCH, &c. CANDLE, TAPER, TORCH, &c. STEEL, BUTTON, PIN, NEEDLE, PIPE, FAN, PERUKE, &c.

²⁹ PYROTECHNY, or ARTIFICIAL FIRE-WORKS ; including the consideration and use of GUNPOWDER, MATCH, FUSEE, &c. Of ORDNANCE, CANNON, GUN, MORTAR, &c. CARRIAGE, CHARGE, PROJECTION, RANGE, POINT-BLANK, RECOIL, &c. PETARD, CARCASS, SHOT, BOMB, GRANADO, &c. ROCKET, STAR, &c.

³⁰ MILITARY ARTS, including the consideration of ARMIES, FLEETS, CAVALRY, INFANTRY, &c. consisting of REGIMENTS, TROOPS, COMPANIES, PHALANX, LEGION, &c. SOLDIERS ; DRAGOON, GRENA-DIER, FUSILEER, CUIRASSIER, ARCHER, JANISSARY, SPAHI, VELITES, ARGYRASPIDES, GEND'ARMERY, &c. Divided into SQUADRON, BATTALION, BRIGADE, &c. commanded by GENERAL, MARSHALL, BASHAW, ADMIRAL, &c. LIEUTENANT, BRIGADIER, COLONEL, CAPTAIN, SERJEANT, MAJOR, ADJUTANT, ENSIGN, QUARTERMASTER, TRIBUNE, CENTURION, PRIMIPILUS, &c. in BATTLE, SIEGE, MARCH, CAMP, &c. Ranged in LINE, COLUMN, &c. Motions ; ATTACK, RETREAT, HALT, &c. EVOLUTIONS ; WHEELING, COUNTER-WHEELING, &c. SIGNALS ; WORD, DRUM, CHAMADE, &c. GUARDS ; GARRISON, PIQUET, PATROL, ROUND, QUARTER, PLACE OF ARMS, &c. STANDARD, BANNER, EAGLE, LABARUM, &c. Their ARMS ; ARTILLERY, CARABINE, MUSQUET, &c. HELMET, BUCKLER, PELTA, CUIRASS, &c. ARIES, BALISTA, CATAPULTA, SLING, &c.

³¹ FORTIFICATION, or the construction of FORTRESSES ; as CITADEL, CASTLE, TOWER, &c. FORT, STAR, REDOUBT, &c. WORKS, or parts thereof ; RAMPART, BASTION, DITCH, COUNTERSCARP, CURTIN, &c. RAVELINE, HORN-WORK, CROWN-WORK, &c. APPROACHES : TRENCH, SAP, MINE, &c. LINE, PARALLEL, CIRCUMVALLATION, &c. BATTERY, ATTACK, &c.

³² ASTRONOMY, or the doctrine of the HEAVENS ; their CIRCLES, ECLIPTIC, ZODIAC, MERIDIAN, EQUATOR, VERTICAL, AZIMUTH, GALAXY, &c. POINTS ; as POLE, ZENITH, NADIR, &c. Celestial bodies, viz. STARS, SUN, &c. Assemblage thereof ; into SIGN, CONSTELLATION, &c. Their PRECESSION, CULMINATION, REFRACTION, DECLINATION, ASCENSION, LONGITUDE, LATITUDE, ALTITUDE, AMPLITUDE, AZIMUTH ; PLANETS ; as SATURN, VENUS, EARTH, MOON, SATELLITE, COMET, &c. Their PLACES, ASPECTS, SYZYG, CONJUNCTION, QUADRATURE, DIAMETER, DISTANCE, PERIOD, REVOLUTION, ORBIT, NODE, &c. Their STATION, RETROGRADATION, EQUATION, &c. Their PHASES, ECLIPSE, PENUMBRA, OCCULTATION, PARALLAX, CREPUSCULUM, MACULÆ, &c. Observations thereof ; taken with the QUADRANT, GNOMON, MICROMETER, RETICULA, &c. Collected in CATALOGUE, TABLES, &c. HYPOTHESES, or SYSTEMS thereof ; COPERNICAN, TYCHONIC, PTOLEMAIC, &c. Exhibited in SPHERE, GLOBE, &c.

³³ CHRONOLOGY, or the doctrine of TIME ; measured by YEAR, MONTH, WEEK, DAY, HOUR, AGE, PERIOD, CYCLE, &c. Commencing from EPOCHA, INCARNATION, HEGIRA, &c. Laid down in FASTI, AL-

MANACK, CALENDAR, JULIAN, GREGORIAN, &c. Accommodated to FEASTS, FERIÆ, EASTER, &c. by means of EPACT ; GOLDEN NUMBER, DOMINICAL, &c.

³⁴ DIALLING, including the FURNITURE, and projection of DIALS ; HORIZONTAL, DECLINING, RECLINING, DEINCLINING, &c. MOON-DIAL, RING-DIAL, HORODICTICAL, &c. Instruments ; as DECLINATOR, ANALEMMA, SCALES, &c.

³⁵ GEOGRAPHY, including the doctrine of the EARTH, or GLOBE : its CIRCLES, PARALLELS, TROPIC, HORIZON, AXIS, POLES, &c. Its ZONES, CLIMATES, &c. Its PLACES ; their LONGITUDE, LATITUDE, DISTANCE, ELEVATION, &c. Inhabitants ; ANTIPODES ABORIGINES, TROGLODYTES, ASCII, PERISCII, &c. Instruments relating thereto ; GLOBE, MAP, &c.

³⁶ NAVIGATION, or the consideration of SAILING ; in SHIP, FRIGATE, BARK, &c. Parts thereof ; MAST, ANCHOR, SAILS, YARDS, CORDAGE, CAPSTAN, RUDDER, DECK, &c. Their COURSE, RHUMB, &c. shewn by COMPASS, NEEDLE, VARIATION, &c. Directed by STEERING, CURRENT, &c. Distance, or RECKONING, by LOG, OBSERVATION, LONGITUDE, LATITUDE, &c. Taken by FORESTAFF, BACKSTAFF, ASTROLABE, NOCTURNAL, SINICAL QUADRANT, &c. Wrought by GUNTER, CHART, MERCATOR, TRAVERSE, &c. The operations of SOUNDING, WEIGHING, CAREENING, SIGNALS ; BUOY, &c.

³⁷ COMMERCE, or the affairs of MERCHANTIZE ; including MONEY, COIN, SPECIES, &c. as POUND, CROWN, SHILLING, PENNY, STERLING, DUCAT, DOLLAR, PIECE OF EIGHT, TALENT, SESTERCE, SHEKEL, and the like. WEIGHTS, LIBRA, OUNCE, &c. MEASURES ; FOOT, YARD, STANDARD, &c. Given in EXCHANGE, TRUCK, PERMUTATION, COMMUTATION, &c. for MANUFACTURE, SPICE, DRUG, WOOLLEN, SLAVE, NEGRO, &c. IMPORTED, EXPORTED, TRANSPORTED, CONVOY, FLOTA, &c. Conditions thereof ; TARIFF, CONTRABAND, CHARTER-PARTY, FREIGHT, AVERAGE, &c. CUSTOMS, DUTY, TONNAGE, POUNDAGE, &c. BOTTOMRY, PIKE, &c. Transacted by COMPANY ; as HANS, STEELYARD, EAST INDIA, TURKEY, HAMBURGH, MISSISSIPPI, SOUTH SEA, ASSIENTO, REGISTER, COLONY, FISHERY, FACTORY, &c. At STAPLE, FAIR, MARKET, BANK, EXCHANGE, &c. By COMMISSION, FACTOR, BROKER, &c. WEIGHING, paying by BILL ; at USANCE, ACCEPTANCE, PAR, PROTEST, DISCOUNT, RECHANGE, &c. ACTION, SUBSCRIPTION, BOOK-KEEPING, &c.

³⁸ ANATOMY, or the ANALYSIS of ANIMAL BODIES, and their PARTS, viz. BONES ; as CRANIUM, RIB, VERTEBRA, RADIUS, FEMUR, TIBIA, SACRUM, PUBIS, PATELLA, &c. Their ARTICULATION, APOPHYSES, &c. MUSCLES, ABDUCTOR, ADDUCTOR, ERECTOR, DEPRESSOR, DELTOIDES, SARTORIUS, CUCULLARIS, ORBICULARIS, SPHINCTER, &c. Their TENDONS, FIBRES, &c. VESSELS ; as ARTERY, AORTA, ASPERA, TRACHEA, PULMONARY, &c. VEINS ; as CAVA, PORTA, JUGULAR, CAROTID, &c. GLANDS ; as PANCREAS, PAROTIDES, PROSTATES, &c. NERVES ; OPTIC, OLFATORY, AUDITORY, &c. LYMPHATIC, LACTEAL, MESARAIC, MUCILAGINOUS, &c. Their VALVES, TUNICS, ANASTOMASES, &c. Their HUMOURS ; as CHYLE, BLOOD, SPIRIT, SEED, GALL, URINE, MILK, SWEAT, MARROW, &c. MEMBRANES ; PANNICLE, CUTIS, CUTICULA, PAPILLA, &c. VENTERS, HEAD, MENINGES, BRAIN, &c. EYE, EAR, PUPIL, TYMPANUM, TONGUE, TOOTH, PALATE, LARYNX, GLOTTIS, OESOPHAGUS, &c. VISCERA, STOMACH, LUNGS, HEART, &c. LIVER, SPLEEN, KIDNEY, INTESTINES, BLADDER, &c. FUNCTIONS or operations hereof ; RESPIRATION, DEGLUTITION, DIGESTION, CHYLIFICATION, SANGUIFICATION, CIRCULATION, SYSTOLE, NUTRITION, SECRETION, EXCRETION, PERSPIRATION, VOMITING, &c. GENITALS ; PENIS, TESTICLES, CLITORIS, MATRIX, NYMPHA, HYMEN, EMBRYO, ZOOPHYTE, MOLE, &c. ERECTION, GENERATION, CONCEPTION, GESTATION, DELIVERY, LOCHIA, MENSES, &c.

³⁹ MEDICINE, including the consideration of LIFE and HEALTH : conditions thereof ; LONGEVITY, STRENGTH,

ence, are hereby brought to light, and such as will naturally suggest and lead to the rest; so that this may afford the reader a sort of *summary* of the whole; and, at the same time, dispense a kind of auxiliary, or succedaneous order throughout the whole; the articles omitted all naturally enough ranging themselves in their proper places among these. A detail of this kind is of the more consequence, as it may not only supply the office of a *table of contents*, by presenting the dispersed materials of the book in one view; but also that of a rubric, or directory, by indicating the order they are most advantageously read in. Note, then, that the initial words of the *notes* correspond to the final ones of the *analysis*; and that their several members, or items of both, make so many heads or articles in the book.

I might here have ended my preface; and perhaps the reader would be willing enough to be thus dismissed. But something has been already started, which will require farther disquisition. The distribution we have made of knowledge is founded on this; that the several branches thereof commence either Art or Science, according to the agency or non-agency of the human mind, in respect thereof. It remains to take the matter up a little higher, and explain the reason and manner of this operation: to consider knowledge in its principles, antecedent to such intervention of ours; and even pursue it up to its cause, and shew how it exists there: and trace the progress of the mind through the whole, and the order of the modifications induced by it. This is a desideratum which we could not here decline entering upon, on account of its immediate relation to the present design. It is the basis of all learning in general; the great, but obscure hinge, on which the whole Encyclopædia turns.

TO be more explicit:—Words are the immediate matter of knowledge; I mean of knowledge considered as communicable; or capable of being transmitted from one to another. We should have known many things without language; but it would only have been such as we had seen or perceived ourselves. The observations of others could no way have been added to our own; but every individual must have

STRENGTH, TEMPERAMENT, &c. Means; as FOOD, DRINK, EXERCISE, &c. Opposites; as DEATH, DISEASE, &c. Kinds hereof; CHRONIC, EPIDEMIC, CONTAGIOUS, &c. as PLAGUE, FEVER, GOUT, APOPLEXY, EPILEPSY, PALSY, POX, POLYPUS, PALPITATION, MANIA, HYDROPHOBIA, SPASM, HYPOCHONDRIAC, PHTHISIS, SCORBUTUS, DROPSY, TYMPANITES, LEPROA, ITCH, PLICA, OPHTHALMIA, GUTTA, CATARACT, and the like. WOUND, ULCER, CANCER, FRACTURE, FISSURE, CARIES, and the like. SYMPTOMS; SIGN, DIAGNOSTIC, PULSE, URINE, &c. PRESCRIPTION, CRISIS, CURE, &c. REGIMEN, DIET, MEDICINE, &c. Kinds hereof; SPECIFIC, PURGATIVE, EMETIC, DIAPHORETIC, DIURETIC, ALTERATIVE, STYPTIC, ASTRINGENT, EMOLLIENT, OPIATE, ABSORBENT, CAUSTIC, ANODYNE, SYMPATHETIC, CARDIAC, CEPHALIC, FEBRIFUGE, ANTIMONIAL, CHALYBEAT, MERCURIAL, and the like. OPERATIONS; as EVACUATION, PHLEBOTOMY, SUTURE, LITHOTOMY, AMPUTATION, INOCULATION, SALIVATION, COUCHING, CUPPING, TREPPANNING, TOUCHING, PARACENTESIS, STROAKING, TRANSFUSION, CASTRATION, CIRCUMCISION, and the like.

⁴⁰ PHARMACY, or the PREPARATION and COMPOSITION of *REMEDIES*; as MITHRIDATE, TREACLE, HIERA PICRA, LAUDANUM, DIASENNA, TURBITH, CALOMEL, &c. in the form of ELECTARY, CONFECTION, EXTRACT, TINCTURE, SYRUP, TROCHE, PILL, POWDER, LOHOC, POTION, APOZEM, DROPS, medicated ALES, WINES, WATERS, UNGUENT, EMPLASTER, PURGE, CLYSTER, SUPPOSITORY, PESSARY, COLLYRIUM, &c. From DRUGS, or SIMPLES; as GUAIACUM, SASSAFRAS, COLOCYNTHIS, CROCUS, RHUBARB, CASSIA, SENNA, CORTEX, STYRAX, JALAP, SCAMMONY, OPIUM, &c. FATS, CLAWS, HORNS, &c. of VIPER, CRAB, ELK, &c. CANTHARIDES, MILLEPEDES, MUMMY, USNEA, ICHTHYOCOLLA, &c. ANTIMONY, ORPIMENT, ASPHALTUS, BISMUTH, MARCASITE, BOLE, CINNABAR, MARS, VENUS, &c.

⁴¹ AGRICULTURE, or the TILLAGE and improvement of *SOILS*, CLAY, SAND, EARTH, &c. by the operations of PLOWING, FALLOWING, BURNING, SEMBRADORE, SEMINATION, MANURING, &c. To produce CORN, HEMP, FLAX, LIQUORICE, SAFFRON, &c. For MALT, FARINA, &c. GRANARY, THRESHING, &c. The culture of TREES, TIMBER, &c. by PLANTING, SHROWDING, BARKING, &c. For COPPICE, PARK, Paddock, HEDGE, PASTURE, &c.

⁴² GARDENING, including the culture of *HERBS*, FLOWERS, FRUITS, &c. as DWARF, STANDARD, WALL, ESPALIER, SALET, &c. The operations of PLANTING, TRANSPLANTING, REPLANTING, WATERING, ENGRAFTING, INOCULATING, PRUNING, PINCHING, VARIEGATING, &c. Preventing DISEASES, BLIGHTS, GUM, &c. The Use and ordering of a HOT-BED, GREEN-HOUSE, NURSERY, GARDEN, VINEYARD, &c. Their EXPOSURE, WALLS, HORIZONTAL SHELTER, &c. WALKS, GRASS-PLOT, TERRACE, QUINCUNX, PARTERRE, &c.

⁴³ MANEGE, including the consideration of *HORSES*; their AGE, COLOUR, TOOTH, HOOF, STAR, &c.

PACES; as AMBLE, GALLOP, &c. AIRS; as VOLTE, DEMIVOLTE, CURVET, CAPRIOLE, &c. AID, CORRECTION, HAND, BIT, &c. SADDLE, SHOE, BRIDLE, &c. DISEASES; as HALTING, FARCY, STAGGERS, SCRATCHES, YELLOWS, &c. Operations; as ROWELLING, CURTAILING, GELDING, &c. HAWK, HAWKING, HOOD, &c. RECLAIMING, CASTING, &c. PIP, FILANDERS, &c. HOUND, HUNTING, &c. RUT, STALKING, BIRDLIME, TRAMMEL-NET, BAT-FOWLING, &c. FISH, FISHING, FISHERY, &c. ANGLING, HOOK, ROD, FLOAT, &c. BAIT, FLYING, HUXING, &c.

⁴⁴ GRAMMAR, or the consideration of *LANGUAGE*: as ENGLISH, LATIN, GREEK, HEBREW, FRENCH, &c. Their DIALECT, IDIOM, PATAVINITY, &c. Matter thereof; LETTER, VOWEL, CONSONANT, DIPHTHONG, ASPIRATE, CHARACTER, SYMBOL, HIEROGLYPHIC, &c. SYLLABLE, PARTICLE, &c. WORDS; kinds thereof; NOUN, PRONOUN, VERB, &c. SUBSTANTIVE, ADJECTIVE, &c. Their CONSTRUCTION, CONCORD, REGIMEN, &c. In CASE; NOMINATIVE, GENITIVE, &c. GENDER; MASCULINE, &c. NUMBER, PERSON, MOOD, TENSE, &c. Into SENTENCE, PHRASE, PERIOD, &c. Distinguished by POINT, ACCENT, COMMA, &c. Delivered by PRONUNCIATION, WRITING, ORTHOGRAPHY, &c.

⁴⁵ HERALDRY, or the consideration of *COATS*; consisting of FIELD, CHARGE, FIGURE, &c. as CROSS, CHEVRON, BEND, PALE, &c. with ABATEMENT, DIFFERENCE, QUARTERING, &c. Composed of COLOUR, METALS, POINTS, &c. Borne on ESCUTCHEON, SHIELD, &c. Accompanied with SUPPORTERS, HELMET, CREST, MANTLING, MOTTO, &c. DEVICE, EMBLEM, REBUS, ENIGMA, &c. And described by BLAZON.

⁴⁶ RHETORIC, or the means of *PERSUASION*; as INVENTION, AMPLIFICATION, TOPIC, PLACE, ARGUMENT, PASSIONS, MANNERS, &c. DISPOSITION, EXORDIUM, NARRATION, CONFIRMATION, PERORATION, &c. ELOCUTION, SUBLIME, STYLE, NUMBERS, &c. FIGURES; as EXCLAMATION, PLEONASM, EPIPHONEMA, APOSTROPHE, PROSOPOPOEIA, ANTI-THESIS, &c. TROPES; as METAPHOR, ALLEGORY, SYNECDOCHE, SARCASM, HYPERBOLE, CATACHRESIS, &c. ACTION, GESTURE, MONOTONIA, &c. COMPOSITIONS; as ORATION, DECLAMATION, PANEGYRIC, &c. PARABLE, ESSAY, DIALOGUE, HISTORY, &c.

⁴⁷ POETRY; including the consideration of *VERSE*; its MEASURE, FEET, QUANTITY, &c. as HEXAMETER, ALEXANDRINE, SPONDEE, IAMBIC, &c. RHYME, STANZA, &c. COMPOSITIONS; as EPIGRAM, ELEGY, SONG, MADRIGAL, HYMN, ODE, PINDARIC, &c. ECLOGUE, SATIRE, GEORGIC, &c. ANAGRAM, ACROSTIC, BURLESQUE, MACARONIC, LEONINE, TROUBADOUR, &c. DRAMATIC; as TRAGEDY, COMEDY, HILARO-TRAGOEDIA, FARCE, &c. Parts thereof; ACT, SCENE, PROTASIS, EPITASIS, CATASTROPHE, &c. Circumstances; PROLOGUE, EPILOGUE, SOLILOQUY, CHORUS, &c. LAWS; UNITY, ACTION, &c. EPIC; its FABLE, HERO, MACHINES, &c. CHARACTERS, MANNERS, SENTIMENTS, &c. PERSONIFICATION, PROPOSITION, INVOCATION, EPISODE, &c. ILIAD, ODYSSEE, RHAPSODY, &c.

gone through a course for himself, without any assistance either from predecessors, or contemporaries. It is evident, that, in this case, nothing like an art or science could ever have arisen: the little system of things, which come immediately in one man's way, would but have afforded a slender stock of knowledge; especially to a being whose views were all to terminate in himself. Add, that as the chief occasions of his observation would have been of the same kind with those of other animals; it is probable his knowledge would not have been very different, whether we consider its quantity or quality. It is confessed, that all our knowledge, in its origin, is no other than sense; whence it should follow, that one being has no natural advantage over another, in its disposition for knowledge, other than what it has in the superior number, extent, or acuteness, of its senses.

IT is, then, to language that we are chiefly indebted for what we call *science*. By means of language our ideas and notices, though things in their own nature merely personal, and adapted only to private use, are extended to others, to improve their stock. And thus, by a kind of second sense, a man gets perceptions of the objects that are perceived by all mankind; and is present, as it were by proxy, to things at all distances from him: we hear sounds made a thousand years ago; and see things that pass a thousand miles off. If the eagle really sees, the raven smells, and the hare hears, farther and better than man; their sense, at best, is but narrow, in comparison of ours, which is extended, by the artifice of language, over the whole globe. They see with their own eyes only; we with those of a whole species. In effect, by language, we are upon much the same footing, in respect of knowledge, as if each individual had the natural sense of a thousand: an accession, which, alone, must have set us far above any other animals. But, at the same time, this very accession of a multitude of ideas, more than naturally belonged to us, must have been in a great measure useless, without certain other faculties of ordering and arranging them; of abstracting, or making one a representative of many; of comparing them together, in order to learn their relations; and of combining them, &c. The effect thereof is what we call *discoursing* and *philosophizing*; whence arise *doctrines*, *theories*, &c.

EVERY word is supposed to stand for some point, article, or relation of knowledge. From which it follows, that the vocabulary of any language is representative of the several notices of the people among whom it obtains: I mean of the primary, or absolute notices; for, by the construction of these words with one another, a new set of secondary or relative notices are expressed. To enter better into this, it may be observed, that the several objects of our senses, with that other set of things analogous hereto, the proper objects of the imagination, are represented by fixed names*; denoting some of them, individuals†; others, kinds‡, &c. Now these, which make the first or fundamental part of a language, it is obvious, are no other than a representation of the works of nature and art, as they exist in a kind of still life, or in a state of inaction, and independency one upon another. But, in regard we do not find the creation thus quiescent, but observe a great number of mutations arise in the things we are conversant among; we are hence put under a necessity of framing another set of words, to express these variations, and the actions to which they are owing, with the several circumstances and modifications thereof§. By this means, nature is removed, as it were, out of her dormant constitution, and shewn in action; and thus may occasional descriptions be framed, accommodate to the present state of things.

HENCE arise two kinds of knowledge; the one absolute, including the standing phenomena; the other relative, or occasional, including what is done, or passes, with regard to them. The former is, in some sense, permanent; the latter is merely transient, or historical. The first is held forth, as already observed, in the vocabulary: the second is vague, and uncircumscribed by any bounds; being what fills all the other books. In effect, this last, being in some measure casual, may be said to be infinite: because every new case, i. e. every new application and combination of the former, furnishes something new.

IN the wide field of intelligibles appear some parts which have been more cultivated than the rest; chiefly on account of the richness of the soil, and its easy tillage; but partly too by reason of the skilful and industrious hands under which it has fallen. These spots, regularly laid out, and conveniently circumscribed, and fenced round, make what we call the *Arts and Sciences*: and to these have the labours and endeavours of the men of curiosity and learning, in all ages, been chiefly confined. Their bounds have been enlarged from time to time, and new acquisitions made from the adjoining waste; but still the space of ground they possess is but narrow; and there is room either to extend them vastly, or to lay out new ones.

THEY were divided, by their first discoverers, into a number of subordinate provinces, under distinct names; and have thus remained for time immemorial, with little alteration. And yet this distribution of the land of science, like that of the face of the earth and heavens, is wholly arbitrary; and might be altered, perhaps not without advantage. Had not Alexander, Cæsar, and Gengis Khan, lived, the division of the terraqueous globe had, doubtless, been very different from what we now find it: and the case would have been the same with the world of learning, had no such person been born as Aristotle. The first divisions of knowledge were as scanty and ill concerted as those of the first geographers; and for the same reason: and though future Barons, Cartes', and Newtons, by opening new tracks, have carried our knowledge a great way farther; yet the regard we bear to the ancient adventurers, and the established division, have made us take up with it, under all its inconveniences, and strain and stretch things, to make our later discoveries quadrate thereto. I do not know whether it might not be more for the general interest of learning, to have the partitions thrown down, and the whole laid in common again, under one distinguished name. Our inquirers, in such case, would not be confined to so narrow bounds; but we should be led to explore many a rich track, now doomed to lie neglected, because it is without the pale.

ART, and SCIENCE, are, indeed, words of familiar use, and great significance; but, I doubt, little understood: philosophers have long laboured to explain and ascertain their notion and difference, but all their explanation amounts to little more than the substituting of one obscure notion for another. Their attempts have usually terminated in some abstracted definition, which rather casts obscurity than light on the subject; and expresses very little of the essence, and obvious phenomena thereof. To come at which, we must be at the pains of a new investigation.

TO SCIENCE, then, seem to belong such things as men may discover by the use of sense and reasoning; whatever the mind descries in virtue of that faculty whereby we perceive things, and their rela-

* Nouns.

† Proper Names.

‡ Appellatives.

§ Verbs, Particles, Adverbs, &c.

tions,

tions; is matter of science: such are the laws of nature, the affections of bodies, the rules and criterions of right and wrong, truth and error, the properties of lines and numbers, &c. Science, in effect, is the result of reason and sense, in their general or natural state, as imparted to all men, and not modified, or circumstantiated, by any thing peculiar in the make of a man's mind, the objects he has been conversant among, or the ideas he has present to him. In fine, science is no other than a series of deductions, or conclusions, which every person, endued with those faculties, may, with a proper degree of attention, see, and draw: and a science, i. e. a formed science, is no more than a system of such conclusions, relating to some one subject, orderly and artfully laid down in words. Thus a person who has all the ideas expressed in Euclid's *Definitions*, and sees the immediate connexion of those in his *Axioms*; which no man, acquainted with his language, can be supposed without; may be said to have it in his power, with attention and industry, to form all the theorems and problems that follow: he has nothing to do but to range those ideas orderly in his mind, compare them together, one by one, in all their changes, and put down the immediate relations observed in the comparison, i. e. their parity, imparity, &c. And after the relations of each to each are thus got, which make a kind of primary propositions; to proceed to combine them, and take down the relation resulting from a comparison of the several combinations. By such means, without any other helps than penetration and perseverance, might he make out an infinite number of propositions; possibly more than Euclid has done: there being a new relation, i. e. a new proposition, resulting from every new combination.

TO ART, on the other hand, belong such things as mere reason would not have attained to; things which lie out of the direct path of deduction, and which require a peculiar cast, or turn of mind, to see, or arrive at. A man might call these the results of particular or personal reason, in opposition to the former; but such a denomination would be thought unphilosophical. It may, perhaps, be more just to consider reason, here, as modified or tinged with something in the complexion, humour, or manner of thinking, of the person; or as restrained and diverted out of its proper course, by some views or notices peculiar to him. The difference between the two may be illustrated by that between wit and humour; the former whereof is a general faculty of exciting agreeable and surprising pictures in the imagination; and the latter a particular one: the former is pure and absolute in its kind; the latter tinged with something foreign and complexional.

AN art and a science, therefore, only seem to differ as less and more pure: a science is a system of deductions made by reason alone, undetermined by any thing foreign, or extrinsic to itself; an art, on the contrary, requires a number of data, and postulata, to be furnished from without; and never goes any length, without, at every turn, needing new ones. It is, in one sense, the knowledge and perception of these data that constitutes the art: the rest, that is, the doctrinal part, is of the nature of science; which attentive reason alone will descry.

AN art, in this light, appears to be a portion of science, or general knowledge, considered, not in itself, as science, but with relation to its circumstances, or appendages. In a science, the mind looks directly backwards and forwards to the premises and conclusions: in an art, we also look laterally to the concomitant circumstances. A science, in effect, is that to an art which a stream running in a direct channel, without regard to any thing but its own progress, is to the same stream turned out of its proper course, and disposed into cascades, jets, cisterns, ponds, &c. In which case the progress of the stream is not considered with regard to itself, but only as it concerns the works; every one of which modifies the course of the stream, and leads it out of its way. It is easy to trace the progress of the former, from its rise to its issue; in regard it flows consequentially: but a man ever so well acquainted with this, will not be able to discover that of the latter; in regard it depends on the genius, humour, and caprice, of the engineer who laid the design.

THESE are some of the different characters, or conditions, of art and science; but there is a difference between them prior to any of these, and of which these are only consequences. The origin of them all lies higher, in the principle of action, or operation, above specified; namely, as the mind is either active or passive, in respect of them. With regard to this, those things may be said to belong to science; which we only see, or perceive; which flow from the nature and constitution of things, by the sole agency of the author thereof; subservient only to his general purposes; exclusive of any immediate agency, or intervention of ours. And, on the contrary, things belong to art, wherein such science or perception is farther modified, and applied, by us, to particular purposes and occasions of our own. From hence arise the several differences above mentioned: for the matters of art are only personal, as they are according to the measure of the artist's natural faculties, in respect of quantity and degree; and to the complexion and cast of his moral faculties, in respect of their quality. The perception, even of matters of art, is of the nature of science: so that thus far the two agree: and their differences only commence from the superinducing of a farther modification in the matter of such perception; and the giving it a new direction to some particular end. By means hereof, it becomes inverted with a new set of conditions, and circumstances wholly personal; as being all framed and adapted to the particular view and aim of the artist, and conducted according to his particular degree of knowledge and address; which is the effect of a particular set of objects, and a particular organism of body. In a word, in art there is a moral view or motive, superadded to the natural science, or perception; which motive is the proper principle, or primum mobile, of art; perception is its matter; and some member of the body its organ, or instrument. And from such new principle, &c. arise a new set of secondary perceptions analogous to the natural and primary ones. The whole, therefore, ends in this: that science arises from a natural principle, art from a moral one; or even, as moral matters are also, in one sense, natural, science may be said to be of a divine original, art of human*.

HAVING

* THIS doctrine may seem to overturn the Aristotelian definition of art; *Ars est habitus mentis cum recta ratione effectivus*, a habit of the mind operative according to right reason; which, at first sight, appears to be taken from a partial consideration of the subject. If it be the single character or condition of art, to proceed according to right reason; the more and purer this reason, the more perfect the art. But, in some of the arts, reason appears to have little to do; and the less, as those arts are in greater purity and perfection. Thus it is in poetry; a man that would undertake an ode, or an epic poem, on the strength of his reason, would be miserably mistaken; all his efforts would not carry him above the humble sphere of versification, where

he must be contented to wait for an impulse of another kind. So far is reason from leading the way, that it can scarce follow at a distance, so as to keep in sight. The principle of motion is evidently something other than reason; otherwise, the greatest philosophers would be the best poets, and vice versa. On the contrary, most of us have known people weak enough in their rational, yet powerful in their poetical faculties. Poetry is an appendage of one kind of madness, and accordingly passes, among physicians, for a symptom thereof. Let not this be thought any reflexion upon the poets; a spice of the *μανικον* *αυτου* is no disreputable thing: a man, seated on that bench, finds himself in very good company; some of the greatest philosophers, prophets,

HAVING discussed the nature and characters of *art* and *science*, it remains to settle the notion of a *TERM* of *art*; an expression as little understood as any thing in language. Art and science, we have observed,

prophets, legislators, doctors, fathers, and saints, of all ages, being confessedly his assessors. It is remarkable with what respect and awe the ancients treated people suspected to be touched: the very names they called them by import a high veneration, and place them, as it were, at the threshold of Jupiter †. One of their most common appellations, *numine afflati*, is, at the same time, the most just and philosophical that can be thought of. In effect, a share of fury and enthusiasm is held, by them, a condition absolutely necessary, in order to rise above the croud. We may add, that the poets themselves have a hundred times expressly attributed all their greater and happier thoughts to enthusiasm, ecstasy, and fury; and they do it implicitly, almost in every piece they write; it being their standing practice to take a formal leave of common sense at first setting out, and call a Muse for their future guide; which, to talk out of the poetical style, is as much as to say, they resign themselves over to the conduct of genius and imagination, which they now find strong and prevalent in them: thus inspired, a new scene of objects arises; castles on castles; and they see things invisible to other eyes. From such prevalence of imagination arises what we call *ΠΟΙΗΣΙΣ*, which is common to all men, in a greater or less degree: philosophers have a little of it, poets a great deal, and lunatics scarce any thing else.

IT may seem strange to say, that the principle is precisely of the same kind in them all. We are used to consider it, in the two first, as constitution; in the latter, as disease; in the former, it is only occasional; in the latter, perpetual: in the one, it is arbitrary, and uncontrollable; in the other, limited, and restrained. The barque, in the one case, drives of necessity, as wanting cable and anchor to hold her; and, in the other, sails out of choice, as finding the wind favourable, and the voyage desirable. But all this amounts to little more than a difference in degree, between the fictions of the poet, and those of the lunatic: the moving principle is the same in both, though its effects be various. If the proper balance and adjustment between the powers of reason and imagination be wanting, yet they still retain their nature; as the wind is the same, whether the pilot directs the helm or not.

THIS doctrine is plainly countenanced by the ancients; who, in some respects, seem to have had clearer and juster notions than the moderns; as being less embarrassed with the jargon and refinements of the scholastic learning. Philosophy, with them, was one degree more simple and obvious than among us: nature was not yet covered and concealed under so much elucidation, but afforded more frequent, and nearer views of herself. Accordingly, the divine Plato, in his *Phædrus*, asserts, “that enthusiasm and madness are one and the same thing:” and has a long and cogent discourse to prove, that it must be so: and among the several species of enthusiasm, he expressly ranks poetry. In effect, the *ποητικόν* and *μαστικόν* make two of the principal branches in his division of enthusiasm, or inspiration. And Plutarch, though he divides enthusiasm somewhat differently from Plato; yet agrees with him in making poetry a species of it. Nay, the most reserved of all the ancient critics, Longinus, declares, “that the poet is possessed with a kind of enthusiasm; that he believes he really sees what he speaks; and represents it so to others, that they catch the enthusiasm, and see it likewise.” Add, that, speaking of the orators, he does not scruple to use *πνεῦμα ενθουσιαστικόν* as synonymous with *μανία*.

THE principle, then, of the art of poetry, is something other than reason; and I know of no art that has more of the nature and essence of art, than poetry; nothing that can fashion, build, and produce things so fine, and so fast; sculpture, architecture, agriculture, &c. are arts but in an inferior degree. And yet, turning another side of things forwards, poetry will scarce appear to have any thing of an art in it, but rather to be all the work of nature; wherein human thought and study have the least hand. It is produced by a principle superior to that of reason, i. e. a more immediate action of the Author of nature. But the same may be said of most of the other arts; and when we say, that art produces effects, we mean nature does so. The poet’s imagination may be considered as a field, wherein the author of nature produces a set of objects, which existed not before: new images arise here, like new plants, according to the settled laws of the Creator; so fruitful is the womb of nature! New worlds, innumerable, arise out of every particle of an old one.

THE *passive* arts, as some love to call them, i. e. those from which permanent effects arise, may be considered as so many secondary or derivative natures, raised by engraftment from the old stock; and spreading out or projecting from this or that part thereof. Here, at first sight, man appears somewhat in quality of creator: the potter’s power over his clay has been made a shadow or similitude of that of the Deity over his works: and yet the potter, at best, is only accessory or occasional to his own productions. Nature, that is, the power or principle of action and motion, to which we owe this visible frame, and all the appearances and alterations therein, acts by fixed laws, which necessarily produce different effects, according to the different circumstances of things: thus a glass globe, being swiftly revolved about its axis, and an hand applied to its surface, grows warm, emits light, attracts bodies, &c. i. e. becomes a hot, luminous, electrical body; though before, it had none of those properties. So gunpowder, a mass of dark, inert, motionless matter, being only touched with a lighted brand, instantly blazes up, and

smokes, with noise; perhaps bursts a rock, or drives a ball, in a parabolical direction, and levels a tower, or other work. Now nothing arises here, but in consequence of pre-established laws, which import, that the globe and the powder, whenever by any means they come under such circumstances, shall exhibit such appearances. There are no two bodies in nature more different from each other, than the same is from itself, under the different circumstances of contiguity or non-contiguity with some other body, e. gr. with a spark of fire. But both states are equally natural; and there must be a law of nature to produce the appearances of one state as well as of the other. Now the agency of man amounts to this, that he has it in his power to put bodies in such circumstances as are necessary to make this or that respective law take hold of them. And this we call *art*; and by this means we can produce a number of things, or bring them into act, which otherwise would have remained in eternal non-entity. Man may be said to create them, but no otherwise than the apothecary creates the blister, or the gardener the apple; i. e. those effects would naturally have arisen, upon the same position of the cantharides and the cutis, and the scion and stock, if there never had been apothecary or gardener in the world.

WE may define the works or productions of art, therefore, to be all those phenomena, or effects, which would not have arisen without the agency, or intervention of man. But man can only be said to act, or intervene, so far, as what he does is his own principle, without being moved or directed by any external power; i. e. so far as he is exempted from the influence of any necessary laws of nature, concurring, however remotely, to such effect. So that if, as some philosophers have maintained, man were not really and truly a free agent, there would be no such thing as art, in the sense here understood; but art would only be a name given to that system or series of effects, to which man is made by nature, and in her hands, subservient; and might, with equal reason, be attributed to such effects, as any other natural production is subservient to.

WE see, then, how far man is concerned in the productions of art. Our endeavours are contrived, by nature, to be means accessory to the laws taking place, from whence the effects are to arise. We are part of the chain, whereby the effect is connected to the cause. The circumstances are in our power, on which such and such laws depend: and thus far it may be said to be active, in the case of art: supposing that there is nothing higher, or farther; and that the chain ends with us: in a word, that our agency is not subordinate, but collateral, to that of the Almighty. But if there be other superior laws which respect those same circumstances, and which are not in our power; i. e. if the circumstances necessary to the former laws be, themselves, supposed the effects of necessary laws, and the immediate work of nature; our agency will dwindle into nothing. The utmost that can be said of us in such case, is, that we are active in respect of the one, and passive in respect of the other; which, to most people, may appear a kind of contradiction. The statue cannot be formed, unless our inclination concur thereto; so far its existence depends on us: but are our inclinations, with respect thereto, of our own growth; or do they rise naturally, in consequence of an apprehension of good and advantage in the subject? That is, does any thing appear good and advantageous to us, absolutely, and of itself? or only what the Creator represents to us as so? And do we desire and pursue this seeming good, from any principles and tendency that is in us, other than what we owe to his laws? The difficulty seems to amount to this: whether between our faculties of apprehending, or willing, and their respective object, there be any relation which he did not create? If any allege, that it is such relation constitutes the faculty; and therefore, that the question ends in this, whether our faculties are from God, or ourselves; i. e. whether they be the causes of themselves? I should suspect some sophism in the case, which, at present, I have not penetration enough to detect.

BUT, having traced the agency of man thus far, we must here desist; and, from the factive arts, resume the consideration of the active ones; i. e. we must pass from what art does out of us, to what it does in us: or rather from the arts whose source is supposed in ourselves, and which proceed outwards; to those whose source seems without us, and act inwards; that is, from those which arise from our observation and reason, directing us how to minister occasions to the laws which obtain in the external world; to those which flow into our imagination, and furnish occasions to the laws which obtain in the internal world. An inquiry which may, perhaps, carry us where the reader little imagines; but which will afford an ample discussion of the principle above established; and a farther insight into the origin and cause of science and art, and the nature and measure of our agency, and passion, therein.

WE have already said something concerning poetry; not for its own sake, but as a proper instance to illustrate the nature of art by. It makes the lowest article in our *Analysis*, and may be considered as the last in the scale of arts; there being a sort of progression from the beginning of the analysis to the end. It begins with the first matter of knowledge, the common objects of our senses; and proceeds through the various modifications they undergo by the other faculties of imagination and reason, till those sensible objects become so much our own, are so assimilated to us, and, as it were, humanized, that they are part of our

† *Θεομανίης, Ενθουσιασται, Θεοληπτοί, Ενθου, Καλοχοι, Ecstatici, Phrenetici, Pythii, Siderii, &c.*

observed, are denominations of knowledge, under this or that habitude; and words are representatives of the several parts thereof. The whole compass of words, in all their cases, is supposed equivalent to the

selves, and obey and take directions from our will, and minister to all our views and purposes: of which, this of producing images, and making fables, is, in one sense, the most conspicuous; inasmuch as the greatest effects here arise from the slenderest means and endeavours. The poet stirs but little in the matter; but nature co-operates so strongly with him, that this little suffices, even to make new worlds. In effect, the poet seems, as it were, to sit nearer the spring of action than other men; and to have only to do with the general and higher principles thereof, which command and direct a number of other subordinate ones, that he himself is not ordinarily aware of. What we shall say of poetry, therefore, will hold proportionally of all the other arts; and we have only to keep to that, because the influence or inspiration is here the most apparent and palpable. The principle or spirit of poetry may be said to be that of art in general; and hence many authors do not scruple to make all arts the invention of poets; thus it is that Homer is often complimented with being the father of all arts.

THE mind is allowed to be passive, in respect of the matter of the art of poetry. We need not quote the poets to prove it: no true poet ever questioned his inspiration: every body knows, that their whole system is built on the supposition. And hence the stories of *Apollo* and the *Muses*, of *Helicon* and *Parnassus*; the dreams of *Pindus*, and the *Aonian* maids: but the philosophers and critics also give them their suffrages, and attest their inspiration, in the strongest terms. Plato contends at large, that all poetry is "by immediate divine inspiration, in the proper and "literal sense of the word." Aristotle confirms it; *ἐνθεον ἢ ποίησις*, poetry comes by divine inspiration. And Plutarch says as much of all the branches of enthusiasm, poetical, divinatory, bacchical or corymbantical, martial or erotic: to all which, he ascribes the appellation *ἐνθεσιαστικὴ*, or *ἐνθεσιαστικὸν πάθος*, equally agrees. And not only so, but they hold the enthusiasm communicable from one to another. It arises from the poet, as its centre, and is diffused in orbem; in a less degree of intensity, the farther it recedes from him. Plato asserts, that the *ῥαψωδοί*, or those who sung and rehearsed the poets works on the public theatres, nay, and the spectators themselves, were all divinely inspired, in some degree; which he illustrates in the case of a needle touched by a magnet, which communicates an attractive property to another needle; that, to a third; and so on, but with a continual diminution. Nor does the effect end here; but the professors of other arts, as sculpture, criticism, and even philosophy itself, borrow their flame and inspiration from this fire. Thus Phidias declared he was inspired to make that wonderful statue of Jupiter Olympus, by the reading of Homer: and thus Aristotle may be said to have been inspired by the same poet, to compose his immortal *Poetics*: the like, one of our own poets says of Longinus, that he was inspired by the Muses, or with the fire of a poet.

BUT, after poetry, rhetoric comes nearest, and shares most of the spirit thereof: accordingly Plato, in his dialogue inscribed *Meno*, allows, that "as we say pythians, prophets, and poets, "are divinely agitated; so we do of orators." Elsewhere he adds, "that they are certainly inspired of God, and plainly "possessed." So Dion. Halicarnassensis relates, that "Demofthenes did plainly *ἐνθεσιάζειν*;" and adds, that the distemper caught so among his audience, "that they were possessed at second-hand, and brought to do many things against their own "reason and judgment." And Æschines, his professed enemy and antagonist, allows as much. I need not say, that Plutarch relates the like of Cicero, in the instance of his oration to Cæsar for Ligarius.

SOMETHING like this has been observed, even in the case of prayer to God; several heretics are on record for possessing their hearers that way. Hacket, executed for blasphemy under queen Elizabeth, is said, by the historian, "to have ravished all that heard him at his devotions, and converted many "in spite of their teeth." And Sarravius relates, the people were persuaded, that "God directed his tongue." St. Basil even affirms, "that our prayers are never right or acceptable, till the "fervour thereof carry us out of ourselves, so that God possesses us in some extraordinary manner." And hence the learned and pious Casaubon establishes a new kind of enthusiasm, which he calls *supplicatio* or *precatorio*. To say no more, the author last mentioned makes no scruple to rank even "the ordinary delights and benefits men receive from the harangues of "orators, sophists, preachers, &c. among the effects of enthusiasm and inspiration; as being what could never have arisen "from mere common sense." And Plutarch, and others, make that ardour which the soldier feels in battle, of the same kind with that which inspired the prophet, orator, and poet.

WE have here little less than a system, sufficient to account for most of the phenomena of the moral world, on principles of enthusiasm: and yet these are only a few, out of infinite instances, of the immediate agency and inspiration of the Deity. We find the same principle in every art, every invention, every discovery; where no natural and necessary connection is perceived between the discovery and something known before. What has no immediate dependence, either on what we perceive by sensation, or reflection, comes by the vehicle of inspiration, i. e. of imagination; for there it rises. The imagination may be called the medium of art, as sense is of science. The faculty of reason can make no great discoveries: it can only advance from one step to another, which must be ready laid to its hand; and if these be any where interrupted or discontinued, there it is at a

stand. It is, in fine, a limited principle, subject to very narrow bounds; whereas the imagination seems to be indefinite, and still kept in the Creator's hand, to be occasionally made use of for the conduct of mankind.

THE truth is, when we say, such a thing is the effect of enthusiasm, or inspiration (speaking, I mean, of profane matters; the inspiration, for instance, of Scripture, being matter of a very different consideration, and quite beside our present purpose); this does not remove it out of the ordinary course of things: it does not put it on any principle different from that whereby causes and effects succeed each other in the physical world. We can account for the phenomena of the imagination, as well as those of sensation. They have their respective laws, like other things, which they are subject to; and to which we have arts and processes appropriated. In effect, all the inspiration here spoken of may be produced without any great conjuration. If the reader will not take offence at this novel philosophy, he may be convinced of it. And, 1. In the instance of the poetical kind.

THE inspiration of poetry is of a still and pure kind; and needs little artifice and apparatus to produce it in an imagination naturally disposed for it. The attentive consideration of some interesting object usually suffices to set it a-going. And the gentlemen of that faculty have all nature to choose out of: the finest seasons, the most agreeable scenes, and the most moving objects. Hence it is, that they are continually harping on "groves and "shades, and gods and nymphs, and darts and flames." How do they riot in "meadows, trim with daisies pied; shallow brooks, "and rivers wide: towers and battlements they see, bosom'd "high in tufted trees!" Sometimes they sing of "knights and "squires, and maids forlorn." Then, "tilts and tournaments, "and feats of arms: pomp, and feast, and revelry, with masque "and antique pageantry: stories of Thebes, or Pelops line; or "the tale of Troy divine: of Arthur and Cambuscan bold; of "Cambal and of Algarife, and who took Canace to wife." If these fail, they have all that is gloomy, and solemn, and terrible in nature, at their beck; we may now expect to see "the "red bolt or forked lightning glare." Earthquakes and tempests seldom roar in vain: if by chance they do, the "ill-boding "raven's croak is ready at hand; or else "the far-off curfew "sounds o'er some wide watery shore, swinging slow with solemn "roar." And now for "baleful ebon shades, and ragged low- "brow'd rocks:" next enter "horrid shapes and shrieks, and "sights unholy: Gorgons, and Hydras, and Chimeras dire." Images of things most moving to sense readily alarm, and raise a commotion in the imagination. And the new ideas thus procured, coming to be mixed and combined, in the imagination, with others there before, new effects arise from them, in consequence of the laws of the Creator: much as intelligibly as fire and flame, upon mixing spirit of nitre and oil of cloves.

SCALIGER distinguishes two kinds of *θεοπνευστοι*, or poets divinely inspired: the first, those on whom the inspiration falls, as it were, from heaven, without any thought or seeking, or, at least, by means of prayer and invocation. The second, those in whom it is procured by the fumes of wine. All required to the first, is a delicate, pregnant imagination; susceptible of any feeble impressions that may happen to be made in the course of things, and ready to take fire at the least spark. The surfaces of the finer fluids, we find, are kept in continual motion, by the bare tremor of the atmosphere, though to us insensible: and thus the air is never so still, but that the aspen-leaf feels its impulse, and bends and trembles to it; when others require a ruder gust to move them: yet these, too, give way in a general storm; whole forests then totter indifferently: accordingly, we read in ancient history, of whole nations being at once seized with the poetical fury; few of the cities of Greece, not even Athens itself with all its philosophy, but has, one time or other, laboured under these epidemical enthusiasms.

WE have already observed, that invention is the principle or source of poetry: an excellent poet, of our own age, adds, it is this which furnishes art with all its materials: and that, without it, judgment itself can, at best, but steal wisely. Now this faculty of invention itself is usually no other than a delicacy, or readiness of taking hints: but even at most, what we are said to *invent*, results or arises from something already in us. Invention produces no new simple ideas: those can only come by the way of sense and observation; all that passes in the other case, is, that from the memory of certain things, i. e. the compresence of certain ideas to the mind, certain new images or pictures arise, according to the order of things. The sprightly imagination is led, on various occasions, to compound its ideas; and many of them so oddly and boldly, that we take its productions for new things; and thus think we invent them, because they did not before exist in that form: there is no more real invention in the poet than in the tapestry or mosaic worker, who ranges and combines the various coloured materials furnished to his hand, so as to make an assemblage or picture, which before had no existence.

THE reader who has any doubt about this, need only take the first piece of poetry that comes in his way to be convinced that all that is new, and moving in it, is no other than new composition, and combination of sensible ideas. In *Il Allegro*, and *Il Penseroso*, two of the most poetical pieces in our, or perhaps in any language; how easy is to resolve all that is so magical and ravishing, to the new, uncouth, and frequently wild and romantic assemblages of imagination! Who can contain himself at—"Sport which wrinkled care derides, and laughter holding

"both

the whole system of possible science, though it is only a small part thereof that is actual, i. e. only a few of the possible combinations are, or ever will be made.

THE

“both his sides—Cynthia peeping through a cloud, while rocking winds are piping loud.—To hear the lark begin her flight, and singing startle the dull night; or early cock with lively din, scatter the rear of darkness thin: or, listen how the hounds and horn, loudly rouse the slumbering morn.—Or see glowing embers, through the room, teach light to counterfeit a gloom.—Or, storied windows richly dight, casting a dim religious light.—Or hear Orpheus sing such notes, as warbled to the string, drew iron tears down Pluto’s cheek.”

PERSONIFICATION, which is of that extent and importance, that it is usually held the life and essence of poetry, is a vast source of new imagery. By this, not only different objects, but different systems and worlds, are combined and blended together; and what belongs to one kind of beings, man, is attributed to every other; each object, either of sense or imagination, being occasionally invested with all the characters and properties belonging to the human kind. Thus an arrow grows impatient, and thirsts to drink the blood of a foe; or loiters and stops half way, loath to carry death, &c. So an action of the body, *laughter*, is represented, by Milton, as itself laughing, ready to burst its sides. One of the planets, the moon, is represented as tricked up, and frownced; and again as kerchiefed, and in a decent undress, and thus going a hunting. To tell us that a fine spring morning, attended with a gentle gale of wind, is very pleasant; presently—“Zephyr with Aurora playing, as he met her once a maying, on a bed of violets blue, and fresh-blown roses dipt in dew, filled her with a daughter fair, yclep’d in heaven Euphrosyne, and Mirth on earth.” How consistent with the nature of things, that a breath of air should lay an early hour of the day down; and that, from a green gown thus given, a passion of the mind should in time be brought forth? In effect, the inspiration of the poet frequently amounts to little more than relating things that are naturally incongruous. He does not invent, he only transposes: nor has he the least power to move, other than what he derives from the novelty and strangeness of his combinations; to which nothing exists in the ordinary system, any way conformable. To say no more, if invention furnish art; memory furnishes the invention; and sensation the memory, where all knowledge originally commences. And the whole process is nothing but the action or operation of the Deity, in a course of laws.

AS to the second kind of poets, in whom the inspiration is excited by means of wine, Casaubon is perfectly frightened at it; judging it the highest strain of impiety, to suppose a man may be divinely inspired by the fumes of liquor. And yet I do not know whether his fright be not founded on a misapprehension. If Scaliger alledge, that the juice of the grape may be a means or condition necessary to make the laws that concur to invention take place; I do not see what religion has to do here, more than in any other enthusiasm. The use of such means is no ways derogatory to the power or goodness of God, who still remains the author of this, as of any other inspiration; whether it be by visions, by voices, dreams, or the like. What matters it, whether the sound of a cymbal, or the sight of an image, or the effluvia of a liquor, be the occasion? And of all the blessings this juice is made the instrument of to us; why should it be precluded from that, which even the vilest of God’s creatures occasionally minister?

THE inspiration of orators, bears a near relation to that of the poets; though, being somewhat grosser, it demands more industry and art. Quintilian tells us how a rhetor is to get inspired; “not by supinely lolling, and gazing at the next moveable, and carelessly turning things over in his mind; but by imagining the judge and the audience present, and strongly representing to himself the time, the occasion,” &c. He adds, that nobody ought to pretend to be an orator, unless he have this art of inspiration at command; so that he can raise it at pleasure.

WHAT has been said above, contains some of the general principles of enthusiasm, and their connexion with other physical effects: and it would be easy to trace and pursue the same, where they appear in other cases, and with other circumstances. Thus the inspiration excited by the orator in his audience, is resolved, by Casaubon, into the music of the speaker, i. e. the tone and cadence of his voice; and the *ὀρθότης*, or order and placing of his words: in which last, how simple and trivial soever it may seem, all the great masters on the subject allow somewhat mysterious, and unaccountably forcible; and accordingly make it the principal part of rhetoric. And yet there is nothing in the whole, but what results from the powers, properties, &c. of the several letters, considered as so many sounds, artfully combined. In effect, there is some *ῥυθμός*, or numbers, and some *μέτρον*, or dimension, in all diction; much more in that of oratory: and music itself has no charm in it, but what it derives from those very sources.

NOR must it be omitted that the use of metaphors contributes its share to the effect: the secret whereof consists in this, that they are, as it were, accommodated to the senses; and present such images to the imagination, as move us most, when perceived in the way of sensation.

AS to that enthusiasm felt in prayer, its cause is not far to seek. The powers of rhetoric and music, and a peculiar fervour of imagination, raised by an apprehension of the presence of God, &c. will go a great way. We may add, that the ancient heathens made use of dithyrambics in all their most solemn prayers; which, Proclus observes, are peculiarly fit to stir up

enthusiastical dispositions. A man that rides Pindar’s horse cannot well fail of going at a great rate.

BUT the most extraordinary and unaccountable kind of inspiration is still left behind; viz. that of prophecy, divination, discovering cures by dreams, &c. which yet may all be produced by art: and accordingly, they have all been taught and studied like other arts: not to say, also, practised like them for a livelihood. Schools and colleges of prophets, divines, augurs, &c. were numerous, both among Jews and Gentiles; and there was little in their discipline, but what may be resolved into what has been already said. Here, all the means above mentioned, all the springs of enthusiasm, were used; and frequently all combined together, to make the more compound and extraordinary effect. The sight of vast objects, as rocks and mountains, wild prospects, solitary groves, gloomy caves, furious rivers, seas, &c. which we find to work so strongly on the mind, were indulged; and frequent changes, and sudden transitions, were made from one to another. Such unusual objects necessarily suggested unusual ideas; which were heightened by proper applications to all the other senses. And when the patient was at length got out of the ordinary system of thinking, what he uttered was judged oracular. And among a large train of objects, which presented themselves to him, some could not want an analogy to things that were really to happen; at least in the opinion of a person already possessed with the notion thereof. It may be added, that the prophecies themselves had their share in producing futurity; the events whereof partook of the predictions, some more, others less, according to the degree of possession of the parties concerned in them. In effect, the revelation still retained something of the means made use of to raise it. And hence a revelation was artificially producible of the complexion required; which was the very apex of the art. So that the divination, when most perfect, really supposed a natural knowledge of the thing demanded, and was built on it.

AS to dreams, &c. there was a formula for them; the circumstances whereof might be appropriated to raise in the imagination an idea of the thing required. After a number of ceremonies, the party was to sleep in the temple; and the priests had not only the placing of his body, and the strewing of his bed, but also the management of odours, sounds, &c. in the night-time. So that if any natural means were known for the cure, there was room enough to suggest it to the reader’s imagination, which was made accessible to them; and, as it were, put into their hands. But if no adequate remedy were known; as, it is probable, they hardly entered so far into the part; yet what was thus suggested, perhaps at random, how strongly must it operate, when enforced by the opinion of its coming by miracle and inspiration? We see what the bare presence and assurance of a physician will frequently do; even cure disorders far above the reach of his skill: and what an improvement would it not be to the faculty, to have the farther assistance of a little shew of religion and ceremony?

I AM afraid I may seem to have been too long absent from my subject; but it has been all along in my eye, and a little recapitulation will convince the reader, that we have not wandered far out of the way. We have shewn whence all our knowledge originally arises; that sensation is its only source; that what comes this way, comes by the agency of the Divine Being; that it is farther modified in the memory or imagination, where new assemblages are frequently made, which is called *invention*; that it is continually altering, by the admission of new ideas from without; but still remains subject to the laws imposed by the Creator; so that nothing happens therein, but in consequence of such laws. Thus far the mind appears merely passive; and thus it stands with respect to the matter of all knowledge and art. It remains, now, to consider its *form*, or that whereby such knowledge becomes *art*, i. e. becomes subservient to human purposes, and under the direction of human reason.

HERE, therefore, a new state of the mind, *agency*, and a new faculty thereof, *reason*, come in play; the foundation and office thereof will be best ascertained, by inquiring what there is in the artist’s, i. e. Homer’s mind, that concurred with his inspiration or invention, to the production of his poem? This will be found to resolve into, first, an inclination to produce some piece, in the way of fable, that shall strongly represent the mischiefs of discord among confederates: and, secondly, a knowledge of certain means necessary to that end, or an acquaintance with certain rules and measures which tend to produce such an effect.

THE first is a *moral view*, or *motive*, which has already been laid down as the spring, or principle, of all human action, and which is founded on the apprehension of good, or advantage, to arise from such a poem. The second, viz. the knowledge of the *means*, stands on the common footing of the knowledge hitherto discoursed of.

THE means and measures of an art make a kind of preliminary doctrine, necessary or conducive thereto, called the *theory of the art*; which also, in one sense, may be considered as another art, distinct from the former; at least, to come at it, is the business of another art. If, for instance, a certain position, or set of motions of the body, be constituted, by nature, the occasion of a poetic inspiration; and such and such images and ideas, arising herefrom, be constituted the occasion of such passions in the mind of a reader, and such views consequent thereon; viz. an aversion to enmity and contention; to form an art productive of these effects, we must first observe the like effects to

arise

THE business of knowledge, then, is cantoned out among the body of words: but they do not bear equal shares thereof. Being creatures of our own, we have dealt with them accordingly; and made some

arise from the like causes; and infer, that it is probable these motions, or these images, are the occasions thereof: and consider their order, manner, and circumstances, to form the art, or method. So that we have here, as before, 1. *Matter*, or phenomena, furnished by sensation, and preserved in the memory. 2. *Form*, arising from the moral view, which led us to frame an art; and, in order thereto, to consider and dwell on the phenomena, compare them together, and infer something from them.

IT appears, therefore, that we have two arts of poetry, very different from each other, arising from different causes, tending to different ends, and rarely found, in any great degree, in the same person. The first art Homer possessed in perfection; the second, Aristotle.

BUT, for all their difference, the two will be found of the same general nature and kind; and only to differ in point of degree, and subordination; as they are nearer to, or farther from, the principle of all knowledge and art, sensation. Homer, we have shewn, was inspired: he derived his art only from nature, acting on him in the ordinary course of things, and first presenting objects to his sense, then to his imagination; and others are inspired from him, i. e. they derive the inspiration from nature, through his means, among whom is Aristotle. Nature, as she appears to the senses, is Homer's object; as she shews herself in Homer, she is Aristotle's: by which time the inspiration is grown a degree cooler, and less forcible; and the ideas, thus excited at second-hand, moving the mind less, it can attend more steadily to them, and perceive their relations better. In the first, it falls like lightning immediately from heaven; the second may be compared to the reflection of the same lightning in a mirror. The reading of Homer, i. e. the exciting and calling up his ideas, and images, does, as it were, impregnate Aristotle's imagination, and transplant the poet's whole stock into the philosopher's garden, to be farther cultivated. Accordingly, Aristotle, applying his reason to them, and examining them closely on all sides, perceives divers relations and analogies between them, which Homer was not aware of: and which the warmth of his imagination, and the quick succession of new ideas, would not give him room to attend to. These analogies he calls *rules*, or *laws*, the assemblage or system whereof make what we call Aristotle's *Art of Poetry*.

THE like process might be observed in the several other arts. Those we have hitherto chiefly kept to, have been of the symbolical kind: we shall here give an instance in what we call the real kind, viz. architecture. An Athenian sculptor, then, observing an acanthus shooting up under a basket, is pleased with the figure it presents: and, taking the hint, invents the capital of a column on the model thereof: and, by a number of like steps, an entire order gradually arose: and, in time, a whole art. Things thus advanced, and another person seeing a building framed after such manner, he attentively examines the several members, their forms, proportions, &c. and puts them down in writing: and thus does another posterior art arise. And between the two there still remains the subordination already observed between the means, or occasions of producing them; i. e. the rules thus formed, being couched in words, supply the office of the external objects they were originally derived from, and procure occasions of raising ideas, or images, in the imaginations of future artists, to be imitated in their proper materials.

THE arts, then, of poetry and architecture, come first in at Homer's and Callimachus's sense, in the simple quality of natural objects; which, meeting with other ideas in the memory, or imagination, and coming to be compared or combined therewith, by the agency of the moral view or principle which suggested the making of a poem, &c. as advantageous and desirable, new productions arise, e. gr. a poem, or a building; which coming, at length, under the cognizance and consideration of reason, certain relations or analogies are discovered therein, which tend to propagate and produce the like at any time. Reason returns rules for matter; which rules prove like the philosophers' stone, which tends to turn all materials it is applied to into gold; and the materials thus transmuted, like the pretended multiplicative virtue of the same stone, from every thing they are applied to, produce rules again. And thus are we arrived at the reason of the Aristotelian definition of *art* above mentioned, which we see lies pretty deep, and costs some pains to come at; as do many other doctrines of that philosopher, which the precipitancy of moderns have rejected as false, only because they would not be at the pains to discover their truth.

REASON, in effect, which is the last faculty the matter of art arrives at, is the first from which the form or rules thereof, which are to propagate it, arise. In which view, reason may be laid down as the principle of this secondary art, or theory; as imagination is of the primary one. We still see the effect of the first laws, even in the latter art; external objects strike the sense and imagination so strongly, that they reach to reason; which, like an infinitely elastic substance, reflects them back again; and thus they again grow into objects of sense, and so on in a circle.

THIS seems to make the two arts differ very widely: and as reason appears our highest faculty (inasmuch, as it is this alone that tends to produce and multiply, and accordingly all our knowledge appears proportionably higher and purer, as reason is more concerned therein) the rules or theory of an art appear of infinitely nearer consequence than the matter thereof. The former is, in some sense, active, and, like the Almighty mind, tends to produce new things, new worlds, new systems, without end; the latter is mere passion, and ends in bare brute perception.

YET Aristotle's rules, it must be observed, do not tend to produce poetry; I mean not the matter of poetry, but only the form; Aristotle's art is not the art of poetry, in that sense, as its rules do not tend to produce enthusiasm. They only give the human part, and relate what reason observes in the productions of the imagination, i. e. what there is in them, that is a proper object of this last faculty, and comes under its notice. In effect, poetry is only subject to Aristotle's rules, as there is reason, not as there is inspiration or invention, in it.

THE source of poetry, we have observed, lies out of poetry, in a higher ground; and to turn the stream upon us, is the business of this other art of inspiration. The immediate inspiration is not so immediate as we may imagine: it is not the ultimate principle of art, but it is itself subordinate to another farther or purer art; so that we must not only have art and rules to produce poetry, but also to produce the principle thereof, inspiration, or invention. And the same will hold of the rules of this last art, themselves, which will require others; and so on *in infinitum*: at least, the series will be infinite, if we only take ourselves, and our own agency, into the account.

TO clear up this, it may be observed, that the art, e. gr. of poetry, is not only the result of another higher art, as above laid down, but that its matter and form are each of them the subject of a particular art, and each of them require another higher art to produce them. The means, for instance, necessary for inspiration, or the invention of images, make one art; and those for their application to the present purpose, another; so that the art of poetry resolves itself into two subordinate ones; the first of which may be called the *art of invention*, the other the *art of judgment*, or criticism: each of which has all the characters of the general art; is come at like it, produces new objects like it, and resolves into principles of the same kind with it. Nor does the view end here; for as each of these subordinate arts may be considered as consisting of matter and form, each of them resolves lower into two other arts; and the same may be said of each of these; and so on. So that there is really an infinite series of arts, previous to any one, and accessory thereto; all distinct from each other, though all of the same general nature, and only differing in point of order, or subordination. They arise subordinately from the same cause, and tend subordinately to the same end; which difference or subordination, as already noted, arises only from their greater or less distance from the principle of all knowledge, sensation.

UPON the whole; sensible nature furnishes the matter of them all, by means of the imagination; and moral nature the form, by means of the light of reason. The former proposition has been sufficiently discussed: it remains to enquire a little farther into the latter: for, *that reason furnishes the means*, &c. must be farther qualified, ere it be received. Our reason, it is to be observed, does not perceive any necessary and immediate connexion between the means and the effect; for there really is none; consequently reason cannot be the author of them; in regard the medium is wanting, whereby, alone, it could possibly attain them. So that they must be procured by some other canal, which will, at length, be found to end in sensation. In effect, ere we know, that such means conduce to such ends, we must first have observed, or found it so by experience. Our memory suggests to us, that such or the like causes have been followed by such or the like effects; which is the only foundation we have to expect any thing from them on the present occasion. Thus, if Homer's reason directs him to retire into a place free of noise and disturbance, at a time when his mind is clear, and in due temper, and there to apply himself with attention and earnestness to think on his subject; in consequence of which means, new ideas and images present themselves, some more immediately relative to the present purpose, others less: whence comes all this, but that Homer remembers such or the like ideas as are now wanted, to have arisen upon the use of such or the like means? And if, among the crowd of images, he chooses only such as are most proper and immediately conducive to his end, and throws aside, or expunges, the rest; whence is this, but that he remembers such, on former occasions, to have contributed more fully to ends like his own, than such other? So that the whole process appears to be little other than remembrance, which, we know, resolves into sense.

BUT memory, it is here to be noted, deals only in past things; it informs us, that on such an occasion such means, under such circumstances, produced such effects; but its notices are merely narrative, or historical, and relate only to those numerical means, occasions, circumstances, &c. which can never happen again. So that memory speaks nothing to the present case, nor gives any directions how the particular purpose, now in view, is to be attained: its language is only this: "Such means did produce such and such effects." To make the application of past things to present, is the office of reason; which comes in where memory ends; and subjoins that, "if such means have done so, such others will now do so." And, consequently, it is reason that, in strictness, prescribes the present measures.

OUR inquiry now draws towards an issue; and it only remains to shew, in what manner reason attains this end, i. e. what farther or higher means there are, to enable it to furnish measures for the present exigency, from the circumstances of past ones? This it effects by certain perceptions of similitude and dissimilitude, parity and imparity, congruity and incongruity, between former and present means, occasions, &c. By virtue of these, the mind infers, that, "inasmuch as such means were followed

some more, others less significant, at pleasure; some stand for large provinces, others for petty districts thereof. In effect, the order wherein we attain our knowledge, has occasioned us to make a kind of sortment in the matter thereof. Though the mind only sees and perceives individuals, which alone are the proper objects thereof; yet it has a power of combining and complicating these together, for its own convenience: and hence its progress from particulars to generals, from simple to complex. Hence we come to have words of all orders and degrees; from the simplicity of an atom, to the complexness of the universe. It is pleasant to trace the mind, bundling up its ideas, and giving names to the several parcels; to observe, for instance, how it proceeds from the simple idea, *thinking*, to the more comprehensive one, *knowledge*, thence to a *science*, thence forward to *scientific*, &c.

INDEED there are very few of our words that express single or simple ideas. The reason is, that, observing certain relations to obtain between the several ideas; as of cause and effect, subject and attribute, &c. we do not so much consider them absolutely, and independently, as under such circumstances and relations to each other. The great readiness or propensity of the mind to combine its ideas, and thus pay or receive them in parcels, has left us very few simple ones; I mean, very few names which denote only one idea. The words *atom*, or *mathematical point*, usually imply several ideas; in regard we are led to take the attributes and relations into the consideration of the subject: thus we consider the *atom*, as hard, heavy, and indivisible; as the principle of physical magnitude; as contributing to the constitution of bodies, &c. And even the primary qualities themselves, as hardness, heaviness, and the like, simple as they are in their own nature, are so far combined, with particular circumstances, e. gr. their cause, &c. that their names become none of the least complex.

NOW what we call a *term*, is no other than “a word which denotes an assemblage, or system of ideas, relating to some one point, which the mind has artfully complicated, or associated together, for the convenience of its own operations.” Or, it is “a word which comprehends several ideas under a certain relation to each other, whereby they represent some complex piece of knowledge to the mind, for the convenience, &c.” Or, “it is a word, which holds several different ideas combined together in a relation, such as they appeared under when the mind first considered them as a standing phenomenon, and took measures to have them fixed or retained in that quality.”

THE effect of a *term* is, that by virtue thereof, we are enabled to receive or communicate knowledge with more ease and dispatch; forasmuch as, having proper combinations thereof always ready made, we are saved the necessity of beginning *de novo*, and detailing it in individuals; much as in arithmetic, to avoid the embarrass of a large number of units, we tell by tens, or fifties, or hundreds: with the like view, on some occasions, we make up certain sums of money in rouleaus, or in purses; and thus pay and receive them, without the trouble of telling or enumerating the contents.

IN this sense of a *term*, we shall find little else in language. Among nouns are all such, except proper names, which, indeed, are out of the ordinary case of language; yet even these sometimes become terms; as when any particular ideas become constantly attached to them, e. gr. in *Mæcenas*, *Machiavel*, *Augustus*, *Atlas*, *Bucephalus*, *Argo*, &c. And, among verbs, very few but are terms, except the general ones, *to be*, *to do*, and *to suffer*. As all the others suppose these, and modify, or superadd some farther circumstances thereto; they commence terms of course: such, for instance, is the word *to moisten*; which, as it carries a farther meaning than the bare act of applying a fluid to a dry body; and denotes, e. gr. the modus of action, and the alteration superinduced by it, viz. the softening, lubricating, &c. is a thorough term. So, *to strike*, as it not only implies a certain motion of the arm, but this motion is effected by the successive contraction and dilatation of certain muscles, &c. has every thing that is essential to a term. In the same sense, a *staff* is a term, as much as a *lever*; and a *pin*, as an *axis in peritrochio*.

THIS may look like stretching a point, especially to those who are used to consider *terms*, as things, I know not how, quaint and mysterious; and make a term and a hard word the same thing. But there is no remedy: complexness is the only characteristic, that will be found to hold good of them all; and if there be any other more specific, and distinguishing properties in most of them, as we shall have occasion, hereafter, to shew there are; yet these, not being universal, cannot be made the foundation of a just philosophical definition. They may perhaps, be introduced, to good purpose, into a popular one; as they afford a more useful and adequate knowledge of the subject, so far as they do obtain.

THUS much relates to what we may call *terms of knowledge*, which are one degree more simple than the terms of an art or science; and were, for that reason, pitched upon to exhibit the common nature and origin of both. These latter arise out of the former, by the superaddition of some new character, or condition. They were before members of the commonwealth of knowledge: but they are now in-

“followed by such effects; such others, by parity of reason, will be followed by such others.” And that “as there are such and such differences between former and present occasions, and circumstances; there must be such and such other correspondent variations in the present measures, to keep up the incongruity.” All which resolves into the comprehensive word, *analogy*. Thus it is found, that every means, every step of an art, includes what has been already shewn of the whole art; and consists of *matter*, furnished by memory, from sense and observation: and *form*, furnished by reason, from comparison and analogy.

AND thus it is reason that makes all our historical knowledge of any significancy to us. It is this that makes former cases subservient to the present occasion. We may look upon this, as the instrument or faculty of transferring; whereby the effects of former times and places are brought over to the present ones. Without this, sense would lose its chief use; and memory, with all its copia, would be no other than useless lumber. It is this faculty alone, that arranges our sensible ideas into any thing of subordination. Memory only presents them such as they first appeared; wholly distinct all, and independent of each other, being connected by nothing but their compresence, or co-existence, in point of time and place. The establishment of all other relations is the work of reason; which from these few sensible relations, infers numerous others; e. gr. from the compresence of two things in respect of time, place, &c. it concludes that some new appearance, perceived in the one, was occasioned by the other; and, therefore, that there was some power in the latter, by

which this was effected, &c. And thus it is we come at the relations or perceptions of cause, effect; action, passion; property, quality, &c. so that to this faculty of reason we owe the whole science of physics; which is no other than the doctrine of causes: at least the form thereof. The matter, i. e. the sensations themselves, being furnished by sense, constitute *natural history*, the basis of all knowledge whatever.

WE are now got to the top of all our natural faculties, *reason*; and the most refined of all our sciences, *analogy*. It remains to observe, that with this natural reason is connected *moral inclination*. In the case, for instance, of good; to the voice of reason representing a thing as such, is connected a desire or inclination towards the same; which is the great principle of human action, or operation, and commands a number of subordinate ones; the application of all which, constitutes what we call the *pursuit* of moral good.

AND thus we are got to the bottom of all our moral faculties, *desire*, or *inclination*. Hence, as reason is the end of passion, or perception; inclination is the beginning of action; the one terminating in the apprehension of good, where the other commences. And again, as the perception of analogy is the ultimate effect of science; the inclination, arising by means hereof, is the beginning of art; the two being joined, and, as it were, insculcated, in some middle point. And thus external or physical things come to influence or produce internal or moral ones: thus the whole effect of sensible nature is applied to moral nature. And thus do physics take hold of ethics, God of man.

incorporated into some certain province, or city thereof; where they become of farther significance and consideration than before: that is, some new ideas and circumstances are now taken into the combination, which before did not belong to it. A term of art, then, "is a word that has a meaning beyond its general or scientific one, and this meaning restrained to some one art." Or, "it is a word used to denote a certain combination of ideas, under some peculiar relation, retained arbitrarily in some art, and either not used in any other art, or for a different combination, or with other relations and circumstances."

TO make the way a little clearer to the philosophy of a term of art, it is to be observed, that from the primary, or literal sense of words, we frequently, by abstraction, form a secondary, general, or philosophical one, expressing only the quality most predominant in the former, exclusive of the particular circumstances of the concrete. Thus, the word *spirit* literally and primarily signifying *breath*, we thence frame a more simple general meaning, and use the word for any thin, subtile matter, whatsoever. Now, terms of art are not immediately formed from the literal or grammatical, but from the general or philosophical acceptation of words; which is their proper basis, or the ground-work they are erected on. The general or abstract sense of some word already established, being found to agree to something which we have occasion to give a name to; we take the word in that sense, and superadd the other incidents and circumstances, which the present occasions furnish thereto; which, being different, according to the different matter and subject of the art, specify the meaning of the term in this or that art. So that the word which, to raise it to a philosophical or scientific sense, was generalized, to form a technical one, is again particularized, or appropriated, and invested with new accidents.

THUS, the same word *spirit*, which literally signifies breath, and philosophically any subtile substance, is technically brought to denote divers other things; as, in anatomy, a thin, animal juice secreted in the brain, and detached thence through the nerves, for the uses of sensation, and muscular motion; in chemistry, the exhalations of bodies exposed to the fire: in theology, the third person of the Trinity: in metaphysics, any incorporeal agent, or intelligence, &c. In all which we see the same substratum, viz. a fine subtile substance; but this modified a great diversity of ways; each of which is susceptible, by farther super-additions, of infinite more. And hence we have legions of sorts of spirits, both in the human body, the chemists laboratories, the hierarchy, &c.

THE notion of a term will receive some farther light from that of a DEFINITION; which is, as it were, the analysis thereof. By *definition* we undo what was done in forming the term; that is, we resolve the complex ideas into simple ones, or restore the ideas from their new and artificial state, to their primitive and vague one. A *definition*, then, may be defined, "An enumeration of the several simple ideas couched under any terms, in the relation wherein they stand to one another." We have already shewn, that terms are words which have peculiar and determinate meanings, resulting from a certain combination of ideas; in which view, a term may be said to be "a word that is capable of definition;" i. e. of having its sense explained and ascertained, by an enumeration of its properties and relations; by which it is distinguished from words merely grammatical, whose meanings are general and indeterminate, and may be used with equal propriety in a thousand cases. We can explain a term; a word is inexplicable: all we can do towards this, amounts not to definition, but only to substitution, or the giving a synonymon.

THUS the idea attached to the word *force*, is absolutely incommunicable by means of any language: we can only try whether the party have it not already, under another name; to which end, we may tell him it is *power*, or *energy*, or *vigour*; if he have ideas for any of these, he will take in that of force; by its relation thereto; if he have not, we must proceed to try him with more, and tell him it is *forza*, or *vis*, or *efficacia*, or *potentia*, &c. or it is *βία*, or *σχυς*, or *δυναμις*, &c. If none of these will do, it remains to try, whether he may not have it without any name to it; and say, it is "that whereby one thing coming in contact with another, moves, or shakes, or breaks it," &c. If, by any of these means, he learns what force is, he does not form any new idea; he only learns a new name; and finds, that what he had known by one name, others call by another; or that what he had never taken the pains to distinguish by any name, some others have. To get the idea, he must have recourse to sensation, not to language; it being a physical *ens*, and only to be attained that way.

BUT the simple idea, called *force*, being given; and coming to be afterwards modified; or circumstantiated by new accidents added thereto, and thus formed into terms, in this or that art; it is here in the power of language alone to excite them, by resolving such compound idea into its ingredient ones; which, being re-compounded, or put together again, in the manner assigned by the definition, give the full adequate import thereof. Thus the idea of *force* being variously modified, and combined with other ideas of *centre*, *attraction*, *repulsion*, *will*, *machine*, &c. in the words *central force*, *centripetal force*, *centrifugal force*, *necessity* or *moral force*, *mechanic force*, &c. we can, by definition, arrive at the meaning thereof; by having those circumstances specified, or superadded to the idea of force. In this case, there is no coming at the idea by sensation; in regard it is a creature of our own, and does not exist any where without us, to make an object of sense.

HENCE appear all the diversity of definitions; technical ones, comporting only to terms, as to *central force*; scientific, or philosophical, to qualities, as *forcibleness*; and nominal, or succedaneous, belonging to simple ideas, as *power*, or *energy*.

IT is the various assemblage of simple ideas, denoted by common words, that makes all the variety of terms; as it is of simples in an apothecary's shop, that makes the variety of his medicines. The analogy goes farther; and it may be said, terms, like medicines, only differ from each other as their ingredient ideas, and the relations thereof differ. If these be not all rehearsed in the definition, the term or medicine is not specified, or distinguished from some other, which may have all, except that one or two omitted. Consequently, such one or two are the characteristics of that term; which may be explained, in some sort, by only enumerating those characteristics, and couching the rest under the name of that other term. This amounts to little more than the substitution above mentioned; and yet to this is reducible all that the schoolmen teach of *genus*, *species*, and *difference*.

BESIDES simple words, which we have observed are, in their own nature, inexplicable; there are divers others that become accidentally so: and such are all the data, or preliminary principles of any art, with respect to those who confine themselves to the bounds of that art. Thus, if it be demanded of an apothecary to define one of his simples, e. gr. mercury; he must needs be at a stand, unless he be likewise versed in mineralogy; by reason it is putting him to explain a principle, which his art does not explain, but assume; the explication thereof lying in another province. But ask him to define

fine calomel, and he is prepared for you; and will readily enumerate the several ingredients, and the manner of preparing it, which is the proper pharmaceutical definition of calomel.

HERE it may be observed, that the words used in the definition of a term do many of them represent complex ideas; and, consequently, ought themselves to be first defined, if we would have the definition complete. The term has usually divers subaltern ones; all which are resolvable into it, and make part and parcel of the knowledge held forth by it. Thus, if *mercurius præcipitatus albus* be defined, "A white medicinal powder, precipitated from a solution of crude mercury in aqua fortis, by adding thereto a lixivium of sea salt; and then purified by repeated ablutions in a filtre," &c. the ideas, *powder, precipitated, solution, mercury, aqua fortis, ablution, filtre*, &c. remain to be explained, to furnish the complete notion of white precipitate. But as this would be endless, and would defeat the intention of a definition, the practice obtains, to suppose all other terms known, except that particular one under definition. By this means we avoid the embarrass of bringing down every word to its principles, or simple ideas, and acquit ourselves by bringing it to the next complex ones: since the bringing an unknown term to several known ones, is a kind of indirect definition.

SUCH is the nature of a technical definition, which holds good or valid for those of that art, or craft, who are to be supposed furnished with the necessary data, or preliminary notices. But to make a scientific definition, we must go a little lower; and bring down the words, if not to their simple ideas, yet to general or common ones. For it is to be observed, there are great numbers of complex ideas current among most common people, which therefore may be considered as data, and used as simple ones, for more conveniency sake. All technical apparatus, then, is to be here thrown by; and instead of giving five or six hard words for one, the general effect and meanings thereof are to be made use of. Thus, the precipitate above-mentioned may be defined, "a white powder, which falls down from quicksilver dissolved in spirit of saltpetre, upon casting salt therein; and afterwards washed, again and again, by passing fair water through it," &c. where, though several of the words be complex; yet most people, in the ordinary course of life, have framed the complex ideas belonging to them; so that they may be considered as simple ones. Yet the definition can scarce be said to be complete, even here; the general, or philosophical sense of words, we have observed, is formed from the grammatical one; and, consequently, the definition ought, in strictness, to extend thither: the solution, to be adequate, should go as far as the knot; the analysis, as the synthesis.

THE reader already begins to feel this Preface grow tiresome; and yet several things are still behind. When so large a work was to follow, he perhaps imagines he should have been excused from a long introduction: and the like, probably, may the author say; who, after so tedious a work, could not be over fond of any additional fatigue. But the expediency of the case, which swayed and determined the one, may, we hope, suffice to satisfy the other. Several matters were purposely waved in the course of the Book, to be treated of in the PREFACE: which appeared the most proper place for such things as have a regard to the whole work. What has been hitherto insisted on, as well as what remains, immediately affects every article in the book; and tends, withal, to let a little needful light into certain points, hitherto involved in great obscurity. A *preface* may be considered as a vehicle wherewithal to convey the reader, commodiously, from the title-page into the book. The preface is a kind of comment upon the title; the book a paraphrase on it: or, if you had rather, the book is the title executed, the preface the title explained.

HAVING, therefore, dispatched some of the leading words of our title, ART, SCIENCE, TERM, and DEFINITION: we proceed to consider the nature of a DICTIONARY. It were to be wished, that the many adventurers in print, who publish their thoughts under this or that form and denomination, would frame to themselves some precise notion of the character and laws thereof. There is something arbitrary and artificial in all writings: they are a kind of draughts, or pictures, where the aspect, attitude, and light, which the objects are taken in, though merely arbitrary, yet sway and direct the whole representation. Books are, as it were, plans or prospects of ideas artfully arranged and exhibited, not to the eye, but to the imagination; and there is a kind of analogous perspective, which obtains in them, wherein we have something not much unlike points of sight, and of distance. An author, in effect, has some particular view or design in drawing out his ideas; either nakedly, to represent something, or to distort and ridicule it, or to amplify and extenuate, or discover, or teach, or prove, &c. whence arise divers kinds of compositions, under the names of *histories, discourses, treatises, essays, inquiries, examinations, paraphrases, courses, memoirs, burlesques*, &c. In all which, though the matter or subjects may be the same, the conduct or artificial part is very different; as much as a still-life from a history, or a grotesque, or a nudity, or a caricature, or a scene-work, or a miniature, or a profile, &c. each of these methods of composition has its particular characters, and laws; and, to form a judgment of the things represented, from the picture made of them, it is necessary we be able to unravel or undo what is artificial in them, resolve them into their former state, and extricate what has been added to them in the representation: that is, we should shew the manner thereof; whether, e. gr. they be mere nature, shewn through this or that medium, in a fore, or side-view, within-side, or without, to be viewed from above, or below; or nature raised and improved, or altered for the better, or the worse. The case amounts to the same as the viewing of objects in a mirror; where, unless the form of the mirror be known, viz. whether it be plane, concave, convex, cylindric, or conic, &c. we can make no judgment of the magnitude, figure, &c. of the objects.

IT is beyond my purpose to enter into the nature of the several methods of composition above mentioned; I shall only note, by the way, that the first writers in each marked and chalked out the measures of all that came after them. The several manners of composing amount to so many *arts*; which, we have already shewn, are things, in great measure, personal, and depend on the genius or humour of the inventors.

WERE we to enquire who first led up the way of Dictionaries, of late so much frequented, some little grammarian would, probably, be found at the head thereof: and from his particular views, designs, &c. if known, one might probably deduce not only the general form, but even the particular circumstances of the modern productions under that name. The relation, however, extends both ways; and if we cannot deduce the nature of a Dictionary from the condition of the author, we may the condition of the author from the nature of the Dictionary. Thus much, at least, we may say, that he was an *analyst*; that his view was not to improve or advance knowledge, but to teach or convey it; and that he was hence led to untie the complexions, or bundles of ideas his predecessors had made, and to reduce them to their natural simplicity; which is all that is essential to a lexicographer. Probably this

was in the early days of the Egyptian sages, when words were more complex and obscure than now, and mystic symbols and hieroglyphics obtained; so that an explication of their marks or words might amount to a revelation of their whole inner philosophy: in which case, instead of a grammarian, we must put, perhaps, a priest, or mystagogue at the head of Dictionaries. Indeed, this seems the more probable, because a grammatical Dictionary could only have place where a language was already become very copious, and many synonyms got into it; or where the people of one language were desirous to learn that of another: which we have no reason to think could be very early, or till much commerce and communication had made it necessary.

WHEN a path is once made, men are naturally disposed to follow it, even though it be not the most convenient: numbers will enlarge and widen, or even make it straighter and easier; but it is odds they do not alter its course. To deviate from it, is chiefly for the ignorant, or the irregular; persons who do not well know it, or are too licentious to keep it. And hence the alterations and improvements made in the several arts, are chiefly owing to people of those characters. There is scarce a more powerful principle in nature than that of imitation, which not only leads us to do *what* we see others do, but *as* they do it. It is true, there are exceptions from every rule: there are persons in good measure exempted from the influence of this principle; and it is happy there are; witness our Paracelsuses, Hobbeses, Leibnitzes, &c. In effect, if an art were first broached by a happy genius, it is afterwards cultivated, on his principles, to advantage; otherwise not; and it may wait long for the anomalous hand of some reformer, to set it to rights. Some of our arts have met with such hands, others still want them.

WERE we to give an absolute and consistent definition of a Dictionary; we should say, "It is a collection of definitions of the words of a language." Whence, according to the different kinds of words, and definitions above laid down, i. e. according to the different matter, and the different view wherein such matter is considered, will arise different sorts of Dictionaries: *grammatical*, as the common Dictionaries of languages; which, for one word, substitute another of equal import, but more obvious sense; *philosophical*, which give the general force or effect of words, or what is common to them in all the occasions where they occur; and *technical*, which give the particular sense attached to them in some one or more arts.

BUT, in truth, this is a little chimerical: though we have Dictionaries under all these titles, it would, perhaps, be hard to find any conformable to this partition; which is not so much taken from what really is, as what might, or should be. Dictionary-writers are far from considering their subject so closely, or confining themselves to so narrow, though direct a channel: they must have more room; and think themselves privileged by the general quality of lexicographers, to use all kinds of definitions promiscuously. It is no wonder they should not keep to views which they had not, and which could only arise from researches they never made. While the notions of *term* and *art* remained yet in the rubbish wherein they were left by the schoolmen, those of *definition*, and *Dictionary*, must needs be vague, and arbitrary enough; and the Dictionarists and Expositors profited by an embarrass which it was their business to have removed. They have not only built on it, but improved it, by a continual varying and confounding of views, imperfect enumerations, &c.

IT is not to be imagined, what mischiefs and inconveniencies have arisen from this single head; what great uncertainty it has introduced into language; and what an obstacle it has been to the improvement thereof. It is certain it has, in great measure, defeated the intention of speech; and turned knowledge, which that was to be the medium of, into jargon and controversy. All the confusion of Babel is brought upon us hereby; and people of the same country, nay the same profession, no longer understand one another. The effect is, that our knowledge is grown into little other than that of peoples misunderstandings or misapprehensions of one another; which is the only kind of knowledge that grows; and which will for ever grow; there being the seeds already laid of such disputes, as, according to the ordinary spreading of such things, must overshadow and starve every thing else. If all men meant precisely the same thing by the same name, there would be no room for their differing upon any point, either in philosophy, or any thing else: there is no more possibility of seeing the relations of things to each other differently, than of altering their nature, and overturning the system. Relations of ideas are as immutable as the Creator's will. Error, in effect, is no natural production; nor is there any direct way of coming at it; we must go about for it; and find some law of nature to put it in our power. So that error is, in one sense, truth, ere it take place; only it is not the truth it is taken for.

THERE are two manners of writing: in the one, which we may call *scientific*, we proceed from ideas and things, to words; that is, we first lay down the thing, then the name it is called by. This is the way of discovery, or invention; because the thing ought to be first found, before it is named. In this way, we come from knowledge to ignorance; from simple and common ideas, to complex ones.

THE other is *didactic*, just the reverse of the former; in which we go from words and sounds, to ideas and things; that is, begin with the term, and end with the explanation. This is the historical way, or the way of teaching and narration; of resolving the extraordinary knowledge of one person into the ordinary of another; of distributing artificial complications into their simple ideas; and thus raising and levelling again, what art had erected.

THE Dictionary comes under the latter kind. It supposes the advances and discoveries made, and proceeds to explain or relate them. The Lexicographer, like an historian, comes after the affair; and gives a description of what passed. The several terms are so many subjects, supposed to be known to him; and which he imparts to others, by a detail of the particulars thereof. Indeed, the analogy between a *Dictionary* and a *history*, is closer than people at first sight may imagine: the Dictionary relates what has passed, with regard to each of our ideas, in the coalitions or combinations that have been made thereof: its business is, to deliver the progresses made in the several parts of knowledge under consideration, by an orderly retrospect, and deduction of the terms, from their present complex, to their original simple state. The dictionary of an art, is the proper history of such art; the Dictionary of a language, the history of that language. The one relates that such an art, or such and such parts thereof, stand so and so; are managed so and so; and the result so and so: the other, that such and such a word is used as synonymous to such and such others. The Dictionary-writer is not supposed to have any hand in the thing he relates; he is no more concerned to make the improvements, or establish the significations, than the historian to achieve the transaction he relates.

THE difference between what we commonly call the *history of an art*, and a *Dictionary* thereof, is only circumstantial; arising from the very different views of the two sorts of authors: the one chiefly

regards the time and order, when each step, each advance was first made; i. e. how it stood with respect to such and such æras, or periods of time; and might more properly be called the *chronology of the art*: the other, regarding chiefly the object or intention of the art, relates its present constitution, and how it proceeds to attain the end proposed. You may add, that the former primarily considers what is past, or already advanced; the other, also what is present, or remains to be done: the one tells, e. gr. how Mercury, finding a dead tortoise on the shore, took its shell, added strings to it, and made it into a lyre: the other, how a lyre is, or may be made. And if you will likewise add this, that the history intermixes divers foreign and accidental circumstances with the discovery, which the Dictionary abstracts, and sets aside, and so reduces it nearer to science, you will have the full and adequate difference between them. Thus the making of the first lyre is related with some circumstances, which have no place in the proper structure of the instrument, and are therefore to be omitted in the Dictionary, which only takes in what belongs to the art, or artists in general, not what belongs to some one of them.

THE whole, in effect, amounts to this; that the first time of doing a thing is related by the historian with the several particulars which in any-wise, though occasionally only, and remotely, affected it: whereas the lexicographer, coming afterwards, keeps more closely and severely to the point, and relates nothing but what is essential; i. e. the first time the thing is considered as now arising; a new production or phenomenon, from some analogous principle; and therefore we attend to the foreign causes that brought it forth: whereas, afterwards, we consider it as arising from a pre-existent theory, or the prescription of an artist, and thus resolve the cause into the art itself.

ANY other difference which may seem to be between the two, is only as to more or less particular; which indeed is a thing that embarrasses and amuses us on many other occasions: thus in mere civil histories, if one relate the series of a campaign, another the bombardment of a town, and a third the wounding and death of a general officer, though the latter subjects be only part of the former, yet the first will be said to have composed a piece of *history*, the second a piece of *fortification*, and the third a piece of *surgery*. And yet there is no other difference between them than between the geography of a country, and the topography of a village, or a hillock; the history of a nation, and the life of a single person.

TO say no more, the Dictionary of art stands in much the same relation to the history thereof, that the history of a people does to the lives of all the considerable and active persons therein. Their difference is only as to the point of sight; the eye being supposed so near in the one case, as to see the parts distinctly; and in the other so far off, as to take in the whole completely: whence the one gives you all the incidents; the other only the greater. In effect, the one is all concerted to one point of view, most favourable to the whole, and the great parts; the other to many; the eye being shifted for each part, to furnish an adequate representation of each.

I am afraid to keep the reader any longer in this painful way of disquisition, wherein we are obliged to dig for every step we take. It would doubtless seem a more agreeable, as well as more reputable employment, to be raising things on high, than to be thus engaged in sinking, and working underground: a castle in the air is an object of pleasure to every body, while it lasts; and withal is easily raised, and at a small expence. Mines, and subterraneous cavities, are mere drudgery, and pioneers work difficult to carry on, dubious of success, and overlooked when done. Being therefore arrived near the surface, we take this opportunity to quit the course, and emerge to open air.

AFTER so severe an enquiry into the reason, nature, and perfections, of a Dictionary; it may prove dangerous and impolitic, to speak any thing about the present one. From the design of a Dictionary in general, to the actual performance of any particular one, the style must be much altered. A man would make fine work, that would examine the several Dictionaries extant, by the standard here laid down: none of them could abide such a trial; even that here offered must go to wreck, like the rest. It may be remembered, that the thing executed is allowed to come short of the idea conceived: the former is only a copy of the latter, and liable to all the imperfections incident to other copies. A thousand things interfere: lexicography, being of the nature of an art, deviates, of course, from the standard of pure reason; and its productions come to degenerate still farther, by the accidents that attend their bringing forth. The instruments, the materials, and forty things, come into the account: the former prove out of order; the latter obstinate and untractable, or perhaps not easy to be had. In effect, the author's situation, his want of leisure or perseverance, his frailties and foibles, nay his very perfections, all conspire against it.

INDEED a too servile attachment to the rules and methods of an art, in many cases, proves incommodious and impertinent. We know, that the rules of an art are posterior to the art itself, and were taken from it, or adjusted to it, *ex post facto*. An author, therefore, is still in some measure left to his own conduct, and may consider himself as invested with a sort of discretionary power, whereby he can dispense with some of them, and go by others of his own suggesting, where he apprehends it for the general advantage of his work. The heights of art are never to be reached by rule, but by genius; by reason the rules were accommodated to a certain concurrence of circumstances, which rarely happens twice; so that laws should be made *de novo* for every new case. While a person considers himself as following, at second-hand, the measures pointed out and prescribed by others; he will not go on with that spirit and alacrity as when he follows his own bent. He should therefore consider himself in the place of the first inventor, or as his representative, or successor; and therefore qualified to enact with the same authority for the present occasion, as he did for another.

WHEN a law is not founded on mere reason, as we have shewn is the case in art; the observation of such law cannot be enjoined on others. It may well obtain, with respect to the person that first established it, as being accommodated to his particular genius, situation, and other circumstances; but it cannot extend to those in whom these conditions are different. Accordingly, a few laws of art are universal. Small matter by what laws and prescripts a people is guided, provided they be led on to happiness; or by what course a vessel steers, if she do but make a prosperous voyage.

WITH this view in the present work, we have taken all the advantages the nature of the thing would afford us; and have frequently made ourselves delinquents against strict rule, for our reader's benefit. A Dictionary, by our confession, is to be a history; and yet we have not kept so close to that form as to abandon the benefit of all others. In the business of mathematics, for instance; the regular way would be to relate or enumerate the several matters belonging thereto, without investigating or demonstrating their truth: demonstrations, strictly speaking, have nothing to do in a Dictionary, no

more

more than authentic instruments, declarations, &c. in a history. To demonstrate the several properties and relations, e. gr. of *lines, angles, numbers*, &c. in a Dictionary, were an indiscretion as great, as for an historian to produce certificates and copies of parish-registers, of the births, burials, marriages, &c. of the several persons whose actions he relates. And yet, on some extraordinary occasions, we have not omitted to give demonstrations; where, for instance, there was any thing very interesting, or important in them: a practice like which historians themselves frequently get into; though it be a confessed irregularity, as it breaks in upon the unity of the narration.

BUT we are far from the views of certain Dictionary writers, who seem to think it incumbent on them to demonstrate every thing that is capable thereof. This is directly to forget the nature of their work; and to dispense with the rules, both to their own and reader's cost. How dear, e. gr. must a competent demonstration of most of Euclid's propositions be here purchased? Either the reader must be at the pains of picking it piece-meal out of twenty several parts of the book, where the alphabet has happened to cast it; or the author must relinquish the Dictionary-method, and deliver things together, that properly belong to so many several places; or else there must be a repetition of the same thing a dozen times over? And for what? Why, to make the Dictionary do the business of an Euclid's Elements: which it is the unfittest in the world for. You might, with equal propriety, make an ozier-basket supply the office of a pleasure-boat; or a sword-pommel that of a portmanteau, as Paracelsus is said to have done.

WHEN a thing has been once regularly demonstrated, it may be assumed, or taken for granted: every body, perhaps, may be concerned in the truth of it, but not to see the truth of it. To make it a principle to take nothing on trust, would be as troublesome in the sciences, as in life; and would render us, for ever, both wretched and ignorant. Not only suppositions, but even errors, frequently lead us to knowledge otherwise inaccessible. Mathematicians themselves, who, of all others, keep most to demonstration, yet find themselves under a frequent necessity of admitting and making use of things as true, which they do not then see to be so; and thus are swayed, like other people, by authority. A person who makes use of the equality of the square of the hypothenuse, to the squares of the two sides, upon the credit of Pythagoras or Euclid's having demonstrated it, does little more than what they themselves do on many occasions, who assume and make use of propositions they have no other evidence of, but the knowledge and remembrance of their having been demonstrated.

THE case is much the same with *experimenting*, which stands on the like footing as demonstrating. They are both necessary in their kind; the former, as it leads to our knowledge, the latter as it follows and secures the rear: but their use is to be restrained to these purposes; and may be dispensed withal, in cases where neither of these are concerned. A person who would discover any point in physics, or broach and establish any point in mathematics, must use them; but the occasion is, in great measure, private and personal; and does not extend to the public in the same degree as the knowledge of the doctrines themselves. The particular means by which a thing was first come at, or is shewn to be true, do not interest us so immediately as the knowledge of the thing itself, which might have arisen from various other means, and in other manners: a man may know a thing in the way of *presumption*, of *opinion*, of *surmise*, of *authority*, and forty other ways; which, though all much inferior, and less excellent than the way of *demonstration* and *certainty*, yet we are glad of them on many occasions, and use them to good purpose. Every degree of knowledge is valuable. It would be an unreasonable, as well as incommodious fullness in us, to refuse all light, except that of noon-day. We find our ease and happiness frequently depend on the doing of things by twilight, or even moonlight, or the still more dubious light of a rush, or glow-worm.

PYTHAGORAS, in all probability, was not ignorant of the equality of the square of the hypothenuse, &c. before he demonstrated it; else, what should have led him to look for the demonstration? And the like may be said of many of Mr. Boyle's experiments. Plato even observed, that "the very putting a question, implies some knowledge of the thing demanded; since, without this, we should not know that what is returned is an answer."

LESS might have sufficed to shew why, in the course of this work, we have usually omitted the apparatus of demonstrations and experiments; and given the doctrines pure and unincumbered by any thing not essential to them. The experiments, for instance, which led to the theory of light and colours, what would they be, but like the scaffolding before a fine building, which break and interrupt the sight, and hide most of the beauties of the work? Such scaffolding, it is true, would be of use to the connoisseurs; who might have a mind to examine the work, to measure the proportions of the several parts, and inquire whether every stone were justly laid. But, to the generality, it would rather be an incumbrance, much to the disadvantage of the edifice. Yet, in the case of experiments, as of demonstrations, we have receded a little from strict method, in favour of such as have any thing very remarkable or beautiful in them. For the rest, the reader, if his curiosity serve him, is told where to have them at first-hand.

IN the case of definitions, too, we do not keep inviolably to what has been above laid down, but reserve to ourselves the discretionary right claimed by our predecessors. We make use, occasionally, of all sorts of definitions, as they best suit our design, the conveying of knowledge. In effect, we have usually a regard to the degree of notoriety, importance, &c. of the term, though a point arbitrary and indeterminate enough; and endeavour to accommodate the explication thereto. The rule should be, to say, *Communia propriè, propria communiter*; to express common things so, as that even the learned may be the better for them; and the more abstract and difficult so, as that even the ignorant may enter into them. Accordingly, in popular terms, we endeavour to give a technical definition; i. e. to waive the general and obvious meaning, which is supposed to be known, and enter farther into the nature of the thing, not known. But in the more remote terms, the popular and nominal definition is also given, as being supposed there to be wanted.

The literal and technical definitions of a term are lame and imperfect without each other; the first gives its use and effect, as part of general, or abstracted science; the second, as applied to some particular subject. The literal notion, e. gr. of *relation*, is that of "conformity, dependence, or comparison of one thing to another:" thus much is common to relation, both in grammar, logic, geometry, &c. i. e. it expresses this, both when applied to words, to propositions, to quantities, &c. The technical notion of relation, in grammar, is "the dependence of words in construction:" this makes the grammatical notion of relation; i. e. it limits, or ties down, the general abstract idea of relation, to the particular subject of grammar, words. So, the technical notion of relation with regard to

arithmetic, geometry, &c. is "the conformity or dependence between two or more lines or numbers."

FROM the whole, it follows, that the two kinds of definitions differ as art and a science, as general and particular reason. And hence, from the several technical or particular meanings, one might run back to the general, or literal meaning, by abstracting, but not contrariwise, from the general or abstract, to the particular ones; in regard those other are arbitrary, and depend on the good pleasure of the artist, who first introduced them.

IN strictness, every term should be first given in its literal or grammatical meaning; especially if it be a term in several arts: as this helps to shew the orderly derivation of the word, from the simple or general idea that gave rise to it; to its last, and most complex state. Yet we have not always kept to this method. In some words, there is much of the literal import of the word preserved in the term, or the technical one; as in the word *free*, or *freedom*; a man who has a notion of *freedom*, in its common or literal sense, will easily pass on to all the particular ones, as *free city*, *free port*, *freedom of speech*, of *behaviour*, &c. so that, in this case, a literal definition might almost alone suffice; the meaning of the word having suffered little alteration at the hands of artists. In other words, the literal or primary import of the word is almost lost in the term: for instance, in the word *power*, in arithmetic; which will scarce bear any tolerable definition at all. Literally, the word implies a relation of superiority, or influence over something, which, in respect hereof, is conceived as weak, &c. According to the analogy of language, therefore, the arithmetical power should have somewhat of this relation of superiority over the root: but the root itself is also a *power*; so that the definition of power must take in two opposite relations, viz. both power and subjection.

PERHAPS, to go on in the most regular manner, and take up things at their source, we should begin with settling the etymologies of words: but the great alteration many words have undergone, and the great length they have been carried from their original meanings, in being borrowed from one language or age to another, would frequently make this not only a tedious, but an useless labour: so that here, too, we have used a discretionary power, and only meddled with etymologies, where they appeared of some significance.

TO explain a term, as a term, we usually express the circumstances wherewith it is attended, in the art to which it belongs, in their technical names. This is agreeable to the manner of artists, who, writing of their respective arts, use terms as common words, and suppose them to be known; and it is this that constitutes a technical explanation; not the giving the general effect or force, in such words as may equally agree to all other arts. And yet, in some cases, we recede from this rule, particularly in divers of the lower classes of manual arts, and the structure of some machines: thus, e. gr. in turnery, we make no difficulty, instead of *chuck*, to say a round piece of wood, &c. The reason is, that where the several subordinate terms of a definition are themselves explained in their places, we may suppose them understood; but where the term defined is itself so low, that we do not go lower to define the parts couched under it; there we choose, as more intelligible, to substitute some more obvious name, or the general meaning of the word, for the term itself; and thus prefer the general or popular, to the technical definition.

FOR it is to be observed, that the Dictionary has its limits; it only carries matters to a certain pitch of simplicity, where we suppose people may take them up, and carry them farther as they please. We bring them into their sphere, and so leave them. So much knowledge, i. e. such a number of complex ideas, as we may presume people usually to have got in the common occurrences of life, we are willing to suppose, as a footing: where these end, our work is to begin, which is to take in the rest.

IF at any time we explain a complex idea, which it may be supposed most people have formed; it is because we think they do not take in all the simple ideas that go to constitute it: as in the case of *milk*, *blood*, or the like, where people are contented with two or three of the more obvious properties and phenomena, and slur over the rest. Thus, in *milk*, *whiteness* and *fluidity* are almost alone considered; and these, in the common opinion, constitute *milk*; so that whatever has these two attributes, comes in for the denomination *milky*. The texture and component parts of this milk, the manner of that fluid's being secreted, collected, &c. with the peculiar properties and virtues resulting from all these, are left behind. So in *blood*, it is enough it be a reddish, pretty compact, animal juice; when warm, fluid and homogeneous, &c. This is going a great way, and even Dictionaries seldom go farther: but for the component parts, the *cruor* and *serum*; with the component principles of these, viz. the *oil*, *phlegm*, &c. their form, properties, &c. whence arise the crasis, colour, heat, specific gravity, &c. of blood, Dictionary-writers do not ordinarily trouble themselves.

IF, by the artifice above mentioned, we get free of a vast load of plebeian words, which must have greatly incumbered us; the grammar and analogy of language disengage us from a still greater number of all kinds. The various states of the same word, considered as it comes under different parts of speech, and accordingly assumes different terminations, increases the list of terms immensely: as in *dark*, *darkness*, *darkening*; *project*, *projection*, *projectile*, *projective*, &c. which may either be considered as one and the same word, under different habitudes; in regard there is a common basis of them all: or, as so many different terms, in regard every one takes in something not contained in the other. This latitude we make use of occasionally; and either consider the words this way or that, as seems most advantageous to our purpose. In some cases, where the alteration is merely grammatical, we content ourselves to explain them in one state, e. gr. *sheering*; and suppose the reader able, by grammar, to form the rest, as *shorn*, &c. In others, where several particular ideas are arbitrarily superadded to the word in one part of speech, which do not belong to it in another, we there explain it in all: as *precipitate*, *precipitant*, *precipitation*, &c.

THIS gives an occasion to mention a strange kind of licence, frequently practised in our language. Though there be ordinarily a great deal of difference between the several states or modifications of the same word, e. g. *reflecting*, *reflection*, *reflexible*, &c. the same as between the action and quality, the power and the exercise of it in this or that case, the cause and the effect; yet authors make no difficulty of using them promiscuously; which would make downright nonsense, were the readers to keep to the strict import of the word. But the truth is, they are not so critical about the matter: if the meaning come within their reach, they jump at it, and are glad to take it; without waiting to see whether it would reach them in its present direction, or whether it might not rather fall short, or fly by them. What confusion should we make, even in our best and clearest writers, were we to resolve not to under-

stand them but according to the strict rules of grammar, and not indulge them the liberty of using one word for another? In a thousand cases, the same idea is denoted by opposite terms; thus, we say, such a medicine is good *for*, or *against*, the worms, plague, &c.

IT may be urged, that as custom has authorized this latitudinarian practice, it is become of grammatical authority; and that as the licence is known, it cannot deceive us; since the readers are led, on such occasions, to relax the bands of grammar, and annul the difference between words, in order to admit one a substitute for another. But I am afraid this expedient scarce indemnifies us from the abuse. Besides the extraordinary embarrass of reading what is thus promiscuously written, it is not always we know when and how to supersede the strict import of an author's words, and make him speak sense in his own despite. This I take to be none of the least occasions of controversy and dispute owing to language, and which we may almost despair of seeing rectified, unless in a new one.

I SHALL not here enter upon the merits and defects of the English tongue, considered as a language: a great deal has been said on that head by others, for which the reader may turn to the proper article in the Dictionary itself. What we have to add, will be chiefly as it stands with regard to the arts, and more particularly to a Dictionary of arts.

I BELIEVE none will question but we have met with difficulties enough in the course of this work. The very bulk and dimensions of it confess as much, and the variety of its matter still more. But these were natural difficulties, appendant to the very design; and therefore did not afflict us so much as some others, which arose from it at second-hand, or were superadded to it, as it were, by accident. And such was the present state of our language, which alone were sufficient to have baffled the best scheme, and broken through the best measures, that could be formed.

WE have already represented language as something very important; and as having a near and necessary interest in knowledge. *Names* are solemn things, as they are representatives of ideas themselves, and used on most occasions in their stead: and *terms*, or combinations of ideas, are still more so; as much as complex engines are of farther and nicer consideration than the simple mechanic powers. But who would imagine this, to consider the wanton use we make of them; and with how little fear or discretion words are treated among us? Every body thinks himself privileged to alter, or set aside, the old, and introduce new ones at pleasure. England is open to all nations; and our traders in this commodity import their wares from every country, in all security. The humour of importing seems to have possessed every part of us: we are not only unwilling to be without the natural produce, the fashions, and the follies, of our neighbour countries; but we even envy them their words and phrases. The effect is, that our language continues in a perpetual flux; and no body is master of it for two days together.

A MAN never knows when he is at the end of the terms, e. gr. in architecture. When he has got two or three names for some one member, and thinks himself over-stocked, it is odds he has not half. It is not enough he knows what the thing is named in English; but he must likewise learn what the French, Italians, Latins, and Greeks, likewise call it, or frequently find himself at a stand. Thus it is in the case of *fillets*, *listels*, *listels*, *reglets*, *platbands*, *bandelets*, *ténias*, and *baguettes*; of *chaplets*, *astragals*, *batoons*, and *tores*; of *gulas*, *gueules*, *doucines*, *cymas*, *cymatiums*, *ogees*, and *talons*; *ovums*, *ovolos*, *echinuses*, *quarter-rounds*, *boultins*, &c. between which there are no known, allowed differences; but they are either used indiscriminately, or distinguished arbitrarily; one person making this distinction, and the next another, or perhaps none at all. So that if we come strictly to Dictionaries, we should have a different one for every author.

BUT the mischief does not end here: for as the ancient arts are, in many respects, different from the modern; the use of their terms necessarily involves us in a new confusion, and makes the same word stand in an ancient author for one thing, and in a modern for another. Thus it is in *parastata*, *orthostata*, *anta*, &c. In effect, there is that alteration continually making in the language of architecture, that there ought to be a different Dictionary of it for every different age.

THE truth is, a fourth part of the words, in some of our popular Dictionaries, stand on no better authority than the single practice of some one fanciful author; who has met with Dictionary-writers fond enough to take his frippery off his hands, and expose them to the public for legitimate goods. By these means these exotics have obtained a kind of currency; so that a Dictionary would be thought defective without them. To omit even our fopperies, would be thought a failing; and might even be esteemed, by some, as the most unpardonable of all. On these accounts we have been obliged to temporize a little, how much soever against the grain; and thus, perhaps, have contributed to the still farther establishment of a number of words, which we had much rather have proscribed.

UPON the whole, nothing could be more desirable than an *index expurgatorius*, to clear the language of superfluous words and synonymons; to expunge the modern French and Italian terms in the several arts, where we have Latin and Greek ones; and even the Latin and Greek ones, where we have English or Saxon ones, equal in sound and significancy. I think the learned languages ought to have the preference to the modern, because every person may be supposed to have read, but not to have travelled; and our country words I would prefer to any others, because there is the most analogy between them, and they usually retain more of the origin and etymology than those transplanted from other languages. Such a reform would reduce our dictionaries to more reasonable dimensions; and disencumber the arts of half the difficulty now to be surmounted in attaining them.

BUT there is another spring of words no less prolific than that hitherto spoken of, and which has produced a swarm of spurious, mishapen words, which no nation but our own would have owned; I mean the itch of coining, or making, English words, by a sort of analogy, from the Latin and Greek ones. This fault the tribe of lexicographers have carried to a strange excess. How must a man stare, to see what detestable stuff some late writers of that class have furnished us with; words of their own manufacture, scarce fit to do any thing with, except cure agues! Witness *scopulosity*, *sticulous*, *scatebro-sity*, *siccific*, *pugnacity*, *segnity*, *sputatize*, *mulierosity*, *mugient*, *foolousness*, and many thousand more, at the reader's service, to be met with in a Dictionary which few people are without. We are already over-run with this writer's scare-crows: what shall we be, when, having thus anglicised all the Greek and Latin words, he proceeds to do the same with the Dutch, Irish, and Welsh? Indeed I am the less angry with him, for that he has carried the abuse so far, as must not only save people from being seduced, but bring the practice into contempt: such monsters cannot possibly live long: if they have escaped the

midwife, who ought to have strangled them ere they came to light, yet, if ever they stir abroad, they must infallibly be knocked o'the head.

HOW oddly will our practice in this respect look, when confronted with that of our neighbours? One of the most learned men, and best critics, of the last age, M. Menage, incurred infinite censure for only endeavouring to introduce the single word *profatur*, and could not succeed in it; notwithstanding that a word of that import was confessedly wanting in the French, and both the sound and analogy of the new word were unexceptionable.

To return.—The different states of different arts are remarkable: some of them have been refined to a degree of subtilty that has ruined them; as metaphysics, and logics: others have scarce had any culture, but lie waste and over-run for want of it; as agriculture, &c. The grossness of some is their fault; it being such as disgusts and forbids a delicate mind from pursuing them: in others, their subtilty and nicety is their bane, as leaving nothing for the mind to feed on. What meagre fare, for instance, are the school rules, and doctrines of *mediums*, and *extremes*? &c. They furnish us, indeed, with relations, and true relations too; but these so remote from all purposes of life, that they are in great measure insignificant.

IT is certain, all our knowledge and arts ultimately refer to the great end of preservation. The faculties of the mind, like those of the body, were not given us for the mere exercise, or gratification, of them, but in subserviency to farther purposes. Our knowledge is all originally a sort of revelation; and the Divine Being reveals nothing to us for the mere vague sake of our knowing it, but that it may minister to his ends, the being and well-being of his creatures. Our perceptions and notices are second causes, or at least occasions, of what we do; and, no doubt, are under the direction of him for whom we do, whose glory is served thereby. In reality, they all centre and terminate, at last, in our preservation; and, according as they are farther from, or nearer to, this point, they are found fainter or stronger; very near, they are palpable and cogent; as they recede, they continually abate of their clearness and evidence; and when arrived at a certain distance, they dwindle to nothing, and are lost. At a great height from this centre, the nexus, or chain, whereby things are held together, and in virtue whereof we conclude from things known, to things unknown, becomes insensible; so that we lose our hold, and wander on we know not where. Our faculties here falter; the objects they meet with are inadequate to them; the air grows too thin for respiration. But where we leave off, there, possibly, some superior order of beings may take it up.

IN effect, the several arts have been cultivated to more or less purpose, as our preservation is more or less immediately interested in them; and by this key one might almost venture to judge which arts are capable of being carried still farther, and which not. Our knowledge of *very great*, and of *very little* things, is very imperfect, e. gr. of very great and little *objects*, *distances*, *sounds*, &c. And the reason, no doubt, is, that there but little relation between us and them; so that we are but little interested in the knowledge of them. Those things we have necessarily and immediately to do withal, are made to our reach; for the rest, it is no great matter what they are.

AND yet our curiosity has found means of making even these more cognizable than otherwise they are: we can, in some measure, alter the established relation between our faculties and their objects, and make use of one law of nature to undo, or supersede another. Thus we can magnify a little sound, or little body, or a little distance, &c. or we can diminish large ones; and thus make things, in some measure, adequate objects, that naturally are not so.

BUT there is no great advantage in this: we only, by these means, come at a better apprehension of things which nature seemed to put out of our way, for no other reason but because they did not concern us, lest we should be engaged to mistake, and run after things we had no business with, to the neglect of those with which we have. Thus anatomy is found of less use in physic than at first sight one would imagine; as being employed in taking things asunder, and considering them in parts, which nature intended to act in conjunction. There is I know not what secret law, whereby the effect of a thing is, as it were, annexed to its integral state; so that in proportion as you either diminish it, or enlarge it, its effect is altered, in a manner beyond what we can well account for, from the bare consideration of magnitude.

ABUNDANCE of the less useful notices we find were kept back, and left to be accidentally turned up in course of time: such as the knowledge of optic glasses, and their effects. This affords an illustration of the goodness of nature, in contriving that things most useful and necessary should be most obvious, so as to be almost discoverable by a sort of instinct; and the other less immediately useful ones left to be accidentally turned up in the course of experiments and disquisition. We may admire her wisdom still farther than this, that she should, as it were, go out of her way, and annex a sort of pleasure beyond her main purpose, to the knowledge even of things not immediately useful, in order to engage us to industry and activity. This shews that she has ends to serve by that very activity; and, perhaps, is the best demonstration in the world of the necessity we are under to pursue knowledge; and may raise a suspicion, that this very pursuit may possibly contribute to our preservation in some farther manner not yet attended to.

IT is no wonder the school-philosophy should be carried to such a length, considering the narrowness of its object, and the great number of hands to cultivate it, for so long a time. Its chief employment is in assigning and enumerating the characters and differences of our perceptions, taken as they are excited in us in the natural course of things; by which it is distinguished from the modern philosophy, which is chiefly employed in means to vary and modify these perceptions; and thus find out farther relations and differences than would otherwise have appeared. The philosophers of the former kind are contented to take nature as she comes home to them, and apply their reasonings thereto without more ado: those of the latter go out in quest of her, to have more matter to reason upon. The former are more contemplative, the latter more active; the former, in fine, reason, abstract, and discourse, more; the latter, observe, try, and describe, more.

HENCE we discover why the old is much more perfect in its kind than the new. The former has little to do but compare, order, methodize, &c. what is ready at hand; the latter has likewise to *find*. After which, all the labour of the other still remains. The former takes nature in all her simplicity; the latter adds art to her; and thus brings nature into consideration in all her diversity: the former chiefly considers natural bodies in their integral state; the latter divides and analyses them: so that the former finds most of the principal relations, the latter many more curious and amusing ones. Hence

the former hastened to its perfection, and could not long hold out, for that its matter was limited: the latter can scarce arrive at perfection, since experiments are endless. To say no more; to have philosophy complete, we should have the order, precision, and distinctness, of the old; and the matter, the copia, of the new.

THE modern is yet wild, and unascertained; it is not arrived at the maturity of method; the mine is but just opened, and the adventurers are chiefly solicitous about the matter, to see what it affords; it will be long ere it arrive at a just extent, to give room and leisure for reducing it to regularity; not but the rules and methods of the ancients are, in some measure, applicable to the new, and will go a good way towards the arranging of it; but the present philosophers seem too warm and sanguine for such a business; and the farther they go on to dig materials, still the more difficult will the ranging of them be. This a man may be positive of, he never will see half the experiments and observations, already made, employed in a system of physics.

BUT when that is done, much will still remain ere we have the chief uses of it. For physical knowledge, strictly considered, is only a means of arriving at a higher and farther kind. Histories, observations, and experiments of the kinds, order, strata, &c. for instance, of fossils, are useful things, as they tend to lay in a stock of sensible phenomena for the mind to work upon, digest, and draw new notices from, for the improvement of our own faculties, and the better conduct of life: but it is short-sightedness to forget this farther view, and look only to the things themselves. The bare acquisition of new ideas is no real advantage, unless they be such as are adapted to the circumstances of our wants and occasions, or capable of being made so. Knowledge, in its first state, is like food in the stomach, which may please and satisfy us, but is of no use to the body till farther prepared: it must be carried further, and assimilated, ere it feed us. The modern philosophy is not so properly a philosophy, as the adit, or opening, of one: its matter has yet only undergone the first concoction: we are yet chiefly conversant about new physical relations, learned by sensation; whereas, to bring it to the perfection required, it must have undergone the farther operations of imagination and reason. Mere physics, as such, do not make a philosophy; those physics must first be carried up to metaphysics, and ethics, ere we can justly stop.

SENSIBLE phenomena, we have already shewn, are the foundation of philosophy; but the edifice will neither make any figure, nor afford much convenience, till it be carried one or two stories higher; it is but, as it were, the cellaring or ground-work; which one would think were no very comfortable place to live and spend one's time in: it is one extreme to take our lodging, as some virtuosos are contented to do, under ground; and another, to reside altogether in the garrets, as the schoolmen may be said to have done.

THE school-philosophy, however, is of some farther use, as matter of history: we learn by it how people have thought, what views have obtained, and in what various manners the same thing has been conceived; which, though it be knowledge, as it were, once removed, yet it is not entirely useless. The history of human thoughts is, no doubt, the most valuable of all others; it being this alone that can make the basis of a just logic; as physiology, of just physics. We must know wherein people have failed, or fallen short, or been deceived, to learn the reasons thereof, or to be able to form rules for avoiding the like. The several opinions that have obtained, may be considered as so many phenomena of the human mind, which must be considered, and enquired into, to find its nature. This alone were enough to have engaged us not to omit that part of learning in the present work: though there were not wanting other circumstantial reasons, which had also their share; as the necessity hereof to the understanding, not only of the ancient writers, but even of the modern ones, who frequently combat, remark, &c. upon the ancient notions. To which it may be added, that abundance of our terms and phrases are derived from them, and therefore could not be so completely understood without them.

THE language of the ancient and modern philosophy is not very different: the chief diversity is in the different ideas affixed to the same words, and the different applications of them. And happy had it been for the moderns, had they formed a new set of terms, adapted to their new notions! By adopting the old ones, they have not only introduced much ambiguity and confusion, but have even lost the credit of many of their own discoveries, which now lie blended and buried among those of the ancients. One is at a loss to think what could induce the great philosopher of our age to retain the word *attraction* in the sense he has done. The stamp and impression it had already taken from the ancients, made it less fit to receive a new one: it could, at best, but take it imperfectly, and the result was, a promiscuous image, wherein we neither see the old nor the new distinctly. It is difficult for the imagination totally to divest a sound of its received meaning, and consider it as indifferent to all things, as much as it is to annihilate the characters on a piece of paper, and consider it as a mere blank. Accordingly, though the great author above mentioned explained over and over, in the clearest terms, the sense he affixed to his *attraction*, yet experience verifies how much he was overseen; the chief objections against his whole system having been drawn from misapprehensions of this very word, which keep half the philosophers in Europe still at a distance, afraid to admit a most excellent doctrine, merely out of distrust of the vehicle by which it is conveyed. But this by the way. The reader who desires to see farther, may turn to the articles *ATTRACTION*, *NEWTONIAN PHILOSOPHY*, *GRAVITATION*, &c.

WHAT has been spoken of the school-philosophy reminds us of *astrology*, the terms whereof are not omitted in this work. Were it only that it once obtained, is still extant in books, and has given occasion to abundance of terms and phrases adopted into other arts, it would have a title to be remembered. "The history of men's follies, says the inimitable Fontenelle, makes no small part of learning; and, "unhappily for us, much of our knowledge terminates there." But this is not all; and they who absolutely reject all astrology as frivolous, do not know it. Every art and science has its vanities and foibles, even philosophy, mathematics, and theology; and every one its good sense, even astrology. The heavenly bodies have their influences: the foundation, therefore, of astrology is good; but those influences are not directed by the rules commonly laid down, nor do they produce the effects usually attributed to them; so that the superstructure is false. Astrology, therefore, ought not to be exploded, but reformed. Indeed a reformation would reduce it into a little compass; but this little is too much to be lost, as it now is, among the heap of trumpery mixed with it. We have even been careful to preserve what is just and rational in the doctrines of *physiognomy*, *witchcraft*, and many other fanciful arts. The time was, when physics was not much more worthy the study of a man of sense than astrology now is; so that one might propose an *introductio ad sanam astrologiam*, as a desideratum.

OUR Preface seems now grown into a Dissertation in good earnest: enough has been discoursed of the general nature and subject of the work; allow me now to descend a little more to particular and personal matters, and thus end my Preface, where I need not have wanted precedents for beginning it.

WHAT has been said hitherto, has been on the advantageous side of my work: to acquit myself to the reader, it will be necessary I turn the medal, and represent some things which appear on the contrary side. The book, in reality, is not without considerable failings, of more kinds than one. The curious reader must expect he will here meet with omissions, and there with redundancies: here the method and œconomy are not kept to; there an article is imperfectly treated; here, a passage from some other language is not sufficiently naturalized; there, a sentiment of some other author is not sufficiently digested: here, in fine, the author was overseen; and there, the printer.

ONE might palliate these objections, by alledging, that “they are things not peculiar to this work, but extend to all the kind; that most of them arise, of necessity, from the very nature and form of a Dictionary; and that many of them are not peculiar even to a Dictionary, but are found in all extensive undertakings, and are appendant to the very best part of its design, its universality.” But, instead of extenuating, I had rather be taxed with inflaming and aggravating.

FOR errors, they cannot be very few, considering the hands through which most parts of our knowledge have passed, and from whom we are obliged to take many of our accounts! What one author, upon the narrowest subject, can be produced, that has not his share of them? And what Argus could possibly see and correct the oversights in all the authors he had to do with? Scaliger, in his exercitations against Cardan, has shewn some twenty thousand in one small work; and no one imagines he has picked it perfectly clean. Yet Cardan was no ill author. Bayle’s chief design in composing his Dictionary, was to detect errors in Moreri; which he succeeded in so well, that his book has been called the *errata of Moreri’s*. Yet is not Bayle himself without his errors? a late writer has discovered some twenty-five in a single article of not quite so many lines. F. Hardouin, in the preface to his *Nummi Antiqui Populorum & Urbium*, says, it may be called *Errata Antiquariorum*; and yet M. Vaillant spied not less than three hundred errors at the first reading it over. So easy a matter is it to discover faults in others, and so difficult to prevent them in ourselves! The most learned Dr. *****, who offered to point out five thousand faults in the Lexicon of Hesychius, has been charged with committing forty-six in his emendations in the first book of Horace’s Odes, besides ninety in the notes.

NOTHING of this kind can appear surprising, when we consider on what a multitude of sides a man is accessible to error! An author we trust to, deceives us—our own judgment betrays us—our attention leaves us for a moment—our very eyes and hands play us false—or, suppose we escape all these snares, an amanuensis shall bring us into the scrape; or, if we get clear here too, we are in imminent danger of miscarrying in the printer’s hands.

IN a work of any considerable extent, and variety of matters, it seems impossible not to err. All the qualifications requisite for a faultless writer, scarce ever concurred in a more signal manner, than they did in Jos. Scaliger, whose book *De Emendatione Temporum* is one of the chief performances in the whole compass of literature. Yet has F. Petau discovered, at least, a thousand slips in it!—Who then can be safe? He only who writes nothing, or next to nothing. If a Baronius will compile Annals; Du Pin, a *Bibliothèque*; or Baillet, *Jugemens des Sçavans*; what triumphs do they prepare for future Pagis, Simons, and Menages?

THE most we can say, is, that we hope there will be few errors found in the present work, in comparison with others of the like kind: many thousands we have corrected, both in the Dictionaries and other writings we have collected from, by means of the light which other parts of knowledge afforded: but after so large a harvest, no doubt, there remains a sufficient gleanings. We flatter ourselves, however, that what we have overlooked, the reader will frequently be enabled to correct, by the means here afforded; and that there will not be many errors found in the book, which the book itself will not help to rectify.

AS to *omissions*, there is scarce any avoiding them; and the more intelligent the reader is, the more of this kind he will necessarily discover. Indeed, I must own myself greatly debtor on this score; and though at present insolvent, yet if the reader will give me credit, it shall be my endeavour to see all I owe discharged; if not in a lump, yet by a course of payments.

FOR *redundancies*, people will hardly be agreed about them. After one man has picked what he thinks fit of this kind, and laid it by, it is odds but a second tax his temerity, and want of taste, and restores half of them to their places; and a third will, perhaps, be tempted to replace the remainder.

AS to *irregularities*, and breaches of method, I will not claim impunity on the score of being the first that has attempted to introduce any certain rules or method into this way of writing: but there will be, at least, this peculiarity attending my case, that I cannot easily be indicted for the breach of any laws but my own. I am sensible, however, there is no point I have been more delinquent in than this of method: and that the references, and necessary connexions between the parts, which should shew their relation, and help to put them together, are but too frequently either dropt, by which the reader is left without his clue; or misplaced, by which he is put on a wrong quest.

THE *references*, it may be necessary to observe, are of two kinds; the one *real*, which direct to some other article, wherein the matter in hand is farther explained; the other *grammatical*, or *verbal*, serving to indicate some particularity relating to the name; e. gr. some synonym, paronym, opposite, etymon, or the like. The use of the former is palpable, as they are conversant about the relations of *things*; that of the latter is more obscure, as dealing only in the relations of *words*: yet these are as essential to the work, considered as a Dictionary, as the others are to it, considered as a body, or system.

AS to *jejuneness*, and crudity, no doubt, there must be much of that kind, considering the short time so great a load of fruit had to hang and ripen. Much of it was gathered ere it could possibly be matured; so that it is no wonder it now and then tastes of the wood. But setting aside this; if a man may not be allowed to say a good number of but indifferent things in the compass of five hundred sheets, I know not who would be an author.

LASTLY, as to there being little *new*, and of my own growth, I must here change my style; and, from confession, turn to vindication. The work is, what it ought to be, a *collection*; not the produce of one man’s wit, for that would go but a little way; but of a whole commonwealth. If any person will undertake to write a Dictionary, even of some one particular art, from his own fund alone, a man may safely venture to foretel, that it will not be good for much. I do not pretend to

entertain my guests at this rate, with just what my own scanty granaries afford: the whole country is ransacked to make them the fuller banquet. Nobody that fell in my way has been spared, ancient nor modern, foreign nor domestic, Christian, nor Jew, nor Heathen: philosophers, divines, mathematicians, critics, casuists, grammarians, physicians, antiquaries, mechanics, have been all brought under contribution.

NONE of my predecessors can blame me for the use I have made of them; since it is their own avowed practice. It is a kind of privilege attached to the office of lexicographer; if not by any formal grant, yet by connivance, at least. I have already assumed the *bee* for my device; and whoever brought an action of trover or trespass against that avowed free-booter?

IT is in vain to pretend any thing of property in things of this nature. To offer our thoughts to the public, and yet pretend a right reserved therein to one's self, if it be not absurd, yet it is fordid. The words we speak, nay, the breath we emit, is not more vague and common than our thoughts, when divulged in print. You may as well prohibit people to use the light that shines in their eyes, because it comes from your candle: even clap it in a dark lantern, and let us not be amused and dazzled by it: if we may not be the better for the good things, let us not be the worse for the ill and indifferent ones mixed with them.

WE see the same thought, which was first started in one author under a world of crudity, borrowed by another, become farther improved and ripened; and at length, being transmitted to a third, yield fruit in abundance. All plants will not thrive in all soils that will produce them; some languish in their mother beds: whence the gardener is under a frequent necessity of replanting, &c.

SOME persons, I know, condemn all use of Dictionaries, abridgments, and compilations whatever. The Scaligers, Salmasiuses, Huets, and other critics, protest against every thing that may tend to facilitate and shorten the course of study, as it tends, at the same time, to lessen diligence and application, to exempt men from the necessity of going to the fountain-heads, and thus renders them superficial. What we attain easily, say they, is lost again as easily: one of the chief fruits of study is, to enure men to labour and attention: what room is left for the judgment to act, where every thing is methodized, and laid in order? What occasion for the memory, where a man can immediately have recourse to every thing he wants? And who would burthen his head with a stock of knowledge, which he can always keep by him on much easier terms? It is added, that the exact and profound learning of the ancient writers was chiefly owing to this, that they had no such helps; which obliged them to go painfully to the sources, and study their authors at first hand.

THIS is the common style of men of the first-rate erudition; and were it only directed to those who aspire to the same rank with themselves, it would undoubtedly be excellent. He who pretends to have a seat on that bench, must go to work the severe way: he must not study, e. gr. *antiquity*, in Dictionaries, or even in modern Systems, but in the ancient writers themselves; the *Jewish* antiquities, for instance, in the books of the Old Testament, Philo, Josephus, the Talmud, Maimonides, and the Rabbins: the *Grecian*, in Homer, the ancient tragedians, Aristophanes's comedies, Diodorus Siculus, Pausanias, Athenæus, and others: the *Roman*, in Livy, Dionysius Halicarnassus, and other ancients in both languages; the *Christian*, in the Acts of the Apostles, and the Greek and Latin fathers. These he is to be reading night and day, in order to arrive at the right understanding of them, meditating, and making frequent reflections on them, striving to penetrate into all their views; maturely weighing all the circumstances in them; and lastly, comparing all with the hints, remarks, and improvements, suggested in the writings and comments of the more learned among the moderns.

ALL this, no doubt, is excellent. But there are not many subjects or branches of science that a man can thus go through; and the greater part of mankind consist of such as are not enough interested in any one, to be solicitous about so thorough and profound a knowledge of it. Add, that those who do, are forced, on many occasions, to make use of Dictionaries, and other helps; and that those who speak most contemptuously of them do the same, oftener than they care to own it.

IN reality, a reduction of the vast bulk of universal knowledge into a lesser compass (as I have elsewhere had occasion to observe) is of no small advantage to all those concerned in the acquisition of learning, that is, of all persons in general: for I know of no rank, condition, or even sex, that is dispensed from the necessity of cultivating and improving their own minds. By means whereof a stock of knowledge becomes attainable on easy terms, sufficient for the purposes of most persons, except those who make learning their more immediate profession; and for those too in most parts of science, except that which makes their immediate province. Such a design may perhaps seem most adapted to the uses of men of business, who cannot spend a deal of time: or of men of pleasure, who do not care to be at such pains in the pursuit of knowledge: but it would be no less advantageous to men of letters and study, whatever faculty or branch of science they devote themselves to; since Polymathy, or a general acquaintance with all the rest, is indispensably requisite to arrive at an excellency in any one, by reason of that near connexion which is between the several sciences, and the mutual lights they afford each other. And what a vast career does this open? what a multitude of books and subjects will they have to make their way through; and what helps are not requisite to facilitate so laborious a course? Without these, either a man's whole life will be in danger to be spent in preliminaries, and in preparing himself for his province, or he must resolve to set out with less ceremony, exclude the numerous kindred sciences out of his scheme, and retrench himself within the narrow limits of a single one. This, it must be owned, is but too often done, to the no small dishonour both of learning itself, and of those who cultivate it. By this means the sciences become cantoned out into so many separate districts, and the due communication between them is cut off; by which each is defrauded of the improvements which might be derived to it from the rest. Hence, in great measure, the inferiority of the modern authors to the ancient. A narrow compass of knowledge, it is certain, will not enable a man to write with that dignity and masterhood, which is found in most of the ancient writers; who, besides the particular science they wrote on, were conversant in all the rest. Those who have the least acquaintance with the ancient method of study, know how severe they were on this head: a man was not allowed to be an orator, historian, poet, grammarian, or even architect, or musician, much less a philosopher, without the whole circle of sciences. The same we still find insisted on as necessary by later writers, though the difficulty of arriving at it is so much increased, and the modern *Cyclopædia* become so vastly more extensive, as well as intricate, than the ancient. How many new arts and sciences, and new appendages of old ones, come under considera-

tion among us, that the ancients overlooked? How many languages, living and dead, is a modern obliged to learn, when a Roman or Athenian was thought sufficiently furnished with one, or two? And how many difficulties have we to struggle withal in the acquisition of their sciences; the ancient chronology, for instance, geography, or the like, from which they were free? We charge ourselves with the knowledge of their affairs, as well as our own; study minutely not only their sciences, but their most indifferent actions and customs, and their very words and phrases, which with us make spacious fields of learning, under the denomination of *antiquity* and *philology*. The dilemma then is apparent; either our talents and application must be greater, or our lives must be longer than those of the ancients; or else our proficiency must be less in proportion, unless some means be had recourse to, to expedite the same.

IN effect, a reduction of the body of learning is growing every day more and more necessary; as the objects of our knowledge are increasing, books becoming more numerous, and new points of dispute and inquiry turning up. For want of this, the sciences remain in great measure at a stand, or can advance only imperceptibly; since the whole life of those who should make discoveries, is spent in learning what is already found out. Hence such improvements as are occasionally made, rarely arrive at any maturity, but terminate in hints and imperfect openings, or in queries or proposals for farther inquiry. Most of the late discoveries in the sciences remain thus crude and imperfect; the whole vast systems of microscopical plants and animals, and telescopic worlds, of attraction, magnetism, electricity, and the like, remain as it were, in embryo. How many curious observations, and anomalous cases, are scattered in the writings of modern philosophers, which want to be reduced to systems? And what numerous lights are held forth in the writings of modern virtuosos, for supplying divers desiderata in the sciences, to no other purpose? How many operations are there, both of nature and art, of which we have imperfect notices, which want to be compared, and traced more minutely? Transmutations, petrifications, reproductions of organic parts, recompositions of bodies from their principles, resuscitations, meliorations, accelerations of growth, multiplications of species; to say nothing of transfusions, inoculations, injections, and the like; which are like to perish, as multitudes have done before them, for want of time to pursue them.

TO do justice to a *collection*, I mean a general and promiscuous one, it has its advantages. Where numbers of things are thrown precariously together, we sometimes discover relations among them, which we should never have thought of looking for; as the painter's and sculptor's fancy is frequently led on to the boldest and most masterly designs, by something they spy in the fortuitous sketches of chance or nature; insomuch that a celebrated Italian makes no scruple to lay this down as the first origin and occasion of all these arts. It is certain most of our knowledge is empirical, the result of accident, occasion, and casual experiment; it is but very little we owe to dogmatizing and method; which, as already observed, are posterior things, and only come in play after the game is started. It was, in all probability, the hand of chance, that first threw sulphur, charcoal, and saltpetre, together; and little did he, who thus produced gunpowder, imagine he was inventing a new art of making war.

IT is, indeed, surprising, to consider what slender experiments and observations many of the capital doctrines have arisen from: the blows of a smith's hammer on an anvil are said to have given rise to the musical notes; which Guido, a poor friar, perfected by what he observed in conning over his beads. The inventions of printing, of glass, of dying, of the dipping-needle, of phosphorus, of telescopes, of taffety, of antimony, &c. are supposed to have arisen in the like manner; as the reader may find under their proper articles; and how many more we know not, by reason the great obscurity of their first rise, ere they attained a degree of usefulness and perfection fit to be taken notice of, has buried the particular circumstances thereof. If we will hear the ancient Phœnicians and Egyptians, among whom most of the arts are supposed to have arisen, they all came from casual observations; geometry from the inundations of the Nile; the flight of the crane gave occasion to the invention of the rudder; the ibis taught to administer a clyster; the swallow to build; and the spider to weave, &c. In effect, a new observation, in some people's minds, prepared for it, is like a spark in a heap of gunpowder, which may blow a whole mine.

WHAT advantages may not philosophy be expected to derive from such a collection, or farrago, of arts, when it is considered, that every circumstance, every article of an art, is to be looked upon as a datum, a phenomenon, or experiment in philosophy? and that the least of them may possibly be the foundation of a new system?—To consider only the dying of cloth; or tanning, or currying, of leather; what is the whole process, but a series of physical effects, arising from new applications of body to body? And how many lectures will the philosopher have, from painting, gardening, agriculture, &c. touching planting, ingrafting, pruning, exposure, expression, walls, &c. which might never have come in his way but by such a chance? When a thing is once started, it may be applied infinite ways, and nobody knows where it will stop.

THROUGHOUT the whole of this work a particular regard has been had, both in the choice of the several heads, and in amplifying on them, to the extending of our views, and opening new tracks, new scenes, new vistas. We have endeavoured not only to furnish the mind, but to enlarge it, by placing it in a great variety of situations, and presenting to it the sentiments, notions, manners, customs, &c. of most ages, people, sects, &c. that have any thing new, unusual, or original, in them.

SUCH a variety of views, and manners of thinking, is a sure remedy against being too violently attached to any one; and is the best way of preventing the making of pedants, bigots, &c. of any kind. It may be said, that every art, every system, tends to give the mind a particular turn; and that the only way of maintaining it in its natural rectitude, is by calling in other opposite ones, by way of counterbalance. Thus what is insufferable in the mathematician, critic, grammarian, chemist, poet, or herald, is qualified, and rendered amiable, by a due admixture of the rest.

THIS, indeed, is not the way to make a very great progress in any art; but at the same time it is the only way to hinder our being spoiled by any. Though this is only to be understood with regard to personal benefit; for no doubt the public is more benefited by the mere pursuers of particular arts, than by the general appliers to all; since, by the former, each is brought to greater perfection, and the mixture and temperament wanting in the individuals is found in the whole.

TO conclude: the ultimate view of a work of this kind should be, the forming of a sound mind, i. e. acquiring a system of perceptions and notions agreeing to the system of things, or in the relations thereto intended by its author. The end of learning and study, is not the filling of our heads with other men's ideas; that is an enrichment which may prove for the worse: richness is only a matter of secondary

condary consideration; soundness is the first. There are many manures which the husbandman dare not use, by reason they would corrupt the land, at the same time they enriched it, and lay the foundation of a disease, which would in the end impoverish, and make it spend itself in unprofitable weeds. But it must be owned, men's heads are not so easily filled; the memory is not so tenacious as we may imagine; ideas are transient things, and seldom stay long enough with us to do either much good or harm: ten to one but what we read to-day, is most of it forgot again to-morrow. And what chiefly makes new ideas of any significance, is their extending and enlarging the mind, and making it more capacious and susceptible. But neither is this enlargement the last aim; but is chiefly of use, as it contributes to the increasing our sensibility, to the making our faculties more subtle and adequate, and giving us a more exquisite perception of things that occur; and thus enabling us to judge clearly, pronounce boldly, conclude readily, distinguish accurately, and to apprehend the manner and reasons of our decisions. To which end several things may conduce, that are not so much direct matters of knowledge, as collateral to it; for instance, much of the school-philosophy, which by exercising and exciting the mind, has a kind of instrumental tendency to sharpen its faculties, and needs only be read, not retained, to produce its effect. But even this does not amount to the full and adequate end of knowledge: this is only improving the organ; and there must be some farther end in such improvement. No man sharpens his weapon on the sole consideration of having it sharp, but to be the fitter for use. Briefly, then, our faculties being only so many inlets whereby, and according to the measure whereof, we receive intimations of the Creator's will, and the effects of his power and action; all the improvements made in them, have a tendency to subject us more entirely to his influence and direction; and thus make us conspire, and move more in concert with the rest of his works, to accomplish the great end of all things; in which our happiness and perfection consist; the perfection of a single nature arising in proportion as it contributes to that of the universe.

CYCLOPÆDIA:

OR, AN

UNIVERSAL DICTIONARY

OF

ARTS and SCIENCES.

A.

A May be considered, I. as a LETTER; II. as a WORD; and III. as an ABBREVIATION.

I. **A**, as a LETTER, or the mark of a vocal sound, is the most simple, and that which the dumb are most easily taught to utter.

To pronounce it clearly, we need only open the mouth wider than for any other sound, and then emit the air from our lungs. It is the first letter of the alphabet in all the known languages of the world, except in that of the Ethiopians; in which, according to Ludolfus, it is the thirteenth.

We must seek the origin of this, and the rest of our letters, in the Oriental languages. See ALPHABET and LETTERS.

In the English language, the character **A** is the mark of three different sounds, which are termed by our grammarians, the *broad A*, the *open A*, and the *slender A*.

1. Our *broad A* resembles the sound marked by the German **A**, and is found in many of our monosyllables, as *all*, *wall*, *malt*, *salt*, where it is pronounced as *au* in *cause*, and *fault*, or as *aw* in *law*. It is probable that this *broad* sound was that which our Saxon ancestors expressed by the character **A**, as it is still, almost uniformly, retained in the rustic pronunciation and northern dialects of our language; as *taulk* for *talk*, *maun* for *man*, *haund* for *hand*, &c.

2. The *open A* of the English, is not unlike the **A** of the Italians, and is the sound marked by this letter in *father*, *rather*, &c.

3. The *slender* sound marked by the character **A**, is peculiar to the English language, and resembles the sound of the French *e* masculine, or of their diphthong *ai* in *païs*; perhaps it is a middle sound between them, or between the *a* and *e*. Such we have in the words *place*, *face*, *waste*, and in all those that terminate in *ation*; as *salvation*, *preservation*, &c.

The sounds of which **A** is the character in our language, are sometimes short; as in the words *glass*, *grass*, *brass*, &c. at other times long; as in *glaze*, *graze*, &c. Their length is commonly denoted by an *i* immediately subjoined to the *a*; as in *plain*, *rain*, &c. or by an *e* added at the end of a word; as in *plane*, *crane*, &c.

Some contend that there are four, others, that there are five distinct sounds, denoted by the character **A** in the English language. There are, perhaps, little variations and distinctions in the sounds marked by the character **A**, as well as by the other vowel letters in our alphabet; but they are so local or arbitrary, or, after all, so nice and subtle, that they entirely escape the notice of foreigners, and are hardly distinguishable by the natives. Those who desire to enter more deeply into the first formation of sounds, and to see the elementary principles of speech treated with philosophical accuracy, will find satisfaction in the ingenious treatises of Wallis and Holder. In burlesque poetry, the letter **A** is sometimes added after words; it lengthens them a syllable, without altering their sense; as *line-a*, for *line*, in Dryden, &c. It

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is sometimes redundant, when prefixed to words, as *arise*, *awake*; the same with *rise*, *wake*, &c.

In our calendar, **A** is the first of the DOMINICAL letters, which were introduced in imitation of the eight NUNDINAL letters of the Romans, of which their **A** was one.

II. **A** is a WORD. This first simple sound is used in our language to express most of the vehement emotions of the soul. We naturally use it on all sudden occasions of admiration, joy, anguish, apprehension of danger, &c. and where the emotion is very great, the **A** is enforced by adding an aspirate to it, as *ah!*

It is sometimes a noun; for we say great **A** and little *a*; but it is most commonly a definite, or an indefinite article. It is *definite*, and denotes the number *one*, as, *a* man is coming that is, *no more than one*. It is also used as an *indefinite*, article; so we say, *a* man may come this way; that is, *any* man.

A, used as an article, has no plural signification; before a word beginning with a vowel, *y* and *w* excepted, and before a silent *h* preceding a vowel, it is written *an*, of which *a* is the contraction; as *an* harbour, *an* ox, *an* hour, &c.

A seems to be a true and genuine preposition, in the three following cases. 1. When it is put before a participle or participial noun, denoting some action not yet accomplished; as I am *a* writing. 2. When it is placed before local surnames; as Thomas *à* Becket. 3. When it is used in composition; e. g. *a*foot, *a*sleep, &c. Dr. Wallis supposes it to be a contraction of *at*; but Dr. Lowth thinks, that it is the preposition *on*, and sometimes *of*. *At*, he says, has relation chiefly to *place*; *on* has a more general relation, and may be applied to *action*, and many other things, as well as *place*.

In some instances, **A** has a peculiar signification, denoting the proportion of one thing to another; as such income *a* year; so many hours *a* day; so much *a* man, &c.

III. **A** is also an ABBREVIATION. **A** put to bills of exchange, is in England an abbreviation for *accepted*, and in France for the word *accepté*. It is likewise usual among merchants to mark their sets of books with the letters **A**, **B**, **C**, &c. instead of the numbers 1, 2, 3, &c.

In the Roman inscriptions, the sense of the **A** is to be collected chiefly from the connection of the words, and the scope of the inscription. **A** singly stands for *Aulus*, *Augustus*, *ager*, *aiunt*, *ante*, *ære*, *ædes*, *ædilis*, *ædilitas*, *ærarium*, *aula*, *anima*, *amicus*, *amica*, *albo*, *alia*, *acta*, &c. and by a more modern abbreviation for *artium*. Thus **A. M.** stands for *Artium Magister*, *Master of Arts*, and **A. B.** for *Artium Baccalaureus*, *Bachelor of Arts*. **AA.** signifies *Augusti*, and **AAA.** stands for *auro*, *argento*, *ære*. **AB.** stands for *alia bona*, and **AC.** for *acta causa*, &c. On Greek and Roman medals, **A** denotes commonly the name of the place where they were struck; as Athens, Argos, Antioch, Aquileia. On French coins **A** is the mark of the mint of Paris, and **AA** signifies their coinage at Metz.

The Romans in their trials used their **A** to denote absolution; whence Cicero calls it *litera salutaris*, the *saving letter*.

A

letter. Their manner was this. Three ballots were given to each judge, marked one with an A for *absolve*, *I absolve*; a second with a C for *condemno*, *I condemn*; and the third with N. L. which stood for *non liquet*, *is not clear*. One or other of these, each judge, according to his judgment, put into an urn; and the prætor acquitted or condemned the criminal, as the one or the other of these letters were the most numerous. If the suffrages for acquitting and condemning were equal, the accused was always acquitted.

The Romans also made use of the letter A, in collecting their suffrages in cases of legislation. When a new law was proposed, or an amendment of an old one was in agitation, each voter had two ballots put into his hand, the one marked A, signifying *antiquo*, q. d. *antiquam volo*, *I like the old way*; and the other was marked U. R. for *uti rogas*, *as you desire*; and his suffrage was given, by putting the one, or the other, into the urn. A, in the days of Roman barbarism, was one of the numeral letters, and signified five hundred; when written with a dash over it, thus \bar{A} , it denoted five thousand. The letter A is also used by chronologers and historians as an abbreviation for *anno*; so they put A. M. for *anno mundi*, A. D. for *anno Domini*, &c.

The Romans dated from the building of Rome; and in their writings A. U. C. stands for *anno ab urbe condita*. The Greeks used A, α , prefixed to a word, as a privative particle. See **PRIVATIVE**. With them it was also a numeral letter denoting unit.

Among logicians, A denotes an universal affirmative proposition.

In Algebra, A or a , and the first letters of the alphabet, represent *known* quantities; and the last letters represent quantities that are *unknown*.

In the prescriptions of physicians, A, or \bar{a} , or $\bar{a}\bar{a}$, denotes equal parts of the ingredients specified, and is a contraction of the preposition *ava*, which is used in the same sense by medicinal writers in the Greek tongue.

Among chemists, AAA signifies an **AMALGAMA**, or the operation of amalgamating.

AABAM. Some of the French alchymists have used this word to signify *lead*.

AAM, or **HAAM**, is a liquid measure generally used by the Dutch; it contains 128 mingles, each mingle weighing about 36 ounces avoirdupoise; and consequently the *Aam* is equal to $148\frac{2}{3}$ pints of Paris, or to 288 pints of English measure; the Paris pint weighing 31 ounces, and that of England 16 ounces.

AAVORA, in *Natural History*, the fruit of a sort of large palm-tree in the West Indies, and in Africa. It is of the size of a hen's egg, and included, with several more, in a large shell. In the middle of the fruit there is a hard nut, about the size of a peach-stone, which contains a white almond, very astringent, and proper to check a **DIARRHOEA**.

AB, in the Hebrew chronology, the eleventh month of the civil year, and the fifth of the ecclesiastical year, which begins with *Nisan*. The month *Ab* answers to the moon of July, and contained thirty days.

The ninth day of this month is observed as a fast by the Jews, in commemoration of the destruction of the temple by Nebuchadnezzar, in the year before Christ 588. Josephus observes, that the burning of the temple by Nebuchadnezzar, happened on the same day of the year on which it was afterwards burned by Titus.

AB, in the Syriac calendar, is the name of the last summer month.

AB, prefixed to the names of places, generally denotes that they belong to some abbey.

ABACA, a kind of flax or hemp, gathered in some of the Manillas or Philippine Islands. This plant is sown every year; being gathered, it is steeped in water, and beaten as hemp is. It is of two kinds, the white and the grey. The white *abaca* is used for making very fine linen; but the grey is employed for nothing but cordage.

ABACATUAIA, in *Zoology*, the name of an American fish, of the shape of the European doree or faber. It is much of the shape, size, and figure of the common plaife. Its mouth is small and toothless, and its eyes have a black pupil, and a silvery iris. It has five fins, one on the back, and another on the belly, each running to the tail; and two at the gills; the tail makes the fifth, and is considerably forked. It is caught about the shores of the Brasils, and is commonly eaten there. This fish is a species of *zeus*, according to Artedi, and belongs to the thoracic order of Linnæus. See *Tab. Fishes*, fig. 51.

ABACAY, in *Natural History*, a name given by the people of the Philippine Islands to a species of parrot, called also **CALANGAY**.

ABACINARE, or **ABBACINARE**, derived either from the Italian *bacino*, a *basin*, or *bacio*, a *dark place*; in *Writers of the Middle Age*, a species of punishment, consisting in the blinding of the criminal, by holding a red-hot basin, or bow, before his eyes. **Du-Cange**.

ABACK, in *Sea-language*, signifies the situation of the sails, when their surfaces are flatted against the masts by the force of the wind. They may be brought *aback*, either by a sudden change of the wind, or an alteration in the ship's course. They are laid *aback* to effect an immediate retreat, without turning either to the right or left, in order to avoid some imminent danger.

ABACOT, a cap of state, wrought up in the form of two crowns, worn by our ancient British kings.

ABACTOR (called by the Roman lawyers *Abigeus*, or *Abigevus*), one who drives off cattle in herds; in contradistinction to one who steals a single sheep, &c. only, who is called a thief. *Nam qui ovem unam surripuerit, ut fur coercetur, qui gregem ut Abactor*. The punishment of *Abigeat* was more severe than that of *Furtum*; viz. condemnation to the mines, banishment, or even death itself, according to the quality of the offender. But sometimes in Spain the punishment was more severe than elsewhere, the people there being most addicted to it.

The word is compounded of *ab*, *from*, and *actor*, a *driver*, from *agere*, to *drive*.

ABACTUS, or **ABIGEATUS**, among the *Ancient Physicians*, was used for a miscarriage procured by art, or force of medicines, in contradistinction to *aborsus*, which is natural. But the moderns know no such distinction. See **ABORTION**.

ABACUS, among the *Ancients*, was a kind of cupboard, or buffet. See **BEAUFET**.

The word is formed from the Greek $\alpha\beta\alpha\zeta$, which, among that people, signified the same thing.

ABACUS, among the *Mathematicians*, was a little table strewed over with dust, on which they drew their schemes and figures.

In this sense, the word seems formed from the Phœnician פֶּזֶל , *abak*, *dust*.

ABACUS Pythagoricus, a table of numbers, contrived for the ready learning of the principles of arithmetic; so denominated from its inventor, Pythagoras.

Hence also, from an agreement in point of use, the names *Abacus* and *Abaco* are used, among Latin and Italian writers, for an alphabet, or **ABC**, &c.

The *Abacus Pythagoricus* was, in all probability, no other than what we call a multiplication-table.

Ludolfus and Wolfius give us methods of performing multiplication with the help of the *Abacus*; but they are too operose in ordinary cases for practice. See **MULTIPLICATION**.

The *Abacus* for facilitating the operation of arithmetic is an instrument almost as ancient, and extensive, as the art of arithmetic itself: if it be later than the methods of computing by the fingers, and by *lapilli*, or stones (which obtained among the Egyptians), it is at least much prior to the use of numeral letters or figures, wrought with the pen. Herod. lib. i.

We find it in use, under some variations, among the Greeks, Romans, Chinese, Germans, French, &c. It excels in point of facility, and cleanliness of operation, as working without any strokes or blots of the pen, or waste of paper; some also give it the preference in point of expedition.

The *Abacus* is variously contrived; that chiefly used in European countries, is made by drawing any number of parallel lines, at pleasure, at a distance from each other, equal to twice the diameter of a *calculus*, or counter. Here a counter placed on the first or lowermost line signifies 1; on the second, 10; on the third, 100; on the fourth, 1000; on the fifth, 10000; and so on. In the spaces between the lines, the same counters signify half of what they signify on the next superior line; viz. in the space between the first and the second lines, 5; between the second and third, 50; between the third and fourth, 500; and so on. Thus the counters on the *Abacus*, in the figure here subjoined, make the sum of 37392. —The *Abacus* is also divided cross-wise into *areolæ*, by means whereof subtractions are made. Wolf. Lex. Math. p. 171. seq.

10000	○	○	○	
1000	○	○		
100	○	○	○	
10	○	○	○	○
1	○	○		

The Grecian *Abacus*, $\alpha\beta\alpha\zeta$, or counting-board, was an oblong frame, divided by several brass-wires stretched parallel to one another, and mounted with an equal number of little ivory balls, like the beads of a necklace. By the arrangement of these balls, distinguishing the numbers into different classes, and observing the relations of the

the lower to the upper, all kinds of computation were easily performed. Mahudel, in *Hist. Acad. R. Infer.* t. iii p. 390.

The Roman *Abacus* was much the same with the Grecian, except that instead of strings, or wires, and beads in the Roman, we find pins and grooves for them to slide in. It is described by several authors; but notwithstanding all these descriptions, we should have had a very obscure idea of the ancient manner of reckoning, had there not been figures of it found among the ancient marbles. *Phil. Trans.* N° 180.

The Chinese *Abacus* consists, like the Grecian, of several series of beads strung on brass wires, extended from the top to the bottom of the instrument, and divided in the middle by a cross piece from side to side; so that in the upper row each string has two beads, which are each reckoned for five; and in the lower row, each string has five beads of different values; the first being reckoned as 1; the second, as 10; the third, as 100, &c. as among us. Add, that instead of four pins for digits, or units, in the Roman *Abacus*, the Chinese has five beads.

We have two different figures, and descriptions, of the Chinese *Abacus*, one given by F. Martinus, who had lived many years in China; the other by Dr. Hook, who copied it from a Chinese dictionary of the court-language. See SHWAN-PAN.

ABACUS logisticus is a rectangled triangle, whose sides, forming the right angle, contain the numbers from 1 to 60; and its area, the products of each two of the opposite numbers. This is also called a *canon of SEXAGESIMALS*.

ABACUS & palmulæ, in the *Ancient Music*, denote the machinery, whereby the strings of the polyplectra, or instruments of many strings, were struck, with a plectrum made of quills.

ABACUS harmonicus is used by Kircher for the structure and disposition of the keys of a musical instrument, whether to be touched with the hands or the feet.

ABACUS Major. A trough used in the mines, wherein the ore is washed.

ABACUS, or *ABACISCUS*, in *Architecture*, is the uppermost member of the capital of a column; serving as a kind of crowning, both to the capital and the whole column.

Many of our dictionary writers very erroneously make the *Abacus* to be the capital itself.

Vitruvius, and others after him, who give the history of the orders, tell us, the *Abacus* was originally intended to represent a square tile laid over an urn, or rather over a basket.—An Athenian old woman happening to place a basket thus, covered over the root of an acanthus; that plant shooting up the following spring, encompassed the basket all around, till meeting with the tile, it curled back in a kind of scroll. Callimachus, an ingenious sculptor, passing by, took the hint, and immediately executed a capital on this plan; representing the tile by the *Abacus*, the leaves by the volutes, and the basket by the vase, or body of the capital.—See *Tab. Archit. fig. 21*.

There is some difference in the form of the *Abacus* in different orders. In the Tuscan, Doric, and ancient Ionic, it is a flat, square member, well enough representing its original title; whence the French call it *tailloir*, *trencher*. See *fig. 24, & 27*. See also *TUSCAN, DORIC, and IONIC*.

In the richer orders it loses its native form; its four sides, or faces, being arched or cut inwards, with some ornament, as a rose, or other flower, or a fish's tail in the middle of each arch.—See *fig. 27, & fig. 20*. See *CORINTHIAN and COMPOSITE*.

But some architects take other liberties in the *Abacus*, both in respect of its name, place, and office. Thus, in the Tuscan order, where it is the largest and most massive, as taking up one third of the height of the whole capital, it is sometimes called the dye of the capital.—In the Doric it is not always the uppermost member of the capital; a cymatium being frequently placed over it.—In the Ionic, some make it a perfect ogee, and crown it with a fillet.

The proportion of the *Abacus*, as described by Vitruvius, is, that its diagonal (from corner to corner) be twice its height: a rule which the moderns make no difficulty of dispensing with.

ABACUS is also used by Scamozzi for a concave moulding in the capital of the Tuscan pedestal.

ABACUS likewise, in the *Ancient Architecture*, is used to denote certain compartments in the incrustation or lining of the walls of state-rooms, MOSAIC pavements, and the like. There were *Abaci* of marble, porphyry, jasper, alabaster, and even glass; shaped variously, square, triangular, and the like.

ABADIR, in the Roman *Theology*, the stone which Saturn swallowed, believing it his new-born son Jupiter, and which at length became deified, and the object of religious worship.

ABAST, in the *Sea Language*, is used in speaking of things placed or done, towards the stern, or hinder part of a vessel; called also *ast*, and stands opposite to *fore*.—Thus they say a thing is *abast* the fore-mast, when it is behind it, or nearer the stern than the fore-mast is. The post of the master, captain, and other officers, is *abast* the main-mast.

The stern, strictly speaking, is only the outside; *abast* includes both inside and out.

ABAGI, the same thing with *ABASSI*, although of different value; it is worth at Teflis, and throughout all Georgia, about 36 sols French money; four chaouris, which are also called fains, make one *abagi*.

ABALIENATION, from *ab* and *alienare*, to *alienate*, in the Roman *Law*, denotes a species of alienation; whereby those goods called *res mancipi*, such as cattle, slaves, lands, and possessions, within the territory of Italy, were transferred to persons legally capable thereof, either by a *formula*, called *traditio nexu*, or a surrender in open court.

ABALIENATUS, *alienated from*, a medical term, which, when applied to the body, signifies that the part so spoken of, is in a state that requires amputation; and when applied to the senses, denotes their total destruction.

ABANGA, the name which the inhabitants of the island of St. Thomas give to the fruit of their palm-tree, which is about the size of a citron, to which it bears great resemblance; as it also does to the lemon externally; its kernels are used as restoratives. See *ADY*.

ABAPTISTON, or *ABAPTISTA*, is used by some authors to express the saw, *terebella*, or perforating part of the instrument, called the trepan; because it is generally contrived in such a manner as to prevent its sinking suddenly into the skull, and wounding the brain, when the bone is cut through.

It is derived from the negative *a*, and *βαπτω*, *I immerge*. See *TREPAN*.

ABARCA, an ancient kind of shoe used in Spain to pass the mountains, made of raw hides, and bound with cords, which secure them against the snow.

ABARNAHAS, is a term used by some of the alchemists, particularly Zadith, in the *Theatrum Chym.* who tells us that it is the same as the full moon, or *MAGNESIA*.

ABARTAMEN, lead.

ABARTICULATION, in *Anatomy*. See *DIARTHROSIS*.

ABAS, a weight used in Persia for weighing pearls; being an eighth part lighter than the European *CARAT*.

ABAS, sometimes signifies the *EPILEPSY*. See *TINEA*.

ABASED, *ABASSE*, in *Heraldry* is applied to the vol, or wings of eagles, &c. when the tip, or angle, looks downward towards the point of the shield; or when the wings are shut: the natural way of bearing them being spread, with the tip pointing to the chief, or the angles.

A chevron, a pale, bend, &c. are also said to be *abased*, when their points terminate in, or below the centre of the shield.

Again, an ordinary is said to be *abased*, when below its due situation.

ABASSI, a silver coin current in Persia, worth two mamoudis, or four chaves: the chaye being estimated at nine sols six deniers of French money, makes the *Abassi* worth thirty-eight sols; seventeen sols of Holland, or near eighteen pence English. It derives its name from Schaw Abbas II. king of Persia, under whom it was struck.

ABAT-CHAUVEE, a name given in Poitou, Angoumois, Saintonge, La Marche, and Limosin, in France, to a sort of very ordinary wool; much like that called by the French, *paignons*, and *plures*.

ABATE, in *Law*, signifies to throw down; as, to *abate* a nuisance.

It is likewise used to denote the act of one who steps into an estate void by the death of the last possessor, before the heir can enter; and by that means keeps him out.

ABATE also means to defeat or overthrow, on account of some error or exception. See *ABATEMENT*.

ABATE, in the *Manege*. A horse is said to *abate*, or take down the *CURVETS*, when he puts both his hinder legs to the ground at once, and observes the same exactness in all the times.

ABATELEMENT, in *Commerce*, (from the French *abattre*) a term used for a prohibition of trade to all French merchants in the ports of the Levant, who will not stand to their bargains, or who refuse to pay their debts. It is a sentence of the French consul, which must be taken off, before they can sue any person for the payment of their debts.

ABATEMENT, in *Heraldry*, something added to a coat-armour, to diminish its proper value and dignity, and note some dishonourable action, or stain, in the character of the person who bears it. It may be made by reversion or diminution.

Reversion is either turning the whole escutcheon upside down;

down; or the adding another escutcheon, inverted, in the former.

Diminution is the blemishing any part by adding a stain, or mark of diminution: such are the delf, a point dexter, a point champaign, a plain point; a gore sinister; and a gusset. See each under its proper article.

It may be added, that these marks must always be either tawney or murrey; otherwise, instead of diminutions, they become additions of honour.

The last editor of Guillim discards the whole notion of *Abatements*, as a chimæra. He alleges that no one instance is to be met with of such bearing; and that it implies a contradiction to suppose it. Arms, being *insignia nobilitatis & honoris*, cannot admit any mark of infamy, without ceasing to be arms, and becoming badges of disgrace, which all would covet to lay aside. Add, that as no hereditary honour can be actually diminished; so neither can the marks thereof. Both indeed may be forfeited; as in the case of treason, where the escutcheon is totally reversed, to intimate a total suppression of the honour.

Some instances, however, are produced to the contrary by Columbiere and others. But these, though they may shew some extraordinary resentments of princes for offences committed in their presence, do not amount to a proof of such custom or practice; much less authorize the being of particular badges in the hands of inferior officers, as kings at arms.

In a word, as arms are rather the titles of the dead, than of the living, it would seem, that they can neither suffer diminution nor *abatement*; for thus an equal indignity would be put upon the ancestor and the descendant. Diminution therefore and *abatement*, can only affect arms lately granted, and solely when the person who obtained them is yet alive, and has tarnished his former glory by his after misbehaviour. Even in this case, where *abatement* may properly take place, it can only be made by the suppression of some honourable badge, and not by the introduction of any degrading emblem.

ABATEMENT, in *Law*, is the frustrating, or setting aside a suit, on account of some fault, either in the matter, or proceeding thereof. Thus, *Plea in*

ABATEMENT, is some exception alledged, either against the plaintiff's writ, as wanting due form; or against his count or declaration, as being insufficient, or varying from the writ, speciality, or record; or against the matter of either, as insufficient; or being before another court; or against the allegations, as being uncertain, on account of some misnomer; or the death of one of the parties; or the marriage of the plaintiff, being a woman; to which some add disability.—Upon any of these, the defendant prays, that the plaintiff's writ or plaint may *abate*, i. e. that his suit may cease for that time: if it be granted, all writs and processes must begin *de novo*.

The death of a plaintiff did in all cases *abate* the writ before judgment, until the statute 8 and 9 W. III. c. 11. by which the death neither of the plaintiff nor defendant shall *abate* it, if the action might be originally prosecuted by and against the executors or administrators of the parties; and if there are two or more plaintiffs or defendants, and one, or more, die, the writ or action shall not *abate*, if the cause, or action, survives to the surviving plaintiff, against the surviving defendant, &c. It also denotes the irregular entry upon lands.

ABATEMENT, in *Commerce*. See **DISCOUNT** and **REBATEMENT**.

ABATEMENT, in the *Customs*, is an allowance made upon the duty of goods, when the quantum demanded is determined by the judgment of two merchants upon oath, and ascertained by a certificate from the surveyor and land-waiter.

ABATIS, or **ABBATIS**, in *Writers of the Barbarous Age*, denotes an officer in the stables, who had the care and distribution of the provender. The name is derived from *Batum*, the name of an ancient measure of corn. Du-Cange.

ABATIS, or **ABBATIS**, from the French *abattre*, to pull down, in the *Military Art*, denotes a heap of large trees thrown together either lengthways or with boughs to boughs, and designed to guard entrenchments, to cover the passage of a river, to obstruct roads, &c.

ABATOR, in *Law*. See **ABATE**.

ABAVI, **ABAVO**, or **ABAVUM**; a large tree in Ethiopia, which bears a fruit like a gourd.

ABB, among *Clothiers*, denotes the yarn of a weaver's warp, whence the wool of which it is made is called *abb-wool*.

ABBA, in the Syriac and Chaldee languages, literally signifies a father; and figuratively a superior, reputed as a father in respect of age, dignity, or affection.

It was also anciently used as a title of honour, which some great men, it is said, still retain in the Pyrenean mountains.

ABBA, **ABA**, or **ANBA**, is more particularly used in the Syriac, Coptic, and Ethiopic churches, as a title which the people give their bishops.

The bishops themselves bestow the title *abba*, more eminently, on the patriarch of Alexandria; which occasioned the people to give him that of *Baba*, or *Papa*, that is, *grandfather*; a title which he bore before the bishop of Rome. It is a Jewish title of honour, given to certain of that class of Rabbins, called Tanaites; and it is also particularly used by some writers of the middle age, for the superior of a monastery, usually called **ABBOT**.

ABASSEUR, in *Anatomy*, a name given by Winslow and other French writers, to one of the muscles of the eye, called by others the *deprimens* and *humilis*; and by Fabricius, the *rectus inferior*: Cowper, and Albinus, call it the *depressor oculi*; and it is one of the *quatuor recti oculi* of the last author.

ABBESS, the superior of an **ABBEY** or convent of **NUNS**. The *Abbess* has the same rights and authority over the nuns, that the **ABBOTS** regular have over their monks. Her sex, indeed, does not allow her to perform the spiritual functions annexed to the priesthood.

F. Martène, in his treatise on the rights of the church, observes, that some *abbesses* have formerly confessed their nuns. But he adds, that their excessive curiosity carried them such lengths, that there arose a necessity of checking it.

St. Basil, in his rule, allows the *abbess* to be present with the priest, at the confession of her nuns.

ABBEY, or **ABBY**, a monastery, or religious house, governed by a superior under the title of **ABBOT**, or **ABBESS**.

In our ancient statutes the word is sometimes also written *abbathy*. By 31 H. VIII. c. 13. *abbathies* are given to the king.

ABBEYS differ from **PRIORIES**, in that the one are under the direction of an abbot, and the other of a prior: but abbot and prior (we mean a prior conventual) are much the same thing, and differ in little but the name.

One third of the best benefices in England were anciently, by the pope's grant, appropriated to *abbeyes*, and other religious houses; which, upon their dissolution under king Henry VIII. became lay-seces. For an estimate of the number and value of religious houses, abolished and surrendered in this reign, see **MONASTERY**.

ABBOT, or **ABBAT**, originally derived from the Hebrew *ab*, father, signifies the superior of a monastery of monks erected into an abbey, or prelacy.

Abbots were really distinguished from the clergy, though frequently confounded with them, because a degree above laymen. St. Jerom, writing to Heliodorus, says expressly, *alia monachorum est causa, alia clericorum*.

In those early days the *abbots* were subject to the bishops, and the ordinary pastors. Their monasteries being remote from cities, and built in the farthest solitudes, they had no share in ecclesiastical affairs. They went on Sundays to the parish-church with the rest of the people; or if they were too remote, a priest was sent them, to administer the sacraments, till, at length, they were allowed to have priests of their own body. The *Abbot*, or archimandrite himself was usually the priest; but his function extended no farther than to the spiritual assistance of his monastery, and he remained still in obedience to the bishop.

The *abbots* soon wore off their former plainness and simplicity, and endeavoured to be independent of the bishops, which occasioned some severe laws to be made against them at the council at Chalcedon; notwithstanding this, in time, many of them carried the point of independency, and got the appellation of *lord*, with other badges of the episcopate, particularly of the mitre.

Hence arose new species and distinctions of *abbots*: *mitred*, and *not mitred*; *croziered*, and *not croziered*; *acumenical abbots*, *cardinal abbots*, &c.

ABBOTS, *Mitred*, were those privileged to wear the *mitre*; and also allowed a full episcopal authority within their several precincts.—Among us, these were also called *abbots sovereign*, and *abbots general*; and they were lords of parliament. Of these Sir Edward Coke reckons twenty-seven in England, beside two *mitred* priors. The rest, who were *not mitred*, were subject to the **DIOCESAN**.

ABBOTS, *Croziered*, are those who bear the **CROZIER**, or pastoral staff.

ABBOTS were likewise distinguished into *abbots elective*, and *abbots presentative*; but are now chiefly distinguished into *regular* and *commendatory*.

ABBOTS, *Regular*, are real monks, or religious, who have taken the vows, and wear the habit, of the **ORDER**.

Such are all *abbots* presumed to be; it being expressly provided by the canons, that none but a monk have the command over monks.—But, in fact, it is found far otherwise; in France, as it is said, there are now but six regular abbeyes.

ABBOTS in *commendam*, are seculars; though they have undergone

dergone the tonsure, and are obliged, by their bulls, to take orders when they come of age.

Though the term *commendam* insinuates, that they have only the administration of their abbeys for a time; yet do they hold, and reap the fruits of them for ever, as well as the regular *abbots*.

Their *BULLS* give them a full power *tam in spiritualibus quam in temporalibus*; and yet it is true that the commendatory *abbots* do not perform any spiritual offices; nor have they any spiritual jurisdiction over their monks. So that the phrase *in spiritualibus*, is rather something of the Roman style, than a reality.

The ceremony whereby *abbots* are created, is properly called benediction; or sometimes, though abusively, consecration.

It anciently consisted in clothing him with the habit called *cuculla*, a cowl; putting the pastoral staff in his hand, and the shoes called *pedales*, or *pedules*; on his feet. These particulars we learn from the *Ordo Romanus* of Theodore, archbishop of Canterbury.

ABBOT is also a title, which has been given to certain bishops, because their sees had originally been abbeys; and they were even elected by the monks: such are those of Catania and Montreal in Sicily.

ABBOT is also an appellation sometimes given to the superiors or generals of some congregations of regular *CANONS*; as that of St. Genevieve at Paris.

ABBOT is also a title borne by several magistrates, and other lay-persons—Among the Genoese, one of their principal magistrates was called the *abbot* of the people.

In France, particularly about the time of Charlemagne, there were several lords and courtiers, who having the superintendency of certain abbeys committed to them, were styled *abbacomites*, or *abbey-counts*.

ABBREVIATION, or *ABBREVIATURE*, a contraction of a word, or passage; made by dropping some of the letters, or by substituting certain marks, or characters, in their place.

Lawyers, physicians, &c. use abundance of *abbreviations*; partly for the sake of expedition, and partly for that of mystery.—A list of the principal *abbreviations*, in the several arts and faculties, see under *CHARACTER*.

Of all people, the Rabbins are the most remarkable for this practice: so that their writings are unintelligible, without an explanation of the Hebrew *abbreviations*. The Jewish authors and copyists do not content themselves to *abbreviate* words, like the Greeks and Latins, by retrenching some of the letters, or syllables thereof; but they frequently take away all except the initial letters. Thus, ר stands for *rabbi*, and נ for נא, נא, or נא, according to the place it is found in.

But still farther, they frequently take the initial letters of several succeeding words, join them together, and adding vowels to them, make a barbarous sort of word, representative of all the words thus abridged. Thus, *Rabbi Schelemoh Jarchi*, in the jargon of Hebrew *abbreviations*, is called *Rafi*; and *Rabbi Moses ben Maiemon*, is *Rambam*. Mercerus, David de Pomis, Schindler, Buxtorf, &c. have given explications of such *abbreviations*.—The most copious collection of Roman *abbreviations*, is that of Sertorius Ursatus: *Sertorii Ursati, equitis, de notis Romanorum commentarius*.

ABBREVIATOR is more particularly used for an officer in the court of Rome, appointed as assistant to the vice-chancellor, for drawing up the pope's briefs, and reducing petitions, when granted by the pontiff, into proper form, for being converted into bulls.

The *Abbreviators* are supposed by Ciampini, to be the successors either of the *cancellarii* in the imperial household, or of the seven *notarii*, said to have been placed by pope Clement I. in the seven quarters of Rome, to write down the acts of the martyrs within their several districts. They are said to have taken their name, either from their writing the *brevia*, *briefs*, or shorter epistles of the popes; or from their making use of *notæ*, or abbreviations in writing. The latter opinion may seem the more probable, because the name is sometimes used by writers of the sixth age, as synonymous with *notarii* or *breviatores*.

The *abbreviators* at present make a college of seventy-two persons, divided into two ranks; one called *Abbreviatores de parco majore*, who are twelve in number, all prelates; the other, *abbreviatores de parco minore*, called also *examinatores*, who may be laymen. Ciampini has two volumes on the institution, office, privileges, ceremonies, &c. of the *abbreviators*.

ABBREVIATORS is also a name given by some authors to an ancient literary academy, supposed to have been at Rome, in the fifteenth century, and composed of the chief men of letters of the age, as Pomp. Lætus, Platina, Pontanus, Sannazarius, Sabellicus, &c. who, by the rules of the society, changed their names at their admission, for those of some ancient Greek or Roman; but the existence of such an academy is very doubtful.

ABBREUVOIR, in *Masonry*, the joint, or juncture of two stones; or the interstice or space left between them, and filled up with mortar.

The word is French, and literally denotes a watering-place.

ABCEDARY, *ABCEDARIAN*, or *ABECEDARIAN*, is sometimes applied to compositions whose parts are disposed in the orders of the letters of the alphabet.

In this sense *abcedarian* is synonymous with *alphabetical*.—Thus we meet with *abcedarian* psalms, lamentations, prayers, and the like; chiefly among Hebrew writers; which makes it probable they were the inventors of this species of wit.

ABDALS, in the Eastern countries, a kind of saints supposed to be inspired to a degree of madness. The word comes, perhaps, from the Arabic, *abdallah*, the servant of God.—The Persians call them *devanch khoda*, agreeable to the Latin way of speaking of their prophets and sibyls, q. d. *furentes Deo*, *raging with the God*.

The *Abdals* are often carried by excess of zeal, especially in the Indies, to run about the streets, and kill all they meet of a different religion. The English sailors call this *running a muk*, from the name of the instrument, a sort of poignard, employed on this occasion. D'Herbel. Bib. Or. p. 5.

ABDELAVI, an Egyptian plant very like a melon, except that the fruit is more oblong, and acute at the extremities.

ABDEST, among the *Mahometans*, a peculiar manner of washing, before prayer, entering the mosque, or reading the Alcoran; practised with some difference both by Turks and Persians. The word is compounded of the Persian *ab*, *water*, and *dest*, *hand*.

ABDICARIA propositio, in *Logic*, is used for a negative proposition.

ABDICATION, *ABDICATIO*, derived from *abdicare*, to renounce, the act whereby a magistrate, or person in office, renounces, and gives up the same, before the legal term of service is expired.

Abdication is frequently confounded with *resignation*; but, strictly speaking, there is a difference: *abdication* being done purely and simply; whereas *resignation* is done in favour of some third person.

In this sense, Dioclesian is said to have *abdicated* the crown; but Philip IV. of Spain *resigned* it. The parliament of England voted king James's violation of the laws, and his quitting the kingdom, without providing for the due administration of affairs in his absence, to import an *abdication* of the crown. The lords would have had the word *desertion* made use of; but the commons thought it was not comprehensive enough, because the king might then have the liberty of returning.

The Scots called it a *forfeiture* of the crown, from the verb *foris-facio*.

ABDICATION, among Roman *Writers*, is more particularly used for the act whereby a father discarded or disclaimed his son, and expelled him the family.

In this sense the word is synonymous with the Greek *αποκηρυξις*, and the Latin *a familia alienatio*, or sometimes *ablatio*, and *negatio*; and stands opposed to *adoption*.—It is distinguished from *EXHÆREDATIO*, or disinheriting, in that the former was done in the father's life-time, the latter by will at his death: so that whoever was *abdicated*, was also disinherited, but not *vice versa*.

ABDITÆ Causæ, are the secret or remote causes of distempers, which physicians of the dogmatic, or rational sect, affirmed, were necessary to be known, in order to establish a right method of cure.

ABDOMEN, in *Anatomy*, the belly, or lower venter; or that part of the body comprehended between the *thorax* and the hips.

The word is derived from *abdere*, to hide.

Anatomists usually divide the *BODY* into three regions, or venters: the head, the *thorax* or breast, and the *abdomen*, which makes the lowest part of the trunk; being terminated by the diaphragm above, and by the *inguen* or *pubis* below.

The *abdomen* is lined internally with a thin, soft membrane, which investing all the *viscera* above mentioned, contains and keeps them in their place: this is called the *PERITONÆUM*: upon a rupture or dilatation whereof, they are apt to fall, and form those tumours called *HERNIE*.

It is covered and defended with five pair of muscles; which not only defend the *viscera*, but, by their alternate relaxations, and contractions in respiration, promote the action of digestion, and the extrusion of the *feces* and urine. By their contraction, the cavity of the *abdomen* is straitened, and the descent of the contents of the *viscera* through the intestines is promoted. They are the proper antagonists to the sphincters of the *anus* and bladder, and forcibly expel the excrements of those parts, as also the *fœtus* in parturition.

These muscles are the *OBLIQUIDESCENDENTES* and *ASCENDENTES*, the *RECTUS transversalis* and *PYRAMIDALIS*. See descriptions of the veins, arteries, and muscles, &c. of the *abdomen*, under their respective names.

The *abdomen* is subdivided into lesser regions, or cavities; of which three are anterior; the uppermost, called the *epigastric*, commences from the diaphragm and *cartilago ensiformis*, and terminates two fingers breadth above the navel; the second, called the *umbilical*, begins where the former ends, and terminates two fingers breadth below the navel; the third, called the *hypogastric*, descends as low as the *os pubis*. Each of these subdivisions the more accurate writers divide farther into three parts; a middle and two lateral ones, called the *HYPOCHONDRIA*. The middle part of the *umbilical* is called the *umbilicus*, or navel; and its lateral parts the *lumbi*, or loins: the middle of the *hypogastric* is called the *HYPOGASTRIUM*; and its sides the *ILIA*, or flanks. To which may be added the *PUBES*, *GROIN*, *ISCHIATIC* region, and *PERINEUM*, sometimes called the *lumbar* region.

There is but one posterior region, called *regio lumbaris*, which is the posterior part of the *abdomen*, comprehending all that space which reaches from the lowest ribs on each side, and the last *vertebra* of the back to the *os sacrum*, and the neighbouring parts of the *os ilium*. Authors however are not agreed whether the hind part be properly included in the *abdomen*, which some restrain to the anterior, or fore-part only.

ABDOMEN, *diseases of the*, are inflammations, abscesses, *schirri*, indurations, inflations, spasms, &c. Hence the *abdomen* becomes the seat of divers operations; as perforations, futures, sections, &c.

ABDOMEN, *wounds of the*, may be considered as of four kinds:

1. Such as affect the integuments only.
2. Such as affect the muscles, together with the integuments, without penetrating the *peritonæum*.
3. Such as with the integuments penetrate into the cavity, without wounding any of its contents.
4. Such as penetrating into the cavity, wound some or other of its contents.

The first sort, or superficial wounds of the *abdomen*, are not esteemed dangerous, and require no treatment different from other wounds. However Arcæus (lib. ii. cap. 4.) and Vigo (lib. iii. cap. 11.) agree in pronouncing those more liable to bad accidents, which are received within two or three fingers breadth of the navel.

The second sort are distinguished from the two last by the probe; for if the patient is carefully placed in the situation he was in when the wound was given, and the probe be introduced, it will generally pass into the cavity of the *abdomen*, if the *peritonæum* is perforated. Another way of distinguishing these wounds is by injecting warm water into them; and if it returns immediately, there is reason to believe the wound to be only muscular; but if any considerable quantity remain in the wound, the cavity is certainly penetrated. If the wound is large, great skill is required in the surgeon, especially if it is made in a transverse, or oblique direction; for in this case the future is necessary, to keep the gaping lips of the wound together. Having taken these precautions, to preserve the intestines and *peritonæum* in their natural situation, the wound is to be dressed with vulnerary balsams, and an adhesive plaster; the patient must also be enjoined abstinence, must have rest, and his bowels must be kept open. In wounds of the *abdomen*, that penetrate into its cavity, the surgeon is first to examine very carefully, whether any of its contents partake of the injury. It will be found that this is not the case, if there is no great degree of weakness, hæmorrhage, pain, fever, &c. if on laying the patient upon the wounded side, there is no discharge of chyle, gall, excrement, or urine; if milk being injected warm, returns without any alteration in its colour; if the inflicting instrument has not been very sharp; and lastly, if there is no vomiting or discharge of blood by the mouth, stool, or urine, nor swelling or hardness of the belly.

We have some very valuable remarks on the hydropical tumours of the *abdomen*, in the Medical Essays of Edinburgh, vol. v. art. 59.

There is a *sinus* on each side of the *cartilago xiphoides*, between the muscles called *recti* and *transversalis*, into which on the left side, by violent vomiting, the stomach is sometimes ruptured. This occasions excessive pain, which is greater when the patient is up, and suspended by his lying in a horizontal posture; this circumstance is the pathognomic sign of the disease, to remove which, in case of its continuing obstinate, the place must be laid open, and the rupture reduced in the ordinary manner.

ABDOMINALES, in the *Linnean System of Ichthyology*, an order of *FISH*, having the ventral fins placed behind the pectoral in the *abdomen*, and comprehending 17 genera and 127 species.

ABDUCENS labiorum, in *Anatomy*, a name given by Spigelius to a muscle, which he also calls the *secundus ad latera*

trahens. This is the *levator anguli oris* of Albinus, and the *caninus* or *elevator labiorum communis* of others.

ABDUCENT, in *Anatomy*. See **ABDUCTOR**.

ABDUCTION, in *Logic*, a kind of argumentation, by the Greeks called *apagoge*; wherein the greater extreme is evidently contained in the medium, but the medium not so evidently in the lesser extreme as not to require some farther medium, or proof, to make it appear.

It is called *abduction*, from *ab*, from; and *ducere*, to draw; because from the conclusion, it draws us on to prove the proposition assumed.

Thus, in the syllogism, 'All whom God absolves are free of sin; but God absolves all who are in Christ: therefore, all who are in Christ are free of sin.' The major is evident; but the minor, or assumption, is not so, without some other proposition to prove it; as, 'God received satisfaction for sin by the suffering of Jesus Christ.'

ABDUCTION, in *Surgery*, denotes a species of **FRACTURE**, wherein the bone near the joint is so divided transversely, that the extremities recede from each other.

ABDUCTOR, or **ABDUCENT**, in *Anatomy*, a name common to several muscles, whose action is the withdrawing, opening, or pulling back, the parts they are fixed to.

The name is compounded of *ab*, from; and *ducere*, to draw.—Their antagonists are called **ADDUCTORES**.

ABDUCTOR auricularis, or of the little finger, arises from the annular ligament, and the third and fourth bones of the *carpus* in the second rank; and is inserted externally into the first bone of the little finger: it serves to draw that finger from the rest, and also to bend it a little.—See *Tab. Anat. (Myol.) fig. 2. n. 23*.

In some subjects it appears divided into two or three muscles, consisting of so many different series of fibres.

ABDUCTOR indicis, or of the fore-finger, arises from the inside of the bone of the thumb, and is inserted into the first bone of the fore-finger, which it draws from the rest towards the thumb.—See *Tab. Anat. (Myol.) fig. 1. n. 32. & fig. 6. n. 24. & fig. 7. n. 8*.

ABDUCTOR minimi digiti manus. See **ABDUCTOR auricularis**.

ABDUCTOR minimi digiti pedis, or of the little-toe, arises from the outside of the *os calcis*, near the exterior bone of the *metatarsus*, and is inserted laterally into the outside of the second bone of that toe, which it pulls from the rest.—See *fig. 1. n. 74. & fig. 6. n. 45*.

ABDUCTOR oculi, or of the eye, is one of the four *recti*, or straight muscles, arising from the bottom of the orbit, and spread over the first proper tunic; serving to draw the eye towards the outer *CANTHUS*.

ABDUCTOR pollicis manus, called also *thenar*, springs from the annular ligament and first bone of the *carpus*; from whence passing to the thumb, it makes that fleshy body called *mons lunæ*: it draws the thumb from the fingers.—See *fig. 1. n. 31. & fig. 2. n. 21. & fig. 6. n. 25. & fig. 7*.

ABDUCTOR longus pollicis, in *Anatomy*, a name given by Albinus to a muscle of the hand called by Winslow, Cowper, and others, **EXTENSOR primus pollicis**.

ABDUCTOR ossis metacarpi digiti minimi, in *Anatomy*, a name given by Albinus to a muscle of the hand called by Winslow, and some others, the *metacarpialis*, and by the generality of writers, by names but badly expressing its nature or uses. Riolanus calls it *pars hypothenaris parvi digiti*; and Spigelius, *interosseus ultimo ossi metacarpii, parte manus externa, adherens*. Cowper calls it the *abductor minimi digiti*; and Douglas, the *flexor primi internodii minimi digiti*.

ABDUCTOR pollicis pedis, or of the great toe, springs from the inside of the *os calcis*, and the greater *os cuneiforme*; and is inserted into the outside of the exterior *os sesamoidæum pollicis*; it serves to draw the great **TOE** from the rest.—See *fig. 1. n. 72. & fig. 2. n. 52*.

Some anatomists likewise reckon four *abductors* of the thigh. **ABDUCTOR FEMORIS**, *primus, secundus, tertius, et quartus*. The use of these four muscles is to adduce, or move the thigh-bone, according to their different directions.

ABECEDARIAN. See **ABCEDARY**.

ABEL-TREE, or **ABELE-TREE**, a species of poplar, with large leaves. This tree may be propagated by layers or cuttings, and also by suckers. Many advantages might be derived from planting it in boggy soils, where few other trees will thrive. The wood of it is useful for flooring or wainscoting rooms; and it is preferred for turnery-ware to any other, on account of its peculiar whiteness. The quickness of its growth, insomuch that it will yield shoots of eighteen or twenty feet long in a year, renders it eligible in plantations that are designed for shade or shelter.

ABELIANS, **ABELONIANS**, or **ABELOITES**, a sect in Africa, not far from Hippo, whose distinguishing tenet and practice was to marry, and yet live with their wives

in a professed abstinence, without having any carnal commerce together. 1 Cor. vii. 29. The learned have taken great pains to ascertain the principle they went upon, and the reason of their denomination, to very little purpose. But, in effect, it is more than probable, they took their name from Abel for no other reason, but because, like that patriarch, they had no issue; not that he lived in continence after marriage; but because he was killed before he had married.

ABELICEA, the name of a very tall tree, growing principally in Crete, called also *SANTALUS adulterina*, and *PSEUDOSANTALUM*.

ABELMOLUCH, a species of the *RICINUS*, or *Palma Christi*.

ABELMOSCH, or ABELMUSK, the musk-feed; a small odoriferous seed brought from Egypt, chiefly used in perfumes. The best comes from Martinico.

ABELOITES, } See ABELIANS.
ABELONIANS, }

ABENEL GAUBY, a fixed star of the second or third magnitude, in the south scale of the constellation *LIBRA*.

ABEREMURDER, ABEREMURDRUM, in *Ancient Law-Books*, denotes murder that has been proved, or made appear by a judiciary process.

The word is Anglo-Saxon; compounded of *ebere*, proved or clear; and *morth*, killing or homicide.

In this sense, *abermurder*, called also *eberemurder*, amounts to the same with *probatum murdrum*, or murder which needed proof; and stands opposed to open murder, which was murder sufficiently known by the notoriety of the fact.

Lambard explains *abermurder* by *manifestum murdrum*; and Spelman, by *cædes manifesta*: others by *apertum murdrum*.

Aberemurdrum was one of those crimes which could not be expiated by money, as most others might be.

ABERRATION, in *Astronomy*, an apparent motion in the fixed stars, occasioned by the progressive motion of light: the theory of which is explained by Dr. Bradley. For an account of which, see *LIGHT*.

ABERRATION, in *Medicine*, signifies a deviation from the ordinary course of nature.

ABERRATION, in *Optics*, is used to denote that error or deviation of the rays of light, when inflected by a lens or speculum, whereby they are hindered from meeting or uniting in the same point, called the *geometrical focus*; it is either lateral or longitudinal. The lateral aberration is measured by a perpendicular to the axis of the speculum, produced from the focus, to meet the reflected or refracted ray: the longitudinal aberration is the distance of the focus from the point in which the same ray intersects the axis. If the focal distance of any lenses be given, their apertures be small, and the incident rays homogeneous and parallel, the longitudinal aberrations will be as the squares, and the lateral aberrations as the cubes of the linear apertures.

There are two species of aberration, distinguished by their different causes: one arising from the figure of the glass or speculum; the other from the unequal refrangibility of the rays of light. The second species of aberration is sometimes called the Newtonian, from the name of its inventor. The former species of aberration is altogether inconsiderable, compared with the latter; inasmuch that if the object-glass of a telescope be plano-convex, and the plane side be turned toward the object, and the diameter of the sphere, to which the convex side of the glass is ground, be 100 feet, the semidiameter of the aperture be two inches, and the ratio of the sine of incidence out of glass into air be to that of refraction as 20 to 31; the diameter of the circle of aberrations will in this case be only $\frac{961}{72000000}$ parts of an

inch. But the diameter of the little circle, through which the same rays are scattered by unequal refrangibility, will be about the 55th part of the breadth of the aperture of the object-glass, which is here four inches; and therefore the error arising from the spherical figure of the glass is to the error arising from the different refrangibility of the rays, as $\frac{961}{72000000}$ to $\frac{4}{55}$, that is, as

1 to 5449. See Newton's *Optics*, p. 83, or Smith's *Optics*, book ii. cap. 6, where this proposition is demonstrated.

In consequence of this discovery, and the apprehension, that equal refractions must produce equal divergencies in every sort of medium, it was imagined, that all spherical object-glasses of telescopes would be equally affected by the different refrangibility of light, in proportion to their aperture, of whatever materials they were constructed; and therefore, that the only improvement of which refracting telescopes were capable, was that of increasing their length. On this account Sir

Isaac Newton, and others after him, despairing of success in the manufacture and use of refracting lenses, directed their chief attention to the construction of reflecting telescopes. However, in 1747, M. Euler applied himself to the subject of refraction, and, pursuing a hint suggested by Sir Isaac Newton, formed a scheme of making object-glasses with two lenses of glass, inclosing water between them; hoping, that by constructing them of different materials, the refractions would balance one another, and prevent the usual aberration. Mr. Dollond examined this scheme, and found, that Mr. Euler's principles were unsatisfactory. M. Clairaut likewise concurred in opinion, that his speculations were more ingenious than useful.

This controversy, which promised to be of great importance in the science of optics, engaged the attention of M. Klingenstierna of Sweden, and induced him carefully to examine the eighth experiment in the second part of Newton's *Optics*, with the conclusions which he draws from it. He found, that the rays of light, in the circumstances there supposed, did not lose their colour, as Sir Isaac Newton imagined. This hint of the Swedish philosopher led Mr. Dollond to re-examine the same experiment; and it appeared, after accurate trials, that different substances made the light to diverge very differently, in proportion to their general refractive power: therefore in the year 1757 he procured wedges of different kinds of glass, and applied them together, so that the refractions might be made in contrary directions, in order to discover, whether the refraction and divergency of colours would vanish together. The result of his first trials encouraged him to persevere; for he discovered a difference far beyond his hopes in the refractive qualities of different kinds of glass, with respect to their divergency of colours. The Venice glass, and the English crown glass were found to be nearly allied in this respect; the common English plate glass made the light diverge more, and the English flint glass most of all. Without inquiring into the cause of this difference, he proceeded to adapt wedges of crown glass, and of white flint glass, ground to different angles, to each other, so as to refract in contrary directions; and the refracted light was entirely free from colours. Having measured the refractions of each wedge, he found that of the white glass to be to that of the crown-glass nearly as two to three: and he deduced this general conclusion, that any two wedges, made in this proportion, and applied together so as to refract in contrary directions, would refract the light without any aberration of the rays.

Mr. Dollond's next object was to make similar trials with spherical glasses of different materials; and, in order to obtain a refraction of light in contrary directions, one must be concave, and the other convex; the latter, which was to refract the most, that the rays might converge to a real focus, was made of crown glass, and the former of white flint glass; and, the refractions of spherical glasses being an inverse ratio of their focal distances, it was necessary, that the focal distances of the two glasses should be inversely as the ratios of the refractions of the wedges; for, being thus proportioned, every ray of light that passes through this combined glass, at any distance from its axis, will constantly be refracted, by the difference between two contrary refractions, in the proportion required; and therefore the different refrangibility of the light will be intirely removed.

But in the applications of this admirable discovery to practice, many difficulties occurred. At length, however, by repeated trials, and resolute perseverance, Mr. Dollond succeeded so far as to construct refracting telescopes much superior to any that had before been used, representing objects with great distinctness, and in their true colours.

M. Clairaut, who interested himself betimes in this discovery, endeavoured to ascertain the principles of Mr. Dollond's theory, and to lay down rules for facilitating the construction of these new telescopes. With this view he made several experiments, in order to determine the refractive powers of different kinds of glass, and the proportion in which they separated the rays of light; and from these experiments he deduced several theorems and problems of general use. M. D'Alembert likewise made a great variety of calculations to the same purpose; and shewed how to correct the errors to which these telescopes are subject, by placing the object-glasses, in some cases, at a small distance from one another, and sometimes by using eye-glasses of different refractive powers. But though foreigners were hereby supplied with the most accurate calculations, they were very defective in practice. The English telescopes, made, as they imagined, without any exact rule, were greatly superior to the best of their construction.

Mr. Euler, who first gave occasion to this important and useful inquiry, was very reluctant in admitting Mr. Dollond's

even by the same prosecutor, which in the latter was extinguished for ever.

Within thirty days after a public *abolition*, the same accuser, by the prince's licence, was allowed to renew the charge; after a private *abolition*, another accuser might renew it, but the same could not.

This kind of *abolition* is either granted in favour of the accused, or of the accuser; and is either public, granted by the prince or senate, on occasions of public rejoicing, victory, and congratulation; or private, sued for to the president or judge, by one of the parties; frequently by the accuser himself, who after having embarked in the prosecution, by subscribing his name to the charge, could not by the Turpilian senatus-consults otherwise desist, without incurring infamy. On such occasions therefore the accuser would *petere abolitionem*; that is, move for an *abolition*: which was only granted, on his shewing fair and honest motives for withdrawing the charge; viz. inadvertency, youth, warmth, or the like: nor was it granted without the consent of the accused; or if the accusation appeared to have been utterly false, or malicious, &c.

For the accused, the charge against him was also *abolished* by the death of the accuser, or his being incapacitated from prosecuting by reason of sickness, or the like. —An action of injury was *abolished* by dissimulation: a sentence of condemnation, by indulgence.

Abolition was also used for expunging a person's name out of the public list of the accused, hung up in the treasury.

This was called *abolere nomen*; and, like the former, was either public, as that under Augustus, when all the names, which had long hung up, were expunged at once; or private, done at the motion of one of the parties.

By several laws in the Theodosian code it appears, that an *abolition* of debts was sometimes granted the debtors to the fiscus. We have a medal of the emperor Adrian, wherein that prince is represented standing with a scepter in his left hand, and a lighted torch in his right; with which he sets fire to several papers in presence of the people, who testify their joy and gratitude by lifting up their hands towards heaven. The legend is, *Reliqua vetera H. S. nummis abolita*.

ABOLLA, in *Antiquity*, a warm kind of garment, lined or doubled, used by the Greeks and Romans; chiefly out of the city, in following the camp.

The word is Latin, formed, as some imagine, from *bulle*, on a supposition that this vestment was garnished with those ornaments called *bullæ*. Others, denying this circumstance, derive it from the Greek *ἀμβολη*, of *ἀναβολη*, *ambolus*, *cloathing*.

Critics and antiquaries are greatly divided as to the form, use, kinds, &c. of this garment. Papias make it a species of the *toga*, or gown; but Nonius, and the generality, a species of the *pallium*, or cloak.

The *abolla* seems rather to have stood opposed to *toga*, which was a garment of peace, as the *abollo* was of war; at least Varro and Martial place them in this opposite light.

Some, after Nonius, hold it to have been a military garb alone; others, after Papias, a senatorial; and Salmasius particularly, to have been worn by the presidents in the provinces, and even by the præfecti of the city, when they administered justice; which Pitiscus endeavours to refute. Others will also have the *abolla* to have been used by the philosophers, particularly the Stoics, Cynics, &c. Lastly, others reconcile all the variances, by making divers kinds of *abolla*, accommodated to different occasions and professions. Even kings appear to have used the *abolla*: Caligula was affronted at king Ptolemy for appearing at the shews in a purple *abolla*, and by the éclat thereof turning the eyes of the spectators from the emperor upon himself.

ABOMASUS, **ABOMASUM**, or **ABOMASIUM**, in *comparative Anatomy*, one of the stomachs or ventricles of animals of the ruminating kind. See **RUMINANT** and **RUMINATION**.

Beasts that chew the cud are found to have four stomachs; viz. the *rumen*, or *magnus venter*, or stomach, properly so called; the *reticulum*, *omasus*, and *abomasus*. The *abomasus*, properly called the *maw*, is the last of the four; being the place wherein the chyle is formed, and from which the food descends immediately into the intestines.

It is full of a sort of leaves, like the *omasus*; but its leaves have this peculiarity, that beside the membranes they consist of, they contain a great number of glands, not found in any of the first.

It is in the *abomasus* of calves and lambs that the runnet, or curdling, is formed, wherewith housewives curdle their milk.

ABORIGINES, or **ABORIGENES**, in *Geography*, a name

sometimes given to the primitive inhabitants of a country, or those who had their original therein; in contradistinction to colonies, or new races of inhabitants, derived from elsewhere.

The term *Aborigines* is famous in antiquity. — Though now an appellative, it was originally a proper name, given only to a certain people in Italy; and both the reason and origin of it are greatly disputed among the learned.

ABORIGINES then denoted a nation in Italy, which inhabited the ancient Latium, or country now called Romania or Campagna di Roma.

In which sense, the *Aborigines* are distinguished from the Janigenæ, who, according to the false Berofus, inhabited the country before them; from the Siculi, whom they expelled; from the Grecians, whom they descended from; from the Latins, whose name they assumed, after their union with Æneas and the Trojans; and, lastly, from the Ausonii, Volsci, Oenotrii, &c. neighbouring nations in other parts of the country.

Whence this people came by the appellation, whether (1) as belonging to any of the species of *Aborigines*, above recited; or (2) from their having been *aberrigines*, i. e. wanderers; or (3) from their inhabiting the mountains; or on what other account, is much disputed.

(1) S. Jerom says, they were so called, as being, *absque origine*, the primitive planters of the country after the flood. Dion. Halicarnass. accounts for the name, as denoting them the founders of the race of inhabitants of that country: others think them so called as being originally Arcadians, who claimed to be earth-born, and not descended from any people.

(2) Aurelius Victor suggests another opinion, viz. that they were called *Aborigines*, q. d. *Aberrigines*, from *ab*, from; from *errare*, to wander; as having been before a wandering people, to which opinion Festus gives some credit. It is added, that Pelasgians, another name sometimes given them, is of the same import, and denotes vagabonds, like cranes.

(3) Pausanias rather thinks they were thus called, *ἀπὸ ὀρέων*, from mountains; which opinion seems confirmed by Virgil, who, speaking of Saturn, the legislator of his people, says:

*Is genus indocile, ac dispersum montibus altis
Composuit, legeque dedit.*—

The *Aborigines* were either the original inhabitants of the country, settled there by Janus, as some imagine, or by Saturn, or Cham, as others, not long after the dispersion; or even, as some think, before it: or they were a colony sent from some other nation; who, expelling the ancient inhabitants the Siculi, settled in their place.

ABORTION, is used, in *Medicine*, for the unseasonable exclusion of an imperfect human *fœtus*, either alive, or dead, before the natural time of delivery.

In this sense, *abortion* amounts to the same with what we popularly call *miscarriage*; the Latins *abortus*, and sometimes *abaetus*.

This may happen at any time of pregnancy; but if before the second month after conception, it is properly called a *false conception*, or effluxion.

The causes of *abortion* are very various. The most usual are, distempers, either acute or chronical; immoderate evacuations, all strong passions, violent exercises, frights, lifting of weights, weakness from any cause whatever, fullness of blood, stimulating medicines, offensive smells, excessive use of venery, and, in general, any thing which tends to promote the *menfes*. But the most frequent causes of abortion are either too great stricture, or laxity of the *uterus*, which are more particularly pointed out by Hippocrates.

The ancient Greek legislators, Solon and Lycurgus, prohibited the practice of creating *abortion*. Whether or no it was permitted among the Romans, has been much disputed, between two learned modern civilians. It is certain the practice, which was by them called *visceribus vim inferre*, was frequent enough: but whether there was any penalty on it, before the emperors Severus and Antonine, is the question. Noodt maintains the negative; and farther, that those princes only made it criminal in one particular case; viz. of a married woman's practising it out of resentment against her husband, in order to defraud him of the comfort of children; this was ordered to be punished by a temporary exile: *siqua prægnans vim visceribus suis intulerit ne inimico marito filium procrearet, temporali exilio coerceatur*. He adds, that there was no general prohibition of the practice before Gratian and Valens. It is true we find in Cicero an earlier instance, of a woman punished for this fact; but it was in Milefia, a country not subject to the Roman laws.

Bynkershoek however denies, that a woman was allowed to drink the *poculum abortionis*, impure; and the reason

reason he gives, is, that the womb was the husband's property, who was declared, by the laws, the sole *custos* of it; to prevent his being imposed on in the children he was to bring up. But then this does not affect women, who had been impregnated by others than their husbands.

The foundation on which the practice is said to have been allowed, was, that the *fœtus*, while *in utero*, was reputed as a part of the mother, ranked as one of her own viscera, over which she had the same power as over the rest: besides, that it was not reputed as a man, *homo*; nor to be alive, otherwise than as a vegetable: consequently, the crime amounted to little more than that of plucking unripe fruit from the tree. V. Juven. Sat. 6. v. 500. Senec. Consolat. ad Helviam Matrem, c. 16.

This last cited author represents it as a peculiar glory of Helvia, that she had never, like other women, whose chief study is their beauty and shape, destroyed the *fœtus* in her womb. *Nunquam te fecunditatis tuæ quasi exprobraret ætatem, puduit: nunquam more alienarum quibus omnis commendatio ex forma petitur, tumescentem uterum abscondisti quasi indecens onus, nec inter viscera tua conceptas spes liberorum elisti.*

The primitive fathers, Athenagoras, Tertullian, Minutius Felix, Augustin, &c. declaimed loudly against the practice, as virtual murder: *Homicidii festinatio est, prohibere nasci; nec refert, natam quis eripiat animam, an nascentem disturbet.* Several councils have declared against it. Yet we are told that the modern Romish ecclesiastical laws allow of dispensations for it. Egane mentions the rates at which a dispensation for it may be had.

The practice of artificial *abortion* is chiefly in the hands of women and nurses, rarely in that of physicians; who, in some countries, are not admitted to the profession without abjuring it. Hippocrates, in the oath he would have enjoined on all physicians, includes their not giving the *peffus abortivus*; though elsewhere he gives the formal process, whereby he himself procured a maid to miscarry. The time for it is presently after impregnation; at least within the third or fourth month of gestation. The manner of effecting it is chiefly by medicines of the purgative, and deobstruent kind: Roman authors speak of the *poculum abortionis*, or *abortive draught*, frequent among them. External violences are also sometimes had recourse to; as leaping from a stool, prescribed by Hippocrates: obstinate fastings, and vehement evacuations, have been frequently practised for the same end.—Yet all the powers of medicine often fail to procure *abortion*, by reason of the naturally close contraction of the orifice of the uterus; which has been known to hold out against the most malignant fevers, dysenteries, salivations, and the like; against the strongest aperients and evacuants; against distilled oils of juniper, favin, succinum; against large quantities of crocus metallorum, artemisia, myrrh, mercury, the farina of muscus terrestris, &c.

The most fatal method is by punctures of the uterus, with a pointed instrument for the purpose; too often used among us, and not unknown to the ancients.—Patin mentions a midwife hanged at Paris, for killing a *fœtus* in the womb, by running a stiletto, or kind of bodkin, up the vagina, through the orifice of the uterus; by which a miscarriage was procured, but with such ill success, that the mother was seized with convulsions, and died miserably. The criminal confessed she had treated many before in the same manner, with good effect. Our own age and country afford a parallel instance, a woman having been some years ago executed among us for the like fact. Tertullian has a passage, which shews the same was practised in those days; *est etiam æneum spiculum, quo jugulatio ipsa dirigitur cæco latrocinio εὐεπτοσκαρτῶν appellant, utique viventis infantis peremptorium.* The operation, considering the tenderness of the part, must be of the utmost danger. Brendelius gives an account of what he observed in dissecting a girl at Norimberg, in 1714, who died of the operation, which she had performed on herself; the neck of the uterus appeared exceedingly distended, the vessels lacerated and mortified, the uterus itself inflamed and putrefied, &c.

Abortion may be produced by whatever immediately affects the child, the placenta, the membrane, or the mother. When the time of miscarriage is just at hand, the pains are much the same as those in labour.

Abortion is dangerous where the time of pregnancy is far advanced, so that the *fœtus* must be large, where the cause is very violent, or the patient strongly convulsed, and where a large hæmorrhage precedes, or ensues, or the *fœtus* is putrefied, &c. Under other circumstances it rarely proves mortal.

Abortion is also used, somewhat abusively, for a *fœtus*, which, dying in the womb, continues there beyond the natural term; sometimes several years, and even during the whole life of the mother.

ABORTION, to prevent. See MISCARRIAGE.

ABORTIVE, something come before its due time, or before it has arrived at its maturity and perfection.

ABORTIVE flux, fluxus abortivus, is sometimes used, among the ancients, as synonymous with abortion or effluxion; viz. where the embryo loses its hold, and slips away. In this sense, the eagle-stone is celebrated for stopping *abortive fluxes*; for which end it was to be hung to the arm, *subnexus specum uteri defendit a fluxibus abortivis.* See *ÆTITES*.

Among modern physicians, *abortive fluxes* are chiefly understood of a kind of hæmorrhages, which sometimes precede, and bring on abortion; at other times, burst forth in the act of exclusion.

The cause is a violent separation of the secundines from the uterus; which may arise from a vehement fit of passion, or motion of the body, a fall, fright, or the like. Thunder, lightning, hot liquor, too liberal use of deobstruents, or the navel-string being too short, sometimes occasion an *abortive hæmorrhage*.

ABORTIVE corn, a distemper of corn mentioned by M. Tillet, and suspected to be occasioned by insects. It appears long before harvest, and may be known by a deformity of the stalk, the leaves, the ear, and even the grain.

ABORTIVE vellum is made of the skin of an *abortive* calf.

ABRA, a silver coin in Poland, nearly equivalent to the English shilling. It is current through all the dominions of the Grand Signior, at the value of one fourth of the Holland's dollar, or *asiani*. See COINS.

ABRACADABRA, a magic word, recommended by Serenus Sammonicus, supposed to have the virtue of a charm or amulet, in curing agues, and preventing other diseases, particularly the fever called by the physicians *hæmitræus*.

To have this effect, the word must be wrote on paper, and repeated, omitting each time the last letter in the former, so that the whole may form a kind of inverted cone: in which there is this property, that which way soever the letters be taken, beginning from the *apex*, and ascending from the left to the right, they make the same word, or, as some will have it, the same sentiment, as is found in the first whole line.—According to Julius Africanus, another ancient writer, the pronouncing of the word in the same manner will do as well.

ABRAHAMIANs, or *ABRAHAMITES*, a sect of heretics, who renewed the error of the Paulicians.

They took their name from that of their leader Abraham, a native of Antioch, by the Arabs called Ibrahim; whence also the name Ibrahimiah, given by them to this sect. The *Abrahams* arose about the close of the eighth century, and were suppressed by the vigilance of Cyriacus, patriarch of Antioch.

ABRAHAMITES is also used, in *Church History*, for a party of monks, who suffered death for the worship of images under Theophilus.

ABRAMIS, in *Ichthyology*, a name given by Bellonius and others, to the *cyprinus latus*, or *bream*.

ABRASA, ulcers attended with abrasion of part of the substance; or ulcers, where the skin is so tender and lax, as to be subject to abrasion.

ABRASAXAS, an amulet in the form of a circle. See *ABRAXAS*.

ABRASION, is sometimes used, among *Medicinal Writers*, for the act of wearing away the natural *mucus* which covers the membranes, and particularly those of the stomach and intestines, by sharp corrosive medicines, or humours.

The word is composed of the Latin *ab*, and *rado*, to *shave*, or *scrape off*.

ABRAUM, in *Natural History*, a name given by some writers, to a species of red clay, used in England by the cabinet-makers, &c. to give a red colour to new mahogany wood; we have it from the Isle of Wight, but it is also found in Germany and Italy.

ABRAXAS, a barbarous word, denoting a power which presides over three hundred and sixty-five others, the number of days in the year.

Abraxas is a word of obscure origin, framed by ancient heretics as should seem for quaintness sake: it is supposed to be technically compounded of the Greek letters, considered as numeral characters; according to the custom of the Grecians, who expressed their numbers by letters of the alphabet; the values of which in the present word stand thus: A 1, B 2, P 100, A 1, Z 60, A 1, Z 200; which added together make the number 365.

The word is usually written, among modern authors, *abraxas*, though, as some hold, by a corrupt transposition of the letters Z and E, for *abraxaz*, as it is found in all the Greek fathers, as well as on ancient stones. Irenæus indeed has *abraxas*, but the reason may be, that the chapter in which the word occurs is only extant in Latin;

Latin; so that though it be in Greek characters, the orthography is of Latin copyists or translators.—In strictness the word ought to be written in Greek characters, ABPACAZ; since, besides that the inventors of it spoke that language, the word does not contain the number 365, when written in the Latin character. Hence a farther error in most books, wherein the word occurs in the smaller or running character, on account of the Greek sigma; which having in ancient inscriptions the same figure with the Latin C, is often rendered by a Roman C instead of S; whence *abracax* for *abraxas*.

ABRAXAS is more particularly used, in the Basilidian theology, for the supreme God, as supposed to contain the values or powers of 365 dependent deities.

Abraxas was properly the principle of the Gnostic hierarchy; the spring from whence the plurality of æons arose. From *abraxas* proceeded the primigenial mind; from the primigenial mind the logos, or word; from the word, prudence or prudence; from prudence, sophia and dynamis, or wisdom and strength; and from these two proceeded principalities, and powers, and angels; and from these, other angels, to the number of 365, the regents or intelligences of so many celestial orbs.

The Basilidians, who pass for the authors of the *disciplina arcana*, and the Platonic trinity, are suspected among Christians of some meaning still deeper, and more mysterious, in their *abraxas*. Several have even suspected something of the gospel trinity concealed in this word; which they explain, by supposing it compounded of the initial letters of the Hebrew words *Ab ben rouah*, *q. d.* father, son, and spirit. Wendelin, canon of Tournay, and father Hardouin, have given more precise explanations of the word, according to this system. The former makes it stand for *pater, filius, spiritus sanctus, salus a ligno*: the latter, improving somewhat on the explanation, makes it represent as hereunder.

A	A	Pater	A	1
B	Ben	Filius	B	2
P	Rouah-bakadosh	Spir. Sanctus	P	100
A	αἰθέρας	homines	A	1
C	σῶζον	salvans	C	200
A	αγίω	per sacrum	A	1
Σ	ξύλω	lignum	Σ	60

365

ABRAXAS is also used, among *Antiquaries*, for a species of graven gem, on which the word *abraxas* is usually inscribed; supposed to have been worn by the ancient Gnostics, Basilidians, and Carpocratians, as an amulet or talisman against diseases.

Abraxas, in this sense, is synonymous with Basilidian stone, a name by which some authors call these antiques; or *abraxean stone*, as they are denominated by others.

Abraxases are of divers figures and sizes: sometimes in that of rings to be worn the finger; in which form they were supposed of great efficacy for driving away flies.

Abraxases are frequent in the cabinets of the curious: a collection of them, as complete as possible, has been much desired by several. There is a fine one in the abbey of S. Genevieve, which has occasioned much inquiry. They are chiefly of the third century; most of them seem to have come from Egypt, whence they become of considerable use for explaining the antiquities of that country.

Macarius, Chifflet, and Capello, have written expressly on *abraxases*: the two former have given explanations of a great number of these stones; the last, figures only, without explanations. The former are reproached with excess of conjectures and erudition; the latter, with puzzling the reader with mere riddles: there is still room for something better on the subject.

Abraxases have sometimes no other inscription beside the word; but more usually some symbol of the Basilidian god. Beside which, we sometimes find other marks and words adjoined; as the names of saints, angels, Basilidian virtues, apostles, and the ineffable name Jehovah itself, either at length, or in the abbreviation ΙΑΩ; sometimes the words σαβασθ 'Αδουαι, or the names of other gods; as Mithras, or Mithraξ; ΨΩ, Semes, Sol; Αρουβις; εις Ζευς Ζεραπης; and the like. Sometimes Isis sitting on a lotus, or Apis surrounded with stars; sometimes monstrous compositions of animals, obscene images, Phalli, and Ithyphalli. The graving of *abraxases* is not uniform, rarely good; the reverse, on which is the word, is said to be sometimes of a lower and a more modern taste than the face. The characters are usually Greek, sometimes Hebrew, Coptic, or Etrurian; and sometimes of a mongrel kind, forged as should seem on purpose to make their import impenetrable. It is disputed, whether or no the Veronica of Montreuil, or the Granite obelisk, mentioned by Gori, be *abraxases*.

ABREAST, a *Marine* term, expressing the situation of two or more ships, that lie with their sides parallel to each other, and their heads equally advanced. When the line of battle at sea is formed *abreast*, the whole squadron advances uniformly, the ships being equally distant from, and parallel to each other; so that the length of each ship forms a right angle with the extent of the squadron, or line *abreast*. See *LINE*.

ABRIC, sulphur.

ABRIDGING, in *Algebra*, is the reducing a compound problem, or equation, to its more simple expression. See *PROBLEM*, *EQUATION*, and *EXPRESSION*.

To prevent the mind's being distracted with attending to known quantities, concerning which nothing farther is required, and to keep the attention entire for the rest, mathematicians use to *abridge* their equations, by expressing all the known qualities of the same term, by a single letter.—For an instance: to *abridge* the equation

$$x^3 - axx + abx - abc = 0$$

$$-b + ac$$

$$-c + bc$$

All the known quantities $-a - b - c$ of the second term are supposed equal to one single letter $-n$: all the known quantities $+ab + ac + bc$ of the third term, equal to another letter $+p$: and all the known quantities $-abc$ of the fourth term, equal to a single letter $-q$. By which means we have $x^3 - nxx + px - q = 0$, instead of the equation proposed.

An equation thus abridged, is called a formula. See *FORMULA*.

ABRIDGMENT, a summary, or contraction of a discourse; wherein the less material things being more briefly insisted on, the whole is brought into a lesser compass.

Abridgments of books are numerous. They are usually said to have had their rise in the times of ignorance; to have been one of the first fruits of that barbarism which ensued on the decline of the Roman empire; and to have been unknown in those happy days, when letters flourished among the Greeks and Romans: yet we have some traces of them in those times. For *Abridgments* of the common law and of the statutes, see *DIGEST*, *LAW*, and *STATUTES*.

ABRIDGMENT, in *Law*, is particularly used for the shortening a count or declaration, by subtracting some of the substance of it.

A man is said to *abridge* his *plaint* in assize, or a woman her demand in an action of dower, when, having put any lands therein which are not in the tenure of the tenant or defendant; and non-tenure, or the like, is pleaded to that land in the abatement of the writ; they are brought to *abridge*, *i. e.* to desist from and leave that parcel out of the demand; and pray that the tenant may answer to the rest, to which he has not yet pleaded any thing.—Though the demandant has *abridged* his *plaint*, or demand; yet the writ still remains good for the rest. The reason is, that such writs run in general, and do not specify particulars. See 21 H. 8. c. 3.

ABROCHMENT, or ABBROCHMENT, ABBROCAMENTUM, in some ancient *Law*-writers, denotes the act of ingrossing or buying up commodities by wholesale, before they come into the open market; in order to sell them off dear by retail, otherwise called *forestalling*.

ABROGATION, the act of abolishing a law, by authority of the maker.

In which sense, the word is synonymous with abolition, repealing, and revocation.

Abrogation stands opposed to *rogation*: it is distinguished from *derogation*, which implies the taking away only some part of a law; from *subrogation*, which denotes the adding a clause to it; from *obrogation*, which implies the limiting or restraining it; from *dispensation*, which only sets it aside in a particular instance; and from *antiquation*, which is the refusing to pass a law.

ABROHANI, or MALLEMOLLI, the name of a kind of muslin, or clear white fine cotton cloth, brought from the East Indies, particularly from Bengal; being in length sixteen French ells and three quarters, and in breadth five eighths.

ABROKUS, in *Botany*, a name used by some of the Latin writers, for the *bromus*, or *avena sterilis*, the wild oat; and by others, for the *orobus*, or bitter vetch. The Greeks originally used the word, and that not only for these two vegetables, but in a much larger sense, understanding by it any herb resembling the plants cultivated for the use of the table, but not esculent. The Greeks and Romans had a way of expressing the boiling of pulse, or herbs, by words signifying the wetting them: thus the Greeks expressed boiled things by *brocha*, βροχα, and the Romans by *madida*. Virgil uses this word for the pease, and Plautus for all esculent things that were boiled: hence these bastard peas and oats were called *abrocha*, non *madida*, not fit for boiling or eating.

ABRONO, in *Botany*, a name given by Serapion, and others, to the heart-pease; called also *abrug*.

ABROTA.

ABROTANUM, or ABROTONUM. See SOUTHERNWOOD.

ABRUGI. See ABRONO.

ABRUS, in the *Materia Medica*, the name of a seed produced by one of the phaseole, or kidney-beans, and commonly called Angola-seeds.

ABSCCESS, in *Medicine*, a kind of inflammatory TUMOR, containing purulent matter, pent up in a fleshy part, and corrupting and consuming the fibres, and other substance thereof.

Abscess is the same with what the Greeks call *apostema*, and the English *imposthume*, or *imposthumation*.

Almost all *abscesses* are the consequences of inflammation.

The ripening of *abscesses* is promoted by poultices, &c. *Abscesses* are opened either by caustic, or incision; but the latter way is in most cases preferable.

Abscesses arise often in women after delivery; and though dangerous in themselves, yet they often appear to be the *crisis* of the disease, that gave rise to them. For the cure, if they cannot be dissolved, i. e. carried off by proper artificial evacuations, as phlebotomy, purging, &c. with the occasional use of calomel, and gentle perspirative fumes, liniments, and cataplasms; recourse is to be had to the contrary method, and they must be brought to suppuration.

ABSCISSE, ABSCISSA, in *Conics*, a part of the diameter or transverse axis, of a conic section, intercepted between the vertex, or some other fixed point, and a semiordinate. See CONIC SECTION.

Such are the lines AP, AP, &c. (*Tab. Conics, fig. 20.*) intercepted between the vertex A, and the semiordinates PM, PM, &c. which are called *abscisses*, of the Latin *abscindere*, to cut off; as being parts cut off from the axis. Others call them *sagitta*, q. d. arrows.

In the *parabola* the *abscisse* is a third proportional to the parameter and semiordinate; and the parameter a third proportional to the *abscisse* and semiordinate.

In the *ellipse*, the square of the semiordinate is equal to the rectangle of the parameter into the *abscisse*, subtracting another rectangle of the same *abscisse*, into a fourth proportional to the axis, parameter, and *abscisse*.

In the *hyperbola*, the squares of the semiordinates are to each other as the rectangles of the *abscisse* into another line, composed of the *abscisse* and the transverse axis.

ABSCISSION, in *Rhetoric*, is a figure of speech, when beginning to say a thing, we break off short, as supposing the matter sufficiently signified, by what has been already said. Cicer. ad Heren. lib. iv. cap. 77.

For an instance: one of her sex, age, and beauty, to be seen alone, at such an hour, with a man of his character.— I need say no more.

Abscission is a species of ellipsis, or suppression. Scaliger distinguishes it from præcision, and suspension.

Astrologers also speak of an *abscission* of the light of a planet, by another planet's outstripping it, and joining a third before it. *Abscission* is held a deterioration.

ABSCISSION, in *Surgery*, denotes the act of taking away some morbid or superfluous part by an edged instrument.

In this sense *abscission* amounts to the same with the Greek ἀποκοπή. Cowper speaks of the *abscission* of a leg; which is more properly called amputation. The *abscission* of the præpuce makes what we call circumcision.

Abscission of the ears is a kind of legal punishment, inflicted on perjury. In some countries they also practise *abscission* of the nose on traitors in an army, as a punishment reputed worse than death.

ABSCISSION is more properly used for the operation of cutting away some soft part of the body, when depraved, or grown hurtful.

In which sense, *abscission* differs from amputation, in that the latter is of a solid or bony part, the former of a fleshy or membranous one; yet they are sometimes confounded.

We say the *abscission* of a nerve, lip, cheek, or the like.

Mr. Shipton gives an instance of the *abscission* of a portion of the intestines not being mortal. Phil. Trans. N° 283.

ABSINTHITES, ABSINTHIAC, or ABSINTHIATED, something tinged or impregnated with the virtues of *absinthium*, or WORMWOOD.

Bartholin mentions a woman whose milk was become *absinthiated*, and rendered bitter as gall, by the too liberal use of wormwood. Act. Med. tom. ii.

Vinum absinthites, or *poculum absinthiatum*, wormwood wine, is much spoke of among the ancients, as a wholesome agreeable drink, and even an antidote against drunkenness; though some have charged it with being offensive to the head, and liable to cause fevers, cephalalgies, vomitings, uterine fluxes, &c. Ray also makes it a preventive of venery. The preparation is given by many. According to the common account, it is made by infusing the leaves of the plant in a quantity of wine. But Fehr shews that it should rather be prepared by fermentation, in order to correct the crudities of the plant, and call forth its volatile salt. Paulli prepares it even with-

out *absinthium*. Dr. Bowle prefers the *aqua absinthites*, or wormwood-water taken in a small quantity after meals, to the wine; as being less liable to affect the head, and fill it with vapours.

ABSINTHIUM, in *Botany*. See WORMWOOD.

ABSINTHIUM is also a name given to other plants, by different authors; as to dwarf *ptarmica*, with leaves divided after the manner of wormwood; also to the Alpine *chamemile*, with southernwood-leaves.

ABSIS. See APSIS.

ABSOLUTE, in a general sense, something that stands free or independent.

ABSOLUTE, in *Metaphysics*, denotes a being whose whole essence does not consist in a mere habitude or relation to another.

In which sense *absolute* stands opposed to *relative* or *relative*.

ABSOLUTE is more particularly understood of a thing which does not proceed from any cause, or does not subsist by virtue of any other being, considered as its cause.

In which sense, God alone is *absolute*.

Absolute, in this sense, is synonymous with *independent*, and stands opposed to *dependent*.

ABSOLUTE also denotes a thing's being free from conditions or limitations.

In this sense, the word is synonymous with *unconditional*.

We say, an *absolute* decree, *absolute* promise, *absolute* obedience. The covenant with Noah was *absolute*, and without conditions; that under the Gospel, on condition of faith and obedience. The Antinomians also hold the gospel-covenant *absolute*, and that Christ has purchased our salvation, without any conditions to be performed on our side.

ABSOLUTE government, that wherein the prince is left solely to his own will, being not limited to the observance of any laws, except those of his own discretion.

When the Danes made their king *absolute*, in 1660, they declared him absolved from his coronation oath.

ABSOLUTE number, in *Algebra*, is the known quantity or number which possesses one entire side, or part of an EQUATION; being the rectangle or solid whose root or value is to be found.

Thus, in the equation $aa + 16a = 36$, the *absolute number* is 36; which is equal to a multiplied by itself, and added to 16 times a .

This is what Vieta calls *homogeneous comparisonis*.

ABSOLUTE equation, in *Astronomy*, is the sum of the optic and eccentric equations.

ABSOLUTE ablative. See ABLATIVE.

ABSOLUTE motion, place, space. See the respective substantives.

ABSOLUTELY, in a general sense, stands opposed to *relatively*. See RELATIVE.

Thus the terms of a proposition are said to be taken *absolutely*; that is, without relation to each other. Man, considered *absolutely*, and in himself, is a reasonable creature.

ABSOLUTELY is also used for *unlimitedly* or *unconditionally*.

In which sense, the schoolmen oppose it to *secundum quid*.

Thus a thing is said to be *absolutely*, and simply, good.

ABSOLUTELY is also used by *Divines*, in opposition to *declaratively*.

The church of Rome holds, that a priest can forgive sins *absolutely*; the protestants say, only *declaratively*, and ministerially.

ABSOLUTELY, in *Geometry*, is taken for entirely, or completely. Thus we say, such a thing is *absolutely* round; in contradistinction from that which is only partly so; as a spheroid, cycloid, &c.

ABSOLUTELY, in *Grammar*; we say, a word is taken *absolutely*, *absolute sumptus*, when it has no *regimen*, or government. Thus, in the phrase, We should pray without ceasing, the word *pray* is taken *absolutely*, as it governs nothing.

ABSOLUTION, ABSOLUTIO, in the *Civil Law*, &c. a definitive sentence, whereby a person, accused of any crime, is acquitted, and declared innocent.

Among the Romans, the ordinary method of pronouncing judgment was this: after the cause had been pleaded on both sides, the præco used the word *dixerunt*, q. d. they have said what they had to say; then three ballots were distributed to each judge, marked as mentioned under the article A; and as the majority fell of either mark, the accused was *absolved* or condemned, &c. If he were absolved, the prætor dismissed him with *videtur non fecisse*, or *jure videtur fecisse*.

ABSOLUTION, in the *Canon Law*, is a juridical act, whereby a priest, as a judge, remits the sins of such as, upon confession, appear to have the conditions requisite thereto.

The Romanists hold *absolution* a part of the sacrament of penance: the council of Trent, sess. xiv. cap. iii. and that of Florence, in the decree *ad Armenos*, declare the

form or essence of the sacrament to lie in the words of *absolution*, I absolve thee of thy sins.

The formula of *absolution*, in the Romish church, is absolute: in the Greek church, it is deprecatory; and in the churches of the reformed, declarative.

In the church of Rome there are divers other political *absolutions*; as,

ABSOLUTIO a sceleris, which is necessary where a person has been witness to the execution of sentence of death on a criminal, or has any other way disqualified himself for the holding of a benefice.

ABSOLUTIO ad cautelam, is that granted to a person who has lodged an appeal against a sentence of excommunication, by which the force of the censure is suspended.

It being a maxim, in the papal jurisprudence, that the sentence stands good, notwithstanding any appeal; this sort of *absolution* is sometimes granted until the issue of his appeal be known: by means hereof, some articles, at least, of his excommunication, are taken off; insomuch that persons may converse with him without danger: and, besides, in case of death, this sentence is supposed to be of some avail to him.

ABSOLUTISM, the dogma of God's acting absolutely in the affair of salvation; maintained by the CALVINISTS, for which, among other doctrines, the LUTHERANS refuse all union with them.

ABSORBENTS, in a general sense, is used for such things as have the faculty of *absorbing*, or swallowing up others.

Ashes are an *absorbent* in respect of water, though not in the degree supposed by Aristotle, from whom we derive a vulgar error, that a pot full of ashes will still *absorb* as much water as if empty. Cloves are so violent an *absorbent* of moisture, that we are told, if care be not taken in the importing, to keep all water, wine, and the like, at a good distance from them, a certain quantity of cloves will, in two days time, drain a whole hoghead of wine. M. Homberg has a discourse on the quantity of acids *absorbed* by terrestrial alkalies; wherein he shews, how much acid any known alkali will retain. M. de la Hire gives an experiment for ascertaining the quantity of water *absorbed* by plants. Mem. Acad. R. Scienc. an. 1700, p. 81.

ABSORBENTS, in *Medicine*, remedies which, by the softness or porosity of their component parts, become proper to sheathe the asperities of sharp pungent humours; or to imbibe or dry away, as with a sponge, superfluous moistures; and are of divers kinds; simple, compound, saline, cinnabarine, marine, fixed, earthy, acid, alkaline, &c. In the *Pharmacopæias*, we meet with several forms of *absorbents*; such are the testaceous powders, hartshorn, coral, crab's eyes and claws, calcined bones, burnt ivory, *terra sigillata*, and even iron itself: also divers woods, as sanders, mastic, guaiacum, sassafras; and divers roots; as china, sarsaparilla, &c.

Absorbents consume the humours without fusing them, and have sometimes the effect of strengtheners, sometimes of purgatives, oftener of calmers, to allay fermentations. They are of use for tempering acrimonies, and, after emollients and attenuants, for healing tumors; some hold them necessary for preventing the ill effects of bitters; they are good in cardialgias or heats of the stomach, and hiccups; they are also given in hectic and other chronic cases, as coughs, though with great caution and reserve. *Absorbents* have also their ill effects; especially if too lavishly given, being liable to many congestions in the *viscera*: they are hurtful in the itch, bilious fevers, dysenteries, hypochondriacal and hysteric cases, quartans, &c. according to some. Juncker.

They are generally prescribed as the only remedy for the acute diseases of infants, though held by others rather hurtful to children, by loading their tender viscera, and creating obstructions in the capillaries.

Particular kinds of *absorbents* have their particular effects; old oyster-shells are preferred for children; magisteries and precipitates are least suitable, as being already surcharged with acids. *Absorbents* saturated with acid juices, as of citrons, are good in coughs and catarrhs; prepared with cinnabar in ischurias; with astringents, in the diabetes; saline, in the itch; marine, in chronic diseases of the breast; in which last case, the earthy are hurtful.

They are sometimes applied to ulcers; but it is to be observed, that the insipid terrestrous *absorbents*, such as coral, &c. put into an ulcer, where a bone is carious, can have little other effect than to imbibe the matter of the ulcer; if they fall into any *cavernula* of the corrupted bone, they may remain so long there, that the matter they imbibe may become acrid. Lint is an *absorbent*, which has not this disadvantage. Monro, in Med. Eff. Edinb. vol. v. art. 24.

The taking of an immoderate quantity of crab's eyes, and other *absorbents*, for the heart-burn, has sometimes been attended with fatal consequences. See Phil. Trans. N^o 459. sect. 2.

Van Swieten in his comment on Boerhaave's Aphorisms, observes, that these *absorbent* powders ought not to be ground too fine, but rather left somewhat coarse, as they will be less apt to concrete and prove dangerous.

It is a necessary caution to drink diluting liquors with them; also to take gentle purges; as well for some time after they are left off, as during the use of them.

Absorbents are much the same with what we otherwise call driers and sweeteners. Latin writers also use the word as synonymous with *imbibentia* and *saturantia*.

The term *absorbent* is frequently confounded with *alkali*; alkalies having, really, the effect of *absorbents*, with respect to acids.

ABSORBENT vessels, a minute kind of vessels, found in animal bodies, which attract and imbibe the nutritious, and other matters brought near their mouths.

These are sometimes also called *resorbent vessels*, and sometimes *absorbent pores*.

Absorbent vessels are found in all parts of the body, especially where the membranes lie open to cavities, as in the mouth, œsophagus, stomach, intestines, &c. A late author computes no less than 7,000,000,000 in one square foot of the surface of the stomach; by these, mercury, plasters, and the like medicines externally applied, enter the habit of the body; to these are also owing the instantaneous effects of spirits, drams, water, &c. upon the body. The like vessels are also numerous in the skin; where they are supposed to imbibe the fluid matter floating in the ambient air, and convey them into the body. Mortimer. Exerg. Inaug. de Ingres. Humor. in Corp.

It has been said that there are no *absorbent* veins, and that *absorption* is performed entirely by the valvular *lymphatics*. But if this were the case, we should be continually subject to a *hydrocephalus*; because in the head no valvular *lymphatics* are found. It is plain that there are *absorbent* veins that open into the cavities of the body, because in the ascites the extravasated water is frequently received into the circulation, and discharged by urine or stool. Dr. Hunter ascertains it by the following experiment on a living dog; an opening was made in the cavity of his belly, and three quarts of warm water injected and secured; six hours after he was examined, and not above four ounces of the water remained.

For farther satisfaction on this subject, consult Hunter's Commentaries, and Dr. Garner's Observations on them, in the Medic. Mus. vol. ii. p. 229; and also Dr. Wilkinson, *ibid.* p. 117, &c.

Absorbent vessels are more particularly used for those lacteals which open into the sides of the intestinal tube, to imbibe the chyle in its descent from the stomach, and convey it into the mesenteric veins.

Naturalists, as Malpighi, Leewenhoeck, De la Hire, &c. speak of the like *absorbents* in plants; the fibrous or hairy roots of which are considered as a kind of *vasa absorbentia*, which attract and imbibe the nutritious juices from the earth.

ABSORBING, the act of sucking up, or imbibing another body. Sir Isaac Newton shews that black bodies *absorb* all the rays they receive, and that those rays of light which impinge against the solid particles of bodies are *absorbed* and lost: but it appears from some later experiments and observations of M. Bouguer, that this effect is to be attributed, not to the impact of light on the solid parts of bodies, but to the action of some power diffused over their surfaces. He found by repeated trials on the reflection of light, from the surface of water, and of different pieces of crystal, that a considerable quantity of light, when the angles of incidence were small, was actually extinguished. This effect, he observed, was diminished by increasing the incidence; so that, at an inclination to crystal of above 49° 49', a very small part of the rays was *absorbed*; though some few were lost, when they fell perpendicularly on the reflecting surface. See his *Traité d'Optique*, Paris, 1760.

ABSORPTION, in the *Animal Oeconomy*, is used for that power whereby the small open orifices of vessels imbibe liquors lodged in the cavities of the animal bodies. This, according to Dr. Monro, is observed to increase or diminish proportionably to the strength or weakness of the creature. Med. Eff. Edinb. vol. ii. p. 132.

Fluids applied to the surface of the body are also absorbed through the minute pores of the skin, and the mouths of a set of vessels appropriated for this action; which, beside the property of capillary tubes, possess also a contractile power from irritation.

ABSORPTIONS of the earth, a term used by Kircher and others, for the sinking in of large tracts of land, by means of subterranean commotions, and many other accidents.

Pliny tells us, that in his time the mountain Cymbotus, with the town of Eurites, which stood on its side, were wholly *absorbed* into the earth, so that not the least trace of either remained: and he records the like fate of the city Tantalus in Magnesia, and after it of the mountain

tain Sytelus, both thus *absorbed* by a violent opening of the earth. Galanis and Garnatus, towns once famous in Phœnicia, are recorded to have shared the same fate; and the vast promontory, called Phlegium, in Æthiopia, after a violent earthquake in the night-time, was not to be seen in the morning, the whole having disappeared, and the earth closed over it. These and many other histories, attested by the authors of greatest credit among the ancients, abundantly prove the fact in the earlier ages; and there have not been wanting too many instances of more modern date. Kircher's *Mund. Subter.* p. 77.

The mountain Picus, in one of the Molucca isles, was so lofty, that it appeared at great distances as an immense column reared erect in the air, and served as a landmark to sailors; an earthquake in this island destroyed it; at one instant the whole mountain was *absorbed* into the bowels of the earth, and no mark of its place remained, but a vast lake of water exactly answering to the shape of the base of the mountain. A like accident, but of a more terrible kind happened in China, in the year 1556, when a whole province of the mountainous parts of that kingdom was in one moment *absorbed* into the earth, and all the towns buried, the whole number of the inhabitants sinking with it, and an immense lake of water remaining in its place to this time. Of much later date is the destruction of a city in the confines of Swisserland: but this, though generally said to have been swallowed up into the earth, was not properly an *absorption*, for the whole city was buried by the fall of a mountain upon it.

The burning mountains, Vesuvius and Strongylus, both once very high, have in length of time lost half their height, the upper part having been undermined by the burning, and having fallen into, and been *absorbed* by the under part. And in the year 1646, during the terrible earthquake in the kingdom of Chili, several whole mountains of the Andes disappeared, and were one after another wholly *absorbed* in the earth.

These, and a thousand other accidents of the like kind, prove the truth of *absorptions* in general; some of them leaving level ground in the place of the things *absorbed*, some immense chasms and cracks, and some lakes of fresh or salt water; and it may be that many immense lakes were formed in ages, of which we have no histories by the like *absorptions*.

Pliny gives many accounts of the restoring of places thus *absorbed*, but later observations do not give an equal credit to those parts of this history.

There are instances, however, of islands being produced, though we cannot affirm them to have appeared in the place of any which have been *absorbed*.

In the year 1638, an island was raised near St. Michael's in the Atlantic ocean, by subterranean fires, which threw up stones and other subterranean productions, in such quantities that they formed an island of five miles in length. The mountain raised in one night, in the sea near Puzzoli, is another instance of this sudden production of these mountains: this appeared after one night's violent subterranean conflict, and still keeps its place, and is known by the name of Mons Sanctus.

ABSTEMIOUS, is properly understood of a person who refrains absolutely from all use of wine.

It is compounded of *abs*, from, and *timetum*, wine.

The history of Mr. Wood, in the *Medic. Transf.* vol. ii. p. 261. art. 18. is a very remarkable exemplification of the very beneficial alterations which may be effected on the human body, by a strict course of abstemiousness.

The Roman ladies, in the first ages of the republic, were all enjoined to be *abstemious*; and that it might appear, by their breath, whether or no they kept up to the injunction, it was one of the laws of the Roman civility, that they should kiss their friends and relations whenever they accosted them.

ABSTENTUS, among *Civilians*, is understood of an heir withheld by his tutor from taking on him an inheritance. Among *Ecclesiastical Writers*, the word is also used for a person excommunicated.

ABSTERGENTS, or **ABSTERSIVE medicines**, more usually called among physicians **DETERGENTS**, are cleansing medicines of a saponaceous nature, capable of dissolving concretions formed of earth and oil, which water simply, as an abluent, cannot effect.

ABSTINENCE, in a general sense, the act or habit of refraining from something which we have a propensity to, or find pleasure in.

The word is derived from *abstinere*; formed of *abs*, from and *tenere*, to hold.

The Jews were obliged to abstain from their wives at certain seasons. The same is enjoined, in the Apostolical Constitutions, on all fasts and meagre days: the church of England recommends certain days of fasting and *abstinence*.—*Abstinence from flesh* has been enjoined by statute ever since the Reformation, particularly on Fridays and Saturdays, and on vigils, and all commonly called fish-days, 2 and 3 Ed. VI. c. 19.—The like injunctions were

renewed under queen Elizabeth, but at the same time it was declared, that this was done, not out of motives of religion, as if there were any difference in meats, but in favour of the consumption of sea-fish, and to multiply the number of fishermen and mariners, as well as spare the stock of sheep. 5 Eliz. c. 15. The great fast, says St. Augustin, is to *abstain* from sin.

The ancient athletes lived in a perpetual *abstinence* from all kind of sensible pleasure to render their bodies more robust and hardy.

ABSTINENCE is more particularly used for a spare **DIET**, or a slender parsimonious use of **FOOD**.

The physicians relate wonders of the effects of *abstinence* in the cure of many disorders, and in protracting the term of life. The noble Venetian Cornaro, after all imaginable means had proved vain, so that his life was despaired of at forty, recovered, and lived to near a hundred, by mere dint of *abstinence*, as he himself gives the account.

Most of the chronical diseases, the infirmities of old age, and the short lives of Englishmen, are owing, according to Dr. Cheyne, to repletion; and may be either cured, prevented, or remedied, by *abstinence*.

Among the brute creation, we see extraordinary instances of long *abstinence*.—It is the natural course of divers species to pass four, five, or six months, every year, without either eating or drinking: accordingly the tortoise, dormouse, serpent, &c. are observed regularly to retire, at certain seasons, to their respective cells, and hide themselves; some get into the caverns of rocks, or ruins; others dig holes under ground; others get into the woods, and lay themselves up in the clefts of trees; others bury themselves under water, &c.

The serpent kind bear *abstinence* to a very great degree. We have seen rattle-snakes that have subsisted many months without any food, yet still retain their figure and fierceness. Dr. Shaw speaks of a couple of *cerastes* (a sort of Egyptian serpents), which had been kept five years in a bottle close corked, without any sort of food, unless a small quantity of sand, wherein they coiled themselves up in the bottom of the vessel, may be reckoned as such; yet, when he saw them, they had just cast their skins, and were as brisk and as lively as if just taken.

In effect, several species of birds, the whole tribe almost of insects, and many among the other tribes, are able to subsist all winter, not only without food, but many of them without respiration too.—This furnishes an admirable instance of the wisdom of the Creator: the proper food of these creatures, especially the insect tribe, being then wanting, there is a provision for them to live without it. When the fields are divested of their flowery furniture, and the trees and plants are stripped of their fruits, what would become of such animals as are subsisted only by the produce of the spring and summer, and of others which are incapable of bearing severe cold? To prevent the total destruction and extirpation of many species of animals, the Author of nature has provided, that creatures, thus bereaved of their food, should be likewise impatient of cold; to lead them thus to shelter themselves out of the way of danger; and that, when there arrived, the natural texture and viscosity of their blood should dispose it, by a farther degree of cold, to lag and stagnate in the vessels: so that the circulation stopping, and the animal functions being, in a great measure, suspended, there is no sensible waste or consumption of parts, but they remain in a kind of drowsy neutral state, between life and death, till the warm sun revives both them and their food together, by thawing the congealed juices, both of such animals and vegetables. The fact, however, is questionable; and will be more particularly considered hereafter.

It is more than probable, that all motion of the animal juices is extinct in flies, and other insects, when thus asleep; in that, though cut in pieces, they do not awake, nor does any fluid ooze out at the wound, unless some extraordinary degree of warmth hath been first applied to unbind the congelation.—The sleep of such animals is little else than death, and their waking a resurrection.—For if life does not consist in a circulation of the blood, we do not know what it consists in.

Hence it is no wonder that tortoises, dormice, &c. are found as fat and fleshy, after some months *abstinence*, as before. Sir G. Ent weighed his tortoise several years successively, at its going to earth in October, and coming out again, in March; and found that of four pounds four ounces, it only used to lose about one ounce. Vide *Phil. Transf.* N^o 194.

It is to be added, that in most of the instances of long *abstinence* related by naturalists, there were apparent marks of a texture of blood and humours, much like that of summer beasts and insects; though it is no improbable opinion, that the air itself may furnish something for nutrition. It is certain, there are substances of all kinds, animal, vegetable, &c. floating in the atmosphere;

mosphere; which must be continually taken in by respiration: and that an animal body may be nourished thereby, is evident in the instance of vipers; which, if taken when first brought forth, and kept from every thing but air, will yet grow very considerably in a few days. So the eggs of lizards are also observed to increase in bulk, after they are produced, though there be nothing to furnish the increment but air alone: after the like manner as the eggs or spawn of fishes grow, and are nourished with the water. And hence, some say, it is, that cooks, turnspit dogs, &c. though they eat but little, yet are usually fat.

ABSTINENCE is also used sometimes to signify a suppression. Thus in Caelius Aurelianus, *abstinentia sudoris*, signifies a suppression of sweat. Sometimes in this author it means a compression; as *Spiritus ob abstinentiam clausus*, means the wind shut up in the intestines by compression, thereby causing the *ILIAC passion*.

ABSTINENTES, in *Ecclesiastical History*, a sort of people, in the ancient church, who carried *abstinence* and mortification so far, that they have been put in the catalogue of heretics; though wherein their error consisted is little agreed on.

Some represent the *Abstinentes* as the same with those otherwise called *Continentes*; and that they particularly enjoined *abstinence* from the use of marriage: others say, from flesh, and others from wine. Others will have them a branch of the *GNOSTICS*, and that their heresy consisted in holding flesh evil in itself, and created by the devil. Some make them the same with the *Hieracites*; others with the *Encratites*. They are said to have risen in Spain and the Gauls in the last century.

ABSTRACT, **ABSTRACTUM**, in *Philosophy*. See **ABSTRACTION**.

ABSTRACT idea, among *Logicians*, denotes an idea formed in the mind, when we consider a thing simply in itself, without respect to the subject wherein it resides; or it is a simple idea detached and separated from any particular subject or complex idea, for the sake of viewing and considering it more distinctly.

Thus, magnitude and humanity are *abstracts* or *abstract ideas*, when considered in themselves, and without being attached to any particular body, or person; though they cannot have any real subsistence without such subjects, nor the subjects without them.

Whiteness is an *abstract*, inasmuch as it does not denote any one white object, but that colour, or idea in the general, wherever found.

Abstract ideas are opposed to those which are concrete: the concrete denoting a general or *abstract idea's* being attached to some particular subject, or considered as combined with some other ideas: as, *great house*, *white wall*. All our simple ideas, says Mr. Locke, have *abstract*, as well as *concrete* names: as *whiteness*, *white*; *sweetness*, *sweet*, &c. The like also holds in our ideas of modes, and relations: as, *justice*, *just*; *equality*, *equal*, &c.

But as to our ideas of substances, we have very few *abstract names* at all. Those few that the schools have forged, as *Animalitas*, *Humanitas*, &c. bear no proportion to the infinite number of names of substances; and could never get admittance into common use, or obtain the licence of public approbation; which seems to intimate a confession of mankind, that they have no ideas of the real essences or substances; since they have not names for such ideas.

Indeed the reality and existence of all *abstract ideas*, and of any such faculty in the mind as *abstraction*, has of late been controverted.

ABSTRACT terms, are those made use of to denote *abstract ideas*. In which sense the words *whiteness*, *paternity*, *animality*, *justice*, *crookedness*, &c. are *abstracts*, or *abstract terms*.

ABSTRACT is also extended to divers other things, in respect of their purity, simplicity, subtilty, &c. In which sense we say,

ABSTRACT numbers, which are assemblages of units considered in themselves, and not applied to denote any collections of particular sorts of things.

ABSTRACT mathematics are those branches employed about quantity considered absolutely, or in the general, without restriction to any certain kind, or species of it.

Such are *Geometry* and *Arithmetic*.

In this sense, *abstract mathematics* stand opposed to mixed mathematics; where the simple and *abstracted* properties and relations of quantity delivered in the former, are applied to sensible objects; and by that means become intermixed with physical considerations. Such are *Hydrostatics*, *Optics*, *Navigation*, &c.

ABSTRACT is also used in matters of *Literature*, for a compendious view, or **EPITOME** of a larger work.

An *abstract*, is supposed to be a degree shorter, and more superficial than an abridgment.

ABSTRACTI, *abstracted*, in *Church History*, is a name given to a sect among the Lutherans, under the lead of Heshusius, a Prussian bishop, who asserted against Beza,

“ that Christ was to be adored not only in the concrete, “ as the son of God, but that his flesh in the abstract was “ an object of adoration,” Wigandus prevailed so far against Heshusius as to get him depoted; afterwards the *Abstracti* gained the ascendant, and Wigandus was silenced. Micrael. Hist. Eccl. l. iii. f. 2. &c. Budd. Isag. Hist. Theol. l. ii. c. 7.

ABSTRACTION, an operation of the mind, whereby we separate things naturally conjunct, or existing together; and form, and consider, ideas of things thus separated. The faculty of *abstracting* stands directly opposite to that of compounding. By composition we consider those things together, which in reality are not joined together in one existence. And by *abstraction* we consider those things separately and apart, which in reality do not exist apart. *Abstraction* is chiefly employed these three ways. First, when the mind considers any one part of a thing in some respect distinct from the whole: as a man's arm, without the consideration of the rest of the body.

Secondly, when we consider the **MODE** of any substance, omitting the substance itself, or when we separately consider several modes which subsist together in one subject. This *abstraction* the *Geometricians* make use of, when they consider the length of a body separately, which they call a **LINE**; omitting the consideration of its breadth and depth.

Thirdly, it is by *abstraction*, that the mind frames general, or universal ideas: omitting the modes and relations of the particular objects whence they are formed. Thus, when we would understand a thinking being in general, we gather from our self-consciousness what it is to think; and omitting the consideration of those things which have a peculiar relation to our own mind, or to the human mind, we conceive of a thinking being in general.

Ideas framed thus, which are what we properly call *abstract ideas*, become general representatives of all objects of the same kind; and their names applicable to whatever exists conformable to such ideas. Thus, the colour that we receive from chalk, snow, milk, &c. is a representative of all of that kind; and has a name given it, *whiteness*, which signifies the same quality, wherever found or imagined. It is this last faculty, or power of *abstracting*, according to Mr. Locke, that makes the great difference between men and brutes; even those latter must be allowed to have some share of reason; that they really reason in some cases, seems almost as evident as that they have sense; but it is only in particular ideas. They are tied up to those narrow bounds; and do not seem to have any faculty of enlarging them by *abstraction*. Essay on Human Understanding, lib. ii. cap. 11. lib. iii. cap. 3. Such is the doctrine of *abstract ideas*, under the improvements of that excellent author. In effect, it is the standing opinion, that the mind has such a power or faculty of framing *abstract ideas* or notions of things; and on such very ideas do a great part of the writings of philosophers turn. These are supposed in all their systems; and without them there would be nothing done. They are more especially reputed the object of logic, mathematics, and metaphysics, and all that passes under the notion of the most *abstracted* and sublime learning.

Yet has a late eminent and ingenious author, Dr. Berkeley, contested the reality of any such ideas: and gone a good way towards overturning the whole system, and consequently towards setting philosophy on a new foundation. See a Treatise concerning the Principles of Human Knowledge, first printed in 1710.

The qualities or modes of things, it is on all hands agreed, do really never exist apart, and separated each from all others; but are constantly mixed and combined together, several in the same object. But, say the philosophers, the mind being able to consider each quality, singly, or *abstracted* from other qualities with which it is united, does by that means frame to itself *abstract ideas*, of a different nature and kind from the sensible ones.

For an example hereof; the eye perceiving an object extended, coloured, and moved, resolves this compound idea into its simple constituent ones; and viewing each by itself, exclusive of the rest, frames *abstract ideas* of extension, colour, and motion themselves, or in their own nature. Not that it is possible for such colour and motion to exist without extension; but only that the mind can frame to itself, by *abstraction*, the idea of colour exclusive of extension; and of motion, exclusive both of colour and extension.

Again, say the same philosophers, the mind having observed that in the particular extensions perceived by sense, there is something common, and alike in all; and some other things peculiar: as, this, or that figure, or magnitude, which distinguish them one from another: it can consider apart, or single out by itself, what is common; making thereof a general *abstract idea* of extension, which is neither line, surface, nor solid, nor has any figure or magnitude, but is an idea entirely precinded from them all. So, likewise, by leaving out of the several colours perceived by sense, that which distinguishes them one

from another, and only retaining what is common to all, it makes an idea of colour in the *abstract*, which is neither red, nor blue, nor white, &c.—After the same manner by considering motion *abstractedly*, both from the body moved, and from the figure it describes, and all particular directions and velocities; an *abstract* idea of motion is framed, which equally corresponds to all motions whatever.

They add, that as the mind frames *abstract* ideas of qualities or modes; so does it, by the same faculty, obtain *abstract* ideas of the more compound beings, which include many co-existent qualities. For an example: Having observed that Peter, James, John, &c. resemble each other in shape, and other qualities; we can leave out of the complex idea we had of Peter, James, &c. that which is peculiar to each, retaining only what is common to all, and so make an *abstract* idea, wherein all the particulars equally partake. And thus it is we are supposed to obtain the *abstract* idea of man, or of humanity; or human nature; wherein there is indeed included colour, because no man but has some colour; but it is neither white, nor black, nor brown; because there is no one particular colour wherein all men partake. So likewise there is included stature, but then it is neither tall nor low, nor yet middle stature, but something *abstracted* from all these; and so of the rest.

Farther yet, there being a general variety of other creatures, which partake in some parts, but not all, of the complex idea of man; the mind leaving out those parts which are peculiar to men, and retaining only those which are common to all living creatures, frames the idea of animal; which *abstracts* or participates not only of all men, but all birds, beasts, fishes, and insects.

The constituent parts of such *abstract* idea of animal, are body, life, sense, and spontaneous motion. By body is meant, body without any particular shape, or figure; there being no one common to all animals; without covering, either of hair, or feathers, or scales: nor yet naked; hair, feathers, scales, and nakedness, being the distinguishing properties of particular animals, and for that reason left out of the *abstract* idea. Upon the same account, the spontaneous motion must be neither walking, nor flying, nor creeping; it is nevertheless a motion. But what the motion is, it is not easy to conceive. “I will not affirm, says Dr. Berkeley, that other people have not this wonderful faculty of *abstracting* their ideas; but I am confident I have it not myself. “I have, indeed, a faculty of imagining, or representing to myself the ideas of things I have perceived, or of variously compounding or dividing them: I can imagine a man with two heads, or the upper parts of a man joined to the body of a horse. I can consider the hand, the eyes, the nose, each by itself, *abstracted* or separated from the rest of the body. But then, whatever hand or eye I imagine, it must have some particular shape and colour. So again, the idea of a man I frame to myself, must be either of a white, or a black, or a tawny, a straight, or a crooked, a tall, or a low, or a middle-sized man.

“I cannot, by any effort of thought, conceive the *abstract* idea above described; and it is equally impossible for me to form the *abstract* idea of motion, distinct from the body moving, and which is neither swift nor slow, curvilinear nor rectilinear. And the like may be said of all other *abstract* general ideas whatever.”

Since all things that exist are only particulars, “Whence, says Mr. Locke, is it, that we come by general words, expressive of a thousand individuals?” His answer is, terms only become general, by being made the signs of *abstract* and general ideas; so that the generality of *abstract* ideas should follow from the reality of general words.—But, according to Dr. Berkeley, a word becomes general, by being made the sign, not of an *abstract* general idea, but of several particular ones, any of which it indifferently suggests to the mind.—For an example, when I say, that whatever has extension is divisible; the proposition is to be understood of extension in general; not that I must conceive any *abstract* general idea of extension which is neither line, surface, nor solid, neither great nor small, &c. To make this more evident, suppose a geometrician to be demonstrating a method of dividing a line into two equal parts: in order hereto, he draws, for instance, a black line, an inch long; and this, which in itself is a particular line, is nevertheless, with respect to its signification, general; since it represents all lines whatever: so that what is demonstrated of this one, will hold of all others.—And as that particular line becomes general by being made a sign; so does the name *line*; and as the former owes its generality, not to its being the sign of an *abstract* or general line, but of any or all particular right lines that may possibly exist; so must the latter derive its generality from the same cause.

But to this reasoning it has been replied, that the universality consists in the idea; and not merely in the name as used to signify, and recall into the mind, a variety of particular things, resembling that which is the immediate object of reflection; because had we no previous fixed notion what the name signifies, we could not know what particular things to apply it to, or assign any reason for applying it to one thing, rather than another. All that can be pictured in the imagination, as well as all that we take notice of by our senses, is indeed particular. And whenever any general notions are present in the mind, the imagination, at the same time, is commonly engaged in representing to itself some of the particulars comprehended under them. But it would be a very strange inference from hence, that we have none but particular ideas. As well almost might we conclude, that we have no other notion of any thing than of its name, because they are so associated in our minds, that we cannot separate them; or of the sun, than as a white bright circle such as we see in the heavens, because this idea or phantasm is apt to accompany all our thoughts of it. See Dr. Price's Review of the principal Questions and Difficulties in Morals, p. 43.

Dr. Cudworth observes, that *abstract* ideas are implied in the cognitive power of the mind; and he pronounces the opinion, that they are only singular ideas annexed to a common term; or in other words, names without any meaning; to be so ridiculously false, as to deserve no confutation. See Eternal and Immutable Morality, book iv.

Mr. Locke speaking of the difficulty of forming *abstract* ideas, says: “And does it not require some pains and skill to form the general idea of a triangle, which yet is none of the most *abstract* and comprehensive; for it must neither be oblique, nor rectangular; neither equilateral, isosceles, nor scalenous; but all, and none of these at once.”—Now, let any man look into his thoughts, and try whether he has, or can attain to an idea of a triangle, correspondent to this description.

Dr. Campbell, in his Philosophy of Rhetorick. vol. ii. p. 105. expresses his apprehension, that the bare mention of this hypothesis is equivalent to a confutation of it, since it really confutes itself. He adopts the sentiments of Berkeley on this subject, and will allow to the mind no other power of *abstraction*, if the term be retained, beside that, by which a particular idea is regarded, as representing a whole order. Mr. Locke, he says, has, on some occasions, evidently inclined to the same opinion: in proof of which he refers to his Essay, book iii. cap. 3. § 11.

From the notion of *abstract* ideas, Dr. Berkeley endeavours to shew, it was, that bodies first came to be supposed to have an existence of their own exclusively and independent of the mind perceiving them.—Can there be a greater strain of *abstraction*, says he, than to distinguish the existence of sensible objects from their being perceived, so as to conceive them existing unperceived?

If there were external bodies, he says, it is impossible we should ever come to know it; and if there were not, we might have the very same reasons to think there were that we have now. His principal argument may be reduced to the following syllogism: Whatever is immediately perceived by sense, is an idea: sensible things are immediately perceived by sense; for the proof of which he appeals to experience; therefore sensible things are ideas; and consequently exist only in the mind. See his Dialogues between Hylas and Philonous.

The late lord Bolingbroke likewise controverted the existence of *abstract* ideas; and Mr. Hume, in his Essays, asserts that it is unintelligible and absurd to conclude, that the ideas of primary qualities are obtained by *abstraction*; and he has pursued Berkeley's reasoning to an extent, which he himself never intended, and represented all his arguments as merely sceptical, “because they admit of no answer, and produce no conviction.” He concurs with Dr. Berkeley in denying the existence of matter; and advances a step farther, maintaining that the soul is merely a bundle of perceptions, and that there is nothing in the universe but impressions and ideas.

Some late Scotch writers, Doctors Reid, Beattie, and Oswald, with a view of obviating those sceptical inferences, which had been deduced from the principles of Mr. Locke, have, in opposition to these, offered a new system respecting the nature and origin of our ideas, the outlines of which, with remarks, will be inserted under their proper heads, in the course of this work. See IDEAS, INTUITION, and Common SENSE.

We shall only add, that *abstracting*, on the common system, is no more than generalizing: it is making one thing stand for a hundred, by omitting the consideration of the differences between them: it is taking several differences, i. e. different combinations, setting aside the peculiarities

liarities in each, and considering only what is found alike in all.—Thus it is that I say, I love my friend, love my mistress, love myself, my bottle, my book, my ease, &c.—Not that it is possible I should have the same preception with respect to so many different sorts of things, things that stand in such different relations to me; but only that there appearing something in them all that bears a resemblance to the rest, in some circumstance or other, I chuse to express all by one name, *love*. For if I consider the tendency and effects of them all, I shall find they lead me very different ways, to very different actions; all the analogy there is between them, is a sort of pleasure or satisfaction, arising upon the application of the particular object to its proper organ, or sense.—The *abstract* idea of love, then, will terminate in the idea of pleasure: but it is certain, there can be no idea of pleasure without a thing pleasant to excite it. Any other *abstract* idea of pleasure, will amount to no more than a view or preception of the circumstances wherewith our pleasures have been attended; but these are mere externals foreign to the pleasureable sensation itself; which nothing but an object applied in such and such a manner can excite.—To suppose an idea of pleasure produced indirectly, by any other than by the proper cause, is as absurd as to suppose an idea of sound, produced without a sonorous object. The mind has no power of making any ideas, call them what you will, whether *abstract* or *concrete*, or *general*, or *particular*: its activity goes no farther than to the perceiving of such as are presented to it; so that its action is really no other than a degree of passion.

ABSTRACTION, in *Chemistry*, denotes the drawing off, or exhaling away, a menstruum from the subject it had been put to dissolve.

Some also use the word as synonymous with **DISTILLATION**, or even **COHOBATION**.

ABSTRACTIOUS, or **ABSTRACTIVE**, is applied by some modern *Chemists* to a spirit drawn from vegetables without fermentation.

In which sense *abstractitious* spirits are synonymous with natural spirits, and stand opposed to fermentative or artificial ones.

Such spirits are chiefly procured from plants which abound in volatile salt. The *abstractitious* spirit of scurvy-grass is preferred to that procured by fermentation. All the native spirits of aromatic plants are called *abstractitious*.

ABSTRUSE, denotes something deep, hidden, or far removed from the common apprehensions, and ways of conceiving; in opposition to what is obvious and palpable.

The word is of Latin original, *abstrusus*; formed of *abs*, from, and *trudo*, I thrust.

In this sense *Metaphysics* is an *abstruse* science; and many speculations of *Mathematics* are likewise *abstruse*.

ABSURD, **ABSURDUM**, a term applied to any action or sentiment that thwarts, or goes contrary to some evident truth.

Thus, a proposition would be *absurd*, that should affirm, that two and two make five; or that should deny them to make four.

The *Logicians* and *Mathematicians* have a way of proving the truth of a proposition, by shewing that the contrary is *absurd*.

This they call

Reductio ad ABSURDUM, or *arguing ex absurdo*.

Absurd, when applied to actions, is synonymous with *ridiculous*.

ABSURDITY, a kind of error or offence against some evident or generally allowed truth or principle.

The greatest of all *absurdities* is **CONTRADICTION**.

The schoolmen make two species of *absurdities*—The one, *absolute*, *απλως*, which contradicts the common sense of mankind; the other *relative*, *τινι*, which gives the lie to some one, or more philosophers; or persons of great weight and authority.

In this sense the doctrine of a *vacuum* is an *absurdity*; as being contrary to Aristotle: and that of a *plenum*, as being contrary to sir Isaac Newton.—In effect, there is scarce one truth of any moment, that is not an *absurdity* in this sense; as being repugnant to the system of some sect, or party.

As reason consists in the due use of names and words, *absurdity* consists in the abuse of them. The highest of all our faculties, and our failings, take their rise from the same thing, language: and are as it were coupled together, to temper each other, and reduce human nature to a kind of mediocrity.

Hobbes assigns *absurdity* as a privilege peculiar to man, and which no other creature is capable of: he adds, that of all men, those called philosophers are most exposed to it. Whence the saying of Cicero, there is nothing so *absurd* but has been said by a philosopher, *nihil tam ab-*

surde dici potest, quod non dicatur a philosopho. The reason seems to be, that of all men they reason, and discourse most. Yet a nearer and more apposite cause may be assigned, viz, their neglect, at setting out, to define the terms they make use of, i. e. to assign the precise idea each is made to represent: which is much like a man's undertaking to number, without knowing the value of the numeral figures; reasoning, according to the author first cited, being no other than computing. Divers *absurdities* also arise from the wrong connecting of names into propositions; as first, when the names of bodies are applied to accidents; or the names of accidents to bodies: as in that proposition, "faith is infused, or inspired:" since nothing is either fusible, or inspirable, but body: and the same *absurdity* the Cartesians fall into, when they make extension to constitute body, &c. Secondly, when the names of accidents inherent in external bodies are attributed to accidents of our own bodies: as when it is said, that colour is in the object, found in the air, &c. Thirdly, when the names of bodies are attributed to words, or conceptions; as is done by those who assert that there are universal things, that animal is a genus, &c. Fourthly, when the names of accidents are given to words, and propositions; as when it is said, that the definition is the nature of the thing, or a person's command is his will. Fifthly, when in lieu of proper words, metaphors and tropes are made use of: as, the way leads to to such a place, the proverb says this or that; which though allowable on ordinary occasions, yet is of mischievous consequence in reasoning and searching after truth. Lastly, when names are taken at random, and used without meaning, as transubstantiation, consubstantiation, *entelechia*, &c.

He that can avoid these rocks will not easily fall into an *absurdity*, except in a very long chain of reasoning, when he may be apt to forget some proposition before laid down. Hobb. Lev. P. i. c. 5. p. 22.

ABSUS, the Egyptian **LOTUS**. Ray.

ABSYNTHIUM, or **ABSYNTIUM**, a medicinal plant of considerable efficacy in quality of a bitter, and stomachic, commonly called **WORMWOOD**.

The word seems compounded of the privative particle *a* and *ψυλλος*, *delectatio*, *pleasure*; alluding to the disagreeable taste of this plant.

ABSYNTHUS, in *Natural History*, the name of a stone, described by some old authors as being of a black colour, variegated with spots and veins of red. They say that when once heated, it retains the warmth for seven days. The account seems superstitious and imaginary, and the descriptions they give so short, that it is not easy to guess what stone, if any in nature, was meant to be pointed out by them. Probably the word is only a corruption of the *ΑΣΙΚΤΟΣ*, or *asyctos*, of Pliny.

ABUCCO, **ABOCCO**, or **ABOCCHI**, a weight used in the kingdom of Pegu. One *abucco* is twelve teccalis and a half; two *abuccos* make an agiro, which is also called giro; two giri make half a biza; and a biza weighs a hundred teccalis; that is to say, two pounds and five ounces the heavy weight, or three pounds nine ounces light weight of Venice.

ABUKESB. See **ASLANI**.

ABUNA, among the *Christian Arabs*, is the title or appellation of a religious character.

The word, which is Arabic, is sometimes also written *abouna*, sometimes *abanna*, and by some *abbuna*, or *abunna*; it literally denotes *father*, and is more particularly used for the archbishop or metropolitan of the Abyssinian church. Fabr. Lux. Evang. c. 45. Ludolf. Hist. Æthiop. lib. iii. c. 7.

ABUNDANT Numbers, are those whose quota-parts, added together, exceed the **NUMBER** itself whereof they are parts.

Thus the number 12 is *abundant*, its quota-parts, 1, 2, 3, 4, and 6, amounting to 16.—In opposition to *abundant* numbers stand **DEFICIENT** ones.

ABUNDANT Notion, in *Logic*, is that which includes more marks and characteristics than are necessary to distinguish it from others.

Thus, we may be said to give an *abundant* notion of a rectilinear triangle, when we describe it as a space terminated by three right lines, and containing three angles. Inasmuch as the number of its angles is determined by that of its sides; so that the bare mention of its three sides was sufficient to have defined it.

ABUSE, an irregular use of a thing, or the introducing of something contrary to the true intention thereof.

The word is compounded of *ab*, from, and *usus*, use.

In *Grammar*, to apply a word *abusively*, or in an *abusive* sense, is to misapply, or pervert its meaning.

A permutation of benefices, without the consent of the bishop, is deemed *abusive*, and consequently is null.

ABUTILON, in *Botany*, the name of a genus of plants, allied to the **MALLOW** kind. Dr. Linnæus calls it *sida*, and ranges it in the class of *monadelphia polyandria*.

The

The characters are these: the flower wholly resembles that of the mallow; but the fruit resembles a sort of head composed of several capsules, so disposed round an axis, that every *stria* of that receives one of these. These capsules are bivalve, and usually contain kidney-shaped seeds.

Miller enumerates sixteen species of this plant; which is aperient and vulnerary. The leaves externally applied cleanse ulcers; the seed provokes urine, and expels gravel. See *Indian MALLOW*.

ABUTTALS, ABBUTALS, ABUTALS, among *Law-writers*, denote the buttings or boundings of a piece of land; expressing on what other lands, highways, or the like, the several extremes thereof do *abut*, or terminate.

In this sense, the word is sometimes also written corruptly *abuttals*, or *abutals*.—In old surveys, we often find them called *headlands*. *Abuttals* amount to the same with what Latin writers call *capita*; Marculfus, *frontes*; the French, *bouts*. In Coke, the plaintiff is said to fail in his *abuttals*, that is, in setting forth how the land is bounded.

ABYSS, in a general sense, denotes something profound, and, as it were, bottomless.

The word is originally Greek, *αβυσσος*; compounded of the privative *α*, and *βυσσος*, *bottom*; q. d. *without a bottom*.

We say, the *abyss* of a mountain, an *abyss* of waters, the great *abyss*, the Mosaic *abyss*, an unfathomable *abyss*, &c.

ABYSS, in a more particular sense, denotes a deep mass, or fund of waters.

In this sense, the word is particularly used, in the Septuagint, for the water which God created at the beginning with the earth, which encompassed it round, and which our translators render by the *deep*. Thus it is that darkness is said to have been on the face of the *abyss*.

ABYSS is also used for an immense cavern in the earth, where God collected all those waters on the third day; which, in our version, is rendered the *deep*, and elsewhere, the *great deep*.

Dr. Woodward has made several observations and conjectures with reference to this great *abyss*, in his *Natural History of the Earth*. He asserts, that there is a vast collection of waters enclosed in the bowels of the earth; constituting a huge orb in the interior or central parts of it; and over the surface of this water he supposes the terrestrial strata to be expanded. This, according to him, is what Moses calls the *great deep*, and what most authors render the *great abyss*.

That there is such an assemblage of waters lodged in the depths of the earth, is confirmed by abundance of observations. See *EARTH* and *DELUGE*.

The water of this vast *abyss*, he asserts, does communicate with that of the ocean, by means of certain hiatuses, or chasms passing betwixt it and the bottom of the ocean: and this and the *abyss* he supposes to have one common centre, around which the water of both is placed; but so that the ordinary surface of the *abyss* is not level with that of the ocean, nor at so great a distance from the centre, as the other, it being, for the most part, restrained and depressed by the strata of earth lying upon it; but wherever those strata are broken, or are so lax and porous, that water can pervade them, there the water of the *abyss* ascends, fills up all the clefts and fissures into which it can get admittance; and saturates all the interstices and pores of the earth, stone, or other matter, all round the globe, quite up to the level of the ocean.

The existence of an *abyss*, or receptacle of subterraneous waters, is controverted by Camerarius, and defended by Dr. Woodward, chiefly by two arguments; the first, drawn from the vast quantity of water, which covered the earth in the time of the deluge; the second, from the consideration of earthquakes, which he endeavours to shew are occasioned by the violence of the waters in this *abyss*. A great part of the terrestrial globe has been frequently shaken at the same moment; which argues, that the waters, which were the occasion hereof, were co-extended with that part of the globe. There are even instances of universal earthquakes; which shew that the whole *abyss* must have been agitated: for so general an effect must have been produced by as general a cause; and that cause can be nothing but the subterraneous *abyss*. For the true cause of earthquakes, see *EARTHQUAKE*.

This *abyss* is no useless thing; when once established, it serves to solve several difficult phenomena; as the origin of springs and rivers; the level maintained in the surface of different seas, and their not overflowing their banks. To the effluvia emitted from this *abyss* some even attribute all the diversities of weather, and changes in our atmosphere; and, what is more, the origin of every thing in the earth, or on its surface. Dr. Woodward has an epistle on the œconomy of the great *abyss* hid

in the bowels of the earth, and the perpetual communication between it and the atmosphere. Ray, and other authors, ancient as well as modern, suppose a communication between the Caspian sea and the ocean, by means of a subterranean *abyss*: and to this they attribute it, that the Caspian does not overflow, notwithstanding the great number of large rivers it receives; of which Kempfer reckons above fifty, in the compass of sixty miles. But the daily evaporation may be sufficient for this purpose. See *EVAPORATION*, *SEA*, and *SPRING*.

ABYSS is also used to denote the cavernous belly of a hollow mountain.

In which sense Mr. Tournefort describes the *abyss* of mount Ararat, a horrible spectacle.

ABYSS is also used to denote *HELL*. In which sense the word is synonymous with what is otherwise called *Barathrum*, *Erebus*, and *Tartarus*; in the English Bible, the *bottomless pit*.

ABYSS is more particularly used, in *Antiquity*, to denote the temple of Proserpine.

It was thus called, on account of the immense fund of gold and riches deposited there; some say hid under ground.

ABYSS is also used in *Heraldry*, to denote the centre of an *Escutcheon*.

In which sense, a thing is said to be borne in *abyss*, or *abyssine*, when placed in the middle of the shield, clear from any other bearing: he bears azure, fleur de lys, in *abyss*. Colombiere.

ABYSS is also used, by some *Alchemists*, for the immediate receptacle of seminal matter; by others, for the first matter itself.

ABYSS is also used metaphorically, for a thing not to be known or comprehended, on account of its immense extent, or profundity.

In which sense it coincides with secret, inscrutable, incomprehensible, &c.—The judgments of God are called a great *abyss*.

ABYSS, in *Hydrography*, is synonymous with *GULPH*.

ABYSSINIAN is used as the name of a sect, in the Christian church, established in the empire of Abyssinia.

The *Abyssinians* are a branch of the Copts, or Jacobites; with whom they agree in admitting only one nature in Jesus Christ, and rejecting the council of Chalcedon: whence they are also called *MONOPHYTES*, and *EUTYCHIANS*.

The *Abyssinian* church is governed by a bishop, or metropolitan, styled *ABUNA*, sent them by the Coptic patriarch of Alexandria residing at Cairo, who is the only person that ordains priests.

They have canons also, and monks; the former of whom marry, the latter at their admission vow celibacy, but with a reservation. Le Grand says, they make a promise aloud, before their superior, to keep chastity, but add in a low voice, *as you keep it*. The emperor has a kind of supremacy in ecclesiastical matters.

The *Abyssinians* have divers times expressed an inclination to be reconciled to the see of Rome; but rather out of interest of state than any other motive.

Meneses, and other missionaries, accuse the *Abyssinians* of Judaism, in regard to the many Jewish observances still in use among them: some have even doubted, whether they are more Christians, or Jews. Lobo says expressly, they are only Christians in name: they practise circumcision on females, as well as males. They eat no meats prohibited by the law of Moses. Women are obliged to the legal purifications. Brothers marry their brothers wives, &c. They abstain from hog's flesh, blood, meats strangled, &c. and observe both Saturday and Sunday sabbath, according to the custom of the primitive church: all of them marks of Judaism; though by some resolved into mere human institution, and usage. They celebrate the Epiphany with peculiar festivity, in memory of Christ's baptism; when they plunge and sport in ponds and rivers which has occasioned some to affirm that they were baptized a-new every year. Among the saints-days is one consecrated to Pilate and his wife; because Pilate washed his hands before he pronounced sentence on Christ; and his wife desired him to have nothing to do with the blood of that just person. They have four lent: the great one commences ten days earlier than ours, and is observed with much severity, many abstaining therein even from fish, because St. Paul says there is one kind of flesh of men, and another of fishes. They allow of divorce, which is easily granted among them, and by the civil judge: nor do their civil laws prohibit polygamy. They have at least as many miracles, and legends of saints, as the Romish church; which proved no small embarrassment to the Jesuit missionaries to whom they produced so many miracles, wrought by their saints, in proof of their religion, and those so well circum-

circumstantiated and attested, that the Jesuits were obliged to deny miracles to be any proof of a true religion; and in proof hereof to allege the same arguments against the *Abyssinians*, which protestants in Europe allege against the papists. Ludolf allows that they believe the real presence after the Lutheran manner, but denies that they hold transubstantiation; though Renaudot asserts, that they maintain it. They pray for the dead, and invoke saints and angels; and have so great a veneration for the Virgin, that they charged the Jesuits with not rendering her honour enough. Images in painting they venerate, but abhor all those in relievo, except the cross. They hold that the soul of man is not created, because, say they, God finished all his work on the sixth day. They admit the apocryphal books, and the canons of the apostles, as well as the apostolical constitutions, for genuine. Their liturgy is given by Alvarez, and in English by Pagit; their calendar by Ludolf; the answers of abbé Gregory to certain questions, proposed by the author last cited, are published by Fabricius, under the title of *Theologia Æthiopica*.

ACACALIS, in the *Materia Medica*, the name given by some authors to the *siliqua sylvestris*, or wild carob. Dale.

ACACALOTL, in *Ornithology*, the name of an American bird called by some *CORVUS aquaticus*, or the water raven. The male is four spans long from his beak to the end of his tail, and is moderately fleshy; his legs are a span and a half long. Its beak is two hands breadth long, is bent like a bow, and of a blue colour: its head is small: it is of a mixt brown and red colour on the breast and belly, and of a finely variegated hue on the back, made up of a shining purple, black, and green; its wings are of a fine green, which looks very bright and glossy in the sun. It is a native of Mexico, and is common about lakes and rivers, feeding on fish; it is eaten, but is coarse, and of a rank fishy taste.

ACACIA, in *Botany*, the name of a genus of trees, the characters of which are these: the flower consists only of one leaf, and is of the funnel-fashioned kind, and usually contains a great number of stamina, and the flowers are commonly collected in clusters, or little heads; the pistil arises from the bottom of the flower, and finally becomes a siliquose fruit divided into several hollows, and containing a number of roundish seeds. The *acacias* belong to the *polyandria monogynia* class of Linnaeus.

The species of *acacia* enumerated by Mr. Tournefort are twelve; and by Miller, twenty-two.

The *Æthiopian* pepper of Matthioli seems to belong to this genus of plants.

The flowers of the *acacia* are used by the Chinese in making that yellow, which, we see, bears washing in their silks and stuffs; and appears with so much elegance in their painting on paper. The method is this: They gather the flowers before they are fully open; these they put into a clean earthen vessel over a gentle heat, and stir them continually about, as they do the tea-leaves, till they become dryish and of a yellow colour; then to half a pound of the flowers they add three spoonfuls of fair water, and after that a little more, till there is just enough to hold the flowers incorporated together: they boil this for some time, and the juice of the flowers mixing with the water, it becomes thick and yellow; then they take it from the fire, and strain it through a piece of coarse silk. To the liquor they add half an ounce of common alum, and an ounce of calcined oyster-shells reduced to a fine powder. All is then well mixed together; and this is the fine lasting yellow they have so long used.

The dyers of large pieces use the flowers and seeds of the *acacia* for dying three different sorts of yellow. They roast the flowers, as before observed; and then mixing the seeds with them, which must be gathered for this purpose when full ripe: by different admixture of these, they give the different shades of colour; only for the deepest of all, they give a small mixture of Brazil wood.

Mr. Geoffroy, with great probability, attributes the origin of bezoar to the seeds of this plant; which being broued by certain animals, and vellicating the stomach by their great sourness and astringency, cause a condensation of the juices, till at length they become coated over with a stony matter, which we call BEZOAR, or BEZOARD.

ACACIA *Indiana*, signifies TAMARIND.

ACACIA, bastard or false, *robinia*, in *Botany*, a genus of the *diadelphia decandria* class. Its characters are these: the empalement of the flower is small, and divided into four parts, the three under segments being narrow, but the upper one broad; the flower is of the PEA-bloom kind; the standard is large, roundish, obtuse, and spreads open; the two wings are oval, and have short appendices,

which are obtuse; the keel is roundish, compressed, obtuse, and is extended the length of the wings; in the centre are situated ten stamina, nine joined together, and the other standing single, terminated by roundish summits; it hath an oblong cylindrical germen, supporting a slender style, crowned by a hairy stigma; the germen afterward becomes an oblong compressed pod, inclosing kidney-shaped seeds. Miller enumerates ten, and Linnaeus seven species.

ACACIA *Zeylanica*, signifies LOGWOOD.

ACACIA, in *Medicine*, an inspissated juice of a shrub of the thorn kind, used as an astringent.

It is prepared by inspissating, to a due consistence, the juice expressed from the unripe pods of a large prickly tree of this name.

There are two kinds, the *vera*, and *Germanica*.

The ACACIA *vera* is brought from the Levant in round balls, of different sizes, in fine bladders; and supposed to be the juice of the pods of a large thorny tree, growing in Egypt and Arabia. Some naturalists will have it the same tree that yields the gum arabic.

This is very aultere, and binding; and, on that account, good against fluxes. Choose that of a tan-colour, smooth and shining; and of an astringent disagreeable taste. It is, or should be, an ingredient in the *Theriaca Andromachi*.

The German ACACIA is a counterfeit of the former; being made of the juice of unripe sloes, boiled to the consistence of a solid extract, and put up in bladders like the former. It is distinguished from it chiefly by its colour, which is as black as that of Spanish liquorice. It is used as a substitute to the true *acacia*.

ACACIA, among *Antiquaries*, denotes something resembling a kind of roll or bag, seen on medals in the hands of several of the consuls, and emperors, from the time of Anastasius.

According to Du-Cange, the *anania*, properly so called, was a purple bag, filled with earth, or sand, and bore by the prince in his left hand, to remind him of his frailty and mortality; to prevent his being too much elated with his station.

But authors are not agreed, either about the use of this roll, or about the substance whereof it consists; some taking it for a handkerchief rolled up, which the person who presided at the games threw out as a signal for their beginning; whilst others rather imagine it intended to represent a roll of memoirs, or petitions.

ACACIANS, in *Church History*, the followers of Acacius, bishop of Cæsarea, who flourished about the middle of the fourth century. Some of them maintained, that the Son was not of the same, but of a similar substance with the Father: others held that he was of a different substance from the Father. This was likewise the denomination of another sect, derived from the name of their leader, a patriarch of Constantinople, in the fifth century, who favoured the opinion of Eutyches. See EUTYCHIANIS.

ACADEMICS, a sect of philosophers, who followed the doctrine of Socrates and Plato, as to the uncertainty of knowledge, and the incomprehensibility of truth.

Academic, in this sense, amounts to much the same with Platonist; the difference between them being only in point of time. They who embraced the system of Plato, among the ancients, were called *Academici*; whereas those who did the same, since the restoration of learning, have assumed the denomination of Platonists.

We usually reckon three sects of *Academies*; though some make five. The ancient *Academy* was that whereof Plato was the chief. See PLATONISM.

Arcefilas, one of his successors, introducing some alterations into the philosophy of this sect, founded what they call the *second Academy*.

The establishment of the third, called also the *new Academy*, is attributed to Lacydes, or rather to Carneades.

Some authors add a fourth, founded by Philo; and a fifth by Antiochus, called the *Antiochan*, which tempered the ancient *Academy* with STOICISM.

The ancient *Academy* doubted of every thing; and went so far as to make it a doubt whether or no they ought to doubt. It was a sort of a principle with them, never to be certain, or satisfied of any thing; never to affirm, or deny any thing, either for true or false. In effect, they asserted an absolute ACATALEPSIA.

The *new Academy* was somewhat more reasonable; they owned several things for truths, but without attaching themselves to any with entire assurance. These philosophers had found, that the ordinary commerce of life and society was inconsistent with the absolute and universal doubtfulness of the ancient *Academy*: and yet it is evident, they looked upon things rather as probable, than as true and certain: by this amendment, thinking to secure themselves from those absurdities into which the ancient *Academy* had fallen. See the *academical questions*.

questions of Cicerò; where that philosopher explains and unravels the sentiments of those who in his days called themselves followers of the new and old *academy*, with great clearness and address.

ACADEMICS, or rather ACADEMISTS, is also used among us for the members of the modern *academies*, or instituted societies of learned persons.

ACADEMY, ACADEMIA, in *Antiquity*, a fine villa, or pleasure-house, situate in one of the suburbs of Athens, about a mile from the city; where Plato, and the wise men who followed him, held assemblies for dispute and philosophical conference; and which gave the denomination to the sect of ACADEMICS.

It took its name, *academy*, from one Academus, or Eademus, a citizen of Athens, to whom it originally belonged; and who used to have gymnastic sports or exercises therein.—He lived in the time of Theseus.

Some, mistakenly, derive its name and origin from Cadmus the Phœnician, as being the first who introduced learning, and the use of letters, among the Greeks.

The *academy* was farther improved and adorned by Cimon, with fountains, trees, shady walks, &c. for the convenience of the philosophers, and men of learning, who here met to confer, dispute, &c.—Hipparchus, the son of Pisistratus, built a wall round it: and in order to defray the charges, laid so heavy a tax on the people, that ever after *ἰππαρχοῦ τεύχος*, was used proverbially for any expensive business.—It was also the burying-place of illustrious persons, who had deserved well of the republic.

Here it was that Plato taught his philosophy; and from him all public places, destined for the assemblies of the learned and ingenious, have been since called ACADEMIES.

Sylla sacrificed the delicious groves and walks of the *academy*, planted by Cimon, to the laws of war; and employed those very trees to make machines wherewith to batter the city. Cicero also had a villa, or country retirement near Puzzuoli, which he called by the same name, *academia*; where he used to entertain his philosophical friends.—It was here he composed his *Academical Questions*, and his books *De Natura Deorum*.

ACADEMY is more frequently used among the moderns, for a regular society, or company of learned persons; instituted under the protection of a prince, for the cultivation and improvement of arts or sciences.

Some authors confound *academy* with university; but though much the same in Latin, they are very different things in English.—An university is, properly, a body composed of graduates in the several faculties; of professors, who teach in the public schools; of regents or tutors, and students who learn under them, and aspire likewise to degrees. Whereas, an *academy* is not intended to teach, or profess any art, such as it is, but to improve it: it is not for novices to be instructed in, but for those that are more knowing; for persons of distinguished abilities to confer in, and communicate their lights and discoveries to each other, for their mutual benefit and improvement.

The first *academy* we read of, was established by Charlemagne at the motion of Alcuin: it was composed of the chief wits of the court, the emperor himself being a member.—In their *academical* conferences, every person was to give an account of what ancient authors he had read; and each of them assumed the name of some ancient author, who pleased him most, or some celebrated person of antiquity. Alcuin, from whose letters we learn these particulars, took that of Flaccus, the surname of Horace; a young lord, named Augilbert, took that of Homer; Adelard, bishop of Corbie, was called Augustin; Riculfe, bishop of Mentz, was Dametas; and the king himself, David.

Most nations have now their *academies*, Russia not excepted.

Of these useful institutions we shall give an account in the following order.

ACADEMIES of *Antiquities*; as

The *Academy* at Cortona, established for the study of the Etrurian antiquities, which are numerous and extensive. Their head is called Lucumon, a name taken from the ancient governors of Etruria. One of their laws is, to give audience to poets only one day in the year: another is, to fix their sessions, and impose a tax of a dissertation on each member in his turn.

The *Academy of Antiquities* at Upsal, owes its rise to queen Christina, but its establishment chiefly to Charles Gustavus her successor. Its design is for illustrating the northern languages, and the antiquities of the country, as stones, coins, and the like monuments; in which notable discoveries have been made by it. The more eminent of its members have been Verelius, Loccenius, Scheffer, Rudbecks, Keder, Salin, Perinskiold, &c.

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ACADEMY of *Architecture* was established at Paris by M. Colbert, in 1671.

ACADEMY, Royal, of *Arts*, was instituted in London for the encouragement of *Designing, Painting, Sculpture, &c.* in the year 1768. This *academy* is under the immediate patronage of the king, and under the direction of forty artists of the first rank in their several professions. It furnishes, in winter, living models of different characters, to draw after; and, in summer, models of the same kind to paint after. Nine of the ablest *academicians*, are annually elected out of the forty, whose business is to attend by rotation, to set the figures, to examine the performances of the students, and to give them necessary instructions. There are likewise four professors, of *Painting, of Architecture, of Anatomy, and of Perspective* who annually read public lectures on the subjects of their several departments; beside a president, a council, and other officers.

The admission to this *academy* is free to all students properly qualified to reap advantage from the studies cultivated in it; and there is an annual exhibition of paintings, sculptures, and designs, open to all artists of distinguished merit.

ACADEMIES of *Belles Lettres*, those wherein eloquence and poetry are chiefly cultivated. Italy is full of these; and France has its share; such are

The *academy of Umidi* at Florence, called afterwards La Fiorentina, in honour of the grand-duke Cosmo I. who declared himself its protector in 1549, is illustrious both for the works it has produced, and its members; which for these two last ages have included most of the eminent men, not only in Tuscany, but in all Italy. Their chief attention is to the Italian poetry.

ACADEMY of *Humorists, Umoristi*, had its origin at Rome, from the marriage of Lorenzo Mancini, a Roman gentleman, at which several persons of condition were guests; and it being carnival-time, to give the ladies some diversion, they took themselves to the reciting of verses, sonnets, speeches, and comedies, first, *ex tempore*, and afterwards premeditatedly; which gave them the denomination of *Belli humori*. After some experience, coming more and more into the taste of these exercises, they resolved to form an *academy of Belles Lettres*; and changed the title of *Belli Humor* for that of *Humoristi*; choosing for their device a cloud, which, after being formed of the saline exhalations of the sea, returns in a gentle sweet shower, with the motto from Lucretius, *redit agmine dulci*.

ACADEMY of *Arcadi* was established at Rome in 1690, for reviving the study of poetry, and the *belles lettres*; and comprehends most of the politer wits in Italy, of both sexes; many princes, cardinals, and other ecclesiastics: to avoid all disputes among whom, about pre-eminence, it is wisely provided, that all appear masked, after the manner of shepherds of Arcadia. Within ten years from its first establishment, the number of *academicists* amounted to six hundred. They hold assemblies seven times a year, in a mead or grove; of late in the gardens of the duke of Salviati. Six of these meetings are employed in the recitation of poems, and verses of the *Arcadi* residing at Rome, who read their own compositions; except ladies and cardinals, who are allowed to make use of other shepherds for this office. The seventh meeting is set apart for the compositions of foreign, or absent members; in which there is more entertainment than in all the rest; because the pieces produced here are written in all the different styles and dialects of Italy. The government of this *academy* is wholly democratical, allowing of no prince or protector, but only a *custos*, who represents the whole society, chosen each olympiad, that is every four years; with a power of electing twelve others yearly, to assist him in the administration. Under these are two *subcustodes*, one vicar or *procustos*, and four deputies or superintendants, annually chosen. There are five ways of electing members; the first called *acclamation*, used when sovereign princes, cardinals, and ambassadors of kings, desire to be admitted; in which case the votes are given *viva voce*; the second *annumeration*, introduced in favour of ladies and academical colonies; where the votes are taken privately: the third *representation*, established in favour of colleges and universities, where the young gentry are bred; who have each a privilege of recommending one, or two members privately to be balloted for: the fourth *surrogation*, whereby new shepherds are substituted in the room of those dead, or expelled: the last *destination*, whereby, when there is no vacancy of members, persons of poetical merit have the title *Arcadi* conferred on them, till such time as a vacancy shall happen. All the members of this body, at their admission, assume new pastoral names, in imitation of those of ancient Arcadians. The *academy* has divers colonies of *Arcadi* established

in other cities in Italy, all regulated after the same manner.

ACADEMY, Royal at Caën, was established by letters patent in 1705; it had its rise fifty years earlier in private conferences, held first in the house of M. de Brieux. M. de Segrain retiring to this city, to spend the rest of his days, restored and gave new lustre to their meetings. In 1707, M. Foucault, intendant of the generality of Caën, procured the king's letters patent for erecting them into a perpetual *academy*, of which M. Foucault was to be protector for the time, and the choice afterwards left to the members, the number of whom was fixed to thirty, and the choice of them, for this time, left to M. Foucault. Beside the thirty, leave is given to add some supernumerary members, not exceeding six, from the ecclesiastical communities in that city.

An assembly of men of letters at Lyons, are said only to want letters patent to form a royal *academy*, inferior to few in France. It consists of twenty *academists*, with a director at their head, and a secretary who is perpetual. F. Lombard, a Jesuit, one of the members, here read a learned dissertation on infinity.

ACADEMIES Chirurgical; as that first instituted at Paris in 1731, and finally established by letters patent from the king in 1748; the members of which are not only to publish their own and correspondents observations and improvements, but to give an account of all that is published in surgery, and to compose a complete history of this art, by their extracts from all the authors, ancient and modern, who have wrote on it. A question in surgery is to be proposed by the *academy* yearly; and a prize of a gold medal of five hundred livres value to be given to him who furnishes the most satisfactory answer.

ACADEMIES Cosmographical; as that of the Argonauts at Venice, instituted at the solicitation of F. Coronelli, for the improvement of *Geography*. The design of the *academia cosmographica* is to procure exact maps, geographical, topographical, hydrographical, and ichnographical, of the celestial as well as terrestrial globe, and the several regions and parts thereof, together with geographical, historical, and astronomical descriptions accommodated thereto, to be made and published: in order to which, the several members oblige themselves, by their subscription, to take one or more copies of each piece, published under the direction of the *academy*; and to advance the money or part of it, in order to defray the charge of publication. To this end, there are three societies settled at Venice, Paris, and Rome: the first under F. Moro, provincial of the Minorites of Hungary; the second, under the abbot Laurence au Rue Payenne au Marais; the third, under F. Ant. Baldigiani, Jesuit, professor of mathematics in the Roman college; to whom those address themselves, who are willing to engage in this design. The Argonauts number 196 members in the several countries of Europe; their device is the terraqueous globe, with the motto, *plus ultra*. At the expence of this *academy*, all the globes, maps, and geographical writings of F. Coronelli have been published.

ACADEMY of Dancing. One of this kind was instituted by Louis XIV. with extraordinary privileges.

ACADEMIES Ecclesiastical; as that at Bologna, employed in the examination of the doctrine, discipline, and history of each age of the church.

ACADEMIES Historical; as the *Royal Academy of Portuguese History* at Lisbon, was instituted by king John V. in 1720, as appears by a medal struck by the *academy*, on the front whereof is that prince's effigy, with the inscription *Johannes V. Lusitanorum Rex*; and on the reverse, the same prince standing is represented supporting and raising History, almost prostrate before him, with the legend *Historia Resurgens*: underneath are the following words in abbreviation, REGIA ACADEMIA HISTORIAE LUSITANÆ INSTITUTA VI. Idus Decembris MDCCXX. This *academy* consists of a director, four censors, a secretary and fifty members; to each of whom is assigned some part, either of the ecclesiastical, or civil history of the nation; which he is to treat either in Latin, or Portuguese.

ACADEMY of Suabian History, at Tubingen, was lately established by some learned men, for publishing the best historical writings, the lives of the chief historians, and compiling new memoirs, on the several points and periods thereof.

ACADEMIES of Languages, are called by some, *Grammatical Academies*; as

The *Academy della Crusca*, at Florence, famous for its vocabulary of the Italian tongue, was formed in 1582, but scarce heard of before the year 1584, when it became noted for a dispute between Tasso and several of its members. Many authors of note confound this with the Florentine *academy*.

ACADEMY of Fructiferi had its rise in 1617, at an assem-

bly of several princes and nobility of the country, who met with a design to refine and perfect the German tongue. It flourished long under the direction of princes of the empire, who were always chosen presidents. In 1668, the number of members arose to upwards of nine hundred.

ACADEMY, French, had its rise in a private meeting of men of letters, in the house of Mr. Conrart, in the year 1628. Cardinal Richlieu, in 1635, at the instance of Mr. Chapelain, erected it into an *academy* for refining and ascertaining the French language and style. The number of the members was limited to forty, out of whom a director, a chancellor, and secretary, are to be chosen; the two former hold their post for two months, the secretary is perpetual. Several privileges and immunities were conferred on the new *academy*, particularly the *droit de committimus*, or a privilege of not appearing to answer before any court, but that of the king's household. Their first assemblies were held in the cardinal's apartment; after his death, in that of the chancellor Seguier. At last an apartment was given them in the Louvre, now called *l'Academie Françoise*. They meet three times a week in the Louvre; at breaking up, forty silver medals are distributed among them, having on one side the king of France's head, and on the reverse, *protecteur de l'academie*, with a laurel and this motto, *a l'immortalité*. By this distribution, the attention of the *academists* is secured: those who are present receiving the surplus, otherwise intended for the absent.

As to the employments of the *academy*; its design being not only to give rules, but examples of good writing; they began with making speeches on subjects taken at pleasure, each member in his turn; twenty of these have been printed. Their next work was a critique of the *Cid* of M. Corneille, a task enjoined them by the cardinal. They next set about a dictionary of the French tongue, which after about fifty years spent in it, in order to settle the words and phrases to be used in writing, &c. was published in 1694; having in the mean while given occasion to some smart disputes with M. l'Abbé Furetiere, one of their own members.

Their history is written with great elegance to the year 1652, by M. Pellisson: improved and continued to the year 1700, by M. l'Abbé d'Olivet: the same is given rhetorically, by F. le Camus.

ACADEMY, Royal Spanish, is an *academy* for cultivating the Castilian tongue, established at Madrid, on the model of the French *academy*.—The design of this was laid by the duke d'Escalona; and approved of by the king in 1714, who declared himself protector thereof.—It consists of twenty-four *academists*; including the director and secretary.

Its device is a crucible on the fire, with this motto, *limpia, fija, y da esplendor*: i. e. it purifies, fixes, and gives brightness; which some have criticised. Their object, as marked out by the royal declaration, is to cultivate and improve the national language: in order to which, they are to begin with choosing carefully such words and phrases, as have been used by the best Spanish writers: noting the low, barbarous or obsolete ones, and composing a dictionary, wherein these may be distinguished from the former, &c. by which means, adds that prince, it will clearly appear, that the Castilian tongue is inferior to none of those most esteemed in the world; and may be employed with advantage either in teaching the arts and sciences, or in expressing the most perfect Latin or Greek originals in exact translations. The number of members is limited to twenty-four; the duke d'Escalona to be director for life: but his successors chosen yearly. The secretary to be perpetual. The *academy* to have its own printer; yet not to put any thing to press without the permission of the council. For farther encouragement, all privileges and immunities enjoyed by the domestic officers, actually in the king's service, and the royal palace, are granted the *academists*.

ACADEMIES of Law; as that famous one at Beryta, and that of the *Sitientes* at Bologna.

ACADEMY of Medals and Inscriptions, was erected for the study and explanation of ancient monuments; and to consecrate great and memorable events to posterity, by similar monuments: as medals, relieves, inscriptions, &c. The *academy of Medals and Inscriptions* at Paris, was set on foot by Mr. Colbert in 1663, for the study and explanation of ancient monuments, and perpetuating of great and memorable events, especially those of the French monarchy, by coins, relieves, inscriptions, &c. The number of members at first was confined to four or five, but in 1701 was increased to forty; whereof ten to be hono- raries, ten pensioners, ten associates, and the same number of novices or eleves. The king nominates their president and vice-president yearly; but their secretary and treasurer are perpetual. The rest are chosen by the members themselves, agreeable to the constitutions given them.

them on that behalf. Their chief work is a kind of medallic history of the reign of Louis XIV. Beside which we have several volumes of their essays, under the title of *Memoirs*: and their history, written and continued by their secretaries. Their motto is *vetat mori*.

ACADEMIES, Medical; as that of the *Naturæ Curiosæ* in Germany: that founded at Palermo, in 1645; another at Venice, in 1701, which meets weekly in a hall near the grand hospital; another at Geneva, in 1715, in the house of M. le Clerc. The college of physicians at London is also by some ranked in the number of medical *academies*.

ACADEMY, Musical; this consists of the managers and directors of the opera.

The French have also considerable *academies* in most of their great cities; as, at Montpellier, a royal *academy* of sciences, on the like footing as that at Paris; being, as it were, a counterpart thereof: at Thoulouse, an *academy* under the denomination of *Lanternists*: others at Nismes, Arles, &c.

ACADEMY of Naturæ Curiosorum, in Germany, was first founded in 1652, by M. Bausch, a physician; and taken in 1670 under the protection of the emperor Leopold.

This *academy* differs from all others, in that it has no fixed residence, or regular assemblies; instead whereof is a kind of bureau, or office, first established at Breslaw, afterwards removed to Nuremberg, where letters, observations, &c. from members and correspondents are taken in. The *academy* consists of a president, two adjuncts, or secretaries, and colleagues or members. The colleagues, at their admission, oblige themselves to two things; first, to choose some subject out of the animal, vegetable, or mineral, kingdom to handle, provided it had not been treated of by any colleague before; the second, to apply themselves to furnish materials for the annual *Ephemerides*. Each member to bear a symbol of the *academy*, viz. a gold ring, whereon, instead of a stone, is a book open, and on the face thereof an eye: on the other side the motto of the *academy*, *nunquam otiosus*, i. e. *never idle*. See the history, laws, &c. of this *academy*, with the names of its members, and the titles of its pieces, in *Ephem. Germ. dec. 1, an. 1, & 2. Pref.* and the continuation of the same in the prefaces and appendices to the ensuing volumes.

ACADEMY, Naval; as that of Petersburg.

ACADEMIES of Painting, Sculpture, and Architecture; as those celebrated ones anciently at Florence and Milan, called also *schools*; and that other at Bologna, lately incorporated into the new institute; to which may be added the *academy* of painting and sculpture at Paris and Vienna; another of designing at Rome.

ACADEMY of Painting and Sculpture at Paris was first projected by Le Brun, Saracin, Corneille, &c. for which they obtained an arret of council in 1648, and established in 1654 and 1655, under the cardinal Mazarine, first protector thereof; and the chancellor Seguier vice-protector. It consists, besides, of a director, a chancellor, four rectors, a treasurer, 12 professors; adjuncts to the rectors and professors; counsellors; a secretary; a professor for anatomy, and another for geometry and perspective.

Persons are here admitted either in quality of painters or sculptors.—The painters are admitted according to their respective talents; there being a distinction made between those who work in history, and those who only paint portraits, or landscapes, or beasts, or fruits, or flowers, or paint in miniature; or only design, or engrave, or carve, &c. An account of it has been published by Guérin, under the following title, *Descript. de l'Acad. Roy. de Peinture & Sculpt.*

There is also a French *academy* of painting, sculpture, &c. at Rome, established by Lewis XIV. wherein those who have won the annual prizes in the like *academy* at Paris, are received and entertained for three years, to give them an opportunity of perfecting themselves.

ACADEMY, Political, is composed of six persons, who meet on certain days each week at the Louvre, in the chamber where the papers relating to foreign affairs are lodged. Here they peruse such papers as are put in their hands, by order of the secretary for foreign affairs, who acquaints the king with the progress they make, and the capacities of each, that his majesty may employ them accordingly.

ACADEMIES of Sciences chiefly denote those erected for improving natural and mathematical knowledge, otherwise called philosophical and physical *academies*: such as the *academy secretorum naturæ*, formed at Naples, in the house of Baptista Porta, about the year 1560, the first *academy* of the philosophical kind. It was succeeded by the

ACADEMY of Lyncei, founded at Rome by prince Frederic Cesi, towards the close of the same century; several of whose members rendered it famous by their discoveries: the celebrated Galileo Galilei was of the number.

Divers other *academies* contributed also to the advancement of these sciences; but it was by speculations, rather than by repeated experiments on the phenomena of

nature: such were the *academy* of Bessarion at Rome, and that of Laurence de Medicis at Florence, in the fifteenth century; in the sixteenth, that of Inflammati at Padua, of Vegna Juoli at Rome, of Ortolani at Placentia, and of Umidi at Florence. The first of these studied fire and pyrotechnia; the second, wine and vineyards; the third, gardens and pot-herbs: the fourth, water and hydraulics. Add to these, that of Venice, called *La Veneta*, founded by Frederic Badoara, a noble Venetian; another in the same city, whereof Campegio, bishop of Feltro, appears to have been the chief; and that of Cosenza, or la Consentina, whereof Bernadin Telesio, Sertorio Quatromanni, Paulus Aquinas, Julio Cavalcanti, and Fabio Cicali, celebrated philosophers, were the chief members.

The compositions of all these *academies* of the sixteenth century were good in their kind, but none of them comparable to those of the Lyncei.

ACADEMY del Cimento made its appearance at Florence some years after the death of Torricelli, under the protection of prince Leopold, afterwards cardinal de Medicis: Redi was one of its chief members. Count Laurence Magalotti, secretary of this *academy*, published a volume of curious experiments in 1677, under the title of *Saggi di Naturali Esperienze*; a copy of which being presented to the Royal Society, was translated into English by Mr. Waller, and published at London, in quarto.

ACADEMY degl' Inquieti, at Bologna, incorporated afterwards into that *della Traccia* in the same city, followed the example of that *del Cimento*: their meetings were at the house of the abbot Antonio Sampieri. Here Geminiano Montanari, one of the chief members, made excellent discourses on physical and mathematical subjects, part whereof was published in 1667, under the title of *Pensieri Fisico-Matematici*. This *academy* afterwards met in an apartment of Eustachio Manfredi: and afterwards in that of Jacob Sandri, but arrived at a higher lustre, when its assemblies were held in the palace Marfili.

ACADEMY of Rossana, in the kingdom of Naples, called *La Societa Scientifica Rossanese degl' Incuriosi*, was founded about the year 1540, under the name of *Naviganti*, and renewed under that of *Spensierati* by Camillo Tusciano, about the year 1600. It was transformed from an *academy* of belles lettres into an *academy* of sciences, at the solicitation of the learned abbot Don Giacinto Gimma; who being made president under the title of promoter-general thereof, in 1695, gave a new set of regulations. He divided the *academists* into several classes, viz. grammarians, rhetoricians, poets, historians, philosophers, physicians, mathematicians, lawyers, and divines, with a class apart for cardinals and persons of quality. To be admitted a member, a man must have degrees in some faculty. The members are not allowed to take the title of *academists*, in the beginning of their books, without a written permission from the president, which is not granted till the work has been examined by the censors of the *academy*. This permission is the greatest honour the *academy* can confer; since hereby they, as it were, adopt the work; and are answerable for it against all critiques which may be made of it. The president or promoter himself is subject to this law. Add, that no *academist* is allowed to publish any thing against the writings of another, without leave from the society.

There have been several other *academies* of sciences in Italy, which have not subsisted long, for want of being supported by the princes. Such were at Naples that of the *Investiganti*, founded about the year 1679, by the Marquess d'Arena, Don Andrea Concubletto; and that which met in 1698, in the palace of the duke de Medina, Don Lewis della Creta, viceroy of Naples. At Rome, that of *Fisico-Matematici*, which met in 1686, in the house of Sig. Ciampini: at Verona, that of *Aletosili*, founded the same year by Sig. Joseph Gazola, which met in the house of the count Serenghi della Cucca: at Brescia, that of *Filelotici*, founded the same year for the cultivation of physics and mathematics, and ended the year following: that of F. Francisco Lana, a Jesuit of great skill in those sciences: lastly, that of *Fisico-Critici*, at Sienna, founded in 1691, by Sig. Peter Maria Gabrielli. Some other *academies* still subsisting in Italy, repair with advantage the loss of the former. One of the principal is the *academy* of *Filarmonici*, at Verona, supported by the Marquis Scipio Maffei, one of the most learned men in Italy. Though the members of this body apply themselves to the belles lettres, they do not neglect the sciences. The *academy* of *Ricovrati*, at Padua, still subsists with reputation; in it, learned discourses are held from time to time on physical subjects; such, for instance, is that which the celebrated Sig. Antonio Vallisnieri, first professor of physic in the university of that city, delivered here on the origin of springs, since printed. The like may be said of the *academy* of the *Muti de Reggio*, at Modena; to which the same Sig. Vallisnieri, a native of that city, presented an excellent discourse on the scale of created beings, since inserted in his *History of the Generation*

neration of Man and Animals; printed at Venice in 1721. In the number of these *academies* may also be ranked the assembly of learned men, which of late years met at Venice in the house of Sig. Christino Martinelli, a noble Venetian, and great patron of learning. Among the new *academies*, the first place, after the institute of Bologna, is given to that of the countess Donna Clelia Grillo Boromeo, one of the most learned ladies of the age, to whom Sig. Gimma dedicates his Literary History of Italy. She had lately established an *academy* of experimental philosophy in her palace at Milan; of which Sig. Vallinieri was nominated president, and had already drawn up the regulations of it, though we do not find it has yet taken place. There are likewise many other *academies* of less note in Italy; Jarchius enumerates 550, of which the names are very curious.

F. Merfenne is said to have given the first idea of a philosophical *academy* in France, towards the beginning of the seventeenth century, by the conferences of naturalists and mathematicians, occasionally held at his lodgings; at which Gassendi, Des Cartes, Hobbes, Roberval, Pascal, Blondel, and others, assisted. F. Merfenne proposed to each, certain problems to examine, or certain experiments to be made. These private assemblies were succeeded by more public ones, formed by Mr. Montmort and Mr. Thevenot, the celebrated traveller. The French example animated every Englishman of distinction and learning to erect a kind of philosophical *academy* at Oxford, towards the close of Cromwell's administration; which, after the Restoration, was erected by authority into a Royal Society. The English example in its turn animated the French. Lewis XIV. in 1666, assisted by the counsels of M. Colbert, founded an *academy* of sciences at Paris, called the

ACADEMY, Royal, of Sciences, for the improvement of physics, mathematics, and chemistry. In the year 1699, it had as it were a second birth; the same prince, by a regulation dated the 26th of January, giving it a new form, and putting it on a new and more solemn footing. In virtue of that regulation, the *academy* was to be composed of four kinds of members, viz. *honorary*, *pensionary*, *associates*, and *elevés*.—The first class to consist of ten persons; and the rest of twenty each.—The honorary *academists* to be all inhabitants of France; the pensionaries all to reside at Paris; eight of the associates allowed to consist of foreigners; and the *elevés* all to live at Paris. The officers, to be a president, named every year by the king, out of the class of honorary *academists*; and a secretary and treasurer, to be perpetual.

Of the pensionaries, three to be geometers, three astronomers, three mechanics, three anatomists, three chemists, three botanists; the remaining two, secretary and treasurer.—Of the twenty associates, two to apply themselves to geometry, two to botany, and two to chemistry.—The *elevés* to apply themselves to the same kind of science with the pensionaries they are attached to; and not to speak, except when called thereto by the president.—No regular or religious to be admitted, except into the class of honorary *academists*; nor any person to be admitted, either for associate or pensionary, unless known by some considerable printed work, some machine, or other discovery.—Farther, no person to be allowed to make use of his quality of *academist*, in the title of any of his books, unless such book have been read to, and approved by the *academy*.

In the year 1716, the duke of Orleans, then regent, made an alteration in their constitution; augmenting the number of honoraries, and of associates capable of being foreigners, to twelve; admitting regulars among such associates; suppressing the class of *elevés*, and establishing, in lieu thereof, a new class of twelve adjuncts, to the six several kinds of sciences cultivated by the *academy*; and, lastly, appointing a vice-president, to be chosen yearly by the king, out of the honorary members; and a director, and sub-director, out of the pensionaries.

This *academy* has done great things for the service of learning, by the continuation of the *MERIDIAN*, by the sending persons to different parts of the world for making observations; but especially by the excellent writings they have published, either in a separate, or a joint capacity; particularly their *MEMOIRS*. Indeed they have an advantage over most *academies*, in being defrayed their expences, and even paid for time and attendance. Nevertheless, they have undergone some imputations; particularly that of plagiarism, in borrowing their neighbours inventions: with what justice, we do not say. They have the distribution of annual prizes. Their history to the year 1697 was written by Mr. Du Hamel; and since that time continued from year to year by Mr. Fontenelle, under the following titles: *Du Hamel Historia Regiæ Academiæ Scientiarum*, Paris, 4to. *Histoire de l'Académie Royale des Sciences, avec les Mémoires de Mathématique & de Physique tirez des Registres de l'Académie*, Paris, 4to. *Hist. de l'Acad. Roy.*

des Sciences depuis son Etablissement en 1666, jusqu'en 1699, en 13 tomes, 4to.

A new history, from the institution of the *academy*, to the period from whence Mr. de Fontenelle commences, has been formed; with a series of the works published under the name of this *academy*, during that first interval.—Their motto *invenit & perfecit*.

ACADEMY; the *Royal Society of Berlin* was founded by the late king Frederic of Prussia in 1700, on the model of that of England, excepting that besides natural knowledge it likewise comprehends the belles lettres. A new form, and a new set of statutes were given it in 1710; by which it is ordained, that the president shall be one of the counsellors of state, and nominated by the king. The members to be divided into four classes; the first, for prosecuting physics, medicine, and chemistry; the second for mathematics, astronomy, and mechanics; the third, for the German language, and the history of the country; the fourth, for oriental learning, particularly as it may concern the propagation of the Gospel among infidels. Each class to elect a director for themselves, who shall hold his post for life. Their meeting to be in the castle called New Marshal; one class to meet every week in their turns. The members of any of the classes to have free admission into the assemblies of any of the rest. The great promoter of this institution was the celebrated M. Leibnitz, who accordingly was made the first director. The *academy* has published several volumes of its lucubrations in Latin, under the title of *Miscellanea Berolinensia*. This *academy* has since been renewed; and several volumes of its transactions published in French, under the title of *Histoire de l'Académie Royale des Sciences & Belles Lettres, à Berlin*.

There are other *academical* institutions at Berlin, and other parts of the North; several of which having distinguished themselves by their journals, ephemerides, &c. the reader will find some account of them under the article *JOURNAL*.

ACADEMY of Petersburg was founded, or rather projected, by the late czar, Peter the Great, and happily executed by the munificence of the czarina, Catherine, his wife, and successor, on the model nearly of the *academy* of Paris, whereof the czar was a member. Hither that prince invited learned men from all parts of Europe. The *academy* held its first public meeting in December, 1725, in the presence of the duke of Holstein, and a large appearance of persons of distinction. The ordinary assemblies are held twice a week, and public or solemn ones thrice in the year; wherein an account is given of what has been done in the private ones. The building, apparatus, &c. of this *academy* are extraordinary. They have a fine library, an observatory, &c. In effect, it partakes much of what we call an *UNIVERSITY*; having regular professors in the several faculties, who read lectures as in our schools. Several volumes of the works of this *academy*, under the title of *Commentarii Academicæ Scientiarum Imperial. Petropolit.* have been published; besides several mathematical pieces, composed by particular members of it. Their motto is *paulatim*.

ACADEMY, Royal, of Sciences, at Stockholm, was instituted in 1739, and has since that time to 1783, by quarterly publications, given 42 volumes of transactions in 8vo. in Swedish. See *SOCIETY*.

ACADEMY of Sciences, called the *Institute of Bologna*, was founded by count Marfigli, in 1712, for the cultivating of physics, mathematics, medicine, chemistry, and natural history. Its history is written by M. de Lumiers, from memoirs furnished by the founder himself.

For a farther account of similar institutions, see *SOCIETY*.

ACADEMY, is also used among us as a kind of collegiate school or seminary; where youth are instructed in the liberal arts and sciences in a private way; now indeed it is used for all kinds of schools.

Frederic I. king of Prussia, established an *academy* in Berlin in 1703, for the education of the young nobility of the court, suitable to their extraction. The expence of the students was very moderate, the king having undertaken to pay the extraordinaries. This illustrious school, which was then called the *Academy of Princes*, has now lost much of its ancient splendor.

The Romans had a kind of military *academies*, established in all the cities of Italy, under the name of *Campi Martii*. Here the youth were admitted to be trained for war at the public expence. The Greeks, beside *academies* of this kind, had military professors called *Tactici*, who taught all the higher offices of war, &c. &c.

We have two royal *academies* of this kind; one at Portsmouth, for teaching navigation, drawing, &c. which may be styled a naval or maritime *academy*; and another at Woolwich, where youth are taught fortification, gunnery, and such branches of the mathematics as are necessary to qualify them for engineers.

The nonconformist ministers, &c. are bred up in private *academies*, as not approving the common university educa-

education. The principal of their *academies* are those in London, Daventry, and Warrington.

ACADEMY is likewise a name given to a riding school, where young gentlemen are taught the great horse, and other suitable exercises, as fencing, &c. See MANEGE.

ACADEMY is also used in speaking of the schools of the Jews; i. e. those seminaries where the rabbins, or doctors, instruct the youth of their nation in the Hebrew tongue; explain to them the Talmud; teach them the Cabbala, &c.

ACADEMY, or ACADEMY Figure, in *Painting*, is a drawing, or DESIGN made after a model, with a crayon, or pencil. — Or the copy of such a draught.

ACÆNA, *αχαινα*, in *Antiquity*, a Grecian decemped, or ten-foot rod, used in measuring of their lands. Beverin. Syntag. de Ponderibus, &c. p. 177. Ricciol. Geog. l. ii. c. 4. Salmaf. Ex. in Solin. p. 682.

ACAIABA, in *Botany*, a name by which some authors have called the tree which produces the cashew nuts: the acajou of other writers, Piso.

ACAJOU, in *Botany*, the name of a genus of plants, the characters of which are these: the empalement is of one leaf erect and cut into five acute segments: the flower is also of one leaf, having a short tube, and cut into five parts at the top; the ten stamina are as long as the petals, and crowned with small summits: in the centre is a round germen, supporting an awl-shaped style, crowned with an acute stigma; the germen becomes a large oval fleshy fruit, having a large kidney-shaped nut growing to its apex. Miller.

There is only one known species of this genus, viz. the tree which produces the cashew nut, or West Indian ANACARDIUM.

Of the juice of this fruit they make a drink, which, duly fermented, inebriates like wine. The Indians eat the nuts, slightly roasted, dipped in water, or wine, and sprinkled with salt, as a provocative to venery. The juice is said to stop a diarrhoea, and cure a diabetes. From the sweetish liquor contained in the two shells, the Indians extract an oil, used by painters, to give their colour a lasting black; and to preserve wood from putrefaction.

ACALEPHE, a nettle. It also signifies a certain fish, the flesh of which is very tender. Likewise a sea-fowl mentioned by Nicander, and a sea-animal, mentioned by Gellius.

ACALYPHA, in *Botany*, the name of a genus of plants, of the *monocia adelphia* class, called by Boerhaave, and others, *ricinocarpos*. The characters are these: the male and female flowers are distinct, but they are produced on the same plants, the male ones usually standing immediately over the female ones; both without petals; the male flowers have an empalement, composed of three roundish concave leaves; the female also have a three-leaved empalement, in the centre of which is a round germen with three styles, which when the flowers decay, turns to a roundish vessel divided into three cells by deep furrows, each containing one large round seed. Miller reckons three, and Linnæus four species.

ACALCUM, tin.

ACAMATOS, among *Physicians*, means that disposition of a limb, which is equally distant from flexion and extension.

ACANACEOUS, see ACANTHACEOUS.

ACANAPHORA, in *Botany*, a name given by some to the common knapweed or jacea, a common wild plant. See CENTAURY.

ACANOR, a particular sort of chemical furnace. See ATHANOR.

ACANTHA, in a general sense, a spine or prickle, chiefly of plants of the thorny kind.

The word is formed from *ακν*, point, and *ανθος*, flower.

ACANTHA, in a more particular sense, denotes a spine, or quill of certain fishes, as the echinus marinus, or sea-hedge-hog. Hence the thorn-back, a species of the galeus, is peculiarly called *acanthias*, from the two prickles on its back. Rondelet, de Piscib. lib. xiii. c. 2.

ACANTHA, among some *Anatomists*, is applied to the hind or posterior protuberances of the VERTEBRÆ of the back; forming what we call the SPINA dorsæ.

ACANTHABOLUS, a surgeon's instrument, wherewith to extract foreign bodies, which by the sharpness of the points have penetrated, and entered the parts of the body. The word is compounded of *ακν*, a thorn; and *βαλλω*, to cast away.

The *acanthabolus* is the same with the instrument which is otherwise called *volfella*. — Its chief use is for extracting fish-bones, or the like, sticking in the œsophagus; as also the fragments of weapons, bones, hair, &c. remaining in wounds. — Its figure resembles that of a pair of pincers; sometimes it is also made crooked, for more commodious application to the fauces. Celsus, lib. vii. c. 30.

ACANTHABOLUS is also sometimes used for an instrument, wherewith people pull out the hairs from their eye-brows.

ACANTHACEOUS, among *Botanists*, a term applied to a class of plants, popularly known under the name of the THISTLE kind.

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ACANTHALZUCA, the same as *echinopus*, or globe THISTLE. ACANTHE, in the *Materia Medica* of the ancients, a name given to the plant we now call the ARTICHOAK.

ACANTHE *Arabica*, in *Botany*, a name given by some of the Greek writers to a plant called also *leucacanthè*, and by the Arabian physicians *bunkon*. It was a prickly plant, whose roots were somewhat like those of the cyperus, and composed of several knobs or joints, and of a bitter taste. It was brought for medicinal use from the East Indies, and some parts of Arabia, and was the root of the *amgaila* of Avicenna and others.

ACANTHIAS, in *Ichthyology*, a name given by some authors to the fish, the skin of which is used by our artificers in polishing, and called by them simply fish-skin. See GALEUS.

ACANTHICE, *μασliche*, among ancient *Naturalists*, a kind of gum, yielded by the herb *helxine*. Gaza explains it by *spinalis masticha*. Plin. Hist. Nat. l. xxi. c. 16. Hard. Not.

ACANTHINE, *acanthinus*, denotes a thing relating to, or resembling the herb ACANTHUS.

In this sense, we read of *acanthina vestimenta*, *acanthine garments*, of which we have two different explications. Some understand by it a kind of embroidery, wrought in imitation of the Egyptian *acanthus* or thorn, whose small springs are much interlaced. Others will have it a peculiar kind of filken stuff, made of the lanugo, or down of a plant of the thistle kind, growing in Sicily and the East. Plin. Hist. Nat. l. xxiv. c. 12. Hard. Not.

ACANTHINUM *lignum* is used by some writers for BRAZIL wood.

ACANTHION, among *Naturalists*, a plant of the thorn, or rather of the thistle kind: whose down being cleansed from the prickles, was manufactured into a kind of stuff, not unlike silk. Plin. ubi supra.

ACANTHIS, in *Ornithology*. See GOLDFINCH.

ACANTHOPTERYGII, in *Natural History*, a term used to express one of the general classes or families of fishes; the character of which is, that the rays of the fins are bony, and some of them prickly at the extremities.

The word is derived from *ακν*, a thorn, or prickle, and *πτερυγον*, a fin.

Under this class are contained seventeen GENERA; viz. the *gasterosteus*, *chaetodon*, *zeus*, *cottus*, *trigla*, *scorpena*, *trachinus*, *perca*, *sciæna*, *sparus*, *labrus*, *mugil*, *scomber*, *xiphias*, *gobius*, *blennius*, and *ophidion*.

ACANTHUS, in *Botany*. See BEAR'S-BREECH.

The ancients have not only called the herb bear's breech by this name, but also a thorny tree growing in Egypt.

An accurate examination of the ancient writers will, however, shew very plainly, that they meant two very different vegetables under this name; the *acanthus* of Virgil and the Egyptian *acanthus* of Theophrastus, being two wholly different plants. Virgil mentions the *acanthus* as being an ever-green plant, and producing berries, or a small round fruit, *baccas semper frondentis acanthi*, are his words; and Theophrastus tells us, that his Egyptian *acanthus* is a prickly tree, and bears pods like those of beans. The Greek sculptors adorned their works with the figure of the latter; as the Gothic did with that of the former, which they represented not only in their capitals, but also in other ornaments. It is plain, that the *acanthus* of Theophrastus, is the *acacia*, a tree, from some species of which we have the gum arabic now in use; and the *acanthus* of Virgil, mentioned in this place, seems to be the Cyrenian *lotus*, which Herodotus says is like the Egyptian *acanthus*.

ACANTHUS, in *Architecture*, an ornament in the Corinthian and Composite ORDERS: being the representation of the leaves of an acanthaceous plant, in the capitals thereof. — See Tab. Archit. fig. 21.

ACANUS, a species of thistle, called *Acanus Theophrasti*. See CARDUUS.

ACAPATLI, in *Botany*, a name used by some authors for the plant which produces the long pepper, used in medicine. De Laet. Ind. Occ. p. 231.

ACAPNON, *ακαπνον*, a name of the SAMPSUCHUS, or MARJORAM; also of dry wood.

ACARA, in *Ichthyology*, the name of a fish caught in the fresh waters in the Brazils, and esteemed a very delicate and well-tasted one. It seldom exceeds three or four inches in length, and has a high back like the PEARCH. Its mouth is small, and its jaws rough like a file. It has one long back fin, which is supported by a great number of rigid and prickly rays, and reaches to the tail. Its scales are large; its back is of a glossy brown; its sides and belly white; its tail is not forked. It has a large black spot on the middle of each side, and another near the tail. Its fins are all brown. Margrave. Brasil.

ACARAAYA, in *Ichthyology*, the name of a fish caught on the Brazilian shores, and by some called also GARANHA. It grows to three feet in length, and is of the shape of our carp. Its lower jaw is furnished with an even range of sharp teeth, like little needles. Its upper jaw has two very long ones, and beside these, a multitude of other very short ones. Its eyes are large, and their iris red. Its tail is broad, and a little forked. Its scales are of a moderate

Moderate size, and of a silver hue, with an admixture of purple. Its belly, and the under part of its head, are wholly white; and its fins all of a fine pale red, except those under the belly, which are white, with a slight edge of red. It is eaten in Brasil, both fresh and salted. Margrave.

ACARAMUCU, in *Ichthyology*, the name of a fish found in the western ocean, and in some other parts of the world. It is a very singular and remarkable animal. It is of a flattened but long body, and not thick. It is usually of about eight or ten fingers breadth long, and about four broad. Its mouth is round, but very small, scarce admitting the end of one's little finger. In the fore-part of the mouth, both above and below, there are triangular and sharp teeth. On each side, just below the eyes, there are two squarish fissures, which serve in the place of gills; and on the ridge of the back, directly behind the eyes, there is placed a fine slender pointed horn, which stands nearly erect, but bending a little backward; this is of a cylindrical shape, and four fingers breadth long. It has no scales, but a smooth skin, and is of a mixed greyish and brownish colour. It feeds on sea-weeds; and its flesh is not eatable. Margrave.

ACARAPEBA, in *Ichthyology*, the name of an American fish, called also by some *brofeme*. It has a somewhat broad and flat body, covered with large scales of a fine silver whiteness. It grows to a foot in length, and to four or five fingers in breadth. It has a large mouth, but without teeth; and its tail is forked. It has one long black fin, the anterior rays, or naves, of which are rigid and prickly, the hind naves soft and flexible. The fins are all like the rest of the body, of a pure white. The fish seems a kind of *SMARIS*. Margrave.

ACARAPINIMA, in *Ichthyology*, the name of a Brazilian fish, of the *CANTHARUS* kind, and seeming of the same species with the *cantbarus* of the Mediterranean. Ray.

ACARAPTAMBA, in *Ichthyology*, the name of a fish caught in the Brazilian seas, of an oblong figure, resembling the *MULLET*, and growing to two feet or more in length. Its mouth and teeth are very small. It has one long fin on the back, running very nearly to the tail, which is supported by rigid and prickly rays. Its tail terminates in two oblique horns. Its scales are large, and of a purplish colour, with a fine admixture of blue; and along the middle of each side there runs from the gills to the tail, a very broad and beautiful gold-coloured line. Its back, down to this line, is variegated also with small gold-coloured spots; and the sides under the line are very beautifully variegated with small and fine longitudinal, but short gold-coloured lines, of a somewhat paler colour than the broad one. Its belly is white, and its fins yellow. Margrave and Willughby.

ACARAPUCU, in *Ichthyology*, the name of a Brazilian fish, caught in the fresh waters, and growing to eighteen inches in length. It is of a rounded body; and its mouth is small and not prominent. It has lips, which it can hide, or suffer to appear at pleasure, and has no teeth. Its tail is long and forked; its scales are all of a silvery hue. On the back it has a fine golden gloss, shining in the whiteness; and on the sides five or six large blue spots. Its back and side fins are of a pale blue, as is also the tail: the belly fins are yellowish. It is a well-tasted fish. Margrave.

ACARAUNA, in *Ichthyology*, an American fish, of which there are two species; the one called *acarauna*, without any addition; and the other the *acarauna quadrata*, or square *acarauna*; and by our sailors, the *old-wife*.

The *acarauna*, simply so called, grows to about four or five inches long, and is considerably broad and flat. It is covered with small blackish scales; its tail is large and forked. It has two fins under the gills, two more under the belly, and a long one running all along the back, and another answering it from the anus to the tail. Its mouth is small and narrow, and its teeth very small. Its eyes are but small; and on each side near the tail, it has an extremely sharp thorn, or prickle: these it can draw in at pleasure into its sides, and occasionally throw them out to annoy other fishes.

The *acarauna quadrata*, or square *acarauna*, or *old-wife*, is much of the same size with the former species. It is frequently preserved in the cabinets of the curious, and is found there, of a pale brown, with its tail and the fore-part of the body of a pale yellow, or straw colour. It is covered with scales, furrowed with slight parallel lines, except that the anterior part of its head is covered with a naked, but rough skin. The top of the head rises into an acute angle; the forehead is flat; and the eyes round and large, and placed high. Its mouth is very small; and its teeth are very slender, and stand close together. The upper jaw has on each side four sharp thorns growing from it, and the lower two very large and sharp ones, bending downward, and in shape and structure resembling a cock's spur; and from these

there runs up a row of small thorns to the eye. Willughby, Hist. Pisc.

ACARI, or **ACARUS**, in *Natural History*, an animalcule bred in wax; said by Aristotle to be the least object of human sight.

ACARI, or **ACARUS**, is also used for a kind of vermin lodged under the cutis, where preying on the parts, it excites an itching, and raises pimples.

A German physician has traced their origin; he finds the *acari* arise from milk-meats turning stale and sour. Their seat is chiefly in the hands or feet, rarely in the arms or legs. Ludov. in Ephem. Germ. dec. 19. p. 109. See **ITCH**.

ACARUS is also used by some *Naturalists* as the classical name of the lice of animals, which are indeed of as many various genera as the animals on which they breed. In the Linnæan system, it is a genus of *aptera*, with eight feet, two eyes at the sides of the head, and two jointed tentacula, comprehending thirty-five species.

ACARNA, in *Botany*, a name by which Theophrastus, and some other writers, express the common **ARTICHOAK**.

Monf. Vaillant gives the name *acarna* to one of the genera of the *cynarocephalous*, or artichoke-headed class of plants.

ACARNAN, in *Ichthyology*, the name of a small sea-fish very common in the Mediterranean, and brought to market among the **RUBELLIOS**, or **ERYTHRINI**, and called by the fishermen by the name, *fravolino*, or *phragolino*. It very much resembles the erythrinus in shape; but as that is of a fine red, this, on the contrary, is of a silvery white. Its mouth is moderately large; its teeth slender and pointed; and its eyes large, having fine yellow irises. Its fins are white, but have each a black spot at their origin. It seems doubtful whether this be really any way different from the erythrinus, except in colour, which alone is not distinction sufficient to make a species. Rondelet.

ACARON, the wild **MYRTLE**.

ACARTUM, red lead; called also *azemaphor*.

ACARUS. See **ACARI**.

ACATALECTIC, **ACATALECTICUS**, in the *Ancient Poetry*, a term applicable to such **VERSES** as have all their **FEET** and syllables; and are in no wise lame or defective at the end.

The word comes from *κατα* and *λησω*, to cease or end; whence *καταληκτικός*, which wants something at the end; and the primitive *α* being prefixed *ακαταληκτικός*, which wants nothing at the end. See **CATALECTIC**.

In the following strophe of Horace, the two first verses are *acatalectic*, and the last *catalectic*.

Solvitur acris hyems, grata vice

Veris & Favoni:

Trabuntque siccas machinæ carinas—

ACATALEPSIA, **ACATALEPSY**, in *Philosophy*, an impossibility of a thing's being conceived or comprehended.

The word is compounded of the privative *α*, and *καταλαμβάνω*, *deprehendo*, to find out.

Acatalepsia is synonymous with incomprehensibility.

ACATALUS, a **JUNIPER** berry.

ACATASTATOS, *inconstant*, is a physical term, applied to irregular fevers, whose paroxysms are uncertain, and which are indicated by frequent changes in the urine. It is likewise applied to those shivering fits in fevers, which have no constant return, and to turbid urine, that deposits no regular sediment.

ACATERY, **ACCATRY**, in the king's household, a kind of check betwixt the **CLERKS** of the kitchen, and the **PURVEYORS**.

ACATHISTUS, *ακαθιστος*, in an ecclesiastical sense, a solemn hymn, or vigil, anciently sung in the Greek church, on the Saturday of the fifth week in Lent, in honour of the Virgin, for having thrice delivered Constantinople from the invasions of barbarous nations.

It was called *ακαθιστος*, i. e. *without sitting*, because it was celebrated standing: the people stood all night, singing the praises of their deliverers.

The same name is also given to the day whereon it was performed, which is called the feast *τε ακαθιστε*.

ACATIUM, in the ancient *Navigation*, a kind of boat or pinnace used for military purposes.

The *acatium* was a species of those called *actuariæ naves*, i. e. such as were wrought with oars. It was sometimes made use of in battle: Strabo represents it as a kind of privateer, or pirate sloop.

CAULIS, in *Botany*, a term applied to certain plants, the flowers of which have no stalk or pedicle to support them, but rest immediately on the ground: of this kind are the carline thistle, and some others.

ACAULOSE, or **ACAULOUS**, is applied, by *Botanists*, to those plants which have no proper stem, or **CAULIS**. Ray.

ACBAB, in *Natural History*, a name given by the people of the Philippine islands, to a bird, very like our common hen, which is very frequently wild among them. It lives on rice, and other vegetables, and does a great deal of mischief; but is short-winded, and does not fly well, so that it is easily destroyed.

ACBAR,

ACBAR, the name of an idol of enormous size, which the Arabians are said formerly to have worshipped. It was with difficulty that Mahomet restrained them from this species of idolatry. Hyde's Diss. vol. i. p. 257.

ACCADEMIA, among *Musicians*, signifies a concert.

ACCALIA, in *Antiquity*, solemn feasts, held in honour of Acca Laurentia, nurse, or foster-mother of Romulus.

These were otherwise called *Larentalia*.—To the same Acca is also attributed the institution of the FRATRES ARVALES. Varro, de Ling. Lat. & Scalig. Conject. in Varro.

ACCAPITARE, ACCAPTARE, ACAPTARE, in ancient Law-books and records, the act of becoming vassal of a lord, or of yielding homage and obedience to him.

The word is compounded of the Latin *ad, to*; and *caput, head*; by reason vassals own their lords for their head. Whence also the lords are sometimes called *domini capitales*: as those who command in an army are called *capitanei, captains*; and in old French, *chevetaines, chieftains*, in respect of their soldiers.

ACCAPITUM, a sum of money paid to a vassal, upon his admission to a FEUD.

The word is also written *acapitum, accapitamentum, acaptio, acaptatio, and acaptagium*.

ACCAPITUM, in our ancient Law-books, signifies RELIEF due to the chief lord.

ACCATRY. See ACATERY.

ACCATUM, the same as *accatem*, or AURICHALCUM.

ACCAZDIR, denotes tin.

ACCEDAS *ad Curiam*, an original writ, which lies for removing suits in any court baron, except the county court, into the king's court; upon apprehension of partiality or false judgment in the other.

A like writ lies for him who has received false judgment in the county court; where it is called *de falso judicio*.

An *Accedas ad Curiam* lies also for justice delayed, as well as falsely given; and is a species of the writ RECORDARI.

ACCEDAS *ad Vicecomitem*, is a writ directed to the coroner, commanding him to deliver a writ to the sheriff, who having a PONE delivered to him, suppresses it.

ACCELERATION, in *Mechanics*, the increase of velocity in a moving body.

Accelerated motion is that which continually receives fresh accessions of velocity, and is either equally or unequally accelerated.

Acceleration stands directly opposed to *retardation*, which denotes a diminution of velocity.

ACCELERATION is chiefly used in *Physics*, in respect of falling bodies, i. e. of heavy bodies tending towards the centre of the earth by the force of GRAVITY.

That natural bodies are *accelerated* in their descent is evident from various considerations, both *a priori* and *posteriori*.—Thus, we actually find, that the greater height a body falls from, the greater impression it makes, and the more vehemently does it strike the subject plane, or other obstacle.

Various are the systems and opinions which philosophers have produced to account for this *acceleration*. Some attribute it to the pressure of the air: the farther, say they, a body falls, the greater load of atmosphere is of consequence incumbent on it: and the pressure of a fluid is in proportion to the perpendicular altitude of the column thereof.—Add, that the whole body of the fluid pressing in innumerable right lines, which all meet in a point, viz. the centre; that point, by the meeting of those lines, sustains, as it were, the pressure of the whole mass: consequently, the nearer a body approaches to it, the effect or pressure of more united lines must it sustain.

But what overturns this account, is, that as the pressure of the air downwards increases; so, by the known laws of statics, does the resistance, or the force wherewith the same fluid tends to repel, or drive the body upwards again. Others insist, that the incumbent air is the grosser and more vaporous, the nearer the earth; and filled with more heterogeneous particles, which are not true elastic air: and hence, say they, a descending body, meeting continually with less resistance from the elasticity of the air, and having the same force of gravity still acting on it, must necessarily be *accelerated*. Hobbes (Philos. Probl. cap. i. p. 3.) attributes *acceleration* to a new impression of the cause which makes bodies fall; which on his principles, is also the air. As part of this mounts, part also must descend; for reasons drawn from the motion of the earth, which is compounded of two motions, one circular, the other progressive; consequently the air ascends, and circulates at once. As the body, in its fall, receives a new pressure in every point of its descent, its motion, he says, must needs be accelerated.

But what overturns all accounts where the air or atmosphere is concerned, is, that the *acceleration* holds in *vacuo*, and even more regularly than in air. See VACUUM. The Peripatetic account is worse than this: the motion

of heavy bodies downwards, say they, arises from an intrinsic principle, which makes them tend to the centre, as their proper seat, or element, where they would be at rest: hence, add they, the nearer bodies approach thereto, the more is their motion *accelerated*.

The Gassendists, on the other hand, hold that the earth emits a sort of attractive effluvia, innumerable threads whereof continually ascend and descend; which threads, proceeding like radii from a common centre, divaricate the more, the farther they go: so that the nearer a heavy body is to the centre, the more of these magnetic threads it receives; and hence the more is its motion *accelerated*. But this is refuted by an easy experiment: for if a ball be let fall out of the lowest window of a high tower, and also out of the highest, the *acceleration* will be the same in both cases, notwithstanding the greater vicinity to the centre in the one, than in the other case.

The Cartesians account for *acceleration*, from the repeated pulses of a subtil ethereal matter, which is continually acting on the falling body, and impelling it downwards.

After all, the immediate cause of *acceleration* is nothing mysterious; the principle of GRAVITATION, which determines the body to descend, determining it to be *accelerated* by a necessary consequence.

Suppose a body let fall from on high: the primary cause of its beginning to descend, is doubtless the power of gravity; but when once the descent is commenced, that state becomes in some measure natural to the body; so that if left to itself, it would persevere in it for ever, even though the first cause should cease: as we see in a stone cast with the hand, which continues to move, after it is left by the cause that gave it motion.

But, beside the propensity to descend, impressed by the first cause, and which of itself were sufficient to continue the same degree of motion once begun, *in infinitum*; there is a constant accession of subsequent efforts of the same principle, gravity, which continues to act on the body already in motion, in the same manner as if it were at rest. Here, then, being a double cause of motion; and both acting in the same direction, viz. directly towards the centre of the earth; the motion they jointly produce must necessarily be greater than that of any one of them.—And the velocity thus increased having the same cause of increase still persisting, the descent must necessarily be continually *accelerated*.

For, supposing gravity, whatever it be, to act uniformly on all bodies, at equal distances from the earth's centre; and that the time in which a heavy body falls on the earth, be divided into equal parts infinitely small: let this gravity incline the body towards the earth's centre, while it moves in the first infinitely small part of the time of its descent; if after this, the action of gravity be supposed to cease, the body would proceed uniformly on towards the earth's centre, with a velocity equal to the force of the first impression.

But now, since the action of gravity is here supposed still to continue; in the second moment of time, the body will receive a new impulse downwards, equal to what it received at first; and thus its velocity will be double of what it was in the first moment; in the third moment it will be triple; in the fourth quadruple, and so on continually: for the impression made in one moment, is not at all altered by what is made in another; but the two are, as it were, aggregated, or brought into one sum.

Wherefore, since the particles of time are supposed infinitely small, and all equal to one another; the *impetus* acquired by the falling body will be every-where, as the times from the beginning of the descent.—And hence, since the quantity of matter in the body given continues the same; the velocity will be as the time in which it is acquired.

Farther, the space passed over by a moving body in a given time, and with a given velocity, may be considered as a rectangle made by the time and the velocity.—Suppose A (Tab. IV. *Mechan.* fig. 64.) a heavy body descending, and let AB represent the time of its descent; which line suppose divided into any number of equal parts, AC, CE, EG, &c. representing the intervals, or moments of the given time.—Let the body descend through the first of those divisions, AC, with a certain equable velocity arising from the proposed degree of gravity: this velocity will be represented by AD; and the space passed over, by the rectangle CAD.

Now, as the action of gravity in the first moment produced the velocity AD, in the body before at rest; in the second moment, the same will produce, in the body so moving, a double velocity, CF; in the third moment, to the velocity CF will be added a farther degree, which together therewith will make the velocity EH, which is triple of the first, and so of the rest. So that in the whole time AB, the body will have acquired a velocity BE.

BK.—Again, taking the divisions of the line, e. g. A C, C E, &c. for the times, the spaces gone through will be the areas or rectangles, C D, E F, &c. So that in the whole time A B, the space described by the moveable, will be equal to all the rectangles, i. e. to the dented figure A B K.

Such would be the case, if the accessions of velocity only happened in certain given points of time, e. g. in C, in E, &c.: so that the degree of motion should continue the same till the next period of *acceleration* come up.—If the divisions or intervals of time were supposed less, e. g. by half; then the dentures of the figure would be proportionably smaller; and it would approach so much the nearer to a triangle.—If they were infinitely small, i. e. if the accessions of velocity were supposed to be made continually, and in every point of time, as is really the case; the rectangles thus successively produced will make a just triangle, e. g. A B E (fig. 65).—Here, the whole time A B consisting of the little portions of time A 1, A 2, &c. and the area of the triangle A B E, of the sum of all the little triangular surfaces answering to the divisions of the time; the whole area or triangle expresses the space moved through in the whole time A B; and the little triangles A 1 f, &c. the spaces gone through in the divisions of time 4 1, &c.

But these triangles being similar, their areas are to one another, as the squares of their homologous sides A B, A 1, &c. and consequently, the spaces moved, are to each other as the squares of the times.

Hence we may easily infer the great law of *acceleration*, viz. "That a descending body, uniformly *accelerated*, describes, in the whole time of its descent, a space which is just half of what it would have described in the same time, with the *accelerated* velocity it has acquired at the end of its fall." For, the whole space the falling body has moved through in the time A B, we have already shewn, will be represented by the triangle A B E; and the space the same body would move through in the same time, with the velocity B E, will be represented by the rectangle A B E F.—But the triangle is known to be equal to just half the rectangle.—Therefore, the space moved, is just half of what the body would have moved with the velocity acquired at the end of the fall.

Hence we infer, 1. that the space moved with the last acquired velocity B E, in half the time A B, is equal to that really moved by the falling body in the whole time A B.

2. If a falling body describe any given length in a given time, in double that time it will describe four times that length; in thrice the time, nine times, &c. and universally, if the times be in arithmetical proportion, 1, 2, 3, 4, &c. the spaces described will be, 1, 4, 9, 16, &c.

3. The spaces described by a falling body in a series of equal moments or intervals of time, will be as the unequal numbers 1, 3, 5, 7, 9, &c. And since the velocities acquired in falling are as the times; the spaces will also be as the squares of the velocities; and both times and velocities in a subduplicate ratio of the spaces.

The motion of a body ascending, or impelled upwards, is diminished or retarded from the same principle of gravity acting in a contrary direction, in the same manner, as a falling body is *accelerated*. See RETARDATION.

A body thus projected upwards, rises till it has lost all its motion: which it does in the same time that a body falling would have acquired a velocity equal to that wherewith the body was thrown up.

Hence, the same body thrown up, will rise to the same height from which falling, it would have acquired the velocity wherewith it was thrown up.

And hence, the heights which bodies thrown up with different velocities do ascend to, are to one another as the squares of those velocities.

ACCELERATION of bodies on inclined planes.—The same general law obtains here, as in bodies falling perpendicularly: the effect of the plane is, to make the motion slower; but the inclination being every where equal, the retardation arising therefrom will proceed equally in all parts, at the beginning and the ending of the motion.—The particular laws, see under *Inclined PLANE*.

ACCELERATION of the motion of pendulums.—The motion of pendulous bodies is *accelerated* in their descent; but in a less ratio than that of bodies falling perpendicularly. See the laws of this under *PENDULUM*.

ACCELERATION of the motion of projectiles. See *PROJECTILE*.

ACCELERATION of the motion of compressed bodies, in expanding or restoring themselves. See *DILATATION*.

That the motion of compressed air, expanding itself by its elasticity to its former dimensions, is *accelerated*, is evident from various considerations.

ACCELERATION is also applied in the ancient astronomy, in respect of the fixed stars.—Thus, *acceleration* was the difference between the revolution of the *primum mobile*,

and the solar revolution; which was computed at 3 minutes, and 56 seconds.

ACCELERATION of the Moon, is a term used to express the increase of the moon's mean motion from the sun, compared with the diurnal motion of the earth; so that it is now a little swifter than it was formerly. Dr. Halley was the first who made this discovery; and he was led to it by comparing the ancient eclipses observed at Babylon, with those observed by Albatennius in the ninth century, and some of his own time. He was not able to ascertain the quantity of this *acceleration*, because the longitudes of Bagdat, Alexandria, and Aleppo, where the observations were made, had not been accurately determined. But since his time the longitude of Alexandria has been ascertained by Chazelles; and Babylon, according to Ptolemy's account, lies 50' east from Alexandria. From these *data*, Mr. Dunthorne compared several ancient and modern eclipses, with the calculations of them by his own tables, and hereby verified Dr. Halley's opinion; for he found, that the same tables represent the moon's place more backward than her true place in ancient eclipses, and more forward than her true place in later eclipses; and thence justly inferred, that her motion in ancient times was slower; in later times quicker than the table give it. But he did not content himself with merely ascertaining the fact; he proceeded to determine the quantity of the *acceleration*; and by means of the most ancient eclipse, of which any authentic account remains, observed at Babylon, in the year before Christ 721, he concluded, that the observed beginning of this eclipse was not above an hour and three quarters before the beginning by the tables; and therefore the moon's true place could precede her place by computation but little more than 50' of a degree at that time. Admitting the *acceleration* to be uniform, and the aggregate of it as the square of the time, it will be at the rate of about 10" in 100 years. Phil. Trans. N° 218, N° 492, or vol. xvi. p. 162.

Dr. Long attributes the *acceleration* above described, to one or more of these causes; either, 1. the annual and diurnal motion of the earth continuing the same, the moon is really carried round the earth with a greater velocity than heretofore: or, 2. the diurnal motion of the earth, and the periodical revolution of the moon continuing the same, the annual motion of the earth round the sun is a little retarded; which makes the sun's apparent motion in the ecliptic a little slower than formerly, and, consequently, the moon in passing from any conjunction with the sun, spends less time before she again overtakes the sun, and forms a subsequent conjunction: in both these cases, the motion of the moon from the sun is really *accelerated*, and the synodical month actually shortened: or, 3. the annual motion of the earth, and the periodical revolution of the moon continuing the same, the rotation of the earth round its axis is a little retarded; in this case, days, hours, minutes, seconds &c. by which all periods of time must be measured, are of a longer duration; and consequently the synodical month will appear to be shortened, though it really contains the same quantity of absolute time as it always did. If the quantity of matter in the body of the sun be lessened by the particles of light continually streaming from it, the motion of the earth round the sun may become slower; if the earth increases in bulk, the motion of the moon round the earth may be quickened thereby. Astronomy, vol. ii. p. 436.

ACCELERATOR, in *Anatomy*, a muscle in the penis, whose office is to expedite the discharge of the urine, and the semen.

This is more peculiarly called *accelerator urinæ*: some make two muscles of it, and give them the denomination *acceleratores*, or *acceleratory muscles*.

It arises tendinous from the upper and fore-part of the urethra, but soon grows fleshy, passes under the os pubis, and encompasses the bulb of the cavernous body of the urethra.—Both sides of this muscle meet in a middle line, corresponding to the seam in the skin over it; and continue so united, the space of two inches; after which it detaches two fleshy elongations, which become thin tendons at their terminations on the cavernous bodies of the penis. Its upper part covering the bulb, when in action, straitens the veins which pass through it from the corpus cavernosum of the urethra, and hinders the reflux of the blood in an erection. By the repeated contractions of this upper part, the blood in the bulb is also driven towards the glans; and thereby assists the erection.

The two elongations compress the channel of the urethra, and so force out the contained seed, or urine; whence the muscle takes its name.

ACCIDENTES, or **ACCENSORES,** in *Ecclesiastical Writers*, a lower order of ministers in the church of Rome, whose office is to light, snuff, and trim the candles, or tapers. Spelman.

The

The *accendentes* are much the same with those otherwise called *acolythi* and *ceroferarii*.

ACCENDONES, or ACCEDONES, in *Roman Antiquity*, a kind of GLADIATORS, whose office was to excite and animate the combatants, during the engagement.

ACCENSI, in *Antiquity*, an inferior order of officers, appointed to attend the Roman magistrates, somewhat in the manner of ushers, serjeants, or tip-staves, among us. They were thus called from *accire*, to send for; one part of their office being to call assemblies of the people, summon parties to appear before the judges, &c.

ACCENSI also denote a kind of supernumerary soldiers in the Roman armies; whose office was to attend the motions of their principals, and supply the places of those who were killed or disabled by their wounds.

They were thus denominated, *quia accensebantur*, or *ad censum adjiciebantur*: Vegetius calls them *supernumerarii legionum*: Cato calls them *ferentarii*, because they furnished those engaged in battle with weapons, drink, &c. Though Nonius suggests another reason of that appellation, viz. because they fought with stones, slings, and weapons, *quæ ferrentur*, such as are thrown, not carried in the hand. They were sometimes also called *velites*, and *velati*, because they fought clothed, but not in armour; sometimes *adscriptitii*, and *adscriptivi*; sometimes *rorarii*. The *accensi*, Livy observes, were placed in the rear of the army, because no great matter was expected from them: they were taken out of the fifth class of citizens. Festus in Voc. *Ferentarii*. Salmas. de Re Milit. Rom. c. 15.

ACCENSI was also an appellation given to a kind of adjutants, appointed by the tribune to assist each centurion and decurion. In which sense, *accensus* is synonymous with *optio*.—In an ancient inscription, given by à Torre, we meet with ACCENSUS EQUITUM ROMANORUM; an office no where else heard of; that author suspects it for a corruption, and instead thereof reads A CENSIBUS. Ast. Erud. Leipf. 1701. p. 259.

ACCENSION, ACCENSIO, in *Physics*, the act of kindling, or setting a body on fire.

The word is formed of the Latin *accendere*, to kindle; a compound of *ad*, to; and *candere*, to glow. Though some grammarians suspect the primitive signification of *accendere*, to have been, to render famous.

Accension, on other occasions, is called INFLAMMATION, IGNITION, CONFLAGRATION, &c.

Accension stands opposed to EXTINCTION.

Chemists furnish us with various instances of the *accension* of cold liquors by bare mixtion: as of the acid spirits of minerals, and the essential oils of plants.

ACCENT, in its primitive sense, an affection of the voice, which gives each syllable of a word its due pitch, in respect of height or lowness.

The word is originally Latin, *accentus*, a compound of *ad*, to; and *canto*, to sing. In this sense, *accent* is synonymous with the Greek *ῥυθμός*, the Latin *tenor*, or *tonor*, and the Hebrew *טעם* *gustus*, taste.

The *accent*, properly, only respects high and low, or acute and grave.—Though the modern grammarians use it also in respect to loud and soft, long and short; but this confounds *accent* with *quantity*.

The difference between the two may be conceived from that which we observe between the beat of a drum, and the sound of a trumpet; the former expresses every thing belonging to loud and soft, and long and short: but, so long as there is a *μονοτονία* in the sound, there is nothing like *accent*.

ACCENT is also used in grammar, for a character placed over a syllable, to mark the *accent*, i. e. to shew it is to be pronounced in a higher, or in a lower tone; and to regulate the inflections of the voice in reading. It is distinguished from *emphasis*, as the former regards the tone of the voice, the latter the strength of it.

We reckon three grammatical *accents* in ordinary use, all borrowed from the Greeks, viz. the *acute accent*, which shews when the tone of the voice is to be raised.

In modern writings it is a little line, or *virgula*, placed over the vowel, a little sloping or inclined, in its descent, from right to left, as (').—It is not ordinarily used either in English or Latin: the French, indeed, retain it; but it is only to mark the close or masculine é.

The *grave accent*, when the note or tone of the voice is to be depressed; and is figured thus (`).

The *circumflex accent*, which is composed of both the acute and the grave; it points out a kind of undulation of the voice, and is expressed thus (^ or ^).

But if it be true, that the whole system of pronunciation turns on three *accents*, it is no less true, that each of these three admits of several degrees. The *acute accent*, for instance, may be either higher or lower; may be simply acute, or very acute; and the like holds of the grave and circumflex. So that each of the three common *accents* is, as it were, a genus, including divers particular species;

though the ancient grammarians have not thought fit to give particular names and figures to all these differences. Vonder Hardt. Arcan. Accent. Græc. 1715, 12mo.

Words which have no accents are called *atonics*.

The Hebrews have a grammatical, a rhetorical, and a musical *accent*; though the first and last seem, in effect, to be the same; both being comprised under the general name of *tonic accents*; because they give the proper tone to syllables: as the rhetorical *accents* are said to be *euphonic*; inasmuch as they tend to make the pronunciation more sweet and agreeable.

There are four *euphonic accents*, and twenty-five *tonic*; however, authors are not agreed as to the number; of which some are placed above, and others below the syllables; the Hebrew *accents* serving not only to regulate the risings and fallings of the voice, but also to distinguish the sections, periods, and members of periods, in a discourse; and to answer the same purposes with the points in other languages. Their *accents* are divided into *emperors*, *kings*, *dukes*, &c. each bearing a title answerable to the importance of the distinction it makes.—Their emperor rules over a whole phrase, and terminates the sense completely; answering to our point.—Their king answers to our colon; and their duke to our comma. The king, however, occasionally becomes a duke, and the duke a king, as the phrases are more or less short.—It must be noted, by the way, that the management and combination of these *accents* differs in Hebrew poetry from what it is in prose.

The use of the *tonic*, or grammatical *accents*, has been much controverted; some holding that they distinguish the sense, while others maintain that they are only intended to regulate the music, or singing; alledging that the Jews sing, rather than read, the scriptures in their synagogues; The truth seems here to lie between the two opinions: for though we are inclined to think, that the primary intention of these *accents* was to direct the singing; yet the singing seems also to have been regulated according to the sense; so that the *accents* might serve not only to guide the singing, but also to point out the distinctions.—Though it must be confessed, that many of these distinctions are too subtle and inconsiderable; nor can the modern writers, or the editors of old ones, agree in opinion on this subject; some of them making twice as many of these distinctions as others.

The Hebrew *accents*, in effect, have something common with those of the Greeks and Latins; and something peculiar to themselves. What they have in common, is, that they mark the tone; shewing how the voice is to be raised, and sunk, on certain syllables. What they have peculiar is, that they do the office of the points in other languages. See ATHNACH, &c.

It is certain the ancient Hebrews were not acquainted with these *accents*; so that, at best, they are not *jure divino*.—The opinion which prevails amongst the learned, is, that they were invented about the sixth century, by the Jewish doctors of the school of Tiberias, called the *Massoretes*.

The learned Hennin affirms them to be of Arabic invention; and to have been adopted and transferred thence into the Hebrew by the *Massoretes*: especially by the celebrated Rabbi Ben Ascher, who flourished in the middle of the sixth century; on occasion of the emperor Justinian's prohibiting the reading their traditions in their synagogues. He adds, that they were first brought to their degree of perfection, by Rabbi Juda Ben David Chiug, a native of Fez, in the eleventh century.—It is indeed possible, the Jews might borrow their points from the Arabs: but how they should have their *accents* from them is hard to conceive, the Arabic language having no such thing as *accents*, either in prose or verse.

As to the Greek *accents*, now seen both in manuscript and printed books, there has been no less dispute about their antiquity and use, than about those of the Hebrews.—Isaac Vossius, in an express treatise De Accentibus Græcanis, endeavours to prove them of modern invention; asserting, that they anciently had nothing of this kind, but only a few notes in their poetry, which were invented by Aristophanes the Grammarian, about the time of Ptolemy Philopater; and that these were of musical rather than of grammatical use, serving as aids in the singing of their poems; and very different from those introduced afterwards.

This appears from inscriptions as well as manuscripts, none of which, till 170 years before Christ, has either *accent*, *spirit*, *apostrophus*, or *ᾤα*, subscribed.—He adds, that Aristarchus, a disciple of Aristophanes, improved on his master's art; but that all they both did, was only designed to facilitate youth in the making of verses.—The same Vossius shews from several ancient grammarians, that the manner of writing the Greek *accents* in those days was quite different from those now used in our books.

Hen. Christ. Hennin thinks, that *accents* were the invention of the Arabians, about nine hundred years ago; and that they were only used in poetry; that they were intended to ascertain the pronunciation of the Greek, and to keep out that barbarism which was then breaking in upon them; that the ancient *accents* of Aristophanes were perfectly agreeable to the genuine Greek pronunciation, but that the modern ones of the Arabs destroy it. Wetstein, Greek professor at Basil, in a learned dissertation, endeavours to prove the Greek *accents* of an older standing.—He owns that they were not always formed in the same manner by the ancients; but thinks that difference owing to the different pronunciation which obtained in the several parts of Greece.

He brings several reasons *à priori* for the use of *accents*, even in the earliest days; as that they then wrote all in capital letters equidistant from each other, without any distinction either of words, or phrases; so that without *accents* they could scarce be intelligible: and that *accents* were necessary to distinguish ambiguous words, and to point out their proper meaning; and this sentiment he confirms from a dispute on a passage in Homer, mentioned by Aristotle in his Poetics, chap. v. Accordingly, he observes, that the Syrians, who have tonic, but no distinctive *accents*, have yet invented certain points, placed either below or above the words, to shew their mood, tense, person, or sense. See farther in his Dissertatio Epistolica de Accentuum Græcorum Antiquitate & Usu. Basil, 1686.

The use of *accents*, to prevent ambiguities, is most remarkably perceived in some eastern languages, particularly the Siamese and Chinese. The Chinese only reckon four accents; for which the missionaries use the following marks, *â, á, à, ˆ*; to which they have added a fifth, thus *ˆ*. They make a kind of modulation, wherein prolonging the duration of the sound of the vowel, they vary the tone; raising and falling it by a certain pitch of voice: so that their talking is a sort of music or singing. The same sound *ya*, according to the *accent* affixed to it, signifies *God*, a *wall*, *excellent*, *stupidity*, and a *goose*.—If they deviate ever so little from the *accent*, they say quite a contrary thing than what was intended. Thus, meaning to compliment the person you are talking to with the title Sir, you call him a beast with the same word, only a little varied in the tone. Spizel. de Re Liter. Sines. p. 106. Bulfinch. Dissert. de Litt. Sines. p. 308. Le Comte, Nouv. Mem. sur la Chine, tom. i. p. 270.

The Siamese are also observed to sing rather than talk. Their alphabet begins with six characters, all only equivalent to a *K*, but differently *accented*. For though in the pronunciation the *accents* are naturally on the vowels, yet they have some to diversify such of their consonants as are in other respects the same. De la Loubere du Royaume de Siam, tom. ii. § 8.

As minutely as the *accents* of words have been studied, the *accents* of sentences seem to have been utterly overlooked: yet it may be observed, that all mankind lower the voice at the end of a period, elevate it in interrogations, and the like. See Bacon. de Augment. Scien. lib. vi. cap. 1. Elem. Crit. vol. ii.

ACCENT is also applied, not very properly, to the characters which mark the quantities of syllables, or the time the voice is to dwell on them.

The spurious *accents* answer to the characters of time in music; as crotchets, quavers, &c.—The genuine *accents* rather answer to the musical notes, sol, fa, &c.

Such are the *long accent*, which shews that the voice is to stop on the vowel, and is expressed thus (*ˉ*).

The *short accent*, which shews that the time of pronunciation ought to be short, and is marked thus (*˘*).

Some even rank the hyphen, diastole, and apostrophe, among *accents*.

ACCENT also denotes a certain inflection of voice; or a peculiar tone, and manner of pronunciation, contracted from the country, or province, where a person was bred. In this sense, we say, the Welsh tone or *accent*, the northern *accent*, the Gascoign *accent*, Norman *accent*, &c.

ACCENT is also a tone or modulation of the voice, frequently used as a mark of the intention of the speaker, and giving a good or evil signification to his words.

One may give offence with the softest and most soothing words imaginable, by a proper management of the *accent* and manner of pronouncing them.—The *accent* frequently gives a contrary sense to what the words themselves naturally imported.

ACCENT, in Music, is a modulation of the voice, to express a passion.

Every bar or measure is divided into *accented* and *unaccented* parts.

The *accented* parts are the principal; being those intended chiefly to move and affect: it is on these the spirit of the music depends.

The beginning and middle, or the beginning of the first half of the bar, and of the latter half of it, in common

time; and the beginning of the three notes in triple time, are always the *accented* parts of the measures.

In common time, the first and third crotchet of the bar are on the *accented* part of the measure.—In triple time, where the notes always go by three and three, that which is in the middle of every three is always *unaccented*; the first and last *accented*. But the *accent* in the first is so much stronger, that in many cases the last is accounted as if it had no *accent*.

The harmony is always to be full, and void of discords in the *accented* parts of the measure. In the *unaccented* parts this is not so absolutely necessary; discords here passing without any great offence to the ear.

ACCENT, in Poetry. See REST.

ACCEPTANCE, the act of receiving or admitting.

Acceptance, among *Civilians*, is the concurrence of the will, or choice of the donee, which renders the act complete; and without which the donor may revoke his gift at pleasure.

In beneficiary matters, the canonists hold, that the *acceptance* should be signed at the same time with the resignation; not *ex intervallo*.

ACCEPTANCE, in Common Law, denotes a tacit agreement to a preceding act, which might have been defeated and avoided were it not for such *acceptance* had.—If a man and his wife, seized of land in the right of the wife, make a joint lease, or feoffment by deed, reserving rent; the man dying, and the wife receiving the rent; such receipt is deemed an *acceptance*, and shall make the lease good: so that she shall be barred from bringing the writ, *Cui in vita*.

So if a lessee for the term of twenty years, accept a lease of the same land for ten years: by the lessee's *acceptance* of the new lease, the term of twenty years is determined in law. 2 Roll. Abr. 469.

ACCEPTANCE, in Commerce, is particularly used in respect of bills of exchange.—To *accept a BILL of exchange*, is to sign or subscribe it; and thereby become principal debtor of the sum contained therein: with an obligation to pay or discharge it at the time prefixed.

The *acceptance* is usually performed by him on whom the BILL is drawn; upon its being presented to him by the person on whose behalf it was drawn, or by some others by his order.

A small matter amounts to an *acceptance*, so that there be a right understanding between both parties; as, "Leave your bill with me, and I will accept it;" or, "call for it to-morrow, and it shall be accepted." This obliges as effectually by the custom of merchants, and according to law, as if the party had actually subscribed, or signed it, which is usually done.

But should a man say, "Leave your bill with me; I will look over my accounts and books between the drawer and me, and call to-morrow, and accordingly the bill shall be accepted." This shall not amount to a complete *acceptance*; for this mention of his books and accounts, was really intended to give him an opportunity of examining if there were effects in his hands to answer; without which perhaps he would not accept the same; and so it was ruled by the lord chief justice Hale, at Guildhall, London.

A bill may be accepted for part; because the party, upon whom the same was drawn, had no more effects in his hands; which being usually done, there must be a protest, if not for the whole sum, yet at least for the residue; however, after payment of such part, there must be a protest for the remainder.

Bills payable at sight are not to be *accepted*; as being to be acquitted at their presenting; or in defect of payment, to be protested.—In bills drawn for a certain number of days after sight, the *acceptance* must be dated; because the time is to be accounted therefrom.—The form of this *acceptance* is, *accepted such a day*; and then the signature.

Bills drawn, payable on a day named, or at USANCE, or double usance, need not be dated; usance being reckoned from the date of the bill itself.—On these it is sufficient to write, *accepted*, and the signature.

If the bearer of a bill be contented with an *acceptance* to be paid in twenty days after sight, where in the bill itself, only eight days are expressed, he runs the risque of the twelve additional days: so that if the acceptor fail he has no remedy against the drawer. And if the bearer contents himself to receive a less sum than is expressed, in part, he is to stand the chance of the rest.

ACCEPTATION, in Grammar, the SIGNIFICATION of a word; or the sense wherein it is taken and received. Thus we say:

Such a word has several *acceptations*. In its first and most natural *acceptation*, it denotes, &c.

ACCEPTILATION, in the Civil Law, an acquittance given without receiving any money, or a declaration of the creditor in favour of the debtor, signifying, that

he is satisfied for his debt, and forgives all farther claim, or demand; though in reality no payment has been made.

ACCEPTOR of a bill of exchange, the person who accepts the bill.

The *acceptor*, who is usually the person on whom the bill is drawn, becomes personal debtor by the acceptance: and is obliged to pay it, though the drawer fail before it becomes due.

ACCESS, in a general sense, signifies the approach of a thing towards another.

In which sense, *access* stands opposed to *recess*.

We sometimes say, the *access* of bodies, the *access* of the moon, the sun, planets, &c. but more frequently, the approach of bodies, the appulse of the moon, the rising of the sun, &c. Geometricians speak of a line called the curve of equal *access*, or approach.

ACCESS, in a more particular sense, denotes entrance, or admission.

We say, such a person has *access* to the prince: the *access* on that side was very difficult, by reason of rocks, &c.

ACCESS, in *Medicine*, denotes a fit, or return of some periodical disease.

We say an *access* of the gout, but especially of an ague, an intermitting fever, an epilepsy, &c. an *access* of madness; sometimes also a prophetic *access*, a cold *access*, &c. *Access* is frequently confounded with *paroxysm*; but they are different things; an *access* being properly the beginning, or first onset of a disease, a *PAROXYSM* the height of it.

ACCESSIBLE, something that may be approached; or, that *access* may be had to.

Such a place, a fortress, is *accessible* from the sea-ward; i. e. the passage to it is practicable. See **FORTIFICATION**.

ACCESSION, in a general sense, is the act of approaching, or going to a place, person, or thing. It is more particularly used for the act whereby a thing is joined or united to something existing before.

ACCESSION is also used for the act of engaging, and becoming a party, in a treaty before concluded between other powers; on the same footing and conditions as if originally comprehended in the treaty itself: such as The *accession* of the States General to the treaty of Hanover; of the Czarina to the treaty of Vienna, &c.

ACCESSION, in the language of the *Conclave*, is a method of electing a pope, by procuring for some candidate two-thirds of the voices, upon which the rest are enrolled by way of *accession*.

ACCESSION, in the *Civil Law*, denotes a method of acquiring property in certain things, by virtue of their connection with other things, which already belong to us.

Accession is effected divers ways, from whence arise several species of it: *simple* and *mixt*; *natural* and *artificial*; *discrete* and *concrete accession*.

ACCESSORY, or **ACCESSARY**, something that accedes, or is added to another more considerable thing.

In which sense, the word stands opposed to **PRINCIPAL**.

ACCESSORY, or **ACCESSARY**, in *Common Law*, is chiefly used for a person guilty of a felonious offence, not principally, but by participation; as, by advice, command, or concealment.

There are two kinds of *accessories*; *before* the fact, and *after* it.—The *first* is he who commands, or procures another to commit felony, and is not present himself; for if he be present, he is a principal.

The *second* is he who receives, assists, or comforts any man that has done murder, or felony, whereof he has knowledge. A man may also be *accessory* to an *accessory*, by aiding, receiving, &c. an *accessory* in felony.

An *accessory* in felony shall have judgment of life and member, as well as the principal, who did the felony; but not till the principal be first attainted, and convicted, or outlawed thereon.—Where the *principal* is pardoned without attainder, the *accessory* cannot be arraigned; it being a maxim in law, *Ubi non est principalis, non potest esse accessorius*. But if the principal be pardoned, or have his clergy after attainder, the *accessory* shall be arraigned.

4 & 5 W. & M. cap. 4. And by stat. 1 Anne, cap. 9. it is enacted, that where the *principal* is convicted of felony, or stands mute, or challenges above twenty of the jury, it shall be lawful to proceed against the *accessory* in the same manner as if the *principal* had been attainted; and notwithstanding such *principal* shall be admitted to his clergy, pardoned, or delivered before attainder. In some cases also, if the *principal* cannot be taken, then the *accessory* may be prosecuted for a misdemeanor, and punished by fine, imprisonment, &c. Stat. *ibid*. See Stat. 5 Anne, cap. 31. In the lowest and highest offences there are no *accessories*, but all are *principals*: as in riots, routs, forcible entries, and other trespasses, which are the lowest offences.—So also in the highest offence, which is, according to our law, high treason, there are no *accessories*. Cok. Littlel. 71.

Accessories, in petty treason, murder, and in felonies of several kinds, are not to have their clergy.—There can

be no *accessory* before the fact in manslaughter; because that is sudden and unpremeditated.

ACCESSORY by statute, is such a one as abets, advises, aids, or receives one that commits an offence, which is made felony by statute.

ACCESSORY nerves, **ACCESSORIUS Willisii**, or **Par ACCESSORIUM**, in *Anatomy*, a pair of nerves, which, arising from the medulla in the vertebræ of the neck, ascend, and enter the skull, and pass out of it again, with the par vagum, wrapped up in the same common integument, and after quitting them, are distributed into the muscles of the neck and shoulders.—See *Tab. Anat. (Osteol.) fig. 5. lit. rr*.

In the ascent towards the head, they receive branches from each of the first five pair of cervical nerves, near their rise from the medulla; and send forth twigs to the muscles of the larynx, gula, &c.—Uniting with a branch of the intercostal, they form the plexus gangliiformis.

ACCESSORY, among *Painters*, an epithet given to such parts of an *HISTORY-piece*, as serve chiefly for ornament, and might have been wholly left out: such as *vases*, *armour*, &c.

ACCIDENCE, **ACCIDENTIA**, a name chiefly used for a little book, containing the first elements, or rudiments of the Latin tongue.

ACCIDENS, in *Philosophy*. See **ACCIDENT**.

Per ACCIDENS, is frequently used among *Philosophers* to denote what does not follow from the nature of a thing, but from some accidental quality thereof: in which sense it stands opposed to *PER se*, which denotes the nature and essence of a thing.

Thus fire is said to burn *per se*, or considered as fire, and not *per accidens*; but a piece of iron, though red-hot, only burns *per accidens*, by a quality *accidental* to it, and not considered as iron.

ACCIDENT, **ACCIDENS**, in *Philosophy*, something additional, or superadded, to a **SUBSTANCE**; or not essentially belonging thereto, but capable, indifferently, either of being or not being in it, without the destruction thereof. The schoolmen distinguish three kinds of *accidents*; *verbal*, *predicable*, and *predicamental*.

ACCIDENT, *Verbal*, *Accidens verbale*, stands opposed to essence; and in this sense, the adjuncts to a thing, though substances themselves, are denominated *accidents* thereof.

Thus, the cloaths a man has on, though real substances, yet, as they are not essential, but adventitious or accessory to his person, are *accidents*.

ACCIDENT, *Predicable*, *Accidens prædicabile*, is used in opposition to *proper*.—Such is any common quality; as whiteness, heat, learning, or the like.

Thus a man may be sick or well; and a wall white or black; yet the one be still a man, and the other a wall.

These are called in the schools, *predicable accidents*; because usually laid down and explained in the doctrine of predicables.

ACCIDENTS, *Predicable*, may either be taken in the **ABSTRACT**, as whiteness, learning; or in the **CONCRETE**, white, learned.

If taken in the *abstract*, as is done by Porphyry, the *accident* is defined as above, that which may either be present, or absent, without the destruction of its subject.

If it be taken in the *concrete*; *accident* is usually defined by the schoolmen, to be something capable of being predicated contingently, of many, in respect of quality.—As learning, which may probably be predicated of you, him, &c.

ACCIDENT, *Predicamental*, *Accidens prædicamentale*, is a mode or modification of some created substance, inhering or depending thereon, so as not to be capable of subsisting without the same.

In this sense, *accident* is opposed to *substance*.—Whence, as substance is defined a thing that subsists in itself, and the *substratum* of *accidents*; so an *accident* is said to be that *cujus esse est inesse*: and therefore Aristotle, who usually calls substances simply *οντα*, entities, beings; commonly calls *accidents*, *οντος οντα*, entities of entity; requiring some substance wherein to reside, as their subjects of adhesion.

ACCIDENT, then, has an immediate and essential dependence on its substance: both as to its production, its continuation, and its effects: it arises or is deduced from its subject, is preserved or subsisted by it; and can only be affected by what alters, or affects, the subject.

The old schoolmen, however, will not have *accidents* to be mere modes of matter, but entities really distinct from it: and, in some cases, separable from all matter.—But the notion of real *accidents*, and qualities, is now exploded. Aristotle and the Peripatetics make nine kinds of classes of *predicamental accidents*: others contract them into a less number.

ACCIDENT, *Absolute*, is a term used in the Romish theology for a predicamental *accident*, which subsists, or may possibly subsist, at least miraculously, and by some supernatural power, without a subject.

Such,

Such, they contend, are the *accidents* of the bread and wine in the eucharist, e. g. the colour, flavour, figure, &c. thereof, which remain after the substances they belonged to are changed into other substances of flesh.

The Cartesians, universally, combat the notion of *absolute accidents*; it being their doctrine, that the essence of matter consists in extension; and that *accidents* are only modifications thereof, in no wise distinct from it: an *accident* therefore without a subject must be a contradiction.—And hence, Cartesianism is branded as contrary to the Roman catholic faith.

Various expedients have been invented by the Cartesians, to account for transubstantiation, &c. without the hypothesis of *absolute accidents*.—Some hold, that the usual impressions are made on the sense by the immediate agency of God; and without any thing remaining of the former nature. Others ascribe the whole to heterogeneous matters contained in the pores of the bread, &c. which remaining unaltered by the transubstantiation, produce the same sensations as the bread produced.

ACCIDENT, in the popular sense of the word, signifies a contingent effect; or something produced casually, and without any foreknowledge or destination thereof in the agent that produced it.

ACCIDENT, in *Heraldry*, is an additional note, or mark, in a coat-armour, not necessarily belonging thereto; but capable either of being retained, or omitted, without altering the essence of the armour.—Such are **ABATEMENTS**, **DIFFERENCES**, and **TINCTURE**.

ACCIDENT, among *Physicians*, is sometimes used for what is more generally called **SYMPTOM**.

ACCIDENTS, in *Astrology*, denote the most extraordinary occurrences in the course of a man's life: such are a remarkable instance of good fortune, a signal deliverance, a great sickness, &c.

ACCIDENTAL, something that partakes of the nature of an *accident*; or, that is not essential to its subject, but indifferent.

Thus, whiteness is *accidental* to marble; and heat, to iron.

ACCIDENTAL Colours, so called by M. Buffon, are those which depend upon the affections of the eye, in contradistinction to such as belong to the light itself. The impressions made upon the eye by looking steadfastly on objects of a particular colour are various, according to the single colour, or assemblage of colours, in the object, and they continue for some time after the eye is withdrawn, and give a false colouring to other objects which are viewed during their continuance. M. Buffon has endeavoured to trace the connection which these *accidental* colours have with those that are natural, in a variety of instances. The subject has likewise been considered by M. de la Hire, and M. Epinus; and M. d'Arcy has contrived a machine for measuring the duration of the above mentioned impressions on the eye, and he inferred, in the result of several trials, that the effect of the action of light on the eye continued about eight thirds of a minute. See *Ac. Par.* 1743. Ditto, 1765. *Nov. Com. Petrop.* v. 10. And for an abstract, Dr. Priestley's *Hist. &c. of Discoveries relating to Vision*, &c. p. 631.

ACCIDENTAL Point, in *PERSPECTIVE*, is a POINT in the horizontal line, where lines parallel to one another, though not perpendicular to the picture, or representation, meet.

ACCIDENTAL Dignities, and **Debilities**, in *Astrology*, are certain casual dispositions, and affections, of the planets, whereby they are supposed to be either strengthened, or weakened, by their being in such a house of the figure.

ACCIPENSER, in the Linnæan system of *Zoology*, the name of a genus of fish, of the order of *Nantes* and class of *amphibia*. This genus comprehends the sturgeon, &c. Its distinguishing characters are, that the mouth is retractile, and without teeth; and the gills have only one hole or aperture on each side.

The species of this genus are three, the **STURGEON**, the *Accipenser Ruthenus* and the *HUSO*, or *isnglass-fish*.

There have been many disputes, whether the sturio or sturgeon be the same fish with the *accipenser*, or not, and what was the difference between the *accipenser* and *silurus* of the ancients; but the whole seems to have been this, that the Romans called the sturgeon *accipenser*, when they had it fresh, and caught in their own neighbourhood, but *silurus*, when it was brought to them in pickle from the Grecian ports. Ray's *Ichthyography*.

ACCIPESIIUS, in *Ichthyology*, a name given by Athenæus and others of the Greek writers, to the sturgeon, called by others *oniscos*. See **ACCIPENSER**.

ACCIPITER, in *Ichthyology*, a name given by Gellius, and some others, to the fish called by others the *milvus* and *lucerna*. It is a species of the *trigla*, and is distinguished by Artedi, by the name of the *trigla*, with the head a little aculeated, and with a singular fin, placed near the pectoral fins.

ACCIPITER, the *hawk*, in the Linnæan system of *Zoology*, the name of one whole order of birds: the distinguishing character of which, is, their having a hooked or

crooked beak. Of this order there are four genera, the *vultur*, *falco*, *strix*, and *lanius*, and seventy-eight species. See **VULTURE**, **OWL**, **FALCON**, &c. See **HAWK**.

ACCIPITRINA, in *Botany*, a name by which some authors have expressed the hawk-weed, and others the flax-weed or *sophia chirurgorum*. Ger. Emac.

ACCISMUS denotes a feigned refusal of something which a person earnestly desires. The word is Latin, or rather Greek *ακισμος*: supposed to be formed from *Acco*, the name of a foolish old woman, famous in antiquity, for an affectation of this kind.

Accismus is sometimes considered as a virtue, sometimes as a vice, which Augustus and Tiberius practised with great success.

Cromwell's refusal of the crown of England, may be brought as an instance of an *accismus*. It is used in rhetoric as a species of irony.

ACCLAMATION, a confused noise, or shout of joy, by which the public express their applause, esteem, or approbation of any thing.

Acclamation, in a more proper sense, denotes a certain formula of words, uttered with extraordinary vehemence, and in a peculiar tone, somewhat resembling a song frequent in the ancient assemblies.

Acclamations were usually accompanied with applauses, with which they are sometimes confounded, though they ought to be distinguished; as

Acclamation was given by the voice, applause by the hands; besides, *acclamation* was also bestowed on persons absent, applause only on those present. *Acclamation* was also given by women, whereas applause seems to have been confined to men.

Acclamations are of divers kinds; *ecclesiastical*, *military*, *nuptial*, *senatorial*, *synodical*, *scholastic*, *theatrical*, &c.

Bishops, and other ecclesiastical officers, were elected by the *acclamations* of the people. We meet with loud *acclamations*, musical and rhythmical *acclamations*, *acclamations* of joy and respect, and even of reproach and contumely. The former, wherein words of happy omen were used, were also called *laudationes* & *bona vota*, or good wishes: the latter, *execrationes* & *convicia*. *Acclamation* at first practised in the theatre, and passing thence into the senate, was, in process of time, received into the acts of councils, and the ordinary assemblies of the church. But their principal use has always been at the solemn entries of princes, and heroes; where they are usually attended with good wishes, prayers, vows, &c. Antiquity has handed down to us several forms of *acclamation*; the Hebrews used to cry, *Hosanna*; the Greeks, *Αγαθὴ τύχη*, *good luck*—The Romans to their princes, generals, &c. *Dii te nobis servent*; *vestra salus, nostra salus*: the Gods preserve you for us; your safety, our safety.

The *acclamations* of the army were generally *Io triumpho*, or *salve imperator*. Schlemm. de *Acclam. Veter.* Gen. 4to. 1665. Pitisc. *Lex. Ant.* tom. i. p. 12. Ferrar. de *Acclam. & Plaus.* lib. i. cap. 8. Aquinas *Lex. Milit.* tom. i. p. 6. Bingham *Orig. Eccles.* lib. xiv. cap. 4.

ACCLAMATION is also applied among the *Antiquaries* to certain medals; whereon the people are represented expressing their joy for some considerable favour.

In this sense, *acclamation* is also used to denote the vows represented on medals, for the prosperity of the emperor and commonwealth.

ACCLAMATION also denotes a method of election, practised in the *ACADEMY* of *Arcadi*, when the votes are not given in secret, as is practised on other occasions, but *viva voce*. Cardinals, princes, viceroys, and ambassadors, are elected by *acclamation*.

The members thus chosen, assume the title *Arcade acclamato*, a dignity somewhat superior to the rest. Giorn. de Letter. d'Ital. tom. xiv. p. 137.

ACCLAMATION, in *Rhetoric*, is a figure of speech, thus called by the Latins, by the Greeks *epiphonema*.

ACCLIVIS, in *Anatomy*, a muscle otherwise called **OBLIQUUS ascendens**.

ACCLIVITY, the steepness, or slope, of a line or PLANE inclined to the HORIZON; taken upwards.

The ascent of a hill is an *acclivity*: the descent of the same a *declivity*.

Some writers of fortification use *acclivity* for **TALUS**.

ACCOLA, in a general sense, denotes an inhabitant near any certain place.

The word is compounded of *ad*, *to*; and *colere*, *to dwell*, *inhabit*; *accola eo quod adveniens terram colat*. Hence some place the distinguishing character of *accola* in this, that they come from elsewhere: *Accola cultor loci in quo non est natus*; by which they stand opposed to *incola*—According to the verse:

Accola non propriam, propriam colit incola terram.

ACCOLADE, a ceremony anciently used in the conferring of knighthood.

The word literally denotes an embrace, or hugging; being formed of *ad*, *to*; and *col*, or *collum*, *neck*.

Antiquaries are not agreed, wherein the *accolade* properly consisted

consisted. The generality suppose it to be the embrace, or kiss, which princes anciently gave the new knight, as a token of their affection.—Whence the word *accolade*, q. d. a clasping, or taking round the neck. A very ingenious author will rather have it to be a blow on the chine of the neck, given on the same occasion: Fauchet seems to reconcile the two opinions: he supposes it to be the kiss; but withal, imagines the kiss to be intended as a stroke on the cheek, *En leur baillant sur la joue*—The ceremony being only an imitation of that practised among the Romans, in the *manumission* of their slaves, where it is known a blow was given. Skinner. Caseneuve. Orig. Franc. Colomb. Theat. d'Honneur.

As for the *acolée*, or blow, John of Salisbury assures us, it was in use among the ancient Normans: by this it was that William the Conqueror conferred the honour of knighthood on his son Henry.

At first, it was given with the naked fist; thus Lambertus Ardensis, describing the manner in which Baldric, count de Guines, was created knight by Thomas à Becket, says, *eidem comiti in signum militiæ gladium lateri et calario sui militis pedibus aptavit, & alapam collo ejus infixit*. But this was afterwards changed into a blow with the flat of the sword, on the shoulder of the knight.

Salmonet, and after him the continuators of Morery, mention an order in England, called knights of the *accolade*; so called from the manner of their creation. The order here meant is that of knights bachelors, or *equites aurati*. But the name, if ever, is now no longer known among us.

ACCOLE'E is sometimes used as synonymous with **ACCOLADE**.

Accolée is also used in *Heraldry*, in divers senses, when two things are joined together, as two shields divided at the flanks, they are said to be *acolée*.

Accolée is also used in speaking of lions, dogs, and other animals, which have collars, or crowns about their necks; as the lion in the arms of the name of Ogilvy. English heralds ordinarily say, *ciliated*, or *gorged* with an open crown, instead of *acolée*.

Others use the term *acolée*, when two keys, battoons, maces, swords, &c. are fastier wise, behind the shield. Nisbet's Essay on Armor.

ACCOMMODATION, in *Philosophy*, the application of one thing, by analogy, to another.

To know a thing by *accommodation*, is to know it by the idea of a similar thing referred thereto.

ACCOMMODATION, is also used in *Theology*: thus, a prophecy of scripture is said to be fulfilled properly, as when a thing foretold comes to pass; and improperly, or by way of *accommodation*, when an event happens to any place or people, like to what fell out some time before to another.—This method of explaining scripture by *accommodation*, serves as a key for solving some of the greatest difficulties relating to the prophecies.

The primitive church accommodated multitudes of Jewish, and even heathen ceremonies and practices to Christian purposes; but the Jews had before done the same by the Gentiles: some will even have circumcision, the tabernacle, brazen serpent, &c. to have been originally of Egyptian use, and only accommodated by Moses to the purposes of Judaism. Saurin's Dissert. Old Test. tom. i. p. 506. Spencer de Leg. Hebr. Disc. I. lib. iii. p. 32. Middleton's Letters from Rome.

ACCOMMODATION, in *Law*, is also used for an amicable agreement or composition, between two contending parties.—Thus we say, the process is grown so intricate and perplexed, that there is no hope of getting out of it but by an *accommodation*.

These *accommodations* are frequently effected by means of compromise, and arbitration.

ACCOMPANYMENT, something attending or added as a circumstance to another; either by way of ornament, or for the sake of symmetry, or the like.

ACCOMPANYMENT, in *Music*, denotes the instruments which accompany a voice to sustain it, as well as to make the music to be more full.

The *accompaniment* is used in recitative, as well as in song; on the stage as well as in the choir, &c. The ancients had likewise their *accompaniments* on the theatre: they had even different kinds of instruments to *accompany* the chorus, from those which accompanied the actors in the recitation.

The *accompaniment*, among the moderns, is frequently a different part or melody, from the song it accompanies. It is disputed whether it was so among the ancients.—The organists sometimes apply the word to several pipes which they occasionally touch to *accompany* the treble; as the drone, flute, &c.

ACCOMPANYMENTS, in *Heraldry*, are all such things as are applied about the shield by way of ornament; as the belt, mantlings, supporters, &c.

A thing is also said to be *accompanied*, when there are se-

veral bearings, or figures, about some principal one; as a saltier, bend, fess, chevron, or the like.

ACCOMPLICE, one that has a hand in a business; or is privy in the same design or crime with another. See **ACCESSORY**.

The word is compounded of *ad*, to; *con*, together; and *plicare*, to fold.

By the law of Scotland, the *accomplice* can only be prosecuted after the conviction of the principal offender: unless the accession of the *accomplice* is immediate, in *ipso actu*, so as in effect to render them *co-principal*.

By the general rule, the *accomplice* suffers the same punishment with the *principal* offender. Yet if he be remarkably less guilty, justice will not permit equal punishment. The council of Sens, and several other synodical statutes, expressly prohibit the revealing *accomplices*.

ACCOMPLISHMENT, the entire execution, achievement, or fulfilling of something proposed, or undertaken.

ACCOMPLISHMENT, in *Theology*, is principally used in speaking of events foretold by the Jewish prophets, in the Old Testament, and fulfilled under the New.

Dr. Sykes has a particular inquiry into the meaning of those words used by the evangelist: that it might be fulfilled, or accomplished, which was spoke by the prophets; where he shews, that the *ἡ ἀποκάλυψις*, fulfilled, does not necessarily refer to a prediction of a future event *accomplished*; but is frequently a mere accommodation of words borrowed from some other author, and accommodated to the present occasion. Grotius suggested the opinion first.

ACCOMPLISHMENT is more particularly used for the acquirement of some branch of learning, useful art, polite exercise, &c.

ACCOMPT. See **ACCOUNT**.

ACCORD, in *Music*, is more usually called **CONCORD**:

The word is formed, according to some, from the Latin *ad*, to, and *cor*, the heart; but others, with greater probability, derive it from the French *corde*, a string, or cord; on account of the agreeable union between the sounds of two strings struck at the same time. Whence also some of the consonants in music come to be called *tetrachord*, *hexachord*, &c. which are a fourth, and a sixth.

ACCORD, in *Law*, is a verbal agreement between two, at the least, to satisfy an offence that the one hath committed against the other; whether it be a trespass, or the like; for which the one agrees to make, and the other to accept, a certain satisfaction.—This, if executed, becomes a good bar in law to any suit to be brought for the same matter.

Accord with satisfaction, is a good plea in personal actions, where damages only are to be recovered; and in all actions which suppose a wrong *vi & armis*, where a *capias* and *exigent* lay at the common Law, in trespass and ejectment, detinue, &c. So in an appeal of *Maihem*. But in real actions it is not a good plea. 4 Rep. 1. 9. 70. 9 Rep. 77.

ACCOUNT, or **ACCOMPT**, in *Arithmetic*, a calculus, or computation of the number of certain things, or computation of time, &c.

The word is compounded of *ad*, to; and *computus*, a computation.

There are various ways of *accounting*; as by enumeration, or telling one by one; and by the rules of arithmetic, addition, subtraction, &c.

We account time by years, months, &c. The Greeks *accounted* it by olympiads; The Romans, by indictions, lustris, &c. We *account* distances by miles, leagues, &c.

ACCOUNT is also used in respect of a **COMPANY** or society, when two or more persons have received or disbursed money for each other; or when this has been done by their order or **COMMISSION**.

ACCOUNT, or **ACCOUNTS**, is also used collectively, for the several books or registers which merchants keep of their affairs and negotiations.

There are divers kinds of *accounts* among merchants, as *personal*, *real*, *imaginary*, *general*, *particular accounts*, &c.

ACCOUNTS, *personal*, are those which discover what each person, or subject, with whom a man has dealings on credit, owes to, or has owing to him.

ACCOUNTS, *real*, are those whereby a dealer discovers what effects are on hand at any time, and what is gained or lost on each.

Every *account* is distinguished into two parts, for which two opposite pages are assigned of one folio or opening; the name of the person with whom a man has *account* being written on the top of each, with the word debtor on the left-side, and creditor on the right.

ACCOUNT, *personal*, is to contain on the debtor side what the person owes me, and the payments I make to him; and on the creditor side, all that I owe to him, and the payments he makes of his debts to me.

ACCOUNT, *real*, must contain on the debtor side the quantity and value of what was upon hand at the beginning

of the *account*, and all afterwards received, with the costs and charges thereof; and on the credit side, the quantity and value of what is disposed of or any way taken out of it, with the returns made by it.

ACCOUNTS, *imaginary*, are then brought in to make a balance between credit and debt, and in cases where the real and personal *accounts* will not in the articles belonging to them make, as they usually do, such balance.

The chief of these is the *account* of *profit and loss*; on the debtor side of which are entered all losses, and on the creditor side all gains. Such also is the *stock account*, &c.

ACCOUNTS, *fundry*, when one *account* is balanced by fundry, i. e. when one debtor or creditor for a sum, and fundry *accounts* creditors or debtors for the parts of the sum; it is entered under the head of to, or by, *fundry accounts*.

ACCOUNTS, *general*, are those where all the goods of the same name are put into one *account*.

ACCOUNTS, *particular*, are those where each species, or subdivision of things under the same name, have their separate *account*.

ACCOUNT, *open*, is used for an account not liquidated or settled.

ACCOUNT *in bank*, is a fund of money, which merchants, or others, place in the common cash of a bank, to be in readiness for the payment of bills of exchange, or promissory notes, purchases, and other debts contracted in the course of business.

ACCOUNT, *current*, amounts to the same with an open *account*.

ACCOUNT, *opening an*, with any one, signifies the placing him, for the first time, in the great book. This is done by writing his name, surname, and place of residence, in large characters, and afterwards charging him with articles, either of debtor or creditor, as affairs turn up. When an *account* is opened with any person in the great book, his name is at the same time to be entered in the index or alphabet book, with the page wherein his *account* is to be found.

ACCOUNT, *placing a sum to an*, is to enter down in the great book the several particulars for which a person becomes either debtor or creditor.

ACCOUNT, *examining an*, is the reading it exactly over, pointing the several articles, and verifying the computation, in order to find whether there be any error, and whether the sum total, or the balance, be just.

ACCOUNT, *casting up, or closing an*, is the stating and settling of it, to find the balance: this is called also *balancing* or *settling an account*.

Accounts are *closed* in the great book, on two occasions: the first, when it is required to terminate an affair entirely, either with debtors or creditors, in order to learn what is due. The second, when it is necessary to carry on the *account* to another page of the same book, or to a new book, for want of room.

ACCOUNT, *balance of an*, is the sum by which the debt exceeds the credit, or *vice versa*, upon stating or settling of it.

ACCOUNT *of sales*, is an *account* given by one merchant to another, or by a factor to his principal, of the disposal, charges, commission, and nett proceeds of certain merchandize, sent for the proper, or company, account of him, who consigned the same to such factor or vender.

When the like *account* is inland or domestic, the same is transmitted in the current money of that country wherein the business is transacted. As from a Blackwell-hall factor to the clothiers in the country, or from the warehousemen in town, who deal by commission for the country manufacturers, as bay-factors, druggist and duroy factors, and the like.

ACCOUNT, *money of*, is an arbitrary species, contrived for the facilitating, and expediting the taking, and keeping of *accounts*. Such are pounds sterling in England; livres and sols in France; roupees in India; milrees in Portugal.

ACCOUNTS, *books of*, of merchants and tradesmen, are considered as a sort of private instruments, and in the civil law, and law of merchants, are allowed to make a half proof. The reason is, that merchants are often under a necessity of dealing on trust without note or writing. Hence the suppletory oath of the merchant, with his book of *accounts*, is admitted abroad as a full proof against his chapman. But in England this is under some limitation. See Stat. 7 Jac. I. cap. 12. which confines this species of proof to such transactions as have happened within one year before the action brought; unless between merchant and merchant, in the usual intercourse of trade.

ACCOUNT, or **ACCOMPT**, in a legal sense, is a particular detail or enumeration, delivered to a court, a judge, or other proper officer or person, of what a man has received or expended on the behalf of another, whose affairs he had the management of.

In the REMEMBRANCER'S office in the exchequer, are entered the states of all the *accounts* concerning the king's revenues; for customs, excise, subsidies, &c.

The great *accounts*, as those of the mint, wardrobe, army, navy, tenths, &c. are called *imprest accounts*.

All *accounts* which pass the remembrancer's office, are brought to the office of the clerk of the PIPE. See TALLY and AUDITOR.

ACCOUNT, in *Common Law*, denotes a writ or action which lies against a person, who by his office ought to give an *account*, but refuses.

A writ or action of *account* properly lies only against bailiffs, receivers, and guardians in socage; though others are also brought in as a secondary intendment.

By 4 and 5 Anne, actions of *account* may be brought against the executors and administrators of guardians, bailiffs, receivers, &c. and by one joint-tenant, &c. against the other, his executors and administrators, as bailiff, for receiving more than his share: however, actions of *account* are now very seldom used; the most ready and effectual way of settling matters of *account* being by bill in a court of equity.

ACCOUNTS, *chamber of*, in the French polity, is a sovereign court of great antiquity, where the *accounts* relating to the king's revenue are delivered in, and registered. This answers pretty nearly to the court of exchequer in England.

There are presidents of *accounts*, masters of *accounts*, correctors of *accounts*, &c.

ACCOUNTANT, or **ACCOMPTANT**, a person, or officer, appointed to keep, or make up the *accounts* of a company, office, court, or the like.

Thus there are *accountants* in the custom-house, the excise, &c. See CHANCERY, COUNTING-HOUSE, BOOK-KEEPING.

ACCOUTREMENT, an ancient term used for an habilliment; or a part of the apparatus and furniture of a soldier, knight, or even of a gentleman.

The word is formed from the ancient German, *kusler*; whence *contre*, a name used in some cathedrals in France, e. g. at Bayeux, for the sacristan, or officer, who has the care of furnishing, and setting out, the altar, in the church; called in German *kusler*, *вѣнчавшій*.

ACCRETION, in *Physics*, the growth or increase of an organical body, by the accession of new parts. Also a growing together, as of the fingers to one another.

The word is compounded of *ad*, *to*, and *crescere*, *to grow*. *Accretion* is of two kinds; the one consisting in an external apposition of new matter.

This is what we otherwise call, *juxtaposition*; and it is thus, stones, shells, &c. are supposed to grow.

The other is by some fluid matter received into proper vessels, and gradually brought to adhere, or grow to the sides thereof. This is what we call *introsusception*; and it is thus that plants and animals are nourished.

ACCRETION, in the *Civil Law*, denotes the union or *ACCESSION* of a thing vague or vacant, to another already occupied, or disposed of.

A legacy given to two persons jointly, *tam re quam verbis*, falls wholly to him that survives the testator, by right of *accretion*. **ALLUVION** is another species of *accretion*.

ACCROCHE, in *Heraldry*, denotes a thing being hooked into another. Coats Herald.

ACCROCHING, in old *Law* books, the act of incroaching or usurping on another's right; and particularly the attempt to exercise royal power, which was a very vague charge, and led to a multitude of constructive treasons. These are limited and defined by Stat. 25 Edw. III. cap. 2. The word is originally French, *accrocher*, which signifies to fasten a thing by a hook.

ACCRUE, or **ACCREW**, in *Law*, is understood, of a part that accedes to, or follows the property of, another part or person.

ACCUBATION, a posture of the body, between sitting and lying.

The word is compounded of *ad*, *to*, and *cubo*, *I lie down*. *Accubation*, or *accubitus*, was the table posture of the Greeks and Romans; whence we find the words particularly used for the lying, or rather, as we call it, sitting down to meat.

The Greeks introduced this posture. The Romans, during the frugal ages of the republic, were strangers to it. But as luxury got footing, this posture became adopted, at least by the men; for as to women, it was reputed an indecency in them to lie down among the men; though afterwards this too was got over. But children did not lie down, nor servants, nor soldiers, nor persons of meaner condition; but took their meals sitting, as a posture less indulgent.

The Roman manner of disposing themselves at table was this; a low round table was placed in the *cœnaculum*, or dining-room, and about this usually three, sometimes only two beds, or couches; according to the number of which, it was called *biclinium*, or *triclinium*. These were covered with a sort of bed-cloaths, richer or plainer, according to the quality of the person, and furnished with

quilts and pillows, that the guests might lie the more commodiously. There were ordinarily three persons on each bed; to crowd more was esteemed sordid. In eating they lay down on their left sides, with their heads resting on their pillows, or rather on their elbows. The first lay at the head of the bed, with his feet extended behind the back of the second; the second lay with the back of his head towards the navel of the first, only separated by a pillow, his feet behind the back of the third; and so of the third, or fourth. The middle place was esteemed the most honourable. Before they came to table, they changed their cloaths, putting on what they called *cœnatoria vestis*, the dining garment, and pulled off their shoes, to prevent soiling the bed. Pitisc. Lex. Ant.

ACCUBITOR, an ancient officer of the emperor of Constantinople; whose business was to lie near the emperor. The *accubitor* was the head of the youths of the bed-chamber, and had the cubicularius and procubitor under him.

ACCUMULATION, the act of heaping, or amassing several things together.

The word is originally compounded of *ad, to*; and *cululus, heap*.

ACCUMULATION, in a legal sense, denotes a concurrence of several titles to the same thing; as, when a person claims lands, a benefice, or the like, in virtue of several titles, or pretensions of different kinds; e. g. by death, by resignation, &c. Or it denotes a concurrence of several circumstances to the proof of one fact: thus, we read of *accumulative* treason; which is, where a fact is not treason in itself, but becomes so by an *accumulation* of circumstances.

The earl of Strafford was condemned of *accumulative* treason; none of the facts alleged against him amounting singly to treason. But his attainder was reversed by 13 & 14 Car. II. cap. 29.

ACCUMULATION, in the ancient Agriculture, denotes the operation of covering up the roots of trees, by throwing on them the earth that had been before dug from them; in which sense, *accumulation* stands opposed to **ABLAQUEATION**.

ACCUMULATION of arms, *cumulatio armorum*, in Heraldry, is what the moderns call **QUARTERING** of arms. Nisbet.

ACCUMULATION of degrees, in an University, is used for the taking of several **DEGREES** together, and with fewer exercises, or nearer to each other, than the ordinary rules allow of.

ACCURSED, something that lies under a curse, or sentence of **EXCOMMUNICATION**.

In the Jewish idiom, *accursed* and crucified were synonymous. Among them, every one was accounted *accursed*, who died on a tree.

This serves to explain the difficult passage in Rom. ix. 3. where the apostle Paul wishes himself *accursed after the manner of Christ*, i. e. crucified, if happily he might by such a death save his countrymen. The preposition *ἀπὸ* here made use of, is used in the same sense, 2 Tim. i. 3. where it obviously signifies *after the manner of*.

ACCUSATIO, among Physicians, is a word of the same import as **INDICATIO**.

ACCUSATION, **ACCUSATIO**, in the Civil Law, the intending a criminal action against any person, either in one's own name, or that of the public.

The word is compounded of *ad, to*; and *causari, to plead*. By the Roman law, there was no public *accuser*, for public crimes; every private person, whether interested in the crime, or not, might *accuse*, and prosecute the *accused* to punishment, or absolution.

But the *accusation* of private crimes was never received but from the mouths of those who were immediately interested in them. Thus none but the husband could *accuse* his wife of adultery.

Indeed, it was not properly an *accusation*, except in public crimes; in private ones, it was called simply **ACTION**, or intending an action, *intendere actionem*, or *litem*.

Cato, who was esteemed the most innocent person of his age, had been *accused* forty-two times, and absolved as often.

When the accused *accuses* the accuser, it is called *recrimination*; which is not admitted till the *accused* has been first purged.

The ancient Roman lawyers distinguished between *postulatio*, *delatio*, and *accusatio*: for first, leave was desired to bring a charge against one, which was called *postulare*; then he against whom the charge was laid, was brought before the judge, which was called *deferre*, or *nominis delatio*: lastly, the charge was drawn up, and presented, which was properly the *accusatio*. Voss. Etym. Lat.

The *accusation* properly commenced, according to Pædianus, when the *reus*, or party charged, being interrogated, denied he was guilty of the crime, and subscribed his name to the *delatio* made by his opponent. Calv. Lex. Jur. p. 17.

By the cruel laws of the **INQUISITION**, the *accused* is

forced to accuse himself of the crime objected to him. There are three ways of entering an information in the tribunal of the inquisition. The first, by way of inquisition, when a private person, applying to the inquisitor, declares he will neither be *denunciator*, nor *accuser*, but that common fame gives out, that such and such a person is a *heretic*: the second, by way of *accusation*, when the informer takes on him the office of *accuser*, which rarely happens; because, in this case, the *accuser* is obliged to prove, and exposes himself to the *lex talionis*, in case his information prove false. The last, and most usual way, is by *denunciation*, that is, by naming those who know the fact.

It has formerly been the custom in some parts of Europe, where the *accusation* was very heavy, either to decide it by combat, or at least make the *accused* purge himself by oath; which, however, was not admitted, excepting a certain number of his neighbours and acquaintance swore together with him.

In the French Law, none but the *procureur general*, or his deputies, can form an *accusation*, except for high treason, and coining; where *accusation* is open to every body. In other crimes, private persons can only act the part of denouncers, and demand reparation for the offence, with damages.

Writers on politics treat of the benefit and the inconveniences of public *accusations*. Various arguments are alleged, both for the encouragement and the discouragement of *accusations* against great men. Nothing, according to Machiavel, tends more to the preservation of a state, than frequent *accusations* of persons trusted with the administration of public affairs. This, accordingly, was strictly observed by the Romans, in the instances of Camillus, accused of corruption by Manlius Capitolinus, &c. *Accusations*, however, in the judgment of the same author, are not more beneficial than calumnies are pernicious; which is also confirmed by the practice of the Romans. Manlius, not being able to make good his charge against Camillus, was cast into prison. Mach. de Repub. l. i. c. 7. p. 35.

ACCUSATIVE, in Grammar, the fourth case of nouns that are declined.

Its use may be conceived from this, that all verbs which express actions that pass from the agent, as *to beat*, &c. must have subjects to receive those actions: for, if I beat, I must beat something; so that such verb evidently requires after it a noun, or name, to be the object of the action expressed. Hence, in all languages, which have cases, the nouns have a termination, which they call *accusative*; as, *amo Deum, I love God*.

In English, we have nothing to distinguish this case from the *nominative*; but as we ordinarily place words in their natural order, it is easily discovered; the *nominative* constantly preceding, and the *accusative* following the verb.—Thus, when we say, the prince loves the princess, and the princess loves the prince: the prince is the *nominative* in the first, and the *accusative* in the last; and the princess the *accusative* in the first, and the *nominative* in the second.

ACENTETUM, or **ACENTETA**, in Natural History, a name given by the ancients to the purest and finest kind of rock crystal. They used the crystal in many ways, sometimes engraving on it, and sometimes forming it into vases and cups, which were held next in value to the *murrhina vasa* of those times. The crystal they obtained from the mines of Cyprus was much esteemed, but often faulty in particular parts, having hairs, cracks, and foulnesses, which they called *salts*, in the midst of the large pieces. Pliny tells us, that when it was used for engraving on, the artist could conceal all these blemishes among the strokes of his work; but when it was to be formed into cups and precious vases, they always chose the *acentetum*, that is, the pure crystal, which had no flaws nor blemishes.

ACEPHALI, or **ACEPHALITÆ**, frequently occurs in Ecclesiastical History, as the denomination of divers sects: particularly,

1. Of those who in the affair of the council of Ephesus, refused to follow either St. Cyril, or John of Antioch.
2. Of certain Christians of the fifth century, who at first followed Peter Mongus; but afterwards abandoned him, upon his subscribing the council of Chalcedon; being generally of the opinion of Eutyche, that there was only one nature in Christ.
3. Of the adherents of Severus of Antioch; and of all in general who refused to admit the council of Chalcedon.

ACEPHALUS, or **ACEPHALOUS**, something that wants a head.

The word is composed of the privative *a*, and *κεφαλη, caput, head*.

Pliny represents the Blemmyes as a headless, or *acephalous* nation.

But though the existence of a nation of *acephali* be ill warranted,

arranted, naturalists furnish several instances of individuals born without heads, by some *lusus* or aberration of nature. Wepfer gives a catalogue of such *acephalous* births from Shenckius, Licetus, Paræus, Wolfius, Mauriceau, &c.

Acephalus worms, or what are supposed such, are frequent.—The *lumbricus latus*, or joint-worm, was long taken to be *acephalous*: the first who gave it a head was Tulpius, and after him Fehr; the former even makes it *biceps*, or two-headed.

The levellers in the reign of Henry I. were called *acephali*. This word, in our ancient *Law-books*, is also used for those poor people who had no proper lord; as holding nothing in fee, either of king, bishop, baron, or other feudal lord.

ACEPHALOUS *clerk*. See CLERK.

ACEPHALUS is also used in *Poetry*, for a verse which is lame or defective, by wanting a beginning.

Some also give the name *ακεφαλος* to all verses which begin with a short, instead of a long syllable.

ACER, in *Botany*. See MAPLE.

ACERATOS, *ακερατος*, from *α* negative and *κεραω*, or *κεραννυμι*, to mix; unmixed, uncorrupted. It is applied sometimes to the humours of the body by Hippocrates. Paulus Ægineta mentions a plaster under this name, but probably means *aceron*. See ACERIDES.

ACERB, ACERBUS, a compound taste, consisting of four, with the addition of a degree of roughness, and astringency.

Such is the taste of pears, grapes, and most other fruits before they are ripe.

Physicians usually make *acerb* an intermediate flavour between acid, austere, and bitter. All matters which come under this denomination are astringent.

ACERIDES, *ακεριδης*, from *α* negative, and *κερος*, wax. Plasters made without wax are thus called.

ACERINA, in *Ichthyology*, a name given by Pliny and other of the old *Naturalists*, to the fish we at this time call the *ceruna*, and *AURATA fluviatilis*, and in England the *ruffe*. It is a genuine species of *PEARCH*, and is distinguished by Artedi from all the other fish of that genus, by having the back-fin single, and the head cavernous.

ACEROSUS, is an epithet, denoting the brownest and coarsest sort of bread, made of flour not separated from the bran.

ACERRA, in *Antiquity*, a kind of altar, erected near the bed of a person defunct. It was much used among the Romans; and the friends and familiars daily burnt incense on it, till the time of the burial.

By the laws of the *Twelve Tables*, the erecting of *acerra* was prohibited.

The *acerra* also signified a little pot, wherein the incense and perfumes were put, to be burnt on the altars of the gods, and before the dead.

The *acerra* appears to have been the same with what was otherwise called *thuribulum*, and *pyxis*; some have also confounded it with the *patera*, in which libations were offered.

We find mention of *acerra* in the ancient church. The Jews had also their *acerra*, in our version rendered *censers*; and the Romanists still retain them under the name of *incense pots*.

In Roman writers, we frequently meet with *acerra plena*, a full *acerra*; to understand which it is to be observed, that people were obliged to offer incense in proportion to their estate and condition; the rich in larger quantities, the poor only a few grains: the former poured out *acerra* full on the altar; the latter took out two or three bits with their fingers. Pitisc. Lex. Ant. Brisson de Formul. l. i.

ACESCENT, a word used to denote any thing which is turning sour, i. e. *acid*, or which is slightly *acid*. It is only applied properly to denote the first of these two meanings. The second may be better expressed, by either of the words *acidulous*, or *sub-acid*.

ACESTA, signifies curable distempers.

ACESTIDES; thus the chimneys of furnaces where brass was made, were called; contrived narrow at top, on purpose to receive the fumes of the melting metal, and collect them, that CADMIA might be produced in greater quantities.

ACESTIS, *αεστις*; a fictitious sort of CHRYSOCOLLA, made of Cyprian verdigrise, the urine of children, and nitre.

ACESTRIDES, female physicians; midwives were so called among the Greeks.

ACETABULUM, in *Antiquity*, a little vase, or cup, used at table to serve up things proper for sauce, or seasoning: much after the manner of our salts, and vinegar-cruets.

Hence Agricola, in his treatise of Roman measures, takes the name to have been formed from *acetum*, vinegar; as supposing it principally destined to serve vinegar in.

ACETABULUM also denotes a Roman MEASURE, used both for liquid and dry things, chiefly in medicine.

The *acetabulum* contained a *cyathus*, and a half, as is proved by Agricola, from two verses of Fannius; who, speaking of the *cyathus*, says, it weighs ten drachms; and the *oxybaphus*, or *acetabulum*, fifteen, or about one eighth of a pint.

Bis quinque hunc faciunt drachmæ, si appendere tentes: Oxybaphus fiet, si quinque addantur ad illas.

Binet, in his Treatise of Weights and Measures, prefixed to his translation of Pliny, makes the *acetabulum* of oil weigh two ounces and two scruples; the *acetabulum* of wine, two ounces, two drachms, a grain, and a third of a grain; and the *acetabulum* of honey, three ounces, three drachms, a scruple, and two *siliquæ*.

ACETABULUM, in *Anatomy*, is used for a deep cavity, in certain bones, appointed for the reception of the large heads of other bones, in order to their articulation. See *Tab. Anat. (Osteol.) fig. 12. lit. b.* Thus the cavity of the ischium, or huckle-bone, which receives the head of the thigh-bone, is called *acetabulum*, and sometime *cotyle*, or *cotylodes*.

The *acetabulum* is lined, and capped round with a cartilage, whose circular margin is called *supercilium*. In its bottom lies a large mucilaginous gland.

ACETABULUM is also used, by *Anatomists*, in the same sense with COTYLEDON.

It signifies also a glandular substance, found in the placenta of some animals.

ACETABULUM, in *Botany*, the name of a genus of sea-plants, composed of leaves formed in the shape of a basin, and making a sort of inverted cone.

ACETARIA. See SALLET.

ACETARY is used for an inner part in the structure of certain fruits; thus called from the sourness of its taste. The *acetary* of a pear is a globular part, lying within the calvary or choak, and surrounding the core. It is of the same substance with the parenchyma or pulp, only that the bladders of which it consists are smaller, and rounder than those of the PARENCHYMA: from whence however it seems to be derived. Whence it is sometimes also called, the *inner parenchyma*.

The quince also has an *acetary*, resembling, though less than, that of a pear.

ACETIFICATION is used by some *Chemists* to denote the action or operation whereby vinegar is made.

Acetification is a branch or species of fermentation, arising by exposing vinous liquors in open vessels, and a warm place, which turns them acid.

Acetification chiefly differs from the fermentation whereby wine is made, in this, that the latter is affected by a gentler heat, sufficient only to raise, and rarify the sulphureous parts; whereas, in *acetification*, there is what is sufficient to raise and rarify the saline parts; which is the precise point wherein *acetification* consists.

ACETOSA, in *Botany*. See SORREL.

ACETOSELLA, in *Botany*. See WOOD SORREL.

ACETOUS acid, is the same as VINEGAR.

ACETOUS fermentation, is that fermentation by which vinegar is produced.

ACETOUS æther, is an ÆTHER made by means of vinegar.

ACETUM, in *Medicine*, &c. the same with vinegar; the properties, uses, and preparations whereof, see under the article VINEGAR.

The word is pure Latin, formed of *acere*, to be sharp.

There are several medicines in the shops, whereof this liquor is the basis; as,

ACETUM distillatum, distilled vinegar, chiefly used in preparations for dissolution and precipitation.

ACETI, spiritus, spirit of vinegar; made by drenching copper filings with distilled vinegar, then evaporating it till the fumes of the vinegar cannot be smelt; the saturation and evaporation to be again repeated, till the menstruum be satiated; which being then distilled, the spirit comes over. Its qualities and uses are much the same with those of the distilled vinegar, only it is more powerful.

ACETUM rosatum, vinegar of roses; this is made of rose-buds infused in vinegar forty or fifty days; the roses are then pressed out, and the vinegar preserved. It is chiefly used by way of embrocation on the head and temples, in the head-ach.

After the like manner are made *acetum sambucinum*, vinegar of elder; *acetum anthosatum*, vinegar of rosemary-flowers; *acetum scilliticum*, vinegar of squills, &c.

The German dispensaries abound with medicated vinegars; chiefly aimed against pestilential diseases; but they are not used among us. Our dispensaries indeed retain some of them, as the *acetum theriacale Norimbergense*; but it is never prescribed.

ACETUM alcalizatum, is made of distilled vinegar; with the addition of some alkaline, or volatile salt.

ACETUM philosophorum, a sour kind of liquor; made by dissolving a little butter of antimony in a great deal of water.

ACETUM

ACETUM Esuriens, in *Chemistry*, a distilled vinegar, rectified with the help of verdigrise. It is made by dissolving the common verdigrise in fine distilled vinegar, then evaporating the solution, and recovering the verdigrise again in form of crystals; and from this, by a proper degree of fire, distilling with a retort an acid spirit, which is the richest acid that can by any art be prepared from vinegar. Boerhaave's *Chem.* p. 138.

ACETUM Portabile. See **VINEGAR**.

ACHAC, in *Ornithology*, the name given by the people of the Philippine islands, to a bird common there. It is of the size of a common hen; its belly, breast, and neck, are of a pale brown, and its back of a dusky reddish colour; its wings are extremely beautiful, being principally of a greenish blue colour; the tail is white, short, and continually in motion; the eyes are black, and the beak is thick and strong, and is of a black colour, and obtuse figure; the legs are reddish, and the claws black: when it makes any noise, it seems to utter the word *phi, phi*, very often repeated. It lives principally about the cultivated parts of the islands, and feeds on rice, and other vegetables, being properly of the partridge kind.

ACHALALACTLI, in *Ornithology*, the name of an American bird, described by Niehemberg, and remarkable for a chain or ring of silvery whiteness round its neck. It is of the size of a pigeon, its beak is sharp, and three finger's breadth long, and its head is ornamented with a very long crest, of a bluish black colour. The belly and under side of the wings are white, and the back and outside of the wings are of the colour of the crest, of a bluish black, and variegated with white spots; the tail is partly black and partly blue. It is common about the lakes and rivers of Mexico, and feeds on small fish. Ray.

ACHAMELLA, in *Botany*. See **ACMELLA**.

ACHANDES, in *Ichthyology*, a name given by some to the **REMORA**.

ACHANE, *Αχυν*, an ancient Persian corn measure, containing 45 Attic *medimni*.

ACHAOVA, in the *Materia Medica* of the ancients, the name of an herb much celebrated in many distempers; but we are not assured at present, what is the plant that it truly belongs to. Some have esteemed it, what is called in Egypt uchove, an herb nearly resembling chamomile, but lower, and with broader leaves, approaching to those of feverfew, and of a faint, but not disagreeable smell.

Avicenna seems however to have meant a different plant by this name, and probably the herb we call **MARUM**. Prosper. Alp.

ACHARISTON, from *α*, without, and *χαρις*, value; under this name Galen describes some compositions of singular efficacy, which cured so quickly, that they were undervalued; as the Greek name implies.

ACHAT, in our *Law French*, signifies a contract, or bargain; especially in the way of purchase.

Purveyors were by act of parliament 36 Edw. III. ordained to be thenceforth called *achators*.

ACHATES, in *Natural History*, the stone properly called **AGAT**, *lapis jaspis*, &c.

ACHE, or **ACH**, a painful ailment in any part of the body. *Aches* may be either scorbutic, or rheumatic, owing to violent pains or the like. See **HEAD-ACH**, &c.

ACHE, in some old authors, a name given to the plant called *apium palustre*, or *paludapium*; in English **SMALLAGE**.

ACHEMENIS, an herb mentioned by Pliny; supposed by the ancients to have the property of exciting terror.

ACHERNER, or **ACHARNER**, in *Astronomy*, a star of the first magnitude in the southern extremity of the constellation **ERIDANUS**, but invisible in our latitude.

ACHERSET, a measure of corn, conjectured to be the same with our quarter or eight bushels. The monks of Peterborough had an allowance weekly of twelve *acherfotes de frumento*, and eight *acherfotes de brasio*, and six *de gradi*, and eleven *acherfotes de fabis*, &c. Spelman.

ACHETA, in *Natural History*, a name by which the ancients called the large species of **CICADA**, the nymphs of which they used to eat, and esteemed an excellent food: the smaller kind, which seems to have been our middling sort (for we have three kinds) they called **TETTIGONIA**.

ACHIA, a kind of cane which grows in the East Indies, and is pickled there while green, with strong vinegar and pepper, together with some other spice and ingredients.

ACHIAR, is a Malayan word, signifying all sorts of fruits and roots pickled with vinegar and spice. The Dutch import from Batavia all sorts of *achiar*. The name is applied to whatever the *achiar* is made of; as *bamboe achiar*, &c.

ACHILENUS, or **ACHÆINUS**, in *Natural History*, a word used by the ancients to express a stag or deer, in the second year's age. In the first it was called *nebrus*, in the third *dicrotus*, and always after that *cerastes*.

ACHICOLUM, is used to express the *fornix, tholus*, or *statorium* of the ancient baths; which was a hot room where they used to sweat. It is also called *architholus*.

ACHILLEA, in the *Materia Medica* of the ancients, a name given to the gum, which we at this time know by that of *sanguis draconis*, or **DRAGON'S-BLOOD**.

The ancient Greeks called this *cinnabari*; and the use of that word for the mineral which we now call cinnabar, was only because of its being of the same fine red colour with this gum. Avicenna treating of the *achillea* says, it is otherwise called *sanguis draconis*, and describes it as a red gum, universally known in his time.

ACHILLEA, in the Linnæan system of *Botany*, a genus of the *syngenesia polygamia superflua* class of plants, the common calyx of which is ovate, and imbricated with oval, acute, connivent squamæ; the compound flower is radiated; the hermaphrodite florets are numerous and tubulous; the female florets are ligulated; and the proper hermaphrodite ones funnel-shaped; there is no pericarpium, and the seed is single, oval, and naked. There are twenty-one species. See **YARROW**.

ACHILLEA Lutea. See **AGERATUM**.

ACHILLEA Montana. See **JACOBEEA**.

The ancient *Botanists* gave the name *achillea* to a plant which is said to be the same with our *millefolium*, from Achilles, who having been the disciple of Chiron, first brought it into use for the cure of wounds and ulcers.

ACHILLEA Gallica, a name given to mountain rag-wort, or corn **MARYGOLD**.

ACHILLEIS, or **ACHILLEID**, a celebrated poem of Statius, of the epic kind, wherein he proposed to deliver the whole life and actions of Achilles.

It only takes in his infancy, the poet being prevented from proceeding by death.

It is a point controverted among the critics, whether the whole life of a hero, e. g. of Achilles, be a proper subject of an epic poem?

ACHILLES, a name which the schools give to the principal argument alledged by each sect of philosophers in behalf of their system.

In this sense, we say, this is his *Achilles*; that is, his master-proof: alluding to the strength and importance of Achilles among the Greeks.

Zeno's argument against **MOTION**, is peculiarly termed *Achilles*.—That philosopher made a comparison between the swiftness of *Achilles*, and the slowness of a tortoise: arguing, that, if the tortoise were one mile before *Achilles*, and the motion of *Achilles* 100 times swifter than that of the tortoise, yet he would never overtake it. But this sophism is easily solved, by expressing the whole relative distance ran by the tortoise before *Achilles* overtook him, by the following series; $\frac{1}{100} + \frac{1}{10000} + \frac{1}{1000000}$, &c. the sum of which is $\frac{1}{99}$ of a mile; and the distance run by *Achilles* is one mile more; so that when *Achilles* had run $1 \frac{1}{99}$ of a mile, he would have overtaken the tortoise.

ACHILLES, Tendon of, **CHORDA Achillis**, is a large **TENDON**, formed by the union of the tendons of the four extensor muscles of the foot.

It is so called, because the fatal wound, whereby Achilles is said to have been slain, was given there.

ACHIOTE, in *Botany*, a name given by some authors to the *uraca*, or *arnotto*, called *orleata*, and *orellana*, by other writers. See next Art.

ACHIOTTE, a red drug from America, used in dying, and in the preparation of chocolate.

The word is Brazilian, where it properly signifies the tree from whence this matter is procured. Ray writes it *achiotte*. *Achiotte* is the same with what the French frequently call *roucou*, and the Dutch *orleane*. It has been commonly esteemed a kind of *argilla*, or earth; but later observers find it a flower, or seed of a tree, which grows chiefly in very hot countries, as Yucatan or Campeche, and Guatimala. It is about the size of a plum-tree, only more tufted; its branches being longer than the trunk. The fruit is enclosed in a rind like a chestnut, except that it is of an oval figure. It begins to open cross-ways from the middle to the top, and subdivides into four parts; having, in the middle, a beautiful carnation-coloured flower. The tree has no leaves; but instead thereof shoots out filaments like those of saffron, only bigger and longer. Between these grow little soft vermilion-coloured grains, about the size of pepper-corns; which the Indians, separating from the filament, bake in cakes of about half a pound each; in which form the drug is brought into Europe.

The poor people use *achiotte* instead of saffron; it is used as marygolds are, to give a yellow colour to cheese, in Gloucestershire, and others mix as an ingredient in chocolate, during the grinding of the cocoa, the quantity of two drams to a pound, to give it a reddish colour, &c. though this practice was formerly more frequent than at present; the opinion of its being an earth, which

even Mr. Ray fell into, having discredited its use. Some also use it to dye wax of a vermilion colour. Physicians hold it a good cordial, and a preservative against retention of urine. It is made, as we make STARCH.

According to Savary, to procure the *achiotte*, they shake out the grains in an earthen vessel, soak and then wash them in several repeated warm waters, till they have discharged all their vermilion colour; after which letting the water stand to settle, the *fecula* at the bottom are taken and formed into little cakes and balls; which, when pure, and not adulterated either with red earth, or fine brick-dust, are highly valued. Some also use fire to boil the *achiotte*, and give it a farther consistence.

ACHIROPOETOS, a name given by ancient writers to certain miraculous pictures of Christ and the Virgin, supposed to have been made without hands.

The most celebrated of these is the picture of Christ, preserved in the church of St. John Lateran at Rome; said to have been begun by St. Luke, but finished by the ministry of angels.

The word is Greek, and derived from *a*, without, *χερς*, hand, and *ποιω*, to make. Du-Cange.

ACHLIS. See MACHLIS.

ACHLYS, in *Medicine*, a darkness or dimness of sight, arising from a small *cicatricula* on the pupil, occasioned by a superficial ulcer on the *cornea*.

The word is Greek, and literally signifies a kind of cloud. In a metaphorical sense, *achlys* also denotes a disorder of the womb: answering to what Latin writers call *suffusio uteri*.

ACHLYS, in *Mythology*, is applied by some Greek authors to the first Being, who existed before the creation of the world, of chaos, and of the gods.

ACHNE has various significations: sometimes it denotes lint, at other times chaff, or froth of the sea. Hippocrates uses it to denote a white mucilage, observable in the eyes of patients who have fevers; and also a white mucus in the fauces, thrown up from the lungs.

ACHOR, in *Medicine*, the third species or degree of a **TINEA**, or scald-head.

Achor is a sort of small running ulcer on the face and head, chiefly of children while they suck; by which the skin is broke into a number of little holes, out of which issues a viscid humour, like *ichor*, whence its name.

Achor differs from the *favus* and **TINEA** only in the degree of virulence. It is called *favus* when the perforations are large, and the *tinea*, when they are like those which are made by moths in cloth.

Writers of medical observations afford divers anomalous instances of *achores*, viz. some are found even in aged people; others on the feet; others resembling the venereal disease; others which disappeared upon cutting the hair, and returned on its growing anew; others followed by a thickness of hearing; others by panics; and others by a *gutta serena*. Their drying up has sometimes been followed by a fever, their repulsion inwards by an epilepsy.

ACHOR, in *Mythology*, the god of flies; to whom, according to Pliny, the inhabitants of Cyrene sacrificed, in order to obtain deliverance from these insects, and the disorders occasioned by them.

ACHRAS, in *Botany*. See SAPOTA.

ACHROMATIC, in *Optics*; a term, says M. Des Landes, first introduced into his *astronomy*, to denote **TELESCOPES** of a new invention, contrived to remedy *aberrations* in colours. The word is composed of the privative *a*, and *χρῶμα*, colour. See **ABERRATION** and **TELESCOPE**.

ACHRONICAL, in *Astronomy*. See **ACRONYCHAL**.

ACHTELING, a measure for liquids used in Germany. Thirty-two *achtelings* make a *keemer*; four *sciltems*, or *sciltins* make an *achteling*.

ACHTENDEELING, or **ACHTELING**, a measure for grain, used in some parts of Holland.

ACHY, a species of **CASSIA** that grows in Arabia.

ACHYRANTHES, in *Botany*, a species of the *pentandria monogynia* class: its characters are, that the calyx is five-leaved, it has no corolla, the stigma is bifid, and the seeds single. There are ten species.

ACHYRONIA, in *Botany*, a name given by Van Royen, to a genus of plants of the papilionaceous kind, called by Linnaeus **ASPALATHUS**.

ACHYROPHORUS, in *Botany*, the name of a genus of plants of the same characters with the **HYPOCHERIS**.

ACIA, a term in the Roman *Surgery*, concerning the meaning of which physicians, and commentators, are much divided. Celsus, speaking of the healing of wounds, either by future, or the fibula, says, each is best effected by means of a soft *acia*, not too much twisted, that it may fit the easier on the body.

Boethornius will have the *acia* to be the *acus* of the fibula, or that part which is pinched. In which view *acia mollis* only imported, that it was not set so as to pinch too much.

ACICOCA, an herb that grows in Peru, and is sometimes used instead of the herb *paraguay*, of which it is said to have all the properties.

ACICULÆ, in *Natural History*, small spikes, or prickles, in form of needles, with which nature has armed several creatures. See *Tab. of Fishes*, N^o 2. *Tab. of testaceous and crustaceous Animals*, N^o 13. *Tab. II. of Quadrupeds*, N^o 19.

ACIDS derive their name from the word *acere*, to be sharp; which expresses one quality by which they are distinguished; viz. their sour taste. They form one of the general classes, into which simple salts are divided, and are the most simple of all saline substances. If they were separated from water, to which they have a strong affinity, and from all other substances not necessary to their saline essence, they would appear under a concrete or solid form; but the contact of the air, which is loaded with watery vapours, is sufficient to dissolve them, and therefore they are always in a fluid state. On this account, it is not easy to ascertain the quantity of *acid* in *acid* liquors. Homberg made several experiments to this purpose, by combining *acid* liquors with salt of tartar, so as to form neutral salts; imagining that the weight gained by this alkali from its union with *acids*, or the difference between the weight of the salt of tartar and the neutral salt produced, was equal to the weight of real *acid* contained in the quantity of *acid* liquor employed. But as he did not consider that the air expelled from salt of tartar, during its combination with *acids*, makes a very considerable part of the weight of that alkali, the inferences from his experiments are not just; and the real quantity of *acid* contained in an *acid* liquor, is so much more than the quantity inferred by him, as the whole weight of the fixable air disengaged from the salt of tartar. *Acid* salts are all found to be volatile; by which they are distinguished from the rest, which are either fixed, or have an urinous, instead of an *acid* taste.

Some chemical philosophers have even made it very probable, that it is the *acid*, which is the saline part, or principle, in all salts. They consider it as a subtle, penetrating substance, diffused through the several parts of the globe; which, according to the different matters it happens to be united with, produces different kinds of bodies. Of this sentiment is sir Isaac Newton. 'In decomposing sulphur, says that author, we get an *acid* salt of the same nature with oil of sulphur *per campanam*; which same *acid*, abounding in the bowels of the earth, unites sometimes with earth, and thus makes *alum*; sometimes with earth and *bitumen*, and thus compounds sulphur.' In reality, all our native salts, though without any mixture from art, are yet found to be real mixtures; and their composition and decomposition are easily made.

Acids possess several common properties, besides the sharpness or sourness of their taste. They are readily united with water; and from this union, a new compound fluid is formed, whose specific gravity differs from the mean gravity of its component parts. They may be likewise combined with spirits of wine, and form a very volatile substance, which chemists have denominated *aether*. They may be also combined with absorbent earths, with alkaline salts, with metallic substances, with phlogiston, and with oils; and in the process of uniting with them, discharge all or part of the fixable air which they contain. The combination with alkaline substances occasions a violent effervescence, and produces neutral salts. They dissolve the ashes of vegetables, and the solid parts of animals. All solutions, the metallic ones excepted, destroy the acrimony of the dissolving *acid*, and the menstruum loses its dissolving power.

Acids likewise, for the most part, agree in changing into red the blue colours of vegetable juices, and in heightening the colour of those that are red. But this property is not common to all *acids*; for the volatile sulphureous *acid* destroys these colours. Nor is it peculiar to *acids*; for *alum*, a neutral salt, produces the same effect. *Acids* resist fermentation; they are not so easily frozen as water, and they generate cold, when poured upon ice. M. Homberg explains the actions of *acids* on alkalies, and accounts for the great number of little bubbles, and the heat produced thereby in the following manner. The matter of light, which he supposes to be the chemical principle, sulphur, and to possess the whole extent of the universe, is kept in a perpetual motion by the continual impulses which the sun, and fixed stars give it; but this motion, happening on some occasions to be slackened, may be retrieved again, and augmented by the near approach of flame, which this author supposes to be the only matter capable of giving motion to light. Light cannot proceed in its motions, without continually striking against the solid bodies, and passing through all the porous ones which it meets with.

Suppose, now, *acids* to be little, solid, pointed bodies, swimming at liberty in an aqueous fluid, and kept in continual motion by the repeated impulses of the matter of light; and alkalies to be spongy bodies, whose pores

pores have formerly been filled with the points of *acids*, and which still retain the dents or impressions thereof, and are ready to receive the like points again: it is easy to conceive, that if some of these porous alkalies float in the same liquor wherein the solid *acids* float, these latter, being impelled by the matter of light, will enter the cavities of the former; and that they will do it the more readily, if the motion of the impelling light has been accelerated by external heat.

The introduction of *acids* into the pores of alkalies is, to all appearance, effected with great velocity and friction; inasmuch as it produces so considerable a degree of heat; and as the pores of the alkalies were before filled with an aerial matter, which is now expelled by the points of the *acids*, that air is put in motion, and produces the bubbles which are so much the more sensible, as the heat accompanying the action is the greater. Homberg's *Essai du Sel principe*.

Sir Isaac Newton accounts for the effects of *acids*, by the great principle of attraction. See AFFINITY.

Acids differ considerably from each other with regard to their strength, their solvent power, and the changes produced in them by the bodies on which they act.

Acids seem, from their universality, to be of the greatest use in the œconomy of the world. The air, earth, and sea, abound with them. It is observed, that the air is most replete with *acid*, when the wind blows from the north and east, and when the weather is serene; a fact which, according to Hoffman, is confirmed by the observations of those who are concerned in nitre works: from whence we may conclude, that the *aerial acid* is instrumental to the production of cold in the air. The analogy between *acids* and *cold*, and between alkalies and heat, is very remarkable. Heat and alkalies promote the putrefaction of dead bodies; or, in other words, destroy the cohesion of their parts: on the contrary, *acids* and *cold* preserve them from putrefaction, by preserving the cohesion of their component parts.

Acids are distributed into three general classes, according to the substances from which they are extracted; viz. *animal*, *mineral*, and *vegetable acids*. Nevertheless, it is the opinion of Stahl, and of other eminent chemists, that there is but one primitive ACID; and that all the other *acids* are only different modifications or combinations of it.

ACID, *Aerial*, a name given by Mr. Bergman of Upsal to fixed air, because he found that this species of air had an *acid* quality, by its changing the blue juice of *turnesole* into red; and the fact was farther verified by Mr. Hey, and Mr. Bewley; the latter of whom has proved, by a series of experiments, that fixed air does not owe its *acidity* entirely to the nature of the substances from which it is extracted, as *fig. Landriani*, and some foreign philosophers, imagine; but that it is an original *acid sui generis*, expelled from the substances with which it is combined by the force of fire, or by the power of a superior *acid*; but Dr. Priestley rather apprehends, that it is a modification of the *nitrous acid*. See AIR, fixed.

ACID of Amber is supposed by Dr. Monro to be an *acid sui generis*, and extracted from salt of *amber*. Phil. Trans. vol. lxvii. p. i. N° 49.

ACIDS, *Animal*, are those which have been lately discovered in certain *animal* substances; as butter, fat, blood, ants, and flies.

M. Homberg first ascertained the existence of a latent *animal acid*, and he has proposed two ways of procuring it. One way is, by concentrating the phlegm which arises first in the common distillation of *animal* substances for their volatile salt and oil. The residuum of this phlegmatic liquor, when it has been redistilled with a gentle heat, till only a small portion is left, will yield an *acid*; which he has sometimes concentrated so far, that it seemed to be as strong as common vinegar.

The other method of collecting this *acid* is, by mixing earthy matters with the animal subject at first, and urging the distillation after all the alkaline salt and oil have arisen. The *acid* is at length forced out by the great vehemence of fire. Whether this *acid* be any other than part of the *vegetable acid* derived from plants in the ordinary way of food and nutrition, or of the *acid* of the *marine* salt which *animal* substances possess, must be determined by future experiments and observations. But it is certain that they differ in the same circumstances as the *vegetable acids* do from *mineral acids*.

Dr. Hooke has long since observed, that insects which are furnished with stings, as bees, wasps, and hornets, discharge, when irritated, an *acid* juice; but none yield so large a quantity as ants. Ants in their *chrysalis*, or maggot state, have no *acid*; but if a stick be thrust into an ant hill, they will discharge a fluid, which has an *acid* taste and smell; and which will make the blue flowers of *succory*, *borrage*, &c. red. And this *acid* obtained, either by distillation, or by throwing the living animals into water, till it is sufficiently impregnated with it, will,

with lead, make a peculiar sort of *saccharum saturni*, which on distillation will give back the *acid* in its own form again. M. Margraaf has demonstrated, by some late experiments, that it bears no analogy either to the *marine* or *vitriolic acid*; because it does not precipitate silver, lead, or mercury, from the *nitrous acid*, nor quicklime from the *marine*. He concludes upon the whole, that this *acid* much resembles that of vinegar, though in some respects it is different.

ACIDS, *Concrete*, are saline solid substances, which have the properties of *acids*; such are crystals of tartar, essential salts of vegetables, the volatile *acid* salt of amber, and of some other bitumens, and the flowers of benjamin.

ACID, *Fluor*, is a new *mineral acid*, so called from the name which the chemists have given to the substance from which it is extracted. This substance is of the same kind with the *Derbyshire spar*. The *acid* is expelled from it by oil of vitriol; and as it was discovered by Mr. Scheele, a Swede, it is often distinguished by the name of the Swedish *acid*. Mr. Scheele supposed, that *acid* and water were the constituent parts of the fossil from which it was produced. Mr. Boulanger apprehends, that this new *acid* is only the *acid* of salt combined with an earthy substance. But Dr. Priestley, in the result of his experiments, has proved, that the *fluor acid* is the *acid* of vitriol, charged with so much phlogiston as is necessary to its taking the form of air, and also with much of the earthy matter of the *spar*. Experiments and Observations on different kinds of Air, vol. ii. p. 188.

ACIDS *Fluor* sometimes denote those *acids*, which are always in a fluid state; such are the volatile, vitriolic, nitrous, marine *acids*, and those which are obtained by distillation from vegetable and animal substances.

ACID, *Marine*, is one of three *mineral acids*; so called, because it is generally obtained from sea salt; though it may be likewise extracted from sal gem, or fossil salts, and from the salt of saline fountains and pits. This *acid* is stronger than any of those of the *vegetable* and *animal* kingdom; but weaker than the *vitriolic* or the *nitrous*. It is never found pure, but always combined with an alkali, so as to form a neutral salt. As it is more volatile than the other *mineral acids*, it cannot be so easily combined with phlogiston, though many facts sufficiently ascertain the practicability of such a combination. This species of *acid* is supposed by the chemists to be an offspring of the *vitriolic acid*, and to consist of this *acid* combined with an inflammable and a mercurial principle. Becker ascribes its peculiar properties to a principle, which he calls mercurial earth; but Stahl rejects this part of his theory; and expresses a wish, that the existence of the mercurial earth could be as well ascertained as the existence of phlogiston.

The *marine acid* easily dissolves zinc, iron, and copper; it acts with great difficulty on tin, and scarcely acts at all in its liquid state on silver, mercury, lead, or regulus of antimony. It dissolves gold by the help of the *nitrous acid*; and by a modern discovery, gold and platina are rendered soluble in this menstruum, either by previous solution in aqua regia and precipitation from that menstruum, by means of an alkali, or by a previous calcination with tin and other imperfect metals.

Some of the most remarkable phenomena attending the combination of *marine acid* with metallic substances, are the following: it dissolves these substances with less heat and effervescence, and with fewer vapours than *nitrous acid* does. It forms with all the metals, which it dissolves, excepting iron and copper, salts capable of crystallization. The metals with which it contracts the strongest union, are those to which it unites with the greatest difficulty. *Marine acid* volatilizes either wholly or in part, the metals with which it is united; and forms with those metallic substances to which it most firmly adheres, such as mercury, regulus of antimony, silver, and lead, metallic salts, much more corrosive than those formed by the *vitriolic* or *nitrous acid*. Homberg indeed found, that *marine acid* of itself corrodes glass more than any other *acid*.

This *acid* can only be obtained by means of an intermediate substance sufficiently powerful to disengage it from the native fixed alkali, which is the basis of common salt. *Vitriolic acid* is the most proper for this purpose.

ACIDS, *Mineral*, are one of the general classes into which *acids* are distributed. They derive their name from the *mineral* substances from which they are procured; and they are subdivided into the *marine*, *nitrous*, and *vitriolic ACIDS*. With respect to their general character, they are more simple, less volatile, more susceptible of concentration, and stronger than the *acids* obtained from *animals* or *vegetables*.

ACID, *Nitrous*, is the most limited, and the least frequent in the earth, of all the *mineral acids*. It is seldom met with in any combination, but in the neutral salt, from which

which it derives its name. The concentrated *nitrous acid* is weaker and much more volatile than the *vitriolic*. In this state it strongly attracts the moisture of the air, and when mixed with water, occasions a great heat and ebullition. M. Beaumé observes, that while they are mixing, the liquor assumes a blue or deep green colour, though the vapours at the same time retain their original yellowish red. It fulminates, when ignited, on the contact of any inflammable matter; and bursts into flame, when mixed with distilled and expressed oils. It is of a yellowish red flame-colour, emits vapours of the same colour, and possesses a peculiar taste and smell. The *nitrous acid* contains phlogiston, and yet takes it with avidity from most other substances. By means of this property, the substances into which it enters, burn without the assistance of common air.

This *acid* is one of the most powerful menstruums in chemistry; not that it is stronger than either the *vitriolic* or *marine*; but on account of the facility, quickness, and activity, with which it dissolves most substances. It corrodes and dissolves all metallic bodies, except gold and platina; and Dr. Brandt has found, that by particular management it can dissolve gold. But its action is most vehement on those metals which contain most inflammable matter, as zinc and iron. This *acid* combined with fixed vegetable alkali forms nitre; with marine or fossil alkali, it forms a neutral salt, which shoots into cubical crystals, hence called *nitrum cubicum*; with volatile alkali, it produces the nitrous *sal ammoniacum*. *Nitrous acid* easily dissolves all calcareous and absorbent earths. It is easily combined with oils, and with spirits of wine. This *acid*, which is sometimes called spirit of nitre, may be procured by mixing two parts of dry and powdered clay with one part of nitre, and distilling the composition in a reverberatory furnace, with a gradual heat. Clay is very proper for decomposing nitre, because it contains a *vitriolic acid*. Martial vitriol is used for producing fuming spirit of nitre; and pure *vitriolic acid* is made use of in distilling Glauber's fuming spirit of nitre.

ACID, *Phosphoric*. See PHOSPHORUS.

ACID, *Vague*, a general term used by some chemists for the *vitriolic acid*.

This mixing with fossil oil, *petroleum*, *oleum terræ*, or the like, constitutes the various sorts of native fossil transparent sulphurs; uniting with semi-metals, it forms cinabar, antimony and other fossils, both solid and fluid; uniting with metals, it forms divers kinds of vitriols; with calcareous earths, different alums; and lastly with *pyrites*, which is the matrix of vitriol, calcined in a wood fire, it produces common sulphur. See ACIDS.

ACIDS, *Vegetable*, are those which are procured from *vegetable* substances. Such are the juices of four fruit, four wine, or vinegar; crystals of tartar; all the essential *acid*, concrete salts, procured by crystallization from the expressed juices of plants; and lastly, all the *acids* obtained from *vegetable* substances in analysing them by distillation. They differ from *mineral acids* in being less simple, less fixed, less susceptible of concentration, and weaker.

ACID, *Vitriolic*, is the third species of the *mineral acids*; and was formerly obtained from martial vitriol. This *acid* is copiously diffused through the earth, the waters of the ocean, and the atmosphere, and is supposed by some to be the basis of all the other *acids*. It abounds most in the mineral kingdom, combined with various other bodies. Its specific gravity, when it is highly concentrated, is more than double that of water. M. Hellot obtained some, concentrated to such a degree as to become solid and crystalline. This *acid* being likewise more fixed than water, admits a much greater degree of heat. It very freely imbibes moisture, and acquires hereby a very considerable increase of weight. It dissolves the ashes of vegetable and calcareous earths; and when combined with the latter forms a matter called *selenites*, resembling salt in its appearance, but differing from it in taste and solubility. It may be likewise combined with alkalies, both vegetable, fixed, and fossil. This *acid* also acts upon all metallic substances by means of their phlogiston, and dissolves them with a moderate effervescence and heat; and by discharging part of the inflammable principle, calcines them more or less, according to their nature, and the manner of making the solution. This *acid*, when strongly concentrated, will act powerfully on oils; and being distilled together with spirits of wine, yields *æther*. The *vitriolic acid* is more simple and powerful than the *nitrous* and *marine acids*, separates them from the alkalies to which they are united, and substitutes itself in their place. This *acid* may be procured by collecting the vapour of burning sulphur, confined by means of a glass bell, and received into the vapour of water.

ACIDS, *Volatile*, are those which are more *volatile* than other *acids*: such is the *volatile vitriolic*, or sulphureous *acid*, which is only the common *vitriolic ACID* combined with phlogiston. Those who are desirous of farther informa-

tion concerning the subject of *acids* in general; and the several classes and species of them above enumerated, may consult Neumann's Works, translated by Dr. Lewis, and Macquer's Dictionary of Chemistry, Engl. Transl.

ACIDS, in the *Materia Medica*, denotes such medicines as are possessed of an *acid* quality: as vinegar, spirit of vitriol, &c.

ACIDS and *alkalies* have been considered by some chemists as the two *athletæ* of nature, the great instruments whereby all things were effected; and the causes not only of natural, but preternatural diseases and cures. This hypothesis we chiefly owe to Tachenius, a German chemist, and a follower of Helmont's system, who published two books to shew, that all natural things are composed of *alkali* and *acid*. The *acid*, which was generated in the air from the sun, and contained in it the hidden seeds of all things, associated the *alkali* to itself; and from hence, as a passive subject, arose the *esse*, or forms of things. He was followed by Swalve, and his doctrine has been since defended by others, but combated and refuted by Bohnius, Boyle, Bertrand, Pitcairn, Hoffman, &c.

Some have pretended to correct and improve this hypothesis of *acid* and *alkali*, by making *acid* and *viscid* the causes of all diseases, and fluid *alkali* the instrument of all cures. Act. Erud. Lips. an. 1689.

In reality, though the terms *acid* and *alkali* be new, notions much resembling those already recited may be met with in ancient writers, who frequently ascribe the origin of many diseases to unnatural, sour, and corrosive juices in the body.

ACIDS, Mr. Boyle observes, not only disturb the body while they continue *acid*, but in many cases create distempers, whereof they should seem the remedies.

Helmont asserts, that no *acid* can be lodged naturally in any part of the body, except the stomach; that if it extend farther, it becomes unnatural, infects the sweet and balsamic juices, and proves the cause of most diseases.

To correct the redundancy of *acids* in the stomach, all *alkalious*, or urinary salts, both fixed, as of wormwood, centaury, carduus; and volatile, as spirit of sal ammoniac, spirit and salt of hartshorn, scurvy-grass, &c. are recommended. Under corrections also come all fixed, earthy, or metalline concretes, which absorb the *acid*, as iron, saccharum saturni, antimony, and all oils and fat things, which obtund and inosculate the parts of *acids*, as spirits of wine, oil of cloves, &c.

The medicinal qualities of *acids* are much disputed by many physicians. Some alledge that they are hurtful in coughs, and most of them, the juice of lemons excepted, in diseases of the breast. A large dose of such as are very concentrated, taken internally, would prove a very corrosive poison. However, *acids*, properly administered, are excellent cooling and aperitive medicines, fit to quench thirst, and to lessen the acrimony of the bile; these being powerful *antiseptics*, are esteemed good in all putrid and malignant diseases; nor are they less efficacious in inflammatory and feverish cases. However, great care ought to be taken not to administer them in such large quantities as to corrode the bowels, or to coagulate the blood. *Acids* are also commended in the plague, and as *styptics*. Thus vinegar not only serves to stop hæmorrhages, but being sprinkled upon a red-hot tile, or iron, corrects the putrefaction of the air.

ACIDITY, ACIDITAS, the quality which constitutes or denominates a body *acid*; or that sensation of sharpness and sourness which *acids* excite upon the taste.

ACIDULÆ, in *Natural History*, a species of mineral waters, distinguished by a latent acidity in their nature. When they are accompanied with heat, they are called *acidulæ*; but if heat be added to their brisk spirit, they are denominated *thermæ*.

Acidulæ are native waters, impregnated with particles of some acid mineral, as vitriol, alum, nitre, or salt; and as Dr. Seip of Pyrmont first discovered, in 1736, and Dr. Brownrigg of Whitehaven farther evinced, with a considerable quantity of fixed air, formerly known by the name of their *spirit*, or *mephitis*, to which they owe their brisk sparkling quality. Phil. Trans. Abr. vol. viii. p. 659; and Phil. Trans. vol. lv. p. 236, &c. For Dr. Priestley's method of making artificial waters of this kind, see the article PYRMONT.

The physicians also frequently include chalybeate and aluminous, or ferruginous, waters, under the class of *acidulæ*.

Their virtues depend, in general, on the principles and ingredients in their composition. A general analysis of mineral waters may be made, either by evaporation, which will discover both the quantity of solid matter contained in the water, and by subsequent trials, the peculiar nature of it; or by distillation, whence it may be known, whether the water contains any volatile matter, saline or bituminous; or again, by the mixture of certain

liquors. The most common for this purpose are the infusion of galls, syrup of violets, *ol. tart. per deliq. tinct. argenti. sal. alk. vol. tinct. sulph. vol. soap* and *aqua fortis*. But for a minute and more accurate investigation, the materials are more numerous, and the apparatus more considerable. The operator should be provided with scales and weights, an hydrostatic balance, different sorts of glasses and cements, a thermometer, a hand-pump, microscopes, crucibles, &c.

A small quantity of the infusion of galls will discover whether the water be impregnated with iron. If it contains a coarse oker, the colour struck by the galls is very dark; the finer iron produces an inky purple; but the finest, such as the Pyrmont water contains, gives an azure blue. A dram of syrup of violets, mixed with a small wine-glass of the mineral water, will produce a green colour, if there be any alkaline salt, or alum, in it; though Dr. Ruttty says, that if the spirit be new, alum will turn it red. This green colour is also observed, when a solution of iron is met with; with an acid, the syrup produces a red.

Ol. tart. per deliq. dropped into a small quantity of the water to be examined, discovers earthy matter, by precipitating it in the form of a white cloud: if a whitish cloud rises to the top, and the water be clear underneath, the quantity of earthy matter is very little. This oil precipitates the contents of all hard waters. If it meets with a solution of mercurial particles, it discovers them by producing a yellow colour; and it ferments with acids.

Tinct. argenti, if made with pure *aqua fortis*, is the most delicate addition for discovering sea salt in water, which it joins with, and falls in a milky cloud.

Sal. alk. vol. precipitates the contents of hard water, and discovers mercury, or any of its preparations, by turning the liquor whitish, and coagulating part of it. It discovers copper, by producing a blue colour.

Tinct. sulph. vol. discovers lead in water, by turning it into a dusky brown colour. Soap readily determines whether the water be hard or soft, by dissolving in it; if hard, the soap curdles; but if soft, forms with it an homogeneous mixture, and with a little agitation a froth is raised. *Aqua fortis* turns the water into a green colour, if it contains a solution of copper. After all, Dr. Lewis observes, that he can recollect but two instances, in which simple mixture affords any degree of certainty; blue colour from copper and volatile alkali, and the bluish or purple from iron, and some astringents. See Hoffman de Acidulis, &c. Shaw's Improvements on Mineral Waters, in his Chemical Works, and Neumann's Works, with Dr. Lewis's Additions, p. 252.

ACIDULATED, any thing wherein acid juices have been put, in order to give it a coolness, and briskness.

ACIDULOUS denotes a thing that is slightly acid; it is synonymous with the word *sub-acid*.

ACIDUM, *ætherium, aluminosum, catholicum, primigenium, sulphureum*, are all different names for SPIRIT of vitriol.

ACIDUM Pingue, a name first given by M. Meyer, and afterwards adopted by M. Crans, and some other German chemists, to a certain caustic acid, which magnesia, limestone, or any calcareous earth, meets with in the fire, and attracts, losing at the same time a considerable portion of water; and by means of which it is neutralised, rendered caustic and uncrystallizable, and deprived of the property of effervescing with acids. M. Meyer supposes, that this substance nearly approaches to that of fire and of light; that by the aid of this acid lime unites with oil, dissolves sulphur, &c. that it enters very abundantly into the composition of vegetables and animals; that it is this which escapes from charcoal when burning, which increases the weight of metallic calces, and in general answers the various purposes in nature, which the English philosophers, Hales, Black, Macbride, Priestley, and others, have ascribed to fixed air. See AIR, fixed.

This new doctrine was attacked, and the English system defended, in the year 1769, by M. Jacquin, a professor at Vienna; but before this period it had made a very rapid progress in Germany; it was adopted by many chemists of reputation, and taught publicly in their schools. In 1770, M. Crans, physician to the king of Prussia, published a reply to M. Jacquin; in which he discovers a very zealous attachment to the *acidum pingue* of M. Meyer. See Lavoisier's Essays Physical and Chemical, vol. i.

ACIDUM Vitrioli vinosum. See ÆTHER, and SPIRIT Ætherial of Frobenius.

ACINACES, in Antiquity, a kind of cutlafs or scimitar, in use among the Persians.

ACINARIA, in Botany, a name given by some to the marsh whortle-berries, or *vacinia palustris*.

ACINI, in Botany, small grains, or berries, growing in bunches, after the manner of grapes; also the stones or seeds of grapes. The berries of the elder, privet, ivy, &c. are of this kind, and so called.

Anatomists have called some glands, of a similar formation, *acini glandulosi*.—See Tab. Anat. (Splanchn.) fig. 4. lit. bb.

ACINIFORMIS Tunica, the same with the TUNICA UVEA of the eye. It is also called *acinosæ tunica*.

ACINODENDRON, in Botany, the name given by Burman, in his Thesaurus, to a genus of plants, afterwards called MELASTOMA, belonging, in the Linnæan system, to the genus *thymus*, and to the class and order *didynamia gymnospermia*.

ACINOS, stone, or wild BASIL.

ACINUS properly signifies the grape: See ACINI. It is also the name of the STAPHYLOMA.

ACIPENSER, in Ichthyology. See ACCIPENSER.

ACITLI, in Ornithology, the common Mexican name for the great crested diver, common to Europe and America; and more usually called by authors, the LEPUS aqueus, or water-hare. Ray.

ACKNOWLEDGMENT-Money, a sum, paid in some parts of England, by tenants, on the death of their landlords, as an acknowledgement of their new lords.

ACLIDES, in the Roman Military Art, a kind of missile weapon, having a thong fixed to it, by which, after casting it out of the hand, it might be drawn back again. Servius describes the *aclides* as full of spiculæ, or eminences. It was full of spikes, and so would do mischief both where it struck and in the withdrawing. Each warrior seems to have been furnished with two. Voss. Etym. Aquin. Lex. Mil. tom. i. p. 14. Pitisc. Lex. Ant. tom. i. p. 17.

ACLOWA, in Botany, the name of a plant common in Guinea, and used by the natives to cure the itch. They rub it on the body, as we do our unguents. Petivier accounts it a kind of *colutea*, and has named it the *Guinea scorpioides colutea*, with leaves like the gum tragacanth shrub. Phil. Trans. N° 232.

ACME, the height or top of any thing.

The word is Greek, signifies point, and is more especially used to denote the height, or utmost vehemence, of a distemper.

Accordingly some institution-writers divide diseases into four states, or periods:

1. *Arche*, the beginning, or first attack.—2. *Anabasis*, the growth.—3. *Acme*, the height,—And, 4. *Paracme*, which is the declension of the distemper.

ACMELLA, in Botany, a plant which grows in the island of Ceylon, of which there are three species noted by botanists. It is commended in nephritic disorders, but very rarely used. It is also called ACHAMELLA.

ACNE is a name given to a small pimple, or hard tubercle, on the face.

ACNIDA, in Botany, a genus of the *dioecia pentandria* class, in the Linnæan system. Its characters are, that it has male and female flowers; the calyx of the former is five-leaved, that of the latter composed of two leaves; neither have any corolla; the styles are five, and the seed is single, covered by a succulent calyx. There is one species.

ACO, a name given to a fish found in the Mediterranean, called also AQUO, SARACHUS, and SARACHINUS.

ACOEMETÆ, or ACOEMETI, formed of the privative *a*, and *χοιμαω*, to lie down, or sleep in bed, a name given to certain monks in the ancient church, who flourished, particularly, in the East; and who were thus called because they had divine service performed, without interruption, in their churches.

The *acoemetæ* divided themselves into three bodies, each of which officiated in their turn, and relieved the others: so that their churches were never silent, night nor day. The STYLITES were also sometimes called *acoemetæ*.

There is a kind of *acoemetæ* still subsisting in the Romish church; the religious of the Holy Sacrament coming properly enough under that denomination; because they keep up a perpetual adoration; some or other of them praying, before the sacrament, day and night.

ACOLCHICHI, in Ornithology, the Mexican name for a bird, described by Nieremberg under the name of the PTEROPHOENICUS Indiarum.

ACOLIN, in Ornithology, the name of a bird of the partridge kind, common in the Spanish West Indies. It is no larger than a starling; its legs and feet are of a pale greenish colour, and its toes very long; its beak is yellow, and somewhat long; its head small; its breast and belly are white; its sides are spotted with brown, and its back and tail of a dusky yellowish brown; its tail is very short, and both that and the back have some black spots, and some narrow streaks of white. It frequents the sides of lakes, and is supposed to feed on flies, worms, and other insects, which are found about watery places. It is a tolerably well tasted bird.

ACOLUTHI, or ACOLYTHI, compounded of the privative *a*, and *κελευθος*, via, way; as still persisting in their way, or course, in Antiquity, a term applied to such persons as were steady and immoveable in their resolutions.

For this reason, the Stoics were called *acolythi*; because nothing could shake or alter their resolves.

Among the *Ecclesiastical Writers*, the term *acolythus*, or *acolythist*, is peculiarly applied to those young people, who, in the primitive times, aspired to the ministry; and, for that purpose, continually attended the bishops: which assiduity occasioned their being distinguished by this appellation.

In the Romish church, *acolythi* were of longer continuance; but their functions were different from those of their first institution. They were such as had only received the first of the four lesser orders, whose business was to light the tapers, carry the candlesticks, the incense-pot, and prepare the wine and water.

At Rome there were three kinds of *acolythi*; viz. *palatini*, who waited on the pope; *stationarii*, who served in churches; and *regionarii*, who, together with the deacons, officiated in other parts of the city.

ACOLUTHI, or *acolythus*, was also a title in the Grecian empire given to the captain or commander of the *VARANGI*, a body of guards appointed for the security of the emperor's palace.

ACOLYTHIA, in the Greek church, denotes the office, or order of divine service.

The same name is also given to the prayers, ceremonies, hymns, and the like, whereof the Greek service is composed.

ACON, an instrument used in the ancient exercises, like the *discus*.

ACON gave name to an ancient order of knighthood, who were afterwards united to the knights *Hospitallers*.

ACONCROBA, in *Botany*, a name given by the natives of Guinea to a plant, growing wild with them, and in great esteem for its virtues in the small-pox. They give an infusion of it in wine. The leaves of this plant are opaque, and as stiff as those of the phillerey; they grow in pairs, and stand on short foot-stalks; they are small at each end, and broad in the middle; and the largest of them are about three inches in length, and an inch and quarter in breadth in the middle. They somewhat resemble those of our bay. They are of a dusky colour on the upper side, and of a pale green underneath.

ACONE, in the *Natural History* of the ancients, the name of a stone used as a whetstone, and for several other purposes; but more usually known among the Romans by the name *CORTICULA*. It signifies also a mortar for the purpose of levigation.

ACONITE, *MYOCTONON*, in *Botany*, a plant, famous among the ancients, both in quality of a poison, and a remedy. *Aconitum* is said, by some, to take its name from *Aconæ*, a city in Bithynia, where it grew in great abundance: though it is also found in other places, particularly the mountains about Trent, &c.

The flower is of the polypetalous anomalous kind, consisting of five irregular leaves, and somewhat resembling a man's head, with a hood or helmet on it. The upper petal seems to perform the office of a hood or helmet; the two lower leaves represent that part of the helmet which receives the lower jaw, and the two wings seem adapted to the upper part of the face, or the temples. From the centre of the flower there arise two pistils, shaped like feet, and received into the hollow of the upper petal or hood, as is also the pistil, which finally becomes a fruit, composed of several membranaceous vaginæ collected into the head, and usually containing angular and wrinkled seeds.

The ancient botanists give the name *aconite* to several plants, of different kinds.—One species they call *lycoctonum*, *λυκοκτονον*, *wolf's-bane*; or *cynoctonon*, *κυνοκτονον*, *dog's-bane*, from its effects: of these they had likewise three divisions; as the *napellus*, thus called a *napo*, because its root resembled the turnep-kind: another called *anthora*, q. d. *anti-thoræ*, good against disorders caused by the *thoræ*, another kind of *aconite*.

Dioscorides only makes two kinds of *aconite*; the first the same with the *thelyphonium*, the second the proper *aconite*. In strictness there appears to have been but one species of *aconite*, which resembled the *thelyphonium* in its virtue and effects, but differed from it in leaf, colour, foil, root, &c. Mr. Tournefort, however, enumerates twenty-one species of *aconite*.

The class of *aconites* is held extremely caustic and acrimonious, in virtue whereof they produce mortal convulsions, or inflammations, which end in mortifications. The ancients were so surprized at these effects, that they were afraid to touch the plants; and hence a thousand superstitious precautions, about the manner of gathering them.—Their roots are, however, held of service in malignant fevers, by some; and, accordingly, make an ingredient in some orvietans, and other alexipharmic compositions.

The ancients used this plant against the sting of the scorpion, which is said to be deadened by the touch of the *aconite*, and restored to its vigour by that of hellebore.—

Theophrastus relates, that there was a way of preparing it, in those days, so as it should only destroy at the end of one or two years.—Arrows dipt in its juice are said to prove mortal, wherever they wound.—The Indians used *aconite*, corrected in cows urine, with good success against fevers.

Some compare the poison of the *aconite* to that of the *NAPELLUS*. Others seem to make it of the same kind with that of the *SALAMANDER*. Dr. Mead will have it to agree with the *CICUTA*. It is the root alone that is hurtful; for its leaves and fruit are said to be innocent.

The English call this plant *WOLF'S-bane*, from the Anglo-Saxon *wulfes-bane*.

ACONITI, *ακνιτι*, is an appellation given to some of the ancient *ATHLETÆ*, but differently interpreted. Mercurialis understands it of those who only anointed their bodies with oil, but did not smear themselves over with dust, as was the usual practice. Mr. Burette will have it to signify those who conquered easily without dust, q. d. *αποννιτι, αμαχει*, with little trouble.

ACONITON signifies not plastered, and is a name given to vessels not lined within.

ACONTIAS, a name used by some authors, for a sort of COMET, or METEOR, whose head appears round, or oblong, and its tail very long, and slender, resembling a javelin.

It takes its denomination from a serpent thus called, frequent in Calabria and Sicily; where it is also named *sagittone* (from *sagitta*, an arrow), by reason of its flying at passengers like an arrow; in order to which, it winds itself up a tree, to spring thence with the greater violence. For the like reason the Greeks call it *aconias*, of *ακονιον*, a dart, or arrow.

It differs from the *XIPHIAS*, in that it is longer, and more like a dart; and the other is shorter and broader in the middle.

ACONTIAS, in *Zoology*, the name of a species of serpent, called also *JACULUM*, or the dart-snake, from its manner of vibrating its body in the manner of a dart. Belonius found one of these in the island of Rhodes, which he describes in this manner: it is about three hands-breadth long, and of the thickness of one's little finger. Its colour is a milky grey on the back, variegated with small black spots, like so many eyes; and on the belly it is perfectly white. The neck is wholly black, and from that two milk-white streams run all the way along the back to the tail; the black spots also are each surrounded with a small circle of white. It is found in Egypt and Lybia, and in the islands of the Mediterranean. It is also called *cenchreas* and *cenchrites*. Ray.

ACONTIUM, in *Ancient Writers*, a kind of Grecian dart, or javelin, somewhat resembling the Roman *PILUM*.

ACOPA, in *Botany*, a name given by Dioscorides, and some other authors, to the *TRIFOLIUM paludosum*, or buck-bean.

ACOPA, in *Medicine*, is also used to denote remedies against the ill consequences proceeding from lassitude, occasioned by too violent labour, exercise, or the like; such as tensions, pains in the bones, &c. They are also proper on many other occasions, some being of a warm, others of a mollifying nature. The name is also applied to the soft cerates made use of for tumors, &c.

The word is derived from a privative, and *νοπος*, *weariness*.

ACOPIS, the name of a sort of fossile salt, described by Pliny, and said to have been used by the ancients, mixed with oil, and heated, to rub over the limbs to cure weariness. Others say it is a precious stone like glass, marked with spots of a golden colour.

ACOPON, or **ACOPUM**, see **ACOPA**.

ACOPOS, a plant mentioned by Pliny, said to be the same with the *ANAGYRIS* of Dioscorides, which Gerard says is the bean-trefoil; it signifies also **LABURNUM**.

ACOR signifies sourness or acrimony.

ACORDINA denotes Indian tutty.

ACORI, or **BLUE CORAL**, in *Natural History*. The true *acori* is very scarce; some, however, is fished on the coasts of Africa, particularly from Rio del Re to the river of the Camarones. This **CORAL** is part of the merchandize which the Dutch trade for with the Camarones: that of the kingdom of Benin is also very much esteemed. It grows in form of a tree on a rocky bottom. It is also a name for the greater **GALANGAL** root.

ACORN, in *Natural History* and *Agriculture*, denotes the fruit of trees of the oak kind.

The *acorn*, according to Dr. Grew, is the nut of an oak, with this only difference, that besides the cup it stands in, it has only a leathern or parchment cover, instead of a shell. And hence it is, that whereas the kernel of a nut is sweet, that of an *acorn* is of a very rough taste; the austere parts of the sap, which in a nut are drained off into the shell, being here imbibed by the kernel itself.

Writers

Writers on husbandry give rules concerning seminaries or nurseries of *acorns*, the propagating, sowing, or planting of *acorns*.

For timber, those *acorns* are to be chosen as seed, which are most solid and heavy, not those which are biggest. See SEEDS.

In the Phil. Trans. vol. lviii. N° 11. an. 1768. p. 75, there is a curious and important memoir by John Ellis, esq. containing a method of preserving *acorns* in bee's wax, for a whole year, in a state fit for vegetation, whereby other seeds may be preserved in like manner; and such as are valuable may be brought over from the East Indies, to plant for the benefit of the American colonies.

Acorns were the food of the first ages; but when corn was found out, *acorns* were neglected. They are of little use in our days, but to fatten hogs, and other cattle, and poultry. Yet among the Spaniards the *acorn*, *glans Iberica*, is said to have long remained a delicacy, and to have been served up in the nature of a desert.

In dearths *acorns* have been sometimes dried, ground into meal, and baked into bread.

The inhabitants of Chio held out a long siege, without other food. But they are said to breed head aches and ventosities, and to be hard of digestion. A decoction of *acorns* is reputed good against dysenteries and colics. A pessary of them is said to be good in immoderate fluxes of the menses.

ACORN, in *Sea-Language*, denotes a little ornamental piece of wood in the shape of a cone, fixed on the top of the spindle on the mast head, above the vane, to keep it from coming off the spindle in a whirlwind, or when the ship leans much upon one side under sail.

ACORUS, a medicinal plant, of the flag kind; frequently confounded by the ancients, and also by the modern apothecaries, with the *CALAMUS aromaticus*. It pertains to the class of *hexandria monogynia*, in the Linnæan system. They are distinguished by this, that from the middle of some of the leaves of the latter, there arises a longish cluster of an infinity of little flowers, the thickness of the little finger, and resembling *macropiper*, or long pepper. —The other is the common flag-flower.

It is only the root of the ACORUS that is used in physic; and it is this we usually call *acorus*. —The *calamus aromaticus* is brought from Lithuania and Tartary; it is knotty, reddish without, and white within; as thick as the little finger, and half a foot long.

It is spicy and bitterish; and used in cephalic and stomachic compositions. —It is also an ingredient in the *THE-RIACA Andromachi*. Its principal use is in obstructions of the menses, spleen, and liver; in the colic, &c.

Some rank *galangals* as a species of *acorus*.

ACORUS *adulterinus*, or *vulgaris*, in the *Materia Medica*, the name of the root of the *IRIS lutea palustris*, or common yellow water-flag-flower.

ACOS, in *Medicine*, signifies a remedy.

ACOUSMATICI, from *αἰσώω*, to hear, an appellation given to such among the disciples of Pythagoras, as were still under five years probation.

The *acousmatici* are sometimes also called by Latin writers, *acustici*. The *acousmatici* stood opposed to the *mathematici*, who were those initiated into the secrets of science; and the *acousmatic* philosophy, to the *mathematic*.

Some have denied the appellation of Pythagoreans to be due to the *acousmatici*, because many of these had their learning not immediately from Pythagoras, but from Hippasus, who, according to some, was of Crotana, but according to others, of Metapontium.

ACOUSTICS, ACOUSTICA, the doctrine, or theory of hearing, or of sounds.

The word is formed of the Greek *αἰσώω*, audio, to hear.

Acoustics is the same with what we otherwise call PHONICS.

ACOUSTICS, ACOUSTICA, or ACOUSTIC Medicines, are remedies against the imperfections and disorders of the EAR; or of the sense of HEARING.

ACOUSTIC is particularly applied to *instruments* used by those who are of dull hearing, to supply that defect.

Dr. Hooke says, it is by no means impossible to hear the lowest whisper that can be made, to the distance of a furlong; and that he knows a way of hearing any person speak through a stone-wall three feet thick.

ACOUSTIC Nerve. See AUDITORY Nerves.

ACOUSTIC Vessels. In the ancient theatres there were a kind of *acoustic* vessels, made of brass, shaped, as some have said, in the bell-fashion, which being of all tones within the pitch of the voice, or even of instruments, rendered the sounds more audible, so that the actors could be heard through all parts of the theatres, which were even 400 feet in diameter. Vitruvius.

ACOUSTIC Duct, is applied to the external passage of the ear; called also MEATUS auditorius.

ACQUEST, or ACQUIST, is understood in a legal sense, of GOODS, or effects, not descended or held by inheritance; but acquired either by purchase, or donation.

The word is formed of the verb *acquerir*, from *acquiere*, to acquire, or get.

The French laws make a great difference between *acquêts*, and hereditary effects. The civil law allows none. See HEIR.

ACQUEST is also popularly used for conquest, or a place acquired by the sword.

ACQUIETANDIS *Plegiis*, a writ of justices lying for a surety against the creditor that refuses to acquit him after the debt is paid.

ACQUIETARE, in ancient *Law-Books*, signifies to discharge, or pay the debts of a person deceased; as the heir those of his father, &c.

ACQUISITION, the act of procuring a right or title to the enjoyment, or property of a thing.

ACQUISITION is also sometimes used for an ACQUEST.

ACQUITTAI, a discharge, deliverance, or setting free of a person from the guilt or suspicion of an offence.

Acquittal is of two kinds: in *law*, and in *fact*. —When two are appealed and indicted of felony, one as principal, the other as accessory; the principal being discharged, the accessory is, by consequence, also freed: in which case, as the accessory is *acquitted by law*, so is the principal in *fact*.

ACQUITTAI is also used, where there is a lord MESN, and tenant, and the tenant holds land of the mesn, and the mesn holds over the lord paramount: here, the mesn ought to acquit the tenant of all services claimed by any other for the same lands; the tenant being to do service to the mesn only, and not to divers lords for one parcel of land.

ACQUITTANCE, or QUITTANCE, a release, or discharge in writing, of a sum of money, or other duty, which ought to be paid, or done.

The verb *acquit*, the participle *acquitted*, and the noun *acquittal*, do all signify a discharge from an offence objected. —In which sense we meet with *acquitted* by proclamation.

ACRASIA, *ακρασία*, is used by some writers in physic, for the excess or predominancy of one quality above another; either in a mixture, or in the constitution of a human body. The word is used by Hippocrates, and other Greek medicinal writers, to express excess of any kind, intemperance and imbecillity.

ACRAI, an Arabic word, signifying either SATYRIASIS, or FUROR uterinus.

ACRAS, or rather *Acbras*, the wild pear. See SAPOTA.

ACRATISMA, in *Antiquity*, a breakfast among the old Greeks, consisting of a morsel of bread soaked in pure unmixed wine.

ACRATOMELI. See MULSUM.

ACRATOS, from *α* negative, and *μερῶν*, I mix; simple, unmixed. This is very often used by Hippocrates, and applied to excretions of different sorts, and is always of very bad presage. Thus, in his *Prænotiones*, he observes, that in all painful disorders of the pleura and lungs, the spittle should appear mixed and yellow; and that it is a dangerous symptom if it be all yellow, without any mixture. And immediately after he tells us, that if the spittle be so unmixed, as to appear black, it is a very bad presage.

ACRE is used in the dominions of the Mogul, in regard to his revenues, for the sum of 100,000 roupees; eight roupees being equal to about one pound sterling.

ACRE, a quantity of land, containing four square ROODS, or 160 square POLES, or PERCHES.

The word perhaps is formed from the Saxon *acere*, or German *acker*, field, of the Latin *ager*. Salmasius derives it from *acra*, used for *acena*, a land measure among the ancients, containing 10 feet.

By the custom of countries the perch differs in quantity, and of consequence, the acres of land: it is commonly but 16½ feet; but in Staffordshire it is 24 feet. According to the stat. 34 Hen. VIII. concerning the sowing of flax, it is declared, that 160 perches make an acre; and the ordinance of measuring land, 35 Edw. I. agrees with this account. The word *acre* formerly meant any open ground or field; as *Castle-acre*, *West-acre*, &c. and not a determined quantity of land.

Also *acre*, or *acre-fight*, is an old sort of duel, fought by single combatants, English and Scotch, between the frontiers of their kingdoms, with sword and lance; and this duelling was also called camp-fight, and the combatants, champions, from the open field, that was the stage of trial.

Acre also by computation is 10 square chains, of 22 yards each, that is, 4840 square yards. And a mile being 1760 yards square, a mile square will be found to contain 640 acres.

The Scotch *acre* contains four Scotch roods, and bears proportion

proportion to that of the English by statute, as 100,000 to 78,694, regard being had to the difference betwixt the Scotch and English foot.

The French *acre*, *arpent*, contain $1\frac{1}{4}$ English *acre*, or 54,450 square English feet, whereof the English *acre* contains only 43,560.—The Strasburg *acre* is about half an English *acre*.—The Welch *acre* contains commonly two English ones.—The Irish *acre* is equal to one *acre*, two roods, nineteen perches $\frac{2}{3}$, English.

Houghton gives a table of the number of *acres* to a house in each county of South Britain, which is found to vary in the English counties, from $3\frac{1}{2}$ *acres*, the proportion in Middlesex, and $17\frac{1}{2}$ in Surry, to 49 *acres* in Southampton. In the Welsh counties, from 51 *acres*, as it is found in Flintshire, to 193, as in Merionethshire. Houghton.

Dr. Grew attempts to ascertain the number of *acres* in England, which, according to him, amounts to 46 millions and 80,000. Phil. Transf. N^o 330, p. 266, seq. or Abr. vol. iv. p. 450.

Sir William Petty reckons but 28 millions; others 29 millions. And by an account of the number of *acres* in each county, supposed to be taken from some old register, the number of *acres* in England amounted only to $39\frac{1}{4}$ millions. But Dr. Grew shews, that this is too little.

The united provinces are said to contain 4,382,000 *acres*: the province of Holland but one million of *acres*; and was thought formerly to contain 2,400,000 souls. But by the more accurate computations of Mr. Kerseboom, that province does not contain one million of souls. If England were as well peopled in proportion, it would contain 46 millions of inhabitants; that is, perhaps, about seven or eight times as many as it now contains.

By a statute of 31 Eliz. it is ordained, that if any man erect a new cottage, he shall add four *acres* of land to it. See POLITICAL Arithmetic and SURVEYING.

ACRE-Tax, a tax laid upon land at so much per *acre*.—In some places this is called *acre-shot*.

Impositions on lands in the great level are to be raised by a proportionable *acre-tax*, 20 Car. II. cap. 8.—An *acre-tax* of 2s. 6d. per *acre*, for draining Hadenham-level. 13 Geo. I. cap. 18.

ACREME, a term sometimes used in ancient law-books, for ten *acres*.

ACRIBELA, a term purely Greek, *Ακριβεια*, literally denoting an exquisite or delicate accuracy; it is sometimes used in our language for want of a word of equal signification.

ACRID, in *Natural History*, denotes any thing sharp or pungent to the taste.

Ancient *Naturalists* distinguish two kinds of *acid* tastes; the first proceeding from hot and dry, as that of pepper; the second from hot and moist, as that of garlic.

Acrid, according to Grew, properly belongs to the class of compound tastes. It is not simply sour or pungent; there being bodies not *acid*, which yet are pungent, e. g. *arum*; nor is it simply hot; for there are many hot bodies which are not *acid*, as the roots of zedoary, yarrow, and contrayerva.—The characteristic, therefore, of *acritude* consists in pungency joined with heat.

Acrid bodies, by the pungency and tenuity of their parts, incide, digest, heat, open, irritate, purge, cause appetite, &c. They inflame the skin, when chewed produce saliva, and when snuffed, sneezing.

The eating of *acid* food with these intentions, is particularly called by the Greeks *drimyphagia*.

Acrid things are hurtful to the head and eyes, and contrary to bilious temperaments; but advantageous to pituitous ones.

Acrids may be divided into classes, according as they yield their acrimony. 1. By distillation. 2. By infusion. 3. Neither by infusion nor distillation.

In leucophlegmatic habits they are powerful expectorants, deobstruents, diuretics, and emmenagogues. Their virtue frequently depends on the trouble which they give to the stomach.

ACRIDOPHAGI, in the ancient *Geography*, a nation, or people, said to have fed on locusts.

The word is compounded of *ακρις*, *locust*, and *φαγω*, *to eat*. The *Acridophagi* are represented as a people of Ethiopia, inhabiting near the deserts. In the spring they made provision of a large kind of locusts, which they salted, and kept for their standing food all the year; they lived to forty years of age, then died, as is said, of a sort of winged worms generated in their bodies. See S. Jerom against Jovinian, lib. ii. and on S. John, cap. 4. Diodor. Sicul. lib. iii. cap. 3. and 29. and Strabo, lib. xvi.—Pliny also speaks of *Acridophagi* in Parthia; and S. Jerom, in Libya.

Though the circumstances of these people be fabulous; yet may the *Acridophagia* be true; and to this day they are said to eat locusts in some parts of the East. This is confirmed by the accounts of the Danish mission, in Niebuhr's Description de l'Arabie, p. 150, &c. seq. And

hence St. John the Baptist is said to have lived on locusts, *ακριδες*, and wild honey, Matth. chap. iii. ver. 4.

Yet is the rendering *ακριδες*, by locusts, as the English translators have done, much controverted.—Isidore of Pelusium, in his 123d epistle, speaking of this food of St. John, says, it was not animals, but the tops of herbs; and even charges those who understood the word otherwise with ignorance; but St. Augustine, Beda, Ludolphus, and others, are of a different opinion. Accordingly the Jesuits of Antwerp reject, with contempt, the opinion of the Ebionites, who for *ακριδες* put *εσχιδες*, a delicious diet, prepared of honey and oil; that of some other innovators, who read *αχαριδες*, or *χαριδες*, *seacrats*; and that of Beza, who reads *αχραδες*, *wild pears*.

ACRIFOLIUM signifies any prickly leaved plant.

ACRIMONY, that quality in things which renders them ACRID to the taste.

Acrimony imports much the same with *asperity*, or sharpness; and expresses a quality in bodies, by which they corrode, destroy, or dissolve others.

Salts are only caustic in virtue of their *acrimony*. The *acrimony* of the bile is supposed the cause of divers disorders; and a catarrh is believed to be a defluxion of *acrimonious* humour.

The Bristol water is recommended by Dr. Randolph for tempering the bad effects of *acrimonious* blood. This he mentions as its first and principal virtue. See his Enquiry into the Medicinal Virtues of Bristol Water, 8vo. 1750.

ACRIS signifies a locust, the top of a mountain, and the extremities of fractured bones.

ACRIVIOLA, see NASTURTIUM *Indicum*, for which it is a name.

ACROAMATIC, in a more general sense, denotes a thing sublime, profound, or abstruse. In which sense it stands opposed to *exoteric*.

We say *acroamatic* philosophy, *acroamatic* theology, an *acroamatic* method, *acroamatic* interpretation, &c.

There are few sects, or professions, that have not two ways of teaching, if not two sorts of doctrine, an *acroamatic* for adepts and proficient; and an *exoteric* for novices. We find traces of this among the heathen as well as Christian divines, philosophers, and chemists. Hence the ceremonies of initiations, and ablutions, the discipline of secrecy; and hence also the origin of fables, ænigmas, parables, symbols, &c.

ACROAMATIC is sometimes also used in a more general sense for any thing kept secret, or remote from popular use. In which sense Reimman gives the title *Bibliotheca Acroamatica*, to a description of the MSS. of the library of Vienna, abridged from the vast commentaries of Lambecius and Nesselius.

ACROAMATICI, a denomination given the disciples, or followers of Aristotle, &c. who were admitted into the secrets of the inner or *acroamatic* philosophy.

ACROATICS, a name given to Aristotle's lectures in the more difficult and nice parts of philosophy; to which none but his disciples and intimate friends were admitted, whereas the *exoteric* were public or open to all: but there are other differences. The *acroatic* were set apart for the higher and more abstruse subjects; the *exoteric* were employed in rhetorical and civil speculations. Again, the *acroatics* were more subtle and exact, evidence and demonstration being here aimed at; the *exoterics* chiefly aimed at the probable and plausible. The former were the subject of the morning exercises in the Lyceum, the latter of the evenings: add that the *exoterics* were published, whereas the *acroatics* were kept secret, being either entirely concealed, or if they were published, it was in such obscure terms, that few but his own disciples would be the wiser for them. Hence, when Alexander complained of his preceptor for publishing his *acroatics*, and thus revealing what should have been reserved to his disciple; Aristotle answered, that they were made public and not public, for that none who had not heard them explained by the author, *viva voce*, would understand them. Gell. lib. ii. cap. 25. Plut. in Alex. Stanley's Hist. Phil.

The word is formed from *ακροασις*, *to hear*.

ACROBATICA, or ACROBATICUM, from *ακρος*, *high*, and *βασις* or *βασιν*, *I go*, an ancient engine, whereby people were raised aloft, that they might see more conveniently about them.

The *acrobatia* among the Greeks amounted to the same with what they call *scenarium* among the Latins.

Authors are divided as to the office of this engine. Turnebus and Barbarus take it to have been of the military kind, raised by the besiegers, high enough to overlook the walls, and discover the state of things on the other side. Baldus rather supposes it a kind of a moveable scaffold, or cradle contrived for raising painters, plasterers, and other workmen, to the tops of houses, trees, &c. Some suspect that it might have been used for both purposes. Vitruvius & Aquinas.

ACROCHIL-

ACROCHIRISMUS, ἀκροχειρισμός, among the *Ancients*, a kind of gymnastic exercise, wherein the two parties contended only with their hands and fingers, without closing, or engaging the other parts of the body.

The word is also written *acrochinesis*, and *acrochiria*: it is originally Greek, formed from ἀκροχειρ, the part employed in this combat, which some would needlessly restrain to the tips of the fingers; though the *etymon* does not make this necessary.

Some make this a distinct exercise from wrestling, and suppose it to have given the denomination *acrochiristæ* to a peculiar set of *athletæ* who professed it. Others with more probability consider it as only a species, or branch of wrestling; some will have it to have been properly only a prelude to a wrestling bout, wherewith the *athletæ* began to try each others strength, and bring their arms into play. This exercise made part of the *pancratium*. Pausanias speaks of a famous *pancratiast*, named Sostrates, who got the surname of *Acrochiristes*, or *Acrochiristes*, from his having overcome all his antagonists at the *acrochirisma*.—It appears to have been in use in the age of Hippocrates, who ascribes to it a virtue of extenuating the rest of the body, and making the arms fleshy.

ACROCHORDON, a painful species of *WART*, very prominent and pendulous, having a large head with a small pedicle, or base.

These are also called *penfiles verruæ*, or *hanging warts*, and stand distinguished from *sessiles verruæ*, or *myrmecia*. Others describe the *acrochordon*, as a harder, rougher sort of wart, growing under the cutis, very callous, and usually of the same colour with the skin; small at bottom, and bigger upwards, but rarely exceeding the size of a bean.

ACROCOLIA, ἀκροκολία, from ἀκρῶς, *extreme*, and κολον, *a limb*. These are the extremities of animals, which are used in food, as the feet of calves, swine, sheep, oxen, or lambs; and of the broths of which, jellies are made. They are recommended by Hippocrates as a proper food, where there is a tendency to a dropsy. They are in general recommended as strengtheners for weak people.

ACROCORION, in *Botany*, a name used by some authors for the several species of the spring crocuses.

ACROE, in *Botany*, the name given by the natives of Guinea to a kind of shrub, which they use in wine, as a restorative and analeptic. It is of the trifoliate kind, and has somewhat of the appearance of the corallodendrons, but is not prickly; the middle or end leaf stands on a pedicle of an inch long, the other two leaves have no pedicles at all. Phil. Trans. N^o 232.

ACROMION, **ACROMIUM**, in *Anatomy*, the upper process of the *SCAPULA*, or shoulder-blade.

The word is derived from ἀκρος, *highest*, and ὤμος, *shoulder*, q. d. the extremity of the shoulder.

Some have thought the *acromion* of a nature different from other bones; because, during infancy, it appears no more than a cartilage, which ossifies by little and little, and about the age of twenty years becomes hard and firm, like a common bone.

ACROMONOGRAMMATICUM, from ἀκρομονος and γράμμα, *letter*, among poets, denotes a kind of poem, or composition, wherein each subsequent verse commences with the letter with which the verse preceding terminates.

ACROMPHALION, from ἀκρος, *extreme*, and ομφαλος, *the navel*; the tip of the navel.

ACRON, ἀκρον, in *Medicine*, signifies that which is most excellent in its kind.

ACRON, in *Botany*, among the *Ancients*, was used to signify the *capitulum*, top, or flower of plants of the thistle kind.

ACRONYCHAL, **ACRONICHUS**, in *Astronomy*, is applied to the *RISE* of a star or other point, above the horizon, when the sun sets; or its *SETTING* when the sun rises.

The *acronychal* is one of the three poetical risings and settings of the stars; and stands distinguished from *cosmical* and *heliacal*.

Among ancient writers, a star was properly said to be *acronychal*, or to rise *acronychally*, which rose in the evening when the sun was set. Greek writers, it is true, use the term ἀκρονυχίας indifferently, in speaking either of evening or morning, by reason both are considered as ἀκρὰ τῆς νυκτός, *the extremities of the night*. And hence, among them we find *acronychal* applied to the rising and setting of the stars, either in the morning or evening. But the ancients were more distinct, and by the ἀκρονυχτιος rather meant the first beginning or approach of night, than the end or period of it; and accordingly among them, the stars which rose in the evening, not those in the morning, were said to rise *acronichally*.

This word is sometimes ignorantly spelt *achronical*, or *achronichial*, from a mistaken notion of its being derived from α, and χρόνος, *time*.

ACRONYCHAL is likewise an appellation more peculiarly

given to the superior planets, Saturn, Jupiter, and Mars, when they were come to the meridian of midnight.

ACRONYCTÆ, stars rising in the twilight, about sun-setting.

ACROPATHOS signifies literally a disease at the top or superior part.

ACROPOSTHIA, ἀκροποσθία, or ἀκροποσθια, from ἀκρῶς, *extreme*, and πρῶτη, the prepuce, or skin, which covers the glans of the penis, denotes the extremity of the prepuce, that which is cut off in circumcision.

ACROSPELOS, a name given to the wild-oat grass, or *BROMUS*.

ACROSPIRE, in *Natural History*, &c. the same with *PLUMULE*.

ACROSPIRED, or **ACRESPIRED**, is used in respect of barley; which, in the operation of making *MALT*, is apt, after coming, or sprouting, at the lower or root-end, to become *acrospired*, i. e. to sprout also at the upper or blade-end.

By 6 Geo. I. cap. 21. *Malt-makers* are forbid to wet or water their malt when on the floor, or couch; or to permit it to *acrespire*.

ACROSTIC, a kind of poetical composition, the verses whereof are disposed in such manner, as that the initial letters make up some person's name, title, motto, or the like. The word is derived from the Greek ἀκρῶς, *summus*, that which is at one of the extremes; and σίχως, *versus*.

There are also *acrostics*, where the name or title is made up by the initial letters of the middle words, or the last of the final ones.—And others which go backwards; beginning with the first letter of the last verse, and proceeding upwards. Some refiners in this trifling way, have even gone to *PENTACROSTICS*; where the name is to be repeated five times.

ACROSTIC is also an appellation given by some authors to two ancient epigrams in the first book of the *Anthology*; the one in honour of Bacchus, the other of Apollo. Each consists of 25 verses, the first whereof is the proposition, or argument of the whole, and the other 24 composed of four epithets, beginning each with the same letter, and thus following in the order of the 24 letters of the Greek alphabet: so that the first of the 24 comprehends four epithets beginning with α; the second as many, with β; and so of the rest to ω; which makes 66 epithets for each god.

Among *Ecclesiastical Writers*, *acrostics* denote the ends of verses of psalms, which the people sang by way of chorus, or response, to the *præcentor*, or leader of the psalm. This was called singing *acrostics*, *acrostichia*, which was a species of psalmody usual in the ancient church.

Acrostic, in this sense, amounts to the same with *hypopsalma*, *diapsalma*, *acrotelution*, and *epbhymnion*, which are all terms of the same signification.

Though an *acrostic* properly signifies the beginning of a verse, yet it is sometimes also used for the end and close of it; as by the author of the *Constitutions*, when he orders one to sing the hymns of David, and the people to sing after him the *acrostics*, or ends of the verses.

It does not, however, denote precisely the end of the verse, but something added at the end of a psalm, or something frequently repeated in the course of a psalm, answering to our *gloria patri*.

Some pretend to find *acrostics* in the Psalms, particularly in those called *ABECEDARIAN* Psalms.

ACROSTICHUM, *forked fern*, in the Linnæan system of *Botany*, the name of a genus of capillary plants, belonging to the *cryptogamia filices* class, the character of which is, that the fructifications are not disposed in any regular manner on the leaves, as in most of the other capillary plants; but they are so placed as to form a heap, covering the whole underside of the leaf: Linnæus enumerates twenty-nine species.

ACROSTOLIUM, in *Antiquity*, an ornament of the prow, or fore-castle of a ship, chiefly of war; sometimes shaped like a buckler, a helmet, or an animal, but more frequently turned circular or spiral. The ancients had divers decorations or additional parts to their ships, called by a general name κορυμβά; those on the prow were more particularly called σολος, of which the extreme part alone was denominated *acrostolium*.

To the *acrostolia* may be referred the *anserculus*, mentioned by Baysius; and also those polished steel pieces resembling a duck's neck, used by the Venetians at the heads of their gondolas.

The *acrostolia* were torn from vanquished ships, and fastened to the conqueror's, as a signal of victory. We frequently find them represented on the reverses of ancient medals. An *acrostolium* is also seen in the famous sculpture of the *apotheosis* of Homer.

ACROTELEUTIC, from ἀκρῶς and τέλος, *end*, among *Ecclesiastical Writers*, denotes the end of a verse or psalm; or something added thereto to be sung by the people.

In which sense *acroteleutic* amounts to the same with *acrotelic*, *hypopsalma*, *diapsalma*, *epode*, &c.

The *gloria patri* is by some writers called the *acroteleutic* to the psalms; because always used to be repeated by the people at the end of each.

Hence the word *acroteleutic* is sometimes also used as synonymous with *DOXOLOGY*.

ACROTERIA, or **ACROTERS**, in *Architecture*, little pedestals, usually without bases, anciently placed at the middle, and the two extremes, of **PEDIMENTS**; and serving also to support statues.

The word in its original signifies the (*ακρον*) extremity of any body; as the tip of a rock, &c.

Those at the extremes ought to be half the height of the **TYPANUM**; and that in the middle, according to **VITRUVIUS**, should be one eighth part more.

ACROTERIA sometimes also signify figures, whether of stone, or metal, placed as ornaments, or crownings, on the tops of temples, or other buildings.

Sometimes they also denote those sharp **PINNACLES**, or spiry battlements, which stand in ranges about flat buildings, with rails and ballusters.

ACROTERIA, among ancient *Physicians*, were used to denote the great extremities of the body, as the head, hands, and feet.

The *acroteria* growing cold in acute distempers, is held a prognostic of death; as indicating a decay of the vital flame, either by reason of a coagulation of the blood, or too great a consumption of it before.

Aristotle also uses *acroteria*, for the tips or extreme parts of the fingers, covered by the nails; sometimes also for the eminences of the bones.

ACROTERIASM, among ancient *Physicians*, the act of cutting off the extreme parts of the body, when putrified, by a saw; i. e. the amputation of any extremity.

ACROTHYMIA, in *Surgery*, the name of a large tumor in the flesh, rising in the shape of a wart, though sometimes depressed and flat, called **THYMUS**. Heister. See **NÆVUS**.

ACT, **ACTUS**, in *Physics*, an effective exercise, or application of some power, or faculty.

In this sense, *act* stands opposed to power, *potentia*, which is only the capacity of *acting*, not the exertion of that capacity.

Though the word *act*, properly and primarily, be only applicable where the power might exist without being drawn forth into *act*; yet the schoolmen extend it farther; defining it by the presence of any power or perfection, even though it could not be absent.

In which sense, God himself is said to be a most pure *act*; by reason his perfections are always and necessarily present. And thus, form is called an *act*; inasmuch as the presence hereof completes the power and perfection of matter.—**FORM**, say some, is **MATTER** reduced into *act*. Even existence is termed an *act*; because, when this is given to a being, nothing farther is wanted. The Greeks sometimes call *act* *ενδεχεια*, a term denoting an actual possession of perfection, by the Latins usually rendered *perfectibilitas*.

Metaphysicians give various divisions of *act*; viz. into *infinite*, as the *act* of creating; and *finite*, as the *act* of moving.—*Transient*, or those exercised in other beings, as heating; and *immanent*, which remain in their own subject, as thinking.

ACT, in *Logic*, is particularly understood of an operation of the human mind.

Thus to discern, examine, and judge, are *acts* of the understanding; to affirm and chuse, are *acts* of the will.

There are voluntary *acts*, and spontaneous ones, which seem produced without the privity, or participation of the soul.

ACT, in a *legal* sense, is an instrument, or other matter in writing; of use to declare, or justify the truth of a thing. In which sense, records, decrees, sentences, reports, certificates, &c. are called *acts*, authentic *acts*, solemn *acts*, &c. See **DEED**.

ACTS also denote the deliberations and resolutions of an assembly, senate, council, or convocation; taken down by clerks, notaries, actuaries, or the like, and entered in a register.

ACTS of the Senate, *acta senatus*, among the Romans, were minutes of what passed, and was debated in the senate-house.

These were also called *commentarii*, and by a Greek name *ιππομνηματα*. They had their origin in the consulship of Julius Cæsar, who ordered them both to be kept and published. The keeping them was continued under Augustus, but the publication was abrogated. Afterwards all writings, relating to the decrees or sentences of the judges, or what passed and was done before them, or by their authority, in any cause, were all called by the name **ACTA**. In which sense we read of civil *acts*, criminal *acts*, intervenient *acts*, **ACTA civilia**, **criminalia**, *intervenientia*, &c.

ACTS of the people, *acta populi*, among the Romans, were journals or registers of the daily occurrences, as assemblies, trials, executions, buildings, births, marriages, deaths, &c. of illustrious persons, and the like.

These were otherwise called *acta publica*, and *acta diurna*, or simply *acta*.

The *acta* only differed from annals, in that only the greater and more important matters were in the latter, and those of less note in the former. Tacitus Annal.

Their origin is attributed to Julius Cæsar, who first ordered the keeping and making public the acts of the people; some trace them higher, to Servius Tullius, who, to discover the number of persons, born dead, and alive, ordered that the next of kin, upon a birth, should put a certain piece of money into the treasury of *Juno Lucina*; upon a death, into that of *Venus Libitina*: the like was also to be done upon assuming the *toga virilis*, &c. Under Marcus Antoninus, this was carried farther; persons were obliged to notify the births of their children, with their names, and surnames, the day, consul, and whether legitimate, or spurious, to the præfects of the *ærarium Saturni*, to be entered in the public *acts*. Though before this time the births of persons of quality appear to have been thus registered. Suetonius. Piti. Lex.

ACTS, Public. The knowledge of public *acts* has been erected into a peculiar science, called the *diplomatic*, of great importance to an historian, statesman, chronologer, and even critic. The preservation of them was the first occasion of erecting libraries.

The style of *acts* is generally barbarous Latin. Authors are divided as to the rules of judging of their genuineness, and even whether there be any certain rules at all? F. Germon will have the greater part of the *acts* of former ages to be spurious. Fontanini asserts, that the number of forged *acts* now extant is very small. It is certain there were severe punishments inflicted on the forgers and falsifiers of *acts*.

The chief of the English *acts*, or public records, are published by Rymer, under the title of *Fœdera*, and continued by Sanderfon: an extract whereof has been given in French by Rapin, and translated into English, under the title of *Acta Regia*. Great commendations have been given this work, and some exceptions made to it: as that there are many spurious *acts*, as well as errors in it; some have even charged it with falsifications.

The public *acts* of France fell into the hands of the English after the battle of Poitiers, and are commonly said to have been carried by them out of the country. But the tradition is not supported by any sufficient testimony, and has even been shewn by M. Brussel to be false.

ACTS of Council. These differed from canons, in that the latter contained only the results, or the laws and regulations agreed on, and drawn up in form; whereas the *acts* included the preceding debates, motions, &c.

In the first collections of councils, only the bare canons were delivered. Afterwards they began to give the *acts* as well as the canons.

Hence we have two kinds of synodical collections: one containing all the *acts*, or transactions, relating to matters of faith and doctrine; the other, containing only the canons relating to discipline, is called the book of **CANONS**.

ACTS of Parliament are particularly denominated *Statutes*. The *acts* of the Royal Society are called *Transactions*; those of the Royal Academy of Sciences at Paris, *Memoirs*; those of the societies of Leipzig, &c. simply *acts*, **ACTA eruditorum**, &c.

The edicts and declarations of the council of the Roman emperors, were called consistory *acts*, **ACTA consistorii**.

ACTS, Clerk of the, is an officer of the navy. See **CLERK**.

ACTS are also matters of fact transmitted to posterity in certain authentic books, and memoirs.

In which sense we say, the **ACTS of the Apostles**, **ACTS of the Martyrs**, &c.

ACTS of the Apostles, a canonical book of the New Testament, which contains great part of the lives of St. Peter and St. Paul; commencing at the Ascension of our Saviour, and continued down to St. Paul's arrival at Rome, after his appeal to Cæsar, comprehending in all about thirty years. St. Luke has been generally taken for the author of this book, and his principal design in writing it was to obviate the false **ACTS**, and false histories, which began to be dispersed up and down the world. The exact time of his writing it is not known; but it must have been at least two years after St. Paul's arrival at Rome, because it informs us that St. Paul dwelt two whole years in his own hired house; perhaps he wrote it while he remained with St. Paul, during the time of his imprisonment.

There are also spurious **ACTS of the Apostles**, composed in Hebrew by one Abdias; translated into Greek by his disciple Eutropius; and thence into Latin, by Julius Africanus.

The book called *Acts* of Pilate, relating to Jesus, is a false and supposititious relation of our Saviour's trial before Pilate; impiously framed by the enemies of Christianity; and filled with the grossest blasphemy.—The emperor Maximin, by a solemn edict, ordered it to be sent into all the provinces of the empire; and enjoined the school-masters to teach and explain it to their scholars, and make them learn it by heart.

The piece was written with so much carelessness or ignorance, that our Saviour's death was therein referred to the 4th consulate of Tiberius, that is, to the 7th of his empire; which is eleven years before our Saviour's passion, and five before Pilate was made governor of Judea. See Eusebius, lib. ix. cap. 4. and 6. Ruffin, lib. i. cap. 5, &c.

The true and genuine *acts* of Pilate were sent by him to Tiberius, who reported them to the senate; but they were rejected by that assembly, because not immediately addressed to them: as is testified by Tertullian, in his Apol. cap. 5. and 20, 21. Euseb. Hist. lib. ii. cap. 2.

ACT, in the universities, a thesis maintained in public by a candidate for a degree; or, to shew the capacity and proficiency of a student in the UNIVERSITY.

The candidates for a degree of bachelor and master of arts are to hold philosophy *acts*; those for bachelor of divinity are to keep divinity *acts*, &c.

At Oxford, the time when the masters or doctors complete their degrees, is also called the ACT; which is held with great solemnity: at Cambridge they call it the *commencement*.

ACT of faith, *Auto da fe*, in the Romish church, is a solemn day held by the INQUISITION, for the punishment of heretics, and the absolution of the innocent accused.

They usually contrive the *auto* to fall on some great festival; that the execution may pass with the more awe and regard: at least it is always on a Sunday.

The *auto da fe* may be called the last act of the inquisitorial tragedy; it is a kind of goal-delivery, appointed as oft as a competent number of prisoners in the inquisition are convicted of heresy; either by their own voluntary, or extorted confession; or on the evidence of certain witnesses. The process is thus: in the morning, they are brought into a great hall, where they have certain habits put on, which they are to wear in the procession. The procession is led up by Dominican friars, after which come the penitents, some with san benitos, and some without, according to the nature of their crimes; being all in black coats without sleeves, and bare-footed, with a wax candle in their hands. These are followed by the penitents who have narrowly escaped being burnt, who over their black coats have flames painted, with their points turned downwards, *fuego revolto*. Next come the negative, and relapsed, who are to be burnt, having flames on their habit pointing upwards; after these come such as profess doctrines contrary to the faith of Rome, who, besides flames pointing upwards, have their picture painted on their breasts, with dogs, serpents, and devils, all open-mouthed about it. Each prisoner is attended with a familiar of the inquisition, and those to be burnt have also a Jesuit on each hand, who are continually preaching to them to abjure. After the prisoners, comes a troop of familiars on horse-back, and after them the inquisitors, and other officers of the court, on mules; last of all, the inquisitor-general on a white horse, led by two men with black hats and green hat-bands.

A scaffold is erected in the Terreiro de Paio, big enough for two or three thousand people; at one end of which are the prisoners, at the other the inquisitors. After a sermon made up of encomiums of the inquisition, and invectives against heretics, a priest ascends a desk near the middle of the scaffold, and having taken the abjuration of the penitents, recites the final sentence of those who are to be put to death; and delivers them to the secular arm, earnestly beseeching at the same time the secular power not to touch their blood, or put their lives in danger.

The prisoners being thus in the hands of the civil magistrate, are presently loaded with chains, and carried first to the secular goal, and from thence in an hour or two brought before the civil judge, who, after asking in what religion they intend to die, pronounces sentence, on such as declare they die in the communion of the church of Rome, that they shall be first strangled, and then burnt to ashes; on such as die in any other faith, that they be burnt alive.

Both are immediately carried to the Ribera, the place of execution, where there are as many stakes set up, as there are prisoners to be burnt, with a quantity of dry furze about them. The stakes of the professed, that is, such as persist in their heresy, are about four yards high, having a small board towards the top for the prisoner to be seated on. The negative and relapsed, being first strangled and burnt, the professed mount their stakes by a

ladder; and the Jesuits, after several repeated exhortations to be reconciled to the church, part with them, telling them they leave them to the devil, who is standing at their elbow to receive their souls, and carry them with him into the flames of hell. On this a great shout is raised, and the cry is, let the dogs *beards be made*, which is done by thrusting flaming furze, fastened to long poles, against their faces, till their faces are burnt to a coal, which is accompanied with the loudest acclamations of joy. At last, fire is set to the furze at the bottom of the stake, over which the professed are chained so high, that the top of the flame seldom reaches higher than the seat they sit on, so that they rather seem roasted than burnt. There cannot be a more lamentable spectacle; the sufferers continually crying out, while they are able, *miseria cordia per amor di Dios*: yet it is beheld by all sexes, and ages, with transports of joy and satisfaction. Geddes's Misc. Tracts, tom. i. p. 442. Limb. Hist. Inq. lib. iv.

ACTS, in Poetry, are certain divisions, or principal parts, in a dramatic poem, contrived to give a respite, or breathing-time, both to the actors and spectators.

In the interval, between the *acts*, the stage remains empty, and without any action visible to the spectators; though it is supposed all the while there is one passing out of sight. It is not, however, purely for the sake of the respite, that these *acts* are observed; but to give affairs a greater degree of probability, and render the intrigue more affecting. For the spectator who sees the action prepared that is to pass in the interval, cannot forbear acting, in his imagination, the part of the absent actors; by which means, he is the more agreeably surprised when a new *act* coming upon the stage, he sees the effects of that action, which before he could but guess at.

To this it may be added, that authors contrive to have the most dry and difficult part of the drama transacted between the *acts*, that the spectators may have no notion of these, excepting what their fancy presents them with at a distance; and that nothing may appear upon the stage but what is natural, probable, and entertaining.

The ancient Greek poets were unacquainted with this division of a play into *acts*: though their episodes, or choruses, served almost the same purpose.

It is true, they considered their pieces as consisting of certain parts or divisions, which they called *protasis*, *epitasis*, *catastasis*, and *catastrophe*: but there were no real divisions or interruptions answering to them in the representation. The Romans first introduced *acts* into the drama; and in Horace's time, the five acts were grown into a law, as appears by the verse,

Neu brevior quinto, neu sit productior, actu.

This law stands unrepealed to this day; though it seems to draw its force from the authority of Horace, rather than that of reason, or nature.—All plays are held irregular that have either more, or fewer, than five acts.

Some indeed have asserted, that every just action consists of five distinct parts: and have undertaken to mark out the precise share of the action, which each of the five *acts* ought to bear.

The first, they say, is to propose the matter or argument of the fable, and to shew the principal characters.—The second, to bring the affair or business upon the carpet.—The third, to furnish obstacles and difficulties.—The fourth either points a remedy for those difficulties, or finds new ones in the attempt.—The fifth puts an end to all by a discovery.

Be this as it will, it is certain, on the principles of that great master of the drama, Aristotle, we may have a just and regular play, though only divided into three *acts*.

These *acts* are subdivided into SCENES.

ACTÆA, in Botany, the name whereby Linnæus distinguishes the *christophoriana* of Tournefort. He ranges it under the *polyandria monogynia* class. The corolla has four petals; the calyx is four-leaved; the fruit is a single celled berry, and the seed semiorbiculated. There are two species.

ACTE, the elder. See ELDER-trees.

ACTIAN Games, *Ludi ACTIACI*, solemn games, instituted, or, according to some, only restored, by Augustus, in memory of the victory at Actium.

Stephanus, and some others, will have them held every third year; but the more common opinion is that of Strabo, who says, they only returned every fifth, and were celebrated in honour of Apollo, since surnamed *Actius*. By the way, it is a gross oversight in some authors, to imagine that Virgil insinuates them to have been instituted by Æneas; from that passage *Æn.* III. v. 280.

Actiaque Iliacis celebramus littora ludis.

It is true, the poet there alludes to the *Actian* games; but he only does it by way of compliment to Augustus, to attribute that to the hero from whom he descended,

which was done by the emperor himself: as is observed be Servius.

ACTIAN Years, anni ACTIACI, were a series of YEARS, commencing from the æra of the battle of Actium; called the æra of Augustus. See EPOCHÆ.

ACTINE, ἀκτινῆ, in Botany, a name of the herb BUNIAS, or NAPUS.

ACTINIA, in the History of Insects, a genus of sea-animals, of the order of the *gymnarthria*, naturally of a cylindric shape, but of variable figure; the *tentacula* are very numerous, and are ranged in several series about the mouth, which is placed at one of the extremities of the body; these are in a continual vibratory motion, and by that means draw small animals into its mouth for food. The whole animal is equally thick in all parts, and is about half an inch long; its tail is divided into three parts, or terminated, as it were, by three points: it is of a pale flesh-colour, except the *tentacula*, which have a beautiful variety of colours. It lodges itself in little cavities of rocks, and of the larger sea-plants of the stony kind; and is found on the coasts of the American islands, of various species; differing from each other in figure, colour, &c. In the Linnæan system, this is a genus of the *mollusca* order of worms, including five species. See ANEMONIES.

ACTION, in a general sense, denotes the operation of a power. The idea of *action* is so familiar to us, that a definition may as easily obscure as explain it.—Some schoolmen, however, attempt to express its nature by ‘a manifestation of the power or energy of a substance; made either within, or without it.’—Thus, say they, when the mind *acts*, what does it more than perceive a vital power exerting itself; as, in reality, the several *actions* of the mind are no other than so many indications of its vitality?

It is a point controverted among the schoolmen, whether or not *action*, thus taken, be a thing distinct both from the agent, and the term, or effect. The *modists* stand for the affirmative, and the *nominalists* assert the negative. These latter observe, that the *action* may be considered two ways, *entitatively* and *connotatively*.

ACTION *entitatively* taken, is what we call a CAUSE, or what may act.

ACTION, *connotatively* considered, is the same cause, only considered as acting, or connoting the effect it produces. Now, say they, a cause may be without any *action*, connotatively taken, i. e. it may be considered as not producing an effect; but it cannot be without it entitatively, for that would be to be without itself. Hence they conclude that the cause differs from the action connotatively, not entitatively taken; and the agent is the cause of the *actions*, considered connotatively, not entitatively.

Actions are divided, with respect to their principle, into UNIVOCAL, where the effect is of the same kind with the cause; as the production of man by man; and EQUIVOCAL, where it is different, as the supposed production of frogs by the sun.—And again into VITAL; as nutrition, respiration, the *action* of the heart, &c. and NOT-VITAL; as heating.

With respect to their subject, *actions* are divided into IMMANENT; which are received within the agent that produced them; as are vital *actions*, cogitation, &c.—And TRANSIENT, which pass into another.

In respect of duration, *actions* are again divided into INSTANTANEOUS, where the whole effect is produced in the same moment; as the creation of light: and SUCCESSIVE, where the effect is produced by degrees; as corruption, fermentation, putrefaction, dissolution, &c. The Cartesians resolve all physical *action* into metaphysical. Bodies, according to them, do not act on one another; the *action* all comes immediately from the Deity; the motions of bodies, which seem to be the cause, being only the occasions thereof. See OCCASIONAL CAUSE.

It is one of the laws of nature, that *action*, and reaction, are always equal, and contrary to each other.

For the *actions* of powers, &c. see POWER, WEIGHT, MOTION, RESISTANCE, and FRICTION.

For the laws of the *action* of fluids, &c. see FLUID and SPECIFIC GRAVITY.

ACTION, in Physics; the *actions* or functions of the body, each part of which has an action peculiar to itself. They are divided by the writers of institutes, into the *vital*, *animal*, and *natural*. The *vital* are such as are essential to the subsistence of the individual; such are the motions of the heart and lungs, the secretion of spirits in the cerebellum, on which the motions of the heart and lungs depend; and the circulation of the blood and fluids in their proper vessels. *Pulsation* and *respiration* are the external signs of life.

The *natural* actions are such as are necessary to the continuance of the animal, but not so immediately, but that it may subsist some time under a suspension of them; as the digestion of the aliment, and its conversion into blood.

Under *animal actions* are comprehended those which constitute the senses of touch, taste, smell, vision, hearing, perception, imagination, memory, judgment, ratiocination, affections of the mind, and voluntary motion; without any, or all of which, it is impossible for an animal to live.

In the year 1752, Dr. White published an ingenious performance, under the title of an Essay on the vital and other voluntary Motions of Animals, 8vo. and in the same year Dr. Simpson also published a book on Vital and Animal Actions, 8vo.

ACTION also, in Physics and Mechanics, denotes the action of bodies on each other by pressure.

If a body be urged by equal and contrary actions or pressures, it will remain at rest. But if one of these pressures be greater than its opposite, motion will ensue towards the parts least pressed.

It is to be observed, that the *actions* of bodies on each other, in a space that is carried uniformly forward, are the same as if the space were at rest; and any powers or motions that act upon all bodies, so as to produce equal velocities in them in the same, or in parallel right lines, have no effect on the mutual *actions*, or relative motions. Thus the motions of bodies aboard a ship, that is carried steadily and uniformly forward, are performed in the same manner as if the ship was at rest. The motion of the earth round its axis has no effect on the *actions* of bodies and agents at its surface, but so far as it is not uniform and rectilinear. In general the actions of bodies upon each other, depend not upon their *absolute*, but *relative* motion.

ACTION, *Quantity of*, in Mechanics, is used for the product of the mass of a body, by its velocity.

When a body is transported from one place to another, the *action* is the greater, in proportion to the mass, to the velocity or rapidity of the motion. See MOMENTUM.

Monf. de Maupertuis lays it down as a general principle, that ‘whenever any changes happen in nature, the quantity of *action* necessary to produce this change is always the least possible.’ And this, he says, is a law indicating the highest wisdom.

From this general principle, and the common rule for finding a *minimum* by fluxions, he deduces the known laws of percussion, for hard and elastic bodies, and even the laws of rest, as he calls them; that is the equilibrium, or equipollency of pressures.

This ingenious author seems to think that the laws of motion, thus deduced, afford a stronger proof for the existence of God, or of a first intelligent cause, than the other arguments commonly alledged, and deduced from the order of nature. But we apprehend, that few metaphysicians will be of his opinion. The proof of a God from the order of nature, seems to depend upon two principles: 1. That there is an order in nature. 2. That this order is contingent. For if this order was not contingent, but absolutely necessary, as Spinoza, and other atheists pretend, it seems, that no sufficient reason, from the order of nature, could be assigned for the existence of a first intelligent cause. Now, Monf. de Maupertuis not having established the contingency of this principle of the *minimum* of *action*, his argument seems defective in this respect, not to mention others.

Mr. Euler has demonstrated, that in the trajectories described by bodies urged by central forces, the velocity multiplied by the element of the curve, is always a *minimum*. Monf. Maupertuis looks on this as an application of his principle to the motion of the planets. Mem. de l’Acad. de Berlin, 1746, tom. ii. p. 290.

ACTION, in Ethics, or moral ACTION, is a voluntary motion, of a creature capable of distinguishing good and evil; whose effect, therefore, may be justly imputed to the agent. See MORAL.

A *moral action* may be more fully defined to be whatever a man, considered as endued with the powers of understanding and willing, with respect to the end he ought to aim at, and the rule he is to regard in acting, resolves, thinks, does, or even omits to do; in such a manner as to become accountable for what is thus done or omitted, and the consequences thereof.

The foundation, then, of the morality of *actions*, is, that they are done knowingly and voluntarily.

All moral *actions* may be divided, with respect to the rule, into GOOD and EVIL.

ACTION, in Oratory, is an accommodation of the person of the orator to his subject; or, a management of the voice and gesture, suited to the matter spoken, or delivered.

Action makes one of the greatest branches or divisions of rhetoric, as usually taught. The ancients usually call it *pronunciation*.

Action is a collateral or secondary method of expressing our ideas; and is susceptible of a kind of eloquence as

well as the primary.—It is an address to the external senses; which it endeavours to move, and bring into its party, by a well concerted motion and modulation; at the same time that the reason and understanding are attacked by force of argument. Accordingly, Tully very pertinently calls it *sermo corporis*, the discourse of the body; and *corporis eloquentia*, the eloquence of the body.—The Roman mimes and pantomimes, we read, had such a copia in this kind, such a compass even of mute *action*, that voice and language seemed useless to them; they could make themselves understood to people of all nations; and Roscius, the comedian, is particularly famed, as being able to express any sentence by his gestures, as significantly and various as Cicero with all his oratory. Quintilian gives us a system of the rules of *action*; taken not only from the writings of the ancient orators, but from the best examples of the forum.

What we usually attribute to eloquence, was really the effect of the *action* only, as some of the greatest masters in that way have frankly acknowledged.—Demosthenes expressly calls it, ‘the beginning, the middle, and the end of the orator’s office;’ and Cicero professes that ‘it is not of so much importance what the orator says, as how he says it.’

After all, it is a point that will bear being controverted, whether *action* ought to be practised, and encouraged at all? A thing that has so much command over mankind, it is certain, must be very dangerous; since it is as capable of being turned to our disadvantage, as to our advantage. It is putting a weapon in the hands of another, which, if he pleases, he may make use of to subdue and enslave us: and, accordingly, history is full of the pernicious uses made of it.—For this reason, eloquence and *action* are generally discouraged in the modern policy; and both the bar, and the pulpit, are brought to a more frigid way of delivery.

Perhaps the foundation of all *action* may be vicious and immoral.—Voice and gesture, we know, will affect brutes; not as they have reason, but as they have passions: so far as these are used in a discourse, therefore, it does not regard an assembly of men, more than it would a herd of quadrupeds: that is, their whole effort is spent, not on the rational faculties, which are out of the question, but on the animal ones, which alone they endeavour to possess and actuate, independently of reason.—Nay, more, our reason, and the judgment itself, are intended to be biassed and inclined by them; *action* being only used as an indirect way of coming at the reason, where a direct and immediate one was wanting; i. e. where the judgment cannot be taken by the proper means, argument, it is to be taken indirectly, by circuit, and stratagem.

The natural order of things, then, is here inverted: our reason, which should go before, and direct our passions, is dragged after them: instead of coolly considering, and taking cognizance of things; and according to what we perceive therein, raising ourselves to the passions of grief, indignation or the like, we are attacked the other way; the impression is to be carried backwards, by virtue of the natural connection there is between the reason and the passions: and thus the helm, the principle of our actions, is taken out of our own hand, and given to another. See PASSION.

The case is much the same here, as in sensation and imagination: the natural and regular way of arriving at the knowledge of objects, is by sense; an impression begun there, is transmitted to the imagination, where the image is produced, similar to that which first struck on the organ.—But the process is sometimes inverted: in hypochondriac, lunatic, and other delirious cases, the image is first excited in the imagination; and the impression thereof communicated back to the organs of sense: by which means objects are seen, which have no existence.

Upon the whole, *action* does not tend to give the mind any information about the subject that is discussed; nor is it designed to convey any arguments or ideas which the simple use of language would not convey. But is it not that which we should form our judgments upon? And can any thing help us to form a just judgment, beside that which in some way or other enlightens and convinces our understanding. When Cicero made Cæsar tremble, turn pale, and let fall his papers, he did not apprize him of any new guilt which Cæsar did not know of: the effect had no dependence on Cæsar’s understanding; nor was it any thing more than might have been produced by the unmeaning sounds of a musical instrument duly applied. However, *action* may be useful in awakening and fixing the attention, provided that it be accompanied with suitable argument and address. See GESTURE.

ACTION, in a theatrical sense, is nearly the same with that among orators; with this difference, that the actor adapts his *action* to an assumed character, whereas the orator

is supposed, in reality, to feel the passion which his *action* expresses, whether joy, or grief, &c.

ACTION, in Poetry, is an event, either real or imaginary, which makes the subject of an epic, or dramatic poem. The *action* of a poem coincides nearly with the fable thereof; it being the usual practice, not to take any real transaction of history, but to feign or invent one; or at least to alter the historical fact, so as to render it in good measure fictitious.

F. Bossu has two chapters, *Of real actions*, the recitals whereof are fables: and *Of feigned actions*, the recitals whereof are historical.

The critics lay down four qualifications, as necessary to the epic and tragic *action*: the first, UNITY; the second, INTEGRITY; the third, IMPORTANCE; and the fourth, DURATION; to which some add a fifth, viz. CONTINUITY.

This unity is not only to exist in the first draught, or model of the fable; but in the whole episodized *action*.

In order to the integrity of the *action*, it is necessary, according to Aristotle, that it have a beginning, middle, and end.—If the three parts of a whole seem to be generally denoted by the words, *beginning*, *middle*, and *end*, Bossu interprets them more expressly, thus: the causes and designs of a man’s doing an *action*, are the beginning; the effects of those causes, and the difficulties met withal in the execution of those designs, are the middle of it; and the unravelling and extricating of those difficulties is the end of the *action*.

The poet, says Bossu, should so begin his *action*, that, on one hand, nothing should be farther wanting for the understanding of what he afterwards delivers; and, on the other, that what thus begins require after it a necessary consequence. The end is to be conducted after the like manner, only with the two conditions transposed; so that nothing be expected after it, and that what ends the poem be a necessary consequence of something that went before it. Lastly, the beginning is to be joined to the end by a middle, which is the effect of something that went before it, and the cause of what follows.

In the causes of an *action*, one may observe two opposite designs; the first and principal, is that of the hero: the second comprehends all their designs, who oppose the pretensions of the hero. These opposite causes do all produce opposite effects, viz. the endeavours of the hero to accomplish his design, and the endeavours of those who are against it.—As the causes and designs are the beginning of the *action*, so those contrary endeavours are the middle of it, and form a difficulty, plot, or intrigue, which makes the greatest part of the poem. And the solution or clearing up of this difficulty, makes the unravelling.

The unravelling of the plot, or intrigue, may happen two ways; either with a discovery, or without.

The several effects which the unravelling produces, and the different states to which it reduces the persons, divides the *action* into so many kinds.—If it change the fortune of the principal person, it is said to be with a peripetia; and the *action* is denominated *implex*, or mixed: if there be no peripetia, but the unravelling be a mere passing from trouble to repose, the *action* is simple.

For the duration of the epic *action*, Aristotle observes, it is not so limited as that of the tragic *action*: the latter is confined to a natural day; but the epopea, according to that critic, has no fixed time. In effect, tragedy being full of passion, and consequently of violence, which cannot be supposed to last long, requires a shorter time; and the epic poem, being for the habits which proceed more slowly, requires a longer time, either for them to take hold, or to be rooted up; and hence the difference between the epic and dramatic *action*, in point of duration. Bossu lays it down as a rule, that the more vehement the manners of the principal personages are, the less time ought the *action* to last: accordingly, the *action* of the Iliad, containing the wrath of Achilles, &c. holds but forty-seven days; whereas that of the Odyssey, where prudence is the reigning quality, lasts eight years and a half; and that of the Æneid, where the prevailing character of the hero is piety and mildness, nearly seven years. As to the importance of the epic *action*, there are two ways of providing for it: the first, by the dignity and importance of the persons. This way alone Homer makes use of; there being, otherwise, nothing great and important in his models, but what might have happened to ordinary persons.—The second, by the importance of the *action* itself; such as the establishment, or downfall of a religion, or a state; which is Virgil’s *action*, and in which he has much the advantage of Homer.

Bossu mentions a third way of making the *action* important, viz. by giving a higher idea of the personages, than what the readers conceive of all that is great among men.—This is done by comparing the characters of the poem with those of the present time.

ACTION is also used in *Painting* and *Sculpture*, for the posture of a figure; or the *action* it is supposed to be in; expressed by the disposition of the body, or the passion appearing in the face.

ACTION of the *Mouth*, in the *Manege*, denotes the agitation of a horse's tongue, and mandible, or his champing on the bit; discoverable by a white, rosy foam.—This, with the masters, passes for a sign of health, vigour, and mettle.

ACTION, in the *Military Art*, is an engagement between two armies, or between different bodies of troops belonging to them. This term is likewise used to signify some memorable act done by an officer, or commander of a body of troops.

ACTION, in *Law*, is a right of demanding, and pursuing, in a court of judicature, what is any man's due.

Or, *action* is any kind of *PROCESS* which a person enters for the recovery of his right. See *CAUSE*.

Actions are divided, by Justinian, into two general kinds; *real*, or those against the thing; and *personal*, or those against the person.—For whoever brings an *action*, either does it against one obnoxious to him, in respect either of contract, or of offence: in which case arise *actions* against the person, which require the party to do, or give something: or, he does it against one not obnoxious, yet with whom a controversy is risen touching some matter; as, if Caius hold a field, which Julius claims as his property, and brings his *action* for the same. See the *Instit. lib. iv. tit. 4.* where the principal *actions* introduced by the Roman law, are summarily explained.

In common law, from the two classes of *real* and *personal actions*, arises a third, called a *mixed action*; which regards both the *person* and the *thing*.

ACTION, *Real*, is that whereby the defendant claims title to lands, or tenements, rents, or commons, in fee-simple, fee tail, or for life.

But *real actions*, formerly so numerous and considerable, as writs of right, of entry, &c. with their appendages, as *grand cape*, *petit cape*, receipt, view, aid-prayer, voucher, counter-plea of voucher, counter-plea of warranty, and recovery of value, are now much out of use; by reason of the usual admixture of personal matters therewith, which change them into *mixed actions*.

ACTION, *Personal*, is that which one man hath against another, on account of a contract for money or goods; or of an offence done by him, or some other person, for whose fact he is answerable.

ACTION, *Mixed*, is that laid indifferently for the *thing* detained, or against the *person* of the detainer; being thus called, because it has a mixed respect, both to the *thing*, and to the *person*.

Others better define it, a suit given by law to recover the thing demanded, and damages for the wrong done.

Such is, assize of *novel disseisin*, which, if the disseisor make a feoffment to another, the disseisee shall have against the disseisor, and the feoffee, or other terretenant; to recover not only the land, but damages also. And the like in *action* of waste, *Quare impedit*, &c. See *ASSISE*.

Actions are also divided into *CIVIL* and *PENAL*.

ACTION, *Civil*, is that which only tends to the recovery of what, by reason of a contract, or other like cause, is a man's due.—As, if a person by *action* seek to recover a sum of money formerly lent, &c.

ACTION, *Penal*, aims at some penalty upon the party sued, either corporal, or pecuniary.

Such is the *Actio Legis Aquiliæ*, in the *Civil Law*; and with us, the next friends of a man feloniously slain, or wounded, shall pursue the law against the offender, and bring him to condign punishment.

ACTION is also distinguished, as it lies for the recovery either of the simple value of the thing challenged; or of the double, triple, quadruple, &c.

Thus, a *Decies tantum* lies against embracers; and against jurors that take money for their verdict, of either, or both parties.

To this class also belong all *actions* on a statute that punishes an offence by restitution, or fine, proportionable to the transgression.

Action, again, is divided into *prejudicial*, called also *preparatory*, and *principal*.

ACTION, *Prejudicial*, is that which arises from some question, or doubtful point in the *principal* one.

As, if a man sue his younger brother, for land descended from his father; and it be objected, he is a bastard; this point of bastardy must be tried, before the cause can proceed: whence the *action* is termed *præjudicialis*, quia prius judicanda.

ACTION, again, is either *ancestral*, or *possessory*.—*Ancestral action*, is that which we have by some right descending from our ancestor.—*Possessory*, sometimes also called *personal action*, is that which hath its beginning in and from ourselves.

ACTION upon the *Case*, *Actio super causam*, is a general *action*, given for the redress of a wrong done any man without force, and not especially provided for by law.

This, of all others, is now most in use.—Where there arises an occasion of suit; that has neither fit name, nor certain form already prescribed; the clerks of the chancery, anciently, conceived a proper form of *action* for the thing in question: which was called an *action* upon the *case*, by the civilians *Actio in factum*.

ACTION upon the *Statute*, *Actio super statutum*, is a writ or *action*, brought against a man, upon an offence against a *STATUTE*, whereby an *action* is given that did not lie before.

Thus, where one commits perjury to the prejudice of another, he who is damaged shall have a writ upon the statute, and a cause accordingly.

ACTION, *Popular*, only differs from an *action* upon the statute, in that, where the statute gives the suit or *action* to the party grieved; or otherwise, to one single person certain, it is called *action* upon the statute; and where the authority is given by the statute to every one that will so sue, it is an *action popular*.

Action is also divided into *perpetual* and *temporal*.

ACTION, *Perpetual*, is that whose force is not determined by any period or term of time.

Of this kind were all civil *actions* among the ancient Romans; viz. such as arose from laws, decrees of the senate, and constitutions of the emperors; whereas *actions* granted by the prætor died within the year.

We have also *perpetual* and *temporary actions* now in England; all being perpetual, which are not expressly limited.

Divers statutes give *actions*, on condition they be pursued within the time prescribed.—Thus the statute of 1 Edw. VI. gives *action* for three years after the offences committed, and no longer; and the statute of 7 Hen. VIII. cap. 3. does the like for four years; and that of 31 Eliz. cap. 5. for one year, and no more.

But, as by the civil law no *actions* were so perpetual, but that by time they might be prescribed against; so, in our law, though *actions* be called *perpetual*, in comparison of those that are expressly limited by statute; yet is there a means to prescribe against real *actions*; after five years, by a fine levied, or a recovery suffered. See *PRESCRIPTION*.

Again, *actions* are either *local*, as ejectment, waste, &c. which must be brought in the county where the land lies; or *transitory*, such as debt, detinue, &c. which may be brought in any county.

ACTION of a *Writ*, is when a person pleads some matter, whereby he shews, that the plaintiff had no just cause to have the writ he brought, though it be possible he might have another writ or *action* for the same matter.—Such plea is called, a *Plea to the action of the writ*.

When by the plea it appears, that the plaintiff has no cause of any *action* for the thing demanded, it is called, a *Plea to the action*.

ACTION, in affairs of *Commerce*, or **ACTION** of a *COMPANY*, is a part or share in the company's stock or *CAPITAL*, which consists of a number of such *actions*.

Actions in France and Holland, amount to the same with *shares*, or *subscriptions*, in England.

Thus, the capital of a company, which has three hundred *actions* of a thousand livres each, consists of three hundred thousand livres. Hence, a person is said to have four or six *actions* in such company, if he hath contributed to the capital, and be interested in it for four or six thousand livres.

A proprietor cannot have a deliberate vote in the assemblies of a company, unless he has a certain number of *actions*, fixed by the letter-patent of its establishment; nor can he be a director, unless he has a still greater number of *actions*.

ACTION also denotes an obligation or instrument, which the directors of such companies deliver to those who pay money into their stock. See *BANK* and *ACTIONARY*.

Actions are always rising and falling, according as the company's credit gains or loses. The smallest whisper of an approaching war or peace, true or false, shall frequently occasion a considerable alteration in it. In the year 1719, the French company of the West, since called the India Company, arrived at such an immense degree of credit, that in six months time its *actions* rose to eighteen hundred per cent. a degree of temporary credit which no other company ever attained.

In 1672, the *actions* of the Dutch East India Company were at six hundred and fifty per cent. and they were never known to be higher.—But the war with France then coming on, they fell 250 per cent. in a few months. After the peace of Nimeguen, they rose again; and in 1718 were 600 per cent.

The French have three kinds of *actions*.—*Simple*, which are intitled to a share in all, both the profits and losses of the

the company.—*Rentieres*, intitled only to a profit of two per cent. sure; for which the king is security.—And *interested actions*, which claim the two per cent. secured by the king: and are also to share the excess of the dividend with the simple *actions*.

There were several other kinds of *actions* introduced by the brokers, in the busy days of the *Rue Quinquempoix*; but they have since sunk into oblivion; these were called mother *actions*, daughter, grand-mother, grand-daughter *actions*, &c.

To *melt* or *liquidate* an *action*, is to sell, or to turn it into money, &c.

To *feed* an *action*, is to pay exactly when they become due, the several sums subscribed to the stock of the company, according to the several orders of council, made for the creation of the new *actions*.

ACTIONARY, or **ACTIONIST**, a term frequent in foreign news-papers; denoting the proprietor of an *action*, or share in a company's stock.

ACTIVE, **ACTIVUS**, something that communicates motion, or action, to another.

In this sense, the word stands opposed to *passive*.

Thus we say, an *active* cause, *active* principles, &c.

The quantity of motion in the world, Sir Isaac Newton shews, must be always decreasing, in virtue of the *vis inertiae*, &c. So that there is a necessity for certain *active* principles to recruit it: such he takes the cause of gravity to be, and the cause of fermentation. Adding, that we see but little motion in the universe, except what is owing to these *active* principles.

ACTIVE Principles, in *Chemistry*, are those which are supposed to act of themselves, and do not need to be put in action by others.

Salt, sulphur, and mercury, are usually considered by the chemists as *active principles*; and phlegm and earth as passive ones.

M. Homberg, and some late chemists after him, only make one *active principle*, viz. sulphur, or fire; which they take to be the source or principle of all the motion and action of the universe.

The term *active principles*, says Dr. Quincy, has been used to express certain divisions of matter, that are, by some particular modifications, comparatively *active*, in respect of others: such are spirit, oil, and salt, whose parts are better fitted for motion than those of earth and water; but with how much impropriety will easily appear.

For, in a strict sense, all motion in matter is rather passive; and there is no *active principle*, unless we thus call the known powers of gravitation, attraction, and repulsion, on which the Newtonian philosophy is founded: so that let bodies exist under what modifications soever, there can be no alteration made of these universal properties.—Hence, the division of matter into what, for distinction sake, may be called *spirit*, does not give it any properties inconsistent with this general law.

ACTIVE, in *Grammar*, denotes a word having a signification that serves to explain or denote an action.

Thus we say, a verb *active*, a conjugation *active*, &c. or an *active* participle.

ACTIVE Verbs, are such as do not only signify doing, or acting, but have also nouns following them, to be the subject of the action or impression.

Thus, *to love*, *to teach*, are verbs *active*; because we can say, *to love a thing*, *to teach a man*.

Verbs *neuter* also denote an action, but are distinguished from verbs *active*, in that they cannot have a noun following them. Such are, *to sleep*, *to go*, &c.

Some grammarians, however, make three kinds of verbs *active*: the *transitive*, where the action passes into a subject different from the agent; *reflected*, where the action returns upon the agent; and *reciprocal*, where the action turns mutually upon the two agents who produced it.

ACTIVITY, the power of acting, or the active faculty.

The *activity* of fire exceeds all imagination.—The *activity* of an acid, a poison, &c.—Bodies, according to Sir Isaac Newton, derive their *activity* from the principle of **ATTRACTION**.

ACTIVITY of a Body, the *Sphere of*, is the space which surrounds it, so far as its efficacy or virtue extends to produce any sensible effect.

ACTON Water, a purging water of a well in a town near London, noted for the pungency of its salt. Its colour is whitish, its taste is sweetish, with a mixture of the same bitter which is in the *Epsom water*. Its salt is not quite so soft, and is more calcareous than that of the *Epsom water*, being more of the nature of the salt of lime; it is however more nitrous than the other. A quantity of it being boiled high, and mixed with a solution of sublimate in pure water, throws down a yellow sediment. It strikes a deep red or purple with the tincture of logwood in brandy, as is usual with nitrous salts. It does not precipitate silver out of the spirits of nitre, as common salt does; a pint and a half of the water yield

forty-eight grains of salt. See Allen's History of Purging Waters.

ACTOR, one that acts in the *drama*, one who represents some person, or character, upon the theatre.

The drama, in its original, only consisted of a simple chorus, who sung hymns in honour of Bacchus: so that the primitive actors were no more than singing men. Thespis was the first who took upon him to introduce a persona, or actor; who was to ease the chorus, by reciting the adventures of some of their heroes. Thus came the recitation, or declamation in use.

Æschylus finding a single person tiresome, thought to entertain the audience more agreeably by the introduction of a second person, who should converse and make dialogue with the first. He likewise dressed his actors a little more decently than they had been before, and put on them the **BUSKIN**.

Sophocles, finding the two persons of Æschylus too few for the variety of incidents, added a third; and here the Greeks stopped; at least, we do not find, in any of their tragedies, above three persons in the same scene: though, in their comedies, they took a greater liberty.

The moderns have brought a much greater number of actors upon the stage. This heightens the trouble and distress that should reign there, and makes a diversity, in which the spectator is sure to be interested.

Horace speaks of a kind of secondary actors, in his time, whose business was to imitate the first; and lessen themselves, to become better foils to their principals. The proper business of these subaltern actors is unknown to us.

ACTOR, among *Civilians*, the proctor or advocate in civil courts or causes: *actor ecclesiæ* has been sometimes used for the advocate of the church; *actor dominicus* for the lord's attorney; *actor villæ*, the steward, or head bailiff of a village.

ACTRESS, **ACTRIX**, a female who acts, or does the office of an actor.

Actresses, or women actors, were unknown to the ancients, among whom men always performed the part of women; and hence one reason for the use of masks among them. Mem. Acad. Inscrip. tom. vii. p. 188.

Actresses are said not to have been introduced on the English stage till after the restoration of King Charles II. who has been charged with contributing to the corruption of our manners, by importing this usage from abroad. But this can be but partly true; the queen of James I. acted a part in a pastoral; and Prynne, in his *Histriomastrix*, speaks of women actors in his time as whores; which was one occasion of the severe prosecution brought against him for that book. Whitlock, Mem. 1632. Wood's Athen. Oxon. tom. ii. p. 434.

ACTUAL, something that is real and effective; or that exists truly and absolutely.

In *Philosophy*, we say, *actual* heat, or cold; in opposition to *virtual* or *potential*.

Actual heat, considered actively, is the act of producing heat: passively taken, it is the quality whereby a body is denominated *hot*. *Virtual* or *potential heat*, actively taken, is the power or faculty of producing heat; passively taken, it should be the power or faculty of being heated, or of receiving *actual heat*.

In medicinal language, *actual* is also opposed to *potential*, and is applied to any thing endued with a quality which operates by an immediate power inherent in it. For example: a red-hot iron, or fire, is called an *actual* caustery, in contradistinction from cauteries, which have a power of producing the same effects on animal solids, as *actual* fire; and which are called *potential* cauteries or caustics. Boiling water is *actually* hot, and brandy is *potentially* hot.

Actual sin is that committed knowingly, by a person arrived at years of discretion.

Original sin, in *Theology*, is that which, according to some divines, we contract by descent, as being the children of Adam.

ACTUARIÆ Naves, in *Antiquity*, a sort of long ships, thus denominated, as being particularly contrived for swiftness and expedition; they answer to what the French call *brigantines*.

Cicero, in an epistle to Atticus, calls a ship *decem scalmarum*, of ten banks of rowers, *actuariola*.

ACTUARIUS, or **ACTARIUS**, primarily denotes a notary, or officer appointed to write down the acts or proceedings of a court, assembly, or the like.

In the Eastern empire, the *actuarii* were properly officers who kept the military accounts, received the corn from the *susceptores*, or store-keepers, and distributed it to the soldiers. These acted as a kind of brokers with the soldiers; made bargains with them for receiving their pay before it became due; for which there were fixed rates. Aquin. Pitisc. & Du-Cange.

ACTUARIUS was also a title of dignity, in the court of Constantinople, peculiar to physicians. Du-Cange.

From an appellative, the word has become a proper name of a celebrated Greek physician, author of a treatise still extant, on urines. Fabr. Bibl. Græca, tom. xii. p. 635.

ACTUARIUS, or **ACTUARY**, also means the clerk who registered the acts and constitutions of the convocation.

ACTUATE, to bring into act; or put a thing in action. Thus an agent is said, by the schoolmen, to *actuate* a power, when it produces an act in a subject.—And thus the mind may be said to *actuate* the body.

ACTUATIO, actuation, signifies the change wrought on a medicine, or any thing else taken into the body, by the vital heat, which is necessary to make it act, and produce its effect.

ACTUS, in the ancient *Agriculture*, the length of one furrow; or as far as a plough goes before it turns. Plin. lib. xviii. cap. 3.

In English it may be rendered by a *furlong*. It is also used as a determinate measure, where it contains 120 Roman feet. Vitruvius.

ACTUS minimus, was 120 feet in length, and 4 in breadth; being equal to the **SEXTANS**, or sixth part of the **JUGERUM**, or **INTEGER**.

ACTUS major, called also *actus quadratus*, was the square of 120 feet, or 14,400 being the *semis*, or half of the **JUGERUM**.—This was also denominated *modius*, and *mina*. Varro de Re Rust. lib. i. cap. 10.

ACUANITES, **ACUANITÆ**, in *Ecclesiastical History*, called more frequently **MANICHEES**.

They took the name from *Acua*, a disciple of Thomas, one of the twelve apostles. Bib. Univ. tom. xxiv. p. 330.

ACUBENE, in *Astronomy*, a name given by some to a star on the southern claw of **CANCER**.

ACUHYATLI, in *Zoology*, the name of a very large serpent, of a poisonous quality, in America, more usually known by its name of **CUCURUCU**, or **CURUCUCA**.

ACUTION, in *Grammar*, *Prosody*, and *Medicine*. See **ACUTITION**.

ACULEATE, **ACULEATED**, something that has **ACULEI**, or prickles.

Naturalists divide fishes into those with *aculeated*, and non-*aculeated* fins. Phil. Transf. N° 204.

ACULEATUS longus, in *Ichthyology*, a name given by some to the **PUGNITIUS marinus longus**, a small prickly West-India fish. Willughby. See **STICKLEBACK**.

ACULEI, amongst *Botanists*, &c. denote the prickles or spines of plants of the thorny kind.

The word is Latin, formed from *acus*, a needle.

Among *Zoologists*, *aculeus* is also used for the sting of a bee, scorpion, or the like.

The word *aculeus* is also used for certain parts of the **ECHINI marini**. See *Tab. of Fossils*, Class 10.

ACULEI pinnarum. See **PINNÆ**.

ACULEOSA, a name of the **CARDUUS polyacanthos**.

ACULER, in the *Manege*, is used for the motion of a horse, when in working upon volts he does not go far enough forward, at every time or motion, so that his shoulders embrace or take in too little ground, and his croupe comes too near the centre of the volt. Horses are naturally inclined to this fault, in making demi-volts.

ACUMEN, *οξύτης*, in the *Antient Music*, was used to signify a sound produced by the *intention*, or raising of the voice.

Acumen differs from *intention*, as the *effect* from the *cause*. Aristoxen. p. 10. &c. Ed. Meibom.

ACUMINA, among the *Ancients*, denoted a kind of military omen, or auspice, supposed to have been taken from the points or edges of darts, javelins, swords, or other weapons, viz. by examining whether they were bright or solid, sharp or blunted.

ACUPUNCTURE, or **ACUPUNCTURATION**, a method of curing many diseases, by pricking several parts of the body with a needle, or instrument of that form.

This is practised every day by the Chinese and Japanese and other nations in that part of the world. They perform the operation with a large gold or silver needle, which they strike into the several parts of the body, either with their hand, or with a hammer made on purpose. It is extremely surprising that so severe and desperate an operation should be practised so much by a people otherwise judicious, and that too in the head and breast, as well as in the abdomen, arms, legs, thighs, and many other parts of the body, nay even in the abdomen of women with child, when the foetus is restless.

Surgeons are furnished with images, wherein all the places in the body proper for the needle are designed by marks. M. Ten. Ryne was an eye-witness of the use of this puncture on a soldier, who being afflicted with violent disorders of the stomach, and frequent vomitings at sea, suddenly relieved himself by pricking a thumb's breadth deep into four different places about the region of his **PYLORUS**. Ten. Ryn. Diff. de Acupunct. ap. Phil. Transf. N° 1, 8. p. 231, seq.

We sometimes also find mention of an *acupuncture* practised in Europe; but this amounts to no more than perforating or opening a part, e. g. the cornea, with the point of a needle; which has been done with good success, for the cure of an *hydrophthalmia* and *hydropsyon*.

It is chiefly used in diseases of the head and lower belly: it is applied to the head in head-aches, lethargies, convulsions, epilepsies, diseases of the eyes, &c. To the abdomen in colics, dysenteries, want of appetite, hysterical disorders, surfeits, pains of the belly and joints, obstructions of the liver and spleen, &c.

ACURON, a name given to the **ALISMA**.

ACUS, in *Ichthyology*, the name of a long and slender sea-fish, of which there are two species, a larger and a smaller.

The larger is often a cubit long, and not thicker than a finger; its snout is long, tubular, and not slit all the way up, but only open at the end; its eyes are prominent. From the head to the anus it is of an hexagonal figure, and from the anus to the tail it is square. The anus is nearly in the middle of the body, and near it is a long longitudinal fissure for the eggs of the female. In all these respects, it very much resembles the hippocampus. It has two fins at the gills, and another on the back; these are all very small, and the last in particular, scarce discernible, unless when the fish is alive and in motion. Its tail is a small single fin. It has a hard variegated skin, and has so little flesh about it, that it is not regarded as eatable. It is common in the Mediterranean, and is called by the Venetian fishermen *biscia*, that is, the viper-fish. Its mouth is of a strange figure, opening upward at the end of the snout. See *Tab. of Fishes*, N° 25. Rondelet.

Acus signifies also, with other authors, the *belone* or *paphix*, called in English the **GAR-fish**, and by some the **HORN-fish**. The two distinct kinds understood by this too general term, are distinguished by the names of the authors who first named them; the **TOBACCO-pipe fish**, or that with the tubular nose, being called the *acus* of Aristotle; and the **GAR-fish**, or that with the horizontal open mouth, the *acus* of Oppian.

This last is in shape somewhat like the former, being very long and slender, with a round back, and a flat belly. Its nose or snout is very long, pointed and sharp, and its head flat. The back is of a greenish colour, and the sides and belly of a silver white. The head is of a bluish green, and there is an obscurely purple dotted line, which runs all along the back. The under jaw is longer than the upper, and both are thick set with sharp teeth. It has only one back fin, and its tail is forked. Willughby. See Phil. Transf. vol. lxiii. part i. N° 21. from which it appears, that though the **ACUS maxima squamosa** be a fish that is a stranger to our seas, yet its *exuviae* are common here. Bellonius has described another species of this fish, which is sealy, and has broader teeth, and is considerably larger than the common one, which either has no scales, or extremely minute ones. Its dotted line on the back is said by some to be a single row of scales; and these authors affirm, that the fish has no other. See **LACERTUS**.

Acus is also used by some authors for the **AMMODYTES**, or **SAND-eel**; a small eel caught in the sands. Willughby.

Acus also signifies chaff.

Acus pastoris, a name of the **SCANDIX**.

Acus moschata, a name of the **GERANIUM moschatum**.

ACUTE, *sharp*, something that terminates in a point, or edge; disposed either for piercing, or cutting.

In this sense the word usually stands opposed to *obtuse*.

ACUTE angle, in *Geometry*, is that which is less than a right angle; or which does not subtend 90 degrees.

Such is the angle **ACB** (*Tab. Geometry*, fig. 68.)

ACUTE-angled triangle, is that whose three angles are all *acute*; called also an *oxygonous triangle*.

Such is the triangle **ACB** (*Tab. Geometry*, fig. 68.)

ACUTE-angular-section of a cone, is used, by the ancient *Geometricians*, for the **ELLIPSIS**.

ACUTE-angled cone. See **CONE**.

ACUTE, in *Music*, is understood of a sound, or tone, which is sharp, shrill, or high, in respect of some other.

In which sense the word stands opposed to *grave*; and both these properties of sound depend on the quickness or slowness of the vibrations by which they are produced.

Sounds considered as *acute*, and *grave*, that is, in the relation of gravity and *acuteness*, constitute what we call *tune*, the foundation of all **HARMONY**.

ACUTE accent, in *Grammar*. See **ACCENT**.

ACUTE disease. See **DISEASE**.

ACUTELLA, in *Botany*, a name used by some to express the common **ANONIS**, or **REST-harrow**, a small prickly plant, with red or white flowers, and famous for its spreading and tough root. Ger. Emac. Ind. 2.

ACUTIATOR, in writers of the barbarous ages, denotes a person that whets, or grinds cutting instruments: called

called also in ancient glossaries, *acutor*, *anonymus*, *famarius*, *cobarius*, &c. Du-Cange.

In the ancient armies there were *acutiatores*, a kind of smiths, retained for whetting or keeping the arms sharp. Aquin.

ACUTITION, or **ACUTION**, in a general sense, the same with acuating or sharpening.

ACUTION, in *Grammar*, denotes the pronouncing, or marking a syllable with an acute **ACCENT**.

ACUTION, or *acution*, in *Medicine* and *Chemistry*, is used for sharpening or increasing the force of any medicine.

ACYROLOGIA, denotes an improper acceptance, or expression, wherein a word or phrase is used in some unusual or oblique sense, hardly reducible to the rules of language. The word is compounded of *ακυρος*, *improper*, and *λογος*, *sermo*.

Such, e. g. is the word *spero*, sometimes used in Roman writers for *timeo*.

The *acyrologia* bears a near affinity to the *catachresis*, inasmuch that divers terms and expressions, alledged as instances of the latter, are by others brought as examples of the former.

AD bestias, in *Antiquity*, is understood of a kind of punishment of criminals, condemned to be thrown to wild beasts. The term was also applied to a sort of gladiators hired to fight with wild beasts.

These are otherwise called *bestiarii*, Cal. Lex. Jur. p. 36.

AD extra, a term used among *School Divines*, in speaking of the external operations of the Godhead.

Acts or operations *ad extra*, are properly those whose term or effect is not within the divine essence; by which they stand opposed to operations *ad intra*. Creation, preservation, regeneration, conversion, renovation, &c. are actions of God *ad extra*.

AD intra, among *School Divines*, is understood of those acts of the Divine Being, whose term and effect is within his own essence. In which sense, acts or operations *ad intra*, stand opposed to those *ad extra*.

AD hominem, among *Logicians*, is understood of a kind of **ARGUMENT** drawn from the belief or principles of those we argue with, and which of consequence must be conclusive to them, though otherwise disbelieved by us; or, it is where a disputant quits his own language and system, and borrows that of his opponent to convince him, by turning his own prejudices or errors against himself. This the schoolmen call *argumentum ad hominem*.

AD libitum, is sometimes used in *Music*, for *se piace*, at discretion.

AD ludos, in *Antiquity*, a Roman sentence, whereby criminals were condemned to entertain the people, either by fighting with beasts, or with each other, and thus executing justice on themselves. Kennet. Rom. Ant.

AD metalla, in *Antiquity*, the punishment of being doomed to work in the mines. Criminals condemned to this, were called *metallici*.

It were to be wished that punishments of this kind could be substituted in lieu of our frequent executions; which are as repugnant to the principles of humanity as to those of sound policy.

AD quiddities, among schoolmen, include the relations, analogies, agreements, disagreements, similitudes, and dissimilitudes of things.

Ad quiddities are properly those attributes of things, which answer to the question, *ad quid? to what?* By which they differ from mere **QUIDDITIES**, which answer to the question, *quid sit? what is it?* The latter enquire what things are in themselves; the former what they are, *ad alia*. Herb. de Verit. p. 233.

AD valorem, is used in speaking of the duties, or customs, paid for certain commodities; some things are rated by the weight, measure, tale, or the like; others pay *ad valorem*, according to the value or worth, sworn to by the owner.

ADAGE, **ADAGIUM**, a proverb, or popular saying.

Erasmus has made a large and valuable collection of Greek and Roman *adages*, from their poets, orators, philosophers, &c.

Adage, proverb, and *parocmia*, are the same thing; but they differ from *gnome*, *sentence*, and *apophthegm*.

ADAGIO, in *Music*, one of the words used by the Italians to denote a degree or distinction of time.

Adagio expresses a slow time; the slowest of any, except grave. Used substantively, it signifies a slow movement. Sometimes this word is repeated, as *adagio*, *adagio*, to denote a still greater retardation in the time of the music.

ADAL, in the sense of Paracelsus, signifies that part of plants, in which their medicinal virtue consists; or the pure and active parts of plants, separate from the impure and inert.

ADALIDES, in the Spanish policy, are officers of justice, for matters touching the military forces.

In the laws of king Alphonfus, the *adalides* are spoken of, as officers appointed to guide and direct the marching of the forces in time of war.—Lopez represents them as a

sort of judges, who take cognizance of the differences arising upon excursions, the distribution of plunder, &c.

ADAMANT, **ADAMAS**, in *Natural History*, &c. an ancient name for a precious stone, by us called a **DIAMOND**.

Adamas is used by some ancient *Naturalists*, for the spume or *scoria* of gold; which is cast away, as not being malleable. This is particularly called *χρυσος ἀδαμαντα*, and is mistaken by Pliny for a gem of that name.

ADAMANT is also used for a species of iron, denoting the hardest, or highest tempered part thereof.

This is sometimes called the *adamantine* part of iron.

Mr. Boyle more particularly gives the denomination *adamas lucidus*, to a diamond in his possession, which had the faculty of shining in the dark; a property since discovered in many others, at least when excited by friction. Vide Boyle, Phil. Work. Abr. tom. i. p. 494. Id. tom. iii. p. 155.

ADAMANT is sometimes also used for the **MAGNET**, or load-stone.

In which sense Skinner thinks it may be best derived from the French *aimant*, which signifies the same.

ADAMANTII, in *Church History*, a name given by some Christian historians to the followers of Origen, surnamed *Adamantius*, because of his unwearied pains in reading and writing; or the strength and acuteness of his reasoning, according to some; or rather, as Heuman says, whose name was *Adamantius*: however, Eusebius says, this was a common name given to Origen, without assigning any reason for it. Euf. lib. vi. cap. 14.

ADAMAS, in *Astrology*, a name given to the moon.

ADAMI pomum, in *Anatomy*, a protuberance in the fore-part of the throat.

Some fancy it thus called upon a strange conceit, that a piece of the forbidden apple, which Adam eat, stuck by the way, and was the occasion of it.

In reality, it is only the convex part of the first cartilage of the *larynx*, called *scutiformis*.

The name, Adam's apple, is also given to a kind of fruit frequent in Italy, resembling a lemon, said to be a good remedy against the itch.

ADAMIC earth, is a name some have given to common clay; called also *terra zoica*, *rubella*, and *lutum*. Woodw. Meth. Fos. p. 4.

The occasion of the name we suppose to be, that this is taken for the *adamah*, or ruddy earth, of which the first man was formed.

This appellation is likewise given to the mud deposited by sea-water, which is a sediment of the most slimy and uctuous parts contained in it.

ADAMITES, **ADAMITÆ**, a sect who took upon them to imitate the nakedness of Adam: as if man had been reinstated in his original innocence.

The critics explain the name Adam, אָדָם, from whence the term arises, variously; some by *earth*, others by *red*, others by *acquiescence*.

Prodicus was their author, according to the account given by Theodoret; though, according to Tertullian and Clement of Alexandria, the followers of Prodicus were never called by this name. Epiphanius is the first writer who speaks of the *Adamites*, and he places them towards the end of the second century.—They were, in reality, a branch sprung out of the **CARPOCRATIANS** and **BASILIDIANS**.

This sect is said to have started up afresh in the fifteenth century, under Picard, their leader; who pretended to re-establish the law of nature, which, according to him, consisted in two things, viz. community of women and nakedness.—These last walked naked in the publick places; whereas the former only put off their clothes in their assemblies.

An ingenious writer, viz. Beaufobre, has shewn, that the *Adamitism*, i. e. the nakedness of these people, is a mere calumny, forged by their adversaries, the Calixtines and Papists, at the time when the Vaudois first appeared in that country.

Jovet and Moreri speak of *Adamites* in England; and indeed the Romanists and Reformed mutually reproach each other with having *Adamites* among them.

ADAMITES, in *Church History*, a name given by some writers to the first patriarchs, the sons or descendants of Adam by Seth. In which sense *Adamites* amount to the same with *Sethites*, and stand distinguished from *Cainites*. There are divers traditions concerning the quarrels, wars, &c. between the *Adamites* and the *Cainites*.

ADAMITES, *Præ*. See **PRE-ADAMITES**.

ADAMITUM and *Adamita*, the hardest white stones, and stones in the bladder. The former, Paracelsus says, are a species of **TARTAR**.

ADAMUS, *Adam*. This is used in an *alchemistical* sense, to signify the philosopher's stone, which they call an animal, and say it has carried its invisible *Eve* in its body ever since the moment they were united by the Creator.

ADAR, in the Hebrew *Chronology*, the twelfth month of their

their ecclesiastical year, and the sixth of their civil year. It contains only nine and twenty days, and answers to our February, and sometimes enters into the month of March, according to the course of the moon. On the seventh and thirteenth days of this month the Jews observe two fasts; the former on account of the death of Moses, and the latter called that of Esther, in commemoration of the affair of Haman. The feast of *purim* is celebrated on the fourteenth day. Esther ix. 17.

ADARCE, in the *Materia Medica* of the ancients, a saltish humour concreting about the stalks of reeds, and other vegetable matter, in form of incrustations. The ancients speak of *adarce*, as chiefly produced in Cappadocia and Galatia, though we also read of it in Italy; and of a native kind produced in Indian reeds, much as sugar in the cane. Its colour is like that of the fine powder of the Asian stone, or *sarcophagus*, and its substance all lax and porous, much like the bastard sponge; so that it might be called the bastard sponge of the marshes. It is a *topic* adapted to rub and scour the skin in a leprosy, sun-burning, tetters, freckles, and such like blemishes, being on the whole of an acrimonious quality. Dr. Plott describes it in his Natural History of Oxfordshire. Tho' some have supposed the incrustations, often seen about our springs, to be the same with the *adarce* of the Greek physicians; this seems a mistake, as these incrustations possess none of the virtues or properties of that substance; it being principally composed of sea-salt, of which those contain no particle, being merely a mixture of earth and spar.

ADARCON, *adarconim*, an ancient coin mentioned in Scripture, usually of gold, derived, as some think, from those gold pieces coined by Darius, called *Δαρειχοι*. Hostius makes the *adarcon* only equal to the Attic *drachma*; but bishop Cumberland, after the scholiasts of Aristophanes and Harpocration, twice as much.

ADARIGES, a name for *SAL ammoniac*.

ADARME, in *Commerce*, a small Spanish weight used through their American provinces, equal to the sixteenth part of an ounce. Stephens renders it in English by a dram.

ADARNECH, a name for *ORPIMENT*.

ADARTICULATION, is used, by some physicians, for *αρθρωδια*, by others for *διαρθρωσις*. See *ARTHRDIA*, and *DIARTHROSIS*.

ADATAIS, or *ADATYS*, a muslin or cotton cloth, very fine and clear, of which the piece is ten French ells long, and three quarters broad. This muslin comes from the East Indies, and the finest from Bengal.

ADCHER, in the *Materia Medica*, a name given by Avicenna and Serapion to the *SCÆNANTH*, or camel's hay. This seems to have been, at that time, the common Arabian name of this drug; but Garcias tells us, that in his time the Arabs called it *adher*. It is to be observed, however, that the Arabians have not confined this word to the *SCÆNANTH* alone, but express by it all the kinds of *rufes*. Thus Avicenna tells us that the *adcher* is of two kinds, the one bearing no fruit, the other bearing a hard black fruit; this plainly belongs not to the *scænanth*, but the common *rufus*, of which Dioscorides has, in the same manner, described two kinds, thus differing from one another.

ADCORDABILES denarii, in ancient *Law Books*, denote money paid by the vassal to his lord, in the nature of a fine, upon the selling or exchanging a *FEUD*. The word is formed from *accorder*, to agree.

ADCRESCENTES, in the Roman *Empire*, the same with *ACCENSI*.

ADDACE, in *Natural History*, the name by which the Africans call the common *ANTELOPE*. See *GAZELLA*.

ADDEPHAGIA, in *Medicine*, a term used by some physicians, to denote a greediness in children, whereby they load themselves with new food, before the old is digested. This is sometimes also written corruptly, *adephagia*. The word is compounded of *αδδν*, much, and *φαγω*, I eat. Some use *addephagia* in a more extensive sense, for voraciousness in general, so as to comprehend the *BULIMIA*, *PICA*, and *MALACIA*.

ADDER, in *Natural History*, a venomous reptile of the serpent kind, more usually called a *VIPER*.

ADDER is also sometimes confounded with *asp*; thus the deaf *adder*, spoken of in the English Bible, is not properly the *adler*, but the *asp*. Calmet. The *adder* differs from the snake, in that the former is much shorter for its bigness, especially his tail below the vent; that it is marked on the back with black lines or spots, which the snake wants; that its belly is blackish, and of one colour, whereas the snake's is particoloured, of a pale yellow and blue; that it never grows to the bigness which some snakes attain to; and lastly, that it is *viviparous*, whereas the snake is *oviparous*.

ADDER, *Sea*, the English name of a species of *SYNGNATHUS*, with a round body and no pectoral or tail fins.

ADDER, *Water*, in *Zoology*, a name given to the *NATRIX*.

ADDER-BOLTS. See *DRAGON-FLIES*.

ADDER-STUNG, is used in respect of cattle, when stung with any kind of venomous reptiles; as adders, scorpions, &c. or bit by a hedge-hog, or shrew. For the cure of such bites, some use an ointment made of dragon's blood, with a little barley-meal, and the whites of eggs.

ADDER'S-TONGUE, in *Botany*, a medicinal plant, so called either from its resembling or its curing the bite of a viper. It is more commonly called *ophioglossum*. No part of the fructification of this plant is visible, except the fruit. This is an oblong, double, or distichous capsule, divided by a great number of transverse articulations, into many cells, each of which, when mature, opens transversely, and is found to contain a great number of small seeds of a subovate figure. Casper-Bauhine describes what he calls three species of this plant. Tournefort makes eight species of *OPHIOGLOSSUM*, which are only the varieties of the common European kind, mentioned above. This is a spring plant, and is only to be found in April and May. It is not uncommon in wet meadows, and is easily distinguished among the other spring plants by its spike, or tongue. It is esteemed one of the best vulnerary herbs this country produces; but it is more in use among the common people than in the shops. They give its juice internally, and use the herb bruised, or an ointment prepared from it, with lard, or May-butter, externally, at the same time. Farriers, &c. prepare an ointment of this herb, called *ADDER'S tongue ointment*, used as a remedy against the bites of venomous beasts. Phil. Trans. vol. xlix. part ii. N° 112.

ADDER'S-WORT. See *BISTORT*.

ADDEXTRATORES, or *ADDEXTRARI*, in the court of Rome, denote the pope's *MITRE*-bearers. Some suppose them thus called, on account of their walking at the pope's right-hand, when he rides to visit the churches.

ADDICE. See *ADZE*.

ADDICO. See *ADDICTIO*.

ADDICTI, in *Antiquity*, insolvent persons, or those who being sentenced to pay a debt, but unable to do it, were adjudged to a kind of temporary servitude to the creditor. In this sense, *addicti* were a species of *servi*; from whom, however, they differed in this, that a slave, when discharged, became *libertus*; whereas an *addictus* became *ingenuus*. Again, a slave could not be discharged without the consent of his master; whereas the *addictus* was discharged of course, when his debt was satisfied. Pitisc. Lex. Ant. & Calv. Lex Jur.

ADDICTIO, *ADDICTION*, in the Roman law, a transferring, or passing over goods to one another; whether by sentence of a court, or in the way of sale, to him that bids most for them. The word stands opposed to *addictio*, or *ABDICATION*. It is formed of *addico*, one of the stated words used by the Roman judges, when they allowed the delivery of the thing or person on whom judgment had passed. Hence, goods thus adjudged by the prætor, to the right owner, were called *bona addicta*; and the debtors delivered up, in like manner, to their creditors, to work out their debt, were called *servi addicti*.

ADDICTIO in diem, denoted the adjudging of a thing to a person for a certain price; unless by such a day the owner, or some other person, gave more for it.

ADDITAMENT, *ADDITAMENTUM*, a thing added to another. It signifies the same as *EPIPHYSIS*. *Additaments*, in *Physic* and *Chemistry*, are things super-added to the ordinary ingredients of any composition.

ADDITION, the act of joining one thing to another, or of augmenting a thing, by the accession of others. **ADDITION** is also used for the thing added with itself.

ADDITION, in *Arithmetic*, is the first of the four fundamental rules, or operations of that art. *Addition* consists in finding the amount of several numbers, or quantities, severally added one to another. Or, *addition* is the invention of a number, from two or more homogeneous ones given, which is equal to the given numbers taken jointly or together. The number, thus found, is called the *sum*, or aggregate of the numbers given. The characters of *addition* is +, which we usually express by *plus*. Thus 3 + 4 denotes the sum of 3 and 4; and is read 3 plus 4. The *addition* of simple numbers is easy. Thus it is readily perceived that 7 and 9, or 7 + 9, make 16; and 11 + 15 make 26. In longer, or compounded numbers, the business is performed by writing the given numbers in a row downwards; homogeneous under homogeneous, i. e. units under units, tens under tens, &c. and singly collecting the sums of the respective columns. To do this, we begin at the bottom of the outmost row or column to the right; and if the amount of this column

lumn do not exceed 9, we write it down at the foot of the same column: if it doth exceed 9, the excess is only to be written down, and the rest reserved to be carried to the next row, and added thereto; as being of the same kind or denomination.

Suppose, e. g. the numbers 1357 and 172 were given to be added: write either of them, v. gr. 172, under the other 1357; so as the units of the one, viz. 2, stand under the units of the other, viz. 7; and the other numbers of the one, under the corresponding ones of the other, viz. the place of tens under tens, as 7 under 5; and that of hundreds, viz. 1, under the place of hundreds of the other, viz. 3. Then, beginning, say 2 and 7 make 9; which write underneath; also 7 and 5 make 12; the last of which two numbers, viz. 2, is to be written, and the other one reserved in your mind to be added to the next row, 1 and 3: then say 1, and 1 make 2, which added to 3 make 5: this write underneath, and there will remain only 1, the first figure of the upper row of numbers, which also must be writ underneath; and thus you have the whole sum, viz. 1529. The same method will extend to any number of sums, which are required to be united in one.

ADDITION of numbers of different denominations, for instance, of pounds, shillings, and pence, is performed by adding or summing up each denomination by itself, always beginning with the lowest; and if, after the addition, there be enough to make one of the next higher denomination, for instance, pence enough to make one or more shillings, they must be added to the figures of that denomination, that is, to the shillings; only reserving the odd remaining pence to be put down in the place of pence. And the same rule is to be observed in shillings with regard to pounds.

For an instance, 5 pence and 9 pence make 14 pence; now in 14 there is once 12, or a shilling, and two remaining pence; the pence set down, and reserve 1 shilling to be added to the next column which consists of shillings. Then 1 and 8 and 2 and 5 make 16: the 6 put down, and carry the 1 to the column of tens; 1 and 1 and 1 make three tens of shillings, or 30 shillings: in 30 shillings there is once 20 shillings, or a pound, and 10 over: write 1 in the column of tens of shillings, and carry 1 to the columns of pounds; and continue the addition of pounds, according to the former rules.

So, half of an even sum of shillings will be carried to the pounds; and the odd one (where it so happens) set under the tens of the shillings.

ADDITION of Decimals, is performed after the same manner as that of whole numbers; as may be seen in the following example:

$$\begin{array}{r} 630.953 \\ 51.0807 \\ 305.27 \\ \hline 987.3037 \end{array}$$

ADDITION of Vulgar Fractions, see under FRACTION. **ADDITION of Ratios** is used by some authors in the same sense with COMPOSITION of RATIOS, which see.

ADDITION, in *Algebra*, or the **ADDITION of Species**, is performed by connecting the quantities to be added, by their proper signs; and also by uniting into one sum, those that can be so united. See QUANTITY, SPECIES, &c. Thus a and b make $a+b$; a and $-b$ make $a-b$; $-a$ and $-b$ make $-a-b$; $7a$ and $9a$ make $7a+9a$; $-a\sqrt{ac}$ and $b\sqrt{ac}$ make $-a\sqrt{ac}+b\sqrt{ac}$, or $b\sqrt{ac}-a\sqrt{ac}$; for the order in which they are written, makes no alteration in their value.

But particularly, 1. Affirmative quantities of the same species, or kind, are united by adding the prefixed numbers whereby the species are multiplied.

Thus, $7a+9a$ make $16a$. And $11bc+15bc$ make $26bc$.

Also $3\frac{a}{c}+5\frac{a}{c}$ make $8\frac{a}{c}$; and $2\sqrt{ac}+7\sqrt{ac}$ make $9\sqrt{ac}$; $6\sqrt{ab-xx}+7\sqrt{ab-xx}$ make $13\sqrt{ab-xx}$. And in like manner $6\sqrt{3}+7\sqrt{3}$ make $13\sqrt{3}$. Again, $a\sqrt{ac}+b\sqrt{ac}$ make $a+b\sqrt{ac}$, by adding together a and b , as numbers multiplying \sqrt{ac} . And so $\frac{2a+3c\sqrt{3axx-x^3}}{a+x}$

$+\frac{3a\sqrt{3axx-x^3}}{a+x}$ make $\frac{5a+3c\sqrt{3axx-x^3}}{a+x}$, since $2a+3c$ and $3a$ make $5a+3c$

2. Affirmative fractions, which have the same denominator, are added together by adding their numerators.

Thus $\frac{1}{5}+\frac{2}{5}$ make $\frac{3}{5}$, and $\frac{2ax}{b}+\frac{3ax}{b}$ make $\frac{5ax}{b}$; and thus

$\frac{8a\sqrt{cx}}{2a+\sqrt{cx}}+\frac{17a\sqrt{cx}}{2a+\sqrt{cx}}$ make $\frac{25a\sqrt{cx}}{2a+\sqrt{cx}}$ and $\frac{aa}{c}+\frac{bx}{c}$ make $\frac{aa+bx}{c}$.

3. Negative quantities are added after the same manner, as affirmative. See NEGATIVE.

Thus, -2 and -3 make -5 ; $-\frac{4ax}{b}$ and $-\frac{11ax}{b}$ make

$-\frac{15ax}{b}$; $-a\sqrt{ax}$ and $-b\sqrt{ax}$ make $-(a+b)\sqrt{ax}$.

When a negative quantity is to be added to an affirmative one, the affirmative must be diminished by the negative one.

Thus, 3 and -2 make 1 ; $\frac{11ax}{b}$ and $-\frac{4ax}{b}$ make $\frac{7ax}{b}$;

$-a\sqrt{ac}$ and $b\sqrt{ac}$ make $b-a\sqrt{ac}$.

And note, that when the negative quantity is greater than the affirmative, the aggregate sum will be negative. Thus,

2 and -3 make -1 ; $-\frac{11ax}{b}$ and $\frac{4ax}{b}$ make $-\frac{7ax}{b}$; and

$2\sqrt{ac}$ and $-7\sqrt{ac}$ make $-5\sqrt{ac}$.

ADDITION of irrational Quantities.—If they be of different denominations, reduce them to the same denomination; and if they be then commensurable, add the rational quantities without the vinculum; and to their sum prefix the radical sign.—The rest as in the addition of rationals.

Thus, we shall find $\sqrt{8}+\sqrt{18}=2\sqrt{2}+3\sqrt{2}=5\sqrt{2}=\sqrt{50}$. On the contrary, $\sqrt{7}$ and $\sqrt{5}$ being incommensurable, their sum will be $\sqrt{7}+\sqrt{5}$.

ADDITION, in *Law*, is that name, or title, which is given to a man over and above his proper name, and surname; to shew of what estate, degree, or mystery he is; and of what town, village, or country.

Additions of Estate, or quality, are yeoman, gentleman, esquire, and such like.

Additions of Degree, are those we call names of dignity; as knight, lord, earl, marquis, and duke.

Additions of Mystery, are such as scrivener, painter, mason, and the like. See CHOPCHURCH.

Additions of Place are, of Thorp, of Dale, of Woodstock.—Where a man hath household in two places, he shall be said to dwell in both; so that his addition in either may suffice. Knave was anciently a regular addition.

By stat. 1 Hen. V. cap. 5. it was ordained, that in such suits or actions where process of outlawry lies; such addition should be made to the name of the defendant, to shew his estate, mystery, and place where he dwells; and that the writs, not having such additions, shall abate, if the defendant take exception thereto; but not by the office of the court.—The reason of this ordinance was, that one man might not be troubled by the outlawry of another; but by reason of the certain addition, every person might bear his own burden.

If one be of the degree of a duke, earl, &c. he shall have the addition of the most worthy dignity. 2 Inst. 669.

Such titles, however, are not properly additions, but names of dignity. The title of knight or baronet, is part of the party's name, and ought to be rightly used; but the titles of esquire, gentleman, or yeoman, &c. being no part of the name, but additions, as people please to call them, may be used, or not used, or if varied, it is not material. 1 Lill. 34.

An earl of Ireland is not an addition of honour here in England; but such a person must be written by his Christian and surname, with the addition of esquire only; and the sons of English noblemen, although they have given them titles of nobility, in respect to their families, if you sue them, they must be named by their Christian and surnames, with the addition of esquire; as—such-a-one, esquire, commonly called lord A, &c. 2 Inst. 596, 666.

No addition is necessary, where process of outlawry doth not lie. 1 Salk. 5. If a city be a county of itself, wherein are several parishes, addition thereof, as *de London*, is sufficient; but addition of a parish not in a city, must mention the county, or it will not be good. 1 Danv. 237.

ADDITION, in *Musick*.—The note or mark of addition is a dot placed on the right side of a note, to signify, that the time of the sound of such note, is to be lengthened half as much more, as it would otherwise be.

A note of addition amounts to the same with what is by some old English authors called *prick of perfection*.

Thus a semibreve, when marked with a dot, is to be as long as three minims; the minim, with the like dot, to be as long as three crotchets; the crotchet as three quavers, &c. See CHARACTER.

ADDITIONS, in *Heraldry*, denote a kind of bearings, in coats of arms, wherein are placed rewards, or additional marks of honour.

In which sense, additions stand opposed to ABTEMENTS, or DIMUNITIONS. See DIFFERENCE.

Additions resemble, but differ from ordinaries. To the class

class of *additions* belong a bordure, quarter, canton, gyron, pile, fustings, haunches, voiders, ermine, and an inescutcheon gules, called also an *escutcheon of pretence*. On any of these may an *addition* of honour be placed, according to the pleasure of the prince, or the fancy of the herald; which reward descends to none of the family, except the person's own direct line. In this manner the arms of a kingdom have been sometimes given, by way of *addition*, to a private subject.

ADDITIONS, in *Distilling*, a name given to such things as are added to the wash, or liquor, while in a state of fermentation, in order to improve the vinosity of the spirit, procure a larger quantity of it, or give it a particular flavour.

All things of whatever kind, thus added in the time of fermentation, are called by those of the business, who speak most intelligently, *additions*; but many confound them with things of a very different nature, under the name of **FERMENTS**.

The *additions* used in the distillery, may be reduced to four general heads. 1. *Salts*. 2. *Acids*. 3. *Aromatics*, and, 4. *Oils*. A little tartar, nitre, or common salt finely powdered, may be added to the liquor while fermenting, especially in the beginning of the operation; or in their stead a little of the vegetable or finer mineral acids, may be dropped in at different times, when found necessary. These are of great use, especially in the fermenting solutions of treacle, honey, and the like sweet and rich vegetable juices, which either wholly want an acid in themselves, or have it in too small a proportion, or have been robbed or divested of it. The proper acids for this purpose are, the juice of Seville oranges, or lemons, or the spirit of sulphur, or Glauber's spirit of salt, or, what is greatly preferable to all these, a particular aqueous solution of tartar, a succedaneum for which may be tamarinds, or the robs of some very acid fruits, or the *media substantia vini*. On this foundation stands that ingenious practice of using a suitable proportion of the still bottoms, or the remaining wash, in the subsequent brewing.

After the same manner, a very considerable quantity of any essential vegetable oil, may by proper management be converted into a surprisingly large quantity of inflammable spirit; but great care in this case must be had not to drop it in too fast, nor too much at a time; this might damp the fermentation: and, indeed, the adding a large quantity of oil at once, is the common way of stopping the fermentation at any point required.

The best method of all, of introducing the oil, so as to avoid all inconvenience, is to reduce it first to an *elæosaccharum*, by grinding it in a mortar, with a due quantity of fine sugar in powder. The oil thus added, with its particles disunited, and in form of powder, will readily mix with the liquor, and immediately ferment with it.

A large proportion of rectified spirit, or of any other spirit, may, by prudent management, be also introduced into the fermenting liquor; and this will always come back with a larger *addition* to the quantity of spirit, than would otherwise have risen from the distillation. Shaw.

ADDITIVE, denotes something to be added to another. Geometricians speak of *additive ratios*; astronomers of *additive equations*, &c.

ADDITIVE ratio is used, by some writers, for that whose terms are disposed to addition, that is, to composition, in opposition to *subtractive ratio*, whose terms are disposed to subtraction, i. e. to division. Phil. Trans. No 257. Suppose the line *ac* divided in the points *b* and *x*,

a b x c

the ratio between *ab* and *bx* is *additive*: because the terms *ab* and *bx* compose the whole *ax*. But the ratio between *ax* and *bx* is *subtractive*, because *ax* and *bx* differ by the line *ab*.

ADDITIVE equations, in *Astronomy*, those which are to be added to the sun's mean **ANOMALY**, in order to find the true one. V. Hist. Acad. Roy. des Scienc. 1720, p. 118.

ADDOUBORS, in *Law*. See **REDUBBORS**.

ADDRESS, in a general sense, is used for skill and good management, and of late has been adopted from the French, and is used in genteel phrase, and also in *Commerce*, as synonymous with directions to a person or place. The word is formed of the French verb *adresser*, to direct any thing to a person.

ADDRESS, means also a discourse presented to the king, in the name of a considerable body of his people; to express or notify their sentiments of joy, satisfaction, or the like, on some extraordinary occasion. We say, the lords *address*, the commons *address*.—*Addresses* were first set on foot under the administration of Oliver Cromwell.—At Paris, their office of intelligence is called *bureau d'adresse*.

ADDUCENT Muscles, or **ADDUCTORS**, are those which bring forward, close, or draw together, the parts of the body whereto they are annexed. The word is compounded of *ad*, to; and *ducere*, to draw, or bring.

Adducents, or *adductors*, stand opposed to *abducent*, or *abductors*.

ADDITION, in *Anatomy*, the motion or action, of the **ADDUCENT** muscles. See **ADDUCTOR**.

ADDUCTOR oculi, a muscle of the eye, so called because it inclines its pupil towards the nose.

It is also called *bibitorius*; because it directs the eye toward the cup in drinking.

ADDUCTOR pollicis, is a muscle of the thumb, which arises tendinous, and ascends obliquely towards a broad termination, at the superior part of the first bone of the thumb.—See *Tab. Anat. (Myol.) fig. I. n. 31, & fig. VII. n. 7*.—Its office is to bring the thumb near the forefinger.

This muscle is called by Albinus, and the generality of writers, the *abductor indicis*; and by Winslow, the *semi-interosseus indicis*.

ADDUCTOR pollicis pedis, called also *antithenar*, is a muscle of the great toe, which arises from the inferior part of the *os cuneiforme tertium*, and is inserted into the internal part of the *ossa sesamoidea* of the great toe; which it draws nearer the rest.

ADDUCTOR indicis, is a muscle of the fore-finger, arising from the inside of the bone of the thumb, and inserted into the first bone of the fore-finger, which it draws towards the thumb.

ADDUCTOR minimi digiti pedis; the same as **TRANSVERSARIUS pedis**.

ADDUCTOR prostatae, a name given by Santorini to a muscle, which he also calls *levator prostatae*; and which Winslow calls *prostaticus superior*. Albinus, from its office, has very properly called it *compressor prostatae*.

ADDUCTOR brachii serves to draw the arm toward the trunk of the body; though Winslow finds its office more complicated, and that it acts in concurrence with the flexors and extensors, in bending and extending the arm.

ADEB, in *Commerce*, the name of a large Egyptian weight, used principally for rice, and consisting of two hundred and ten okes, each of three rotolos, a weight of about two drams less than the English pound. But this is no certain weight; for at Rosetta the *adeb* is only one hundred and fifty okes. Pococke, Egypt.

ADEC signifies four milk.

ADECTOS, an epithet applied to a medicine that allays the sense of pain, or uneasiness created by stimulants.

ADEL-fish, a name given by some nations to the *lavaretus*, or *albula nobilis*.

These are generally treated of by authors as two different kinds of fish. But Artedi contends, that they are the same species, and distinguishes them by the name of the *coregonus*, with the upper jaw flat, and longer than the under; and with fourteen rays in the back fin.

ADELING. See **ATHELING**.

ADELPHIANI, in *Church History*, a sect so called from their leader *Adelphius*.

They were singular in this, that they kept the Sabbath as a fast.

ADELSCALC, in *Ancient Customs*, denotes the servant of the king.

The word is also written *adelscalche*, and *adelscaleus*. It is compounded of the German *adel*, or *edel*, noble, and *scale*, servant. Among the Bavarians, *adelscales* appear to have been the same with royal *thanes* among the Saxons, and those called *ministri regis* in ancient charters.

ADEMPITION, **ADEMPITIO**, in the *Civil Law*, the **REVOCA**TION of a grant, donation, or the like.

The *ademption* of a legacy may be either express; as when the testator declares in form, that he revokes what he had bequeathed; or *tacit*, as when he only revokes it indirectly, or implicitly.

Thus if A by will gives his daughter M 1000*l.* to be first paid after his debts, beside a share out of the dividend of his estate; and afterward, on her marriage, an agreement be made for what she should have out of A's estate, that it should be only 1000*l.* which should be in full of what was intended thereout; this agreement is an *ademption* of the legacy.

ADEN, a gland. See **GLAND**.

ADENANTHERA, in *Botany*, the name of a genus of plants belonging to the class of *decandria monogynia*, the characters of which are these: the perianthium is very small, and is composed only of one leaf divided into five segments at the edge; the flower consists of five leaves, and is of a campanulated form: the petals are pointed and sessile, and they turn inwards, and are hollowed underneath; the stamina are ten erect tubulated filaments,

filaments, a little shorter than the flower; and the antheræ are roundish and incumbent, and bear on their exterior apex a globose glandule. The germen of the pistil is oblong and gibbous on the back in the lower part. The style is tubulated, and of the length of the stamina, and the stigma is simple. The fruit is a long compressed pod, in which are several round seeds. There are two species.

ADENOGRAPHY, that branch of *Anatomy* which describes the glands, and glandular parts of the body.

The word is compounded of *adn*, gland, and *γραφω*, I describe.

Adenography is the same with what some others call *adenology*, or the adenological part of *Anatomy*.

ADENOS, a kind of cotton, otherwise called marine cotton. It comes from Aleppo by the way of Marseilles, where it pays 20 per cent. duty, according to the *TARIFF* of the year 1706. Its valuation, by the same *tariff*, is of 76 livres 16 sols.

ADENOSUS abscessus, in *Medicine*, a crude hard tubercle, difficult of dissection, and resembling the appearance of a gland.

ADEPS, among *Physicians*, *FAT*. This is an animal oil, secreted from the blood, and contained in the *membrana adiposa*, or, as Boerhaave calls it, the *membrana cellulosa*; which is not a single membrane, but a congeries of a great number of membranous *laminae*, joined irregularly to each other at different distances, so as to form numerous interstices of different capacities, which communicate with each other. These interstices have been named *cellulae*, and the substance made up of them, the cellulous substance.

These cellular interstices are so many little bags or satchels, filled with an unctuous or oily juice, more or less liquid, which is called *fat*; the different consistence of which depends not only on that of the oily substance, but on the size, extent, and subdivision of the cells.

Neumann divides *fats*, from their consistence, into three kinds; the first, called *pinguedo*, is soft and thin, and becomes liquid in a very small heat; such is that which we meet with in birds, reptiles, and fishes (the very large fishes excepted.) The second is thick, liquifies less readily, and is denominated *axungia*. The third is more hard and firm; when taken from the animal it is called *adeps*, and when freed from the skins, &c. *sebum*. The two last kinds of *fat* are chiefly found in quadrupeds.

In some parts of the body, the fat serves for a cushion, pillow, or mattress; as on the *nates*, where the *laminae* and cells are very numerous. In other parts this membrane has few or no *laminae*, and consequently little or no fat; as on the forehead, elbows, &c.

In the young *fœtus* there is scarce any *fat*; but in the older *fœtus*, *fat* begins to appear. When the child is born, and for some years after, it hath much *fat* immediately beneath the skin; in men, the *fat* is most abundantly spread on the *glutei* muscles.

Fats taken freely as food are difficult of digestion; relax and weaken the tone of the stomach and intestines, and are supposed likewise to render the juices tenacious, and to increase the bile.

The medical virtues of *fats*, as manifested by experience, are such as arise from their use in external applications, for softening and suppling, for abating pains and spasms, and for promoting maturation. Those that are principally used are the *fat* of *viper's*, *hog's lard*, and *mutton suet*.

ADEPTS, **ADEPTI**, a denomination given to the proficient in *Alchemy*; particularly to those who pretend to the secrets of the philosopher's stone, and the universal medicine.

The word is formed from the verb *adipisci*, to obtain.

Ripley, Lully, Paracelsus, Helmont, Hollandus, Sendivogius, &c. are the principal among the *adepti*.

It is a sort of tradition among the *Alchemists*, that there are always twelve *adepti*; and that their places are immediately supplied by others, whenever any of the fraternity die.

The term *adepts* is sometimes more generally applied to those who are proficient in any kind of science.

ADEQUATE, **ADÆQUATUM**, something equal to, or co-extended with, another; and filling the whole measure and capacity thereof.

In this sense the word stands opposed to **INADEQUATE**.

ADEQUATE, or total, in *Logic*, is applied to the objects of science. The *adequate* object of a science includes the *material* and *formal* object: the *material* object of a science, is that part which is common to it with other sciences; the *formal* is that which is peculiar to itself.

ADEQUATE ideas, or notions, in *Metaphysics*, are such images or conceptions of an object, as perfectly represent it, or answer to all the parts and properties of it.

M. Leibnitz defines an *adequate notion* to be that, of whose several characters we have distinct ideas.—Thus, a circle

being defined a figure bounded by a curve line which returns into itself, and whose points are all equally distant from a certain intermediate point therein; our notion of a circle is *adequate*, if we have distinct ideas of all these circumstances, viz. a curve returning upon itself, a middle point, an equality of distance, &c.

All **SIMPLE** ideas are *adequate* and perfect; and the faculty, be what it will, that excites them, represents them entire.

The ideas of modes are likewise *adequate*, or perfect: except of those modes which occasionally become substances; for when we speak of modes separately existing, we only consider them separate from the substance by way of abstraction.

All abstract ideas are also *adequate* and perfect; since they represent all that part of the subject which we then consider.—Thus, the idea of roundness is perfect, or *adequate*, because it offers to the mind all that is in roundness, in general.

Of the same kind are all ideas, of which we know no original, or external object really existing out of the mind, by occasion of which they were excited in us, and of which we think them the images. Thus, when a dog is before us, it is the external object without us which raises the idea in our mind; but if the idea of an animal, in general, has no external object to excite it: it is created by the mind itself, and must of necessity be *adequate* or perfect.

On the contrary, the ideas of all substances are *inadequate* and imperfect, which are not formed at the pleasure of the mind, but gathered from certain properties, which experience discovers in them.

This is evident, because our knowledge of substance is very defective; and we are only acquainted with some of its properties: thus, we know, that silver is white, that it is malleable, that it melts, &c. but we do not know what farther properties it may have; and we are wholly ignorant of the inward texture of the particles; whereof it consists.—Our idea of silver, therefore, not representing to the mind all the properties of silver, is *inadequate* and imperfect.

ADERAIMIN, see **ALDERAIMIN**.

ADES, or **HADES**, *αἰδης*, from *α* and *ιδω*, denotes the invisible state. In the heathen mythology, it comprehends all those regions that lie beyond the river Styx, viz. Erebus, Tartarus, and Elysium. See **HELL**.

ADESSENARII, a name given to those who hold that Jesus Christ is really present in the eucharist; but in a manner different from what the Romanists hold: from the Latin verb *adesse*, to be present.

The *Adessenarii*, called also *Impanatores*, are divided into four different opinions touching the point.—Some hold that the body of Jesus Christ is in the bread; others, that it is about the bread; others, that it is with the bread; and lastly, others, that it is under the bread. See **IMPANATION**.

ADFFECTED equation is that where the unknown quantity is found in two or more different degrees, or powers. E. gr. $x^3 - px^2 + qx = a^2b$; where there are three different powers of *x*; viz. x^3 , x^2 , and x . See **EQUATION**.

ADFILIATION, **ADFILIATIO**, is used to signify a Gothic custom; where a person remarrying, who has children by a former bed, renders them capable of inheriting equally with the common children of both parties.

This is done by agreement, and is otherwise called, by some, *adoptio per matrimonium*.

This custom is still retained in Germany, under the name *einkindschafti*, and *unio prolium*.

But the learned Heineccius observes, that the *unio prolium* is not an **ADOPTION**. Elem. Juris Germ. tom. i. sect. 161.

ADHATODA, in *Botany*, the Malabar nut. See **JUSTICIA**.

Tournefort enumerates four species of this plant, which by Houston and Linnæus is called **JUSTICIA**; but the above name is given to it in the Zeylanic tongue, from its virtue of expelling the dead *fœtus*, which it signifies.

ADHESION, **ADHERENCE**, in *Physics*, the state of two bodies which are joined or fastened to each other, either by the mutual impression of their own parts; or the compression of external bodies. See **COHESION**.

The word is compounded of *ad*, to; and *hæerere*, to stick. Anatomists sometimes observe prophyfes, or *adhesions* of the lungs to the side of the thorax, the pleura, and diaphragm, which give occasion to various disorders.

We also read of *adhesions* of the *dura mater* to the cranium; of the stone to the bladder; though some combat this last as a chimera; at least the instances of it appear to be rare.

We have also several cases of *adhesions* of the intestines, mentioned in the Philosophical Transactions, Number 481.

The *adhesions* of two polished planes, and two hemispheres,

spheres, are phenomena urged in behalf of the weight and pressure of the ATMOSPHERE.

The argument drawn from the *adhesion* of two polished planes, urged in behalf of the weight and pressure of the atmosphere, might be objected to, as this pressure is not sufficient to produce the effect, and that polished bodies will adhere very strongly, even in an exhausted receiver. However, it is certain, that the air contributes in part to this *adhesion*.

Dr. Desaguliers has given experiments of the *adhesion* of leaden bullets to each other: the cause of which is resolved into the principle of ATTRACTION. Phil. Trans. N^o 389.

ADHESION, in *Logic*. The schoolmen distinguish two kinds of *certitude*; the one of *speculation*, which arises from the evidence of the thing; and the other of *adhesion*, or attachment, which does not depend on the evidence, but on the importance of the matter, and the interest we have in its truth.

ADHESION, or **ADHERENCE**, is also used for the persisting in a former opinion or resolution.—After the free conference between the two houses, concerning the bill for preventing occasional conformity, when the lords retired, and it came to the final vote of *adhering*, they were so equally divided, that in three questions put on different heads, the *adhering* was carrying but by one vote in every one, and by a different person each time. The commons likewise *adhered*; and thus the bill was lost.

ADHIL, in *Astronomy*, a star of the sixth magnitude, upon the garment of ANDROMEDA, under the last star in her foot.

ADHOA, in *Ancient Customs*, denotes what we otherwise call RELIEF.

In which sense we sometimes also find the word written *adha*, *adhoamentum*, and *adhogamentum*. Du-Cange.

ADJACENT, or **ADJOINING**, something situate near, or aside of another; of *ad*, *to*, and *jacere*, *to lie*.

ADIANUM, *Maidenhair*, in *Botany*, the name of a genus of plants, the characters of which are these: the flowers are not discovered; the seeds are contained in spherical capsules, placed in the sinuses and complications of the leaves, and surrounded each with an elastic ring, which contracting bursts the capsule, and scatters abroad the minute seeds: to this it is to be added, that the leaves of the maiden-hairs have all one general appearance, by which they are easily distinguished at sight, from the other plants of the fern kind. See *Tab. X of Botany*, *Class 16*.

Tournefort enumerates twenty species of this plant.

In the Linnæan system of *Botany*, the general character of the *adianta* is, their having the fructifications in form of oval spots, disposed in clusters under the reflected tops of the leaves; they are classed with the *cryptogamia filices*, and include 20 species.

The *adiantum* is esteemed a great pectoral, and gives name to a syrup much in use for that intention. It is also said to be a remover of obstructions, both of the kidneys and the menfes, though little used in those intentions. Its essence is by some commended in hypochondriac and hysteric complaints.

ADIANUM aureum, called also *muscus capillaris*, *polytrichum aureum medium*, C. B. *polytrichum nobile*, *vel primum*, *polytrichum apulei aureum*, &c. in English, *golden maiden-hair*, is of the moss kind. It grows in heathy and boggy ground. It is a good sudorific, and its infusion drank hot is recommended against pleurifies. Camerarius gives a relation of this plant rising spontaneously out of the ruins of a town burnt down in Germany; as the *erisylum vulgare* did from the ruins of London.

The various species of this plant abound with a neutral saponaceous quality, approaching to nitre; with their mucilage they impart all their virtue to boiling water. The best preparation, therefore, of the plant, is a strong infusion made with boiling water, and sweetened with liquorice-root. The French make a syrup of the *adiantum verum*, and flavour it with orange-flower water; and a syrup is made in America of the *adiantum Canadense*, with maple sugar. Our confectioners prepare a syrup of it, which they sell under the name of *capillaire*. These syrups are esteemed in disorders of the breast; as they allay trickling coughs from defluxions of thin rheum, and assist the expectoration of phlegm. See *TRICHOMANES*.

ADIAPHORISTS, **ADIAPHORISTÆ**, or **ADIAPHORITES**, a name given in the sixteenth century to the moderate LUTHERANS, who adhered to the sentiments of Melancthon; and afterwards to those who subscribed the interim of Charles V.

The word is compounded of the privative *α*, and *διαφορος*, *different*.

ADIAPHOROUS, **ADIAPHORUS**, is a name given by Mr. Boyle to a kind of spirit distilled from tartar, and some other vegetable bodies; and which is neither acid,

vinous, nor urinous; but in many respects different from any other sort of spirit.

ADIAPNEUSTIA, from *α*, *δια*, and *πνεω*, *I breathe*, signifies defective perspiration, from dense pores, &c.

ADIAPTOTOS, the Greek word signifies *firm*; but it is a name given by physicians to a remedy for the colic, which is stone-parley, henbane-feed, white pepper, &c. made into an electary.

ADIARRHOEA, from *α*, *δια*, and *ῥεω*, *I flow*, in *Medicine*, signifies a total suppression of all the necessary evacuations.

ADICE, see *NETTLE*.

ADJECTIVE, in *Grammar*, a kind of noun joined with a substantive, either expressed or implied, to shew its qualities, or accidents.

The word is formed of the Latin *adjicere*, *to add to*; as designed to be added to a substantive, without which it has no precise signification.

Father Buffier defines *adjectives* in a manner somewhat different from other grammarians.—Nouns, according to him, are substantives, when the objects which they represent are considered simply, and in themselves, without any regard to their qualities; on the contrary, they are *adjectives*, when they express the quality of an object. Thus, when I say, simply, *a heart*, the word *heart* is a substantive, because none of its qualities are expressed; but when I say, *a generous heart*, the word *generous* is an *adjective*; because it adds a quality, or attribute, to the heart. *Adjectives*, then, appear to be nothing else but modificatives.

In effect, the end of an *adjective* being only to express the quality of an object; if that quality be the object itself whereof we speak, it becomes a substantive; e. gr. If I say, *this book is good*; *good* here is an adjective; but if I say, *good is always to be chosen*, it is evident *good* is the subject I speak of, and consequently *good*, there, is the substantive.

On the contrary, it often happens in other languages, and sometimes in our own, that a substantive becomes an *adjective*; as, for instance, in these words: *the king, hero as he is, remembers he is a man*; where the word *hero*, though ordinarily a substantive, is apparently an *adjective*.

From this idea of an *adjective*, it appears that many of the nouns, which, in the common grammars, are accounted substantives, are really *adjectives*, and *vice versa*: grammar in this, and a thousand other instances, depending upon custom.

ADJECTIVES, in *Logic*, are divided into four kinds; the *nominal*; the *verbal*, the *numeral*, and the *pro-nominal*.

The *nominal* are those which distinguish certain species by some inherent and permanent quality, which arises either from the nature of the thing, or from its form or situation; such as *good*, *black*, *round*, *external*, &c. The *verbal*, are those which denote some accidental or adventitious quality, which appears to be the effect of an action which passes, or has passed, in the thing under consideration; such as *rampant*, *domineering*, *caressing*, *embellished*, &c. *Numeral adjectives* are those which rank any subject in numerical order, as, *first*, *second*, *last*, &c. *Pro-nominal* are those which do not concern either species, action, or arrangement, but are merely indications of individuality; these *adjectives* are either *personal*, as *mine*, *thine*, &c. or they have a vague and indeterminate meaning, such as *some*, *one*, *many*, &c. or lastly, they serve the purpose of mere indication, such as, *this*, *that*, *such*, &c.

Verbal and *nominal adjectives*, are also called **CONCRETES**. Some distinguish *adjectives* into *physical* and *metaphysical*; the former being used to distinguish physical essences, in consequence of the immediate impressions they make upon us; the latter to denote those which are metaphysical and abstracted, in consequence of some operation of our minds with regard to them.

AD INQUIRENDUM, a judicial writ, commanding inquiry to be made of any thing touching a cause depending in the king's court, for the better execution of justice; as of a bastard, or the like. Reg. Judic.

ADJOINING is particularly used for the associating of a person to another; or appointing him a colleague, or **ADJUNCT**.

ADJOURNMENT, in *Law*, the putting off a COURT, or meeting; and appointing it to be kept at another time or place.

The word is formed of the Latin *ad*, *to*; and the French *jour*, *day*, q. d. another day.

In which sense, we meet with the phrase *adjournment in eyre*, for an appointment of a day when the justices in eyre intend to sit again.

Adjournments in parliament differ from *prorogations*.

And each house has the privilege of *adjourning* itself.

ADIPOSUS, fat, or fatty. The word is chiefly used in *Anatomy*, as an epithet of certain cells, ducts, membranes, and

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and vessels, e. g. MEMBRANA & VASA *adiposa*, CELLULÆ *adiposa*, DUCTUS *adiposi*, &c. See ADEPS.

ADIPSON, from the privative *a*, and *διψα*, *thirst*; a name given by Hippocrates to oxymel; who says also that the *pitissana*, by its glutinousness, prevents or cures thirst. Medicines administered for allaying thirst are called by this name.

ADIPSOS, signifies the Egyptian palm-tree, liquorice, and a pill, or catapodium, composed by Asclepiades, and mentioned by Galen.

ADIRATUS, a price or value set upon things stolen or lost, as a recompence to the owner.

ADIRIGE, signifies *sal ammoniacum*.

ADIT, in a general sense, denotes the approach to, or entrance of any thing.

The word is originally Latin, *aditus*, formed from *adire*, to go to.

In which sense, we meet with *adit* of a house, *adit* of a theatre, of the circus, &c.

ADIT of a MINE, the hole, or aperture, whereby it is entered and dug, and by which the water and ores are carried away.

Adit of a mine amounts to the same with *cuniculus*, or *drift*, and is distinguished from *AIR-shaft*. Phil. Trans. N° 69.

The *adit* is usually made on the side of a hill, towards the bottom thereof, about 4, 5, or 6 feet high, and 8 wide, in form of an arch; sometimes cut in the rock, and sometimes supported with timber, so conducted, as that the sole or bottom of the *adit* may answer to the bottom of the shaft, only somewhat lower, that the water may have a sufficient current to pass away, without the use of the pump.

Damps and the impurity of the air are the great impediments against driving *adits* above 20 or 30 fathoms, by reason of the necessity, in this case, of letting down air-shafts from the day to meet the *adit*, which are often very expensive, both on account of the great depth of mines, and the hardness of the mineral strata to be cut through. The best remedy against this is that practised in the coal mines near Liege, where they work their *adits* without air-shafts: the manner of which is described by Sir Robert Moray. Vide Phil. Trans. N° 5.

Adit of a mine, is sometimes used for the *AIR-shaft* itself, being a hole driven perpendicularly from the surface of the earth into some part of a mine, to give entrance to the air.

In this sense we sometimes find it improperly written *addit*. Phil. Trans. N° 200.

To draw off the standing water in winter, in deep mines, they drive up an *adit*, or *AIR-shaft*, upon which the air disengages itself from the water, when it begins to run, with such violence, as produces a noise equal to the bursting of a cannon, dashes every thing in the way against the sides of the mine, and loosens the very rocks at a distance. Ibid. N° 26.

ADIT in ships, in *Antiquity*, was a space in the upper part, where the ship was widest, at which people entered, anciently called *agea*.

ADITS of a theatre, *aditus theatri*, in *Antiquity*, were doors on the stairs, whereby persons entered from the outer porticos, and descended into the seats.

ADJUDGING, in *Law*, the act of passing a determinate sentence in behalf of a person.

ADJUDICATION, the act of adjudging the property of a thing to a person by a legal sentence, decree, or judgment.

ADJUDICATION is more particularly used for the addition, or consigning a thing sold by auction, or the like, to the highest bidder.

ADJUNCT, **ADJUNCTUM**, in *Philosophy*, something joined or superadded to a being from without. See **ADJUNCTION**.

Or, an *adjunct* is an additament or accession of a thing, not essentially belonging to it, but only accidental thereto.

There are two kinds of *adjuncts*; the one, a substance (whether spirit or body) accidentally superadded to another, as its subject.—Such is water in a sponge, or vessel, and such is the soul in the body.

The second an attribute or mode, accidentally likewise superadded to a substance, whether body or spirit.—Such is figure in a body, knowledge in the mind, &c.

Some divide *adjuncts* into *absolute*; which agree to the whole thing, without limitation: thus, passions are *absolute adjuncts* of a man:—and *limited*, which only agree to their subject in respect of some certain parts thereof: thus, man only thinks, considered as to his mind; only grows, as to his body, &c.

In ethics, we usually reckon seven *adjuncts*, popularly called *circumstances*; *quis*, *quid*, *ubi*, *quibus auxiliis*, *cur*, *quomodo*, *quando*.

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ADJUNCTS, in *Rhetoric* and *Grammar*, are certain words or things added to others; to amplify the discourse, or augment its force.

Such are adjectives, attributes, and epithets, which are added to substantives, subjects, &c. to express their nature, qualities, accidents, &c.

Arguments drawn from *adjuncts*, are supplements or enforcements of the proof arising from the circumstances of the fact.

ADJUNCT is also used in civil concerns, for a COLLEAGUE, or fellow-officer, associated to another, to assist him in his ministry.

ADJUNCT gods, or **ADJOINTS of the gods**, in *Mythology*, among the Romans, were a kind of inferior deities, added as assistants to the principal ones, to ease them in their function.

Thus, to Mars was adjoined Bellona and Nemesis; to Neptune, Salacia; to Vulcan, the Cabiri; to the Good Genius, the Lares; to the Evil, the Lemures, &c.

ADJUNCTS, or **ADJUNCTS**, in the *Royal Academy of Sciences at Paris*, denote a class of members, attached to the pursuits of particular sciences. See **ACADEMY**.

ADJUNCTION, the act of adjoining, or adding, of one thing to another.

All *adjunction* implies a subordination.—The *adjunct* is for the sake of a thing it is joined to, not contrariwise; as the cloaths for the man, not the man for the cloaths.—Whatever is part of a thing, cannot fail to be an *adjunct* of it.

There are various species of *adjunction*; viz. by *adhesion*, by *apposition*, *adjacency*, *accubation*, *incubation*, *imposition*, *affection*, &c.

AD JURA REGIS, is a writ that lies for the king's clerk against him who endeavoured to eject him, to the prejudice of the king's title in right of his crown.

ADJURATION, a part of exorcism, wherein the devil is commanded, in the name of God, to depart out of the body of the possessed, or to declare something.

ADJUTAGE. See **AJUTAGE**.

ADJUTANT, in the *Military Art*, an officer in the army, whose business is to aid and assist the major.

Adjutant is the same that we otherwise call *aid-major*.

In the cavalry, each regiment has an *adjutant*, and in the infantry, each battalion.

The *adjutant* receives the orders every night from the brigade-major, which, after he has carried to the colonel, he delivers out to the serjeants. Where detachments are to be made, he gives the number each company must furnish, and assigns the hour and place of rendezvous. He also places the guards, receives and distributes ammunition to the companies, and, by the major's orders, regulates the price of bread, beer, &c. See *Adjutant GENERAL*.

ADJUTANT is sometimes also used by the French for an *aid de camp*.

The word is formed from the Latin, *adjutare*, to assist.

ADJUTANT, among the *Jesuits*. The general of the *Jesuits* had a select number of fathers of that order residing with him, under the denomination of *adjutants-general*; who had each their several province, or country, under their care, as France, England, &c. Their business was to inform the father-general of the occurrences of state in such countries; to which end, each of them had their correspondents, delegated emissaries, visitors, regents, provincials, &c. See **JESUITS**.

ADJUTORIUM, in *Anatomy*, the *humerus*, or shoulder-bone.

It is thus called from *adjuvare*, to help.

Some authors use this word for a medicine intended only as auxiliary, or subservient to another of greater efficacy: in particular, after a due use of internals, for an external remedy applied to a part affected, to assist in, and complete the cure.

ADLE egg, that which is not so condensed by the cock's tread.

Adle-egg is the same with that which is otherwise called a *subventaneous* one.

Adle eggs, after incubation, are found to contain a shapeless, globose, ash-coloured body, not unlike a *mola*. Phil. Trans. N° 87.

ADLEGATION, in the *Public Law* of the German empire, a right claimed by the states of the empire of adjoining plenipotentiaries, in public treaties and negotiations, to those of the emperor, for the transacting of matters which relate to the empire in general.

In which sense *adlegation* differs from *legation*, which is the right of sending ambassadors on a person's own account.

Several princes and states of the empire enjoy the right of *legation*, who have not that of *adlegation*, and *vice versa*. The bishops, for instance, have the right of *adlegation* in the treaties which concern the common interest, but

but no right of *legation* for their own private affairs. The like had the duke of Mantua.

The emperor allows the princes of Germany the privilege of *legation*, but disputes that of *adlegation*. They challenge it as belonging to them *jure regni*, which they enjoy in common with the emperor himself. Ludwig has a discourse on this subject, wherein the controversy is treated at large.

ADLOCUTION, ADLOCUTIO, in *Antiquity*, is chiefly understood of speeches made by Roman generals to their armies, to encourage them before a battle. We frequently find these *adlocutions* expressed on medals, by the abbreviature **ADLOCVT. COH.**

The general is sometimes represented as placed on a tribunal; often on a bank or mount of turf, with the cohorts ranged orderly round him, in *manipuli* and *turmæ*.

The usual formula in *adlocutions* was, *fortis esset ac fidus*. Pitisc. Lex. Ant. tom. i. p. 27. Walk. on Coin. p. I. c. 10.

ADMANUENSES, in *Ancient Law Books*, denote persons who swore by laying their hands on the book. Du-Cange.

The word is compounded of the Latin *ad*, *to*, and *manus*, *hand*.

In which sense, *admanuenses* amount to the same with laymen, and stand opposed to clerks, who were forbid to swear on the book, their word being to be reputed as their oath; whence they were also denominated *fide digni*.

ADMEASUREMENT, ADMENSURATIO, in *Law*, a writ which lies for the bringing those to reason, or mediocrity, who usurp more of any thing than their share.

This writ lies in two cases; termed,

ADMEASUREMENT of dower, *Admensuratio dotis*, where the widow of the deceased holds more from the heir, or his guardian, on account of her dower, than of right belongs to her. And,

ADMEASUREMENT of pasture, *Admensuratio pasturæ*; this lies between those who have **COMMON** of pastures appendant to their freehold, or common by vicinage, in case any of them surcharge the common with more cattle than they ought.

ADMINICLE, or ADMINICULE, ADMINICULUM, a term used in some ancient statutes, for aid, help, or support. Stat. 1 Edw. IV. cap. 1.

ADMINICULATOR, in *Ecclesiastical Writers*, denotes an ancient officer of the church, whose business was to defend the cause of widows, orphans, and others destitute of help. The *adminiculator* is the same with what is otherwise called **ADVOCATE** of the poor. Du-Cange.

ADMINICULES, among *Antiquaries*, are applied to the attributes, or ornaments, wherewith Juno and some other figures are represented on medals.

ADMINICULUM, in the French *Jurisprudence*, signifies the beginning of a proof; an imperfect proof; or a circumstance or conjecture, tending to form or fortify a proof.

ADMINISTRATION imports the government or direction of affairs; and particularly the exercise of distributive justice.

Indolent princes confide the *administration* of public affairs to their ministers.—Civil wars are usually raised on pretence of *male-administration*, or of abuses committed in the exercise of justice, &c.

The two criterions of a good *administration* in England, according to Trenchard, are, the keeping the nation out of foreign broils, and paying off the public debts; the latter of which depends on the former.

ADMINISTRATION, in the English *Law*, signifies the act, or office, of an administrator, in managing and disposing of a man's goods, or estate, that died intestate, or without any will; with an intent to give an account thereof. In this case, instruments, or powers, called letters of *administration*, are taken out of the prerogative court.

These letters must be granted, 1. to the husband, of the wife's goods and chattels; 2. to the wife, of the husband's goods and chattels; 3. if there is no husband or wife, to the children, sons or daughters; 4. if there be no children alive, to the father or mother; 5. then to a brother or sister of the whole blood, or of the half blood, (who, for this purpose, are of equal degree with the whole blood); 6. and if there are none such, to the next of kin, as uncle, aunt, cousin; 7. then to a creditor of the deceased; 8. and for want of all these, to any other person, at the discretion of the ordinary; or the ordinary may grant to a stranger letters *ad colligendum bona defuncti*, to gather up the goods of the deceased; or, may take them into his own hands to pay the deceased's debts, in such order as an executor or administrator ought to pay them. But it is said he or the stranger, who hath letters *ad colligendum*, cannot sell them, without making themselves executors of their own wrong,

and action lies only against the ordinary, &c. Wood's Inst. 333.

By stat. 21 Hen. VIII. widows, and next of kin, are to be appointed administrators, and a mother is to have *administration* of goods of a child, before a brother or sister, &c. But an *administration* may be granted to the father before a widow; and a residuary legatee ought to be preferred before the widow in an *administration cum testamento annexo*. 3 Salk. 21.

On granting *administration*, bonds with sureties are to be taken for the administrator, to make and exhibit an inventory of the goods of the deceased, to render a just account thereof, and to make a distribution of the surplusage after debts paid, according to law, &c. Stat. 22 and 23 Car. II. cap. 10. See **ADMINISTRATOR, EXECUTOR, INTESTATE, KINDRED**.

ADMINISTRATION is sometimes also used for the direction of the affairs of a minor, a pupil, a lunatic, or the like.

ADMINISTRATION is also used in respect of ecclesiastical function.—The parson has the *administration* of the sacraments in his parish.—*Administration* of the eucharist is prohibited to persons excommunicate.

In beneficiary matters they distinguish two kinds of *administration*; *temporal*, which relates to the temporalities of a benefice, diocese, &c. and *spiritual*, to which belong the power of excommunicating, &c.

ADMINISTRATION, in *Anatomy*, is used for the manner of dissecting the parts of the body, particularly the **MUSCLES**. In which sense, *administration* is synonymous with *encheirisis*, *exercise*, &c.

Anatomical *administrations* are not to be learned by oral precepts, but require ocular inspection.—Galen, Harvey, and others, have discourses express under the title of anatomical *administrations*.

ADMINISTRATION, in *Commerce*, is also used for a Spanish staple at Calao in Peru, a city on the coasts of the South Sea, where all ships, allowed to trade on the coast, are obliged to unload their European goods, and pay certain duties.

ADMINISTRATOR, in *Law*, he to whom the ordinary commits the *administration* of the goods of a person deceased, in default of an executor.

An action lies for, or against an *administrator*, as for, or against an executor; and he shall be accountable to the value of the goods of the deceased, and no farther:—unless there be waste, or other abuse chargeable on him. If the *administrator* die, his executors are not *administrators*; but the court is to grant a new *administration*.—If a stranger, who is neither *administrator* nor executor, take the goods of the deceased, and administer, he shall be charged, and sued as an executor, not as an *administrator*.

The origin of *administrators* is derived from the civil law. Their establishment in England is owing to a statute made in the thirty-first year of Edward III. Till then, no office of this kind was known, beside that of executor: in case of want of which, the ordinary had the disposal of goods of persons intestate, &c.

There are divers sorts of *administrators*.

Administrator durante minore ætate, is where an infant is entitled to administration of the goods of an intestate; in which case administration is granted to another, until he is of the age of twenty-one years. Though where the infant is made executor, such administration, during his minority, ceases at his coming to the age of seventeen. 5 Rep. 29. 6 Rep. 27.

Administrator cum testamento annexo, is one to whom administration, with the will annexed, is granted, upon an executor's refusal to prove the testament, or upon his dying before the probate. 1 Inst. 113.

Administrator de bonis non, &c. is one to whom administration is granted of the goods of a testator remaining unadministered, by reason of his executor's dying intestate. 2 Roll. Abr. 907. There is also

Administrator pendente lite; and *durante absentia extra regnum*.

If a woman have goods thus committed to her charge, or administration, she is called *administratrix*; and is accountable, &c. in like manner as an *administrator*.

ADMINISTRATOR is also used for the advocate of a church.

ADMINISTRATOR is also used for a person appointed to receive, manage, and distribute the revenues of an hospital, or religious house.

ADMINISTRATOR is also used for a prince who enjoys the revenues of a secularized bishoprick.

Yet this title does not hold universally; the king of England, as elector of Brunswick-Lunenburgh, for instance, is not called *administrator*, but duke of Bremen and Verden; and the king of Prussia is not *administrator*, but duke of Magdeburg, and prince of Halberstadt.

ADMINISTRATOR is also used for the regent or protector of

of a kingdom, during the minority of its proper prince, or even a vacancy of the throne.

The pope pretends to the *administration* of the empire, during a vacancy, by censure, or suspension.

ADMINISTRATOR is sometimes used for the president of a province.

ADMINISTRATRIX; see ADMINISTRATOR.

ADMIRAL, ADMIRALUS, ADMIRALLUS, a great officer, who commands the naval forces of a kingdom or state, and takes cognizance by himself, or officers appointed by him, of all maritime causes.

Authors are divided about the origin and denomination of this important officer, whom we find established, with some variation, in most kingdoms that border on the sea. Du-Cange assures us, that the Sicilians were the first, and the Genoese the next after them, who gave the denomination *admiral* to the commanders of their naval armaments; and that they took it from the Saracen, or Arabic *amir*, a general name for any commanding officer.

—The first *admiral* we read of in English history was under Edward I. But the first title of *admiral* of England conferred upon a subject, was given by patent of Rich. II. to the earl of Arundel and Surry in 1387.

ADMIRAL of England, the *lord high*, in some ancient records called *capitaneus marinarum*, is judge, or president, of the court of admiralty.

He takes cognizance, by himself, his lieutenant, or deputies, of all crimes committed on the sea, or the coast thereof; and all the civil and marine transactions relating thereto: as also of what is done in all great ships, riding in any great river, beneath the bridges thereof next the sea.

Anciently, the *admiral* had also jurisdiction in all causes of merchants and mariners; not only on the sea, but in all foreign parts.—We have had no *high admiral* for some years; the office being put in COMMISSION, or under the administration of the lords *commissioners of the admiralty*.

ADMIRAL is also used for the commander in chief of a single fleet, or SQUADRON; and is distinguished by a flag displayed at his main-top-mast-head.

Thus, we say, the *admiral of the red*; the *admiral of the white*; and *admiral of the blue*. See NAVY and SQUADRON.

The term *admiral* is also applied to all flag-officers; in which sense it includes *vice-admirals*, and *rear-admirals*.

ADMIRAL, *Rear*, is the *admiral* of the third, and last squadron of the royal fleet, and carries his flag at the mizen-top-mast-head.

ADMIRAL, *Vice*, is one of the three principal officers of the royal navy; who commands the second squadron, and has his flag set up at the fore-top-mast-head.

ADMIRAL, *Vice*, is also an officer appointed by the *lord high admiral*, in divers parts of the kingdom, with judges and marshals subordinate to him; for the exercising of jurisdiction in maritime affairs, within his respective limits. There are upwards of twenty *vice-admirals*. From their decisions and sentences, appeal lies to the court of *admiralty* in London.

There are also *admirals of the galleys*.

Montfretet makes mention of an *admiral of the archers*, or cross-bow-men. See ARBALET.

ADMIRAL is likewise the name of the principal vessel of a fleet, on board of which is the *admiral*.

When two ships of war, bearing the same colours, meet in the same port, that which arrived first, has the title and prerogative of *admiral*; and the other, though of greater strength and rate, shall only be accounted *vice-admiral*.—

It is pretty much the same with the vessels in the cod and whale fishery. That which arrives first, in any harbour or creek of Newfoundland, takes the title and quality of *admiral*, which it retains during the whole fishing season.—

Such ship may secure to herself so much beech, or flakes, or both, as are necessary for the number of boats she shall use, with an overplus of one boat only more than she uses.

—The master of the second ship is *vice-admiral*; and the master of the third, *rear-admiral*. See FISHERY.

ADMIRAL's Court, or the High Court of Admiralty. See COURT of ADMIRALTY.

ADMIRAL, in Conchology, the name given by authors to a very beautiful, and very precious shell, of the *voluta* kind. See Tab. of shells, N^o 10.

Of these the curious reckon four species. 1. The grand-admiral. 2. The vice-admiral. 3. The orange-admiral. And, 4. The extra-admiral.

The first of these is the most esteemed, and a single shell has been sold, in Holland, for five hundred florins. It is of a very elegant and bright white enamel, and is variegated with bands of yellow, representing in some degree the colours of the flags of a man of war at sea; hence it obtained its name. It is of a very curious shape, and formed with particular elegance about the head; the clavicle being exerted. There runs along the centre of the large yellow band in this shell, a fine denticulated line, which is its distinguishing character.

The vice-admiral is an elegant shell, but its head is less

beautifully wrought than in the *admiral*, and its broad band wants the denticated line, so remarkable in that.

The orange *admiral* has more yellow than either of the others.

The extra-admiral has the same bands with these, but they run one into another, and form a more mixed clouding.

ADMIRATION, in Ethics; see PASSIONS.

ADMIRATION, in Grammar, a note or character, intimating something worthy to be admired, or wondered at.—It is expressed thus (!) See CHARACTER.

ADMISSION, ADMISSIO, in the Ecclesiastical Law, an act whereby a bishop, upon examination, admits or allows a clerk to be able, or competently qualified for the office; which is done by the formula *admitto te habilem*.

All persons are to have an episcopal ordination before they are admitted to any parsonage or benefice; and if any shall presume to be admitted, not having such ordination, &c. he shall forfeit 100*l*. Stat. 14 Car. II.

No person is to be admitted into a benefice with cure of 30*l*. per ann. in the king's books, unless he is a bachelor in divinity at least, or a preacher lawfully allowed by some bishop, &c.

ADMITTENDO Clerico, is a writ granted to him who hath recovered his right of presentation against the bishop in the common pleas.

ADMITTENDO in Socium, is a writ for the association of certain persons to JUSTICES of ASSISE formerly appointed.

ADMONITION, in Ecclesiastical Affairs, a part of discipline much used in the ancient church. It was the first act, or step, towards the punishment, or expulsion of delinquents. In case of private offences, it was performed according to the evangelical rule, privately: in case of public offence, openly before the church. If either of those took effect, for the recovery of the fallen person, all farther proceedings, in the way of censure, ceased: if they did not, recourse was had to EXCOMMUNICATION. Bingham Orig. Eccles. tom. ii. lib. 16. cap. 2. § 6. p. 31. Calv. Inst. lib. iv. cap. 12. § 2.

By the ancient canons, nine monitories or admonitions, at due distance, are required before excommunication.

ADMONITION is also used, in writers of the barbarous age, for the CITATION, or summoning a person to appear in a court of justice. See SUMMONS, &c.

ADMONITIO FUSTIUM, a military punishment, among the Romans, resembling, in some respects, our whipping or lashing, but performed with a vine-branch. Sichterman Diff. de Pœn. Mil. Rom. cap. 12.

ADMORTIZATION, among Feudal Writers, the act of reducing lands to MORTMAIN.

ADNATA, in Anatomy, a thick white membrane, investing the ball of the eye; and making the outermost coat thereof: called also *circumscissalis* & *circumcavalis*.

It is the *tunica adnata* that makes what we commonly call the white of the eye; whence it is also called the ALBUGINEA.

The *adnata* springs from the *pericranium*, and grows to the exterior part of the *tunica cornea*, serving to connect the whole eye both to the *palpebræ*, and the adjacent bones, and thus keep it fast in the socket; whence it is also called *conjunctiva*.

To leave room for the visible species to pass through it, a little round aperture is left in the fore-part, called the sight, through which the IRIS and PUPILLA appear.

The *adnata* abounds with veins and arteries, which, though ordinarily not visible, are conspicuous in opthalmies, which are properly inflammations of this part. The academists *Natura Curiosi* give the history of a drop of the *adnata*, and its cure. Ephemer. Germ. Dec. 3. An. 3. Obs. 3. p. 4.

ADNATA, or ADNASCENTIA, among Gardeners, denote those off-sets, which by a new germination under the earth, proceed from the lily, narcissus, hyacinth, and other flowers, and afterwards grow to true roots. The French call them *cayeux*, stalks.

ADNATA is also a term used for such things as grow upon animal or vegetable bodies, whether inseparably, as hair, wool, horns, &c. or accidentally, as the several epistemic plants.

ADNOUN, ADNOMEN, or ADNAME, is used by some Grammarians to express what we most usually call an ADJECTIVE.

AD OCTO, q. d. to the eighth number; a term used by some ancient philosophers, to denote the highest, or superlative degree: because, in their way of distinguishing qualities, they reckoned no degree above the eighth.

ADOLESCENS signifies the iron bars that support the fire in a grate or furnace.

ADOLESCENCE, ADOLESCENTIA, the state of growing youth; or that period of a person's age commencing from his infancy, and terminating at his full stature or manhood. The word is formed of the Latin *adolescere*, to grow. The state of *adolescence* lasts so long as the fibres continue to grow, either in magnitude or firmness.

It is commonly computed to be between 15 and 25, or even

even 30 years of age; though in different constitutions its terms are very different.—The Romans usually reckoned it from 12 to 25 in boys; and to 21 in girls, &c.—And yet, among their writers, *juvenis* and *adolescens* are frequently used indifferently, for any person under 45 years. The fibres, being arrived at a degree of firmness and tension sufficient to sustain the parts, no longer yield and give way to the efforts of the nutritious matter, to extend them: so that their farther accretion is stopped from the very law of their nutrition.

ADONAI, one of the names of God in Scripture: this word signifies properly *my lords*, in the plural number, as *Adon* signifies *my lord*, in the singular number. The Jews, who either out of respect, or superstition, do not pronounce the name of *Jehovah*, read *Adonai* in the room of it, as often as they meet with *Jehovah* in the Hebrew text. But the ancient Jews were not so nice; there is no law which forbids them to pronounce the name of God. Calmet.

ADONIA, in *Antiquity*, solemn feasts, in honour of Venus, and in memory of her beloved Adonis.

They were begun by the women, who imitated the cries and lamentations of Venus, for the death of her paramour.—When they were weary of lamenting his death, they changed their note, and sung his praises, and made rejoicings, as if he were raised to life again: or rather, according to Meursius, these two offices made two distinct feasts, which were held at different times of the year, the one six months after the other; Adonis being supposed to pass half the year with Proserpine, and half with Venus. The *Adonia* were observed with great solemnity by most nations, Greeks, Phœnicians, Lycians, Syrians, Egyptians, &c. To these the prophet Ezekiel is supposed to refer, chap. viii. ver. 14. Bishop Patrick dates their origin from the slaughter of the first-born in the time of Moses. Patrick, Com. ad loc.

The *Adonia* were otherwise called *Salambo*. The abbé Banier has a memoir on the history of the *adonia*. Mem. Acad. Inscript. tom. iv.

ADONIC, in *Poetry*, denotes a short kind of verse, consisting of a dactyl and a spondee, or a trochee. As *rara juvenus*.

It takes its name from Adonis; as having been originally used in the Threnæ, or lamentations for that favourite.

The chief use of the *Adonic* verse is at the end of each strophe of Sapphic verse; or among Aristophanic anapaests in the ancient tragedy. But we meet with *Adonics* by themselves without Sapphics, as also Sapphics without *Adonics*. See an instance of *Adonic* verses in Boethius, de Consol. Philos. lib. i. p. 67. *Gaudia pelle*, &c.

ADONIDES, in *Botany*, are those writers, who have given histories, or catalogues of the plants cultivated in some particular place. Linnæus.

ADONION, among the *Ancient Botanists*, a species of *southernwood*, according to Gorræus, which used to be set in pots, and served as an ornament for gardens.

ADONIS, in *Ichthyology*, the name of a small fish, of the anguilliform kind, of a cylindric shape, and about six inches long; it is of a gold colour, mixt with a greenish hue in some parts, and in others with a reddish. It has, on each side, a white straight line running from the gills to the tail. Its gills are remarkably small, and many have supposed thence that it had none. It is remarkable for sleeping on the surface of the water, and near the shores; and Rondeletius affirms, that he has seen them sleeping upon the dry rocks.

Mr. Ray suspects this fish, which is also called *exocætus*, to be the same with the *EXOCOETUS* of Bellonius, or the *GOTTORUGINE*.

ADONIS *flos*; see PHEASANT'S eye.

ADONIS *potio*, an ancient beverage or drink made of wine, mixed with the flour of roasted *ador*; the same with what was otherwise called *CYCEON*.

ADONISTS, a sect or party, among *Divines* and *Critics*, who maintain, that the Hebrew points ordinarily annexed to the consonants of the word *Jehovah*, are not the natural points belonging to that word, nor express the true pronunciation of it, but are the vowel-points, belonging to the words *Adonai* and *Elohim*, applied to the consonants of the ineffable name *Jehovah*; to warn the readers, that instead of the word *Jehovah*, which the Jews were forbid to pronounce, and the true pronunciation of which had been long unknown to them, they are always to read *Adonai*. They are opposed to *Jehovists*: of whom the principal are Drusus, Capellus, Buxtorf, Altling, and Reland, who has published a collection of their writings on this subject.

ADOPTER, in *Chemistry*; see RECEIVER.

ADOPTIANI, in *Church History*, a sect in the eighth century, whose distinguishing tenet was, that Christ, as to his human nature, was not the proper, or natural, but only the adoptive son of God.

ADOPTION, *ADOPTIO*, an act by which any one takes

another into his family, owns him for his son, and appoints him his heir.

The word is derived from *adoptare*; whence the Latin barbarous *adobare*, to make a knight.

The custom of *adopting* was very familiar among the ancient Romans, who had an express formula for it.—They first learnt it from the Greeks, among whom it was called *υιοτης*, *filiation*.

As *adoption* was a sort of imitation of nature, intended for the comfort of those who had no children, eunuchs were not allowed to *adopt*; as being under an actual impotency of begetting children.

Neither was it lawful for a young man to *adopt* an elder; because that would have been contrary to the order of nature; but it was even required, that the person who *adopted*, should be eighteen years older than his adoptive son, that there might at least appear a probability of his being the natural father.

The Romans had two forms of *adoption*; the one before the pretor: the other at an assembly of the people, in the times of the commonwealth, and afterwards by a rescript of the emperor.

In the first, the natural father addressed himself to the pretor, declaring that he emancipated his son, resigned all his authority over him, and consented he should be translated into the family of the adopter.

The latter manner of *adoption* was practised, where the party to be *adopted* was already free; and this was called *adrogation*.

The person *adopted* changed all his names; assuming the prename, name, and surname, of the person who *adopted* him.

Besides the formalities prescribed by the Roman law, divers other methods have taken place; which have given denominations to divers species of *adoptions*, among the Gothic nations, in different ages. As,

ADOPTION by arms, was when a prince made a present of arms to a person, in consideration of his merit and valour.—Thus it was that the king of the Heruli was *adopted* by Theodoric; Athalaric by the emperor Justinian; and Cosroes, nephew of the king of Persia, by the emperor Justin.

This method of *adoption*, practised in Germany, was called *barbarous*, by way of opposition to the Roman custom.

The obligation here laid on the *adoptive* son, was to protect and defend the father from injuries, affronts, &c.—And hence the ceremony of dubbing knights took its origin as well as name. Seiden, Tit. of Hon. p. 865.

ADOPTION by baptism, is that spiritual affinity which is contracted by god-fathers and god-children in the ceremony of baptism.

This kind of *adoption* was introduced into the Greek church, and came afterwards into use among the ancient Franks, as appears by the Capitulars of Charlemagne.

In reality, the god-father was so far considered as *adoptive* father, that his god-children were supposed to be entitled to a share in the inheritance of his estate. Du-Cange.

ADOPTION by hair, *adoptio per capillum*, or *crinem*, was performed by cutting off the hair of a person, and giving it to the *adoptive* father. It was thus that pope John VIII. *adopted* Boson king of Arles; which, perhaps, is the only instance in history, of *adoption*, in the order of ecclesiastics; a law that professes to imitate nature, not daring to give children to those in whom it would be thought a crime to beget any.

ADOPTION by matrimony, is the taking the children of a wife or husband, by a former marriage, into the condition of proper or natural children; and admitting them to inherit on the same footing with those of the present marriage. This is a practice peculiar to the Germans; among whom, it is more particularly known by the name of *einkindschaft*; among their writers in Latin, by that of *unio prolium*, or *union of issues*. But the more accurate writers observe, that this is no *adoption*. See ADFILIATION.

ADOPTION by testament, that performed by appointing a person heir by will, on condition of his assuming the name, arms, &c. of the *adopter*.

Of which kind, we meet with divers instances in the Roman history.

Adoption was allowed among the Greeks to such as had no issue of their own; excepting those who were not *κυριοι εαυτων*, *their own masters*, e. g. slaves, women, madmen, infants, or persons under twenty years of age; who being incapable of making wills, or managing their own estates, were not allowed to *adopt* heirs to them. Foreigners being incapable of inheriting at Athens, if any such were *adopted*, it was necessary first to make them free of the city. The ceremony of *adoption* being over, the *adopted* had his name inrolled in the tribe and ward of his new father; for which entry a peculiar time was allotted, viz. the festival *θαγηνλια*.

To prevent rash and inconsiderate *adoptions*, the Lacedæmonians had a law, that *adoptions* should be transacted, or at least confirmed, in the presence of their kings. The children *adopted* were invested with all the privileges, and obliged to perform all the duties, of natural children; and being thus provided for in another family, ceased to have any claim of inheritance, or kindred, in the family which they had left, unless they first renounced their *adoption*; which, by the laws of Solon, they were not allowed to do, unless they had first begotten children, to bear the name of the person who had *adopted* them: thus providing against the ruin of families, which would otherwise have been extinguished by the desertion of those who had been *adopted* to preserve them. If the children *adopted* happened to die without children, the inheritance could not be alienated from the family into which they had been *adopted*, but returned to the relations of the *adopter*. It should seem, that by the Athenian law, a person, after having *adopted* another, was not allowed to marry, without permission from the magistrate: in effect, there are instances of persons, who being ill used by their *adoptive* children, petitioned for such leave. However this be, it is certain some men married after they had *adopted* sons: in which case, if they begat legitimate children, their estates were equally shared between the begotten and *adopted*.

Among the Turks, by the law of Mahomet, *adoption* is no impediment of marriage. The ceremony of *adoption* is performed by obliging the person *adopted* to pass through the shirt of the *adopter*. Hence, among that people, to *adopt* is expressed by the phrase, *to draw another through my shirt*. It is said that something like this has also been observed among the Hebrews; where the prophet Elijah *adopted* Elisha for his son and successor, and communicated to him the gift of prophecy, by letting fall his cloke, or mantle, on him.

But *adoption*, properly so called, does not appear to have been practised among the ancient Jews.

Adoption is now in most countries abolished, though it has been said to subsist in some provinces of France.

ADOPTION is also used, in *Theology*, for a federal act of God's free grace; whereby those that are regenerate by faith, are admitted into his household, and intitled to a share in the inheritance of the kingdom of heaven.

ADOPTION is sometimes also used, in speaking of the ancient clergy, who had a custom of taking a maid or widow into their houses, under the denomination of an *adoptive* or spiritual sister, or niece. Du-Cange.

ADOPTION is also used in speaking of the admission of persons into certain hospitals, particularly that of Lyons; the administrators whereof have all the power and rights of parents over the children admitted.

ADOPTION is also used for the reception of a new academy into the body of an old one.

In which sense, *adoption* amounts to much the same with *incorporation*.

The French academy of Marseilles was *adopted* by that of Paris; on which account, we find a volume of speeches extant, made by several members of the academy of Marseilles, deputed to return thanks to that of Paris, for the honour.

In a sense, not unlike this, *adoption* is also applied by the Greeks, to the admitting a monk, or brother, into a monastic community; sometimes called *spiritual adoption*.

ADOPTIVE, **ADOPTIVUS**, or **ADOPTITIUS**, denotes a person *adopted* by another.

Adoptive children, among the Romans, were on the same footing with natural ones; for which reason, they were either to be instituted heirs, or expressly disinherited; otherwise the testament was null.

The emperor Adrian preferred *adoptive children* to natural ones; because we choose the former, but are obliged to take the latter at random.

M. Menage has published a book of eloges, or verses, addressed to him; which he calls *Liber Adoptivus*, an *adoptive book*; and adds it to his other works.—Heinsius, and Furstemburg of Munster, have likewise published *adoptive books*.

ADOPTIVE; in *Ecclesiastical Writers* we find *adoptive women*, or sisters, *adoptivæ sœminæ*, or *sorores*, used for those handmaids of the ancient clergy, otherwise called *subintroductæ*.

ADOPTIVE arms are those which a person enjoys by the gift or concession of another, and to which he was not otherwise entitled. They stand contradistinguished from arms of *alliance*.

ADOPTIVE is also used to express a thing borrowed or taken from another. In which sense we sometimes meet with *adoptive hair*, by way of opposition to natural hair; and *adoptive gods*, by way of contradistinction to domestic ones. The Romans, notwithstanding the number of their domestic, had their *adoptive gods*, taken chiefly from the Egyptians: such were Isis, Osiris, Anubis, Apis, Harpocrates, and Canopus.

ADOPTIVI, in *Church History*. See **ADOPTIANI**.

ADOR signifies a species of corn called *SPELTA* and *ZEA*.

ADORATION, the act of rendering divine honours; or of addressing God, or a being, as supposing it a god. See **WORSHIP**.

The word is compounded of *ad*, *to*; and *os*, *mouth*; and literally signifies to apply the hands to the mouth; *manum ad os admove*, q. d. *to kiss the hand*; this being, in the eastern countries, one of the great marks of respect and submission.

The ceremony of *adoration* among the ancient Romans was thus: the devotee having his head covered, applied his right hand to his lips, the fore-finger resting on the thumb, which was erect, and thus bowing his head, turned himself round from left to right. The kiss thus given was called *osculum labratum*; for ordinarily they were afraid to touch the images of their gods themselves with their profane lips. Sometimes, however, they would kiss their feet, or even knees, it being held an incivility to touch their mouths; so that the affair passed at some distance. Others pretend, that they first stretched out the hand, and afterwards drew it back to their lips; but it rather appears, that the contrary order was observed. Saturn, however, and Hercules, were *adored* with the head bare; whence the worship of the last was called *institutum peregrinum*, and *ritus Græcicus*, as departing from the Roman customary method, which was to sacrifice and *adore*, with the face veiled, and the cloaths drawn up to the ears, to prevent any interruption in the ceremony, by the sight of unlucky objects.

Sometimes also prostration, or falling on the face, and sometimes kneeling, were practised; sometimes they turned towards the sun, and sometimes to the east.

Other circumstances of *adoration* were the putting crowns, garlands, and the like, on the statues or images *adored*; sitting down by them, praying to them; in soft trembling murmurs, to be favourable, *faveas mihi*.

The Romans practised *adoration* at sacrifices, and other solemnities; in passing by temples, altars, groves, &c. at the sight of statues, images, or the like, whether of stone or wood, wherein any thing of divinity was supposed to reside. Usually there were images of the gods placed at the gates of cities, for those who went in, or out, to pay their respects to.

The Gauls, instead of turning about to the right hand, after the Roman manner, thought it more religious to turn to the left.

In the symbols of Pythagoras, *adoration* is enjoined to be performed in a sitting posture, genuflexion being then unknown.

The Jewish manner of *adoration* was by prostration, bowing and kneeling. Pinchon has a discourse express on the form of the Jewish *adoration*. The Christians adopted the Grecian rather than the Roman method, and *adored* always uncovered. The ordinary posture of the ancient Christians was kneeling, but on Sundays, standing. In this they conformed to the heathens, that a peculiar regard was had to the east, to which point they ordinarily directed their prayers; which occasioned a belief among the heathens, as if they *adored* the sun. Something of this usage is still retained, as appears by the position of our churches. A modern author has discovered an error of the builders in this respect; many of our ancient churches being found to vary several degrees from the true east and west. Plot's Hist. Staff. chap. ix. § 55. p. 362.

ADORATION is also used for certain extraordinary civil honours, or respects, which resemble those paid to the Deity, yet are given to men.

We read of *adorations* paid to kings, princes, emperors, popes, bishops, abbots, &c. *Adorations* paid to the purple, to the person. *Adoration* by kneeling, by falling prostrate, kissing feet, hand, garment, &c.

The Persian manner of *adoration*, introduced by Cyrus, was by bending the knee, and falling on the face at the prince's feet, striking the earth with the forehead, and kissing the ground. The ceremony, which the Greeks called *προσκύνησις*, Conon refused to perform to Artaxerxes, and Calisthenes to Alexander the Great, as reputing it impious and unlawful.

The *adoration* performed to the Roman and Grecian emperors, consisted in bowing, or kneeling at the prince's feet, laying hold of his purple robe, and presently withdrawing the hand, and clapping it to the lips. Some attribute the origin of this practice to Constantius. They were only persons of some rank or dignity that were intitled to the honour. Bare kneeling before the emperor to deliver a petition, was also called *adoration*.

It is particularly said of Dioclesian, that he had gems fastened to his shoes, that divine honours might be more willingly paid him, by kissing his feet. The like usage was afterwards adopted by the popes, and is observed to this day.

ADORATION is also used in the court of Rome, for the ceremony of kissing the pope's feet.

These prelates finding a vehement disposition in the people to fall down before them, and kiss their feet, procured crucifixes to be fastened on their slippers; by which stratagem, the *adoration* intended for the pope's person, is supposed to be transferred to Christ. Divers acts of this *adoration* we find offered even by princes to the pope. We are told, that in the ancient church the same ceremony was practised to all bishops; people kissed their feet, and saluted them with the phrase *προσκύω σε, I adore thee.*

The practice of *adoration* may be said to be still subsisting in England, in the ceremony of kissing the king's, or queen's hand, and in serving them at table, both being performed kneeling.

ADORATION is also particularly used for the ceremony of owning, or paying homage to a new elected pope.

Adoration properly is paid only to the pope, when placed on the altar, in which posture the cardinals, conclavists alone, are admitted to kiss his feet. The people are afterwards admitted to do the like at St. Peter's church; the ceremony is described at large by Guicciardin.

ADORATION is also used for a method of electing a pope without scrutiny, or voting — In the election by *adoration*, the cardinals rush hastily, as if agitated by some spirit, and fall immediately to the *adoration* of some one among them, and proclaim him pope.

In the election by scrutiny, *adoration* is the last thing, and follows the election; as in the other it is the election itself, or rather supercedes the election.

ADORATION is more particularly used for kissing one's hand in the presence of another, as a token of reverence.

The Jews *adored* by kissing their hands, and bowing down their heads; whence in their language *kissing* is properly used for *adoration*. Calmet.

ADORATION is also used among Roman writers, for a high species of applause given to persons, who had spoken or performed well in public. The method of expressing it was, by rising, putting both hands to their mouth, and then returning them towards the person intended to be honoured.

ADORATION is of divers kinds and qualities; *supreme* and *subordinate*; *mediate* and *immediate*; *absolute* and *relative*; *internal* and *external*; *secret* and *open*.

ADORATION, *external*, coincides with what is otherwise called *ritual adoration*.

ADORATION, *internal*, coincides with spiritual *adoration*, called also *adoration* in spirit and truth.

ADORATION, *solemn*, that performed in public, with stated ceremonies prescribed by authority: in opposition to private, or tacit, or implicit *adoration*.

ADORATION, *supreme*, the highest degree of religious honour or worship rendered to a being, as supposing him the supreme God; in opposition to subordinate worship given to inferior beings.

ADORATION, *absolute*, that rendered immediately to a being in consideration of his own essential perfections, and terminating in himself. This coincides with immediate *adoration*, and stands opposed to relative or mediate *adoration*. Olearius has an express dissertation on the *adoration* of the Father by the Son.

ADORATION, *relative*, is that worship paid to an object, as belonging to, or representative of another.

In which sense the Romanists profess to adore the cross, not simply or immediately, which they allow would be idolatry, but in respect of Jesus Christ, whom they suppose to be on it. The Jesuits in China carry an image of Christ under their cloaths, and to this refer mentally the public *adorations* they offer to Chacinchuan. Vid. Pascal. Lettr. Provinc. 5.

ADORATION, *perpetual*, is a kind of society or association of devout persons established in Romish countries, who take their turns to pray before the eucharist, regularly relieving each other, so that the service never ceases day nor night.

The members of the perpetual *adoration* answer to the ACOEMITI in the eastern church.

We find societies under this denomination in France, Germany, Italy, &c.

ADORATION, *barbarous*, is a term used in the laws of king Canute, for that performed after the heathen manner, who *adored* idols.

The Phœnicians *adored* the winds, on account of the terrible effects produced by them; the same was adopted by most of the other nations, Persians, Greeks, Romans, &c.

The Troglodytes *adored* tortoises, as something peculiarly sacred; several people *adored* weapons, and instruments of war. The Scythians, &c. *adored* swords, the Romans axes, the Arabs stones, the Indians *adored* vipers, the Bengalese and Canadese the sun; the latter of which nations is also said to *adore* the cross. The Manta, a Peruvian people in the island of Puna, anciently *adored* a huge emerald, of the bigness of an ostrich's egg, by of-

fering to it other emeralds of a lesser size. All which the priests kept for their own use; the doctrine, as Garcilasso observes, being founded on their avarice.

The Persians chiefly paid their *adorations* to the sun and fire, some say also to rivers, the wind, &c. The motive of *adoring* the sun was the benefits they received from that glorious luminary, which, of all created substances, has doubtless the best pretensions to such homage; the institution of the fire-worship is usually referred to Zoroaster. The retainers to it are called IGNICOLÆ; by the Persians, Ghebr Arefsch, Perefh.

Dr. Hyde reduces the Persian fire-worship to a subordinate kind of honour, to service, which he calls *pyroculia*, defending that people from any charge of *pyrolatria*, or idolatry of fire. A late traveller into these parts, Gemelli Careri, does the same.

The Greeks and Romans also *adored* fire under the name of VESTA. Pliny mentions the method of *adoring* lightning, which was by popisms, or gentle clappings of the hands.

The Jews have been charged by heathens with *adoring* the vine, an ass's head, &c. By Christians, with *adoring* the book of the law; a charge which one of their rabbins, Manass. Ben Israel, has been at the pains to remove. The *adoration* of the golden calf, into which they fell in the wilderness, seems to have been borrowed, like many other of their ceremonies, from the Egyptians.

The Egyptians are said to have paid *adoration* to divers animals, plants, fishes, &c. the crocodile, the ibis, onions, &c. But those were only symbolical, or relative acts of homage; they *adored* the sun in a more peculiar manner, under the name of Osiris.

It is disputed, whether the Chinese pay divine or only civil honours to the statues of Confucius, and their ancestors. That people, however, appear to *adore* heaven; whence the inscription in all their temples, and which even the Christians are said to have retained in their churches, *king tien*, i. e. *adore heaven*.

The Indians are said to *adore* the devil. Some charge the same on the Bramins.

ADOREA, in *Roman Antiquity*, a word used in different senses; sometimes for all manner of grain, sometimes for a kind of cakes made of fine flour, and offered in sacrifice; and finally for a dole or distribution of corn, as a reward for some service; whence by metonymy it is put for praise or rewards in general.

ADOS signifies water, in which red-hot iron has been extinguished.

ADOSCULATION is used, by some *Naturalists*, for a species of copulation or impregnation, by mere external contact between the genital parts of the two sexes, without intromission.

Such is that of plants, by the falling of the *farina fecundans* on the pistil, or uterus.

Divers kinds of birds and fishes are also impregnated by *adosculation*. Grew Anat. of Plants, chap. v. § 9.

ADOSSE'E is used, in *Heraldry*, to denote two figures or bearings, placed back to back.

The arms of the duchy of Bar are two bars *adossée*.

ADOXA, in *Botany*, a name given by Linnæus to the genus of plants, called by other writers MOSCHATELLINA. They are classed among the *oelandria tetragynia*.

ADPERCEPTION, in the Leibnitzian style, denotes the act whereby the mind becomes conscious to itself of a perception.

AD PONDUS Omnium, to the weight of the whole; an abbreviation among *Physicians*, &c. signifying, that the last prescribed ingredient is to weigh as much as all the others put together.

ADQUISITUS, in some *Ancient Latin Writers of Music*, is used for the note, or chord, which the Greeks called *προσλαμβανόμενος*. See DIAGRAM.

AD QUOD Damnum, a writ directed to the sheriff, commanding him to inquire what hurt may befall the king by granting a fair, or market, in any town or place.

The same writ also issues for an inquiry to be made of what the king, or other person, may suffer, by granting lands in fee-simple to a convent, chapter, or other body politic; by reason such land falls into MORTMAIN.

The writ *Ad quod damnum* is also had for the turning and changing of ancient highways; which may not be done without the king's licence obtained by this writ, or inquisition found that such change will not be detrimental to the public. Vaugh. Rep. 341. Ways turned without this authority are not esteemed highways, so as to oblige the inhabitants of the hundred to make amends for robberies; nor have the subjects an interest therein to justify going there. 3 Cro. 267. If any one change a highway without this authority, he may stop the way at his pleasure. But see the statute 8 and 9 W. III. cap. 16. for enlarging of highways by order of justices of peace, &c. Where any common way shall be enclosed after a writ of *Ad quod damnum* executed, any person ag-

grieved

grieved by such enclosure, may complain to the justices at the next quarter sessions; but if no such complaint or appeal be made, then the inquisition and return, recorded by the clerk of the peace, shall be for ever binding. 8 and 9 W. III.

ADRACHNE, in *Botany*, the strawberry-bay. It grows plentifully in the island of Candy, on the hills of Leuce, and in other places among the rocks, more like a shrub than a tree. It flowers and bears fruit twice in the year, as does the arbutus strawberry-tree. It is also called *adraela*, and **ANDRACHNE**.

ADRACLA, another name for the preceding shrub. See **ANDRACHNE**.

ADRAGANTH, see **TRAGACANTH**; the same as gum *dragant*.

ADRAM, a name given to **SAL** gem.

ADRASTEIA, or **ADRASTIA**, in *Antiquity*, an epithet given to the goddess Nemesis, or Revenge.

It was taken from king Adrastus, who first erected a temple to that deity.

ADRASTIA certamina, in *Antiquity*, a kind of Pythian games, instituted by Adrastus king of Argos, in the year of the world 2700, in honour of Apollo, at Sicyon.

These are to be distinguished from the Pythian games celebrated at Delphi.

ADRIANISTS, a branch of *Anabaptists*, the disciples of Adrian Hamstedius, in the sixteenth century, who taught first in Zealand, and afterwards in England.

The *Adrianists*, besides the common dogma of anabaptism, are said to have had some peculiar notions relating to the person of Christ. Theodoret mentions a more ancient sect of this name, who were followers of Simon Magus.

ADRIFT; a vessel broke from her moorings, and driven by the wind or waves, is said to be *adrift*.

ADRIUNE, in *Botany*, a name given by the Arabian writers to the plant known at this time by the name of *cyclamen*, or sow-bread.

ADROBOLON, another name for the Indian **BDELLIUM**.

ADROGATION, in *Antiquity*, a species of adoption, whereby a person who was capable of choosing for himself, was admitted by another into the relation of a son. The word is compounded of *ad*, *to*, and *rogare*, *to ask*; on account of a question put in the ceremony of it, whether the adopter would take such a person for his son; and another to the adoptive, whether he consented to become such a person's son?

ADROP, among *Alchemists*, denotes either that precise matter, as lead, out of which the mercury is to be extracted for the philosophers stone; or it denotes the philosophers stone itself, inasmuch as this is also called *saturn* and *plumbum*, or lead, *azar*, *azane*, and *lapis ipse*.

ADROTERON; see **ALICA**.

ADSAMAR, See **URINE**.

ADSCRIPTS is used by some *Mathematicians*, for the natural tangents, called also, by Vieta, *prolines*.

ADSIDELA, in *Antiquity*, a table at which the flamens sat, when they offered sacrifice.

ADSIGNIFICATION, among *Schoolmen*, the act of noting or signifying any thing, with the addition of the time when it happened.

ADSTRICITION, among *Physicians*, is used to denote the too great rigidity and closeness of the emunctories of the body; particularly the pores of the skin: also to signify the styptic quality of medicines. See **ASTRINGENTS**.

AD TERMINUM qui præterit, is a writ of entry, which lies where a man, having leased lands or tenements for term of life, or years, is, after the term expired, held from them by the tenant, or other stranger, who enjoys the same, and deforce the lessor.—The same writ also lies for the lessor's heir.

ADVANCE, in *Commerce*, denotes money paid before goods are delivered, work done, or business performed. To pay a note of hand, or bill by *advance*, is to pay the value before it becomes due, in which case it is usual to allow a discount for the time it is pre-advanced.

ADUAR, a kind of ambulatory village, wherein Arab families inhabit, in a sort of tents, moveable on occasion, as forage and provisions suit. Some also write the word *adouar*, and *adouard*. There are reckoned thirty thousand *aduars* in the kingdom of Algiers.

ADVANCE-FOSSE, or **DITCH**, in *Fortification*, denotes a ditch of water round the *esplanade*, or **GLACIS** of a place; to prevent its being surprised by the besiegers. See **FOSSE**.

ADVANCE-GUARD, or **VAN-GUARD**, in the *Military Art*, is the first line, or division of an army ranged, or marching in battle-array; or that part of it which is next the enemy, or which marches first toward them.

The whole body of an army is divided into *advance-guard*, *arrear-guard*, and *main-body*.

The word is sometimes also applied to a small party of horse, viz. 15, or 20, commanded by a lieutenant, beyond, and in sight of the main-guard.

ADVANCER, among *Hunters*, is one of the starts or

branches of a buck's attire, between the back antler and the palm.

ADVENT, **ADVENTUS**, in the calendar, the time immediately preceding Christmas; anciently employed in pious preparation for the *adventus*, or coming on, of the feast of the Nativity.

Advent includes four Sundays, or weeks; commencing either from the Sunday which falls on St. Andrew's day, or that next before or after it, i. e. from the Sunday which falls between the 27th of November, and the third of December inclusive.—But it is to be noted, this rule has not always obtained.—In the Ambrosian office, there are six weeks marked for *Advent*, and St. Gregory, in his Sacramentary, allows five.

The first week of *Advent*, in our way of reckoning, is that wherein it begins; but it was anciently otherwise; the week next Christmas being reputed the first; and the numeration carried backwards.

Great austerity was practised in the ancient church during this season.—At first they fasted three days a week; but they were afterwards obliged to fast every day; whence the season is frequently called in ancient writers, *Lent*, and *Quadragesimi S. Martini*.

The courts of justice were at one time all shut.

ADVENT is also one of the times from the beginning whereof, to the end of the octaves of the Epiphany, the solemnizing of **MARRIAGE** is forbid, without express licence.

ADVENTITIA cæna, in *Antiquity*, an entertainment made by the friend of a person who had been travelling, by way of welcome at his return. This was otherwise called *cæna adventoria*. Pitiscus.

ADVENTITIOUS, something accruing or befalling a person, or thing, from without.

Thus, *adventitious* matter is such matter as doth not properly belong to any body, but is casually joined to it.

ADVENTITIOUS, in the *Civil Law*, is applied to such goods as fall to a man, either by mere fortune, or by the liberality of a stranger, or by collateral, not direct succession.

In this sense, the word stands opposed to *profectitious*; by which are signified such goods as descend in a direct line, from father to son.

ADVENTITIOUS fossils, are foreign or extraneous ones, found incorporated with others, to which they do not properly belong. Such as sea-shells, &c.

AD VENTREM inspicendum, in *Law*. See **VENTRE inspicendo**.

ADVENTURE, an extraordinary and surprising enterprise, or accident, either real, or fictitious.

The word is French, and literally denotes an event, or accident.

Novels, romances, &c. are chiefly taken up in relating the *adventures* of cavaliers, lovers, &c.

ADVENTURE, in *Commerce*; a bill of *adventure* is a writing signed by a merchant, attesting that the property of goods shipped, or sent away in his name, belongs to another, the *adventure* or chance whereof the said person is to stand, with a covenant to account to him for the produce of it.

ADVENTURER, see **MINE-adventurer**.

ADVENTURERS is particularly used for an ancient company of merchants and traders, erected for the discovery of lands, territories, trades, &c. unknown.

The society of *adventurers* had its rise in Burgundy, and its first establishment from John duke of Brabant, in 1296; being since known by the name of the *Brotherhood of St. Thomas à Becket*. It was afterwards translated into England, and successively confirmed by Edward III. and IV. Richard III. Henry IV. V. VI. and VII. who gave it the appellation of **MERCHANT-adventurers**; by Henry VIII. and queen Elizabeth, who in 1564 formed it into an English corporation; and by succeeding kings.

By our statutes, *adventurers* making settlements in any part of America belonging to the enemy, may obtain a charter from the king. Stat. 13 Geo. II. c. 4. sect. 13.

ADVERB, **ADVERBIUM**, in *Grammar*, a particle joined to a verb, adjective, or participle, to explain their manner of acting or suffering; or to mark some circumstance or quality signified by them.

The word is formed from the preposition, *ad*, *to*, and *verbum*, *a verb*; and signifies literally a word joined to a verb, to shew how, when or where, one is, does or suffers; as, the boy paints *neatly*, writes *ill*; the house stands *there*, &c.

Not that the *adverb* is confined purely to the verbs; but because that is its most ordinary use. Whence it becomes so denominated κατ' εἶδος. We frequently find it joined to adjectives, and sometimes even to substantives, particularly where those substantives signify an attribute, or quality of the thing spoken of; v. gr. he is *very* sick; he is *truly* king.

An *adverb* is likewise joined sometimes to another *adverb*, to modify its meaning; v. gr. *very devoutly*, &c. Whence

some grammarians choose rather to call *adverbs* modifications; comprising under this one general term, *adverbs*, conjunctions, prepositions, and even adjectives.

Adverbs are very numerous; but they may be reduced under the general classes of *adverbs* of time, of place, of order, of quantity, of quality, of manner, of interrogation, of affirmation, of denegation, of diminution, of doubting, of exception, and of comparison.

Adverbs are denominated by Mr. Harris attributes of attributes, or attributives of the second order. Hermes, p. 192.

ADVERBIAL, something relating to *adverbs*. We say an *adverbial* phrase, *adverbial* expression, &c.

ADVERBIAL numbers are sometimes used to denote once, twice, thrice, &c.

ADVERSARIA, among the *Ancients*, was used for a book of accounts, like our journal or day-book.

Hence, **ADVERSARIA** is sometimes also used among us for a common place-book.

Adversaria amounts to the same with *episthographia*, *ὑπομνήματα*, or *memoriale*; and stands opposed to *codex*; the former being for occasional matters which were taken down hastily, from which they were afterwards transcribed into the latter, in a fair regular manner, for standing use. Morhof. Polyhist. lib. iii. cap. 1.

ADVERSARIA is also a title given to divers books, containing collections of miscellaneous observations, remarks, &c.

In which sense, *adversaria* amounts to much the same with *variae lectiones*, *variae observationes*, *commentarii*, *lectiones antiquae*, *loci communes*, *geniales dies*, *vesperae*, *electa*, *miscellanea*, &c.

ADVERSARIA is also used for a commentary on some text or writing.

This was so called, because the notes were written on the *adverse* or opposite page.

ADVERSARY. See **ANTAGONIST**.

The word is formed of the Latin preposition *adversus*, against; and *vertere*, to turn.

ADVERSATIVE, in *Grammar*.—A particle *adversative*, is that which expresses some difference, or opposition between what goes before, and what follows.

Thus, in the phrase, *he loves knowledge, but has no application*; the word *but* is an *adversative* conjunction: between which and a disjunctive one there is this difference, that the first sense may hold good, without the second opposed to it, which is otherwise in regard to *disjunctive* conjunctions.

Adversatives of this kind may be called *absolute*: beside these, there are several others recited by Harris; such as *adversatives of comparison*, expressed by the words *than* and *as*, which mark not only opposition, but that equality or excess which arises among subjects from their being compared; such likewise are *adversatives adequate*, and *inadequate*, the former of which is expressed by the word *unless*, and the latter by *although*. Hermes, p. 254, &c.

ADVERSATOR, in *Antiquity*, a servant sent to wait his master's returning from supper, and attend him home. The rich had servants in this quality, to apprize them of any danger.

ADVERTISEMENT, an intelligence or information given to persons interested in an affair.

The word is formed from *advertere*, to consider.

ADVERTISEMENT is more particularly used for a brief account of articles of private concern, inserted in the daily, or other public papers.

By the statute of 25 Geo. II. cap. 36. and 28 Geo. II. cap. 19. the penalty of 50*l.* is inflicted on persons advertising a reward, with no questions to be asked, for the return of things lost or stolen; and likewise on the printer. See **STAMP-duties**.

ADVICE-boat, a small vessel employed to carry expresses or orders with dispatch.

ADULT, **ADULTUS**, one who is arrived at years of discretion, and entered upon manhood, or the age of **ADOLESCENCE**; and is old enough to have understanding and discernment.

The word is formed from the verb *adolescere*, to grow up. There is a notable difference between the proportions of infants and *adults*.—A man, Mr. Dodart observes, formed like a *fœtus*, would be a monster, and would scarce be acknowledged for one of the species.—The Anabaptists confer the sacrament of baptism upon none but **ADULTS**. We find many things in authors concerning the diseases, the regimen, the diet, &c. of *adults*.—The Chinese have a peculiar school of *adults*.

ADULT is also used in *Civil Law Writers*, for a youth between fourteen and twenty-five years of age.

In which sense *adultus* is synonymous with *juvenis*, *adolescens*, or *adulescens*.

ADULT plants, a modern author observes, differ from immature ones, in that they contain more oil, and less salt; and the same he judges will hold of men; but this re-

quires farther examination. Terenzoni ap. Giorn. de Lett. Ital. tom. xxix. p. 317, &c.

ADULTERATION, in a general sense, the act of corrupting, or debasing a thing that was pure, by some improper admixture.

The word is Latin, formed of the verb *adulterare*, to corrupt, by mingling something foreign to any substance. We have laws against the *adulteration* of coffee, tea, tobacco, snuff, wine, beer, bread, wax, hair-powder, &c. See Stat. 13 W. III. cap. 5.—11 Geo. I. cap. 30.—1 Geo. I. cap. 46.—1 W. and M. cap. 34.—23 El. cap. 8.—10 Ann. cap. 26.—3 Geo. III. cap. 11.

For the method of detecting *adulteration* of liquors, see **ESSAY**, **PROOF**, &c.

ADULTERATION of coin properly imports the making, or casting of a wrong metal, or with too base or too much alloy.

Adulterations of coins are effected divers ways, as, by forging another stamp, or inscription; by mixing impurer metals with the gold or silver: most properly, by making use of a wrong metal, or an undue alloy, or too great an admixture of the baser metals with gold, or silver. Counterfeiting the stamp, or clipping and lessening the weight, do not so properly come under the denomination of *adulterating*.

Evelyn gives rules and methods, both of *adulterating* and detecting *adulterated* metals, &c.

Adulterating is somewhat less extensive than *debasing*, which includes diminishing, clipping, &c.

To *adulterate* or debase the current coin, is a capital crime in all nations.—The ancients punished it with great severity: among the Egyptians both hands were cut off; and by the civil law, the offender was thrown to wild beasts. The emperor Tacitus enacted, that counterfeiting the coin should be capital; and under Constantine it was made treason, as it is also among us. The *adulterating* of gems is a curious art, and the methods of detecting it no less useful. Nichols Lapid. p. 18.

ADULTERATION, in *Pharmacy*, denotes a fraudulent corruption of drugs, or medicines, by substituting ingredients of less value, for the sake of greater gain.

This practice the dealers in all the parts of medicine are but too well acquainted with. Pharmaceutical authors give numerous instances of *adulterations*, both in simple and compound medicines.

ADULTERESS, a woman who commits *adultery*. See **ADULTERY**.

ADULTERINE, in a general sense, denotes any thing which has been adulterated, or that is spurious, or counterfeited; and it is thus applied to a fraudulent balance, to debased and counterfeit coins, to a false key, and to supposititious writings.

ADULTERINE, in the *Civil Law*, is particularly applied to a child issued from an adulterous amour, or commerce.

Adulterine children are more odious than the illegitimate offspring of single persons.—The Roman law even refuses them the title of natural children; as if nature disowned them.

Adulterine children are not easily dispensed with for admission to orders. Those are not deemed *adulterine*, who are begotten of a woman openly married, through ignorance of a former wife being alive.

By a decree of the parliament of Paris, *adulterine* children are declared not legitimated by the subsequent marriage of the parties, even though a papal dispensation be had for such marriage, wherein is a clause of legitimation.

ADULTERINE marriages, in St. Augustine's sense, denote second marriages, contracted after a divorce.

ADULTERY, **ADULTERIUM**, (in *Ancient Law Books* called **ADVOWTRY**) a crime committed by married persons, against the faith pledged to each other in marriage, by having carnal commerce with some other; or even by a person not married, who has the same intercourse with another that is.

Moralists and canonists, and divines, have distinguished several species of *adultery*; as,

ADULTERY, *manifest*, that wherein the parties are caught *in flagrante*, or as, some express it, *res in re*.

On such occasions, strangers, or people not interested in the family, have been allowed to accuse, and prosecute women for *adultery*, either if committed during a husband's long absence, or through his connivance.

ADULTERY, *occult* or *secret*, that kept concealed from the knowledge of the world, and only divulged to a confessor, or the like.—In the canon law this is most favourably dealt with; persons were admitted to penance for this, and absolved, who were refused it for the open kind. Du-Cange.

ADULTERY, *presumptive*, that which is only discovered or inferred from certain signs, or indications. Such are the parties being found in bed together *nudus cum nuda*.

ADULTERY, *interpretative*, or *reputed*, denotes an act which though not properly included under the denomination, yet

yet is reputed as equivalent to it, and punished as such. Thus mixed marriages between Christians and Jews, e. g. between a Christian man and a Jewish woman, are put by the laws of Arcadius and Honorius, on the footing of *adultery*.

So also second marriages are called by some, as Athenagoras, and St. Ambrose, an honourable or better sort of *adulteries*.

ADULTERY, *improper*, includes other extraordinary cases and species; such are the commerce with a woman only espoused, not actually married; with a married woman, who lives as a common whore; with a married woman, taking her for single; with a putative wife, or concubine, taking her for a real wife; and with a nun, who by her vows is deemed espoused.

ADULTERY, *figurative*, that intended only to represent, or prefigure another fact, or convey some other instruction. This coincides with typical, or allegorical *adultery*, and stands opposed to actual. So the *adultery* of Mars and Venus is turned into an allegory by naturalists, moralists, alchemists, &c.

ADULTERY, *single*, is that where only one of the parties is married, in contradistinction from double *adultery*, which is, where both parties are married.

ADULTERY, *incestuous*, that wherein the parties are related within the third degree of consanguinity.

ADULTERY, *licit*, that not prohibited by any express or known law.

It has been disputed whether *adultery* be *malum in se*, or only *malum prohibitum*, i. e. evil in itself, or only rendered evil, by virtue of positive laws and prohibitions. St. Ambrose and some others have maintained, that *adultery* was not criminal before the Mosaic law. Hobbes de Civ. cap. 6. § 16. Budd. Ifag. lib. ii. cap. 4.

It has been controverted, whether *adultery* may be lawfully committed in war, with the enemies wives? The answer is in the negative, and the authorized practice of civilised nations is agreeable to this. It has also been a famous question, whether it be lawful for a woman to commit *adultery* with the consent of her husband, and for the procuring some great good to him? St. Austin apparently allows of it; at least, does not condemn it. De Serm. Dom. in Mont. lib. i. cap. 16. § 49. & De Civ. Dei, lib. xvi. cap. 25.

It has likewise been a dispute, whether it be lawful for one of the parties married to commit *adultery*, with the consent of the other, for the sake of having children? Of which we have instances in Abraham, who, on this account, conversed with Hagar; and likewise among the Greeks and Romans.

Pollman, a German professor, has a dissertation on the husband's right to alienate his wife's body to another's use.

ADULTERY, *illicit*, that which is expressly contrary to some obligatory law: such, according to the generality of casuists, is all *adultery*, proper, improper, single, double, open, and occult; because of a natural baseness or turpitude in the thing, as well as its being a violation of conjugal faith, and injury to our neighbour.

In effect, punishments have been annexed to *adultery* in most ages and nations, though of different degrees of severity. In many it has been capital, in others venial, and attended only with slight pecuniary mulcts. Some of the penalties are serious, and even cruel; others of a jocose and humorous kind.

Among the Egyptians, *adultery* by consent, was punished in the man, by a thousand lashes, given with rods: and in the woman, with the loss of her nose. Nevertheless *adulteries* were not unfrequent among the Egyptians.

The Grecian laws express great indignation against *adultery*. In the earlier times of Athens, the punishment of *adultery* seems to have been arbitrary. In other parts of Greece, *adultery* was severely punished.

In the later times of Greece, it was ordered by Draco, that he who caught an *adulterer* in the fact, might impose on him any arbitrary punishment; and this law was confirmed by Solon. Nevertheless it appears to have been highly impolitic, as it gave full scope to private revenge, instead of leaving the punishment to the state.

It was by the Grecian law farther ordained, that if any one was injuriously confined upon suspicion of *adultery*, he should make his complaint by appeal to the *Thesmothetæ*, which, if they found justifiable, he should be acquitted, and his sureties discharged from their bail; but in case he were found guilty, the judges were to inflict on him what punishment they would, death only excepted; and the offender was obliged to procure friends to be responsible for his future chastity.

There were other remarkable punishments for *adulterers* among the Grecians; such, particularly, as putting out their eyes. And the Locrians observed this custom in later ages, being compelled to the observance of it by Zaleucus, their lawgiver, whose rigour in executing this law is very remarkable; for having caught his son in *adultery*,

he resolved to deprive him of his sight, and remained a long time inexorable, notwithstanding the whole city was willing to remit the punishment, and requested him to spare the youth. At length, unable to resist the people's importunity, he mitigated his sentence, and redeemed one of his son's eyes, by causing one of his own to be put out; by this glorious act setting a memorable example both of *justice* and of *mercy*.

At Gortyn in Crete, they punished *adulterers* after another manner; they were covered with wool, an emblem of the softness and effeminacy of their disposition, and in that dress they were carried through the city to the magistrate's house, who sentenced them to ignominy, whereby they were in a manner deprived of all their privileges, and their share in administering the public business.

The Spartans, indeed, may in one sense be said to have tolerated *adultery*, since they laughed at those who thought the violation of the marriage-bed an unsupportable affront: they allowed other men the liberty of embracing their wives, which freedom they took with others in their turn. Nay even strangers, as well as citizens of Sparta, were allowed the same freedom with their wives. Yet we find that their kings were exempt from this custom, that the royal blood might be preserved unmixed, and the government remain in the same lineal descent.

But notwithstanding this liberty, which was founded on mutual consent, they accounted all other *adulteries* the most heinous crime in the world; and while they adhered to their ancient laws, they were wholly strangers to them. See Potter's Arch. lib. iv. cap. 12.

Plutarch tells us, that if any person discovered his sister or daughter, while unmarried, in this crime, he was allowed by Solon's laws, to sell her for a slave. *Adulteresses* were never after permitted to adorn themselves with fine cloaths; and in case they appeared to do so, were liable to have them torn off by any that met them, and likewise be beaten. The same liberty was permitted to any that found them in the temples, which were thought to be polluted by the admission of persons so infamous and detestable. Lastly, their husbands, though willing, were forbidden to cohabit any longer with them, upon pain of ignominy, *ατιμία*; but persons who prostituted women, were adjudged to die.

There are various conjectures concerning the ancient punishment of *adultery* among the Romans.

By a law of Romulus, of which Plutarch makes mention, a man had the liberty of turning away his wife, either for poisoning his children, counterfeiting his private keys, or for *adultery*. Though some maintain that it was made capital, by a law of Romulus, and again by the Twelve Tables. Others, that it was first made capital by Augustus; and others, not before the emperor Constantine. The truth is, the punishment in ancient times was very various, much being left to the discretion of the husband and parents of the *adulterous* wife, who exercised it differently, rather with the silence and countenance of the magistrate, than any formal authority from him. Thus we are told the wife's father was allowed to kill both parties when caught in the fact, provided he did it immediately, killed both together, and, as it were, with one blow. The same power ordinarily was not indulged the husband, except the crime were committed with some mean, or infamous person; though, in other cases, if his rage carried him to put them to death, he was not punished as a murderer. On many occasions, however, revenge was not carried so far, but mutilating, castrating, cutting off the ears, noses, &c. were deemed sufficient. The punishment allotted by the *lex Julia* was not, as many have imagined, death; but rather banishment, or deportation, being interdicted fire and water: though Octavius appears, in several instances, to have gone beyond his own law, and to have put *adulterers* to death. But though the Julian law left the accusation of *adultery* open to every body, yet strangers were seldom suffered to prosecute, where the husband made no complaint. But where the husband made a trade of his wife's infamy, or having seen her shame with his own eyes, patiently suffered the affront: in these cases, *adultery* became a crime of public concern; and the Julian law provides a punishment for such husbands as well as their wives.

Under Macrinus *adulterers* were burnt at a stake. Constantine, it is said by Noodt and others, first by law made the crime capital. Under Constantius and Constans, *adulterers* were burnt, or sewed in sacks, and thrown into the sea. Under Leo and Marcian, the penalty was abated to perpetual punishment, or cutting off the nose.

By the civil law, as altered by Justinian, who, at the instance of his wife Theodora, mitigated the severity of the *lex Julia*, *adultery* is punished with whipping, and shutting up in a convent for two years: during which time, if the husband does not consent to take her back again, she is shaven, and shut up for life.—This is called *authenticating*, as having been established by an authentic.

In France, however, the whipping is omitted, that the husband may be the less averse to the taking her back within the two years.

Under Theodosius women convicted of this crime were punished after a very singular manner, viz. by a public constupration; being locked up in a narrow cell, and forced to admit all the men to their embraces that would offer themselves. This custom was again abolished by the same prince.

It is controverted whether, among the Romans, *adultery* was allowed to be compounded?

By an edict of the emperor Antoninus, the husband was not allowed to bring an action of *adultery* against his wife, unless he himself were innocent; the reason given for it is very natural, *per iniquum enim videtur esse ut pudicitiam vir & uxore exigat, quam ipse non exhibeat.*

By the Jewish law, *adultery* was punished by death in both parties, where they were both married, or only the woman. The Jews had a particular method of trying, or rather purging an *adulteress*, or a woman suspected of the crime, by making her drink the bitter waters of jealousy; which, if she were guilty, made her swell.

Among the Mingrelians, *adultery* is punished with the forfeiture of a hog, which is usually eaten in good friendship between the gallant, the adulteress, and the cuckold. Chardin. Voy. tom. i. p. 47.

In some parts of the Indies, it is said, any man's wife is permitted to prostitute herself to him who will give an elephant for the use of her; and it is reputed no small glory to her, to have been rated so high. Montagne's Ess. lib. iii. cap. iv.

Adultery is said to be so frequent in Ceylon, that not a woman but practises it, notwithstanding its being punishable with death. Bibl. Univ. tom. xxiii. p. 237.

Among the Japanese, and divers other nations, *adultery* is only penal in the women. Among the Abyssinians, the crime of the husband is said to be only punished on the innocent wife. In the Marian Islands, on the contrary, the woman is not punishable for *adultery*; but if the man go astray, he pays severely: the wife and her relations waste his lands, turn him out of his house, &c. Among the Chinese there is reason to conclude, that *adultery* is not capital; for it is said that fond parents will make a contract for their daughters future husbands, to allow them the indulgence of a gallant.

In Spain, they punished *adultery* in men by cutting off that part which had been the instrument of the crime.

In Poland, before Christianity was established, they punished *adultery* and fornication in a very particular manner: the criminal they carried to the market-place, and there fastened him by the testicles with a nail; laying a razor within his reach, and leaving him under a necessity, either of doing justice upon himself, or of perishing in that condition.

By the old law of Scotland, notorious or double *adultery* is punished by death; single *adultery* by banishment, fining, &c. though by the opinion of some Scotch lawyers, it may be punished by death.

The Saxons formerly burnt the *adulteress*, and over her ashes erected a gibbet, whereon the *adulterer* was hanged. In this kingdom, likewise, *adultery* by the ancient laws was severely punished. King Edmund the Saxon ordered *adultery* to be punished in the same manner as homicide; and Canute the Dane, ordered that a man who committed *adultery* should be banished, and that the woman should have her nose and ears cut off. In the time of Henry I. it was punished with the loss of eyes and genitals. Lib. Hen. I. cap. 12. Doomſday, tit. Cestre. Civit.

Adultery at present is only punished by fine and penance in the spiritual court; or by an action of common law for damages. Though some of our law-books speak of *adultery* as a thing temporal against the peace. As to the *adulteress*, by our law, she undergoes no temporal punishment whatever, except the loss of her dower; and she does not lose even that, if her husband is weak enough to be reconciled to her, and cohabit with her after the offence committed. 13 Ed. I. cap. 34.

But it is to be observed, that *adulteresses* are such either by the Canon, or Civil Law.

According to the former, a woman is an *adulteress*, who either being herself married converses carnally with another man; or being single herself, converses with a man that is married.

According to the latter, she is not an *adulteress*, if she be not herself in the married state, though she converses with a man that is. The crime, in this case, was more properly called *stuprum* than *adulterium*.

Hence, among the Romans, the word *adultera*, *adulteress*, differed from *pellex*, which denoted a single woman, who cohabited with a married man: and *pellex* differed from *concubina*, which signified her who had only intercourse with an unmarried man. The former was reputed infamous, and the latter innocent.

It is much disputed, whether *adultery* dissolves the bond of matrimony, and be a sufficient cause of divorce, so that the parties may marry again. This was allowed in the ancient church, and is still continued in the Greek, as well as the Lutheran and Calvinist churches. Romanists, however, disallow of it, and the council of Trent even anathematized those who maintain it; though the canon of anathematization was mitigated in deference to the republic of Venice, in some of whose dominions, as Zant, Cephalonia, &c. the contrary usage obtains.

The ecclesiastical courts in England so far agree with the papists, that they only grant a divorce *à mensa & thoro*, in case of *adultery*; so that a complete divorce, to enable the party to marry again, cannot be had without an act of parliament.

By a council of Nantes, marriage was declared dissolved by *adultery*, but the innocent party was not allowed second marriage. In after-times, leave was given to the innocent party alone; and afterwards the same was allowed the criminal party.

ADULTERY is also used in *Ancient Customs*, for the punishment, or fine imposed for that offence, or the privilege of prosecuting for it.

In which sense, *adulterium* amounts to the same with what the Saxons called *legerwita*.

ADULTERY is sometimes used, in a more extensive sense, for any species of impurity, or crime, against the virtue of chastity; and in this sense divines understand the seventh commandment.

ADULTERY is also used, especially in scripture, for idolatry, or departing from the true God, to the worship of a false one.

ADULTERY is also used, in *Ecclesiastical Writers*, for a person's invading, or intruding into a bishoprick, during the former bishop's life. The reason of the appellation is, that a bishop is supposed to contract a kind of spiritual marriage with his church.

The translation of a bishop from one see to another was also reputed a species of *adultery*; on the supposition of its being a kind of second marriage, which, in those days, was esteemed a degree of *adultery*. This conclusion was founded on that text of St. Paul, *Let a bishop be the husband of one wife*, by a false construction of church for wife, and of bishop for husband. Du-Cange.

ADULTERY is also used, in *Ancient Naturalists*, for the act of ingrafting one plant upon another.

In which sense, Pliny speaks of the *adulteries* of trees, *arborum adulteria*, which he represents as contrary to nature, and a piece of luxury, or needless refinement.

ADULTERY is also used by some fanciful *Astronomers* and *Astrologers*, for an eclipse of the sun, or moon, happening in an unusual, and, as they suppose, irregular manner: as in the case of horizontal eclipses, where, though the sun and moon be diametrically opposite, yet they appear as if both above the horizon at the same time.

ADVOCARIA, in *Middle Age Writers*, a tax paid the lord for his protection; sometimes also called *salvamentum*.

ADVOCATE, **ADVOCATUS**, among the Romans, a person skilled in their law, and who undertook the defence of causes at the bar.

The word is compounded of *ad*, *to*, and *vocare*, *to call*; q d *I call to my aid or defence*.

The Roman *advocates* answered to one part of the office of a barrister among us, viz. the pleading part; for as to the giving counsel, they never meddled with it; that being the business of the *jurisconsulti*.

The Romans in the first ages of their state, held the profession of an *advocate* in great honour; and the seats of their bar were crowded with senators and consuls; they, whose voices commanded the people, thinking it an honour to be employed in defending them.

They were styled, *comites*, *honorati*, *clarissimi*, and even *patroni*; as if their *clients* were not less obliged to them, than freed-men to their masters. See **PATRON**.

The bar was not at that time venal.—Those who aspired to honours and offices, took this way of gaining an interest in the people, and always pleaded *gratis*.

But no sooner were luxury and corruption brought into the commonwealth, than the bar became a sharer in them.

—Then it was that the senators let out their voices for pay, and zeal and eloquence were sold to the highest bidder.—To put a stop to this abuse, the tribune Cincius procured a law to be passed, called from him *Lex Cincia*, whereby the *advocates* were forbid to take any money of their clients.—Fred. Brunerus has published an ample comment upon this law.

It had before this been prohibited the *advocates* to take any presents or gratuities for their pleading.—The emperor Augustus added a penalty to it: notwithstanding which, the *advocates* played their parts so well, that the emperor Claudius thought it an extraordinary circumstance, when he obliged them not to take above eight great sesterces,

which are equivalent to 64 pounds sterling, or upwards, for pleading each cause.

ADVOCATE is still used in countries, and courts, where the civil law obtains, for those who plead and defend the causes of clients trusted to them.

In Scotland they have a college, or *Faculty of Advocates*, 180 in number, appointed to plead in all actions before the lords of session.—They have a dean, treasurer, clerks, examiners, and a curator of their library.

By the articles of the Union, none are to be named ordinary lords of session, except those who have been *advocates*, or principal clerks of session for five years, &c. In France, they have two kinds of *advocates*, viz. pleading *advocates*, *avocats plaidants*; and counsel *advocates*, *avocats consultants*.

This distinction was formed with a view to the two branches among the Romans, *advocati*, and *juris-consulti*.—Yet there is this difference, that the function of the *juris-consulti*, who only gave their advice, was of a different kind from that of the *advocati*; being a sort of private and perpetual magistrature, principally under the first emperors; and the *advocati* never became *juris-consulti*. Whereas, on the other hand, in France, after the *advocates* have attained to reputation, and experience enough at the bar, they quit so busy a province, and become a kind of chamber-counsel.—They have also their *advocate general*, and king's *advocate*, *avocat du roy*.

ADVOCATE, *lord*, in Scotland, one of the officers of state, whose business is to give his advice about the making and executing of laws; to defend the king's right and interest in all public meetings; to prosecute all capital crimes before the justiciary; and to concur in all pursuits before sovereign courts for breaches of the peace; and also in all matters wherein the king, or his donator, has interest.—He intends no processes of treason, except by warrant of privy-council.

The *lord advocate* is sometimes an ordinary lord of session; in which case, he only pleads in the king's causes; otherwise, he is at liberty to plead in all causes.

ADVOCATE of a city, or town, is a magistrate established in several places of Germany, for the administration of justice in that city, in the emperor's name. See ADVOWEE.

ADVOCATE is more particularly used in *Church History*, for a person appointed to defend the rights and revenues of a church, or religious house.

The word *advocatus*, or *advowee*, is still retained, for what we usually call the *patron*, or him who has the advowson, or right of presentation, in his own name.

The abbies and monasteries had also all their *advocates*, or *advowees*. See ADMINICULATOR.

There are several other kinds of *advocates*; as,

ADVOCATE, *confessorial*, is an officer of the court of Rome, whose business it is to plead on the oppositions made to the PROVISIONS of benefices in that court. There are ten of these in number.

ADVOCATES, *elective*, those chosen by the abbot, bishop, or chapter, a particular licence being had from the king, or prince, for that purpose. The elections were originally made in the presence of the count of the province.

ADVOCATES, *feudal*. These were of the military kind, who, to make them more zealous for the interest of the church, had lands granted them in fee, which they held of the church, and did homage, and took an oath of fidelity to the bishop or abbot. These were to lead the vassals of the church to war, not only in private quarrels of the church itself, but in military expeditions for the king's service, in which they were the standard-bearers of their churches.

ADVOCATE, *fiscal*, *fisci* ADVOCATUS, was an officer instituted by the emperor Adrian, to defend the cause and interests of the FISCUS, or private treasury, in the several tribunals where that might be concerned.

ADVOCATES, *juridical*, in the *Middle Age*, were those who from attending causes in the court of the comes, or count of the province, became judges themselves, and held courts of their vassals thrice a year, under the name of the *tria placita generalia*.

In consideration of this farther service, they had a particular allowance of one third part of all fines, or mulcts, imposed on defaulters, &c. which was called *tertia ban-norum pars*, *tertius denarius*, *tertia pars compositionum*, *tertia pars legum*, or *emendarum*, &c.; besides a proportion of diet for themselves and servants.

ADVOCATES, *matricular*, were the advocates of the mother, or cathedral churches.

ADVOCATES, *military*, those appointed for the defence of the church, rather by arms and authority, than by pleading and eloquence.

These were introduced in the times of confusion, when every person was obliged to maintain their own property

by force; bishops and abbots not being permitted to bear arms, and the scholastic or gowned *advocates* being equally unacquainted with them, recourse was had to knights, noblemen, soldiers, or even to princes.

ADVOCATES, *nominative*, those appointed by a king, or pope. Sometimes the churches petitioned kings, &c. to appoint them an *advocate*; at other times, this was done of their own accord. By some regulations, no person was capable of being elected *advocate*, unless he had an estate in land in the same county.

ADVOCATES, *regular*, those duly formed and qualified for the profession, by a proper course of study, the requisite oath, subscription, licence, &c.

ADVOCATES, *subordinate*, those appointed by other superior ones acting under them, and accountable to them.

There were divers reasons for the creation of these subordinate *advocates*; as, the superior quality of the principal *advocate*, his being detained in war, or being involved in other affairs; but chiefly, the too great distance of some of the church lands, and their lying in the dominions of foreign princes.

ADVOCATES, *supreme*, or *sovereign*, were those who had the authority in chief, but acted by deputies or subordinate *advocates*. These were also called principal, greater, and sometimes general *advocates*. Such in many cases were kings, &c. when either they had been chosen *advocates*, or became such by being founders, or endowers of churches.—Princes had also another title to *advocate-ship*, some of them pretending to be *advocati nati* of the churches within their dominions.

ADVOCATIA, in the *Feudal Law*, the procuration of some public business, committed by a superior to his substitute.

ADVOCATIA is also used for the patronage and protection of a church, college, monastery, and the like.

In which sense it amounts to the same with ADVOWSON.

ADVOCATIA is also used for the protection or defence of lay persons, estates, &c.

ADVOCATION, ADVOCATIO, in the *Civil Law*, the act of calling another to our aid, relief, or defence.

ADVOCATION, *letters of*, in the law of Scotland, those granted by the lords of session, upon complaint of a person sued before an incompetent judge. By these letters, the lords of session *advocate*, that is, call that cause from the incompetent judge to themselves.

If, after letters of *advocation* are intimated to that judge, he yet proceeds, his decree will be null, as given *spreto mandato*. Mackenzie, Inst.

ADVOCATIONE *Decimatum*, a writ which lies for the claim of the fourth part, or upward, of the tithes that belong to any church. Reg. Orig. 29.

ADVOCATURA, in *Writers of the Middle and Barbarous Age*, denotes an inferior kind of jurisdiction, exercised by advocates within the districts of their different churches, &c. The word is sometimes used as synonymous with ADVOCATIA. Du-Cange.

ADVOWEE, in *Ancient Customs*, and *Law Books*, denotes the advocate of a church, religious house, or the like.

The word is otherwise written *avouee*, *advouee*, and *avowee*; sometimes *advouer*; being derived from *avouer*, to own, or acknowledge.

There are *advowees* of cathedrals, abbies, monasteries, &c. Thus Charlemagne had the title of *advowee* of St. Peter's; king Hugh, of St. Riquier; and Bolandus mentions some letters of pope Nicholas, by which he constituted king Edward the Confessor, and his successors, *advowees* of the monastery at Westminster, and of all the churches in England.

The *advowees* were the guardians, protectors, and administrators of the temporal concerns of the churches; &c. and under their authority were passed all contracts which related to them.

It appears also, from the most ancient charters, that the donations made to churches were conferred on the persons of the *advowees*.—They always pleaded the causes of the churches in court, and distributed justice for them; in the places under their jurisdiction.—They also commanded the forces furnished by their monasteries, &c. for the war; and even were their champions, and sometimes maintained duels for them.

This office is said to have been first introduced in the fourth century, in the time of Stilico; though the Benedictines do not fix its origin before the eighth century.

By degrees, men of the first rank were brought into it, as it was found necessary, either to defend with arms, or to protect with power and authority. In some monasteries they were only called *conservators*; but these, without name, had all the function of *advowees*.

There were also sometimes several *sub-advowees*, or sub-advocates, in each monastery, who officiated instead of the *advowees* themselves; which, however, proved the ruin

ruin of monasteries; those inferior officers running into great abuses.

Hence also, husbands, tutors, and every person in general, who took upon him the defence of another, were denominated *advowees*; or advocates. Hence several cities had their *advowees*; which were established long after the ecclesiastical ones, and doubtless from their example.—Thus, we read in history of the *advowees* of Augsbourg, of Arras, &c.

The *VIDAMES* assumed the quality of *advowees*; and hence it is, that several historians of the eighth century confound the two functions together.

Hence also it is, that several secular lords in Germany bear mitres for their crests, as having anciently been *advowees* of the great churches.

Spelman distinguishes two kinds of ecclesiastical *advowees*.—The one of causes, or processes, *advocati causarum*; the other of territory, or lands, *advocati soli*.

The former were nominated by the king, and were usually lawyers, who undertook to plead the causes of the monasteries.

The other, which still subsist, and are sometimes called by their primitive name, *advowees*, though more usually *PATRONS*, were hereditary, as being the founders and endowers of churches, &c. or their heirs.

Women were sometimes *advowees*, *advocatissæ*. And, in effect the canon law mentions some who had this title, and who had the same right of presentation, &c. in their churches, which the *advowees* themselves had.

In a stat. 25 Edw. III. we meet with *advowee paramount*, for the highest patron; that is, the king.

There are also *advowees* of countries and provinces.—In a charter of the year 1187, Berthold duke of Zeringhen, is called *advowee* of Thuringia; and in the Notitia of the Belgic churches, published by Miræus, the count of Louvain is styled count and *advowee* of Brabant.—In the eleventh and twelfth centuries, we also meet with the *advowees* of Alsatia, Suabia, &c.

ADVOWING, or AVOWING, ADVOCARE, in Law; see AVOWRY.

ADVOWSON, ADVOCATIO, the quality or office of an *advowee*, or advocate.

ADVOWSON, or ADVOUZEN, in Common Law, signifies a right to present to a vacant benefice.

Advowson is so called, because the right of presenting to the church was first gained by such as were founders, benefactors, or maintainers of the church, viz. *ratione foundationis*, as where the ancestor was founder of the church; or *ratione donationis*, where he endowed the church; or *ratione fundi*, as where he gave the soil whereupon the church was built: and therefore they were called *advocati*. They were also called *patroni*, and thereupon the *advowson* is called *jus patronatus*. 1 Inst. 119. Fleta, lib. v. cap. 14.

Though the nomination of fit persons to officiate in every diocese was originally in the bishop, yet they were content to let the founders of churches have the nomination of the persons to the churches so founded, reserving to themselves a right to judge of the fitness of the persons so nominated. Gibb. 2 ed. 756.

Advowsons are of two kinds. 1. *Advowson in gross*, is a right subsisting in itself, belonging to a person, and not adhering to any manor or lands as parcels thereof. 2. *Advowson appendant*, which depends on a manor, as appurtenant to it.—This Kitchen calls an *incident*, which may be separated from its subject.

Advowsons formerly were most of them appendant to manors, and the patrons were parochial barons: the lordship of the manor, and patronage of the church, were seldom in different hands, until *advowsons* were given to religious houses. But of late times the lordship of the manor, and *advowson* of the church, have been divided.

Advowsons are also *presentative*, *collative*, or *donative*: *presentative*, where the patron presents or offers his clerk to the bishop of the diocese, to be instituted in his church: *collative*, where the benefice is given by the bishop, as original patron thereof, or by means of a right he has acquired by *lapse*: *donative*, as where the king, or other patron does, by a single donation in writing, put the clerk in possession, without *presentation*, *institution*, or *induction*.

Sometimes, anciently, the patron had the sole nomination of the prelate, abbot, or prior; either by investiture (i. e. delivery of a pastoral staff) or by direct presentation to the diocesan; and if a free election was left to the religious, yet a *conge d'elire*, or licence of election, was first to be obtained of the patron, and the person elected was confirmed by him.

If the founder's family became extinct, the patronage of the convent went to the lord of the manor.—Unless the several colleges in the universities be restrained in the number of *advowsons* they may receive; it is argued they

will in time acquire such a stock, as to frustrate the design of their foundation (which is the education of youth), by creating too great a succession of fellows; so that there will not be in the colleges a sufficient number of persons of competent age, knowledge, and experience, to instruct and form the minds of the youth.—In some colleges the number of *advowsons* is said to be already two thirds, or more, of the number of fellows.—It is objected, on the other side, that the succession of fellows may be too slow, as well as too quick; whereby persons well qualified may be detained so long in colleges, as not to have strength and activity enough left for the discharge of parochial functions.

Colleges holding more *advowsons* in number than a moiety of the fellows, are not capable of purchasing more. Grants of *advowsons* by papists are void. 9 Geo. II. c. 36.

§ 5. 11 Geo. II. c. 17. § 5.

Advowsons are temporal inheritances, and lay fees; they may be granted by deed or will, and are affects in the hands of heirs and executors.

Presentations to *advowsons*, for money, or other reward, are void. 13 Eliz. cap. 6. See Burn's Eccl. Law. vol. i.

ADVOWTRY. See ADULTERY.

ADUST, ADUSTUS, among *Physicians*, &c. is applied to such humours, as by long heat become of a hot and fiery nature.

The word is formed of the Latin *adurere*, to burn.

Such as choler is supposed to be.—Melancholy is usually considered as black, and *adust* bile.

Blood is said to be *adust*, when by reason of some extraordinary heat, its more subtle parts are all evaporated, leaving the grosser, with all the impurities therein, half torried.

ADUSTION, among *Physicians*, is used for an inflammation of the parts about the brain, and its membranes, attended with a hollowiness of the *sinciput* and eyes, a pale colour, and dryness of the body; in which case the yolk of an egg, with oil of roses, applied by way of cataplasm is recommended, as are the leaves of turnsol, the parings of a gourd, the pulp of a pompion, applied in the same manner with oil of roses.

ADY, in *Natural History*, a name given to the palm-tree of the island of St. Thomas. It is a tall tree with a thick, bare, upright stem, growing single on its root, of a thin light timber, and full of juice. The head of this tree shoots into a vast number of branches, which being cut off, or an incision being made therein, afford a great quantity of sweet juice, which fermenting, supplies the place of wine, among the Indians.

The fruit of this tree is called by the Portuguese *caryoces*, and *carioffe*; and by the black natives ABANGA. This fruit is of the size and shape of a lemon, and contains a kernel, which is good to eat. The fruit itself is eat roasted, and the raw kernels are often mixed with mandioc meal. These kernels are supposed very cordial. An oil is also prepared from this fruit, which answers the purpose of oil, or butter, in Europe.

This oil is also used for anointing stiff and contracted parts of the body. Ray.

ADYNAMIA, in *Medicine*, debility, weakness from sickness. It is formed of the privative *a*, and *δυναμις*, strength.

ADYNAMON, among *Ancient Physicians*, a kind of weak facitious wine, prepared from must boiled down with water; to be given to patients, to whom genuine wine might be hurtful.

ADYTUM, a secret or retired place in the Pagan temples, where oracles were given, and into which none but the priests were admitted.

The word originally signifies inaccessible; being compounded of *a*, not, and *δύω*, or *δύω*, to enter.

The *Sanctum Sanctorum* of the temple of Solomon was of the nature of the Pagan *adytum*, none but the high priest being admitted into it, and he but once a year.

ADZE, or ADDICE, a cutting tool, of the axe kind; having its blade made thin, and arching; and its edge at right angles to the handle; chiefly used for taking thin chips off timber or boards, and for paring away certain irregularities which the axe cannot come at.

The *adze* is used by carpenters, but more by coopers, as being convenient for cutting the hollow sides of boards, &c. It is ground from a base on its inside to its outer edge; so that, when it is blunt, they cannot conveniently grind it, without taking its helve out of the eye.

AE, or Æ, a diphthong, or double vowel, compounded of A and E.

Authors are by no means agreed as to the use of the *æ* in English words.—Some, out of regard to *etymology*, insist on its being retained in all words, particularly technical ones, borrowed from the Greek and Latin; while others, from a consideration that it is no proper diphthong in our language, its sound being no other than that of the simple *e*, contend, that it ought to be entirely disused; and, in fact, the simple *e* has of late been adopted,

adopted, instead of the Roman *æ*; as in the word *equator*, &c.

ÆACEA, in *Antiquity*, solemn feasts and combats, celebrated in Ægina, in honour of Æacus, who had been their king, and who, on account of his singular justice upon earth, was supposed to have a commission given him, to be a prince or judge, whose office it was to preside over Elysium, or the region of bliss.

ÆCHMALOTARCHA, in *Antiquity*, a Greek term, signifying the chief, or leader of the Jewish captives in Babylonia. The Jews, who refused to follow Zorobabel, and return with him to Jerusalem, after the Babylonish captivity, created an *æchmalotarch* to govern them.—Not that the Jews themselves called them by this name, as some authors have asserted; for that people spoke Hebrew, or Chaldee, not Greek. But Origen, and others, who wrote in the Greek tongue, rendered the Hebrew name ראש גלות *rosch galuth*, q. d. *chief of the captivity*, by a Greek name of the like import αιχμαλωταρχος, formed from αιχμαλωτος, *captive*; of αιχμη, *point, spear*, or *war*; and αρχων, *commander, chief*.

However, the Jews seemed to have had officers of this kind before the return from Babylon; witness the history of Susannah; the two elders, who condemned her, being supposed to have been *æchmalotarchæ* that year.—The Jewish writers assure us, that the *æchmalotarchæ* were only to be chosen out of the tribe of Judah.

The eastern Jews had their princes of the captivity, as the western Jews their patriarchs. The Jews are still said to have an *æchmalotarcha* at Babylon, but without the authority of the ancient one. Basnage Hist. Jews, and Prideaux's Connection.

ÆDES, in *Antiquity*, a chapel or inferior kind of temple, distinguished by this, that it was not consecrated by the augurs, as those properly called **TEMPLES** were.

Such was the *æerarium*, or treasury; called *Ædes Saturni*.

ÆDILE, **ÆDILIS**, in *Antiquity*, a Roman magistrate, vested with divers functions, chiefly that of superintending the buildings, both public and private; as baths, aqueducts, roads, bridges, causeways, &c.

The word is formed of *ædes*, temple, or house; on account of their having the care of temples, houses, &c.

The *ædiles* at Rome correspond to what the Greeks called *agoronomi*, and *astynomi*; they differed from *oeconomi* and *arcarii*, who were rather receivers of the revenues; also from *logistæ*, *curatores* & *patres civitatis*.

To the *ædiles* belonged the inspection of the weights and measures. They fixed the rate of provisions, and took care the people suffered no exactions. The inquiry and cognizance of debauchees, and disorders in public houses, likewise belonged to them; they were also to revise comedies; and it belonged to them to treat the people with grand games and spectacles, at their own expence. They were likewise to attend on the tribunes of the people.

To the *ædiles* also belonged the custody of the plebiscita, and the censure and examination of books. They had the power, on certain occasions, of issuing edicts; and, by degrees, they procured to themselves a considerable jurisdiction, the cognizance of various causes, &c.—This office ruined numbers, by its expensiveness; so that, in Augustus's time, even many senators declined it, on that account.

All these functions, which rendered the *ædiles* so considerable, belonged at first to the *ædiles* of the people, *ædiles plebii*, or *minores*: these were only two in number, and were first created in the same year as the tribunes: for the tribunes, finding themselves oppressed with the multiplicity of affairs, demanded of the senate to have officers, with whom they might intrust matters of less importance; and, accordingly, two *ædiles* were created; and hence it was, that the *ædiles* were elected every year, at the same assembly as the tribunes. But these plebeian *ædiles* having refused, on a signal occasion, to treat the people with shews, as pleading themselves unable to support the expence thereof; the patricians made an offer to do it, provided they would admit them to the honours of the *ædilatus*.

On this occasion, there were two new *ædiles* created, of the number of the patricians, in the year of Rome 388; they were called *ædiles curules*, or *maiores*; as having a right to sit on a **CURULE** chair, enriched with ivory, when they gave audience; whereas the plebeian *ædiles* only sat on benches.

Besides that the *curule ædiles* shared all the ordinary functions with the plebeian, their chief employ was, to procure the celebration of the grand Roman games, and to exhibit comedies, shews of gladiators, &c. to the people; and they were also appointed judges in all cases relating to the selling or changing of estates.

To ease these four first *ædiles*, Cæsar created a new kind, called *ædiles cereales*, as being deputed chiefly to take care

of the corn, which was called *donum Cereris*; for the heathens honoured Ceres as the goddess who presided over corn, and attributed to her the invention of agriculture. These *ædiles cereales* were also taken out of the order of patricians. In the municipal cities there were *ædiles*, with the same authority as at Rome.

We also read of an *ædilis alimentarius*, expressed in abbreviation by *Ædil. alim.* whose business seems to have been to provide diet for those who were maintained at the public charge, though others assign him a different office.

In ancient inscriptions we also meet with *ædile* of the camp, *ædilis castrorum*.

ÆDILATE, **ÆDILATUS**, in *Antiquity*, the dignity or magistracy of the Roman **ÆDILES**.

This is otherwise called *ædilitas*, *ædilitas*. In inscriptions we find it represented by the abbreviation **ÆD.**

ÆDILITIUM *edictum*, among the Romans, was that whereby a remedy was given a buyer, in case a vicious, or unsound beast, or slave, was sold him. It was called *ædilitium*, because the preventing of frauds in sales and contracts belonged especially to the curule *ædiles*.

ÆDITUUS, in *Antiquity*, the keeper of a sacred mansion, who had the care of the offerings and ornaments of the deity to whom it was peculiarly devoted.

The word is compounded of *ædes*, and *tuor*, *I defend*; q. d. *a tuendis ædibus*; originally it was written *æditimus*.

The *ædituus* is the same with what Scævola calls *hierophylax*, the Latins sometimes *ædilis*, and the Greeks νεωκοπος; answering to the sexton among us.

The *æditui*, among the Romans, were officers of distinction, being the depositaries not only of the treasure, but of the public acts, or records.—The *æditui* had their several cells, near the temples, the custody of which was committed to them. Struv. Ant. Rom.

The female deities had a woman officer of the same kind, under the denomination *æditua*.

ÆDOIA, the same as **PUDENDA**.

ÆGAGROPILA, or **ÆGAGROPILUS**, in *Natural History*, a ball generated in the stomach of the *rupicapra*, or *chamois goat*, hard on the outside, and consisting of a substance like hair. See **BALLS**, and **HAIR-BALLS**.

The word is Greek, from *αγαιρος*, the *rupicapra*, or rock-goat; and *παιλος*, a ball. The *ægagropilus* is sometimes called *bezoar Germanicum*, or the German bezoard.

ÆGELETHRON, in *Botany*, is a name used by some authors for the common *mercurialis*, or English mercury, an eatable wild herb.

ÆGIAS, in *Ancient Greek Physicians*, denotes a white speck on the pupil of the eye, occasioning a dimness of sight, either arising from an excrementitious humour, or from the reliëts of the *cicatricula* of an ulcer on the part.

This is the same with what others write *ægis* and *æglia*.

ÆGIDES, a disorder of the eyes mentioned by Hippocrates. It signifies small white cicatrices in the eye, caused by an afflux of corrosive humour. See **ALBUGO**.

ÆGIDION, a name given to a *collyrium* for inflammations and desfluxions of the eyes. It is also called *ægoprofopon*.

ÆGILOPS, is a tumor, or rather ulcer, in the great angle of the eye; either with, or without, an inflammation.

The word is compounded of *αἴς*, goat, and *ὤψ*, eye; as goats are supposed extremely liable to this distemper. Authors frequently use the words *ægilops*, *anchilops*, and *fistula lachrymalis*, promiscuously; but the more accurate, after Ægineta, make a difference.—The tumor, before it becomes ulcerous, is properly called *anchilops*; and, after it is got into the lachrymal passages, and has rendered the *os lachrymale* carious, *fistula lachrymalis*.

If the *ægilops* be accompanied with an inflammation, it is supposed to take its rise from the abundance of blood, which a plethoric habit discharges on the corner of the eye.—If it be without an inflammation, it is supposed to proceed from a viscous pituitous humour, thrown upon this part. The method of cure is the same as that of the *ophthalmia*. But before it has reached the lachrymal passages, it is managed like other ulcers.

If the *ægilops* be neglected, it bursts, and degenerates in a **FISTULA**, which eats into the bone.

ÆGILOPS is also a name given to a kind of oat, called also *cerris*, and by the Latins **FESTUCA**, the flour of which, mixed with honey, has been reputed a remedy for this disease.

The *ægilops* signifies also *avena sylvestris*, the wild oat, common among corn, called **BROMUS**; a decoction of the root of which kills worms. See **OAT**.

The *ægilops* is a genus of the *polygamia monoecia* class of plants; the corolla of the hermaphrodite flower consists of a bivalve glume, terminated by a double or

triple

triple arista or awn; the seed is single and oblong; the corolla of the male flower is also a bivalve, aristated glume, as in the hermaphrodite flower.

ÆGILOPS is also used for the *holm oak*, with great acorns; the *CERRUS mas majore glande, quercus calyce echinato, glande majore, αἰγίλων ἰδαίων, ἀσπίς maurorum, cerrus latiorum*.

At Venice they make cups of the acorns of this tree; which is also used, as we do oak-bark, to dress leather. The cup of this acorn is an inch and half in diameter, and somewhat less in depth. The cups are also used, instead of galls, to dye woollen cloth black.

ÆGINETA, in *Botany*, the name given by Linnæus to a genus of plants, belonging to the class of *didynamia angiospermia*; the characters of which are these; the cup is an oval, inflated, and coloured spatha; it is univalve, and opens longitudinally near the top. The flower consists of one petal. Its base is large, round, and inflated. The tube is short, cylindric, and open; and the mouth is small, but expanded, and turns back at the edge. The stamina are four crooked filaments; two of them are of the length of the flower, and the other two a little shorter. The antheræ are oblong, and stand close to one another at their tops. The germen of the pistil is oval; the style is subulated, and of the length of the stamina; and the stigma is large, round, and bending. The Hortus Malabaricus is the only work in which we have a description of the plant.

ÆGIPAN, in *Antiquity*, a denomination given to Pan, and the Panes.

The ancients also give the name *ægipans* to a sort of monsters mentioned by Pliny, Solinus, and Pomp. Mela. Salmasius, in his notes on Solinus, takes *ægipan* to have signified the same, in Libya, with *sylvanus* among the Romans.

Vossius rejects the opinion, and shews, that the *ægipans* had not faces like men, as the *sylvans* had; but like goats. In effect, the whole upper part of the body resembled that animal; and as to the lower, they painted it with a fish's tail. The monster represented on some medals of Augustus, by antiquaries called *Capricornus*, appears to be the true *ægipan*.

The word is derived from *αἴξ*, a goat; Pan being represented with the horns, feet, and legs of that animal.

ÆGIS, in the *Ancient Mythology*, a name given to the shield or buckler of Jupiter and Pallas.

The goat Amalthea, which had suckled Jove, being dead, that god is said to have covered his buckler with the skin thereof; whence the appellation *ægis*, from *αἴξ αἰγός*, she-goat.

Jupiter, afterwards restoring the beast to life again, covered it with a new skin, and placed it among the stars. As to his buckler, he made a present of it to Minerva; whence that goddess's buckler is also called *ægis*.

Minerva, having killed the Gorgon Medusa, nailed her head in the middle of the *ægis*, which henceforth had the faculty of converting into stone all those who looked thereon; as Medusa herself had done during her life.

Others take the *ægis* not to have been a buckler, but a cuirass, or breast-plate; and it is certain, the *ægis* of Pallas, described by Virgil, *Æn. lib. viii. ver. 435*, must have been a cuirass; since that poet says expressly, that Medusa's head was on the breast of the goddess. But the *ægis* of Jupiter, mentioned a little higher, *ver. 354*, seems to have been a buckler: the words

Cum saepe nigrantem

Ægida circuteret dextra,

agreeing very well to a buckler; but not at all to a cuirass, or breast-plate.

Servius makes the same distinction on the two passages of Virgil; for on verse 354, he takes the *ægis* for the buckler of Jupiter, made, as above-mentioned, of the skin of the goat Amalthea; and on verse 435, he describes the *ægis* as the armour which covers the breast; and which, in speaking of men, is called *cuirass*; and *ægis*, in speaking of the gods. Many authors have overlooked these distinctions for want of going to the sources.

ÆGLEFINUS, in *Ichthyology*, a name given, by the generality of authors, to the haddock, called by others the *cnos*, or *ASINUS antiquorum*. It is a well known fish, and seems of a middle nature between the cod and the whiting.

ÆGLEUS, in *Botany*, a term of distinction for the white chamæleon-thistle. It is derived from the Greek *αἰγλέης* of Galen; by which word he distinguishes the white chamæleon, which was an esculent and medicinal plant, from the *erebennus*, or *ερεβεννος*, which was what we call the black chamæleon-thistle, and was esteemed poisonous.

ÆGOBOLIUM, in *Antiquity*, the sacrifice of a goat offered to Cybele.

The *ægobolium* was an expiatory sacrifice, which bore a

near resemblance to the *taurobolium* and *tribolium*, and seems to have been sometimes joined with them.

ÆGOCEPHALUS, in *Ornithology*, the name by which the generality of authors call the bird, known in England by the name of the GODWIT, or in some places the stone-plover, the *yarwhep*, or *yarwhip*. Ray.

EGOCERAS, a name given to FENUGREEK, and also to *bouceras*, because of its corniculated fruit, the word originally signifying *goat's-horn*.

EGOLETHRON, a plant described by Pliny; which appears to be the same with what Tournefort describes under the name of *chamærododendros pontica maxima mespilifolia, floreo luteo*. The ancients attribute dangerous qualities to it.

EGOMANIA, in *Antiquity*, a species of divination performed by means of a goat.

ÆGONYCHUS, in *Natural History*, a name mentioned by Pliny, as a synonym of the *lithispermum*, or GROMWEL.

It had this name given it, by the Greek writers, from the words *αἰγός, οὐνός*, the claw, or hoof of a goat.

The ancients had another name for this plant, of the same sort or origin, which was *exonychon*; by this they expressed its being like the exterior part of the human nails on the fingers. The hardness and scaly nature of the seeds gave the idea of the resemblance of a nail, or hoof.

ÆGOPHTHALMUS, the *goat's eye-stone*, a name given, by some authors, to those pieces of agat. or other semipellucid gems, which have circular spots in them resembling the eyes of that animal in colour, and in their round figure.

EGOPODIUM, GOUT-WEED, in *Botany*, a genus of the *pentandria digynia* class of plants; the general corolla whereof is uniform; the single flowers consist each of five oval, concave, and nearly equal petals; the fruit is naked, ovato-oblong, striated, and separated into two parts; the seeds are two, ovato oblong and striated, convex on one side and plain on the other.

ÆGOPOGON, in *Botany*, a name used by Tragus, and some others, to express the common MEADOW-SWEET, or ULMARIA.

ÆGREFINUS. See **ÆGLEFINUS**.

ÆGRITUDO *bovina*. See *BOVINA affectio*.

ÆGYPTIACA signifies the PAPYRUS.

ÆGYPTIACUM, in *Medicine*, a name given to divers unguents of the detergent, or corrosive kind.

We meet with a *black*, a *red*, a *white*, a *simple*, a *compound*, and a *magistral Ægyptiacum*.

The *simple Ægyptiacum*, which is that usually found in our shops, is a composition of verdigrise, vinegar, and honey, boiled to a consistence: the prescription is Mesue's.

—It is usually supposed to take its name from its dusky colour, wherein it resembles that of the natives of Ægypt.

—It is improperly called an unguent; as there is no oil, or rather fat, in it. Some chuse to call it *Mel Ægyptiacum*. It is chiefly used in eating off rotten flesh, and cleansing foul ulcers; particularly venereal ones in the throat, &c. It also destroys those cancerous erosions apt to grow in children's mouths.

The German dispensaries have another composition called *Ægyptiacum compositum magistrale*, or *Hildani*, wherein treacle, mithridate, camphor, &c. are ingredients.

White *Ægyptiacum* is a composition of lily roots mixed up with aromatics; it is mentioned by Hippocrates, and is the same with what other ancients call *cicinum*. It was used by the ladies of those days to smear over their faces, to preserve their complexions.

Hippocrates also speaks of another unguent under the same name, composed of the flowers of the Egyptian thorn.

Farriers make a red, as well as black kind, of much the same ingredients, only with some difference in the proportions; used especially to soften the hoofs of a horse, when too hard.

ÆGYPTILLA, in *Natural History*, the name of a stone described by the ancients, and said, by some authors, to have the remarkable quality of giving water the colour and taste of wine.

ÆGYPTION, the name of a topic used by the ancients in uterine disorders.

ÆGYPTIUM pharmacum ad aures. Aetius Tetrab. ii. Sermon. 2. cap. 83, speaks of this as excellent for detaching fetid ulcers of the ears, which he says it cures, though the patient were born with them.

ÆHOITULLA, in *Zoology*, the name of an East Indian species of serpent, found frequently in the island of Ceylon; it is a very long and slender snake, sometimes wholly of a fine green, sometimes green and white, and lives principally on trees, and among bushes. Ray.

ÆICHRYSO is a name given to the *SEDUM majus*, called also *æithales*.

ÆINAUTÆ, in *Antiquity*, senators of Miletus, who held their deliberations on board a ship, far from shore, and till matters were resolved upon, never returned to land. The word is Greek, *αἰναυται*; q. d. *semper nauta*, always mariners. Plut. in Quæst. Rom.

ÆIZOON, *αἰζων*, from *αἰ*, always, and *ζω*, life; *sempervivum*, SEDUM, HOUSELEEK.

ÆLQUAPPE, in *Ichthyology*, the common name, among the German nations, of a fish of the *MUSTELA* kind, the viviparous eelpout, called by Schonefeld *mustela vivipara*, and in some places *aelpute*, *aelmoder*, and *aelmuster*. It is usually of a foot long or more. Its skin is perfectly smooth, and the colour of its back and head a brownish yellow, marked with blotches of black; the colour of the back grows paler on the sides, and on the belly is whitish. It has four gills on a side, and the head is shaped like that of the eel; the back fin reaches the whole length of the body, terminating near the tail. The belly fin begins at the anus, and reaches to the extremity of the fish, ending in a fine, slender, and somewhat reddish tail. Besides these, it has two pair of fins, one at the bottom of the gills, which are somewhat broad, and the other very fine and slender under the throat. The young of this species are often found alive, to the number of three hundred in one individual: they are found of two fingers breadth long, and live some time after they are taken out.

ÆLUROPO, a name given to a syrup made of the herb *cats-foot*, which is a species of *GNAPHALIUM*.

ÆLURUS, in *Mythology*, the god of the cats; he is represented by the ancient Egyptians, sometimes as a cat, sometimes as a man with a cat's head.

ÆM, **AM**, or **AME**, a liquid measure used in most parts of Germany; but different in different towns; the *æm* commonly contains 20 vertils, or 80 masses; that of Heidelberg is equal to 48 masses; and that of Wirtembergh to 160 masses. See **AAM**.

ÆMOBOLIUM, in *Antiquity, the blood of a bull, or ram, offered in the sacrifices, called *taurobolia*, and *criobolia*.*

In which sense the word occurs in ancient inscriptions. Reinesius and Vandale take it for a corruption, and alter it to **ÆGOBOLIUM**. M. de Boze defends the *æmobolium*.

ÆNEATORES, in *Antiquity, the musicians in an army; including those who played trumpets, horns, *litui*, *bucina*, &c.*

The word is formed from *æneus*, on account of the brazen instruments used by them.

ÆNIGMA, a proposition put in obscure, ambiguous, and generally contradictory terms, to puzzle, or exercise the wit, in finding out its meaning; or, an obscure discourse, covering some common and well known thing, under remote and uncommon terms.

The word is formed of *αἰνιτῆσθαι*, obscurely innuere, to hint a thing darkly; of *αἶνος*, an obscure speech, discourse. The Latins sometimes call it *scirpus*, *firpus*, or *scrupus*. The populace with us name it *riddle*; from the Belgic *raeden*, or the Saxon *araethan*, to interpret.

Fran. Junius defines an *ænigma* to be an obscure parable, or allegory; and makes two kinds: the one greater, rendering the sentence more intricate and knotty, by a multitude of words; the other lesser, consisting of only one or two remote words, or allusions; as in Isaiah, ch. xi. 1. where Jesus Christ is called *בִּצְרַיִם*, *furculus*, *rod*, or *branch*. Fa. Bouhours, in the memoirs of Trevoux, defines an *ænigma*, a discourse, or painting, including some hidden meaning, which is proposed to be guessed.

ÆNIGMAS, painted, are representations of the works of nature, or art, concealed under human figures, drawn from history, or fable. Thus Jesus Christ in the middle of the doctors, represents the Bible, &c.

A verbal *ænigma* is a witty, artful, and abstruse description of any thing.

The use of *ænimas* was very great among the Egyptians. Gale thinks, they might borrow their custom from the Hebrews, among whom it is certain, *ænimas* were not less in use. Witness Sampson's Riddle, Judg. xiv. 12, 13. *I will now put forth a riddle to you*, &c. *הִנֵּנִי*, i. e. according to Vatable, an *ænimatical problem*: the LXX. render it, *προβλημα*. Solomon is said to have been particularly skilful in the solution of *ænimas*. Joseph. Antiq. lib. v. cap. 2. Clemens assures us, that the Egyptians placed *sphinxes* before their temples; to intimate that the doctrines of God and Religion were *ænimatical* and obscure. See **HIEROGLYPHIC**.

Some represent the *ænigma* as the same with *gryphus*: but the more exact writers make a distinction; though wherein the difference lies is not agreed on. Some make it consist in this, that the *ænigma* properly imports something merry or jocose, and *gryphus* a subject more grave and profound. Others reduce the difference to this, that in the *gryphus* there is something captious, and capable of leading into a snare, which is not found in the *ænigma*.

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The **REBUS** is also ranked by some in the number of *ænimas*.

In a general sense, every dark saying, every difficult question, every parable, may pass for an *ænigma*. Hence obscure laws are called *ænimata juris*.

The alchemists are great dealers in the *ænimatic* language, their processes for the philosophers stone being generally wrapt up in riddles; e. gr. *Fac ex mare et fœmina circulum, inde quadrangulum, hinc triangulum, fac circulum et habebis lapidem philosophorum*. Barchusen has published an explication of the riddles of chemists, alchemists, physicians, &c.

Among the *ænimas* of chemists, that called the sibylline *ænigma* is famous, of which we had a copy in a MS. of Stephanus Alexandrinus.

Εννέα γράμματα ἔχω, τετρασύλλαβός εἰμι, νόεϊμι.
Αἱ τρεῖς αἱ πρῶται δὲ γράμματα ἔχουσιν ἐκάστη.
Ἡ λοιπὴ δὲ τὰ λοιπὰ, καὶ εἰσὶν ἄφωνα τὰ πέντε.
Τὸ πάντως δ' ἀριθμῶ ἐκατηντάδες εἰσὶ δις ἑπτά,
Καὶ τρεῖς τρεῖς δεκάδες καὶ δις τρία. Ἦνός δὲ τίς εἰμι;
Οὐκ ἀμύντος ἔσθ' ἡς παρ' ἐμὲ σοφίης.

Thus translated by M. Leibnitz.

*Literulis nascor quadrifyllabus ipse novenis:
Syllaba habet binas, nisi quod tenet ultima ternas.
Vocales quatuor, quinis non propria vox est.
Bis septem vicibus numerum centuria totum
Ingreditur, decadesque novem, tum bis tria. Si me
Noveris, hinc aditus ad sacra nostra patent.*

Stephanus gives a mystical solution of this *ænigma*. Morret will have it signify the name Jehovah, which, according to him, comprehends the number 1696, abating one, the number contained in the *ænigma*. Brentius maintains that the whole sum amounts to 1711, and that it represents the word *σοφορος*. The generality understand it of the word *arsenic*, or **APZENIKON**. M. Leibnitz gives a very artful solution of it in this sense, by only supposing the A to stand for a thousand, and I for unity, as we sometimes find them used by grammarians. F. Menestrier has attempted to reduce the composition and resolution of *ænimas* to a kind of art, with fixed rules, and principles, which he calls the philosophy of *ænimatic* images.

ÆNIGMA. The subject of an *ænigma* should be something easily conceived, and generally known.

ÆNIGMAS, the form of, consists in the words, which, whether they be in prose or verse, contain either some description, a question, or a prosopopœia. The last kind are the most pleasing, inasmuch as they give life and action to things, which otherwise have them not. To make an *ænigma*, therefore, two things are to be pitched on, which bear some resemblance to each other; as the sun, and a monarch; or a ship, and a house; and on this resemblance is to be raised, a superstructure of contrarieties to amuse and perplex. It is easier to find great subjects for *ænimas* in figures than in words, inasmuch as painting attracts the eyes, and excites the attention to discover the sense. The subjects of *ænimas* in painting are to be taken either from history or fable; the composition here is a kind of metamorphosis, wherein, e. g. human figures are changed into trees, and rivers into metals. This conversion, however, does not depend merely on caprice; there must be something of suitableness, and even erudition, to authorize it. Thus the battle of Constantine against Maxentius may be taken for the subject of an *ænigma*, to represent the game of chess: the sign which appeared in the heavens with the words, in *hoc signo vinces*, may properly enough represent the secret of this game, which consists in saving the king. It is much easier to turn *mythology* into *ænimas*, than *history*. Accordingly several have imagined, that the conquest of the golden fleece was no other than the transmutation of metals; and that the fable of Circe was the art of chemistry in *ænigma*.

ÆNIGMAS of pure invention are a kind of poetry, and more subtle than those drawn from mythology; since here the matter itself is to be created: instead of adopting some history or received fable, something probable is feigned, the chief action whereof is known, e. g. a shipwreck, a conflagration, an amphitheatre, or the like. It is essential to *ænimas*, that the history or fable, under which they are presented, be known to every body; otherwise it will comprehend two *ænimas* instead of one; the first of the history or fable, the second of the sense it is to be taken in. Another essential rule of the *ænigma* is, that it only admit of one sense. Every *ænigma* which is susceptible of different interpretations, all equally natural, is so far imperfect.

ÆNIGMATICAL, something that relates to, or partakes of the nature of *ænimas*.

The philosophy of the **DRUIDS** was altogether *ænimatical*. The ancient fables in general affected an *ænimatical* way

of writing, to conceal their doctrines from the populace. The Romans in Nero's time were obliged to have recourse to the like method, though for different reasons. The *enigmatical* characters of the Egyptians were a species of *HIEROGLYPHICS*, consisting of such as bore no natural resemblance to the things they represented. Such was the beetle, used to express the sun; the serpent, to represent the stars.

We read of an *enigmatical* medal presented by the Huguenots to Henry III. Schott has published an explication of an *enigmatical* coin of the emperor Augustus, concerning which *antiquaries* have been long divided.

ÆNIGMATOGRAPHER, or **ÆNIGMATIST**, a maker or explainer of *enigmas*.

Hardouin, Vander Hardt, &c. are great *enigmatists*.

ÆNIGMATOGRAPHY, **ÆNIGMATOGRAPHIA**, the art of making and resolving, or of collecting *ÆNIGMAS*.

The word is compounded of *αἰνγμα*, and *γραφειν*, to describe.

Enigmatography, otherwise called *enigmotology*, may be divided into general and particular. The first gives rules concerning the nature, kinds, composition, and use of *enigmas*; the second considers the *enigmas* in particular sciences, or languages, Greek, Latin, Hebrew, philological, philosophical, theological, &c.

Nic. Reufner has a treatise, under the title of *Enigmatographia*.

ÆNITTOLOGIUS, in *Poetry*, a kind of verse, consisting of two *dactyls*, and three *trochæi*. Such is,

Prælia dira placent truci juventæ.

ÆOLIC, or **ÆOLIAN**, in *Grammar*, denotes one of the five dialects of the Greek tongue.

It was first used in Bœotia; whence it passed into Æolia, and was that which Sappho and Alcæus wrote in.

The *Æolic* dialect generally throws out the aspirate or sharp spirit, and agrees in so many things with the *DORIC* dialect, that the two are usually confounded together.

The *Æolic digamma* is a name given to the letter F, which the Æolians used to prefix to words beginning with vowels, as *Φοῖβος* for *οἶβος*; also to insert between vowels, as *οἶς*, for *οἷς*.

ÆOLIC verse, *carmen Æolicum*, a kind of measure, consisting first of an *iambic*, or *spondee*, then of two *anapests*, divided by a syllable, and lastly, a syllable common.

This is otherwise called *eulogic*; and, from the chief poets who used it, *Archilochian* and *Pindaric*.

Its type is -- | -- | -- | -- | -- |

E. gr. *O stelliferi conditor Orbis.*

ÆOLIPILE, **ÆOLIPILA**, an hydraulic instrument, consisting of an hollow metalline ball, with a slender neck, or pipe, arising from it. This, being filled with water, and thus exposed to the fire, produces a vehement blast of winds.

This instrument, Des Cartes, and others, have made use of, to account for the natural cause, and generation, of wind.—And hence its name, *Æolipila*, q. d. *pila Æoli*, *Æolus's ball*, or *Αἰόλος πύλας*, the gates of *Æolus*; *Æolus* being reputed the god of the wind.

Sometimes the neck is made to screw into the ball, which is the most commodious way; because, then, the cavity may the more readily be filled with water. If there be no screw, it may be filled thus: heat the ball red hot, and throw it into a vessel of water; the water will run in at the small hole, and fill about two thirds of the cavity.

If, after this, the *Æolipile* be laid on, or before the fire, so that the water and vessel become very much heated; the water being rarefied into a kind of momentary air, will be forced out with very great noise and violence; but it will be by fits, and not with a constant and uniform blast. Great care should be taken that the aperture of the pipe be not stopped, when the instrument is put on the fire, otherwise the *Æolipile* will burst with a vast explosion, and may occasion great mischief.

These phenomena the reader will easily be enabled to solve, from what is shewn under the articles, *AIR*, *WATER*, and *RAREFACTION*.

The air or vapour issuing out of the *Æolipile* is found sensibly hot near the orifice; but, at a farther distance, cold; like what we observe of our own breath: the cause of which is controverted.—The *Corpuscularians* account for it hence; that the *FIRE* contained in the rarefied vapour, though sufficient to be felt near the orifice, disengages itself in the progress of the stream, and becomes insensible before it be arrived at the journey's end.—The mechanical philosophers, on the other hand, hold, that the vapour, at its exit from the ball, is endued with that peculiar species of circular motion which constitutes the quality *HEAT*; and that the farther it recedes therefrom, the more is this motion destroyed, by the re-action of the contiguous *AIR*; till the heat, at length, becomes insensible.

Chauvin suggests some farther uses of the *Æolipile*.—1. He thinks it might be applied, instead of a bellows, to blow the fire, where a very intense heat is required. Dr. Lewis condemns substituting the *Æolipile* instead of a bellows, and says, that upon trial he always found that instead of exciting, it extinguished the fire. Com. Phil. Techn. p. 21.—2. If a trumper, horn, or other sonorous instrument, were fitted to its neck, it might be made to yield music. 3. If the neck were turned perpendicularly upwards, and prolonged by a tube or hollow cylinder fitted to it, and a hollow ball laid on the orifice of the tube, the ball would be blown up, and kept fluctuating, or playing up and down, as in the stream of a *FOUNTAIN*. And, 4. It might serve to scent or fumigate a room, if filled with perfumed, instead of common water. An *Æolipile* has been sometimes placed in a chimney, where it can be heated, the vapour of which serves to drive the smoke up the chimney.

Dr. Plott gives an instance where the *Æolipile* is actually used to blow the fire: the lord of the manor of Effington is bound by his tenure to drive a goose every New-year's day three times round the hall of the lord of Hilton, while Jack of Hilton (a brazen figure having the structure of an *Æolipile*) blows the fire.

In Italy it is said, that the *Æolipile* is commonly made use of to cure smoky chimneys; for being hung over the fire, the blast arising from it carries up the loitering smoke along with it.

F. Merfennus, and some others, have made use of this machine, to measure the gravity and degree of rarefaction of the air. But this method is liable to considerable objections.

Some late authors have discovered a still more extraordinary use, to which the frauds of the heathen priesthood applied the *Æolipile*, viz. the working of sham miracles. Besides Jack of Hilton, which had been an ancient Saxon image, or idol, Mr. Weber, shews that *Phylster*, a celebrated German idol, is also of the *Æolipile* kind; and in virtue thereof, could do noble feats; being filled with a fluid, and thus set on the fire, it would be covered with sweat; and as the heat increased, would at length burst out into flames.

ÆOLUS, in the *Heathen Theology*, the god of the winds, painted with swollen cheeks, like one who with main force endeavours to blow a blast; also with two wings on his shoulders, and a high coloured fiery countenance.

ÆOLUS also, in *Mechanics*, denotes a portable machine, not long since invented by Mr. Tidd, for refreshing and changing the air in rooms.

This machine is adapted in its dimensions to supply the place of a square of glass in a sash window, and is executed in so small a compass, as to project but a little way from the sash, and in so neat a manner, says the inventor, as to be an elegant ornament to the place where it is fixed. It works without the least noise, requires no attendance, and occasions neither trouble nor expence to keep it in order. It throws in only such a quantity of air as is agreeable; and leaves off working, of its own accord, whenever the door or window is opened.

ÆOLUS's Harp, an instrument so named, from its producing an agreeable melody, merely by the action of the wind.—It is thus constructed.—Let a box be made of as thin deal as possible, (*Tab. II. Miscellany, fig. 18.*) of the exact length answering to the width of the window in which it is intended to be placed; five or six inches deep, and seven or eight inches wide. Let there be glued upon it at *a a*, two pieces of wainscot about half an inch high, and a quarter of an inch thick, to serve as bridges for the strings; and within side, at each end, under *b b*, glue two pieces of beech, about an inch square, of length equal to the width of the box, which are to sustain the pegs. Into these fix as many pins, such as are used in a harpsichord, as there are to be strings in the instrument, half at one end, and half at the other, at equal distances. It now remains to string it with small catgut, or blue first fiddle-strings, fixing one end to a small brass pin, as at *e e*, (*fig. 19.*) and twisting the other round the opposite pin at *b b*.

When these strings are tuned unison, and the instrument placed with the strings outward, in the window to which it is fitted, it will, provided the air blows on that window, give a sound like a distant choir, increasing or decreasing, according to the strength of the wind.

The roses in the middle only represent sound-holes; the thinner the top is, the better will the instrument perform. Mr. Thompson, in a note to his celebrated Ode on this instrument, ascribes the invention of it to Mr. Oswald; whereas it was known to Kircher above a hundred years ago; and the method of constructing and using it is described by him in a book intitled, *Magia Phonotactica & Phonurgia*.

ÆON, **Αἰὼν**, *age*; literally signifies the duration of a thing.

Some have affixed another idea to the word *æon*; in order to which, they have made use of the philosophy of Plato, giving reality to the ideas which that philosopher had imagined in God; and even personifying them, and feigning them distinct from God, and to have been produced by him; some male, others female. See **PLATONISM**.

These ideas they call *æons*; of an assembly whereof they compose their deity, calling it *πλερωμα*, a Greek word, signifying *fulness*.

Simon Magus is said to have been the first inventor of these *æons*, which were afterwards brought to perfection by Valentinus; who, refining on those who preceded him in this way, produced a long genealogy of *æons*, to the number of 30. The first, and most perfect, he particularly denominates *Προον*, *Proon*, that is, *pre-existent*; beside other names, the most usual whereof was that of *Bythos*, *Βυθος*, *depth*.

This *Bythos*, he says, continued long alone with *Εννοια*, *Ennoia*, *Thought*; whom Valentinus also called *Χαρις*, *Grace*, and *Σιγη*, *Silence*. At length *Bythos*, with *Σιγη*, produced *Νους*, *Nous*, *Understanding*; and *Αληθεια*, *Truth*, her sister. *Nous*, begat two *æons*; *Λογος*, *Logos*, *Word*; and *Ζωη*, *Zon*, *Life*; which begat two others; *Ανθρωπος*, *Man*; and *Εκκλησια*, *Church*. And these eight *æons*, were the chief of all the rest.

The *Word* *Λογος*, and *Life*, *Ζωη*, begat ten other *æons*; *Man* and the *Church*, begat twelve more; among whom were, the *Paraclete*, *Faith*, *Hope*, *Charity*, the *Perfect*, *Τελειος*, and *Wisdom*, *Σοφια*. And thus were thirty *æons* made up; which, altogether, made the *Pleroma*, *Πληρωμα*, or *spiritual and invisible plenitude*. See **GNOSTICS**. *Æon* also signifies spinal marrow.

Æon likewise, in the *Phœnician Theology*, was the first created woman.

ÆORA, in the *Medical Writings of the Ancients*, is used for gestation; which sort of exercise was often prescribed by the physicians of those days. Other exercises consisted principally in the motion of the body; but in the *æora* the limbs were at rest, while the body was carried about and moved from place to place, in such a manner as the physician prescribed. It had therefore the advantages of exercise, without the fatigue of it.

This exercise was promoted several ways: sometimes the patient was laid in a sort of hammock, supported by ropes, and moved backward and forward; sometimes his bed run nimbly on its feet. And beside these, the several ways of travelling were accounted species of the *æora*, whether in the litter, in a boat or ship, or on even ground in a chariot.

Asclepiades was the first who brought gestation into practice, which was used as a means to recover strength after a fever, &c.

ÆRA, in *Chronology*, a fixed point of time, from whence to begin a computation of the years ensuing.

The word is also sometimes written in ancient authors, *era*. Its origin is contested, though it is generally allowed to have had its rise in Spain. Sepulveda supposes it formed from *A. ER. A.* the notæ or abbreviations of the words, *annus erat Augusti*, occasioned by the Spaniards beginning their computation from the time their country came under the dominion of Augustus, or that of their receiving the Roman calendar. This opinion, however ingenious, is rejected by Scaliger, not only on account that in the ancient abbreviations *A* never stood for *annus*, unless when preceded by *V* for *vixit*; and that it seems improbable they should put *ER* for *erat*, and the letter *A*, without any discrimination, both for *annus* and *Augustus*. Vossius nevertheless favours the conjecture, and judges it at least as probable, as either that of *Isidore*, who derives *era* from *as*, the tribute-money, wherewith Augustus taxed the world: or that of Scaliger himself, who deduces it likewise from *as*, though in a different manner. *Æs*, he observes, was used among the ancients for an *article*, or *item*, in an account; and hence it came also to stand for a sum or number itself. From the plural *æra*, came by corruption *era*, *aram*, in the singular; much as *Ostia*, *Ostiam*, the name of a place, from *Ostia*, the mouths of the *Tyber*.

ÆRA amounts to the same with *EPŌCHA*; though some authors make a difference between them; but wherein it consists, they do not agree. A late critic assigns this difference, that in strictness of speech, *epocha* is that fixed point where an *era* made use of commences. Thus the 26th of February, 747 (abating fifty-seven days) before the Christian *era*, may be said to be the *epocha* of the *era* of Nabonassar. Within this *era* other *epochas* may be noted; as that of the death of Augustus, that of the death of Alexander, &c. But these cannot properly be called *epochas* of the *era* of Nabonassar. Bibl. Germ. tom. v. p. 172. Vallemont makes another difference, viz. that an *epocha* is a point fixed by chronologers, and an *era* a like point, only fixed by the popular usage of a country, or nation.

Perhaps it might not be amiss, if chronologers would keep to this difference, but it is certain most of them hitherto use the two words promiscuously. The particular *æras* are mentioned under *EPŌCHA*.

ÆRA, *Spanish*, otherwise called the year of Cæsar, was introduced after a second division of the Roman provinces, between Augustus, Anthony, and Lepidus, in the year of Rome 714, the 4676th year of the Julian period, and the 38th year before Christ. In the 447th year of this *era*, the Alani, the Vandals, Suevi, &c. entered Spain. We find frequent mention of it in the Spanish affairs; their councils, and other public acts, being all dated according to it. Some say it was abolished under Peter IV. king of Arragon, in the year of Christ 1358, and the Christian *era* substituted in its place. Mariana observes, that it ceased in the year of Christ 1383, under John I. king of Castile. The like was afterwards done in Portugal.

If to the year of the Spanish *era* we add the number 4675, the sum is the Julian year; or if from the same year we subtract 38, the remainder is the year of the Christian *era*. Strauchius.

ÆRA, *Christian*. It is generally allowed by chronologers, that the computation of time from the birth of Christ, was not introduced till the sixth century, in the reign of Justinian, and is commonly ascribed to Dionysius Exiguus. This computation then came in use in deeds, &c. before which time either the Olympiads, the year of Rome, or that of the reign of the emperors, were used for those ends.

ÆRA is also used, in some writers of the barbarous age, for any year.

In which sense, we meet with *entering down the æra*, the *eleven hundred and eighth æra*, &c.

ÆRA signifies also *cockle* or *darnel*.

ÆRARIUM, the public treasury of the Roman state.

The temple of Saturn at Rome, being the great treasury of the state, was first called *ærarium*; from *as*, *aris*, *copper*; that being the only money in use before the year of Rome 485, when the silver began to be coined.

It was first erected under Augustus, and maintained by a yearly voluntary contribution; but that proving insufficient, the twentieth part of all legacies and inheritances, except of such as fell to the next of kin, or to the poor, were consigned to this treasury.

For the custody hereof, three of the emperor's life-guard were constituted *præfeti æarii*.

ÆRARIUM differs from *fiscus*, as the first contained the public money, the second that of the prince. Yet the two are sometimes used indiscriminately for each other. Calv. Lex. Jur.

ÆRARIUM sanctius was an appendage to the former, added on occasion of the growth of the Roman state, when there was not room enough for lodging all the public monies, and the public acts, which were deposited with it.

It was called *sanctius*, because placed in an inner and safer part of the temple; or because in it was lodged the *aurum vicesmarium*, or twentieth, which was kept as a fund or reserve, for extreme necessity of the state. On which account it was also called *ærarium vicesmarium*.

ÆRARIUM Ilithia, or of *Juno Lucina*, was erected by Servius Tullius, sixth king of the Romans, and composed of money paid in by parents, for the birth of each child. Dion. Hal. lib. iv.

ÆRARIUM privatum, or the privy-purse, contained the money and effects which the prince was master of before his accession to the empire. This was under the care of the *COMES rerum privatarum*.—We meet also with *ærarium juventutis*, *Veneris*, *libitinæ*, and other lesser treasuries, *æraria minora*, in the provinces.

ÆRARIUS, in *Antiquity*, an officer instituted by Alexander Severus, for the distribution of the money given in largesses to the soldiery, or people. Pitisc. Lex. Ant.

ÆRARIUS was also used for a person whose name was struck out by the censors from the *album*, or list of his century, and was only considered as a citizen so far as to make him subject to pay taxes, *era*, without being entitled to any privileges or advantages, from the common-wealth. Liv. dec. iii. lib. 9.

Hence, the phrases, *ærarium facere*, *inter ærarios referre*, *ærariis eximere*, &c.—Not only plebeians, to whom some have restrained it, but also knights and senators, were subject to this kind of degradation.

The *ærarii* were incapable of making a will, of inheriting, of voting in assemblies, of enjoying any post of honour or profit; in effect, were only subject to the burdens, without the benefits of society; yet they retained their freedom, and were not reduced to the condition of slaves. To be made an *ærarius* was a punishment inflicted for some offence, and reputed one degree more severe than to be expelled a tribe, *tribu moveri*.

ÆRARIUS.

ÆRARIUS is also used for a person employed in coining, or working brads.

These are sometimes called *ararii fusores*: at other times *ararius* is distinguished from *fasor*; the former answering to what we now call copper-smiths, the latter to founders.

ÆRARIUS is also applied to a soldier who receives pay.

ÆRAIA aqua. See **ZIMENT-water**.

ÆREOLVS, answering to the Greek *χαλκος*, was a weight according to Diodorus and Suidas equal to $\frac{1}{16}$ th and according to others equal to $\frac{1}{12}$ th of the **OBOLUS**, which was $9\frac{1}{4}$ grains.

AERIAL, **AERIUS**, something that consists of, or has relation to air.

The Esseni, the most refined and rational sect among the Jews, held that the human soul consisted of an *aerial* substance.

And the Rosicrucians, and other visionaries, fill the atmosphere with *aerial* inhabitants.

AERIAL perspective, is that which represents bodies weakened and diminished, in proportion to their distance from the eye.

Aerial perspective chiefly respects the colours of objects, whose force and lustre it takes off more, or less, to make them appear as if more, or less remote.

It is founded on this, that the longer column of air an object is seen through, the more feebly do the visual rays emitted from it affect the eye.

AERIANS, **AERIANI**, in *Antiquity*, a religious sect denominated from Aerius, an Armenian priest of the fourth century.

The *Aerians* had much the same sentiments, in respect of the Trinity as the Arians; beside which, they condemned prayers for the dead, stated fasts, the celebration of Easter, and other rites of the same nature; and they held that there is no difference between priests and bishops, but that the priesthood and episcopate are absolutely one and the same order, or dignity: an opinion since strenuously asserted by many modern divines.

Aerius built his doctrine chiefly on some passages in St. Paul; and, among others, that in the First Epistle to Timothy, chap. iv. ver. 14. where that apostle exhorts him not to neglect *the gift he had received by the laying on of the hands of the presbytery*. Here, observes Aerius, is no mention of bishops; but Timothy evidently receives his ordination from the presbyters or priests.

Epiphanius zealously maintains the superiority of bishops, against the *Aerians*.—The word *presbytery*, used by St. Paul, he observes, includes both bishops and priests; the whole senate, or assembly, of the ecclesiastics of the place.

ERICA, or **ERICA**, in *Natural History*, a name given by Gaza and others, to the common herring.

ÆRIRUSA, the ancient name for the sky coloured **JASPER**.

ÆRITIS is a name given to what is more commonly called **ANAGALLIS**.

AEROGRAPHY, from *anp*, air, and *γραφω* I describe; a description of the air, or atmosphere, its limits, dimensions, properties, &c.

This amounts to much the same with *aerology*, unless we suppose the latter to enter into the rational, and the former to confine itself to a description of the more obvious affections thereof.

AEROLOGY, from *anp*, and *λογος*, discourse; the doctrine or science of the air, and its phenomena, its properties, good and bad qualities, &c.

AEROLOGY, called also the *aerologica*, makes a part of the regimen of health, or the branch of medicine called by some *diastolica*, or the **NON-NATURALS**, which treats of air, its properties and use in the animal economy, and its efficacy in preserving and restoring health.

AEROMANCY, **AEROMANTIA**, an ancient species of divination performed by the means of the air, and phenomena happening therein.

The word is compounded of *anp*, air, and *μαντεια*, divination.

AEROMANCY included the business of **AUGURY**, and *auspicia*: the rules of prediction from uncommon wind, storms, showers, and other prodigies.

Modern authors speak of a more rational *aeromancy*, meaning by it, the art of foretelling the changes and variations in the air and weather, winds, storms, and the like.

Morhof advances considerations for reducing *aeromancy* to a certainty, by means of a regular series of meteorological observations. But though many such have been instituted with great care in many parts, this art has hitherto made a very small progress. Of this kind is Huxham's book *De Aere*.

Barometers, thermometers, hygrometers, and anemometers are of considerable use in this kind of *aeromancy*.

Mizoldus has published a body of rules for foretelling storms, &c. drawn partly from vulgar observations, and

the experience of mariners, partly from astrological considerations, under the title of **AEROMANTIA**.

ÆROMELI, a name given to honey, and also to **MANNA**. See **DROSOMELI**.

AEROMETRY, **AEROMETRIA**, the art of measuring the AIR, its powers, and properties.

The word is compounded of *anp*, air, and *μετρον*, to measure.

Aerometry includes the laws of the motion, gravitation, pressure, elasticity, rarefaction, condensation, &c. of the atmospherical fluid.

The word *aerometry* is but little used: in lieu hereof, we commonly call this branch of philosophy, **PNEUMATICS**. C. Wolfius, professor of mathematics at Hall, having reduced many of the affections of this fluid to geometrical demonstration, first published elements of *Aerometry*, at Leipzig, 1709, in High Dutch, and afterwards more largely in Latin.—Thus is the doctrine of the air incorporated into the mathematical sciences.

AERONAUTICA, from *anp*, and *ναυτικος*, derived from *navis*, ship, the pretended art of sailing in a vessel through the air, or atmosphere, sustained as a ship in the sea.

AEROPHYLACEA, in *Natural History*, denotes subterraneous receptacles of air or wind.

The word is compounded of *anp*, air, and *φυλακη*, custodia, keeping.—In which sense *aerophylacea* stands contradistinguished from *hydrophylacea*, *pyrophylacea*, &c.

Kircher speaks much of *aerophylacea*, or huge caverns, replete with air, disposed under ground, from whence, through numerous occult passages, that element is conveyed either to subterraneous receptacles of water, which are hereby raised into springs or rivers, or into the funds of subterraneous fire, which are hereby fed and kept alive for the reparation of metals, minerals, and the like.

AEROSIS, among the *Ancient Physicians*, denotes the act whereby the blood is attenuated and converted into an *aura* for the support of the vital spirits, and the maintenance of the flame of life.

AEROSTATICA, from *anp*, and *στασις*, from *στημι*, status; is used by some authors for the science called by others **AEROMETRY**.

AEROSTATICA is properly the doctrine of the weight, pressure and balance of the AIR and ATMOSPHERE.

ÆRUGINOUS, something partaking of, or like to, the rust of copper.

Authors do not seem perfectly agreed about the colour to be expressed by this word, some expressing by it green, others brown.

ÆRUGO denotes **RUST**, especially that of copper.

Grew will have the **TURCOIS stone** to be only a kind of petrified *ærugo*.

Naturalists speak of two kinds of *ærugo*, one *native*, and the other *fallitious*.

ÆRUGO, *native*, is only the superficial particles of the metal dissolved, and intimately mixed with acid salt; in which form it is ordinarily found in copper-mines, and other moist places.

ÆRUGO, *artificial*, is what we more vulgarly call **VERDIGREASE**.

One species of *natural ærugo* is a greenish marcasite, like the drops of iron; it is found in copper-mines, but is of no use. There is also, on some mountains in Moravia, a sort of green grains, like sand, that is of a grass green, when used in painting. It is called the Hungarian, *mountain*, or *sea VERDIGREASE*.

ÆRUGO rasilis, is a rust formed on copper, by hanging a plate of it over the strongest vinegar for ten days, without suffering it to touch it.

ÆRUGO salis, in *Natural History*, a name given by Pliny and several other ancient authors, to a reddish slimy matter, separated from the Egyptian salt, called **NATRUM**, in purifying it. We find this matter remain in the filter, on dissolving and filtering the Egyptian nitre, at this time; it seems to be a mixture of bituminous matter, and a red earth, which had mixed themselves among the cakes of the salt, during the time of their concreting from the water.

ÆRUSCATORES, in *Antiquity*, a kind of sharpening strollers who got their living by tricks, telling fortunes, and the like, much like modern gypsies. Also, oppressive tax-gatherers.

The word is formed from *æruscari*, to beg, mump, &c.

The Galli, or priests of Cybele, were called *æruscatores magnæ matris*, on account of their begging, or collecting alms in the streets. To which end they had little bells whereby to draw people's attention to them, much like some orders of mendicants abroad.

AERY, or **AIRY**, in speaking of hawks, eagles or the like, answers to the **NEST** of other birds.

ÆS, in *Antiquity*, has various significations; but it properly denotes *brass* or *copper*; and as *copper* was the first metal used in coinage by the Romans, the word *æs* was

used in their language to signify money in general. It likewise denoted a particular coin made of that metal.

Æs caldarium, or *cast BRASS*, otherwise called *as olarium*, or *pot BRASS*, is a species of *brass* mentioned by Pliny, which was not capable of being hammered. This is likewise a term used by the German *mineralists*, for a substance which sometimes occurs to those who work upon COBALT, and is used for making the fine blue colour called SMALT.

Æs candidum, among the *Ancients*, was different from that which we call *white BRASS*; it is said, under the veins of silver, somewhat analogous to Venetian TALC. They had probably a method of making COPPER *white* as well as *yellow*, equal, if not superior, to that now in use. The phrases of *orichalcum album* in Virgil, and of λευκον κραμα, among the Greeks, strictly signify *white BRASS*.

Æs Corinthium, a precious metallic composition, of a much finer colour than common brass, and for its beauty little inferior to gold. Pliny says, that this was an accidental mixture of metals at the sack and conflagration of Corinth by L. Mummius, 146 years before Christ; when the gold, silver, and brass statues, and all metallic substances, melting and mingling together, formed this mass. But some refiners, who have strictly examined this metal, find no gold in it; a circumstance which, if true, suggests one reason among others, for concluding, that this account is fabulous. However, the fable has been interpreted by some to signify, that the art of making COPPER into BRASS was first discovered by the Corinthians, who found the CALAMINE stone on the plains of Peloponnesus, or at least that they brought this art to perfection.

Æs coronarium is used by Pliny to denote BRASS worked into thin plates.

Æs Cyprium was a kind of COPPER produced in the island of Cyprus.

Æs flavum, *yellow copper*. All the Roman authors have mentioned the method of making BRASS with *calamine* and *copper*; but their finest kind, which they called *orichalcum*, or *aurichalcum*, they distinguished from the inferior sorts, which had only the name of *as flavum*.

Æs grave denoted money among the Romans, which was paid by weight, and not by tale. In this sense it is used by Buddæus and Scaliger.

But others by *as grave* understand large pieces of copper coined, containing, for instance, an *as*, or pound of that metal, such as we find current in Sweden. These they assert bore the title *as grave*, till such time as they were reduced to a smaller standard.—Gronovius, on the contrary, maintains that the *as*, or pound weight, did not acquire the appellation, *as grave*, till after their reduction. Phil. Trans. N° 19.

Kuster rejects all these opinions, and asserts, that the expression is used to denote any kind of copper-money, compared with gold or silver; which, with regard to the bulk and size of the pieces, was much lighter, though of greater value.

But this system, however plausible, is rejected by several learned men, particularly Perizonius, and Mr. Ward. The former has a dissertation on the subject, wherein the opinion of Gronovius is farther examined and defended.

Æs hepaticon was of a silverish colour, and probably what the moderns call BRONZE; though some confound it with the *as Corinthium*.

Æs pauperum is a name given to *copper ore*, divested of its silver, when it contains any.

Æs rude, that unshaped, or not fashioned for any particular purpose.—Some will have this to be the same with *as grave*.—The money during the first ages of Rome was all of this kind.

Others, by *as rude*, understand metal unstamped; in opposition to *as signatum*, that stamped, or coined.

Æs ustum, among *Chemists*, is the same with what some called *as Veneris*, or saffron of Venus; others *as crematum*. If good, it is of an iron grey on the outside, of a reddish grey within; and if two pieces are rubbed together, a vermilion red is produced; it must also be brittle, and glittering when broken.

There are various ways of preparing *as ustum*: the most frequent is, by exposing the plates to a reverberatory, or a potter's furnace, so long, till they will crumble into a powder. Another is, by heating a long slip of copper in a vehement fire, till it sparkles, then pulling it suddenly out, and applying a piece of sulphur on it; this immediately liquefies the copper, which drops down into a vessel of cold water, placed to receive it. A third is, by cutting thin plates of copper, which are put into a crucible with sulphur and salt, *stratum super stratum*, and set in a hot charcoal fire, until the sulphur be consumed. A fourth is, by steeping the metal in a solution of salt, or strong vinegar; then stratifying it with sulphur, as

above. After this, it is put in vinegar impregnated with sal ammoniac. The like is repeated till the plates are consumed. The vinegar being distilled from it, what remains is *as ustum*.

Æs ustum is very drying and deterfive, and, on that account, mixed with plasters and unguents, for drying up fistulous ulcers, and the imbibing acrimonious humours, or sanies. It also serves to eat off dead flesh; to which end, it is said, they heat it red hot in the furnace nine times, and quench it as often in linseed oil. It is then called SAFFRON of COPPER. But it is apt to render the bones carious. It is likewise used for colouring glass.

Æs uxorium, in *Antiquity*, a sum paid, by bachelors, as a penalty for living single to old age.

This tax for not marrying seems to have been first imposed in the year of Rome 350, under the censorship of M. Furius Camillus, and M. Posthumus.

At the *census*, or review of the people, each person was asked *Et tu ex anima sententia uxorem habes liberum quærendorum causâ?* He who had no wife, was hereupon fined after a certain rate, called *as uxorium*.

Æs; flos Æris, called by the Greeks, χαλκός ανθός (sometimes confounded by moderns with *chalcanthum*) is prepared of COPPER melted, and removed into other furnaces, wherein being exposed to a farther and greater heat, and vehemently agitated by bellows, it deposits an infinite number of small scales like millet grains, which being separated by lotion, make the *flos æris*. The cold water is poured on the copper, as it runs out of the furnace into the receiver.

Æs; squama Æris properly denotes flakes of that metal struck off by the hammer, in the operations of the forge, &c. These, from the Cyprian copper-works, are called *Helitis*.

Æs; per Æs & libram was a formula in the Roman law, whereby purchases and sales were ratified.

Originally the phrase seems to have been only used in speaking of things sold by weight, or by the scales; but it afterwards was used on other occasions. Hence even in ADOPTIONS, as there was a kind of imaginary purchase, the formula thereof expressed, that the person adopted was bought *per æs & libram*.

ÆSALON, in *Ornithology*, the name of a species of hawk of the long-winged kind, called, in English, the MERLIN. It is the smallest of all the hawk-kind, used in the diversion of hawking. It is of about the size of the black-bird. Its beak is blue, and its eyes hazel; it has a wreath of whitish yellow feathers behind its head; its chin is white, and its back and wings of a dusky blackish brown. Its larger wing-feathers are black, with brown spots; and its tail long, and variegated with transverse streaks of black and whitish brown; its breast and belly are of a whitish brown, variegated with blackish brown spots; its legs are long and yellow. It feeds on partridges and other birds. Ray.

ÆSCH, in *Ichthyology*, a name by which some have called the grayling, or tumbler, a fish of the truttaceous kind, called in Latin THYMALLUS. Willughby.

ÆSCHNA, in *Natural History*, the name of a species of water-fly, of an ash-colour, with four wings, and a long body, hairy near the tail.

ÆSCHYNOMENE, in *Botany*, a genus of the *diadelphia decandria* class of plants, the corolla of which is papilionaceous; the fruit consists of a long compresso-plane, articulated, unilocular pod, containing a single kidney-shaped seed. See SENSITIVE-Plant.

ÆSCHYNOMENOUS plants, among *Botanists*, are those popularly called SENSITIVE PLANTS.

ÆSCULAPII anguis, in *Zoology*, the name of a harmless species of serpent, common in Spain and Italy, called also PAREA.

ÆSCULAPIUS, the ancient name for the constellation OPHIUCUS.

ÆSCULUS, *horse-chestnut*, in *Botany*, a genus of the *heptandria monogynia* class. See CHESTNUT.

ÆSNECY, in *Law*, priority of age, among coparceners.

ÆSPING, in *Zoology*, a species of COLUBER.

ÆSTHPHARA, incineration, or burning of the flesh, or any other part of the body.

ÆSTIMATIO Capitis, in our ancient law-books. See WERE and WERELADE.

King Athelstan, in a great assembly held at Exeter, declared what mulcts were to be paid *pro æstimatione capitis*, for offence committed against several persons according to their degrees: the *æstimation* of the king's head to be 3000 thrymsæ; of an archbishop, or satrapa, or prince, 15000; of a bishop, or a senator, 8000; of a priest, or athane, 2000, &c.

ÆSTIVAL, or *ESTIVAL*, of or belonging to summer.

Thus, we say, the *æstival SOLSTICE*, &c. in opposition to *brumal*.

ÆSTIVAL point is that whereby the sun's ascent above the equator is determined.

ÆSTIVAL signs are those extended from the summer solstitial point, i. e. the sun's greatest declination northward, to the intersection of the ecliptic and equinoctial southward, including Cancer, Leo, Virgo.

ÆSTRUS, a name given to a particular species of the BEETLE.

ÆSTUARY, **ÆSTUARIUM**, in *Geography*, an ARM of the SEA, running up a good way into the land.

Such is Bristol channel, many of the friths of Scotland, &c. See BAY.

ÆSTUARY is sometimes also used in pharmacy, for a vapour-bath, *balneum vaporosum*.

ÆSTUARY, in the *Ancient Baths*, was applied to the occult passages, or openings from the *hypocaustum*, or stove, penetrating into the chambers. Pitisc. Lex. Ant.

ÆSYMNETIC monarchy, among *Ancient Writers on Government*, denotes a limited elective monarchy. Arist. Pol. c. 10. The word is formed from *αἰσυννᾶω*, *regno*, I govern.—An *æsymnetic* state stands opposed to a barbaric, or hereditary one.

ÆTATE *probanda*, in *Law*, a writ that lay to enquire whether the king's tenant, holding in chief by chivalry, were of full age to receive his lands into his own hands. It was directed to the escheator of the county; but is now disused, since wards and liveries are taken away by the statute Car. II. Reg. Orig. 294.

ÆTHALE, in *Natural History*, a name given by some writers to the *cadmia fornicum*, or TUTTY.

It had this name from its being the concreted foot, or vapour of the *lapis calaminaris*, and copper, melted together, in the making of brass.

ÆTHER, in *Physiology*, is usually understood of a thin, subtle matter, or medium, much finer and rarer than air; which, commencing from the limits of our atmosphere, possesses the whole heavenly space.

The word is supposed to be formed from the verb, *αἶθεω*, to burn, to flame; some of the ancients, particularly Anaxagoras, supposing it of the nature of fire.

The philosophers cannot conceive that the largest part of the creation should be perfectly void; and therefore fill it with a species of matter under the denomination of *æther*.

—But they vary extremely as to the nature and character of this *æther*.—Some conceive it is a body *sui generis*, appointed only to fill up the vacuities between the heavenly bodies; and therefore confined to the regions above our atmosphere.—Others suppose it of so subtle and penetrating a nature, as to pervade the air, and other bodies; and possess the pores and intervals thereof.—Others deny the existence of any such specific matter; and think the air itself, by that immense tenuity and expansion it is found capable of, may diffuse itself through the interstellar spaces, and be the only matter found in them. In effect, *æther* being no object of our sense, but the mere work of imagination, introduced only for the sake of hypothesis, or to solve some phenomenon, real or imaginary; authors take the liberty to modify it how they please.—Some suppose it of an elementary nature, like other bodies, and only distinguished by its tenuity, and the other affections resulting from it; which is the philosophical *æther*.—Others will have it of another species, and not elementary; but rather a sort of fifth element, of a pure, more refined, and spirituous nature than the substances about our earth; and void of the uncommon properties of matter, as gravity, &c.—Such is the ancient idea of *æther*, or *ætherial* matter.

The term *æther* being thus embarrassed with a variety of ideas, and arbitrarily applied to so many different things, the later philosophers choose to set it aside; and accordingly the Cartesians use the term *materia subtilis*, which is their *æther*; and Sir Isaac Newton sometimes a *subtile spirit*, as in the close of his *Principia*; and sometimes a *subtile* or *ætherial medium*; as in his *Optics*.

The truth is, there are abundance of considerations, which seem to evince the existence of some matter in the air, much finer than the air itself. There is an unknown something, which remains behind, when the air is taken away; as appears from certain effects which we see produced in *vacuo*.—HEAT, Sir Isaac Newton observes, is communicated through a vacuum, almost as readily as through air: but such communication cannot be without some interjacent body, to act as a medium. And such body must be subtle enough to penetrate the pores of glass; and may be very well concluded to penetrate those of all other bodies; and consequently be diffused through all the parts of space; and answers to the full character of an *æther*.

The existence of such an *ætherial* medium being settled, that author proceeds to its properties; inferring it to be not only rarer and more fluid than air, but exceedingly more elastic and active: in virtue of which properties, he shews, that a great part of the phenomena of nature may be produced by it.—To the weight, e. gr. of this medium he attributes gravitation, or the weight of all other bodies; and to its elasticity, the elastic force of the

air, and of nervous fibres; and the emission, refraction, reflection, and other phenomena of light; as also sensation, muscular motion, &c.—In fine, this same matter seems the *primum mobile*, the first source or spring, of physical action in the modern system.

The Cartesian *æther* is supposed not only to pervade, but adequately to fill all the vacuities of bodies; and thus to make an absolute *plenum* in the universe. See MATERIA *subtilis*.

But Sir Isaac Newton overturns this opinion, from divers considerations; by shewing that the celestial spaces are void of all sensible resistance: for, hence it follows, that the matter contained in them must be immensely rare, because the resistance of bodies is chiefly as their density; so that if the heavens were thus adequately filled with a medium or matter, how subtle soever, they would resist the motion of the planets and comets much more than quicksilver or gold.

Some represent the *æther* as 7200 times more rare than air. Others make it more dense than gold itself. See farther concerning the existence of *æther*, Boyl. Philos. Works abr. tom. ii. p. 504. Vater, Phys. Exper. cap. 2. p. 72, seq. Its fluidity, circulation, elasticity, &c. Vater, ib. 75, seq. Verdries, p. 2. cap. 3. § 1. p. 293. Hook, Posth. Works, p. 171. Its being the *primum mobile*, or source of all motion, Verdries, p. 6. 63. & 107. Its influence on the air, Hook, ib. p. 380. Impediment to the moon's motion, Id. ib. p. 191. Its being the cause of the planetary motions, Giorn. de Letter. d'Ital. tom. x. p. 6, seq. Of colours and refrangibility, &c. ib. tom. xxiii. p. 132. Of sound, Id. tom. ix. p. 315. and Mem. Acad. Scienc. Ann. 1720, p. 50. Philos. Transf. N^o 100. p. 15.

ÆTHER, in *Chemistry*, called also *ætherial spirits* of Frobenius, *dulcified spirit of vitriol*, *acidum vitrioli vinosum*, by Pott, and *liquor anodynus mineralis*, by Hoffman, is a very subtle and penetrating fluid, produced by distillation from a mixture of rectified spirit of wine and the vitriolic acid. M. Macquer supposes, that, as spirit of wine consists chiefly of an oil, exquisitely attenuated by fermentation, and intimately combined with water, *æther* is no other than this subtilized oil, extricated by the vitriolic acid; which acid, having a strong affinity or attraction to water, absorbs the watery element of the spirit, and thus sets the oily one at liberty.

Æther is the lightest, most volatile, and most inflammable of all known liquors; it swims upon the most highly rectified spirit of wine, as oil does upon water; and if dropped on a warm hand, it instantly exhales, diffusing a penetrating fragrance, and leaving no moisture behind. It takes fire on the approach of a candle, and goes off in a flash like lightning. As it is the most volatile and evaporable of all known liquors, it produces a proportionable degree of cold; insomuch that M. Beaumè has made the mercury of Reaumur's thermometer sink to 40 degrees below the freezing point, by applying linens soaked in *æther* to the ball containing the mercury.

Æther does not easily mix with water; ten parts of water being necessary to dissolve one part of *æther*. It discovers a remarkable attraction to gold, though it has no effect on other metals. *Æther*, mixed with a solution of gold made in acids, imbibes the gold from the acid, keeps it perfectly dissolved and suspended, and becomes of a yellow colour. This property renders it of great use in extracting gold from other metals, and in ascertaining the smallest portions of it in liquids. Thus we may likewise very expeditiously obtain a tincture of gold, or *aurum potable*.

Æther has been successfully employed in medicine. Dr. Morris recites several instances, in which he has applied it externally as a remedy for head-achs, for the tooth-ach, and for rheumatic complaints; and he has likewise prescribed it internally for the whooping-cough, and in hysterical cases; and he apprehends, that it may be administered in large quantities with safety, and prove a useful medicine in a *syncope* and lethargy. He has given the following safe, easy, and certain process, for preparing it.

Take of rectified spirit of wine, three pounds; put it into a two gallon stone bottle; add to it by two ounces at a time, allowing the interval of a quarter of an hour between each addition, three pounds and six ounces of the strong vitriolic acid; let the mixture digest without heat for the space of a night: in the morning, decant it from one vessel to another three or four times; convey it through a glass funnel, and long tube, into a retort, capable of containing three times the quantity; place it in an iron pot, with an inch of sand at bottom; add more sand round the retort, to the height of the mixture; set it over a quick fire; lute a large receiver to the retort, leaving a pin-hole in the luting, unless the receiver is perforated; continue the fire till an ebullition, accompanied with large bubbles, is observed in the mixture;

ture; then remove the fire entirely: the heat of the sand will be sufficient to complete the distillation of the *æther*. The distilled liquor must then be put into a clean retort, with two or three ounces of fixed alkaline salt; about half the liquor should be drawn off, by a very gentle heat; into a large receiver; and this being shaken with an equal quantity of pump water, the pure *æther* will rise immediately to the top. See Med. Obs. and Inq. vol. ii. p. 177.

The nature and use of this substance were very little known to the ancient chemists. Mr. Boyle, and Sir Isaac Newton, indeed, were not entirely unacquainted with it; but it first began to excite general attention, in consequence of some experiments of Frobenius, the feigned name of a German chemist, published in the Philosophical Transactions for the year 1730; and it was by him denominated *æther*. See Phil. Trans. abr. vol. viii. p. 744. vol. ix. p. 372, 379.

Æther, though originally obtained from spirit of wine, by means of the vitriolic acid, has since been produced by means of the other acids; and it has been found, that the acid of vinegar is essentially fitter to produce *æther*, than the vitriolic acid. The first discovery of this kind of *æther* was made by the count de Lauraguais.

The marine acid unites with vinous spirits very slowly, and with great difficulty. Processes for this purpose have been discovered by the marquis de Courtanvaux, M. Beaumè, and M. le Baron de Bormes. The marquis employed the *smoking spirit of Libavius*: but M. de Bormes made use of zinc, as a medium for concentrating the marine acid. M. Navier, in a process communicated to the Academy of Sciences in 1742, shews how to procure *æther* by means of spirit of nitre, and spirit of wine, without distillation. He directs to mix them together in a bottle, which is to be exactly closed and left at rest, till the *æther* is formed, and collected like an oil upon the surface of the liquor. Other methods have been since published by M. Rouelle, and M. Beaumè.

See more on this subject in Macquer's Dictionary of Chemistry, under the article *ETHER*. See *Ætherial Spirits*.

Ætheria Herba, is a name given to *ERINGO*.

Ætherial, *Ætherius*, something that belongs to, or partakes of the nature of *æther*.

Thus, we say, the *ætherial* space, *ætherial* regions, &c.—Some of the ancients divided the universe, with respect to the matter contained in it, into *elementary* and *ætherial*. Under *æther*, or the *ætherial* world, was included all that space above the uppermost element, viz. fire—This they supposed to be perfectly homogeneous, incorruptible, unchangeable, &c. See *CORRUPTION*.

The ancient Platonists and Pythagoreans suppose different bodies united with the human soul, viz. the gross, or material one; a finer aerial one; and, thirdly, the finest of all, which they call *ætherial*, celestial, &c. Cudworth. Intell. Syst. c. 4.

The Chaldees placed an *ætherial* world between the *empyreum* and the region of the fixed stars. Beside which, they sometimes also speak of a second *ætherial* world, meaning by it the starry orb; and a third *ætherial* world, by which is meant the planetary region. Stanley Hist. Phil. p. 1040.

Ætherial phosphorus, is a name generally given, by Bernouilli, to that otherwise called mercurial, or barometrical *PHOSPHORUS*.

Ætherial oil, is a fine, subtle, *ESSENTIAL OIL*, approaching nearly to the nature of a spirit.

Thus, the pure liquor rising next after the spirit, in the distillation of turpentine, is called the *ætherial oil of turpentine*.

Some chemists distinguish two principles of *URINE*; the one a volatile urinous salt, resembling spirit of nitre; the other, an *ætherial oil*, or sulphur, partaking of the nature of spirit of wine.

Ætherial Heaven. See *HEAVEN*.

Æthiopian crown, in *Natural History*, the name of a shell-fish, of the genus of the *dolium*, or *concha globosa*. It is of a brown colour, but differs from the common shells of this genus, in having the top, or head, dentated, so as to represent a crown.

Æthiopsis, signifies *Ethiopian clary*; a decoction of its roots is commended in pleurisies and rheumatisms.

Æthiops mineral, a preparation of mercury, usually made by grinding equal quantities of crude quicksilver and flower of sulphur, in a stone or iron mortar, till they become incorporated into a black powder.

It is prescribed for the worms, and all crudities and acrimony of the humours; and is reputed infallible against the itch, and other cutaneous diseases.

A new preparation of *æthiops* is given by Cruger, a German physician, which is white and fair; and, on that account, called *æthiops minerale sanguine regis ablutum*: in opposition to which, he calls the dark, or vulgar kind, *æthiops cum stercore suo*.

Authors are not agreed as to the merits of *æthiops mine-*

ral: Cheyne, and many more, commend it highly. Boerhaave, on the contrary, and some others, reject it as useless.

Æthiops albus, in *Pharmacy*, quicksilver rubbed with a double quantity of crabs-eyes, or of sugar-candy, till it is extinguished. This has been taken by some, without any sensible effect; yet a very small quantity of it has raised a high salivation in others. Quicksilver extinguished in prunels, has operated much the same way. It is the same as *merc. alkalisat*.

Æthiops antimonialis, is prepared by fluxing equal parts of antimony and sea-salt, in a crucible, for an hour; the matter is then left to cool, and the *scoriae* are obtained by breaking the crucible; equal parts of the regulus thus made, and of mercury rubbed together, till they are incorporated, will give the composition of this name. Different preparations of the same kind have been prescribed, and highly commended by some physicians, in venereal and scrophulous disorders.

Æthiops martialis, is a preparation first introduced into medicine by M. Lemery, junior, and is made in the following manner. Put filings of steel into an unglazed earthen vessel, with water enough to rise four inches above the filings; stir it every day, and supply water as it exhales, so as to keep the filings always covered; and continue to do this till a powder of an inky blackness be produced, which powder is called *martial æthiops*.

Æthiops vegetabilis. The sea-weed, burnt in the open air, and reduced into a black powder, is called *vegetable æthiops*. It is sometimes used to remove scrophulous swellings.

Ætholices, in *Physic*, derived from *αἰθερ*, to inflame, is a name given to superficial pustules, or boils, in the skin, occasioned by heat.

Æthusa, in *Botany*, lesser hemlock, or fool's parsley, a genus of the *pentandria digynia* class. See *HEMLOCK*.

Æthyia, in *Ornithology*, a name by which the old authors have called one of the web-footed fowls, seeming to be the *UTAMANIA* of Crete, or the common *AUK*, or *RAZOR-BILL*.

Ætians, *Ætiani*, in *Church History*, a sect or branch of *ARIANS*, so called from their leader Aetius, in the fourth century.

The *Ætians* were of the stricter kind of *Arians*, who held that the Son and Holy Ghost are in every respect dissimilar to the Father.

Whence also they are called *Anomæi* and *Heterousiani*; sometimes *pure Arians*.

Ætiological, something that assigns the cause of an effect or appearance.

Ætiology, in *Medicine*, a *rationale*, or discourse of the cause of a disease. The word is compounded of *αἰτία*, cause, and *λογος*, discourse. In this sense, we say, the *ætiology* of the small-pox, of the *hydrophobia*, of the gout, the dropsy, &c.

Ætiology is used for a figure in *Rhetoric*, whereby, in relating an event, we assign also the cause of it. In which sense, *ætiology* differs from *color*, as the former assigns the true cause, the latter only a feigned or specious one.

The sceptics were professed opponents of all *ætiology*, or argumentation from causes.

Ætites, or *eagle-stone*, in *Natural History*, a flinty or crusted stone, hollow within, and containing a *nucleus*, which, on shaking, rattles within. It was formerly in repute for several extraordinary *magical*, as well as *medical* powers; such as preventing abortion, discovering thieves, and other ridiculous properties.

The word is formed from *αἰτός*, eagle; the popular tradition being, that it is found in the eagle's nest, whither it is supposed to be carried while the female sits, to prevent her eggs from being rotten.

The *LAPIS ætites* is found in several parts near Trevoux in France; one can scarce dig a few feet, without finding considerable strata or beds, of the coarser or ferruginous kind.—They are originally soft, and of the colour of yellow ochre.

But the finest and most valued of all the eagle-stones, are accidental states of one or other of our common *PEBBLES*. These are so far from being a peculiar species of fossil, though usually accounted such, that they are not determinately of any one species of pebble. That, however, which most usually furnishes them, is the brown centered pebble, with whitish, bluish, and brown crusts. The plain history of this remarkable fossil is this: the central *nucleus* of many species of pebbles, peculiarly of this, is coarser than the rest of the stone, that is, it is made up of more earth and less crystal; the natural consequence of which must be, that being of a more loose and rare texture, it is in drying more apt to shrink than such masses as are composed of a harder and purer matter. The central *nucleus* in this species is also surrounded with a whitish crust, of a more loose texture, and more subject to shrink in drying than even the *nucleus*.

æleus itself; and being composed of more earth and less crystal, is also more friable and soft. The outer circles of this stone are of a much harder substance. Whenever the earthy matter in the *nucleus*, and first crust of this pebble, a little exceeds its just proportion, the consequence will be, that the stone will become an *ætitis*: for the *nucleus* shrinking and contracting itself to a small size on the evaporation of its fluid matter, must separate itself from its first crust, and that also shrinking, must be drawn backward toward the other crusts; whence the cavity will become larger between that and the *nucleus*, and consequently, the *nucleus* will rattle in it when the stone is shaken. The pebble in this state having been afterwards rolled about by waters, the *nucleus* has by rolling broken to pieces all the inner crust, and is usually found in the hollow of the stone, buried in a large quantity of a whitish powder.

These eagle-stones are not uncommon in our gravel-pits, but being by their hollowness rendered less strong than the solid pebbles, we frequently find them broken. Hill.

The *ætitis* is also known by the names *eutocium*, *echites*, *lapis aquilæ*, *erodialis*, *aquileus*, & *lapis pregnans*; some rank it under the class of precious stones, to which it has no title. Some think it may come properly enough under that of figured stones.

ÆTNA salt, *SAL Ætnæ*, a name given by some authors to the *sal ammoniac*, which is found on the surface and sides of the openings of *Ætna*, and other burning mountains after their eruptions; and sometimes on the surface of the ferruginous matter which they throw out. This salt makes a very various appearance in many cases; it is sometimes found in large and thick cakes, sometimes only in form of a thin powder, scattered over the surface of the earth and stones. Some of this salt is yellow, some white, and some greenish.

This salt is a **CONCRETE** of nitre, sulphur, and vitriol, burnt and sublimed together; Borelli found once a vast quantity of this salt on mount *Ætna*, and tried many experiments on it; from whence he concluded, that this **SALT** is so far from occasioning the explosions of that mountain, as some have supposed, that it does not exist in it, but is formed during the burning. Phil. Trans. N^o 100.

AFDELLES, in *Ichthyology*, a name given by the Cretans to the fish called at Rome, *donzellina* and *zigurella*. It is the *julis* of authors, and, according to the Artedian system, is a species of the **LABRUS**. Artedi distinguishes it from the others, by the name of the *palmar labrus*, with variegated sides, and two large teeth in the upper jaw.

AFFA, a weight used on the Gold Coast of Guinea. It is equal to an ounce, and the half of it is called *eggeba*. Most of the blacks on the gold coast give these names to those weights.

AFFATOMIA, in *Ancient Law*, a kind of donation made by thrusting a wand into the person's bosom, to whom it was made. Du-Cange.

AFFECTIO bovina, is a disease incident to cattle, occasioned by a little worm, bred between the flesh and the skin; which works its way over all parts of the body.

AFFECTION, in a proper sense, denotes an **ATTRIBUTE**, peculiar to some subject, and arising from the very idea or essence of it.

The word is formed from *afficere*, to affect; the **SUBJECT** being here supposed in some measure affected, or acted on, by the thing attributed to it.

In this sense, *affection* is synonymous with *property*, or with what the schoolmen call *proprium quarto modo*.

Philosophers are divided as to the doctrine and division of *affections*: according to Aristotle, they are either *subordinating*, or *subordinated*; under the first of which comes only *mode*; and under the second, *finiteness*, *place* and *time*. The generality of Peripatetics divide *affections* into *internal*, as motion and finiteness; and *external*, as place and time. According to Sperlingius, *affections* are better divided into *simple* or *united*, and *disjunct* or *separate*: under the first come *quantity*, *quality*, *place*, and *time*; under the second, *motion*, and *rest*.

Sperlingius then seems to reject finiteness from the number of *affections*; and Aristotle, and the Peripatetics, *quantity* and *quality*: but the difference is not irreconcilable; since Sperlingius does not deny body to be finite, nor Aristotle, and his followers, that it has *quantum* and *quale*. Only they have not made peculiar heads and titles for these.

Affections are also distinguished into those of *body*, and those of *mind*.

AFFECTIONS of body, are certain modifications of it: occasioned or induced by motion; in virtue of which, a body comes to be so and so disposed.

The *affections of body* are sometimes subdivided into *primary* and *secondary*.

AFFECTIONS, primary, are those which arise either from

the idea of matter, as quantity and figure; or from that of form, as quality and power; or from both together, as motion, place, and time.

AFFECTIONS, secondary, or derivative, are those which arise from some of the primary; e. gr. from quantity, as divisibility, continuity, contiguity, finity, impenetrability; from *figure*, as regularity and irregularity; from *quality*, as health, strength, &c.

AFFECTIONS of mind, are what we more usually call **PASSIONS**.

AFFECTIONS, mechanical. See **MECHANICAL affections**.

AFFECTION, in *Physiology*, is sometimes used to express that impression which is made on our minds by subjects either within us, or without us; but *affection* more commonly denotes that lively sense of pleasure, or of aversion, which we feel from certain objects. Thus a picture representing beings shocking to nature, is said to *affect* us disagreeably; and thus the relation of a generous or heroic action is said to *affect* us agreeably.

AFFECTION is more peculiarly used, in *Medicine*, for a morbid, or preternatural state of the body, or some of its parts. Thus we say, an **HYPOCHONDRIACAL**, an **HYSTERICAL affection**. And, in like manner, such a part of the body is *affected*, i. e. indisposed, or seized with a **DISEASE**. The sick are frequently mistaken as to the place *affected*, by reason of the consent between the several parts, which often make a disorder in one part to be felt in another.

AFFERORS, AFFERATORES, in *Law*, persons appointed in court-leets, and other places, upon oath, to settle and moderate the **FINES** of such as have committed faults arbitrarily punishable, or which have no express penalty set down by statute. See Stat. 25 Edw. III. cap. 7.

The word is formed, according to Cowel, of the French *affier*, to affirm; by reason those appointed to this office do affirm, upon their oaths, what penalty they think, in conscience, the offender hath deserved. Others better derive it from *affeurer*, a word in the customary of Normandy, rendered by the Latin interpreters, *taxare*, to set the price of a thing; as *æstimare*, *indicare*, &c.—Kitchin joins the three words as *synonyma*; *affidati*, *amerciatores*, *afferores*.

AFFERI, in *Law*. See **AVERIA**.

AFFETTUOSO, or *Con Affetto*, in the *Italian Music*, is used to denote that kind of music, which must be performed in a very tender, moving, and affecting manner; and for that reason rather slow than fast.

AFFIANCE, in *Law*, the plighting of troth between a man and a woman, upon an agreement of marriage to be had between them.

AFFIDATIO Dominorum, signifies an oath taken by the lords in parliament: thus called in the Rot. Parl. Hen. VI.

AFFIDATUS, or AFFIDIATUS, in our *Law Books*, denotes a tenant by **FEALTY**.

Affidati are not properly vassals, but *quasi* vassals, or persons who vow fealty to, and put themselves under the protection of, another.

In this sense they amount to the same with what are otherwise called *commendati*, and *recommendati*.

AFFIDAVIT, an **OATH**, in writing, sworn before some person who hath authority to take such oath; and made use of, and read in court, upon motions; though not allowed upon trials.

In the court of chancery is an *Affidavit-office*, under the direction of a *Master of CHANCERY*.

AFFILIATION, ADFILIATIO, in *Middle Age Writers*, the same with adoption.

Among the ancient Gauls, *affiliation* was a sort of adoption only practised among the great.—It was performed with military ceremonies: the father presented a battle-axe to the person he was to adopt for his son, as an intimation that he was to preserve the effects he thus called him to succeed to, by arms.

AFFINAGE is sometimes used, in *Ancient Law Books*, for the refining of metals.

AFFINITY properly imports a relation contracted between one of two parties married, and the kindred of the other party.

The word is originally Latin, compounded of *ad*, to, and *finis*, boundary, limit; by reason, as the lawyer says, that one of the families here approaches to the bounds of the other: *Quod duæ cognationes per nuptias copulantur, & altera ad alterius cognationes finem accedit*. Or, as another expresses it, *Quod utriusque cognationis fines in unum locum conferuntur*.

In which sense the word stands contradistinguished from *consanguinity*, which is a relation by blood.

In the **Mosaic Law** there are several degrees of *affinity*, wherein marriage is expressly prohibited, which yet seem not at all prohibited by the law of nature.

The *Canonists* distinguish three species of *affinity*.—The *first*, that contracted between the husband and the relations

tions by blood of his wife; and between the wife and the relations by blood of her husband.

The *second*, between the husband and those related to his wife by marriage; and the wife, and those so related to her husband.

The *third*, between the husband and the relations of his wife's relations; and the wife, and the relations of her husband's relations.

By the fourth council of Lateran, held in 1213, it was decreed, that none but the first kind was any real *affinity*; the rest being meer refinements, which ought to be set aside.

The degrees are reckoned after the same manner in *affinity*, as in *consanguinity*; and therefore differently in the *Canon Law*, from what they are in the *Civil Law*.

Whatever line or degree of consanguinity the kindred of one of the parties married are in, they are in the same line and degree of *affinity* to the other. And again, in whatever line or degree of *affinity* persons are, in the first kind, they are in the same in the second and third kinds of *affinity*. Hence arise what we call a direct and collateral, an ascending and a descending line of *affinity*. The Romanists talk of a *spiritual affinity*, contracted by the sacrament of baptism and confirmation. In that church, a god-father may not marry with his god-daughter, without a dispensation.

Affinity does not found any real kinship; it is no more than a kind of fiction, introduced on account of the close relation between husband and wife. It is even said to cease, when the cause of it ceases. Hence a woman who is not capable of being a witness for her husband's brother, during his life-time, is allowed for a witness when a widow, by reason the *affinity* is dissolved. Yet with regard to the contracting marriage, *affinity* is not dissolved by death, though it be in every thing else.

The degrees and terms of *affinity* are chiefly, father-in-law, i. e. husband's or wife's father, in Latin *socer*; step-father, i. e. mother's husband, *vitricus*; mother-in-law, i. e. husband's or wife's mother, *socra*; step-mother, i. e. father's wife, *noverca*; son-in-law, *gener*; daughter-in-law, *nurus*; step-daughter, i. e. husband's or wife's daughter by another marriage, *privigna*; step-son, i. e. husband's or wife's son by a former marriage, *privignus*; which two last, considered in relation to each other, are called *comprivigni*; son-in-law, i. e. daughter's husband; brother-in-law, i. e. husband's brother, or sister's husband, *levir*; wife's brother, brother's wife; sister-in-law, i. e. husband's or wife's sister. Calv. Lex. Jur.

AFFINITY, in the *Civil Law*, is divided into *civil*, that between free persons; and *servile*, that between slaves.

AFFINITY, *legitimate*, is that contracted by a proper and legal matrimony; or, between slaves, by *contubernium*.

AFFINITY, *illegitimate*, that contracted out of legal marriage.

Affinity may be contracted by an unlawful commerce: thus a person who has impregnated two sisters, is prohibited marrying either of them: thus an *affinity* may commence between husband and wife, by his lying with her sister.

AFFINITY, *true*, is that subsisting while the marriage between the two parties subsists.

AFFINITY, *quasi*, that subsisting either after the dissolution of the marriage, as between a husband, and his wife's

daughter, begot by another after her being divorced from him; or before the marriage is solemnized, as that between a father and a daughter, only espoused, or betrothed to his son.

AFFINITY is also used figuratively, for a conformity, or agreement, between one thing and another.

In which sense the word stands opposed to diversity, variety, opposition, &c.

Bishop Wilkins gives tables, wherein things are classed according to their *affinities*. Vide Real Charact. p. ii. p. 22.

Henckelius has a treatise on the *affinity* between *vegetables* and *minerals*.

AFFINITY is more particularly used in speaking of the relation or similitude between *LANGUAGES*, occasioned by their being derived from the same source.

We use also *affinity* of words, sounds, &c.

AFFINITY, in *Chemistry*, is a term which corresponds to *attraction* in the mechanical philosophy, and denotes the tendency which the constituent parts of bodies have to unite, and the power by which they adhere when united. It is sometimes called *elective attraction*, or the *power of combination*.

AFFINITY, *simple*, is either that power of mutual union, which subsists between the integrant and homogeneous parts of the same body, more properly called *attraction* of *cohesion*; or that which produces the union and adherence of the heterogeneous parts of two different bodies, from which results a new compound body, whose properties are different from those of the two principles whereby it is formed; e. gr. two bodies, each by itself very easily fusible in fire, as lead and sulphur, shall form a compound very difficult of fusion, and two which cannot separately be made to melt at all, as pure clay and chalk, can melt with ease when joined together. This is sometimes denominated

AFFINITY of *composition*; though this term is more generally applied to the powers of union, which are discoverable in a number of heterogeneous bodies, whose dissimilar parts are blended together. Chemical union, and the properties thence resulting, are exempt from all known mechanism; nor can the united bodies be separated by any mechanical force. But a third body may have a stronger *affinity* to either of the component matters than they have to one another; in which case, on presenting to the compound this third body, the former union is broken, and one of the first bodies coalesces with the third, while the other is detached and separated. And the result of the combination will be very various, according to the nature and number of the substances employed.

M. Geoffroy, and M. Gellert, have given tables of the different degrees of *affinity*, between most of the bodies employed in *chemistry*, combined in various ways; whereby we may foretel the result of any mixture, what will be the issue of the combat, which will surmount, and which give way to the other.

Some objections to these tables, with illustrations of them, are given in the Mem. Acad. Scienc. for the year 1720, p. 24. and in the Hist. p. 42. and likewise in an appendix to the English edition of Macquer's Chem. Dict. See also the tables, with two additional columns, in that of M. Geoffroy, by Dr. Black.

A TABLE OF THE SOLUTIONS OF BODIES, BY MR. GELLERT.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.
Siliceous Earth	Fluors	Clay	Earth Gypseous	Earth Calcareous	Fixed Alkali	Volatile Alkali	Acetous Acid	Marine Acid	Nitrous Acid	Vitriolic Acid	Aqua Regia	Nitre	Sulphur	Hepar of Sulphur	Cobalt	Arfenic	Reg. of Antim.	Glaſs of Antim.	Bismuth	Zinc	Lead	Tin	Iron	Copper	Silver	Mercury	Glaſs
Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antim.	Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antim.	Vitriolic Acid Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antim.	Acids Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antimony	Vitriolic Acid Nitrous Acid Marine Acid Acetous Acid Hepar of Sulphur Fixed Alkali Borax	Phlogift. Vitriolic Acid Nitrous Acid Marine Acid Acetous Acid Zinc Iron Copper Lead Bismuth	Phlogift. Vitriolic Acid Nitrous Acid Marine Acid Acetous Acid Zinc Iron Copper Lead Bismuth	Phlogift. Zinc Iron Copper Lead Bismuth	Phlogift. Zinc Iron Copper Tin Lead Bismuth	Phlogift. Zinc Iron Cobalt Copper Silver Tin Lead	Phlogift. Zinc Iron Cobalt Copper Silver Tin Lead	Phlogift. Zinc Iron Cobalt Copper Silver Tin Lead	Phlogift. Zinc Iron Cobalt Copper Silver Tin Lead	Iron Copper Tin Lead Bismuth	Gold Silver Iron Copper Lead Tin Reg. of Antim.	Copper Iron Tin Zinc Reg. of Antim. Bismuth	Zinc Iron Copper Tin Lead Silver Gold	Zinc Iron Copper Tin Lead Silver Bismuth	Zinc Copper Tin Lead Iron Silver	Iron Copper Tin Lead Silver Gold	Copper Iron Silver Gold Tin Lead (partly)	Silver Gold Tin Copper	Iron Copper Silver Gold	Gold Silver Copper	Gold Silver	Gold	Gold	Calx of Lead Calx of Cobalt Calx of R. of Antim. Calx of Gold Calx of Silver Calx of Copper Calx of Iron Calx of Bismuth Calx of Zinc Calx of Mercury
Siliceous Earth	Siliceous Earth	Siliceous Earth	Siliceous Earth Calcareous Earth	Siliceous Earth	Gold Silver	Gold Silver Tin Mercury	Gold Silver Tin Mercury	Gold Silver (partly by the dry way)	Gold	Gold Silver	Gold	Gold Silver	Gold Zinc			Bismuth	Reg. of Antim. Cobalt Arfenic	Gold	Bismuth	Lead	Reg. of Antim. Bismuth	Gold	Reg. of Antim. Bismuth	Gold	Reg. of Antim. Bismuth	Gold	Reg. of Antim. Bismuth

Dr. BLACK'S
SUPPLEMENT.

A TABLE of AFFINITIES between several SUBSTANCES, by Mr. GEOFFROY.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	Regulus of Anti- mony	Water	Acids	Fixed Air
Acid Spirits	Marine Acid	Nitrous Acid	Vitriolic Acid	Absorbent Earth	Fixed Alkali	Volatile Alkali	Metallic Substances	Sulphur	Mercury	Lead	Copper	Silver	Iron	Regulus of Anti- mony	Spirit of Wine	Fixed Alkali	Calcareous Earth
Fixed Alkali	Tin	Iron	Phlogiston	Vitriolic Acid	Vitriolic Acid	Vitriolic Acid	Marine Acid	Fixed Alkali	Gold	Silver	Mercury	Lead	Reg. of Antim.	Iron	Neutral Salts	Calcareous Earth	Fixed Alkali
Volatile Alkali	Regulus of Antimony	Copper	Fixed Alkali	Nitrous Acid	Nitrous Acid	Nitrous Acid	Vitriolic Acid	Iron	Silver	Copper	Lapis Calami- naris	Copper	Silver	Copper	Lead	Calcareous Earth	Fixed Alkali
Absorbent Earths	Copper	Lead	Volatile Alkali	Marine Acid	Marine Acid	Marine Acid	Nitrous Acid	Copper	Lead	Copper						Volatile Alkali	Magnesia
Metallic Substances	Silver	Mercury	Absorbent Earths	Acetous Acid	Acetous Acid	Acetous Acid	Acetous Acid	Lead	Copper							Magnesia	Volatile Alkali
	Mercury	Silver	Iron	Sulphur				Silver	Zinc								
			Copper					Reg. of Antim.	Reg. of Antim.								
			Silver					Mercury									
	Gold							Gold									

These tables, though in many respects inaccurate and defective, may be of considerable use. Each of them consists of a number of columns. At the head of each column is placed the substance, the *affinities* of which are to be compared with several substances placed below it in the same column; and they are disposed in the order of their strongest *affinities*.

It is likewise to be observed, that any substance in any of these columns may be separated from the substance at the head of that column, by any of the intervening substances. For a farther explication of the nature and use, as well as the defects of these tables, consult the Dictionary above cited.

AFFION, is a name given by the Arabians to opium; and also to an electary, in which opium is an ingredient.

AFFIRMATION, *affirmatio*, in *Logic*, a positive proposition, alledging the truth or reality of something.

Affirmation is defined, by the *Logicians*, an act whereby we attribute one idea to another; as supposing it to belong, or agree thereto.—As when, conceiving perfection to agree to the Deity, we say, *God is perfect*.

This, on other occasions, is called **ENUNCIATION**, **PROPOSITION**, **COMPOSITION**, and **JUDGMENT**.

AFFIRMATION, in *Law*, signifies the ratifying or confirming a former law, or judgment.

We say, to *affirm* a judgment: the house of lords, on an appeal, *affirmed* the lord chancellor's decree.

AFFIRMATION is also used in *Grammar*, by some refiners upon that art, for what is usually called a **VERB**; because the office of that part of speech is to express what we *affirm* or attribute to any subject.

AFFIRMATION is also used for a solemn form of attesting the truth, allowed to be used by the **QUAKERS**, instead of an oath, which they hold absolutely unlawful to take. See the form of the *affirmation*, &c. under the article **QUAKER**.

AFFIRMATION is of divers kinds, tacit by words, by a nod, or gesture, &c.

In a civil law sense, *affirmation* may be divided into *simple*, which is that from which no obligation arises: and *qualified*, which infers an obligation.

The requisites of this latter are, that it be, 1. deliberate and free; 2. sincere; 3. certain and specific; 4. clear and perspicuous.

AFFIRMATIVE, in *Logic*. See **AFFIRMATION**.

There are universal *affirmative* propositions; and such, usually, are the first of **SYLLOGISMS**.

In *Algebra* we have also *affirmative* or positive **QUANTITIES**, which have their appropriated **CHARACTERS**.

AFFIRMATIVE sign, or character. See **CHARACTER**.

AFFIR-

AFFIRMATIVE, in *Grammar*. Authors distinguish *affirmative* particles; such is, *yes*.

The term *affirmative* is sometimes also used *substantively*.

Thus we say, the *affirmative* is the more probable side of the question; there were so many votes, or voices, for the *affirmative*.

AFFIRMATIVE is particularly applied, in the Roman *INQUISITION*, to such heretics as own the errors and opinions with which they are charged; and maintain them in their examination with firmness and resolution.

AFFIX, in *Grammar*, a particle added at the close of a word, either to diversify its form, or alter its signification. In which sense, *affix* is the same with *suffix*; though *affix* is sometimes, but less properly, applied more generally, so as to include prefix particles.

The word is Latin, *affixus*, compounded of *ad* and *figo*, *I fix*.

We meet with *affixes* in the Saxon, the German, and other northern languages; but more especially in the Hebrew, and other oriental tongues.

The Hebrew *affixes* are single syllables, frequently single letters, subjoined to nouns and verbs; and contribute not a little to the brevity of that language.

The oriental languages are much the same as to the *RADICALS*; and differ chiefly from each other as to *affixes* and *PREFIXES*. Mem. Acad. Inscript. tom. ix. p.

334.

AFFLATUS literally denotes a blast of wind, breath, or vapour, striking with force against another body. It sometimes affects the body with a disease, which is a species of the *erysipelas*.

The word is formed from *ad* and *flare*, *to blow*.

Naturalists sometimes speak of the *afflatus* of serpents.

Tully uses the word *figuratively*, for a divine *INSPIRATION*. In which sense, he ascribes all great and eminent accomplishments to a divine *afflatus*.

AFFLICTION is not itself, in propriety of medical speech, a disease, but it produces many; for whatever excites envy, anger, or hatred, produces diseases from tense fibres; as whatever excites fear, grief, joy, or delight, begets diseases from relaxation.

Many chronical diseases, particularly the *phthisis*, spring from *affliction*. For a very remarkable history of the effect of *affliction*, see Hist. de l'Acad. Roy. des Scienc. an. 1732.

AFFLUX, in *Electricity*, is opposed to *efflux*; and both terms were used by the abbe Nollet, and also by Dr. Watson, previous to the discovery of positive and negative electrics. They apprehended, that in all electrical operations, there was both an *afflux* of electrical matter to the globe and the conductor, and likewise an *efflux* of the same matter from them. Dr. Watson soon corrected this mistaken opinion; but the abbe Nollet was more tenacious; and he was confirmed in his attachment to this favourite theory by observing, that bodies not insulated, plunged in electric atmospheres, shewed signs of electricity; not perceiving, that the electricity of such bodies was in its nature and effects different from, and directly opposite to that of the electrified body, in the atmosphere of which they were involved. See *ELECTRICITY*.

AFFORAGE, in the French *Customs*, a duty paid to the lord of a district, for permission to sell wine, or other liquors, within his seignory.

Afforage is also used for the rate or price of provisions laid and fixed, by the provost, or sheriffs, of Paris.

AFFORCEMENT, *afforciamentum*, in some ancient charters, denotes a *FORTRESS*, or work of *FORTIFICATION* and *DEFENCE*.

The word is derived from the barbarous Latin *afforciare*, *to strengthen, confirm*.

AFFORESTING, *afforestatio*, the turning ground into *FOREST*.

In this sense, the word stands opposed to *deafforesting*.

The Conqueror, and his successors, continued *afforesting* the lands of the subject, for many reigns; till the grievance became so notorious, that the people of all degrees and denominations were brought to sue for relief; which was, at length, obtained, and commissions were granted to survey and perambulate the forest, and separate all the new *afforested* lands, and re-convert them to the uses of their proprietors, under the name and quality of *PURLIEU* or *pouraille land*.

AFFRANCHISEMENT. See *MANUMISSION*.

AFFRAY, in *Law*, is derived from the French word *effrayer*, *to affright*, and it formerly meant no more; as where persons appeared with armour, or weapons not usually worn, to the terror of others. Stat. 2. Edw. III. cap. 3. But it now implies a skirmish or fighting between two or more, and there must be a stroke given or offered, or a weapon drawn, otherwise it is not an *affray*. 3 Inst. 158. It is inquirable in the court leet,

and punishable by justices of peace in their sessions, by fine and imprisonment; and it differs from *ASSAULT*, in that it is a wrong to the public; whereas *assault* is of a private nature. Lamb. lib. ii. A constable, or private person, may seize offenders while they are assembled in a tumultuous manner. 3 Inst. 158. H. P. C. 135.

AFFREIGHTMENT, or *AFFRETAMENT*, *AFFRETA-MENTUM*, in *Law*, signifies the *FREIGHT* of a ship.

The word is formed from the French *fret*, which expresses the same thing.

AFFRONTE, in *Heraldry*, is understood of animals borne in an *ESCUTCHEON* as facing, or with their heads turned towards each other. This is otherwise called *confronte*; and stands opposed to *adosse*.

The word is French, and literally signifies the same. It is compounded of *ad*, *to*, and *frons*, *forehead*.

AFFUIAGE, *affuiagium*, in *Ancient Customs*, a right of cutting fuel-wood in a forest, or the like, for maintaining family-fire. Du-Cange.

The word is derived from *affuer*, q. d. *affocare*, *to make a fire*, of *ad* and *focus*.

AFFUSION, the act of pouring some fluid substance on another body.

Dr. Grew gives several experiments of the luctation arising from the *affusion* of divers menstruums on all sorts of bodies.

Divines and church historians speak of *BAPTISM* by *affusion*; which amounts to much the same with what we now call sprinkling.

AFLOAT, a ship is said to be *afloat*, when she is buoyed up by the water from the ground.

AFOBA, in *Botany*, a name given, by the natives of Guinea, to a kind of plant, of the genus of the *phaseolus*, or kidney-bean. They use it pounded and mixed with oil, to cure the itch, and other cutaneous foulnesses. It is more hairy than the common kinds, and its leaves are very small. Phil. Trans. N^o 232.

AFRA avis, in *Natural History*. See *PINTADO*.

AFRICAN company. See the article *COMPANY*.

AFRICANUS flos. Gerard mentions four species of this flower. Miller enumerates and describes thirteen: but they are of no repute in medicine.

AFRICTA denotes a kind of wafers, which the ancients used in their sacrifices. Arnob. lib. vii.

AFSLAGERS, persons appointed by the burgo-masters of Amsterdam, to preside over the public sales made in that city. They must always have a clerk of the secretary's office with them, to take an account of the sale. They correspond to our *BROKERS*, or *auctioneers*.

AFT, behind or near the stern of a ship.

AFTER-BIRTH, among *Midwives*, the coat, or membranes, wherein the *FOETUS* is inclosed *in utero*.

It is thus called, because it comes away some time after the *fœtus*; by way of a second birth, or *DELIVERY*.

Physicians usually call it the *SECUNDINE*. It also includes the *placenta uterina*, popularly called the *womb-cake*.

In brutes it is denominated the *HEAM*, or *cleaning*. See Collect. Acad. P. E. tom. iii. p. 464.

Authors speak of a strange kind of *after-birth*, of the mole-kind, frequent among the Dutch women, where it is called *synger*, q. d. *leech*, by naturalists *mola volatilis*.

The skeleton of one of these is described and represented by Thomas Bartholine. Ephem. Germ. dec. i. ann. 2. obs. 160, p. 255.

The *after-births* of ripe children are brought away more easily than those of abortions. See Medic. Eff. Edinb. vol. ii. p. 212.

AFTER-math, among *Husbandmen*, the after-grass, or second mowings of grass; or else grass or stubble cut after corn.

AFTER-noon, the latter half of the artificial day, or that space between noon and night.

The ancient Romans dedicated their *afternoons* to diversion, as their forenoons to business; and their usual diversions were the game called *pila*, and other exercises of the body, especially walking, or riding. These lasted till the eighth or ninth hour, answering to our three o'clock, which was the time for the baths. After bathing, they anointed and perfumed themselves; and, about the tenth hour, went to *cæna*, *supper*, about three hours before sun-set: which done, the day was ended at the public spectacles, theatrical, or amphitheatrical sports; with music, singing, and the like.

AFTER-fails usually comprehend all those which are extended on the mizen-mast, and on the stays, between the mizen and main-masts.

AFTER-pains, are pains felt in the loins, the groin, &c. after the birth is brought away.

They seem to arise from a distention of the ligaments of the *uterus* in time of *DELIVERY*, and are seldom dangerous, unless aggravated by a detention of the *lochia*.—To prevent them, oil of sweet-almonds, spermaceti, syrup of *capillus Veneris*, &c. are usually prescribed.

AFTER-swarms, in speaking of bees, are secondary or posterior swarms, frequently found to quit the hives within a fortnight after the first.

Butler tells us, that the *after-swarms* differ from the prime, in that the latter are directed by the vulgar, or crowd of bees, whose only rule is the fullness of the hive; whereas the former are appointed by the ruling bees, and indicated by a noise or call, which these make for the space of two or three days, as it were to give warning to the common herd to prepare for a march. Within eight or ten days after the prime swarm is gone, if the princess next in order find a competent number fledged and ready, she begins to tune her treble voice, in a mournful and begging note, as if she prayed the queen-mother to let them go; to which voice, if she vouchsafe a reply, by tuning her base to the other's treble, it marks her consent: in consequence of which, within a day or two after, if the weather allow, the new swarm appears. If the prime swarm be broken, the *after* will both call and swarm the sooner, perhaps the next day; in which a third, sometimes a fourth, succeeds in the same season; but all usually within a fortnight after the prime swarm. See **SWARM**.

AFTO, in *Botany*, a name given by the natives of Guinea to a plant of the *erysimum* kind, which they grind to powder, and take as snuff, to cure the head-ach. Petiver has called this plant the woody and woolly *erysimum*, or hedge-mustard, of the coasts of Guinea. Phil. Trans. N° 232.

AGA, in the language of the Moguls, &c. signifies a great man, lord, or commander.

In this last sense, the term is also used among the Turks: thus, the *aga* of the janizaries is their colonel; and is the only person who is allowed to appear before the grand seignor, without his arms across his breast, in the posture of a slave. The *capi aga* is the captain of the gate of the seraglio.

The title *aga* is also given, by way of courtesy, to several persons of distinction, though not in any office, or command, to entitle them to it; as to the eunuchs of the seraglio.

The chief officers under the **KHAN** of Tartary are called by this name. And among the Algerines, we read of *agas* chosen from among the *boluk bashis* (the first rank of military officers), and sent to govern in chief the towns and garrisons of that state.

On some occasions, in lieu of *aga*, they say, *agafi*, or *agassi*. Thus the *aga*, or governor of the pages, is called *capi agassi*; and the *aga* or general of the horse, *spahilar agassi*.

AGA Cretensium, signifies the Spanish milk-thistle.

AGAI, see **AGIO**.

AGALACTIA, in *Physic*, signifies a deficiency of milk in a mother, who is therefore called by Hippocrates *αλακτος*.

AGALLOCHUM, a medicinal wood imported from the East Indies, usually in small bits, of a very fragrant scent. The word is derived from the verb *αγαλλομαι*, *I boast*, in allusion to the excellency of its odour.

AGALLOCHUM is otherwise called *lignum aloes* and *xyloaloe*, q. d. *aloe-wood*, not that it is produced from the common aloe-plant, which yields the inspissated juice of that name. It is the produce of a tree of a very different kind, growing in the East Indies, particularly Sumatra and Cochinchina. Some call it likewise **LIGNUM paradisi**. It yields a concrete oil. See its chemical history in Neumann's Works, p. 420.

It is of a blueish purple colour, marked with veins and spots, very heavy and bitter; when burnt it yields drops of an astringent liquor, and a sweet aromatic fume. It is hot and drying, and esteemed a great strengthener of the nerves in general, but particularly of the head and stomach.

The various names and accounts given of the *agallochum* are so very different, as well as the specimens of it common in our shops, that it does not seem to be properly known amongst us.

AGALMATA, in *Antiquity*, originally denoted the ornaments of temples and statues; but came afterwards to be popularly used for the statues and temples themselves.

AGAPES, or **AGAPE**, in *Church History*, a kind of religious festival, celebrated, in the ancient church, to keep up a harmony and concord among its members.

The word is formed of the Greek *αγαπη*, *love*.

In the primitive days the *agapes* were held without scandal, or offence; but, in after-times, the heathens began to tax them with impurity.—This gave occasion to a reformation of the *agapæ*.

The kiss of charity, with which the ceremony used to end, was no longer given between different sexes; and it was expressly forbidden to have any beds, or couches, for the conveniency of those who would be disposed to eat more at their ease. Notwithstanding these precautions, the abuses committed in them became so notorious,

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that the holding of them (in churches at least) was solemnly condemned, at the council of Carthage, in the year 397.

Some authors imagine the *agapæ* to have been, not a commemoration of our Saviour, but a custom borrowed from the heathens: *Mos vero ille, ut referunt*, says Sedulius, on the XIth chapter of the epistle to the Corinth. *de Gentili adhuc superstitione veniebat*. And Faustus, the Manichee, is represented, by St Augustine, as reproaching the Christians with converting the heathen sacrifices into *agapæ*.

AGAPE signifies also an afternoon, or evening's meal.

AGAPETÆ, in *Ecclesiastical History*, a name given to certain virgins and widows, who, in the ancient church, associated themselves with, and attended on, ecclesiastics, out of a motive of piety and charity.

In the primitive days there were women instituted **DEACONESSES**; who, devoting themselves to the service of the church, took up their abode with the ministers, and assisted them in their functions.

In the fervour of the primitive piety, there was nothing scandalous in these societies; but they afterwards degenerated into libertinism: inasmuch, that St. Jerom asks, with indignation, *unde agapetarum pestis in ecclesias introiit?* This gave occasion to councils to suppress them.

—St. Athanasius mentions a priest, named Leontius, who, to remove all occasions of suspicion, offered to mutilate himself, to preserve his beloved companion.

AGAPIS lapis, in *Natural History*, a name given by ancient writers, to a stone of a dusky yellow, or the colour of a lion's skin; it was held in great esteem in many nations, on account of its supposed virtues, as an anodyne and vulnerary.

AGARENI, or **AGARENIANS**. a name given by some to the followers of the religion of Mahomet.

The word is derived from Agar, or Hagar, handmaid of Abraham, and mother of Ishmael; and properly denotes the Arabs, called also Ishmaelites, and more lately Saracens.

AGARIC, in *Pharmacy*, a kind of fungous excrescence, growing on the trunks and large branches of several trees; but, chiefly, on the larch-tree, and upon some kinds of oak, when old and decayed. Three fourths of it consist of a resinous substance, and the remainder is a slimy mucilaginous earthy matter, so tenacious, as scarcely, by any method, to be dissolved by water. It comes forth on the tree in the beginning of the spring, and continues to increase till autumn. The best is easily cut with a knife, friable betwixt the fingers, and has no hard, or gritty, or coloured veins. It has no pedicle, and is internally of a simple uniform structure throughout its whole substance. *Agaric* is an ingredient in the *theriaca Andromachi*, where it is admitted in quality of a cordial; though its cardiac virtue is excepted to as much as its purgative.

Agaric was a purge in much esteem among the ancients, but has deservedly fallen into disrepute of later years, as it occasions unsupportable nausea.

Tournefort enumerates eighteen species of *agaric*. Tournefort. Inst. 562. But it is more generally divided into three kinds; the *male*, the *female*, and that called *false*, or *spurious agaric*.

The *male agaric*, otherwise called the common or heavy *agaric*, is of a yellowish colour, and pretty solid. It is commonly used in dying black, and is reckoned among the *not-colouring* drugs, which the dyers of the best woollen cloth and ferges are obliged to use in France.

It is called a *not-colouring* drug, because it can produce no colour of itself, without being mixed with other ingredients. The *female agaric* is the most esteemed, because it is much used in medicine. To be good it ought to be white, large, light, and brittle, so as to be easily pulverised; of a lively and penetrating scent, and of a bitter taste. This was thought efficacious as a styptic to restrain not only venal, but arterial hæmorrhages, without the use of ligatures. Its reputation, however, did not long subsist; and after repeated trial, the surgeons of London were obliged to discontinue it as inefficacious and unsafe. See Neale on the use of *Agaric*.

The *false*, or *bastard agaric*, or *oak agaric*, is that which grows on those trees. It is commonly reddish, and very heavy, and is very little esteemed, which probably occasioned its being called the *false agaric*. The druggists look only upon that which grows upon the *larch-tree* to be the right sort.

Agaric is brought from different places; the best comes from the Levant; that which comes from Savoy and Dauphiny being less esteemed. Holland also supplies some, but that is reckoned the worst; because it is grated, and whitened at top with chalk. By a chemical solution it passes almost wholly into oil; it yields no volatile salt, but abounds with a sort of flaky earth, and acid phlegm; as to texture, it seems much to resemble **COLOCYNTH**.

The *agaric* is either *brute*, *cleansed*, or in *trochisks*.

Y

AGARIC,

AGARIC, *brute*, is just as it was taken from the tree, without any other preparation than what it has received from nature.

AGARIC, *cleansed*, is that, which being cleared and purified from all its filth and imperfections, is fit for immediate use.

AGARIC in *trochisks*, is commonly the female sort, finely pulverised, incorporated with some liquid, and made into a mass, of which cakes of different sizes and figures are formed, which are dried in the air and shade, without coming near the fire.

AGARIC—There is also another sort of *agaric*, which is called *mineral agaric*. This is a kind of stone, which is found in the cliffs of rocks, in different parts of Germany. It is very white and light, whence it is called milk of the moon. It is also named *marrow of stone*, or *litomagra*; and others called it *stenomagra*. Some tell us that the calcination of this stone is performed by the vapours of the metals within the rocks where it is found. This *agaric* is scarcely used at all, except in medicine. See *LAC lunæ*.

It is used internally against hæmorrhages, the strangury, gravel, and especially dysenteries; externally, to dry and heal old ulcers, stop defluxions of the eyes, &c. See the chemical history of the *agaric* of the larch tree, &c. Neumann's Works, p. 349.

AGARICUS, in the Linnæan system of *Botany*, called *amanita* by Dillenius, the term used to express that genus of funguses belonging to the *cryptogamia fungi*, which have no pedicle, but grow to trees, &c. by one side, and are therefore called horizontal funguses, and are lamellated underneath: by this last character they are distinguished from the *boleti* of Linnæus, which are those horizontal funguses which are porous underneath.

AGASYLLIS, in the *Materia Medica*, a name given by some of the ancient Greek writers, to gum ammoniac; and by Dioscorides to the tree which produced that gum. By their descriptions of this medicine, it appears not to have been the same which we know by this name.

AGAT, in *Natural History*, a precious stone, partly transparent, and partly opaque; usually diversified with variety of colours, veins, spots, &c. and sometimes exhibiting figures, or appearances of natural objects.

The word is sometimes also written *achat*; by the Greeks and Latins, *αχατος*, and *achates*; a denomination taken from that of a river in Sicily, on the banks of which it was first found.

Agats are composed of crystal, debased by a large quantity of earth, and not formed, either by repeated incrustations round a central *nucleus*, or made up of plates laid evenly on one another, but are merely the effect of one simple concretion, and variegated only by the disposition which the fluid they were formed in gave to their differently coloured veins, or matters.

These are a very numerous genus of fossils, and subject to great variegations in their colours. They are, however, arranged in some order, according to the different colours of their ground.

Of those of a *white ground*, there are three species: 1. The *DENDRACHATES*, or *Mocca-stone*. 2. The dull milky-looking *agat*. 3. The lead-coloured *agats*, called the *PHASSACHATES*, by the ancients.

Of the *agats* with a *reddish ground*, there are four species: 1. An impure one of a flesh-coloured white. 2. The second or the red-grounded *agat*, is that species of a pure blood-colour, called *HÆMACHATES*, or the *bloody agat*, by the ancients. 3. The third is the clouded and spotted *agat*, of a pale flesh-colour, called the *cornelian agat*, or *SARDACHATES*, by the ancients. 4. And the fourth, the red-lead coloured one, variegated with yellow, called the *coral agat*, or *CORALLO-ACHATES*, by the ancients.

Of the *agats* with a *yellowish ground*, there are only two known species: 1. The one of the colour of yellow wax, called *cerachates* by the ancients. 2. The other a very elegant stone, of a yellow ground, variegated with white, black, and green; called the *leonina*, and *LEONTESE-RES*, by the ancients.

Lastly, of the *agats*, with a *greenish ground*, there is only one known species, which was the *JASPACHATES* of the ancients.

Some have attributed great medicinal and imaginary virtues to the *agat*.

Oriental *agats* are said to be all brought from the river Gambay.

A mine of *agats* was lately discovered in Transylvania, of divers colours, some of a large size, weighing several pounds. *Agats* have been distinguished by other names than those before mentioned. Thus we find

AGAT, *vermilion*, that of a deep vermilion-colour.

AGAT, *white ringed*, *achates PERILEUCOS*, distinguished by black and white circles. Plott mentions this under the denomination of *crown-stone*.

AGAT, *white*, *LEUCACHATES*, that altogether white, or at least diversified with white strokes, being frequently semi-transparent, and bearing a resemblance to the white of an egg.

AGAT, *vitreous*, or *transparent*, of a thin stone-blue colour.

AGAT, *leopardine*, *achates PARDALIOS*, that spotted like the skin of a leopard. This is otherwise called *pandalion*, *pantachates*.

AGAT, *sapphirine*, that of a sky-blue colour, transparent; sometimes found with *lapis lazuli*, and called also *sapphiro-achates*.

AGAT, *luminated*, distinguished by divers colours, as white, black, yellow, brown, placed over each other, at equal distances.

AGATS are also divided, with regard to the objects represented on them, into

AGAT, *arborescent*, *DENDRACHATES*, and *DENDRITIS*.

This seems to be the same with what some authors call the *achates*, with rosemary in the middle; and others, *achates*, with little branches of black leaves.

AGAT, *horned*, *CERACHATES*, is said by some to be that which, by lines and spots, represents the figure of a horn.

AGAT, *aphrodisian*, *achates APHRODISIUS*, is a term given by Velschius to an *agat* in his custody, of a flesh-colour, on one side of which appears a half-moon, in great perfection, represented by a milky semicircle; on the other side, the phases of Vesper, or the evening star; whence the denomination *aphrodisius*.

AGAT, *corioid*, representing human hair.

AGAT, *arithmetical*, representing the numbers 4191, 191. Settala, Mus. 81.

AGAT, *astronomical*, representing the hemisphere, with its several orbs, and the earth in the middle. To which head may be also referred an *agat* mentioned by Borrichius, representing the five orbs in great perfection. Act. Hafn. 1677.

AGAT, *elementary*, consisting of four colours; blue, supposed to express water; white, the air; red, the fire; and brown, the earth.

AGATS, *anthropomorphous*, those wherein the figures of men or women are expressed. Such is that mentioned by Kircher, representing a heroine armed: with many others of the *anthropomorphous* kind.

To the class of *anthropomorphous agats*, may also be referred an *agat* in the library of Francfort, representing the heart, lungs, and part of the veins of man. But the most celebrated of this kind, is that of Pyrrhus, representing the nine Muses with their attributes, and Apollo in the middle playing upon the harp. Plin. lib. xxxvii. cap. 3. Hardouin, Not.

AGATS, *leucophthalmous*, those representing the figures of eyes. Such is that mentioned by Velschius, which he calls *ommatia*, or *omphophthalmus*; or those by Cardan and others, representing the eyes of birds, fishes, wolves, called *lycophthalmi*; of goats, *ægophthalmi*; of oxen, *boophthalmi*. Among the more curious, we meet with Tiberian *agat*, *achates Tiberianus*, a name given by some to the famous *agat* in the treasury of the French king's chapel, representing the *apotheosis* of Augustus, and the series and portraits of the family of Tiberius and Julia, with divers foreign nations subdued in war; concerning which, many different explications and conjectures have been advanced by the learned.

AGAT, *Isiac*, *achates Isiacus annularis*, is a curious antique *agate* at Rome, so called, as representing the head of Isis, and being set in a ring.

AGATS are also divided with regard to the affinities they bear to other stones: hence the *jaspachates*, *sardachates*; &c. We find also *onychates*, between an *onyx* and an *agat*, composed not of zones, or balls, but of plates perspicuous and ash-coloured. Grew. Mus. Reg. Soc. p. iii. p. 289.

AGAT, *oriental sardonix*, of an oval figure, and a white colour, in the middle of which appears a body of water, which, upon shaking, is perceived to move. This species is otherwise called *coccus*, *ovum solis*, *coccus paraquarorum*, *venter crystallinus*, *atites gemmata*, &c. and may be referred to the *ÆTITES* kind.

To this kind may also be referred the *agat* of Chili, which has crystals seen in it; and another called *berylloachates*, containing pieces of beryls.

The *ANTACHATES* is that which in burning yields a smell of myrrh. This, though mentioned by Pliny among *agats*, seems rather to belong to the head of ambers, or bitumens. Others write it *anachates*; others, *stachates*.

Authors also speak of Roman *agats*, Egyptian *agats*.

The ancients mention a red *agat*, spotted with points of gold, found in Candia.

Agat has always been esteemed for seals; as being a stone that no wax will stick to.

The gold wire drawers burnish their gold with an *agat*; whence the instrument made use of on that occasion, is also called an *agat*.

Mr. Boyle takes *agats* to have been formed of separate beds, or strata of fine clay or earth, brought by a petrifying liquor to coagulate into a stone. The same author observes, that the fire will purge away the colours of *agat*. He also mentions an *agat* with a moveable spot or cloud in it.

See farther concerning the history of *agats*, Nicols. Lapid. cap. 26. p. 133. Grew, Mus. p. 287. The figures of *agats*, Mercat. Melloth. p. 375. Their structure, Woodward, Nat. Hist. Engl. Foss. tom. ii. p. 16. Experiments on them in the burning-glass, Giorn. de Letter. d'Ital. tom. viii. The commerce and manufacture of *agats*, Hought. Coll. tom. ii. The counterfeiting of *agats* in glass, Neri, Art of Glass, lib. ii. cap. 37.

AGATS may be stained artificially, by a solution of silver in spirits of nitre, and afterwards exposing the stone, for some hours, to the sun. This operation succeeds best in whitish *agats*. See on this subject of staining *agats*, Dr. Lewis's Com. P. Tech. p. 438, & seq.

But it is to be observed, that no art has hitherto been able to imitate the fineness and beauty of the vegetable representations, formed by nature, in some *agats*; such as are commonly called DENDRITES. And though art should attain to such a perfect imitation of nature in this case, as to deceive the eye, yet might the difference be otherwise discovered.

For if an *agat* be coloured by art, it will lose a great part of its colour, by heating it; and this colour may again be restored, by adding the solution of silver in spirit of nitre. Again, by putting a little aqua fortis, or spirit of nitre, on the suspected *agat*, without exposing it to the sun, the artificial colours will disappear in a night's time; and this colour may again be restored, by exposing the stone to the sun for some days. Vide Du Fay, in Mem. Acad. Scienc. 1728.

But Mons. de la Condamine has since observed, that even natural *agats*, which, by the fineness of the lines represented upon them, were beyond all suspicion of art, yet suffered a great change in their colours, by the application of aqua fortis. Vide Hist. Acad. Scienc. 1733. p. 35, 36. Edit. Amst.

Agats, and other stones, may be stained black, by applying to them a solution of copper in aqua fortis, and making them red-hot in a crucible. To imitate Mocha stones, moisten the smooth surface of the *agat* with a solution of copper, and on the middle of it set an iron nail upright on its head; this absorbs the acid from the copper, and the copper makes ramifications, which, after the stone is carefully washed, may be rendered of a black colour, by a red heat. These vegetations are not fixed in the stone, which ought therefore to be covered with a plate of crystal glass.

Beccaria observes, that the electric sparks will not be conducted by the surface of polished *agat*; and Mr. Bose has shewn that the *agat* was very early known to possess electrical powers.

AGAT, among *Antiquaries*, denotes a stone of this kind, engraven by art.

In which sense, *agats* make a species of *antique gems*; in the workmanship whereof, we find eminent proofs of the greatest skill and dexterity of the ancient sculptors. Several *agats* of exquisite beauty are preserved in the cabinets of the curious. The facts, or histories, represented in *antique agats*, with how much address soever conducted, are become, at this distance of time, many of them obscure and dubious, and their explication difficult enough; whence divers mistakes have been committed, and numerous conjectures and disputes raised. Hist. Acad. R. Inscr. tom. i.

AGATHA. See ACHATES.

AGATHODÆMON, a beneficent GENIUS, or DÆMON. The word is compounded of *aisados*, good, and *daimon*, demon.

Among ancient writers, *agathodæmon* is a denomination given to a kind of serpents, bred up and revered by the Egyptians, from an opinion of some sanctity residing in them.

They are also called dragons, *dracones*, or *dracunculi*, and fabulously described as having wings.—They appear to be the same with those otherwise called SIRENES. Lamprid. in Heliog. cap. xxviii. Casaub. Not. in Suet. ed. 2. Bochart. Hiero, p. ii. lib. iii. cap. 14.

AGATY, the name of a Malabar tree, bearing a fruit in taste and shape like the kidney-bean. Ray's Hist.

AGAVE, a genus of the *hexandria monogynia* class, a name given to the common American aloe. The characters are: the flower has no empalement, is funnel-shaped, and of one leaf, which is cut at the brim into six equal segments; the oblong germen is situated below the flower, upon which rests the slender style, which is extended for a considerable length beyond the petals, and is crowned by a three-cornered stigma; this is attended

by six erect stamina, of the same length, crowned by narrow summits; after the flower is past, the germen becomes an oblong three-cornered seed-vessel, having three cells, which are filled with flat seeds. Miller reckons eight and Linnæus four species of this plant. The common great American aloe generally rises upwards of twenty feet, and branches on every side in the shape of a pyramid. When this plant flowers it makes a beautiful appearance; and if it is protected from the cold in autumn, a succession of new flowers will be produced for near three months, in favourable seasons. It has been a common error, that this plant doth not flower till it is a hundred years old; the truth is, that its flowering depends on the growth of the plant; so that in hot countries it will flower in a few years; but in colder climates, the growth is slower, and the flowering less frequent.

AGAUPÉ, in *Botany*, a name used by some authors for the common white water LILY.

AGE, properly denotes the natural duration of the LIFE of man.

The ordinary *age* of mankind has been occasionally varied, in such manner as to afford a fine instance of the wisdom of Providence. Dr. Woodward holds, that the ages to which men arrive, are proportioned to the number of their lacteals.

AGE is also used, in *Chronology*, for a CENTURY; or a system, or a period of a hundred years.

In which sense, *age* amounts to much the same with *seculum*, and differs from *generation*.

AGE is also understood of a certain state or portion of the ordinary life of man; which is divided into four different *ages*; viz. *infancy*, *youth*, *manhood*, and *old age*.

Infancy, or childhood, *pueritia*, extends as far as the fourteenth year.

Youth, adolescence, or the *age* of puberty, commences at fourteen, and ends at about twenty-five.

Manhood, or the virile *age*, terminates at fifty.

Old age, *senectus*, succeeds, which is the last: though some divide this into two; calling it *decrepit age* after seventy-five. See LONGEVITY.

AGE, in *Horsemanship*, makes a considerable point of knowledge; the horse being an animal that remarkably shews the progress of his years, by correspondent alterations in his body.

We have characteristics from his teeth, hoofs, coat, tail, and eyes.

The first year he has his foal's teeth, which are only grinders and gatherers: the second, the four foremost change, and appear browner and bigger than the rest: the third, he changes his teeth next to these; leaving no apparent foal's teeth, but two on each side above, and two below: the fourth year, the teeth next to these are changed, and no foal's teeth are left, but one on each side above, and below: at five years, his foremost teeth are all changed, and the tushes on each side are complete: those which come in the places of the last foal's teeth, being hollow, and having a little black speck in the midst; which is called the *mark in a horse's mouth*: this continues till eight years of age.—At six years, he puts out new tushes; near which appears a little circle of young flesh, at the bottom of the tush; the tushes, withal, being white, small, short, and sharp.—At seven years, their teeth are all at their growth, and the mark in the mouth appears very plain.—At eight all his teeth are full, smooth, and plain, and the mark scarce discernible; the tushes looking yellowish.—At nine, the foremost teeth shew longer, yellower, and fouler, than before; and the tushes become blunty.—At ten, no holes are felt on the inside of the upper tushes; which till then are very sensible: add, that the temples begin to be crooked and hollow.—At eleven years his teeth are very long, yellow, black, and foul; but he will cut even, and his teeth stand directly opposite to one another.—At twelve, the upper teeth hang over the nether.—At thirteen, the tushes are worn close to his chops, if he has been much ridden; otherwise they will be black, foul, and long.

2. As to the hoof.—If it be smooth, moist, hollow, and well sounding, it is a sign of youth: on the contrary, if rugged, and as it were seamed, one seam over another, and withal dry, foul, and rusty, it is a mark of old age.

3. For the tail.—Taking him by the stern thereof, close at the setting on to the buttock, and griping it between the finger and thumb; if a joint be felt to stick out more than the rest, the bigness of a nut, the horse is under ten: but if the joints be all plain, he may be fifteen.

4. The eyes being round, full, and staring, the pits that are over them filled, smooth, and even with his temples, and no wrinkles to be seen, either under or above, are marks of youth.

5. The skin being plucked up in any part betwixt the finger and thumb, and let go again; if it return suddenly to its

its place, and remain without wrinkles, he may be believed to be young.

6. A dark-coloured horse, growing grizzly above the eyebrows, or under the main; or a whitish horse, growing mottled, either with white or black, all over; may be infallibly concluded extremely aged.

Lastly, a horse being young, the BARS of his mouth are soft and shallow; otherwise they are deep, and feel hard and rough.

AGE, in HUNTING, is an article of consequence.—Deer, and other beasts of game, have different denominations, according to their age.

The age of a hart, &c. is chiefly judged of by the furniture of his head.

The first HEAD, called, in fallow deer, *broches*, and, in red deer, *pricks*, does not come till the second year of their age: the next year, they bear four or six small branches; the fourth year, eight or ten; the fifth, ten or twelve; the sixth, fourteen or sixteen; the seventh year they bear their heads beamed, branched, and fumed, as much as ever they will be. The huntsmen have several other marks, whereby to know an old hart without seeing him; as, the spot, entries, abatements, foils, fewmets, gate, and fraying posts.

AGE of neat cattle, viz. the ox, cow, and bull, is known by their teeth and horns. At the end of ten months they shed their first fore-teeth, which are replaced by others, larger, but not so white; and in three years all the incisive teeth are renewed. These teeth are at first equal, long, and pretty white; but as the animals advance in years, they wear, become unequal and black. They also shed their horns at the end of three years; and these also are replaced by other horns, which, like the second teeth, continue. The growth of these horns is not uniform; at first, or in the fourth year of the animal's age, two small pointed horns make their appearance, neatly formed, smooth, and toward the head terminated by a kind of button. In the following year this button moves from the head, being impelled by a horny cylinder, which lengthening in the same manner, is also terminated by another button, and so on; for these horns continue growing as long as the animal lives. These buttons become annular joints, which are easily distinguished in the horn, and by means of which the age of the animal may be easily known; counting three years for the point of the horn, and one for each of the joints. Buffon.

AGE of sheep. These animals in their second year have two broad teeth; in their third year they have four broad teeth before; in their fourth year six broad teeth; and in their fifth year eight of the same kind; after which their age cannot certainly be known, in this way.—But the age of the ram, and horned sheep, may be always known by their horns, which shew themselves in the first year, and often at the birth, and continue to grow a ring annually to the last period of their lives. Ellis and Buffon.

AGE of goats is known by the same tokens as that of the sheep.

AGE of the moon, in Astronomy, is understood of the number of days elapsed since the last conjunction, or new moon; called also her QUARTER. The method for discovering her age, is mentioned under the article MOON.

AGE, in Chronology and Antiquity, is also used in speaking of the time passed since the creation of the world.

The several ages of the world may be reduced to three grand epochs, viz. the age of the law of nature, called by the Jews the *void age*, from Adam to Moses.—The age of the Jewish law, from Moses to Christ.—And the age of grace, from Christ to the present year. See INCARNATION and EPOCH.

The Romans distinguished the time that preceded them into three ages: the *obscure* or *uncertain age*, which reached down as low as Ogyges king of Attica; in whose reign the deluge happened in Greece.—The *fabulous*, or *heroic age*, which ended at the first Olympiad; and the *historical age*, which commenced at the building of Rome.

Among the poets, the four ages of the world are, the *golden*, the *silver*, the *brazen*, and the *iron age*. See the *Metamorphosis* of Ovid, lib. i. or rather Hesiod, in his poem, *Ἔργα καὶ ἡμέραι*, *Opera & Dies*, ver. 108, &c. He is the first that has described these four ages.

The East Indians also reckon four ages since the beginning.—The first, which they represent as a sort of golden age, lasted, according to them, 1728000 years: in this the god Brabma was born, and the men were all giants; their manners were innocent: they were exempt from diseases, and lived 400 years.—In the second age, which lasted 1296000, their rajas were born: vice now crept into the world; men's lives were fallen to 300 years, and their size retrenched proportionally.—Under the third age, which lasted 8064000 years, vice being more increased, men only attained to 200 years.—The last age is that wherein we now live, of which 4027213 years are

already gone; and the life of man sunk to one fourth of its original duration.

By the Roman law we find different ages ascertained for different purposes: as,

AGE, *consular*, or that wherein a person might regularly hold the consulship, was the forty-third year, so that he might sue for it in the forty-second. Where it is to be observed, that it was not necessary either of those years should be expired, but only begun; besides, that men of extraordinary merits towards the republic, were in this matter exempt from the ordinary laws. Hence Corvinus was consul at twenty-three years, Scipio Æmilianus at thirty-six, and Pompey at thirty-five: others broke through the laws by violence, as C. Marius the younger, and Octavius Cæsar, who procured themselves to be made CONSULS, before twenty years of age. Macchiav. Disc. in Liv. lib. i. cap. 60. p. 210.

AGE, *judiciary*, or that wherein a person was capable of sitting as judge, was not always the same; for by the *Lex Servilia Glaucia*, none were allowed to be chosen under thirty years of age, or above sixty. By some other laws that age seems to have been limited to thirty-five, but reduced afterwards by Augustus to thirty; though Pitiscus supposes a mistake here in the text; and that, instead of thirty-five and thirty, it ought to be read twenty-five and twenty. Lex. Ant. tom. i.

AGE, *military*, or that wherein the Romans were obliged to enter themselves in the army, was at seventeen years; at forty-five, they might demand their dismissal. Aquin. Lex. Milit. tom. i.

Among the Lombards, the age of entry was between eighteen and nineteen; among the Saxons thirteen.

AGE for holding offices in the city, as quæstor, ædile, tribune of the people, &c. is not determined by the annal-laws of Villius, but appears to have been the twenty-seventh year. For it was necessary that the person who claimed any urban employment, had first served ten years without interruption in the army, commencing from the seventeenth year. Though some think the quæstorship might have been held at twenty-five years. Polyb. lib. vi. cap. 17.

AGE, *prætorian*, or that wherein a person might solicit for the prætorship, was at forty; two years earlier than the age required for consul.

AGE, *legitimate*, denotes the age of twenty-five, so called, as some imagine, because youth were then by law allowed to take the direction of their affairs into their own hands. Briss. Select. Ant. ex Jur. Civ. lib. iii. c. 2.

AGE, *dispensation of, ætatis venia*, is a right which a person obtained from the prince, or sovereign, of setting aside a tutor or curator, and taking the administration of his affairs into his own hands, before the legitimate age. Calv. Lex. Jur.

AGE, *adoptive*, called also *plena pubertas*, requires the adoptor to be eighteen years older than the person adopted, that there may appear a probability of his being a natural child. Pitisc. Lex Ant. See ADOPTION.

We likewise read of other *ages*; as,

AGE, *rocky* or *stony*, in some ancient northern monuments, corresponds to the *brazen age* of Hesiod, and the Greeks; being called *rocky*, on account of Noah's Ark, which rested on mount Ararat.

AGE, *ashen*, the fourth age of the northern poets; so called from a Gothic king, Maden is, or Manus, who, on account of his great strength, was said to be made of ash; or because in his time people began to make use of weapons made of that wood. Phil. Trans. N° 301.

AGE, *historical*, that which commenced from the first Olympiad, in the year of the world 3228, and still continues. This division, it is to be observed, only holds good with regard to the Greeks and Romans, who had no histories earlier than the first Olympiad. The Jews, Egyptians, Phœnicians, Chaldees; not to say the Indians and Chinese, who pretend to much earlier monuments, will not be concluded by it. Bibl. Un. tom. i. p. 246.

AGE, *present*, among Jewish Writers, frequently denotes all the space of time before the Messiah, in contradistinction from *future age*; or *age to come*, the time after the coming of the Messiah.

AGE, *middle*, denotes the space of time commencing from Constantine, and ending at the taking of Constantinople by the Turks, in the fifteenth century.

A late author chooses rather to date the middle age from the division of the empire made by Theodosius, at the close of the fourth century, and extend it to the time of the emperor Maximilian I. at the beginning of the sixteenth century, when the empire was first divided into circles. But this seems more accommodated to the state of Germany in particular, than of Europe in general.

The middle is by some denominated the *barbarous age*, and the latter part of it, the *lowest age*. Some divide it into

AGE, *non-academical*, the space or time from the sixth to the

the ninth century, during which schools or academies were lost in Europe.

AGE, *academical*, from the ninth century, when schools were restored, and universities established, chiefly by the care of Charlemagne.

AGE, *milliary*, or *millenary*, *seculum milliarium*, or *millenarium*, on *Medals*, denotes the last year of a *millennium*, or thousandth year.

Several medals of the emperor Philip, struck in the thousandth year from the building of Rome, have this legend.

AGE, *new*, on ancient *medals*, denotes the beginning or first year of a new *seculum*, or century of years.

AGE is also used among ancient poets for the space of thirty years.

In which sense, *age* amounts to much the same with generation. Nestor is said to have lived three *ages*, at the time when he was ninety.

AGE is differently considered by naturalists from what it is by lawyers; and even in each of those professions we find various systems and divisions of *age*.

AGE of *medals*. See MEDAL.

AGE, in *Law*, is particularly understood of a certain state or time in life, wherein a person is qualified for certain offices of civil society, which before, for want of years and discretion, he was incapable of.

By the common law, there are two principal *ages* in a man: at fourteen, he is at the *age of discretion*; at twenty-one years, at *full age*.

With respect to a woman, there were anciently six *ages* observed: at seven years, her father might distrain the tenants of his manor for aid to marry her; for at those years she may consent to matrimony.—At nine years old she is dowable; for then, or within half a year after, she is said to be able *promereri dotem, & virum sustinere*.—At twelve years she is able finally to ratify, and confirm her former consent to matrimony.—At fourteen, she may take her lands into her own hands: and should be out of ward, if she were at this *age* at her ancestor's death.—At sixteen, she should be out of ward, though at the death of her ancestor she was under fourteen: the reason is, that then she might take a husband able to perform knight's service.—At twenty-one years, she may alienate lands and tenements. As for a man: the *age* of twelve years binds to appearance before the sheriff and coroner, for enquiry after robberies; 52 Hen. III. 14. at the *age* of fourteen he may chuse his own guardian, and claim his lands held in socage. Though Bracton limits this to fifteen years; with whom Glanville agrees.—At fourteen a man may consent to marriage, as a woman at twelve.—At that *age*, likewise, he may dispose of personal estate by will, though not of lands until twenty-one: at fourteen also persons may be witnesses, though in some cases they have been admitted much younger. 2 Hawk. 434. Persons under fourteen are not in general punishable for crimes; but they must answer for any trespass. 1 Inst. 247.—At fifteen he ought to be sworn to the peace, an. 24 Edw. I. stat. 3.—At seventeen he may be an executor.—At the *age* of twenty-one, a man was obliged to be a knight, if he had twenty pounds land per annum in fee, or for term of life, anno 1 Edw. II. stat. 1. But this statute is repealed, 16 Car. I. cap. 20.—The same *age* also enables him to make contracts and manage his own estate; which, till that time, he cannot do with security of those who deal with him.

The *age* of twenty-four years enabled a man to enter into an order of religion, without consent of parents, anno 4 Hen. IV. cap. 17. At thirty, he may be a bishop. Though the *age* of twenty-one is the full *age* of either man or woman, yet they may under that *age* contract for necessities suitable to their quality, and it shall bind them. If either man or woman do any act before the time prescribed by law, they may retract it when they come to the proper *age*; but if they do not, they are supposed to ratify it, and it shall be deemed valid. Thus if a man marry before fourteen, or a woman before twelve, they may either agree or disagree to the marriage, when they attain those respective ages. But the *age* of marriage has undergone divers modifications: in princes it is allowed earlier than in private persons; in some countries, than in others. In Persia girls are married at nine, boys only at thirteen; in Holland, males are not allowed to marry without consent of parents or curators, before twenty-five; girls not before twenty; the Romans chose to marry their wives young, for the advantage of having them innocent and tractable. Others declaim against premature marriages. Some have pretended to limit the other extreme of marriageable *age* to forty-five; but this too will be variable in different constitutions. We meet with instances of generation from sixty to one hundred and four, or even one hundred and twenty-one years of *age*. Plott, Nat. Hist. Staff. chap. viii. § 3.

Various methods have been in use for determining this *age*. One sect of ancient Roman lawyers, called Cassiani, fixed it by the state of the body, which Justinian, and others after him, suppose to have been done by search, or inspection of the genital parts, at least in the male sex; for as to the female, it is pretended the twelfth year was the only guide, though others alledge that the eruption of the menses served instead of it. The Proculiani, on the contrary, determined the puberty of males, by the expiration of the fourteenth year. Javolenus took a middle course, and made use of both methods.

The Canon or Ecclesiastical Law also notes divers *ages*, viz. of baptism; of ordination to priesthood, which is not to be before twenty-four; and to episcopacy.

AGE is also used for the duration of vegetable matters. In which sense, we say the *age* of roots, of leaves, of corn, of wine, &c.

Trees after a certain *age* waste. An oak at a hundred years old ceases to grow. The usual rule for judging of the *age* of wood, is by the number of circles which appear in the substance of a trunk, or stock, cut perpendicularly, each circle being supposed the growth of a year: though some reject this method as precarious, alledging, that a simple circle is sometimes the produce of several years; besides that, after a certain *age*, no new circles are formed. Phil. Trans. N° 43. Act. Erud. Lips. 1713.

AGE is also used for the duration of things inanimate, and even factitious.

In which sense we say, the *age* of a house, of a country, a state, a commonwealth, or the like.

AGE *prier*, *actatem precari*, a petition, or motion made in court, by one in his minority, having an action brought against him for lands coming to him by descent; requesting that the action may rest till he come to full *age*.—This the court, in most cases, ought to grant. — But minors, as purchasers, shall not have it: nor intent of affise, dower, or partition; though they may in debt. Hob. 342. D. Alr. 259.

It is otherwise in the *Civil Law*; which obliges children in their minority to answer to their TUTORs or CURATORS. See PAROL Demurrer.

AGED of the mountain, is a title or denomination given to the chief or prince of the people called ASSASSINS.

AGEM, in *Botany*, is a name given to the Persian LILAC.

AGEMA, in the *Ancient Military Art*, a kind of soldiery, chiefly in the Macedonian armies.

The word is Greek, and literally denotes vehemence; to express the strength and eagerness of this corps.

Some will rather have *agema* to have denoted a certain number of picked men, answering to a legion among the Romans, which is authorized by a passage in Livy; Arrian, on the contrary, speaks of the *agema*, as a wing of horse; not but the term is also applied to foot.

AGEMOGLANS, or AZAMOGLANS, children of tribute raised every third year by the Grand Signior, among the Christians whom he tolerates in his dominions.

The word, in its original, signifies a barbarian's child; that is, a child not a Turk.—It is compounded of two Arabic words, 1. *ON*, *agem*, which among the Turks signifies as much as *barbarous* among the Greeks; the former people dividing the world into Arabs or Turks, and *agem*; as the latter into Grecians and *barbarians*. 2. *ONY*, *child*.

The commissioners appointed for this levy take them by force even out of the houses of Christians; always claiming one in three, and pitching upon such as seem the handsomest, and promise to be the most serviceable.

These are immediately conveyed to Gallipoli or Constantinople; where they are first circumcised, then instructed in the Mahometan faith, taught the Turkish language, and the exercises of war, till such time as they become of *age* to bear arms: and out of these the order of JANIZARIES is formed.

Such as are not judged proper for the army, they employ in the lowest and most servile offices of the seraglio; as in the kitchen, stables, &c.

The *agemoglans*, only differ from the *ichoglans*, as the former are bred up for the lower, and the latter reserved for the higher offices of the empire.

AGENDA, in a general sense, denotes things to be done or performed, in consequence of a man's duty.

The word is Latin, formed from *agere*, *to do*; and divines speak of the *agenda* of a Christian, meaning the things to be practised, by way of contradistinction from *credenda*, or the things to be believed; the former imports the articles of obedience, the latter of faith.

AGENDA is also used for a book containing notes, or memorandums of things necessary to be done.

In which sense, *agenda* amounts to much the same with table-book, &c. An anonymous French author has published the *agenda* of a man of the world, containing

maxims or rules, proper for the conduct of life. *Tablettes de l'Homme de Cosmop.* 1715.

AGENDA is more particularly used, among *Ecclesiastical Writers*, for the service, or office of the church. We meet with *agenda matutina & vespertina*, morning and evening prayers: *agenda diei*, the office of the day, whether feast or fast day; *agenda mortuorum*, called also simply *agenda*, the service for the dead.

AGENDA is also applied to certain church-books, compiled by public authority, prescribing the order and manner to be observed by the ministers and people, in the principal ceremonies and devotions of the church.

In which sense, *agenda* amounts to the same with what is otherwise called *ritual*, *liturgy*, *acolouthia*, *missal*, *formulary*, *directory*, &c.

AGENFRIDA, in *Ancient Customs*, denotes own lord, or one who has the absolute property, and dominion of a thing.

The word is also written *agenfriga*, and *agenfrie*. It is derived from the Saxon *agen*, own, and *frea*, lord.

AGENHINE, in our *Old Writers*, signifies a guest that has lodged at an inn for three nights, after which time he is accounted one of the family; and if he offended the king's peace, his host was answerable for him. It is also written HOGENINE and HOGENHYNE.

AGENT, AGENS, in *Physics*, that whereby a thing is done, or effected; or that which has a power whereby it acts on another; or by its action induces some change in it. The word *agent* is used promiscuously with EFFICIENT; and in contradistinction to PATIENT.

The schools divide *agents* into *natural* and *free*.

AGENTS, *natural* or *physical*, are those immediately determined by the Author of nature, to produce one sort of effect; with an incapacity to produce the contrary.

AGENTS, *natural*, again, are subdivided into *univocal*; which are such as produce effects of the same kind and denomination with the *agents* themselves; and *equivocal*, whose effects are of a different kind, &c. from the *agents*.

The schoolmen reckon the following circumstances necessary to the being of an *agent*; viz. that it be contiguous to the object, distinct from it, have a power over it, a sphere of activity, and a proportion, or rate of acting.

AGENT, *free*, or *voluntary*, is that which may equally do any thing, or its opposite; as acting not from any pre-determination, but from choice.—Such is the mind supposed to be; which has a spontaneous power of choosing or refusing.

It is a celebrated question among *philosophers* and *divines*, whether man be a free, or a necessary *agent*? It may be thus stated; man is a necessary *agent*, if all his actions are so determined by the cause preceding each action, that no one past action could possibly not have come to pass, or have been otherwise than it was; nor one future action can possibly not come to pass, or be otherwise than it shall be. On the contrary, man is a free *agent*, if he be able at any time, in certain circumstances, to do different things; or, in other words, if he is not ever unavoidably determined in every point of time, by the circumstances he is in, to do that one thing he does, and not possibly to do any other.

Which of these two definitions agrees to man, is a question of fact to be determined by what we experience in ourselves, with regard to the operations of our own minds. See LIBERTY, NECESSITY, and WILL.

The term *agent* evidently implies a power of self-determination; and the epithet *necessary*, applied to *agent*, forms a solecism both in sense and language. Price's Review, &c. p. 315, &c.

AGENT is more particularly used for the minister of a prince, or state, at another court.

In which sense, *agents* are commonly reputed a species of public ministers, or AMBASSADORS; but they differ essentially, as *agents* are not invested with any representative character, although intrusted with the affairs and interests of their princes. See ENVOY.

AGENT is also used for a person entrusted with the management of affairs, either of a corporation, or a private person.—In which sense, the word coincides with *deputy*, *procurator*, *syndic*, *factor*, &c.

Among the officers in the EXCHEQUER, there are four *agents* for taxes.

AGENTS of bank and exchange are public officers, established in the trading cities of France, to negotiate matters between merchants, relating to bills of exchange, and the buying and selling of goods. The same with those who, among us, are called EXCHANGE-BROKERS.

AGENTS of the victualling office, are officers under the commissioners, appointed to buy, and contract for provisions, &c. Some of these are settled in the ports, where they have much the same office and authority as the commissioners at London.

AGENT-victualler is used in the same sense.

AGENT is more particularly used in *Medicine*, for a being which has motion within itself.

In which sense it stands opposed to patient, which receives motion from another; thus medicines are considered as *agents*, or as acting on the body, by way of contradistinction from aliments, which are supposed rather to be acted on, than to act.

AGENT and patient, in *Common Law*, is where a person does, or gives, something to himself; so that he is at the same time both the doer or giver, and the receiver or party it is done to.—Such is a woman, when she endows herself part of her husband's inheritance.

AGENT, in *Chemistry*, is sometimes attributed to menstrua, or such bodies as in mixture have the greatest share of activity and motion.

That internal *agent* in man, whereby all the vital motions necessary to the preservation and restoration of the body are managed, is by some called *nature*; by others *archæus*, *callidum innatum*, animal soul, vital spirit; or principle, &c.

AGENT is sometimes also used in *Chemistry*, for what we more usually call *instrument*.

In which sense, fire, water, air, earth, and menstrua, are chemical *agents*.

AGENTES in rebus, one of the ranks of officers, in the court of the Constantinopolitan emperors, whose business was to collect and convey the corn both for the army and household; carry letters and messages from court to all parts of the empire; regulate couriers, and their vehicles; to make frequent journeys and expeditions through the provinces; inspect any motions, disturbances, machinations tending that way, and give early notice thereof to the emperor. Aquin. Lex. Mil. tom. i. Pitisc. Lex. Ant. tom. i. Calv. Lex. Jur.

The *agentes in rebus*, are by some made synonymous with our post-masters, but their function was of great extent. They correspond to what the Greeks call *αποπορογοι*, and the Latins, *veredarii*.

There were divers orders or degrees of *agentes in rebus*, as *tribuni*, *primicerii*, *senatores*, *ducenarii*, *biarchi*, *circitores*, *equites*, *tyrones*, &c. through all which they rose *gradatim*. Their chief was denominated *princeps*, which was a post of great dignity, being reckoned on a level with that of proconsul.

The *princeps agentium in rebus*, resided at Constantinople; others of them were settled in every part of the empire. They are also said to have served as interpreters.

AGEOMETRIA, a defect in point of GEOMETRY, or a deviation from the strict principles and conclusions of that science.

This is otherwise called *ageometresia*.

Some have complained of the *ageometria* of the Scriptures in respect of the proportions of the brazen sea, ark, &c.

AGER *vestigialis privatus*, in *Roman Antiquity*, that whose property was granted to private persons on the reserve of a certain rent, or tribute.

AGER *vestigialis publicus*, that whose property was reserved to the public, and being let out to farm, the rents or profits accrued to the public treasury.

AGER is also used for a certain portion or measure of land, anciently allowed in the division of grounds to each citizen.

In the early days of the Roman state, the *ager* was only two *jugera*, amounting to $1\frac{1}{4}$ English acre. After the expulsion of the kings, seven *jugera* were allowed a plebeian.—Under the consulate of C. Licinius Stolo, in the year of Rome 376, a law was made to limit estates to 500 *jugera*, or 330 English acres. Under Julius Cæsar another AGRARIAN law was published, by which those who enlarged their pittance of land, were to pay 50 *aurei* to the public.

AGER is also used, in *Middle Age Writers*, for what we now call an ACRE.

AGER *mineralium*, among *Chemists*, denotes the element of WATER; considered as the field, or soil, wherein MINERAL bodies have their first root, and from whence they shoot their branches upon the earth.

AGER *natura*, signifies the womb.

AGERATUM, in *Botany*, the name of a genus of plants, of the *syngenesia polygamia æqualis* class; the characters of which are these: the flower is monopetalous, of the personated kind, and tubular in its lower part, and in the upper divided into two lips, the upper of which is bifid, and the lower divided into three segments; the pistil arises from the cup, and finally becomes an oblong membranaceous fruit, divided into two cells, which contain a number of very fine seeds affixed to a placenta. There are three species.

AGERATUM, in the *Materia Medica*, an officinal plant, popularly called *maudlin*.

The word is compounded of the privative *α*, and *γρησ*, old age, on account of its flowers, which do not easily wither or grow old.

Ageratum bears a near resemblance to the costmary, from which it only differs, in that its flowers are formed into loose umbels; there are divers species of it. The officinal is called *ageratum foliis serratis*, C. B. or *ageratum luteum*, the *ACHILLEA ageratum* of Linnæus, and is the same with the *eupatorium majus*, so called on account of its virtue, in diseases and obstructions of the liver.

Ageratum is of an astringent quality, and as such recommended by Riverius, and others, against incontinence of urine: Gesner has also discovered a brisk purgative power in its roots. But it is rarely prescribed in the present practice.

AGERATUS lapis, in the *Materia Medica* of the Ancients, the name of a stone mentioned by Galen and other writers; and said to be of the nature of the Phrygian stone, but more astringent; and as that was used in dying, this was in dressing of leather. We have no account of its external appearance, but probably it contained vitriol, and perhaps alum.

The great use of vitriol or copperas in the management of leather, is well known; and the stones which contain it, or pyrites, are every where common. The method used also in the preparation of the *Phrygius lapis*, which was the wetting and slighty calcining it, must be very proper to make the vitriol contained in this appear and exert itself in the working with it. This stone is used by shoemakers to polish women's shoes.

AGERIUM. See **AGISTMENT**.

AGES, signifies the palm, or hollow of the hand.

AGGADA, in *Jewish Antiquity*, an ingenious tale, or story; of which kind there are many in the Talmud.

There are several books extant among the Jews under this title. R. San Israel Ben Juda has published *Novellas Aggadarum*, or new explanations of the stories and relations in the **TALMUD**, discovering the hidden meanings thereof.

AGGER, in *Ancient Latin Writers*, denotes the middle part of a military road, raised into a ridge, with a gentle slope on either side, to make a drain for the water, and keep the way dry.

AGGER is also used for the whole road, or military way.

Where high-ways were to be made in low grounds, as between two hills, the Romans used to raise them above the adjacent land, so as to make them of a level with the hills. These banks they called *aggeres*. Bergier mentions several in the *Gallia Belgica*, which were thus raised, ten, fifteen, or twenty feet above ground, and five or six leagues long.

They are sometimes also called *aggeres calceati*, and now generally known by the name *chauffées*, or **CAUSEWAYS**.

AGGER also denotes a work of fortification, used both for the defence and the attack of towns, camps, &c.

In which sense *agger* is the same with what was otherwise called *vallum*, and in later times *aggerum*, and among the modern, *lines*; sometimes *cavaliers*, *terrasses*, &c.

The *agger* was usually a bank, or elevation of earth, or other matter, bound and supported with timber; having sometimes turrets on the top, wherein the workmen, engineers, and soldiery, were placed. It was also accompanied with a ditch, which served as its chief defence.

The usual materials, of which it was made, were earth, boughs, fascines, stakes, and even trunks of trees, ropes, &c, variously crossed, and interwoven somewhat in the figure of stars; whence they were called *stellati axes*. Where these were wanting, stones, bricks, tiles, supplied the office: on some occasions, arms, utensils, pack-saddles, were thrown in to fill up. What is more, we read of *aggers* formed of the carcasses of the slain; sometimes of dead bones mixed with lime; and even with the heads of slaughtered citizens. For want of due binding, or solid materials, *aggers* have sometimes tumbled down, with infinite mischief to the men.

The besiegers used to carry on a work of this kind nearer and nearer towards the place, till, at length, they even reached the wall. The methods taken, on the other side to defeat them, were by fire, especially if the *agger* were of wood; by sapping and undermining, if of earth; and in some cases by erecting a counter *agger*.

The height of the *agger* was frequently equal to that of the wall of the place. Cæsar tells us of one he made, which was thirty feet high, and three hundred and thirty feet broad. Besides the use of *aggers* before towns, the generals used to fortify their camps with such works; for want of this precaution divers armies have been surprised and ruined.

There are vast *aggers* made in towns, and places on the sea-side, fortified with towers, *cattles*, &c. Those made by Cæsar and Pompey at Brundisium, are famous. Sometimes *aggers* were even built across arms of the sea, lakes, and morasses; as was done by Alexander before Tyre, and by M. Antony and Cassius.

The wall of Severus, in the north of England, may be considered as a grand *agger*, to which belong several lesser ones. Besides the principal *agger*, or *vallum*, on the brink of the ditch, Mr Horsley describes another *agger* on the south side of the former, about five paces distant from it, which he calls the south *agger*; and another larger *agger* on the north side of the ditch, called the north *agger*. This latter he conjectures to have served as a military way; the former, probably, was made for an inner defence, in case the enemy should beat them from any part of the principal *vallum*, or to protect the soldiers against any sudden attack from the provincial Britons.

AGGER Tarquinii, *Tarquin's agger*, was a famous fence built by Tarquinius Superbus, on the east side of Rome, to stop the incursions of the Latins, and other enemies, whereby the city might be infested.

AGGER is also used for the earth dug out of a trench, and thrown upon the bank of it.

In which sense, the chevalier Folard thinks the word to be understood, when used in the plural number, since we can hardly suppose they would raise a number of cavaliers, or terrasses.

AGGER is also used for a bank, or wall, erected against the sea or some great river, to confine or keep it within bounds.

In which sense, *agger* amounts to the same with what the ancients called *tumulus* and *moles*; the Dutch, *dyke*; we, *dam*, *sea-wall*.

AGGER also denotes a heap of earth, raised over the graves of the ancients.

In which sense, it amounts to the same with *tumulus*; and is sometimes also called *aggerum*.

AGGLESTONE, otherwise called *stone-Borrow*, and vulgarly the *Devil's Night Cap*, is a remarkable monument of antiquity situated in the N. E. extremity of the isle of Purbeck. Its dimensions are 60 feet in circumference at the bottom, in the middle 80, and at or near the top 90; and it is computed to contain 407 tons of stone. The name seems to have been derived from the Saxon *hælig*, or *hælig*, *holy*, and, *stan*, *stone*, which expresses its ancient use; as it was probably a rock-idol in the British age.

AGGLUTINANS, **AGGLUTINANTIA**, in *Medicine*, a species of strengthening medicine, whose office and effect are to adhere to the solid parts of the body, and thus recruit, and supply the place of what is worn off, and wasted, in the animal actions.

Agglutinants are most of them of the glutinous kind, or such as easily form themselves into jellies, and gummy consistencies; whence the name *agglutinant*, which is formed of *ad*, *to*, and *gluten*, *glue*.

For the operation and use of *agglutinants*, see **STRENGTHENERS**.

The principal simples which come under this class, found in the shops, are isinglass, olibanum, gum Arabic, dragon's blood, cassia, sago, vermicelli, pulse, comfrey, plantain, &c.

AGGLUTINATIO Pilorum, a healing or reducing the hairs of the eye-lids, that grow inwards, to their natural order and situation. This may be done by mastic applied with a probe, which bends the hairs back into their proper order. Bitumen, the slime of a snail taken off with a needle, the juice of hawks weed, the liquor of *agglutinants*, or ammoniac, produce the same effect.

AGGLUTINATION, literally, denotes the act of joining or cementing two bodies together, by means of a proper *gluten*, or **GLUE**. See **CEMENT**.

In *Medicine*, the term is peculiarly used for the apposition or adherence of a new substance; or the giving a greater consistence to the animal fluids; to fit them the more for nourishment.

Some assign a difference between *agglutination* and *assimilation*: in that species of leprosy called λευκη, there is an adhesion, or *agglutination* of the nutriment, but no *assimilation*. In the anasarcaous dropsy, on the contrary, there is an *adjunction*, without any *agglutination*: i. e. there is an afflux of new matter, or nourishment, but this is so thin and watery, that it wants the due stiffness and tenacity to make it bind.

Some will have *agglutination* to be effected by a ferment; others assert, that by reason of the glutinous quality of the chyle, a mere contact suffices to make it adhere to the parts.

AGGLUTINATION is used by some astronomers to denote the meeting of two or more stars in the same part of the **ZODIAC**.

AGGLUTINATION is more peculiarly understood of the seeming coalition of several stars, so as to form a **NEBULOUS** star.

AGGRAVATION, the act of augmenting a **CRIME**, or the **PUNISHMENT** thereof.

The word is compounded of *ad*, *to*; and *gravis*, *heavy*. *Aggravation*, in the *Romish Canon Law*, is particularly used

used for an *ecclesiastical* censure, threatening an EXCOMMUNICATION, after three admonitions used in vain. From *aggravation* they proceed to *re-aggravation*; which is the last EXCOMMUNICATION.

AGGREGATÆ *glandulæ*; the small glands in the cellular, which is next to the villous coat of the intestines, are so called. But as these glands are not visible in an uninjected gut, many anatomists suspect them to be only little bits of separated wax.

AGGREGATE, the sum, or result of several things aggregated or added together.

The word is formed of *ad*, to; and *grex*, *gregis*, a flock. Natural bodies are *aggregates*, or assemblages of particles, or corpuscles, bound together by the principle of attraction. Bodies politic are likewise said to be *aggregate*; such as mayor and commonalty, dean and chapter, &c. in contradistinction to corporations *sole*; such as the king, a bishop, &c.

AGGREGATE, in general, signifies a body resulting from the union of others which are smaller, the whole sum of which combined is called the *aggregate*. It is particularly used by some modern *chemists* and *naturalists*, for a numerous collection of atoms, or minutest corpuscles, whether homogeneous or heterogeneous, joined together by contiguity, without regard to the quality of such atoms. In which sense, *aggregate* differs from *MIXT*, as the former supposes no particular situation or position, of the corpuscles, other than what arises from their proportion, and the relation they bear to the ambient bodies, among which the coalition is formed.

Aggregate also differs from *mixt*, as the latter is formed immediately out of the principles of matter, so firmly united, as that it is very difficult, if not impossible, to separate them.

Aggregate again differs from *compound*, as the latter is formed out of *mixts*, and is easily dissolvable.

Aggregates, then, are the ultimate compounds, or the last effects of composition; they resolve into compounds as their next ingredients, these into mixts, and mixts into simples, or principles; though in strictness, *aggregates* may resolve also into mixts, and mixts into simples, inasmuch as they consist of heterogeneous parts.

This doctrine and distinction of *aggregates*, *mixts*, and *compounds*, is the foundation of the *chemical theory* of Becher and Stahl; the last of whom has traced it with great exactness. Hence has arisen a new doctrine of earths, metals, &c. which has since been illustrated and extended by the best modern chemists.

AGGREGATE, in *Botany*, is a term used to express those flowers, which are composed of parts or florets, so united by means either of the receptacle or calyx, that no one of them can be taken away without destroying the form of the whole. They are opposed to simple flowers, which have no such common part, and are usually divided into seven kinds, viz. the *aggregate*, properly so called, whose receptacle is dilated, and whose florets are supported by foot-stalks; such are the blue daisy, thrift, or sea-pink, &c. the *compound*; the *umbellati*; the *cymose*; the *amentaceous*; the *glumose*, and the *spadiceous*.

AGGREGATE *fund.* See *FUND*.

AGGREGATION, AGGREGATIO, in *Physics*, a species of UNION, whereby several things, which have no natural dependence, or connection with one another, are collected together, so as in some sense to constitute one. Thus, a heap of sand, or a mass of ruins, are bodies by *aggregation*.

AGGREGATION, in *Chemistry*. See *AGGREGATE*.

AGGREGATION is also used *figuratively*, for ASSOCIATION. We say, to be of a company, or community, by *aggregation*.—An *aggregation* of several doctors to the faculty of laws.—In Italy, *aggregations* are frequently made of houses, or families; by virtue whereof, they all bear the same name and arms.

AGGRESSOR, in *Law*, he, of two contending parties, who makes the assault or attack; or who began the quarrel, encounter, or difference.

In criminal matters, it is always first enquired who was the *aggressor*.

AGIADES, a kind of Turkish soldiery, employed in fortifying of camps, smoothing of roads, and the like offices. Du-Cange.

AGIAHALID, the name of an Egyptian tree, called also *lycio*, and *lycium*; it resembles the wild pear.

AGIASMA, from *αγιος*, *holy*, among *Ancient Writers*, is sometimes used for the whole church, sometimes for the more sacred part or *bema*, wherein mass was said. Du-Cange.

AGILD, or AGILDE, in our *Ancient Customs*, a person so vile, that whoever killed him was to pay no mulct for his death.

The word comes from the privative *a*, and the Saxon *gil-dan*, to pay.

AGILENSZ, in *Botany*, a name used, by some, for the common hazel.

AGILITY, AGILITAS, a light, and active habitude, or disposition of the members and parts, designed for motion.

Some define *agility*, the art or habit of directing our strength, i. e. of intending, or remitting it to advantage.

The improving of *agility* was one of the chief objects of the institutions of games and exercises. The *athletæ* made particular profession of the science of cultivating and improving *agility*.

AGILLARIUS, in *Ancient Law-books*, a heyward, or keeper of a herd of cattle in a common field.

The *agillarius*, or *heyward* of a town, or village, was to supervise the greater cattle, or common herd of beasts, and keep them within their due bounds; and was otherwise called *bubulcus*, q. d. *cow ward*, (whence the reproachful term *coward*)—If he were a cottager, or other servile tenant, he was exempted from the customary services, as being presumed to be always attending on his herd, as a shepherd on his flock, who had therefore the like privilege.

The *agillarius* of the lord of a manor, or a religious house, was an officer appointed to take care of the tillage and harvest-work, to pay the labourers, and see there were no incroachments made, or trespasses committed: the same in effect with what has been otherwise called *field-man*, and *tithing-man*; and among us *BAILIFF*.

AGIO, in *Commerce*, an Italian word signifying *aid*, is a term used, chiefly in Holland, and at Venice, for the difference between the value of bank money, and current money.

So that if a merchant who sells his merchandise, stipulated to be paid either 100 livres bank money, or 105 cash, or current money, in such case the *agio* is said to be 5 per cent.

The bank *agio* varies in almost every place. At Amsterdam it is usually from 3 to 5 per cent.; at Rome, near 25 per 1500; at Venice 20 per cent. fixed; at Genoa from 15 to 16 per cent.

AGIO is also used for the profit arising from discounting a note, bill, or the like.

AGIO is also used, though with some impropriety, for the rate of exchange of a sum negotiated, whether to profit or loss. It is sometimes called AGAI.

AGIO of assurance is used, by some, for what we more usually call *policy* of ASSURANCE.

AGIOSYMANDRUM, a wooden instrument used by the Greek and other churches, under the dominion of the Turks, to call together assemblies of the people.

The word is compounded of *αγιος*, *holy*, and *συναγωγη*, *I signify*.

The *agiosymandrum* was introduced in the place of bells, which the Turks prohibited their Christian subjects the use of, lest they should make them subservient to sedition.

AGIS, a name for the THIGH. See *FEMUR*.

AGIST, in *Law*, signifies to take in and feed the cattle of strangers in the king's forest, and to gather up the money due for the same. Chart. de Foresta, 9 H. III. cap. 9. The officers appointed for this purpose are called *agisters*, or *gislakers*, and are made by the king's letters patent: there are four of them in every forest, wherein the king hath any pannage. Manw. For. Laws, 8vo.

The time for this is fifteen days before Michaelmas, and as many after, when the running of the cattle cannot prejudice the game.

AGISTMENT, supposed to be formed of the French *gisse*, a bed, or lying place: though Kennet excepts to this etymon, and chooses rather to derive it from *ager*, the field, or feeding place for cattle; imagining *agistment* to have originally been the same with *agrarium*, *agerium*, or *agroticum*, the profit of feeding cattle on such a piece of ground.

AGISTMENT, *agistamentum*, is where other men's cattle are taken into any ground, at a certain rate per week. It is so called, because the cattle are suffered *agister*, that is, to be *levant* and *couchant* there; and many great farms are employed to this purpose. 2. Inst. 643. Our graziers call cattle, which they thus take in to keep, *gisements*; and to *gise*, or *juice*, the ground, is when the occupier thereof feeds it not with his own stock, but takes in the cattle of others, to *agist* or pasture it. *Agistment* is likewise the profit of such feeding in a ground or field; and extends to the depasturing of barren cattle of the owner, for which tythes shall be paid to the parson.

AGISTMENT is also used metaphorically for a charge, or burden, on any thing.

In this sense we meet with *terra ad custodiam maris agistata*, i. e. *charged with a tribute to keep out the sea*.—So *terræ agistatæ*, are lands whose owners are bound to keep up the sea-banks.

AGISTMENT, the duty and levy for repairing the banks and walls in Romney-marsh was particularly called *agistamentum*;

flamentum; and the act of laying such a proportion of this duty on the several estates was called *ægislatio*. Spelman.

AGISTOR, or AGISTATOR, see AGIST and AGISTMENT.

AGITATION, AGITATIO, properly signifies *shaking*; or reciprocal MOTION of a body.

The *prophets*, *quakers*, Pythian priestesses, &c. were subject to violent *agitations* of body. See INSPIRATION.

Among physiologists, the term is sometimes appropriated to that species of earthquake, called *tremor*, or *aristatio*.

Among the philosophers, it is chiefly used for an intestine commotion of the parts of any natural body.

Thus, fire is said to *agitate* the minute particles of bodies.

—Fermentation, and effervescence, are attended with a brisk *agitation* of the particles.

Heat is supposed by some, to consist in the *agitation* of the parts of the hot body; and sound is produced by a tremulous *agitation*, excited first in the sonorous body, and communicated thence to the ambient air.

AGITATION is likewise used for a violent hurry or perturbation of spirits, occasioned by some predominant passion.

AGITATION is also used, in *Medicine*, for a species of exercise, popularly called *swinging*: and, in general, for any exercise which shakes the body.

Bartholine mentions fits of the tooth-ach, deafness, &c. removed by vehement *agitations* of the body; and they have been found of especial use for preventing and dissolving concretions.

Dr. Sydenham attributes the great benefits of riding to *agitation*, which is very efficacious in removing obstructions of the *viscera*. See *ÆORA*.

Sanguification is in great measure effected by the *agitation* of the parts of the blood and chyle, in their continual circulation. DIGESTION itself is only supposed by some to be an insensible kind of *agitation*.

AGITATION of *beasts in the forest*, anciently signified the DRIFT of beasts in the forest.

AGITATIVE, something having power to agitate or shake another.

AGITATIVE force of a *pendulum*, is that which produces motion in it.

The *agitative force* of the pendulum arises from three things? 1. The power of gravity. 2. The weight fastened at the end of the rod. 3. The distance of that weight from the point of suspension; or, which amounts to the same thing, the length of the rod, or *pendulum*. Hist. Acad. Scien. 1714.

AGITATOR, in *Antiquity*, a *charioteer*; or he who drove or directed a chariot, or horses in a race.

In which sense, *agitor* amounts to the same with what the Romans called *auriga*, and we a coachman, driver, &c.

AGITATOR was more particularly used for him who drove in the public *curule* games in the *circus*.

The *agitators* were distinguished, by their habits, into *ruffati*, *albat*, *prafini*, and *veneti*, which gave rise and denomination to so many factions. Besides which, they had other marks, or ensigns of their family, corresponding to what we call arms.

The conquerors, besides the ordinary rewards, *bravix*, as crowns, &c. had statues erected to them in the *circus*; on the bases whereof, their titles, achievements, &c. were inscribed; several of which are still found among ancient inscriptions, drawn in the following formulæ: *Vicit sejuze, septējuze, bigas, trigas, uno anno, alieno principio, duobus introjugis*, &c.

It has been disputed, whether the *agitators* were on the footing of mimes and pantomimes, and by law held infamous? Briffon. Select. ex Jur. Civ. Ant. lib. i. c. 10.

AGITATORS, *miliarian*, *agitatores miliarii*, were those who drove in the forum at Constantinople, a place adorned with statues, &c. after the manner of the *circus* at Rome, having a *miliun*, or *miliarium*, in the middle.

AGITATORS, in our English affairs, were certain officers, created by the army in 1647, to take care of its interests.

Cromwell leagued himself with the *agitators*, whom he found to have greater interest than the council of war.—

The *agitators* undertook to make proposals relating to the reformation of religion, and the state.

AGLAIA, the name of the youngest of the three Graces, espoused to Vulcan.

AGLAOPHOTIS, in *Botany*, a name used, by some, for PIONY.

AGLECTS, AGLEETS, or AGLEEDS, among *Florists*, the APICES, or pendants hanging on the tip-ends of CHIVES, or STAMINA; as in tulips, roses, spike-grafs, &c.

AGLIA, among *Ancient Physicians*, a whitish cicatrix, or spot in the eye, formed by a congestion of humours.

AGLIBOLUS. The Palmyrenes worshipped the sun under this title.

AGLITHES, used by Hippocrates for a clove of garlick.

AGME, in *Surgery*, signifies a fracture.

AGMEN, in *Antiquity*, properly denotes a Roman army in march.

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In which sense, it stands contradistinguished from *acies*, which denoted the army in battle array; though, on some occasions, we find the two words used indifferently for each other.

The Roman armies, in their marches, were divided into *primum agmen*, answering to our van-guard; *medium agmen*, our main-battle; and *postremum agmen*, the rear-guard.

The order of their march was thus: after the first signal with the trumpets, &c. the tents were taken down, and the baggage packed up; at the second signal the baggage was to be loaden on the horses and carriages; and at the third signal, they were to begin their march. First came the *extraordinarii*; then the auxiliaries of the first wings, with their baggage; these were followed by the legions. The cavalry marched either on each side, or behind.

AGMEN *pilatum*, that disposed in a narrow oblong form, or column; being withal close and compact; thus called, as resembling the figure of a *pila*, or *pier*. Vegetius compares it to that of a broach, or spit. This form was chiefly used in marching without their baggage, through bad ways and close countries.

AGMEN *quadratum*, that ranged somewhat in a square form; being the method ordinarily observed in the Roman armies. This was also called *agmen grave*, by the Greeks *τετραγωνος ταξις*. The three lines, or columns, in which the army usually marched, were considerably more in length, or breadth, than in depth: but as the baggage marched somewhat in the same order, the whole approached to the figure of a square.

AGMEN is also used for any number of persons, or even animals, moving or advancing in some regular order.

AGNACAT, *Scaligeri pyri* species. In a country of America, beyond the Terra de Labrador, toward the isthmus of Darien, there is a tree of the figure and size of a pear-tree, always covered with leaves, and of an extraordinary greenness and lustre. It bears a fruit also like a pear, but green even when it is ripe; the pulp is of the same colour, sweet, fat, and tastes like butter. It is a powerful promoter of venereal vigour. Ray's Hist.

AGNANTHUS, in *Botany*, the name given by Vaillant to a genus of plants, called afterwards CORNUTIA, by Plumier and Linnæus. It is of no medical use.

The word is formed of *αγνος*, *chaste*, and *ανθος*, a *flower*.

AGNATI, in the *Roman Law*, the male descendants from the same father.

AGNATION, in the *Civil Law*, the kinship, or relation, between the descendants of the same father, being males, and issued only from males.

The word is formed from *ad*, *to*, and *nasci*, *to be born*.

Agnation differs from *cognition*, as the latter is an universal name, under which the whole family, and even the *agnati* themselves, are contained; and *agnation*, a particular branch of *cognition*, which only includes the descendants in the male line. Again, *agnation* is properly only a civil name, as that of *gens*, or family; *cognition*, a natural name, or derived from blood.

By the law of the *Twelve Tables*, males and females succeed one another, according to the order of proximity, and without any regard to the sex: but the laws were afterwards changed in this respect, by the *Lex Voconia*; and women were excluded from the privileges of *agnation*, excepting such as were within the degree of consanguinity; i. e. excepting the sisters of him who died abintestate; and it was hence that the difference between *agnati* and *cognati* first took its rise.

But this difference was again abolished by Justinian (Inst. 3. 10.) and the females were reinstated in the right of *agnation*; and all the descendants on the father's side, whether males or females, were appointed to succeed each other indiscriminately, according to the order of proximity.

Hence, *cognition* came to take in all the relations of the mother as well as father; and *agnation* to be restrained to those of the father alone.

Adoptive children enjoy the privileges of *agnation*; which was called *civil* in their respect, in opposition to the other, which was *natural*.

AGNEL, an ancient French gold coin, first struck under the reign of St. Louis, worth about twelve sols, six deniers. The *agnel* is also called sometimes *mouton d'or*, and *agnel d'or*. The denomination is supposed to have arisen from the figure of a lamb, or sheep, struck on one side.

AGNELET, an ancient French silver coin, first struck under Philip le Bel, worth about twenty sols.

AGNIFER is an appellation applied, by some *Ecclesiastical Writers*, to John the Baptist, and used in the same sense with *præcursor*, or *fore-runner*.

AGNIL; see INDICUM.

AGNINA *membrana*, the same as the AMNIOS.

AGNINA *lactuca*; see LACTUCA.

AGNOETÆ, in *Church History*, a sect of ancient heretics, who

who maintained that Christ, considered as to his human nature, was ignorant of certain things, and particularly of the time of the day of judgment.

The word is formed of *αἰνέω*, *ignoro*, to be ignorant of. Eulogius, patriarch of Alexandria, ascribes this doctrine to certain solitaries in the neighbourhood of Jerusalem, who, in defence hereof, alledged divers texts of the New Testament, and, among others, this of St. Mark, chap. xiii. ver. 32. *Of that day and hour knoweth no man; no not the angels who are in heaven, neither the Son, but the Father only.*

There seem to have been two kinds of *agnoetæ*, though they are usually confounded.

AGNOIA, a word used by Physicians, when a person in a fever does not know his acquaintance. When a rigor accompanies this symptom, Hippocrates says it is dangerous.

AGNOMEN, in Antiquity, an epithet given to a person, either by way of praise, or dispraise, or from some remarkable event, which became, as it were, an additional name, but peculiar to the person, and not descendible to his issue. Thus, one of the Scipios was named *Africanus*, and the other *Asiaticus*, from the brave achievements which the one performed in Africa, and the other in Asia.

The *agnomen* was the third in order of the three Roman names.—Thus in Marcus Tullius Cicero, Marcus is the *prænomen*, Tullius the *nomen*, and Cicero the *agnomen*.

Others think the *agnomen* to have been the fourth or honorary name, superadded on account of some extraordinary action or virtue. Some imagine *agnomen* and *cognomen* to have been the same, as they generally are, except in cases of ADOPTION.

It was a custom among the Romans, for a person, when adopted into another family, to lay aside all his other names, and only retain his family name, to which he added the *prænomen*, *nomen*, and *cognomen* of the adopter. Thus P. Cornelius Scipio, being adopted by Q. Cæcilius Metellus, laid aside his *prænomen* PUBLIUS, and *nomen* CORNELIUS, and was called Q. Cæcilius Metellus Scipio.

AGNOS, in Ichthyology, a name given by Athenæus, and many other of the Greek writers, to that fish called *calyonymus*, or *uranoscopus*. It is a species of the *trachinus*, and is distinguished, by Artedi, from the rest of that genus, by the name of the *trachinus*, with a great number of beards growing from the lower jaw.

AGNUS Castus, the chaste tree, in Botany. Its characters are these: the empalement of the flower is cylindrical, and indented in five parts; the flower has one ringent petal, the brim plain, and divided into two lips, which are trifid, and the middle segment broadest in both. It has four hair-like stamina, two of them shorter than the other, terminated by moveable summits; and a roundish germen supporting a slender style, crowned by two awl-shaped spreading stigmas. The germen turns to a globular berry with four cells, each containing one oval seed. This plant was famous among the ancients as a specific for the preservation of chastity, and the preventing of all venereal desires, pollutions, &c.

The Greeks call it *αἶσος*, *chaste*; to which has since been added the reduplicative *castus*, v. d. *chaste chaste*.

The Athenian ladies, who made profession of chastity, lay upon leaves of *agnus castus*, during the feast of Ceres. See CEREALIA.

This shrub is also called *agnon*, *vitex*, sometimes *clæagnon*, *salix amerina*, *lygon*, *lygus*.

There are divers species of it. Pliny mentions two, the greater, called also the white kind, and the lesser, or black. Miller speaks of four; only one of which, called *VITEX foliis angustioribus, canabii modo dispositis*, is pretty common in English gardens; the rest are rare. Its seed is round, about the bigness of pepper, and having a pungent aromatic taste; whence the French sometimes call it *wild pepper*. This seed is said to be more effectual than rue, in hardness of the liver or spleen; it is of the size of a pepper-corn. It grows in waste grounds, about the banks of rivers, and contains a great deal of salt and oil, but little phlegm. The oil of it is insipid, and of a saffron colour, and is easily obtained by expression. It is a native of Italy. The *agnus castus* is a species of *VITEX* in the Linnæan system.

AGNUS Dei, in the Romish Church, denotes a cake of wax, stamped with the figure of a lamb, supporting the banner of the cross, consecrated in due form by the pope, to be distributed in presents among the people, and supposed to have great virtues annexed to it.

The name literally signifies *Lamb of God*; this being supposed an image, or representation of the Lamb of God, who took away the sins of the world.

They cover it up with a piece of stuff, cut in form of a heart, and carry it very devoutly in their processions.—The Romish priests, and religious, derive considerable pecuniary advantage from selling these *Agnus Dei's* to some, and presenting them to others. The pope provides a regular supply, by consecrating once in seven years;

they are distributed by the master of the wardrobe; and received by the cardinals, and other prelates, with great reverence, in their caps and mitres.—This ceremony they pretend to derive from an ancient custom of the church, wherein part of the paschal taper, consecrated on Holy Thursday, was distributed among the people, to perfume their houses, fields, &c. in order to drive away devils, and to preserve them from storms and tempests. Other imaginary virtues are likewise attributed to them. See concerning the origin of *Agnus Dei's*, Jour. des Scav. tom. xxxi. p. 252. Mem. de Trev. ann. 1722 p. 2010. Their virtues, Act. Erud. Lips. Supp. tom. iv. p. 224. Their mystic meanings, Du Pin, Bibl. Eccles. tom. xviii. p. 68. The order of consecrating them, Magri, Notiz. de Vocab. Eccles. in voc.

Some authors also speak of a kind of metalline *Agnus Dei's*, hung to chapelets, or pater-nosters.

The *Agnus Dei* is said to have been first brought into the missal, by pope Sergius I.

The *Agnus Dei* is forbidden to be brought into England, under pain of incurring a *premunire*. 13 Eliz. cap. 2.

AGNUS Dei is also a name popularly given to that part of the mass, wherein the priest, striking his breast three times, rehearses, with a loud voice, a prayer beginning with the words *Agnus Dei*.

AGNUS Scythicus, in Natural History, a kind of zoophyte, or plant-animal, said to grow in Tartary, resembling the figure and structure of a lamb. See ZOOPHYTON.

The Scythian lamb is also called *agnus vegetabilis*, *agnus Tartaricus*, and by the people of the country, *borometz*, *borametz*, or *boranetz*.

The usual account given of this extraordinary production is, that the Tartars sow in their ground a seed resembling that of melon, but less oblong; from whence arises a plant called by them *borometz*, i. e. *lamb*, growing almost to the height of three feet, and having feet, hoofs, ears, and the whole head, excepting horns, resembling that animal. In lieu of horns it has a peculiar sort of hair, not unlike horns; it is covered with a fine thin skin, which being pulled off, is worn by the natives as a cover for the head. The pulp within resembles that of the *gammarus*; and when wounded, a liquor oozes out like blood. It lives as long as there is grass and herbage around it; but when these are consumed, it wastes and dies. They add, that wolves are fond of it, while no other beasts will feed on it.

Deusingius seems to have been the first who suspected this account to be fabulous; and Kempfer, when in the country, made diligent inquiry concerning it, but could hear of nothing like it.

As to the plants shewn under this denomination, in some repositories of rarities, they appear to be originally the roots, or stalks, of certain vegetables, probably of the capillary kind, covered with a woolly moss, which naturally bearing resemblance to the figure of a lamb, have been helped out and brought near to it by art, and the addition of new parts.

Sir Hans Sloane, and Breynius, give us the figures and descriptions of such *borometzes* in their collections. It is from these plants that the Indian moss is gathered, famous for its use in staunching blood. Breynius and Libavius have written expressly on the *Agnus Scythicus*. Phil. Trans. N^o 390, and N^o 287.

AGOGA, in Natural History, a ditch or drain for carrying off the water from a mine.

The word seems derived from *αἰών*, *ductus*, of *αγω*, *duco*, I draw.

AGOGÉ, *αἰών*, in the Ancient Music, a species of modulation, wherein the sounds or notes proceed by continuous degrees of the scale, both rising and falling. As when we sing, re, mi, fa, sol, la: la, sol, fa, mi, re. *Agoge* answers to what the Latins call *ductus*, and the Italians *conducimento*, and *di grado*: it stands contradistinguished from *ploce*, *petteia*, &c.

Agoge makes the first part of the *melopœia*, or art of modulating.

There are three species or cases of this modulation; first when the sounds follow each other from grave to acute, i. e. rising as in singing, B C D E. This the Latins call *ductus rectus*, and the Italians *conducimento retto*.

The second, when they go from acute to grave, i. e. falling, as in the notes E D C B, called by the ancients *ductus revertens*, and by the modern Italians *conducimento ritornante*.

The third, when they rise by flats and fall by sharps, as in D, E, F sharp, G, or, *vice versa*, as in G, F natural, E flat, D. This the ancients call *ductus circumcurrens*, and the Italians *conducimento circoncurrente*. Euclid Introd. Harm. p. 22. Aristid. Quintil. de Melop. lib. i. Mem. Acad. Inscr. tom. vii. Malcom on Mus. chap. xiv. sec. 4.

AGOMPHIASIS, or GOMPHIASIS, a distemper of the teeth. It consists in their being loose in their sockets.

AGON,

AGON, in *Antiquity*, a dispute or contest for the mastery, either of some exercise of the body, or of the mind.

There were *agones* on certain days, in most of the ancient feasts, and other ceremonies in honour of the gods, or heroes.

There were also *agones* established expressly, and not attached to any other solemnity.—Such was the *agon gymnicus*, at Athens; the *agon Nemæus*, instituted by the Argians in the 53d Olympiad; the *agon olympicus*, instituted by Hercules, 430 years before the first Olympiad; the *agon Adrianalis*, instituted at Athens, by the emperor Adrian, called Παναθηναία, Πανελληνία, and Ολυμπια Αθλητικά.

The Romans had also *agones* instituted after the example of the Greeks: the emperor Aurelian established the *agon solis*, *agon of the sun*; and Dioclesian, the *agon capitolinus*, which was held every fourth year, after the manner of the Olympic games.—Hence the years, instead of *lustra*, are sometimes numbered by *agones*. The *agon iselasticus*, instituted at Puzzuoli by the emperor Antoninus Pius, and held every fifth year, was a sacred combat, and the victors at it were called *hieronicæ*: they were to be received into the city, through a breach in the wall, made on purpose. The *agon musicus* was that wherein either poets, or musicians, disputed for the prize; such was that dedicated by Ptolemy to Apollo and the Muses, with rewards assigned to the writers who gained the victory. Of this kind were also found in the Pythian, Nemæan, and Isthmian games; also in the Olympic games, after Nero's time, who first introduced a musical *agon* here; others were founded by the emperor Domitian, and others at Rome, Naples, Alba, &c. The *agon Neronianus* was a quinquennial combat, called also *Neronian*, from the name of its institutor, who here bore away the prize for playing on the harp, *cithara*.

AGON is also used for a place near the Tyber, otherwise called *circus Flaminius*, wherein curule games and combats were celebrated.

AGON is also used by *Physicians*, for the struggle of death.

AGON was also a minister of sacrifice, whose business was to strike the victim. The name is supposed to have been derived hence, that standing ready to give the stroke, he asked *agon*, or *agone*? *shall I strike*?

The *agon* was also called *papa*, *cultarius*, and *victimarius*.

AGONALES, in *Antiquity*, an epithet given to the **SALII**, consecrated by Numa Pompilius to the god Mars, surnamed *Gradivus*.

They were also called *Quirinales*, from the *Mons Quirinalis*, where they officiated. Rosinus calls them *Agonenses Salii*.

AGONALIA, in *Antiquity*, feasts celebrated by the Romans, in honour of Janus; or, as some would have it, in honour of the god *Agonius*, whom the Romans used to invoke upon their undertaking any business of importance. They appear to have been held thrice in the year, viz. on the fifth of the ides of January, on the twelfth of the calends of June, and the third of the ides of December. Struv. Ant. Rom. c. 8.

AGONE. See **HENBANE**.

AGONISMA, in *Antiquity*, the palm or prize given the victor in a game or combat.

AGONISTARCHA, in *Antiquity*, seems to have been much the same with *agonotheta*; though some suggest a difference, making it the office of the former to preside at, and direct the private exercises of the *athletæ*, which they went through by way of practice, before they made their appearance on the public theatres or amphitheatres.

AGONISTIC, *agonistica*, the science of what relates to the combats, or *agones* of the ancients.

In which sense, *agonistic* amounts to much the same with *athletic*, and makes a branch of *gymnastics*.

AGONISTIC, *αγωνιστικον*, is also used among *Ancient Physicians*, for cold spring-water.

The reason of the denomination is taken from the plentiful use of that element in the state of an acute erysipelaceous fever, wherein water was supposed to combat and struggle with the febrile heat.

AGONISTICI, in *Antiquity*, a name given by Donatus to those of his sect, whom he sent into the neighbouring places, fairs, markets, &c. to preach his doctrine; for which reason they were also called *circuitores*, *circelliones*, *catropitæ*, *coropitæ*, and, at Rome, *montenses*.

They were called *agonistici*, from *αγων*, *combat*; because they were sent, as it were, to fight, and subdue the people to their opinion.

AGONIUM, in *Roman Antiquity*, was used for the day whereon the *rex sacrorum* sacrificed a victim. The same name was also given to the place wherein the games were anciently celebrated.

AGONOTHETA, **AGONOTHETES**, in *Antiquity*, a magistrate chosen among the Greeks, to preside, and have the superintendency of the sacred games, or combats;

to defray the expences thereof, and to adjudge the prizes to the conquerors.

The word is compounded of *αγων*, *combat*, and *θετης*, *he who disposes*.

Among the Romans, the like officer was denominated *designator*, and *munerarius*.

Middle-age writers usually confound *agonistæ*, the combatants at the games, with the *agonothetæ*, or presidents of them.

The *agonothetæ* had the immediate charge of the manner of life, discipline, and morals of the *athletæ*. They examined, and admitted, or expelled them the society, or order. During the combats, the *agonothetæ* were clothed in purple, and rode in a triumphal manner through the circus, holding in their hands an ivory sceptre, with an eagle on it.

Van Dale has an express dissertation on the *agonothetæ*.

The name *agonotheta* is still retained in schools and academies, for him who defrays the charge of the prizes distributed. The founders of prizes are perpetual *agonothetæ*.

AGONOS, in *Physic*, a Greek word signifying *barren*. Hippocrates applies it to women who have no children, though they might have them, if the impediment were removed.

AGONUS, in *Ichthyology*, a name used by the generality of authors, for the fish called by some *sarachus*, by others *chalcis*, and by others *sardella*.

It is in many particulars very like the *alausa*, or *shad*, called the mother of herrings, but smaller, never arriving at more than a foot in length; and is always lean and lank in spring, and fat in autumn. But the distinctions between it and the *alausa*, if real, are so very small, that Mr. Ray, and many of the most accurate naturalists, have suspected it the same fish, only in a different state.

AGONY, **AGONIA**, denotes the extremity of pain, or a disease; when nature makes her last effort, or struggle, to throw off the evil that oppresses her.

The word is formed from the Greek *αγων*, *certamen*, *combat*; this being a kind of strife between life and death.

Much of the terror of death consists in the pangs and convulsions wherewith the *agony* seems attended; though we have reason to believe, that the pain in such cases is ordinarily not extremely acute; a course of pain and sickness having usually stupified, and indisposed the nerves for any quick sensations. However, various means have been thought of for mitigating the *agony* of death. Lord Bacon considers this as part of the province of a physician, and that not only when such a mitigation may tend to a recovery, but also when there being no farther hopes of a recovery, it can only tend to make the passage out of life more calm and easy. Accordingly, he ranks *euthanasia*, or the art of dying easily, among the *desiderata* of science; and does not even seem to disapprove of the course Epicurus took for that end. De Augm. Sc. lib. iv. c. 4.

Opium has been applied for this purpose, with the applause of some, but the condemnation of more.

Baglivi promised a treatise expressly, De Medicina Agonizantium, or the method of treating those in the agonies of death. But perhaps one of the best recipes for this end, is that of Mr. Patin, viz. *abstinence from all medicines*.

AGONYCLITÆ, or **AGONYCLITES**, in *Antiquity*, a sect, in the seventh century, whose distinguishing principle it was, never to kneel, but to deliver all their prayers standing. See **GENUFLEXION**.

The word is compounded of the private particle *α*, *γων*, *knee*, and *κλινω*, *to bend*.

AGORÆUS, in *Antiquity*, an appellation given to those deities, who had statues in the public markets, or *fora*.

The word is formed of *αγορα*, *market*.

AGORANOMUS, in *Antiquity*, a magistrate of Athens, established for the maintenance of good order and policy in the markets, settling the prices of provisions, excepting corn, and deciding disputes relating to buying and selling, inspecting the weights, measures, and the like.

The word is compounded of *αγορα*, *market*; and *νομος*, *law*.

The *agoranomus* among the Greeks was much the same with the *curule ædile* among the Romans.

Aristotle distinguishes two kinds of magistrates, the *agoranomi*, who had the superintendence of the markets; and the *astynomi*, who inspected the buildings of the (*area*) cities. The *agoranomi*, at Athens, were ten in number, five belonging to the city, and as many to the Piræus; though others make them fifteen in all, of whom they assign ten to the city. To these a certain toll or tribute was paid, by all who brought any thing to sell in the market.

AGOSTUS, in *Anatomy*, signifies the part of the arm from the fingers to the elbow; also the palm or hollow of the hand.

AGRA, a kind of sweet-scented wood, found in the island of Hainan, on the coast of China.

AGRA-

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AGRA-Caramba, is another sweet-scented wood, which also comes from the island of Hainan.

AGRARIÆ stationes, in the *Ancient Military Art*, corps of guards posted in the fields, and in the open air.

AGRARIÆ naves was used for vessels placed to keep watch, or guard.

AGRARIAN, in a general sense, something relating to fields or lands.

The word is originally Latin, *agrarius*, formed of *ager*, a field.

AGRARIAN, in the Roman *Jurisprudence*, a denomination given to such laws as relate to the partition or distribution of lands.

There are fifteen or twenty *agrarian* laws; whereof the principal are, the *Lex Cassia*, in the year of Rome 268; the *Lex Licinia*, in 337; the *Lex Flaminia*, in 525; two Sempronian laws, in the year 620; the *Lex Apuleia*, in the year 653; the *Lex Babia*; the *Lex Cornelia*, in 673; the *Lex Servilia*, in 690; the *Lex Flavia*; the *Lex Julia*, in the year 691; the *Lex Ælia Licinia*; the *Lex Liwia*; the *Lex Marcia*; the *Lex Roscia*, made after the taking of Carthage; the *Lex Floria*, and the *Lex Titia*.

By the laws of Licinius, no Roman was allowed to occupy more than seven *jugera* of land; and by a similar law of Romulus, every Roman was limited to two *jugera*.

AGRARIAN Law, *Lex AGRARIA*, absolutely, and by way of eminence, so called, was a celebrated law, published by Spurius Cassius, about the year 268, for an equal division of the conquered lands among all the citizens, and for limiting the quantity of ground possessed by each person to a certain number of acres.—Those other two in the Digest, the one published by Cæsar, and the other by Nerva, only relate to the limits or boundaries of grounds; and have no relation to that of Spurius Cassius. The Roman lands were of divers kinds, some conquered from the enemies, and not yet brought to the public account: others brought indeed to the public, but clandestinely usurped by private great men: lastly, others purchased with the public money, in order to be divided. *Agrarian* laws, either for dividing lands taken from the enemy or the public lands, or those purchased with the public money, were easily passed without disturbance; but those whereby private rich men were to be outed of their lands, and the common people put in possession of what had been held by the nobility, were never attempted without great disturbances.

Several have pleaded for the necessity of *agrarian* laws among us. William Sprigge, or, as some say, Fr. Osborne, has written expressly on this subject. See also the Supplement to Dr. Price's Observations on Reversionary Payments, &c. p. 381.

But the author who seems to have entered deepest into the nature and use of *agrarian* laws, is Harrington; he shews that the balance of property in a state cannot be fixed but by laws, and the laws whereby such a provision is made are *agrarian* laws. Now these are necessary to the stability of government, because governments will, according to the diverse balance of property, be of diverse or contrary natures, that is, monarchical, or popular. Thus monarchy requires of the standard of property, that it be vast or great; and of *agrarian* laws, that they hinder recess or diminution, at least in so much as is thereby entailed upon honour. But popular government requires, that the standard be moderate, and that its *agrarian* laws prevent accumulation.

This author thinks, that in a territory not exceeding England in revenue, if the balance be in more hands than three hundred, it is declining from monarchy; and if it be in fewer than five thousand hands, it is swerving from a commonwealth.

The same writer defines an equal *agrarian*, a perpetual law establishing and preserving the balance of dominion by such a distribution that no one man, or number of men, within the compass of the few or aristocracy, can come to overpower the whole people, by their possessions in lands.

He also observes, that the people of Rome, by striving for an *agrarian*, strove to save their liberty: and that commonwealth, through want of such a law, or the non-observance of it, came to ruin.

In the Grecian cities, the defect of an *agrarian* was supplied by *ostracism*.

In Venice, the council of ten, and the officers of pomp, restrain those who might be too powerful; and these two orders in a commonwealth, where the gentry have but small estates in land, are as much as needs be in lieu of an *agrarian*.

Some German republics have no more to supply the place of this law, than that estates descending are divided among the children.—And the same law would establish an *agrarian* in England.

Agrarian laws may be framed different ways, as by in-

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tailoring the lands upon certain families, without power of alienation in any case, as in Israel and Lacedæmon: or, except with leave of the magistrate, as in Spain. But this, by making some families too secure, as those in possession, and others too despairing, as those not in possession, may make the whole people less industrious.

Therefore Harrington prefers a law regulating estates, so that no man shall have above two thousand pounds a year in land; and that the estates of those who exceed this proportion shall be divided in descending to their children, till the greater share do not exceed 2000*l.* *per annum*. This is the rule he lays down for his commonwealth of Oceana, by which he means his scheme for the government of England.

By this law, Harrington intended that the property of land in England, should never fall into fewer hands than 5000; as he computes the rents of this country to be ten millions. But if these rents, as is probable, amount now to twenty millions, it would follow that, by our author's rule, the land could never be in less than 10000 hands, which, according to his system, must effectually secure the liberties of the people.

It would exceed the limits of our design, to enter into the full detail of all the reasonings of this ingenious author, on the subject of *agrarian* laws; we therefore refer to his works. See also GOVERNMENT, PROPERTY, &c.

AGRARIUM. See AGISTMENT.

AGREDULA, is a name given to a species of the FROG.

AGREEMENT, *AGREAMENTUM*, in Law, a joining, or putting together, of two or more minds in any thing done or to be done.

Of this there may be three sorts.—The first an *agreement executed* at the beginning, mentioned in the statute of 25 Edw. III. cap. 3. which says, "That the goods bought by forestallers, being thereof attained, shall be forfeited to the king; if the buyer thereof have made 'gree with the seller:' where the word *gree*, otherwise called *agreement executed*, signifies payment for the things, or satisfaction.

The second is, an *agreement after an act*, that is, where one does an act, and another agrees or assents thereto, afterwards.—The third is, an *agreement executory*, which is, when both parties at one time are agreed that such a thing shall be done in time to come. It is called executory, because the thing is to be done afterwards.

Agreements are to be in writing, by stat. 29 Car. II. cap. 3. of frauds and perjuries.

AGRESSES, or *OGRESSES*, in Heraldry, the same as PELLETS.

AGRESTA, in Medicine, an unripe grape; otherwise called *omphax* and *uva acerba*, by the French *verjus*.

Agrestæ are held cooling, deterfive, and astringent; they temper the acrimony of the bile, and cheer the heart. Eaten plentifully, they have been found to destroy worms.

AGRESTA is sometimes also applied to the juice of this fruit, more properly called *omphacium*.

AGRIA, a name given to HOLLY; and also to a malignant pustule, of which there are two sorts. The one is small, with a roughness, redness, and slight corrosion of the skin; it is of a round figure, its centre is smooth, and it spreads slowly. It is cured by rubbing it with fasting spittle. The other sort ulcerates with a violent redness and corrosion, so as to make the hair fall off; it is of an unequal form, and turns leprous. It is cured by poultices of PELLITORY of the wall.

AGRIÆ, in Natural History, an order of quadrupeds, which have no teeth, but have a very long cylindric tongue. Of this order there are only two known genera, the *myrmecophaga* and the *manis*.

AGRIAMPELOS, the wild VINE; and according to Gerard, the black BRIONY.

The word is formed of *ασπιος*, wild, and *αμπελος*, a vine.

AGRICULTURE, the art of tilling or cultivating the earth, in order to render it fertile, and make it bear plants, trees, fruits, &c.

The word is formed of the Latin *ager*, field, and *cultura*, tilling, of *colere*, to till.

The principal and most general operations in agriculture are manuring, ploughing, fallowing, sowing, harrowing; as also, reaping and mowing. See the articles MANURE, PLOUGHING, SEMINATION, &c.

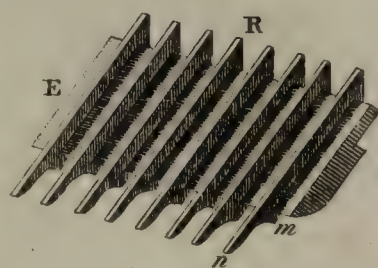
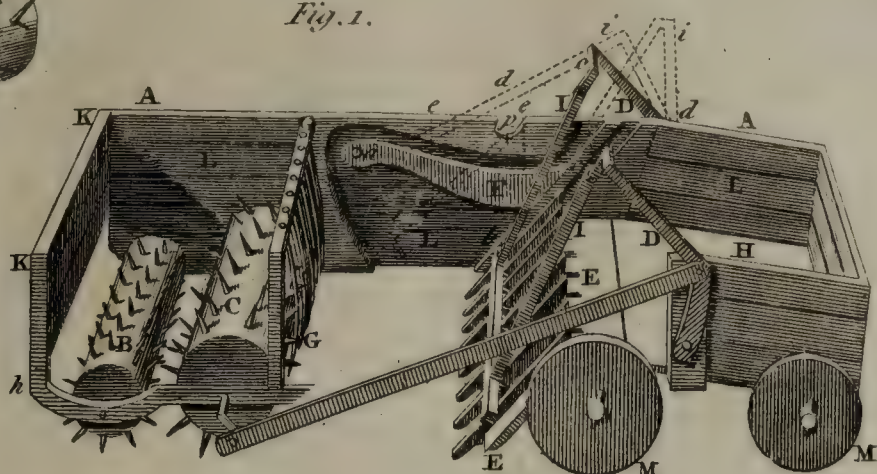
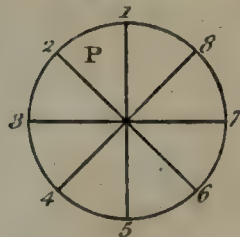
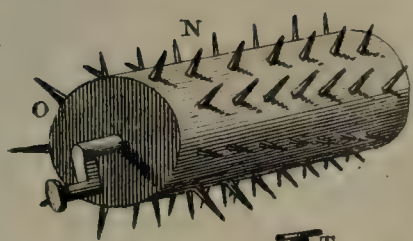
To the operations of agriculture do also belong the management of the productions of particular countries; as hops, hemp, vines, tobacco, saffron, liquorice, woad, &c. To the same art belong, planting, transplanting, pruning, engrafting; the culture of forests, timber, copses, &c. See ENGRAFTING, PLANTING, PRUNING, TIMBER, TREE, &c.

Even gardening, or horticulture itself, is only a branch of agriculture. See GARDEN.

Agriculture, in its most extensive sense, besides tillage, com-

AGRICULTURE & HUSBANDRY.

FALLOW cleansing Machine.



Horse HOE Fig. 2.

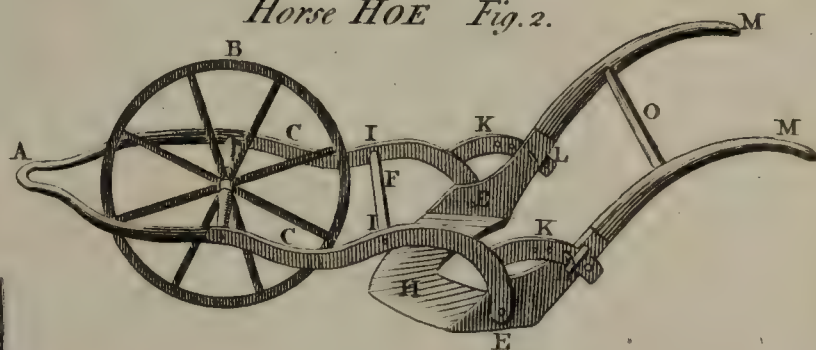


Fig. 3.



Bee HIVE

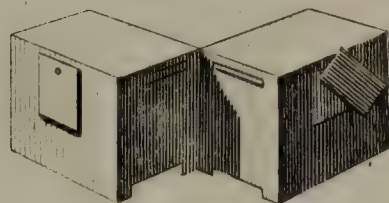


Fig. 4.

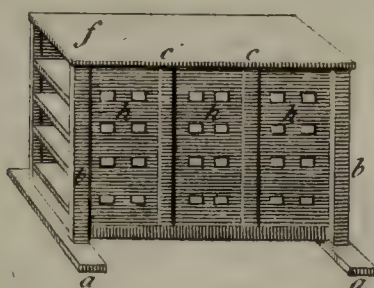
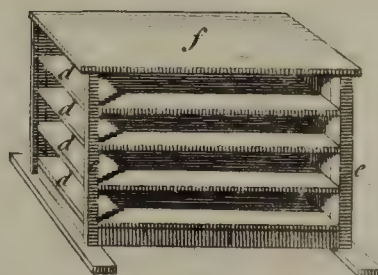
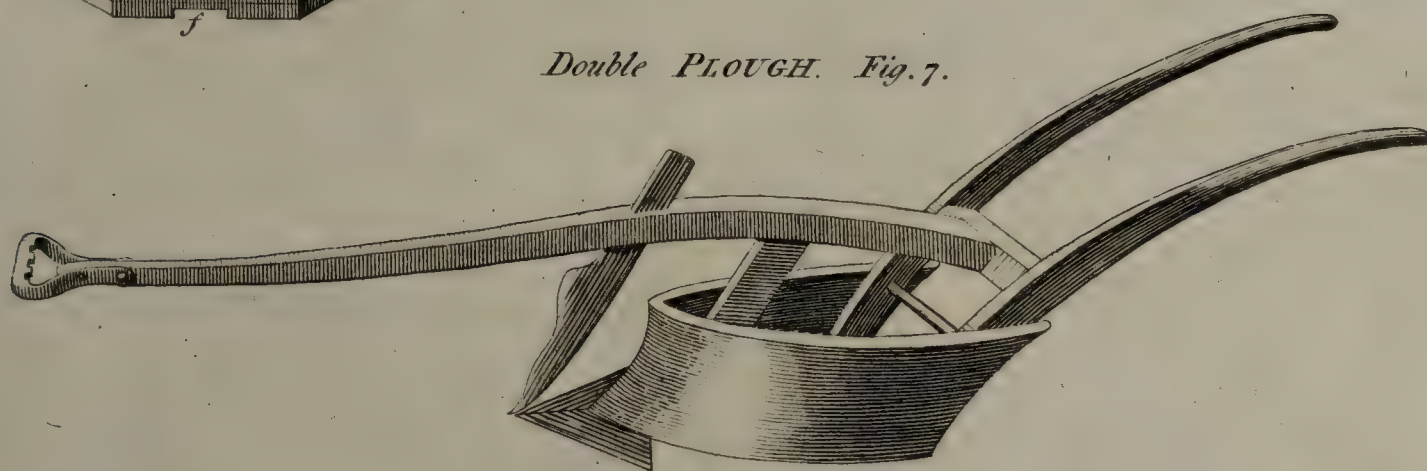


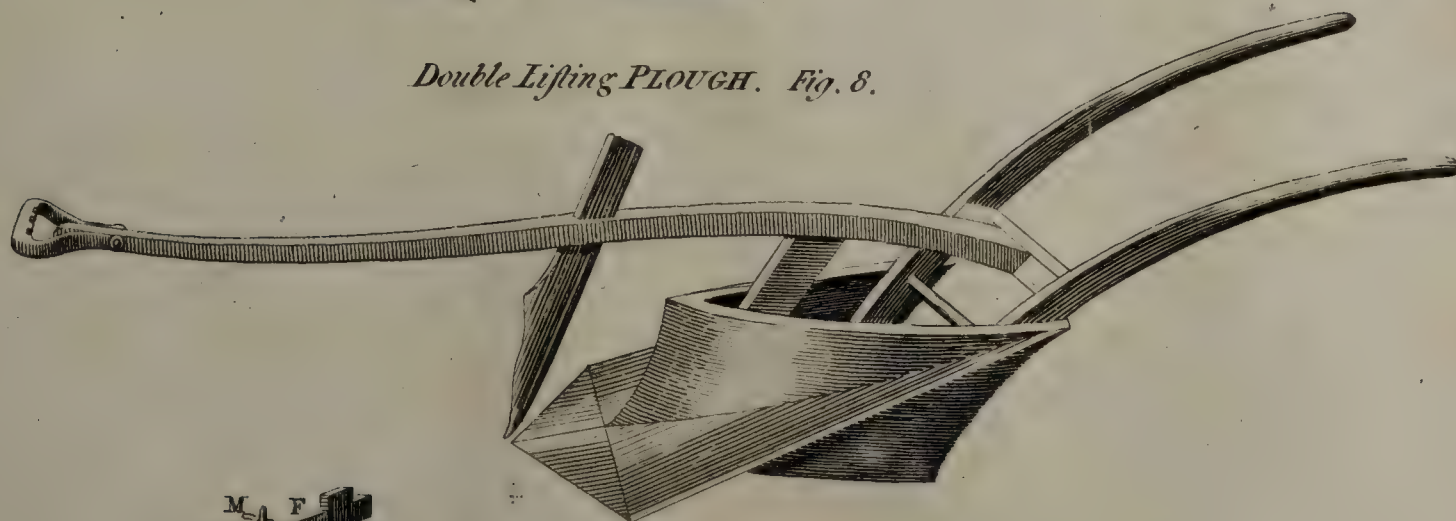
Fig. 6.



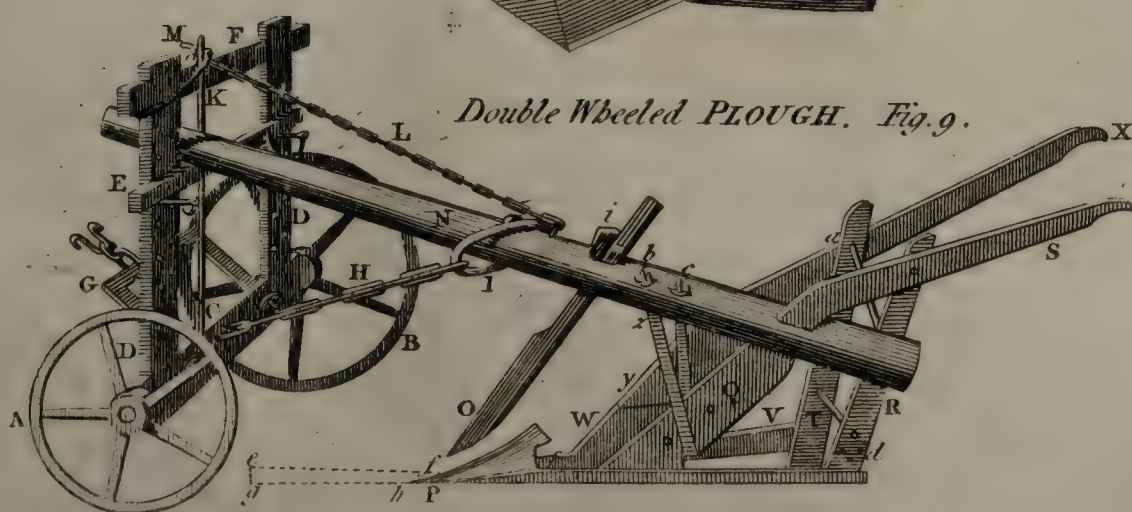
Double PLOUGH. Fig. 7.



Double Lifting PLOUGH. Fig. 8.



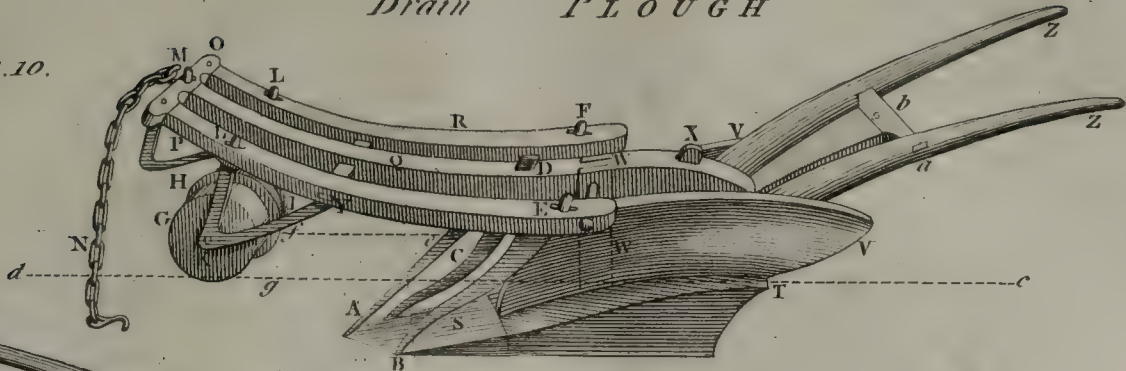
Double Wheeled PLOUGH. Fig. 9.



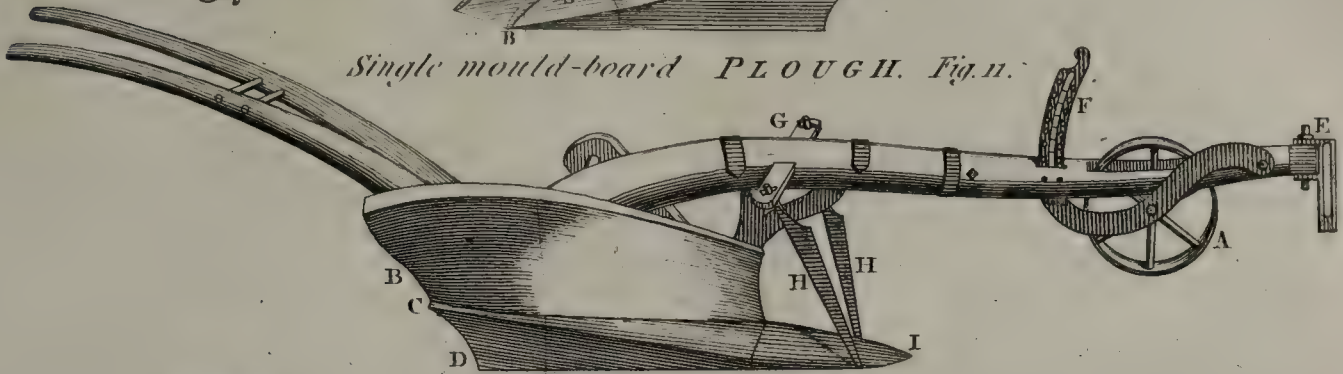
AGRICULTURE *Tab. II.*

Drain PLOUGH

Fig. 10.

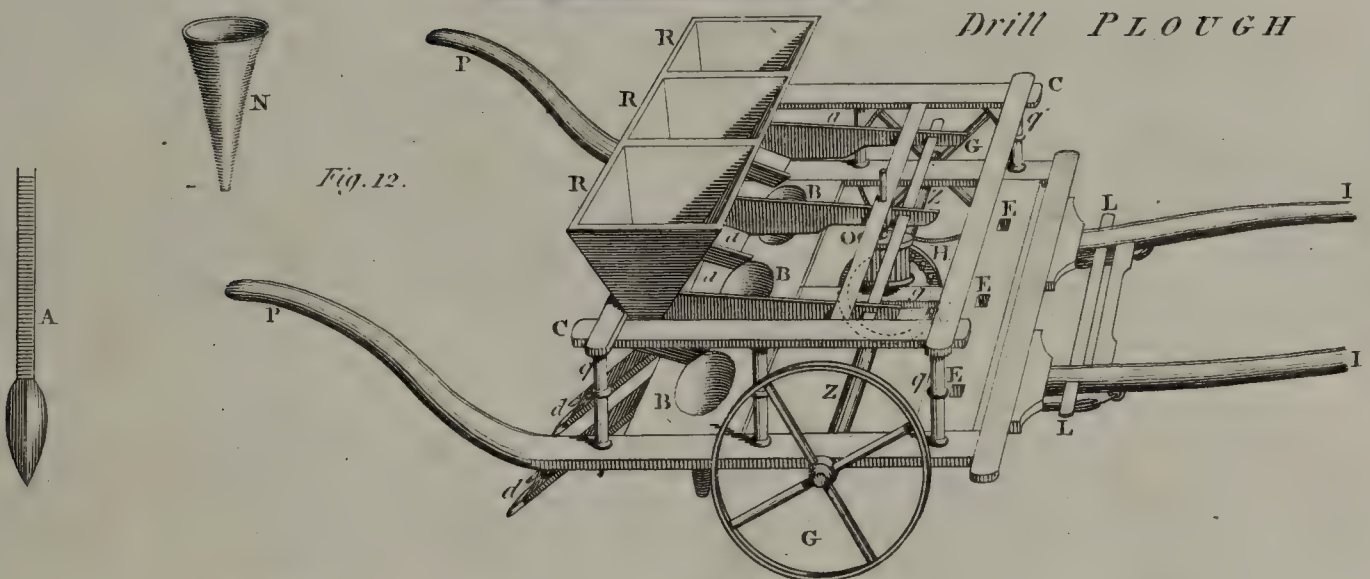


Single mould-board PLOUGH. Fig. 11.



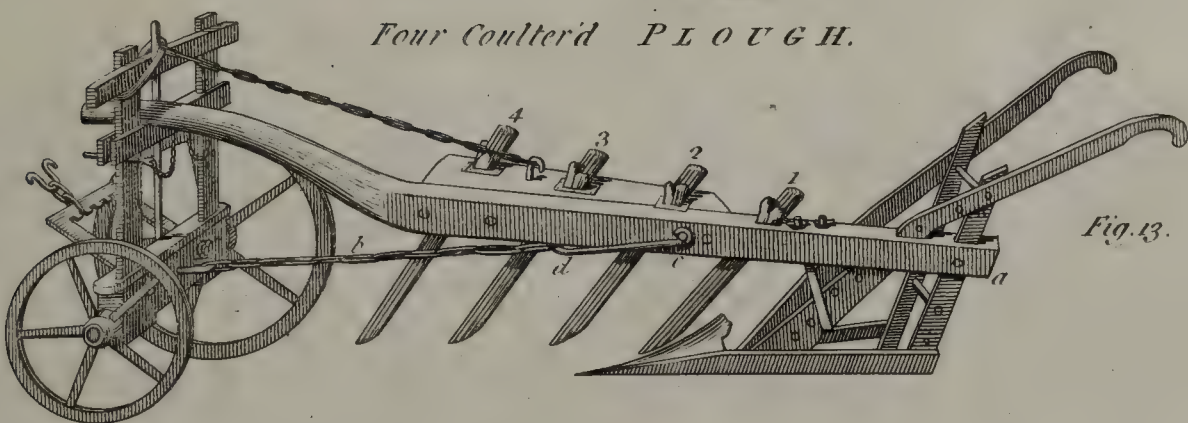
Drill PLOUGH

Fig. 12.



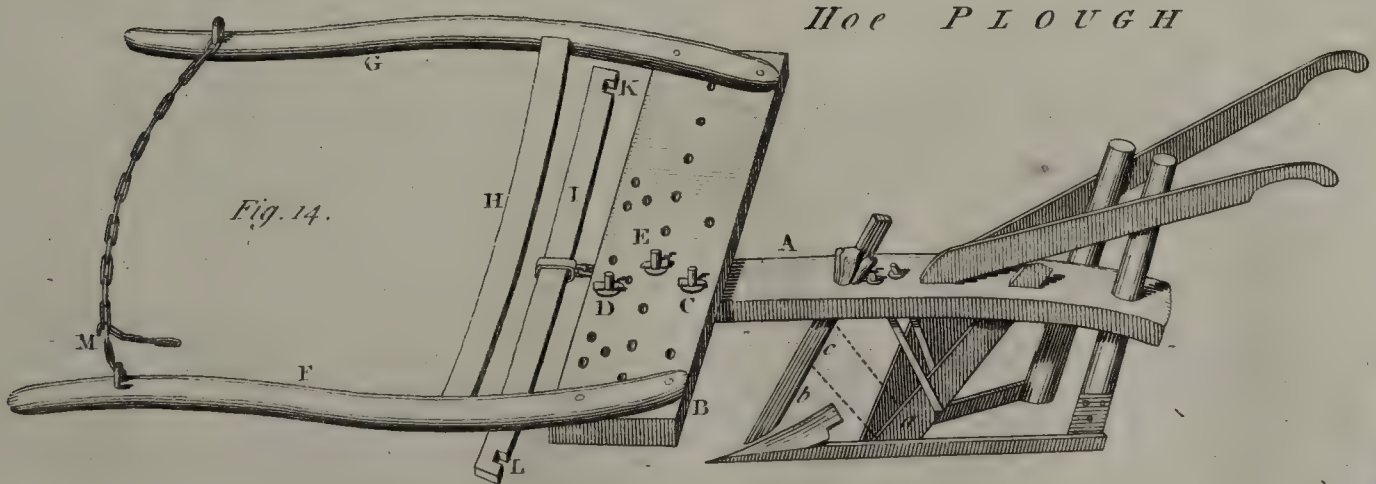
Four Coulter'd PLOUGH.

Fig. 13.

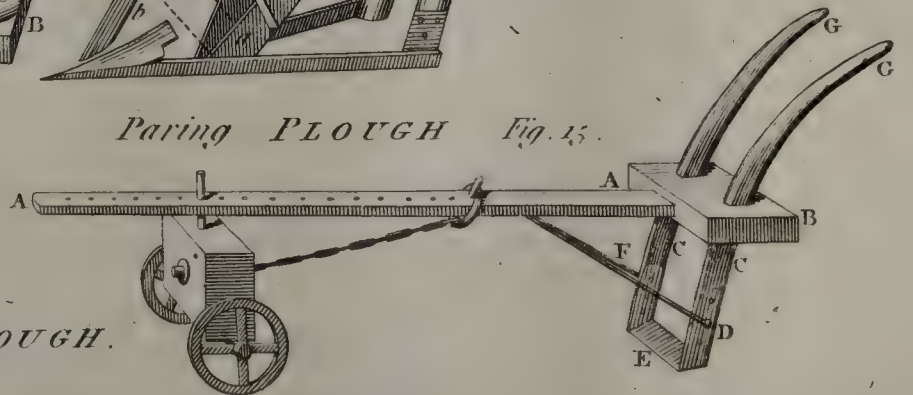


Hoe PLOUGH

Fig. 14.

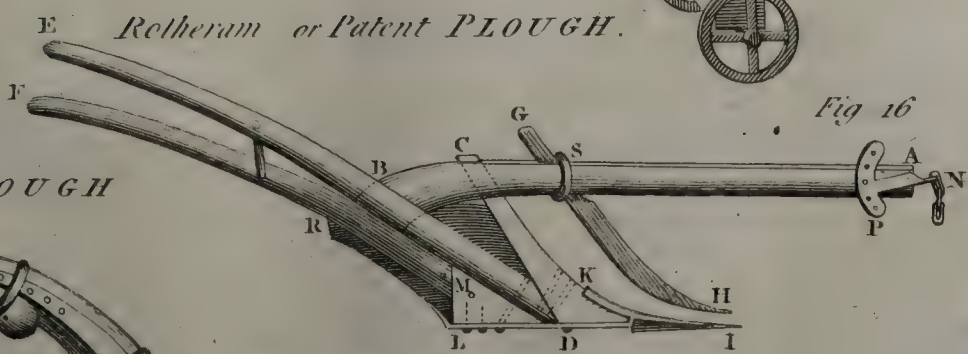


Paring PLOUGH Fig. 15.



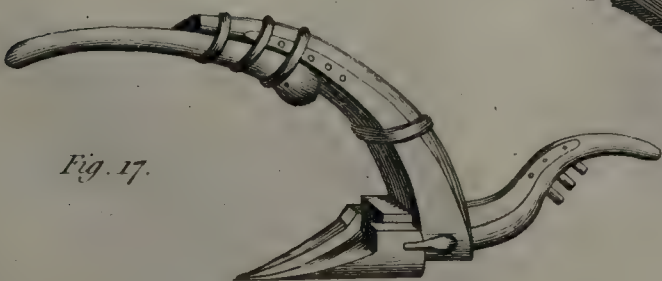
Rotherham or Patent PLOUGH.

Fig. 16



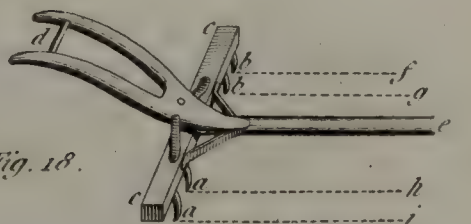
Spanish PLOUGH

Fig. 17.



Drill RAKE

Fig. 18.



comprehends feeding and the management of cattle, and the rural sports, hunting, fishing, &c. Some even include under it the business of mines, coal-pits, and other subterraneous matter.

Among the ancients, *agriculture* is frequently called *georgica*.

This art has been cultivated by many of the greatest men among the ancients, and has been treated of by their most celebrated authors. The history of its rise and progress may be easily traced from the first period of time; and it has been more or less the subject of attention in every age and nation of the world. The ancient patriarchs, though principally devoted to a pastoral life, were not altogether ignorant of this art; and their descendants, as soon as they were settled in Palestine, considered it as a very honourable employment. From them it was transmitted to the Chaldeans and Egyptians, to the Phoenicians and Carthaginians; and it was in such repute among the latter, that Mago, their famous general, wrote twenty-eight books on the subject, which were afterwards translated into Latin by an express decree of the Roman senate; and Servius observes, that these were adopted as a model by Virgil, when he wrote his *Georgics*. It has been said, that *agriculture* was first introduced among the Europeans by Ceres, queen of Sicily, in memory whereof she was placed among the principal divinities: a fable, which imports, that Sicily, famed for its fertility in corn, was the scene of considerable improvements. The first Greek writer on *agriculture* was Hesiod; and he was succeeded by Democritus of Abdera, Xenophon, Aristotle, Theophrastus, and many others. It is well known, that this art was in very high reputation among the Romans; and that it was cultivated by their emperors, dictators, and consuls. The first Latin treatise on the subject of *agriculture* was composed by M. Cato, the censor; Varro likewise is the author of a very elaborate work on the same subject; Columella, in the reign of the emperor Claudius, wrote twelve books on husbandry; and in the reign of Constantine IV. a new work, as some say, collected by himself from the best writers, was published under the title of *Geoponics*, with a view of reviving this art, which was now in a very declining state.

In England, the first person who distinguished himself by his attention to the practical part of husbandry was Fitzherbert, who published two treatises on this subject: one intitled the *Book of Husbandry*, in 1534; and the second, called the *Book of Surveying and Improvements*, in 1539.

In 1600, the French made considerable efforts to revive husbandry, and several large works appeared for this purpose. It was likewise industriously cultivated about the same period by the Flemings, who, portioning out their lands in small tenements, and discovering several new sorts of manure, brought the soil hereby to a proper degree of cleanliness, health, and sweetness; so that they were able to raise the more delicate grasses; such as *LUCERN*, *SAINTFOIN*, &c.

The most considerable English writers, previous to the Restoration, were Sir Hugh Platt, who made many very important discoveries with respect to the nature and qualities of manure; Gab. Plantes, and S. Hartlib; and since that period, Evelyn, Nourse, Mortimer, Bradley, Lawrence, Tull, Ellis, and Miller; not to mention many more among our contemporaries. The attention generally given to this art both at home and abroad, and the numerous societies established for encouraging improvements in the theory and practice of it, both in Europe and America, promise a degree of perfection, of which none in former ages could have had any conception.

In France, there are no less than thirteen societies established by royal sanction, beside many subordinate associations, for promoting *agriculture*. It is likewise publicly taught in the Swedish, Danish, and German universities. The spirit and example of Linnæus and his disciples have very much conduced to the progress of this important and useful art; and the emulation of improving has spread through most of the nations of Europe.

In England, the Royal Society, and the Society of Arts, &c. in particular, have been signally useful in this respect; and the other associations, which are now established in many parts of the country, co-operate with them in forwarding their laudable design.

Among the Japanese, *agriculture* is in great repute; and among the Chinese, it is distinguished and encouraged by the court beyond all other sciences. The emperor of China yearly, at the beginning of spring, goes to plough in person, attended by all the princes and grandees of the empire. The ceremony is performed with great solemnity; and is accompanied with a sacrifice, which the emperor, as high priest, offers to Chang-Ti, to ensure a plentiful crop in favour of his people.

The reader will find a concise abstract of the principal

improvements in the various branches of *agriculture*, disposed, in the course of this work, under their proper heads.

AGRIELÆA, the *wild OLIVE*.

AGRIFOLIUM, in *Botany*, the *HOLLY-tree*.

AGRIGINTINE salt, in *Natural History*, a kind of eatable salt, famous among the ancients for its not crackling in the fire as common salt does. It might probably owe this quality to the fineness of the powder, in form of which it was generally used.

AGRIMONOIDES, in *Botany*, a species of *AGRIMONY*. This plant flowers in April, and comes to perfection in May; and grows in some mountainous parts of Italy; it is sometimes called *PIMPINELLA folio agrimonie*.

AGRIMONY, *AGRIMONIA*, in *Botany*, the name of a genus of plants, belonging to the class of *decandria digynia*; the characters of which are these: the flower is of the rosaceous kind, consisting of five petals, which are arranged in a circular form, indented at their extremity, and stand upon a cup, which finally becomes an oblong echinated fruit, containing two oblong seeds. In the centre arises a double style, resting on the germen, attended by twelve stamens.

Miller reckons five species, viz. 1. The common *agrimony*. 2. The white *agrimony*. 3. The sweet scented *agrimony*. 4. The eastern *agrimony*, with narrow pinnated leaves, which are sharply serrated, and a thick root. 5. Three-leaved *agrimony*, with smooth fruit. Tournefort enumerates only the three first species; Linnæus includes the first, third, and fourth, under one species.

The first species of this genus is frequent in dry pastures, by the side of hedges, and in woods, and flowers in June. The dried leaves make a very pleasant infusion, in the manner of tea; and are esteemed a very proper medicine in obstructions of the liver and spleen. It is celebrated in the jaundice, and in cachectic cases; and is given in coughs and catarrhs, and in suppressions also of the menses.

It used to be a very common ingredient in the baths of the ancients, prepared with the decoctions of detergent and emollient herbs.

Agrimony is otherwise called *eupatorium veterum*, or *Gracorum*.

From Mr. Geoffroy's analysis of *agrimony*, it appears, that this plant contains very little salt of the ammoniacal kind, since no concrete urinous salts got from it, but the acid salt wherewith it abounds, joined with earths, forms a concrete resembling tartar, or salt of coral combined with a large proportion of sulphur.

Agrimony has a saline taste, subastringent and acid; its juice turns the tincture of heliotropium to a faint red; so that its astringent and aperitive virtues seem both owing to the same austere salt. For though these effects seem contrary to one another, yet they often flow from one and the same principle, the strengthening of the weak and lax fibres of the solid parts. Experience shews, says Geoffroy, that *agrimony* has the virtue, supposed to arise from its composition; for it is astringent, detergent, resolvent, vulnerary, and aperient.

The country people use the common or essential *agrimony* bruised, or its juice, in contusions, and fresh wounds. Etmuller says, it resolves swellings and inflammations of the *scrotum*; yet it is rarely found in shop-compositions, though frequently prescribed by the surgeons, in discutient and vulnerary fomentations.

AGRIMONY, *sweet-smelling*, *agrimonia odorata*, is by some preferred, for medicinal purposes, to the former, as being more grateful to infuse for pectoral decoctions. It may be infused in water, or in whey; and is efficacious in diseases from a lax habit.

AGRIMONY, *hemp*, *eupatorium*, in *Botany*, a genus of the *syngenesia polygamia æqualis* class of plants. Its characters are these; it has a compound flower composed of hermaphrodite florets, included in one common scaly empalement, whose scales are narrow, erect, and unequal; and the florets have each five short stamens. In the bottom is situated a small germen, which becomes an oblong seed, crowned with down, sitting in the empalement. There are several species.

The common *hemp agrimony* is recommended as an hepatic and vulnerary, and has been also used in catarrhs; but is at present very little known in the shops.

AGRIMONY, *water-hemp*, *bidens*, in *Botany*, belongs to the same class with the former. Its characters are these: it has a compound flower, the middle or dish composed of hermaphrodite florets; these have five stamens, with an oblong germen. The female flowers which compose the border are naked, and are all succeeded by a single angular obtuse seed, having two or more bristles or teeth. It grows in wet places, and flowers in August. Several species of this plant are common weeds; but there are five species cultivated in the gardens of the curious.

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This herb is accounted hepatic and vulnerary.
AGRIOCARDAMUM; see **CARDAMINE**.
AGRIOCASTANUM, the same as **EARTH-NUT**, popularly call *pig-nut*, and *arnot*.
AGRIOCINARA, in *Botany*, a name used by some authors for that species of wild **ARTICHOAK**, the root of which is used instead of the *costus nigra*.
AGRIOCOCCIMELA, or *prunus sylvestris*. See **PLUM-tree**.
AGRIOMELA, a name for the *crab APPLE*.
AGRIOMELANZANION, in the *Botanical Writings of the Ancients*, a word that has perplexed many of the later writers. The Arabian writers, Avicenna and Serapion, used the word *bedengian* for the fruit of the *pomum amoris*, a kind of esculent nightshade, or *solanum*, called by the old Greek writers, as Theophrastus, &c. *strychnus*, and only distinguished from the other *strychni*, or nightshades, by its being described as wholesome, not poisonous. From this Arabic word *bedengian*, the Italians formed their word *melanzana*, and the late Greek writers their *melanzanion*, which they used as the name of the same fruit. This, when the plant was cultivated in gardens, was probably larger and fairer than when it grew wild; but, in this latter state, was not less used, but was distinguished by the term *agriomelanzanion*. If the Greeks, who use this word, or the *melanzanion*, would have appropriated them to the *pomum amoris*, and distinguished these from the other nightshades, they would have done service to the world.
AGRION signifies the **PEUCEDANUM**, called also *agriophyllum*.
AGRIOPHAGI, in *Antiquity*, a name given to those who fed on wild beasts.
The word is compounded of *αγριος*, *wild* and *φαγω*, *I eat*.
AGRIORIGANUM, in *Botany*, wild *marjoram*.
AGRIOSELINUM, in *Botany*, signifies wild **PARSLEY**.
AGRIPALMA, in *Botany*, a name given to **MOTHER-WORT**.
AGRIPPA, a name applied, among the ancients, to children born in an unusual or irregular manner; particularly such as come with the feet foremost, instead of the head.
They were called *agrippæ*, according to Pliny, on account of their being (*ægre partu*) *born with difficulty*. Salmasius derives it from the Greek *αγρευ*, *venari*, and *ἵππος*, *equus*, q. d. *a hunter of horses*.
Daventor has a particular chapter of *agrippas*, or infants coming with their feet foremost, which, according to him, is one of the most convenient and safe ways for a mature birth.
Agrippa gives the denomination to an unguent, described in the *Antidotarium Nicolai*, and in several other dispensaries, supposed, by some, to have been invented by Agrippa king of Judæa, but, as others suspect, by Julius Agrippa, a Roman physician.
AGRIPPINIANS, in *Church History*, the followers of Agrippinus bishop of Carthage, in the third century, who first introduced and defended the practice of *rebaptization*. Arnd. Lex. Ant. Eccl. p. 465.
AGIRUM, in the *Materia Medica of the Ancients*, a name given to an impurer sort of *natrum*. The purer sort of this salt they call *balmyrhaga*, and the coarser and dirtier kind *agrium*. The former of these they had from Media, the latter from Thrace.
AGROM, a disease frequent in Bengal, and other parts of the Indies, wherein the tongue chaps and cleaves in several places, being also extremely rough, and sometimes covered with white spots. The Indians are very fearful of this disease, which they attribute to extreme heat of the stomach.
Their remedy is, to chew the black-seeded basilica, drink some chalybeated liquor, or the juice of large mint.
AGROSTEMA, in *Botany*, the name given by Linnæus to a genus of plants of the *decandria pentagynia* class, usually confounded by other authors among the species of **LYCHNIS**.
The characters of the genus are these: the *perianthium* consists of one leaf, which forms an oblong tube, of a coriaceous texture, and ribbed with ten *striae*; the limb of this, which is of the same length with the flower, is divided into five segments, which are slender and permanent; the flower consists of five petals, the ungues of which are as long as the tube of the cup; the limb is obtuse and expanded; and the stamina are ten subulated filaments affixed to the ungues of the flower; the *antheræ* are simple; the germen of the pistil is oval; the styles are capillary, and five in number; they are erect, and of the length of the stamina; the stigmata are simple; the fruit is an oblong capsule covered by the cup, and contains only one cell, in which are a number of spotted kidney-shaped seeds, in a loose and free receptacle.
AGROSTIS, in the Linnæan system of *Botany*, the name of a distinct genus of plants, of the *triandria digynia* class;

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the distinguishing characteristics of which are these: the calyx is a pointed bivalve glume, containing only one flower: the flower is made of two pointed valves, shorter than the calyx, and has one of the valves larger than the other, and terminated by a beard or awn; the stamina are three capillary filaments longer than the flower; the *antheræ* are split at their ends; the germen of the pistil is roundish; the styles are two, reflex and hairy; and the stigmata are of a like structure; the flower closely shuts in the seed, and does not open to let it fall out; the seed is single, roundish, and pointed at each end.
Agrostis is commonly used for the species of grasses called *quick-grass*, or *couch-grass*.
This plant is said to dissolve stones, especially bilious ones, and hence to cure oxen and sheep that feed upon it.
AGROSTOGRAPHIA, in *Physiology*, the *history* or description of *gramens*, or plants of the grassy kind.
The word is compounded of *αγρως*, *grass*, and *γραφη*, *description*.
AGROSTOGRAPHIA is also the title of a learned and laborious work of John Scheuchzer, containing an exact description of about four hundred species of grasses; particularly dogs-tooth, *cyperus*, *cyperoides*, *rushes*, &c. all disposed in a new method; yet the *history* is far from being complete.
A-GROUND expresses the situation of a ship, whose bottom, or any part of it, rests upon the ground.
AGRYPNIA, *Αγρυπνια*, a privation of sleep; otherwise called **WATCHING**, *waking*, *vigilia*, *pervigilium*, &c. In the Greek church, it is used for the vigil of any of the greater feast-days, observed by the monks and clergy. Du-Cange.
AGUAGUIN, in *Botany*, the name of a shrub among the Africans, who esteem it greatly as a balsamic and vulnerary. The leaves of this shrub resemble those of our common lilac; they grow alternately, and stand upon foot-stalks of half an inch long; and when held up to the light, they shew a fine texture of the smaller veins. Philos. Trans. N^o 232.
AGUAPECACA, in *Ornithology*, the name of a Brazilian bird of the moor-hen kind. It is of the size of a pigeon, very long-legged, and has a beak like that of the gallinaceous kind. Its back, and the upper part of its wings, are brown, and in each wing they have a sharp horn, or prickle, serving for their defence. Marcgraave.
AGUARA-QUIYA, in *Botany*, a Brasil plant, thought to be the *solanum vulgare*, or common nightshade, by Ray.
AGUARA-PONDA, in *Botany*, a plant otherwise called *viola spicata Brasiliana*. It grows to the height of a foot and a half, or more, with a smooth, round, green, and jointed stalk. At each joint come forth four, five, or more, narrow, serrated, pointed, green, and unequal leaves. The top of the stalk bears an ear a foot long, smooth, and covered with flowers of a fine violet azure, or the colour of our *viola martia*, consisting of five roundish leaves. The whole flower is not unlike the *viola martia*, and has somewhat of its smell. The root is straight, of a moderate thickness, and shoots out into abundance of lesser ones, and these again into filaments.
There is another kind, distinguished by the wideness of its ear of flowers, which represents a helmet of a green colour. It is marked with cubic pits, from whence proceed azure flowers. Ray.
AGUE, a periodical disease, of the fever kind, consisting in a cold shivering fit, succeeded by a hot one; and going off in a diaphoresis, or sweating.
If the coldness and shivering be inconsiderable, and only the hot fit felt, the disease is called an *intermitting fever*.
According to the periods or times of the returns of the fit, the disease is either a **QUOTIDIAN**, **TERTIAN**, or **QUARTAN** *ague*, or fever.
The cause of *agues* seems to be, an obstructed perspiration, or whatever, by overloading the juices, retards their motion, or occasions a *lentor* in the blood.—The *causa proxima* seems to be a corruption of the humours of the body.—The symptoms are, heaviness, and reaching; a weak, slow pulse; coldness and shivering felt first in the joints, thence creeping over the whole body; pain in the loins, and an involuntary motion of the under jaw.
A vernal *ague* is easily cured; but an autumnal one is more obstinate, especially in aged and cachectical persons; and, particularly, if complicated with a dropy, peripneumony, &c.
When an *ague* proves fatal, it is usually in the cold fit, through the oppression of the spirits.
The cure is usually begun with an emetic of *ipecacuanha*, an hour before the access, and completed with the *cortex Peruvianus*, administered in the interval between two fits; and continued, at times, to prevent a relapse.
We meet with divers other methods of curing *agues*, besides that by the *cortex*; as by means of tea, which, taken an hour before the access, is said to remove the obstruction,

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tion, and correct the acidity; by *sal volatile*, which acts by attenuating the blood: in the island of Tino, by an infusion of flowers of little centaury. See Phil. Trans. N^o 145.

Etmuller gives divers instances of *agues* cured by putting the patient in a fit of passion. Others have been effected by a fright, a fit of drunkenness, &c. 'Do we not often see *agues* cured by amulets and *pericarpia*? I myself,' says Mr. Boyle, was cured of a violent quotidian by applying to my wrists a paste made of bay-salt, new hops, and blue currants, which has also relieved many others both of quotidians and tertians.' Phil. Works abr. tom. i. p. 80.

Lord Bacon says, 'It is often tried, that juices of stock-gilly-flowers, rose-campion, garlick, and other things, applied to the wrists, and renewed, have cured long *agues*.' He likewise recommends in the heats of *agues*, to hold eggs of alabaster, and balls of crystal, in the hands.

Sir John Pringle accounts for them, by means of the principle of putrefaction. The heat of the body, he observes, varies little; and therefore the corruption produced in any of the humours must happen in a determinate time. If we suppose, that in the paroxysm, the more corrupted particles of the blood do not all pass off through the skin with the sweat, but that some part of them is discharged with the bile; their particles coming into the intestines, and being from thence taken up by the lacteals, and carried into the blood, may there act as a new ferment, and occasion a return of the fit. Thus the corruption of the bile may be the cause of the first fit, as well as of those that follow. He farther adds, that though all moist countries are subject to *agues* of some kind or other; yet if the moisture is pure, and the summers are not close and hot, they will mostly be regular tertian *agues*, and admit an easy cure. But if the moisture arises from long stagnating water, in which plants, fishes, and insects, die and rot, then the damps, being of a putrid nature, occasion not only more frequent, but more dangerous fevers, which more commonly appear in the form of quotidians, and double tertians, than that of single ones. Accordingly they are found to vary with the season, on which the degree of putrefaction in a great measure depends.

Though the bark be the most effectual remedy in this distemper, yet it has been known to cause worse disorders.

AGUE-CAKE, the popular name for a hard tumor on the left side of the belly, lower than the false ribs, said to be the effect of intermitting fevers.

AGUE-FREE is a name given by some to **SASSAFRAS**, on account of its febrifuge virtue.

AGUGLIA, see **OBELISK**.

AGUGLIA is also the name given by the Italian fishermen to the **ACUS** of Oppian, called in English the **GAR-FISH**.

AGUILLANEUF, or **AUGILLANEUF**, a form of rejoicing used among the ancient Franks on the first day of the year.

The word is compounded of the French *a, to, gui, misleto*, and *l'an neuf*, i. e. *the new year*.

Its origin is traced from a druid ceremony: the priests used to go yearly in December, which with them was reputed a sacred month, to gather misleto off the oak in great solemnity. The prophets marched in the front, singing hymns in honour of their deities; after these came a herald with a *caduceus* in his hand; these were followed by three druids a-breast, bearing the things necessary for sacrifice. Last of all came the chief, or arch-druid, accompanied with the train of people.

The chief druid climbing the oak, cut off the misleto with a golden sickle, and the other druids received it in a white cloth. On the first day of the year it was distributed among the people, after having blessed and consecrated it by crying *au gi l'an neuf*, to proclaim the new year.

This cry is still continued in Picardy, with the addition of *plantex, plantex*, to wish a plentiful year. In Burgundy, and some other parts, the children use the same word to beg a new year's gift.

Of later times the name *auguillaneuf* was also given to a sort of begging, practised in some dioceses, for church tapers, on a new year's day, by a troop of young people of both sexes, having a chief, &c. It was attended with divers ridiculous ceremonies, as dancing in the church, &c. which occasioned the synods to suppress it.

AGUILLES, or **AUGUILLES**, cotton cloth, manufactured at Aleppo.

AGUL, in *Botany*, a small shrub very prickly. Its leaves are longish, and resemble those of the knot-grass. It abounds with flowers of a reddish colour. These are succeeded by red hulks. Its root is long, and of a purple colour.

This plant is otherwise called *albagi maurorum*, by **Rauwolf**: it grows in Arabia, Persia, and Mesopotamia.

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Manna is found on its leaves, as large as the grains of coriander, of the same taste and smell as our's, but it melts if the sun shines upon it. The leaves of this plant are purgative. Lemery.

AGURAH, in *Jewish Antiquity*, the twentieth part of an ancient silver **SHEKEL**.

The *agurah* is the same with what is otherwise called *gerah*, and *kesbitah*. The Septuagint translation renders it *εβωλος*.

AGUSADURA, in *Ancient Customs*, a fee due from vassals to their lord, for sharpening their ploughing tackle.

Anciently the tenants in some manors were not allowed to have their rural implements sharpened by any but whom the lord appointed; for which an acknowledgment was to be paid, called *agasadura*, in some places *agusage*, which some take to be the same with what was otherwise called *reillage*, from the ancient French *reille*, a *plough-share*. Du-Cange.

AGUTI, in *Zoology*, the name of an American animal, much resembling the Guinea pig, as we call it, having the characters of the rat-kind, with the voice and hair of the hog.

The hairs are very hard, thick, and glossy, and are of a mixt colour, of a reddish and brown, with more or less black; those on the belly, however, are yellowish; its head and whiskers are like those of the rabbit-kind, but that the nose is sharper, and the upper chop longer than the under one, as in the hog-kind; the upper lip is split as in the hare, and the legs are naked, or have at the utmost only a few scattering hairs on them; the fore-feet have four toes, and the hinder ones six, and these are much longer than the fore-legs; its tail is very short, and its eyes prominent; its voice altogether resembles the grunting of a hog. It is a very voracious animal, devouring its food with extreme eagerness, and using its fore-feet for hands in the manner of the squirrel. It runs very swiftly, and is very expert at digging, so that it soon buries itself in the earth. When provoked, it raises all the hair of its back upright, and strikes the earth with its hinder feet. Ray.

AGUTI TREVA *insulæ Marignanæ*, in *Botany*, a plant mentioned by De Laet. It has the leaves of the orange-tree, only thinner, a dewy flower, a large fruit, with a greenish rind, which contains kernels like those of the pomegranate, thin, sweet, and not ill-tasted.

AGUTIGUEPA *obi Brasiliensibus*, in *Medicine*, the name given by many authors to the arrow-root, or *sagittaria alexipharmica* of the West Indies.

AGYEI, in *Antiquity*, a kind of obelisks consecrated to Apollo, and placed in the vestibules of houses, for their security.

The *agyei* were no other than huge stones, or perhaps sometimes timber, having either a circular or square basis, and terminating in a point at the top, sacred to Apollo, or, as some say, to Bacchus; as protector of the high-ways. Others will have them to have been erected to both those deities. Suidas & Pitiscus.

AGYNIANI, in *Church History*, a sect who condemned all use of flesh, and marriage, as not instituted by God, but introduced at the instigation of the devil.

The word is compounded of the private *a*, and *γυν*, woman. They are sometimes also called *agynneses* and *agynii*; and are said to have appeared about the year 694.

AGYRTÆ, in *Antiquity*, a kind of strolling impostors running about the country, to pick up money by telling fortunes at rich men's doors, pretending to cure diseases, by charms, sacrifices, and other religious mysteries; also to expiate the crimes of their deceased ancestors, by virtue of certain odours and fumigations; to torment their enemies, by the use of magical verses, and the like. The word is formed of the verb *αγυρω*, *I congregate*; alluding to the practice of quacks, who gather a crowd about them. See **ÆRUSCATORES**.

AHALOTH, in the *Materia Medica*, a name used by some writers for the *lignum aloes*, or *aloes-wood*. It is the Hebrew name.

AHANIGER, in *Ichthyology*, a name given by Albertus, and others, to the fish called by authors *acus vulgari*, and by us the **GAR-FISH**. The shape of this fish, which is very long and slender, has caused it to be confounded with the *syngnathus*, or tobacco-pipe fish, called also *acus*; but they differ extremely when examined; that being a true species of the *syngnathus*, and this of the *ESOX* or pike.

A-HEAD, refers to any object that lies immediately before a ship, or towards that point of the compass to which her stem is directed.

AHUCYATLI, in *Zoology*, the name of an American serpent, approaching to the nature of the hæmorrhous and rattle-snake, but larger than the former, and wanting the rattle of the latter; it is as fatal in the effect of its poison as any known species of serpent. Ray.

AHIUS,

AHIUS, see SALT-stone.

AHMELLA, in *Botany*, is a species of *bidens*, or water-hemp agrimony. Its flowers are large, and resemble those of the marygold; they grow in large numbers on the tops of the stalk, and of the large branches, and are succeeded by oblong seeds, which have the same sort of points at one end with those of our common *bidens*, and all the other plants of that genus. The stalks are square, and the leaves stand in pairs, and are in shape like those of the common nettle. We have one species of it very common in all parts of England, about watry places; and easily known by its seeds, in autumn, sticking to the cloaths and stockings of people who go near the plant; by means of the three points at the end, which are sharp and bearded. It would be worth while to try whether these seeds possess virtues worthy notice in physic, for at present they are neglected.

This plant, and the others of the same genus, are called by the name *bidens*, from the teeth or prickles at the ends of the seeds; but the word should be *tridens*, for there are three of them. Phil. Trans. N^o 257.

AHOUI, in *Botany*, the name of a genus of plants, called by Linnæus CERBERA.

The species of *ahoui*, mentioned by Mr. Fournesfort, are these: 1. The *ahoui* of Thevet, or the apple-leaved poisonous *ahoui*. And, 2. The nerium-leaved *ahoui*. By incision into the bark a milky liquor is produced, that smells like garlic.

A-HULL denotes the situation of a ship, when all her sails are furled, on account of the violence of a storm, and when having lashed her helm to the lee-side, she lies near y with her side to the wind and sea, her head being somewhat inclined to the direction of the wind.

AIAIA, in *Ornithology*, the name of a Brazilian bird, of the *platea*, or spoonbill-kind, called by the Portuguese *colobrado*. It is exactly of the same shape, and much of the same size with the European spoonbill, and its beak is in the very same manner broad at the end. It is of a pale, but very bright and shining flesh-colour, on the back and wings; the other parts of its body are perfectly white; it is common about the shores of rivers, and its flesh is very well tasted. Marcgrave.

AJAX, in *Antiquity*, a furious kind of dance, in use among the Grecians; intended to represent the madness of that hero, after his defeat by Ulysses, to whom the Greeks had given the preference in his contest for Achilles's arms.

Lucian in his treatise of dancing, speaks of dancing the *Ajax*. There was also an annual feast called *Ajanti*, *Ajantia*, consecrated to that prince, and observed with great solemnity in the island of Salamis, as well as in Attica; where, in memory of the valour of Ajax, a bier was exposed, set out with a complete set of armour. Potter, Archæol.

AICHMA' OTARCHA, see ÆCHMALOTARCHA.

AID, or AÏDE, AUXILIUM, literally denotes the help, succour, or assistance, which any person lends another, when too weak to do, or avoid, something.

The word is French; formed, according to M. Menage, from the Italian *aitare*; and that from the Latin *adjutare*, to help, or assist.

AID, or AÏDE, in *Law*, is when a petition is made in court, for the calling in of help from another person interested in the matter in question; who, it is probable, may not only strengthen the party's cause who thus prays for aid, but also prevent a prejudice arising to his own right. This is called *aid prier*; but this course of proceeding is now much disused.

A city, or corporation, holding a fee-farm of the king, may pray in aid of him, if any thing be demanded of them relating thereto.

The *aid prier* is sometimes also used in the king's behalf, to prevent any proceedings against him till his counsel be called, and heard what they have to say for avoiding the king's prejudice, or loss. Jenk. Cent. 64. Terms de Ley, 35 Stat. 4 Edw. I. and 14 Edw. III.

AID de camp, an officer in the army, whose business is to attend the general officers, and receive and carry their orders, as occasion requires.

When the king is in the field, he usually appoints young volunteers of quality to carry his orders, who are called the king's *aids de camp*.

AID major, or adjutant, is an officer, whose business is to ease the MAJOR of part of his duty; and to perform it all in his absence.

Some majors have several *aid majors*. Each troop of guards has but one major, who has two *aid majors* under him, or more, according as the business requires.

Every regiment of foot has as many *aid majors* as it contains battalions. When the battalion is drawn up, the *aid major's* post is on the left, beyond all the captains, and behind the lieutenant-colonel.

AID, AUXILIUM, in our *Ancient Customs*, denotes a subsidy

or sum of money due to the lord, from his tenants, on certain occasions.

It differed from a *tax*, which is imposed at any time when wanted; whereas the *aid* could only be levied where it was customary, and where the particular occasion fell out.

Such was the *aid de relief*, due from the tenants in fee, upon the death of the lord mesne, to his heir, towards the charge of a relief of the fee, of the superior lord.

Such also was the *aid chevel*, or *capital aid*, due by vassals, to the chief lord, or the king, of whom they held in c-PITE. Of this there are three kinds.

The first, of chivalry; or, as they call it, *par faire fitz chevalier*, towards making his eldest son a knight, when arrived at the age of fifteen years: the second of marriage, or *par file marier*, towards marrying his eldest daughter. Both these, with all charges incident thereto, are taken away by stat. 12 Car. II. See TENURE, SERVICE, &c. Some will have them to have been first established in England by William the Conqueror, and afterwards transferred to Normandy; but the more common opinion is, that the Conqueror brought them with him. The third was of a RANSOM, due when the lord was taken prisoner by the enemy.

In some provinces there was a fourth kind of *aid*; due whenever the lord should undertake an expedition to the Holy Land.

We also read of *aids* paid the lord, when he was disposed to purchase any new land, or tenement. These were only granted once in his life. Also *aids* for the repairing, and fortifying of castles, seats, &c.

Aids were at first imposed by the lord, or king, at what rate he pleased, but by the statute of 3 Edw. I. a restraint was laid on common persons being lords, and they were tied down to a fixed proportion; and by a subsequent statute, the same rate was extended even to the king.

By the stat. 34 Edw. I. it is ordained that the king shall levy no *aid* or tax, without his parliament.

Aids seem to have been first established with a view to the clients and freedmen of ancient Rome, who made presents to their patron towards his daughter's fortune, as also on his birth day, and on other solemn occasions. Accordingly, Bouteiller relates, that in his time, these *aids* depended on the courtesy and good will of the vassals; for which reason they were called, *droits de complaisance*.

The bishops also received *aids* from their ecclesiastics, called *synodals*, and *pentecostals*. They were to be paid at the time of their consecration; or when they had a king to entertain; or when called by the pope to his court, or to a council; as also when they went to receive the *pallium*.

Add, that the archdeacons also exacted *aids* from the clergy of their jurisdiction. See PROCURATION.

A kind of feudal *aids* are still levied in Germany, &c. under the title of *collectæ*.

Aids are also used in matters of polity, for any extraordinary taxes, or impositions, occasionally levied by the king and parliament; upon the subjects, to support the charges of the government, when the ordinary revenue is deficient.

AID, royal, is a name frequently given to the land-tax.

AID, in *Theology*; the *aids* or assistances of divine favour, which are offered to man, have been the subject of much dispute betwixt Janfenists and Jesuits; for the composing whereof, a celebrated congregation was erected at Rome, under the title of congregation of *aids*, *congregatio de auxiliis*.

Some divines, after St. Augustine, distinguish two kinds of *aids*, viz. *sine quo*, and *quo*.

Auxilium sine quo, that which the mind is at liberty either to use or refuse; such is supposed to have been the *aid* ministered to man in the state of innocency, while his mind and will were sound and upright.

Auxilium quo amounts to what is otherwise called efficacious grace, which surmounts and subdues the will; such, according to the Calvinists and Janfenists, is supposed to be the *aid* ministered by grace, in the present fallen state of human nature.

Aids, in the *Manège*, are helps, or assistances, which some call cherishings, by which the horseman contributes towards the motion, or action, required of the horse; by a discreet use of the bridle, cavesson, spur, poinçon, rod, calf of the leg, and voice; and also by a just and well-timed motion of the body.

Such a horse knows his *aids*, answers his *aids*; takes his *aids* with vigour, &c. The *aids* are made use of, to avoid the necessity of corrections. The same *aids*, given in a different manner, become corrections.

The *aids* used to make a horse go in airs, are very different from those required in going upon the ground. Newcastle.

The inner heel, inner leg, and inner rein, are called *inner aids*.

aids. The outer heel, outer leg, &c. are *outer aids*. See Berenger's Art of Horsemanship, vol. ii. p. 92, &c.

AIDS, in the *French Law*, denote a duty paid on all goods sold and transported either out of, or into the kingdom. In this sense, *aids* answer to what the Latins call *vectigalia*, a *vehendis mercibus*, and are paid by all kinds of persons, privileged or non-privileged; by which they differ from *tailles*, *taxes*, which are only paid by the peasants, being a sort of capitation, answering to what the Latins call *tributum*. The farm of the *aids* was formerly distinct from, but now united to, that of the *gabelles*, and other imposts.

AIDS, *court of*, in France, is a sovereign court, erected for the cognizance of matters relating to the taxes. Appeals come to this from the court of elections, where matters relating to the *taille* are first heard. The *court of aids* of a province is sometimes separated from the parliament of the province, and fixed in another city, as at Montpellier, Montauban, &c. There are twelve courts of *aids*, of which the principal is that at Paris.

AIEREBA, in *Ichthyology*, the name of a fish of the *passinacha marina* kind, but differing from all the others, in that the form of its body is regularly round, or oval, and its head placed far within the verge of its thin part. It is common in the western ocean; but it is not much esteemed for the table, being more loose and flabby in its flesh than the other kinds. Marcgrave.

AIGEIROS, a name sometimes given to *black poplar*.

AIGHENDALE, a liquid measure in Lancashire, containing seven quarts.

AIGITHALUS, αἰθθαλος, in *Ornithology*, a name by which some of the old authors call the *PARUS*, or *TITMOUSE*.

AIGLETTE, in *Heraldry*. See *EAGLET*.

AIGRETTA, in *Ornithology*, a name used by some authors, as the name of a distinct species of heron, but seeming to be no other than a synonym of the *GAZA giovane*, or *ARDEA alba minor*, the small white heron.

AIGUE marine, in *Natural History*. See *AQUA Marina*.

AIGUISCE, **AIGUISSE**, or **EGUISCE**, in *Heraldry*, a term applied to a *CROSS*, when its four ends are sharpened, but so as to terminate in obtuse angles.

The cross *aiguisee* differs from the cross *FITCHIE*, in that the latter goes tapering by degrees to a sharp point; whereas only the ends of the former are tapered.

AILE, or **AIEL**, in *Law*, a writ which lies where the grand-father, or great grand-father, called *besaile*, was seised of lands or tenements in fee-simple, on the day he died; and a stranger abates or enters the same day, and dispossesseth the heir or grand-child. See *ABATEMENT*.

The word is formed of the French *aieul*, *avus*, *grand-father*.

AILERONS, in *Natural History*, petty-wings, a French term expressing two small shelly substances, resembling parts of wings, or young and just growing wings, and found in the two-winged flies, situated at the root of the larger wings. Reaumur.

The word is a diminutive of the French *aile*, *wing*.

AILES vitrées, in *Natural History*, a French term used to express the wings of a series of insects, which seem of a middle nature, between the fly and the butterfly kind, and are therefore called *PAPILION mouches* by these writers. The wings of these insects are in part covered with dust, or scales, and in part free from it, and transparent. In these free parts they look glassy; whence their name, signifying *glassy wings*.

AIPIMIXIRA, in *Ichthyology*, the name of an American fish, more usually known by the name of *PUDIANO*. It is a small fish, of the shape of a pear, with a purple back, and yellow sides and belly. Marcgrave.

AIR, **AER**, in *Physics*, a thin, fluid, elastic, transparent, ponderous, compressible, and dilatable body; surrounding the terraqueous globe to a considerable height.

Air was considered by some of the ancients as an *element*; but then, by *element*, they understood a different thing from what we do. See *ELEMENTS*.

It is certain, that *air*, taken in the popular sense, is far from the simplicity of an *elementary* substance; though some of its properties and uses in a state of combination with various substances, from which it has been extricated by modern analysis, may entitle it to this appellation. Hence *air* may be distinguished into *proper* or *elementary*, and *vulgar* or *heterogeneous*.

AIR, *elementary*, or **AIR properly so called**, is a certain subtile, homogeneous, elastic matter; the basis, or fundamental ingredient of the atmospherical *air*, and that which gives it the denomination.

In this sense, it likewise enters into the composition of most, or perhaps all bodies, existing in them under a solid form, deprived of its elasticity and most of its distinguishing properties, and serving as their cement, and the universal bond of nature; but capable, by certain

processes, of being disengaged from them, recovering its elasticity, and resembling the *air* of our atmosphere. See Hales's Vegetable Statics, chap. vi.

The peculiar nature of this *aerial* matter we know but little of; what authors have advanced concerning it being chiefly conjectural. We have no way of altogether separating it from the other matters with which in its purest state it is more or less combined, and consequently no way of ascertaining, with satisfactory evidence, its peculiar properties, abstractedly from those of other bodies.

Dr. Hooke, and some others, maintain, that it is the same with the *æther*, or that fine, fluid, active matter, diffused through the whole expanse of the celestial regions: which coincides with Sir I. Newton's *subtile medium*, or *spirit*. In this view it is supposed to be a body *sui generis*, ingenerable, incorruptible, immutable, present in all places, in all bodies.

Others, considering only its property of elasticity, which they account its essential and constituent character, suppose it to be mechanically producible; and to be no other than the matter of other bodies so modified and altered, as to become permanently elastic. Sir Isaac Newton observes, that the particles of dense, compact, and fixed substances, cohering by a strong attractive force, are not separable without a vehement heat, or perhaps not without fermentation; and such bodies being at length rarefied by such heat or fermentation, become true *permanent air*; and distinguishable from vapour, which is only *apparent* or *transient air*, as is evident from the experiment with the *æolipile*. Optics, Qu. 31. p. 371. 372. ed. 3. See *AIR*, *atmospherical* and *fixed*.

AIR, *vulgar*, or *heterogeneous*, is a coalition of corpuscles of various kinds, which together constitute one fluid mass, wherein we live and move, and which we are continually receiving and expelling by respiration. The whole assemblage of this makes what we call the *atmosphere*; where this *air*, or *atmosphere*, terminates, there *æther* is supposed to commence; which is distinguished from *air*, by its not making any sensible refraction of the rays of light, as *air* does.

Air, in this popular and extensive meaning of the term, is acknowledged by Mr. Boyle to be the most heterogeneous body in the universe: Boerhaave shews it to be an universal chaos, or *colluvies*, of all kinds of created bodies. Beside the matter of light or fire, which continually flows into it from the heavenly bodies, and probably the magnetic effluvia of the earth; whatever fire can volatilize is found in the air.

Hence, for instance, 1. The whole fossil kingdom must necessarily be found in it: for all of that tribe, as salts, sulphurs, stones, metals, &c. are convertible into fume, and thus capable of being rendered part of the *air*. Gold itself, the most fixed of all natural bodies, is found to adhere close to the sulphur in mines; and thus to be raised along with it. Mr. Boyle observes, that beside the saline *effluvia* of the common sort, such as the nitrous, vitriolic, marine, &c. there may be many compounded kinds of salts in the *air*, which we have not on earth, arising from different saline spirits, fortuitously meeting and mixing together. Thus, the glass windows of ancient buildings are sometimes observed to be corroded, as if they had been worm-eaten; though none of the simple salts above mentioned have the faculty of corroding glass.

Sulphurs too must make a considerable ingredient of the *air*, on account of those many volcanos, grottos, caverns, and other spiracles chiefly affording that mineral, dispersed through the globe.

2. All the parts of the animal kingdom must also be in the *air*: for beside the copious *effluvia* continually emitted from their bodies, by the vital heat, in the ordinary process of perspiration; by means of which an animal, in the course of its duration, impregnates the *air* with many times the quantity of its own body; we find that any animal when dead, being exposed to the *air*, is in a certain time wholly incorporated with it.

3. As to vegetables, none of that class can be supposed wanting; since we know that all vegetables, by putrefaction, become volatile.

The associations, separations, attritions, dissolutions, and other operations of one sort of matter upon another, may likewise be considered as sources of numerous other neutral, or anonymous bodies, unknown to us.

Air, in this general sense, is one of the most considerable and universal agents in all nature; being concerned in the preservation of life, and the production of most of the phenomena relating to our world. Its properties and effects, including a great part of the researches and discoveries of the modern philosophers, have in a considerable degree been reduced to precise laws and demonstrations; in which form they make a very extensive

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and important branch of the mixed mathematics, called PNEUMATICS.

AIR, mechanical properties and effects of. The most considerable of these are its *fluidity*, *weight*, and *elasticity*.

I. *Fluidity*. That the *air* is a *fluid*, is evident from the easy passage it affords to bodies through it; as in the propagation of smells, and other *effluvia*, and the easy conveyance it affords to sounds: for these, and similar effects, prove it to be a body, whose parts give way to any force impressed, and, in yielding, are easily moved among themselves; which is the definition of a *fluid*. Besides, it is certain, that no degree of cold has ever yet been produced, natural or artificial, strong enough to deprive it of its *fluidity*.

They who, with the Cartesians, make *fluidity* to consist in a perpetual intestine motion of the parts, find that *air* answers also to that character: thus, in a darkened room, where the species of external objects are brought in by a single ray, they appear in a continual fluctuation; and thus even the more accurate *thermometers* are observed never to remain a moment at rest.

The cause of this *fluidity* of *air* is attributed by some later philosophers to the fire intermixed with it; without which, they imagine, the atmosphere would harden into a solid, impenetrable mass. And hence, the greater the degree of fire, the more fluid, moveable, and pervious, is the *air*: and thus, as the degree of fire is continually varying, according to the circumstances and position of the heavenly bodies, the *air* is kept in a continual reciprocation. See Buffon's Hist. Nat. Supp. vol. i. Hence, in a great measure, it is said, that on the tops of the higher mountains, the senses of smelling, hearing, &c. are found very feeble. The increased rarity of the *air* at a considerable height may account for this effect; but the above hypothesis is contradicted by the more sensible experience of cold: the *air* near the surface of the earth deriving greater heat from the reflected than from the direct rays of the sun. See MOUNTAINS.

II. *Weight or gravity*. Galileo first discovered that *air* had weight, Dial. I. but the pressure of the atmosphere was observed by his disciple Torricelli; and the variations of it depending on different heights, by M. Pascal. That the *air* is heavy, follows from its being a body; weight being an essential property of matter. But we have many arguments to the same purpose from sense, and experiment: thus, the hand, applied on the orifice of a vessel empty of *air*, soon feels the load of the incumbent atmosphere. Thus, glass vessels, exhausted of their *air*, are easily crushed to pieces by the weight of the *air* without. So, two small hollow segments of a sphere, four inches in diameter, exactly fitting each other, being emptied of *air*, are pressed together with a force equal to 188 pounds, by the weight of the ambient *air*; and that they are kept together by the pressure of the *air* is evident, by suspending them in an exhausted receiver, where they will separate of themselves. Farther, if a tube, close at one end, be filled with mercury, and the other end immersed in a basin of the same fluid, and thus erected, the mercury in the tube will be suspended at the height of about thirty inches above the surface of that in the basin. The reason of which suspension is, that the mercury in the tube cannot fall lower, without raising that in the basin; which being pressed down by the weight of the incumbent atmosphere, cannot give way, unless the weight of the mercury in the tube exceeds that of the *air* out of it. That this is the case, is evident; because, if the whole apparatus be included in the receiver of an *air*-pump, the mercury will fall in proportion as the *air* is exhausted; and on gradually letting in the *air* again, the mercury re-ascends to its former height. This makes what is usually called the *Torricellian experiment*.

To say no more, we can actually weigh *air*; for a vessel, full even of common *air*, is found, by a very nice balance, to weigh more than when the *air* is exhausted; a quart of *air* weighing about 17 grains; and the effect is proportionably more sensible, if the same vessel be weighed full of condensed *air* in a receiver void of *air*.

The weight of *air* is continually varying, according to the different degree of heat and cold, and the concurrence of other causes. Ricciolus estimates its weight to that of water, to be as 1 to 1000; Merfennus, as 1 to 1300, or 1 to 1356; Lana, as 1 to 640; Galileo only makes it as 1 to 400. Mr. Boyle, by a more accurate experiment, found it about London, as 1 to 938; and thinks, all things considered, the proportion of 1 to 1000 may be taken as a *medium*; for there is no fixing any precise ratio, since not only the *air*, but the water itself, is continually varying. Add, that experiments made in different places necessarily vary, on account of the different heights of the places, the seasons of making the experiments, and the different densities of *air* corresponding to these circumstances. It must be added, however,

that by experiments made since, before the Royal Society, the proportion of *air* to water was, first, found as 1 to 840; then, as 1 to 852; and a third time, as 1 to 860. Phil. Trans. N^o 181. And lastly, by a very simple and accurate experiment of Mr. Hawksbee, the proportion was settled as 1 to 885. Phys. Mechan. Exper. But these experiments being all made in the summer months, when the barometer was 29½ inches high, Dr. Jurin thinks that at a *medium* between heat and cold, when the barometer is 30 inches high, the proportion between the two fluids may be taken as 1 to 800; which agrees with the observation of the honourable Mr. Cavendish, the thermometer being at 50°, and the barometer at 29½ inches. Phil. Trans. vol. lvi. p. 152.

Air, then, being heavy and fluid, the laws of its gravitation, or pressure, may be inferred to be the same as in other fluids; and consequently its pressure must be as its perpendicular altitude. This is also confirmed by experiment. For removing the *Torricellian tube* to a more elevated place, where the incumbent column of *air* is shorter, a proportionably shorter column of mercury is sustained. On this principle depend the structure and office of the BAROMETER.

From hence also, it follows, that the *air*, like all other fluids, must press equally every way. This is confirmed by observing, that soft bodies sustain this pressure without any change of figure, and brittle bodies, without breaking; though the pressure upon them be equal to that of a column of mercury thirty inches high, or a column of water of thirty-two feet. It is obvious, that no other cause can preserve such bodies unchanged, but the equable pressure on all sides, which resists as much as it is resisted. And hence, upon removing or diminishing the pressure on one side only, the effect of the pressure is soon perceived on the other. For the quantity and effect of this pressure of the atmosphere on the human body, and on the surface of the earth, see ATMOSPHERE.

From the gravity of the *air*, considered in connection with its fluidity, several of its uses and effects are deducible.

1. By means of its *weight*, &c. it closely invests the earth, with all the bodies upon it; and constringes and binds them down with a force amounting, according to the computation of M. Pascal, to 2232 pounds weight upon every square foot, or upwards of 15 pounds upon every inch square. Hence it prevents, e. g. the arterial vessels of plants and animals from being too much distended by the impetus of the circulating juices, or by the elastic force of the *air* so plentifully contained in the blood.

Thus, we see, in the operation of cupping, that, upon a diminution of the pressure of the *air*, the parts of the body grow tumid; which necessarily alters the manner of the circulation through the capillaries, &c.

The same cause hinders the juices from ousing and escaping through the pores of their containing vessels: this is experienced by such as travel up high mountains, who, in proportion as they ascend, find themselves more and more relaxed; and at length become subject to a spitting of blood, and other hæmorrhages; because the *air* doth not sufficiently constringe the vessels of the lungs. Similar effects are observed in animals that are enclosed under the receiver of the *air*-pump, who, as the *air* is taken from them, pant, swell, vomit, and discharge their urine and excrements. See VACUUM.

2. The *weight* of the *air* promotes the mixture of contiguous fluid bodies. Hence many liquids, as oils and salts, which readily and spontaneously mix in *air*, remain, on the removal of it, in a state of separation.

3. This *gravity* of *air* does in some cases determine the action of one body upon another.

And, 4. to the same principle are chiefly owing our winds, which are only *air* put in motion by some alteration in its equilibrium.

III. *Elasticity*—or a power of yielding to an impression by contracting its dimensions; and, upon removing or diminishing the impressing cause, of returning to its former space or figure. This *elastic* force has been long accounted the distinguishing property of *air*; the other properties hitherto enumerated being common to it with other fluids; though, from late experiments, it appears more than probable, that the capacity of being compressed and expanded is not peculiar to *air*. See WATER and COMPRESSION.

This property of *air* was first ascertained by some experiments of lord Bacon, who, upon this principle, constructed his *vitrum calendare*, the first thermometer. Bacon. Nov. Organ. lib. ii. aph. 13.

Of this power we have numerous proofs. Thus, a blown bladder being squeezed in the hand, we find the included *air* sensibly resist; so that upon ceasing to compress, the cavities or impressions, made in its surface, are readily expanded again, and filled up.

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On this property of *elasticity*, the structure and office of the *air-pump* depend.

Every particle of *air* always exerts this *nîsus*, or endeavour to expand, and thus strives against an equal endeavour of the ambient particles; whose resistance, happening by no means to be weakened, it immediately diffuses into an immense extent. Hence it is, that thin glass bubbles, or bladders, filled with *air*, and exactly closed, being included in the exhausted receiver of an *air-pump*, burst, by the force of the included *air*. So a bladder quite flaccid, containing only the smallest quantity of *air*, swells in the receiver, and appears quite full. The same effect is also found, by carrying the flaccid bladder to the top of a high mountain.

It has been questioned among philosophers, whether this *elastic* power of the *air* is capable of being destroyed or diminished. Mr. Boyle made several experiments, with a view to discover, how long *air*, brought to the greatest degree of expansion to which he could reduce it in his *air-pump*, would retain its spring; and could never observe any sensible diminution. Desaguliers found that *air*, after having been enclosed for half a year in a wind-gun, had lost none of its *elasticity*; and Roberval, after preserving it in the same manner for sixteen years, observed, that its expansive projectile force was the same, as if it had been recently condensed. Nevertheless, Mr. Hawksbee concludes, from a later experiment, that the spring of the *air* may be so disturbed by a violent pressure, as to require some time to return to its natural tone. Dr. Hales inferred, from a number of experiments, that the *elasticity* of the *air* is capable of being impaired and diminished by a variety of causes. See *AIR*, *fixed*.

The weight or pressure of the *air*, it is obvious, has no dependence on its *elasticity*; but would be the same, whether the *air* had such a property or not. But the *air*, being *elastic*, is necessarily affected by the pressure, which reduces it into such a space, as that the *elasticity* which re-acts against the compressing weight, is equal to that weight.

In effect, the *law* of this *elasticity* is, that it increases as the density of the *air* increases; and the density increases, as the force increases by which it is pressed. Now, there must necessarily be a balance between the action and re-action; i. e. the *gravity* of the *air*, which tends to compress it, and the *elasticity* of the *air*, which endeavours to expand it, must be equal.

Hence, the *elasticity* increasing, or diminishing, universally, as the density increases, or diminishes, i. e. as the distance between the particles diminishes, or increases, it is no matter whether the *air* be compressed, and retained in such space, by the weight of the atmosphere, or by any other means; it must endeavour, in either case, to expand with the same force. And hence, if *air* near the earth be pent up in a vessel, so as to cut off all communication with the external *air*, the pressure of the enclosed *air* will be equal to the weight of the *atmosphere*. Accordingly, we find *mercury* sustained to the same height, by the *elastic* force of *air* enclosed in a glass vessel, as by the whole *atmospherical* pressure.

On the same principle *air* may be artificially condensed; and hence the structure of the *WIND-gun*.

The utmost limits to which *air*, of the density which it possesses at the surface of the earth, is capable of being compressed, have not been ascertained. Mr. Boyle made it thirteen times more dense; Dr. Halley says that he has seen it compressed so as to be 60 times denser than in its natural state, which is farther confirmed by M. Papin, and M. Huygens; Dr. Hales, by means of a press, condensed it 38 times; and by forcing water in an iron ball or globe, into 1551 times less space than in naturally occupies.

However Dr. Halley has asserted, in the Philosophical Transactions, Abr. vol. ii. p. 17. that from the experiments made at London, and by the Academy del Cimento at Florence, it might be safely concluded, that no force whatever is able to reduce *air* into 800 times less space than that which it naturally possesses on the surface of our earth. In answer to which, M. Amontons, in the Memoirs of the French Academy, maintains, that there is no affixing any bounds to its condensation; that greater and greater weights will still reduce it into less and less compass; that it is only *elastic* in virtue of the fire which it contains; and that as it is impossible ever absolutely to drive all the fire out of it, it is impossible ever to make the utmost condensation.

The dilatation of the *air*, by virtue of its *elastic* force, is found to be very surprising; and yet Dr. Wallis suggests, that we are far from knowing the utmost of which it is capable. In several experiments made by Mr. Boyle, it dilated first into 9 times its former space; then into 31 times; then into 60; then into 150. Afterwards, it was brought to dilate into 8000 times its space; then

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into 10000, and even at last into 13679 times its space; and this altogether by its own expansive force, without the help of fire.

On this depend the structure and use of the *MANOMETER*. Hence, it appears, that the *air* we breathe near the surface of the earth is compressed by its own weight into at least the 13679th part of the space it would possess *in vacuo*. But if the same *air* be condensed by art, the space it will take up when most dilated, to that it possesses when condensed, will be, according to the same author's experiments, as 550000 to 1.

We thence see how wild and erroneous the observation of Aristotle was, that *air*, rendered ten times rarer than before, changes its nature, and becomes fire.

M. Amontons, and others, we have already observed, attribute the rarefaction of the *air* wholly to the fire contained in it; and therefore, by increasing the degree of heat, the degree of rarefaction may be carried still farther than its spontaneous dilatation. *Air* is expanded $\frac{1}{3}$ of its bulk by boiling water. Hist. Acad. Sc. 1699.

Dr. Hales found that the *air* in a retort, when the bottom of the vessel was just beginning to be red-hot, was expanded through twice its former space, and in a white, or almost melting heat, it occupied thrice its former space; but Mr. Robins found, that *air* was expanded by the heat of iron, just beginning to be white, to four times its former bulk.

On this principle depend the structure and office of the *THERMOMETER*.

M. Amontons first discovered that *air* will expand, in proportion to its density, with the same degree of heat. On this foundation, the ingenious author has a discourse, to prove 'that the spring and weight of the *air*, with a moderate degree of warmth, may enable it to produce even earthquakes, and other of the most vehement commotions of nature.'

According to the experiments of this author, and M. de la Hire, a column of *air* on the surface of the earth, 36 fathoms high, is equal in weight to three lines depth of mercury; and it is found, that equal quantities of *air* possess spaces reciprocally proportional to the weights with which they are pressed: the weight of the *air*, therefore, which would fill the whole space possessed by the terrestrial globe, would be equal to a cylinder of mercury, whose base is equal to the surface of the earth, and its height containing as many times three lines, as the *atmospherical* space contains orbs equal in weight to 36 fathoms of that wherein the experiment was made.—

Hence, taking the densest of all bodies, e. gr. gold, whose gravity is about 14630 times greater than that of *air* in our orb, it is easy to compute, that this *air* would be reduced to the same density as gold, by the pressure of a column of mercury 14630 times 28 inches high, i. e. 409640 inches, since the bulks of *air*, in that case, would be in the reciprocal ratio of the weights by which they are pressed. These 409640 inches, therefore, express the height at which the barometer must stand, where the *air* would be as heavy as gold, and the number $2\frac{1}{4}\frac{1632}{9640}$ lines, the thickness to which our column of 36 fathoms of *air* would be reduced in the same place.

Now, we know, that 43528 fathoms, which is the depth, where the above pressure, and consequent reduction take place, are only the 74th part of the semidiameter of the earth; and therefore, beyond that depth, whatever matter exists, it must be heavier than gold. It is not improbable, therefore, that the remaining sphere of 6451538 fathoms diameter may be full of dense *air*, heavier, by many degrees, than the heaviest bodies which we know. Hence, again, as it is proved, the more *air* is compressed, the more does the same degree of fire increase the force of its spring, and render it capable of a proportionably greater effect; we may infer, that a degree of heat, which in our orb can only produce a moderate effect, may have a very violent one in such lower orb; and that, as there may be many degrees of heat in nature, beyond that of boiling water, it is probable there may be some, whose violence, thus assisted by the weight of the *air*, may be sufficient to tear asunder the solid globe. Mem. de l'Acad. an. 1703. For the true cause of earthquakes, see *EARTHQUAKES*.

This *elastic* property of *air* is supposed by many philosophers to depend on the figure of its corpuscles, which they suppose to be ramous; some maintain that they are so many minute *floculi*, resembling fleeces of wool; others conceive them rolled up like hoops, and curled like wires, or shavings of wood, or coiled like the springs of watches, and endeavouring to restore themselves in virtue of their texture: so that to produce *air*, must be to produce such a figure and disposition of parts; and those bodies only are proper subjects, which are susceptible of such disposition; which fluids, from the smoothness, roundness, and slipperiness of their parts, are not.

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But Sir Isaac Newton (*Optics*, p. 371.) explains the matter otherwise; such a texture, he thinks, by no means sufficient to account for that vast power of *elasticity* observed in *air*, which is capable of diffusing into above a million of times more space than it before possessed.—But, as all bodies are shewn to have an attractive and repelling power; and as both these are stronger in bodies, the denser, more compact, and solid they are; hence it follows, that when by heat, or any other powerful agent, the attractive force is surmounted, and the particles of the body separated so far as to be out of the sphere of attraction; the repelling power commencing thence makes them recede from each other with a strong force proportionable to that wherewith they before cohered; and thus they become permanent *air*. And he has proved, that particles, endeavouring to recede from each other with forces reciprocally proportional to the distance between their centres, will compose an *elastic* fluid, whose density shall be proportional to its compression. Hence, says the same author, it is, that as the particles of permanent *air* are grosser, and rise from denser bodies, than those of transient *air*, or vapour, true *air* is more ponderous than vapour; and a moist atmosphere is lighter than a dry one.

The *elastic* power of the *air* above illustrated and evinced, is the second great source of the effects of this important fluid. By means of this, it insinuates into the pores of bodies, possessing this prodigious faculty of expanding, which is so easily excited, that it must necessarily put the particles of bodies into which it insinuates itself into perpetual oscillations. Indeed, the degree of heat, and the *air*'s gravity and density, and consequently its elasticity and expansion, never remaining the same for the least space of time, there must be an incessant vibration, or dilatation and contraction in all bodies.

We observe this reciprocation in several instances, particularly in plants, the *tracheæ*, or *air*-vessels, of which do the office of lungs; for the contained *air* alternately expanding and contracting, as the heat increases or diminishes, by turns presses the vessels, and eases them again: and thus promotes a circulation of their juices. See *AIR-vessels*.

Hence, we find, that no vegetation or germination will proceed in *vacuo*. Indeed beans have been observed to grow a little tumid therein; and this has led some to attribute that to vegetation, which was really owing to no other cause than the dilatation of the *air* within them. The *air* is very instrumental in the production and growth of vegetables, not only by invigorating their several juices, while in an *elastic* active state, but, also, by greatly contributing in a fixed state to the union and firm connexion of their several constituent parts.

From the same cause it is, that the *air* contained in bubbles of ice, by its continual action, bursts the ice; and thus glasses and other vessels frequently crack, when their contained liquors are frozen. Thus, also, entire columns of marble sometimes cleave in the winter time, from some little bubble of included *air*'s acquiring an increased elasticity. From the same principle arise all *PUTREFACTION* and *FERMENTATION*; neither of which will proceed, even in the best disposed subjects, in *vacuo*.

Since we find such great quantities of *elastic air*, generated in the solution of animal and vegetable substances, a good deal must constantly arise from the dissolution of these elements in the stomach and bowels, which is much promoted by it.

In reality, all natural corruption and alteration seem to depend on *air*; and metals, particularly gold, only seem to be durable and incorruptible, in virtue of their not being pervious to *air*.

AIR, effects of the different ingredients of it. *Air* not only acts by its common properties of gravity and elasticity, but there are numerous other effects, arising from the peculiar ingredients of which it consists.

Thus, 1. It not only dissolves and attenuates bodies by its pressure and attrition, but as a *chaos* containing all kinds of menstrea, and consequently possessing powers for dissolving all bodies. It is known that iron and copper readily dissolve, and become rusty in *air*, unless well defended with oil. Boerhaave assures us that he has seen pillars of iron so reduced by *air*, that they might be crumbled to dust between the fingers; and as for copper, it is converted by the *air*, into a substance much like the verdigrise produced by vinegar.

Mr. Boyle relates, that in the southern English colonies the great guns rust so fast, that, after lying in the *air* for a few years, large cakes of *crocus martis* may be separated from them. Aosta adds, that in Peru the *air* dissolves lead, and considerably increases its weight. Yet gold is generally esteemed indissoluble by *air*; being never found to contract rust, though exposed to it ever so long. The reason may be, that sea-salt, which is the only menstruum capable of acting on gold, being very difficult to volatilize, there is but a small proportion of it in the at-

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mosphere. In the laboratories of chemists, where *aqua regia* is prepared, the *air* becoming impregnated with an unusual quantity of this salt, gold contracts a rust like other bodies.

Stones also undergo the changes incident to metals.—Thus, Purbeck stone, of which Salisbury cathedral consists, is observed gradually to become softer, and to moulder away in the *air*; and Mr. Boyle gives the same account of Blackington stone. He adds, that *air* may have a considerable operation on vitriol, even when a strong fire could act no farther upon it. And he has found, that the fumes of a corrosive liquor work more suddenly and manifestly on a certain metal, when sustained in the *air*, than the menstruum itself did, which emitted fumes, on those parts of the metal, which it covered; referring to the effects of the *effluvia* of vinegar on COPPER.

The dissolving power of *air* is increased by heat, and by other causes. It combines with water; and, by access of cold, deposits part of the matter which was kept dissolved in it, by a greater degree of heat. Hence the water, by being deposited and condensed upon any cold body, such as glass, &c. in windows, forms fogs, and becomes visible *Air*, likewise, by means of its dissolving power, accelerates *EVAPORATION* and *DISTILLATION*.

2. *Air* volatilizes fixed bodies. Thus, sea-salt, being first calcined, then fused by the fire, and when fused exposed to the *air* to liquify; when liquified set to dry, and then fused again, repeating the operation, will by degrees, be almost wholly evaporated; nothing but a little earth remaining. Helmont mentions it as an arcanum in chemistry, to render fixed salt of tartar volatile; but this is easily effected by *air* alone: for, if some of this salt be exposed to the *air*, in a place replete with acid vapours, the salt draws the acid to itself, and, when saturated with it, is volatile.

3. *Air* also fixes volatile bodies. Thus, though spirit of nitre, or aqua fortis, readily evaporates by the fire; yet if there be any putrefied urine near the place, the volatile spirit will be fixed, and fall down in form of *AQUA SECUNDA*.

4. *Air* brings many quiescent bodies into action; i. e. excites their latent powers. Thus, if an acid vapour be diffused through the *air*, all the bodies of which that is the proper menstruum, being dissolved by it, are brought into a state proper for action.

In the various operations of chemistry, *air* is a very necessary and important agent; the result of particular processes depending on its presence or absence, on its being open or enclosed. Thus, the parts of animals and vegetables can only be calcined in open *air*; in close vessels they never become any other than black coals. And these operations are effected by the changes to which the *air* is liable. Many instances might be alleged to this purpose. Let it suffice to observe, that it is very difficult to procure oil of sulphur, *per campanam*, in a clear dry atmosphere; but in a thick moist *air* it may be obtained with greater ease, and in larger quantities. So pure well-fermented wine, if it be carried to a place where the *air* is replenished with the fumes of new wine, then fermenting, it will begin to ferment afresh.

The changes in the *air* arise from various causes, and are observable, not only in its mechanical properties, such as gravity, density, &c. but in the ingredients that compose it. Thus, at Fashlun in Sweden, noted for copper-mines, the mineral exhalations affect the *air* in such a manner, as to discolour the silver coin in purses; and the same *effluvia* change the colour of brass. In Carniola, Campania, &c. where are mines of sulphur, the *air* sometime becomes very unwholesome, which occasions frequent epidemic diseases, &c.

The *effluvia* of animals also have their effect in varying the *air*; as is evident in contagious diseases, plagues, murrains, and other mortalities, which are spread by an infected *air*.

The sudden and fatal effect of noxious vapours has generally been supposed to be principally, if not wholly, owing to the loss and waste of the *vivifying spirit of air*. But Dr. Hales attributes this effect to the loss of a considerable part of the *air*'s elasticity, and to the grossness and density of the vapours with which the *air* is charged. He found, by an experiment made on himself, that the lungs will not rise and dilate as usual, when they draw in such noxious *air*, the elasticity of which has been considerably diminished. For having made a bladder very supple by wetting it, and then cutting off so much of the neck, as would make a hole wide enough to admit the biggest end of a large fofset, to which the bladder was bound; and then having blown the bladder, he put the small end of the fofset into his mouth, and, at the same time, pinched his nostrils so close, that no *air* might pass that way, and he could only breathe to and fro the *air* contained in the bladder, which, with the fofset, contained seventy-four cubic inches. In less than half

a minute, he found a considerable difficulty in breathing; and at the end of a minute, the bladder was become so flaccid, that he could not blow it above half full, with the greatest expiration which he could make; and at the same time, he could plainly perceive that his lungs were much fallen, in the same manner as when we breathe out of them all the *air* we can at once. Hence he concluded, that a considerable quantity of the *elasticity* of the *air* was destroyed; and that when the suffocating quality of the *air* was the greatest, it was with much difficulty that he could dilate his lungs in a very small degree. From this, and several other experiments, he inferred, that the life of animals is preserved rather by the elastic force of the *air* acting on their lungs, than by its vivifying spirit; and that candles and matches cease to burn, after having been confined in a small quantity of *air*; not because they have rendered the *air* effete by consuming its vivifying spirit, but because they have discharged a great quantity of acid fuliginous vapours, which partly destroy its elasticity, and retard the elastic motion of the remainder. He likewise found, that *air*, which passed through cloths dipped with vinegar, could be breathed to and fro as long again as the like quantity of *air*, which was not thus purified; so that sprinkling the decks of ships with vinegar may refresh the *air*; and this is confirmed by experience. But where the corruption of the *air* is much greater, as in close prisons, &c. nothing can be an adequate and effectual remedy but a VENTILATOR. He observed likewise, that *air* is not disqualified for respiration, merely by the additional moisture which it receives, but by some bad quality in that moisture. See his Statical Essays, vol. ii.

Dr. Priestley observes, that, when animals die upon being put into air, in which other animals have died, after breathing in it as long as they could, it is plain, that the cause of their death is not the want of any *pabulum vite*, which has been supposed to be contained in the *air*; but because the *air* is impregnated with something stimulating to their lungs; for they almost always die in convulsions, and are sometimes affected so suddenly, that they are irrecoverable after a single inspiration. And he has found the same effect from any other kind of noxious *air*. He concludes, from subsequent experiments, that the *air* becomes phlogisticated in its passage through the lungs, by means of the blood. Experiments and Observations on Air, vol. i. p. 71. vol. ii. p. 31. vol. iii. p. 55. See AIR phlogisticated, BLOOD, and RESPIRATION.

Vegetables likewise produce a change in the state of the *air*. Thus, when a great part of the clove-trees, which grow so plentifully in the island of Ternate, was felled at the solicitation of the Dutch, in order to heighten the value of that fruit, such a change ensued in the *air*, as shewed the salutary effects of the effluvia, or rather of the vegetation of the clove-trees, and their blossoms; the whole island, soon after they were cut down, being exceeding sickly. See AIR phlogisticated.

The *air* is also liable to alterations from the season of the year. Thus, few subterraneous effluvia are emitted in the winter, because the pores are locked up by the frost, or covered by snow; the subterraneous heat being at work, and preparing a heat to be discharged in the ensuing spring. Again, from the winter solstice to the summer solstice, the sun's rays become more and more perpendicular, and consequently their impulse on the earth's surface more powerful; so that the glebe, or soil, is more and more relaxed, softened, and putrefied, till he arrives at the tropic; where, with the force of a chemical agent, he resolves the superficial parts of the earth into their constituent principles, water, oil, salt, &c. which are all swept away into the atmosphere.

The height and depth of the *air* produce a farther alteration; the exhalations not rising high enough, in any great quantity, to ascend above the tops of high mountains. Nor must drought and moisture be denied their share, in varying the state of the atmosphere; in Guinea, the heat, with the moisture, conduces so much to putrefaction, that the purest white sugars are often full of maggots; and their drugs soon lose their virtue; and many of them grow verminous: it is added, that in the island of St. Jago, they are obliged to expose their sweetmeats daily to the sun, in order to exhale the moisture contracted in the night, which would otherwise occasion them to putrefy.

On this principle depend the structure and use of the HYGROMETER.

For the refracting power of *air*, see REFRACTION.

After all, some of our more curious and penetrating naturalists have observed certain effects of *air*, which do not appear to follow from any of the properties, or materials, above recited. In this view, Mr. Boyle has composed a treatise of suspicions about some unknown properties of the *air*. The phenomena of fire and flame in *vacuo*, seem, according to him, to argue some unknown vital substance diffused through the *air*, on ac-

count of which that fluid becomes so necessary to the subsistence of flame. Buffon supposes, that *air* is necessary to the subsistence of fire, because it is most adapted to acquire that expansive motion, which is the principal property of fire. On this account fire combines with *air*, in preference to any other substance, and in a more intimate manner, as being of a nature most nearly approaching to its own; and therefore *air* is the proper aliment and most powerful assistant of fire. Hist. Nat. Supp. vol. i.

But Dr. Priestley has deduced, from experiments, a much more rational explication of this matter. The *air* is a menstruum for the phlogiston emitted by burning bodies; which must cease to burn, when that menstruum is saturated with it. And he accounts in the same manner for the suffocation of animals in a confined space. When the phlogiston, emitted by burning bodies and breathing animals, can no longer be absorbed by the ambient *air*, both life and flame are extinguished. Exp. and Obs. &c. vol. i.

Dr. Priestley, improving upon the experiments and investigations of Boyle, Hales, Brownrigg, Black, Macbride, Cavendish, and others, has discovered many species of *air*, extracted by various processes from different kinds of substances; of which a summary account will be given in the following articles. See also his curious and valuable Experiments and Observations on different Kinds of Air, in five volumes. And for a compendium of the history of discoveries on this subject, Lavoisier's Essay's Physical and Chemical, vol. i. See also AIR, fixed.

AIR, acid, is a species of factitious *air*, which was first discovered by Mr. Cavendish; but its nature and properties were afterwards more fully investigated by Dr. Priestley. It was first produced from copper, by means of spirit of salt; but Dr. Priestley expelled it by heat from spirit of salt only, without any metallic solution; and he afterwards procured it by the same kind of process, whereby spirit of salt is made. For this purpose he filled a small phial with common salt, and poured upon it a small quantity of concentrated oil of vitriol; the fumes discharged in this process were received in a vessel previously filled with quicksilver, and standing in a basin of quicksilver, and appeared in the form of a perfectly transparent *air*; of such a nature, that it is a permanent elastic substance, not liable to be condensed by cold, like other vapours. This acid vapour extinguishes flame, which appears before the candle goes out, and when it is first lighted again, of a beautiful green, or rather light-blue colour; and it is heavier than common *air*, though in what proportion is not yet determined. Water imbibes this *air*, changes its aerial or elastic form, acquires, when thus impregnated, a very acid taste, becomes a very active solvent of iron, and generates inflammable *air*. Two grains and a half of rain-water will absorb no less than three ounce measures of this fluid, and thus saturated, will weigh twice as much as it did before. This acid *air* has a very strong affinity with phlogiston, and attracts it from other substances; such as inflammable spirits, expressed oils, oil of turpentine, charcoal, phosphorus, bees-wax, and even sulphur; and it is hereby converted into inflammable *air*.

The species of *air* now described may be called marine acid *air*, in order to distinguish it from the vitriolic acid *air*, which is obtained, by putting a small quantity of common oil to oil of vitriol, and gently heating the phial which contains them. When this kind of *air* is generated in great plenty, the top of the phial is filled with white vapours; it is equally transparent with the former, and has no greater affinity with quicksilver. It is as readily absorbed by the water as the other, and by its union forms the volatile or sulphureous acid of vitriol. It has the same property of extinguishing flame, and is heavier than common *air*. Ice is instantly dissolved in both of them. The alkaline *air* being mixed with this kind of acid vapour, produced a beautiful white cloud, and evidently appeared to be the lighter of the two: the substance formed by this combination was the vitriolic sal ammoniac, which is fixed or volatile, upon being exposed to the common *air*, according to the proportion of the two kinds of *air* in the compound. This species of *air* differs from the marine acid *air*, in not dissolving or corroding iron, though it becomes, when combined with water, a very powerful menstruum for this metal.

Another kind of acid *air* is the vegetable, which Dr. Priestley expelled by heat from exceeding strong concentrated acid of vinegar. A quantity of olive oil imbibed ten times its bulk of this *air*, and in consequence of the union became colourless like water, and less viscid than before. In this respect it differs from the other kinds of acid *air*, which deepen the colour of every species of oil, making them brown, and at the same time viscid, almost to the consistence of resin. The vitriolic and vegetable acid *air* very much resemble one another; and the only real difference, beside the smell, which is very remarkable, is that just mentioned.

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In nature and properties the *fluor air acid* very much resembles the *vitriolic acid air*. It is so called from the name of the substance from which it is extracted. See *ACID fluor*.

Dr. Priestley procured this *air*, by pouring oil of vitriol upon the *fluor*, contained in a small phial, fitted with a ground stopple and tube; first without heat, and then by applying a very small degree of it, *air* was produced in great plenty, perfectly transparent, and confined by quicksilver, like the other kinds already described. It formed a white cloud by issuing from the tube, and attaching itself to the water that floats in the atmosphere, and yielded a very pungent smell. The surface of water, as soon as it came into contact with this *air*, was rendered white and opaque, by a strong film or incrustation, which made a separation between the *air* above, and the water below it. When this crust is broken, and the water rises so as to form a new surface, a fresh incrustation takes place; and thus successive layers will be produced, till every particle of *air* is united to the water. These films, being collected and dried, yield a white powdery substance, usually a little acid to the taste, but when washed in much pure water, perfectly insipid. Dr. Priestley mentions another method, no less amusing in its effect, of combining this *air* with water. The incrustation is so quick, that in less than an hour, two or three ounce measures of water have been converted into this solid mass; and in this way a very strong acid liquor may be obtained. These appearances are explained, by supposing that the *vitriolic acid*, in uniting with the spar, is in part volatilized, by means of some phlogiston contained in it, so as to form a *vitriolic acid air*; and that there is also combined with this *air* a portion of the solid earthy part of the spar, which continues in a state of solution, till, coming into contact with the water, the fluid unites with the acid, and the earth is precipitated.

The effects of this vapour on fluids and solids are much the same with those of the *vitriolic acid air*. There are two peculiar properties in which these two vapours agree; they both contain phlogiston, and in such a manner as to communicate it to the common *air* with which they are mixed, and to render it noxious. The electric spark will also by a single explosion incrust the inside surface of a tube containing this kind of *air* with a deep-brown or black matter, and it will at every stroke make the glass more and more opaque. Some reflection on the nature of the spar which yielded this vapour, led Dr. Priestley to try, whether the same kind might not be procured from Mr. Canton's PHOSPHORUS, by means of oil of vitriol; and the trial succeeded.

AIR, alkaline, is a species of *factitious air* extracted by heat from volatile spirit of sal ammoniac. This vapour, received into a vessel of quicksilver, standing in a basin of the same fluid, became a transparent and permanent *air*, not at all condensed by cold. But Dr. Priestley soon found, that the most expeditious method of procuring it was from a mixture of $\frac{1}{4}$ of powdered sal ammoniac, and $\frac{3}{4}$ of slaked lime. Large quantities of this vapour are readily imbibed and condensed by water; and convert it into a volatile spirit of sal ammoniac, stronger, Dr. Priestley says, than he had ever seen, and than any, he apprehends, which can be made in the common way. The *alkaline air*, upon being mixed with nitrous *air*, occasioned a whitish cloud, without producing any neutral salt; when water was admitted to this mixture, the *alkaline air* was absorbed, and the *nitrous air* remained, possessed of its peculiar properties. Alum undergoes a remarkable change by the action of this *air*. Its outward size and shape remain the same, but the internal structure is quite changed; being hereby rendered opaque, beautifully white, and in all respects, to appearance, like alum which had been roasted. The *alkaline air* is slightly inflammable; it dissolves ice as fast as a hot fire can do it. It is heavier than inflammable *air*, but lighter than marine *acid air*.

AIR, artificial or factitious, was used by Mr. Boyle to express what the more ancient chemists denominated *gas*, or *spiritus silvestris*, and which is now more generally known by the name of *fixed air*. It comprehends all those kinds of *air*, which are originally parts of some solid substance, and exist in an unelastic state; but which, by various analytical processes, are capable of being disengaged, and recovering their elasticity.

AIR, atmospherical or common, consists, according to Dr. Priestley, of the nitrous acid and earth, combined with so much phlogiston as is necessary to its elasticity, and likewise so much more as is requisite to bring it from a state of perfect purity, to the mean condition in which we find it. See **AIR** and **ATMOSPHERE**.

AIR, dephlogisticated, is a very extraordinary species of *air* lately discovered by Dr. Priestley, to which he has given this name because it is much purer than any other kind of *air*, and of course contains less phlogiston; which,

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on this hypothesis, verified by a variety of experiments, renders *air* noxious. This *air* was first extracted from *mercurius calcinatus per se*, by means of a burning lens; and in a series of subsequent experiments, it was procured from a variety of other substances, such as red precipitate, minium, and several other preparations of lead, and from all kinds of earths mixed with spirit of nitre; the advantage being on the side of the metallic and calcareous earths. This pure *air* was also extracted from other substances, beside *mercurius calcinatus* and red lead, without the addition of the spirit of nitre; viz. from sedative salt, and Roman vitriol, slightly calcined. But the purest which Dr. Priestley ever obtained was from flowers of zinc, moistened with spirit of nitre, and put into a glass phial with a ground stopple and tube. This *air* is not imbibed by water, and appears to be a little heavier than common *air*. But the most remarkable property belonging to it is its superior purity, which Dr. Priestley has evinced by a variety of indubitable tests. A candle let down into a jar filled with this *air* burns with a very vigorous flame, and the heat produced by it in these circumstances is remarkably great. The experiment is most pleasing, when the *air* is only a little more than twice as good as common *air*; for when it is more highly dephlogisticated, the candle burns with a crackling noise, as if it was full of some combustible matter. A mouse was put into a glass vessel, containing two ounce measures of the *air*, extracted from *mercurius calcinatus*, and, though it would not have lived in common *air* longer than about a quarter of an hour, it lived in this *air* a full half hour; and when it was taken out seemingly dead, it was only chilled by the extreme cold; for upon being held up to the fire it revived, and seemed to have received no injury. Another mouse, in a subsequent trial, lived three quarters of an hour in less than the former quantity. But the most elegant and accurate test of the purity of any kind of *air*, is the *nitrous air*. Dr. Priestley put one measure of *nitrous air* to two measures of the *dephlogisticated air* last mentioned; and he observed a greater diminution than common *air* would have received by the same treatment. A second measure of *nitrous air* reduced it to two thirds of its original quantity, and a third measure to one half; adding another half measure, it was still more diminished, but not much; and another half measure made it more than half of its original quantity: so that, in this case, two measures of this *air* took more than two measures of *nitrous air*, and yet remained less than half of what it was. Five measures brought it pretty exactly to its original dimensions. Now as common *air* takes about one half of its bulk of *nitrous air*, before it begins to receive any addition to its dimensions from more *nitrous air*, and this *air* took more than four half measures before it ceased to be diminished by more *nitrous air*, and even five half measures made no addition to its original dimensions, Dr. Priestley concludes, that it was between four and five times as good as common *air*. This *air* then being capable of taking more phlogiston from *nitrous air*, it must originally contain less of this principle.

Dr. Priestley, in some farther processes obtained, *air* between five and six times as good as the best common *air* he ever met with. Many experiments were made upon various substances, and upon red lead in particular, in order to determine by what means this kind of *air* came to be so pure; and Dr. Priestley was convinced in the result that it was the nitrous acid which the red lead acquired from the *air*, that enabled it to yield this *dephlogisticated air*; and he observes, that the red colour of *mercurius calcinatus*, and red lead, favours the supposition of their having extracted spirit of nitre from the *air*. He farther remarks, that *dephlogisticated air* is purified by standing in water; owing, probably, to its depositing more *fixed air* in those circumstances. He adds, that some mechanical contrivance may perhaps hereafter be thought of for conveying this pure *air* into rooms for the purpose of purifying the noxious *air* contained in them. A mixture of one third of highly *dephlogisticated air*, and the rest *inflammable air*, in a phial, containing about an ounce measure and a half, will cause a report as loud as that of a common pistol; and judging by the ear, not less than forty or fifty times as loud as with common *air*, of which there must be about two thirds in quantity, to make *inflammable air* explode to the greatest advantage. And it may be inferred, that, if it were possible to fire gun-powder in this kind of *air*, a tenth part of the charge would in all cases suffice. The force of fire would be very considerably augmented, by blowing it with *dephlogisticated air*, instead of common *air*; and the prodigious heat which this *air* affords, may be usefully applied by chemists in a variety of ways. It would likewise be very salutary as a medicine, in certain morbid cases, when the common *air* would not be sufficient to carry off the phlogistic putrid effluvia fast enough. But in a healthful state of the body, it might not be so proper

proper; for, as a candle burns out much faster in this than in common *air*, so we might *live out too fast*, says Dr. Priestley, and the animal powers be too soon exhausted in this pure kind of *air*. 'Who can tell, he adds, but that in time pure *air* may become a fashionable article in luxury. Hitherto only two mice and myself have had the privilege of breathing it.' From a late publication we learn, that Mr. Cavendish is of opinion, that *dephlogisticated air* is only WATER deprived of its phlogiston. Phil. Trans. vol. lxxiv. part i. art. 13.

AIR, *fixable* or *fixed*, may, in the largest sense of the term, include all the different kinds of *air*, which are the subjects of these articles; since they are all capable of being imbibed by some substance or other, and consequently of being *fixed* in them, after they have been in an elastic state. This kind of *air*, being specifically heavier than common *air*, is found at the bottom of pits: it extinguishes candles, &c. and kills animals that breathe it; and on this account has been called the *choke-damp*. However, the above appellation was first used by Dr. Black, professor of chemistry at Edinburgh, to express that particular species of *factitious air*, which adheres to all calcareous earths, magnesia, and alkaline salts, with different degrees of force; and which may be separated from these substances, and again combined with them. This elastic matter was but very imperfectly known to the ancient chemists before the time of Paracelsus. It was called by them *spiritus silvestris*. Paracelsus, and his contemporaries, imagined, that this fluid is the same with the *air* which we breathe. Van Helmont, the disciple of Paracelsus, made it the subject of particular inquiry, and gave it the name of *gas*. This substance, according to him, is discharged from fermenting bodies, and may be disengaged from sal ammoniac, and from vegetables. It is this likewise which escapes from ignited gunpowder and charcoal. To the effluvia of this *gas*, he also ascribes the fatal effects of the Grotto del Cani in Naples, the suffocation of workmen in the mines, the accidents occasioned by the vapour of charcoal, and that noxious *air* which is found in cellars, where spirituous liquors are fermenting. Van Helmont likewise observed, that a great quantity of this vapour is disengaged from earths and metallic substances, by their effervescence with acids; and has applied his theory to the explication of several phenomena in the animal oecconomy. He supposed, that the *gas* was different from the *air* which we breathe, and that it has a great affinity with water; and he appears to have been acquainted with several properties of this fluid, which are now more generally known and understood. Tractatus de Flatibus; and, Complexionum atque Mixtionum Elementarium Figmentum. Mr. Boyle repeated Van Helmont's experiments *in vacuo*, in condensed and in open *air*; and he gave the *gas* of the foreign chemists the new name of *artificial* or *factitious air*. Both Van Helmont and Mr. Boyle observed, that this species of *air* essentially differs from that of the atmosphere; as the latter is necessary to the existence of animals, whilst the other is noxious and fatal. Mr. Boyle demonstrated, that artificial *air* separated from vegetable substances, is not always the same; and that the *air* which is produced by the explosion of gunpowder, exhibits phenomena peculiar to itself; and he farther observed, that some bodies, such as sulphur, amber, camphor, &c. diminish the bulk of *air* in which they burn. Boyle's Works, vol. iv.

Dr. Hales pursued this inquiry with great industry, and with very considerable success. He not only shewed, that *air* entered into the composition of most bodies, animal, vegetable, and mineral, but estimated the proportion which it bore to the rest of the compound. He observed, that certain substances and operations generate *air*, and others absorb it: imagining, however, that the diminution of *air* was simply a compound from the common mass, without inducing any alteration in the properties of the remainder. Dr. Hales likewise examined the mineral waters, and particularly those of Pyrmont; and to the great quantity of *air* which they contain, he attributed the spirit and briskness of those waters. But, though he made many important discoveries, some of which are recited in the course of these articles, and for the rest of which the reader must be referred to his works, and particularly to chap. vi. of his Vegetable Statics, he still apprehended, that the *air* separated from bodies, as well as that which had been burned or respired from animals, was not different from that of the atmosphere; and that its particular effects were owing to some noxious vapours, whereby its elasticity was impaired or destroyed, foreign to its own nature. He likewise attributes the absorption of this kind of *air* by water, not to the affinity which it bears to water in itself considered, but to the warmth of the water.

It has already been observed, that Dr. Seip was the first who discovered the impregnation of the mineral waters by the *mephitic* or *fixed air*: and that Dr. Brownrigg far-

ther investigated the nature of this principle which enters into their composition, and whence they derive their peculiar taste and effect. See ACIDULÆ.

Dr. Black farther investigated the chemical nature and effects of this principle, and explained many phenomena in this part of science, which had been hitherto deemed unaccountable. Such was the effervescence of absorbent earths, and alkaline salts, with acids, and the change of the mild calcareous earths into quick-lime, by heat, whereby they become caustic, or acquire the property of corroding, and burning animal and vegetable substances, in consequence of the expulsion of the *fixed air*, which neutralizes them. And he has also informed us, that the lime-stone loses nearly the same weight by dissolution in acids, as by calcination; and that it recovers its former weight, when it has been precipitated in the form of a calcareous earth, or with all its *air*. Ess. and Obs. Phys. and Liter. vol. ii.

For an account of the opposition which Dr. Black's theory met with in Germany, see ACIDUM pingue.

In 1764, Dr. Macbride published his Experimental Essays, containing a variety of curious facts and observations relating to the nature and properties of *fixed air*. From him we learn, that a considerable quantity of this *air* is discharged, not only from effervescing substances, and fermenting vegetables, but likewise from all putrefying animal substances; and to the presence of this fluid he ascribes their cohesion and firmness. He advances a step farther, and observes, that flesh which has begun to putrefy, by having lost a portion of the *fixed air*, which entered into its composition, may recover its former sweetness, by restoring to it the *fixed air*, of which it had been deprived. In the course of his experiments he discovered, that putrid diseases, and the sea-scurvy, owe their origin to the privation of that certain quantity of *air*, which is necessary to a state of salubrity; and that the best antidote against these diseases must be derived from substances and preparations capable of furnishing an abundance of *fixed air*. On these principles he recommends the use of wort in the scurvy. The antiseptic quality of this fluid was a very important and useful discovery. Dr. Macbride was led to it by a previous observation of Sir John Pringle.

Mr. Cavendish made several valuable additions to the knowledge which had been already gained on this subject. An account of his experiments may be found in the Philos. Trans. for 1766 and 1767, vol. lvi. vol. lvii. and vol. lxxiv. part i. art. 13. He has accurately ascertained the quantity of *fixed air* contained both in fixed and volatile alkali, according to their respective weight. He has also determined the specific gravity of this fluid, as well as of *inflammable air*, shewing that the former is $1\frac{1}{2}$ heavier than common *air*, and the latter ten times lighter. He has likewise shewn, that *fixed air* may be mixed with water, and that it will absorb a quantity more than equal to its own bulk; that the quantity imbibed by it is greater as the water is colder, and that it flies off again upon being heated and exposed to the common *air*. To him we owe the discovery, that water acquires from this fluid the power of dissolving calcareous earths; in consequence of which Mr. Lane found, that it would dissolve a considerable quantity of iron, and become a strong chalybeate. Phil. Trans. for 1769, vol. lix.

The next step in this department of science was the invention of a convenient apparatus for generating *fixed air*, and for impregnating water with it; and this was effected by Dr. Priestley, in the year 1772, though he had made and used artificial waters impregnated by the same kind of *air*, arising from fermenting wort, as early as 1768. See PYRMONT.

Having brought down the history of *fixed air* to this period, the curious reader must be referred to Dr. Priestley's Observations, &c. so often cited in these articles, for an account of his numerous and valuable experiments; observing, that he has happily availed himself of every fact that had been previously discovered, and extended our acquaintance with this principle in all its various forms, and in the phenomena that attend it, far more than any of his predecessors in these inquiries. One observation, however, should be mentioned, viz. that *fixed air* is capable of forming an union with phlogiston, and in this state, it is immiscible with water.

Mr. Bewley has proved, by very satisfactory experiments, that *fixed air* is an acid *sui generis*; and Dr. Priestley apprehends, that it is a modification of the nitrous acid, containing phlogiston and earth. It has been since shewn by Mr. Kirwan, to the conviction of Dr. Priestley, that *fixed air* consists of pure elementary or respirable *air* and phlogiston; and that 100 grains of *fixed air* contain 14,661 of phlogiston and 85,339 of elementary *air*. Phil. Trans. vol. lxxii. part i. art. 15.

The preceding discoveries, and others, the recital of which the nature of this work will not admit, have been already successfully applied to medical purposes, and pro-

use to be of very considerable utility. Dr. Percival, Mr. Hey, and others, have made various trials of this new medicine, as *fixed air* may be called, in putrid, and other disorders, and found it efficacious and useful. Notice shall be taken of the cases to which it has been applied, under subsequent articles, where it may be properly introduced.

M. Baumé, in his Chemistry, condemns the general application of the term *fixed air*; and he thinks that the fluid so called should retain the denomination given it by Dr. Hales, viz. *detached or elastic air*; and that *fixed air* is only common air, impregnated with foreign substances, which it holds in solution, and that it should be examined, only with respect to the nature and qualities of such substances.

Air, inflammable, is that species of air, which, by being lighter than common air, occupies the upper parts of subterraneous places, and has been commonly found in mines and coal-pits, where it is called the *fire damp*; because it is liable to take fire, and to explode like gunpowder. It was little known, otherwise than as an object of curiosity, and by the fatal effects which it had often produced, till Mr. Cavendish began to make experiments upon it. We learn from him how to produce it in great abundance, by dissolving zinc, iron, and tin, in the diluted vitriolic acid, or spirit of sea-salt. He has shewn, that it is essentially different from the *mephitic*, or *fixed air*, being only the tenth part of the weight of common air; and produced a variety of inflammable mixtures, by combining it with common air. Dr. Priestley has extracted it from other substances, animal, vegetable, and mineral; and observes, that it emits a very offensive smell, according to the nature of the substance by which it is generated; and the more violent the effervescence producing it, so much the more *inflammable* will be the air, and the more offensive the smell; and the quantity obtained depends on the degree of heat employed in the process. He shews how this kind of air may be mixed with water, and deprived of its inflammability. Distilled water imbibed about one fourteenth of its bulk of this air, but occasioned no sensible difference of taste. The electric spark, which in *fluid air* is exceedingly white, is of a purple or red colour in *inflammable air*; and Dr. Priestley infers from hence, that the *inflammable air* may contain particles which conduct electricity, though very imperfectly. This air, he observes, consists chiefly, if not wholly, of the union of the vitriolic or marine acid vapour with *PHLOGISTON*: but he has since found that *inflammable air* and *phlogiston* are the same substance. The refractive power of this air has been found by Mr. Warltire to be greater than that of common air. Water, in which it is agitated, imbibes as much of the *phlogiston* as contributes to make it *inflammable*; and in consequence of this process it becomes fit for respiration; and by a continuance of it, at length extinguishes flame. See DAMPS.

Air, mephitic, is applied to *fixed air*, to that which is *inflammable*, and to many other kinds, since they are equally noxious when breathed by animals; but it is usually appropriated to the former species of air. See AIR fixable.

Air, nitrous, a name given by Dr. Priestley to that kind of air which was first produced by Dr. Hales from the Walton pyrites, by means of spirit of nitre. Dr. Hales observes, that the mixture of this with common air occasioned an effervescence, and was attended with a turbid red colour, and an absorption of part of the common air. Dr. Priestley procured the same kind of air from the solution of iron, copper, brass, tin, silver, quicksilver, bismuth, and nickel, in the nitrous acid, and of gold, and regulus of antimony, in *aqua regia*. He ascertained the phenomena taken notice of by Dr. Hales; and found, by many accurate trials, that upon a mixture of this air with common air, the latter is considerably diminished in quantity; and that the former is wholly decomposed, when the quantity of it admitted to common air is such as is merely sufficient to diminish it to the utmost. He adds, that the diminution and decomposition, to which *nitrous air* is subject, result from two different causes: one is by substances, which seize upon its acid, and the other, those which lay hold of the *phlogiston* which it contains. One measure of *nitrous air*, applied to two measures of common air, will diminish the mixture above one ninth of the quantity of common air; and if both be very pure, the diminution will be gradual, and in a day or two, there will remain only one fifth of the original quantity of common air; and yet this mixture retains very nearly the same specific gravity with common air. But the diminution of common air, by a mixture of *nitrous air*, is not more extraordinary, than the diminution which *nitrous air* itself is subject to, from a mixture of iron filings and brimstone made into a paste with water. When this is put to a quantity of *nitrous air*, it diminishes it so much, that no more than one fourth of the original quantity will be left. The proportion of common air, and *nitrous air*, above stated,

forms the point of saturation between these two fluids; and if more *nitrous air* be afterwards added to the mixture, no effervescence nor redness will be produced; but it will make an addition equal to its bulk. *Nitrous air* makes no change either with *fixed* or *inflammable air*, or with any other air that is noxious; but the effervescence and diminution are peculiar to common air, or such as is fit for respiration, and very nearly, if not exactly, proportional to its salubrity. And hence Dr. Priestley was led to adopt this species of air as a test, by which to estimate the goodness of air, and the kind as well as degree of the injury which it sustains. In order to explain the peculiar effects produced by *nitrous air* on common air, he made use of a green precipitate, procured by a solution of copper in nitrous acid, and extracted from it, by means of a burning lens, a quantity of *nitrous air*. When any volatile alkali was added to a mixture of *nitrous* and common air, in a state of effervescence, the jar was filled with white clouds, which precipitating in the form of fine snow, made a beautiful appearance, and proved to be a nitrous ammoniac. This, he supposes, was formed by the acid of the *nitrous air*, let loose in the decomposition of it by common air, while the *phlogiston*, which must be another constituent part of *nitrous air*, entering the common air, was the cause of its diminution; as it is also the cause of a similar diminution in a variety of other processes; so that, in reality, *phlogiston* is the test; and air is wholesome, in proportion to the quantity of *phlogiston* which it is able to take. See EUDIOMETER. Mr. Kirwan has found, that 100 grains of *nitrous air* contain 16,792 of *phlogiston* and 83,208 of nitrous acid.

Nitrous air is extremely noxious both to plants and animals. It is capable of being mixed with water; distilled water imbibing about one tenth of its bulk of this kind of air; and it communicates to the water a very acid and astringent taste. It is also absorbed in different degrees by æther, oils, spirit of wine, and alkali, the several sorts of acids, and, in general, by any substance that has a near affinity either with its *phlogiston*, or with any other of its constituent parts. It is likewise one of the strongest antiseptics; and Dr. Priestley suggests, that future preparations of it may be used with success for checking or correcting putrefaction in the intestinal canal, or other parts of the animal system.

Air, phlogificated. Under this general denomination may be included all those different kinds of air, which are diminished and rendered noxious by the burning of candles, inasmuch that a common candle consumes, as it is called, a gallon of air in a minute, the respiration of animals, the putrefaction of vegetable or animal substances; the effervescence of iron filings and brimstone, the calcination of metals, the fumes of charcoal, the effluvia of paint made of white lead and oil, a mixture of *nitrous air*, or other similar processes. All these processes, Dr. Priestley observes, agree in this one circumstance, and he apprehends, in no other, that the principle, which the chemists call *phlogiston*, is set loose; and therefore the diminution of the air is in some way or other the consequence of the air becoming overcharged with it. This kind of air is rather lighter than common air.

Thus, we find, that many causes combine to produce very considerable alterations in the state of the air, whereby it becomes less fit for respiration, and other purposes of nature; and if there were no provision for restoring its salubrity, it must, in time, become universally injurious and fatal. Dr. Priestley, in the course of his inquiries on this subject, has discovered the great restoratives, which are provided for this purpose. One of these is vegetation. In order to ascertain this fact, he put a sprig of mint, in a vigorous state, under a glass jar, inverted in water; and he found, contrary to his expectation, that this plant not only continued to live, though in a languishing way, for two months; but that the confined air was so little corrupted by the effluvia of the mint, that it would neither extinguish a candle, nor kill a small animal, which he conveyed into it. He found, likewise, that air, vitiated by a candle left in it till it was burnt out, was perfectly restored to its quality of supporting flame, after another sprig of mint had vegetated in it for some time. And, in order to shew, that the aromatic flavour of the plant had no share in producing this effect, he observed, in a variety of other experiments, that vegetables of an offensive smell, and even such as had scarce any smell at all, but were of a quick growth, proved the best for this purpose. Nay more, the virtue of growing vegetables was found to be an antidote to the baneful quality of air, corrupted by animal respiration and putrefaction; and he infers from a number of similar facts, that the injury, which is continually done to the atmosphere, by the respiration of so many animals, and the putrefaction of such masses of

both vegetable and animal matter, is, in part at least, repaired by the vegetable creation; and, notwithstanding the prodigious mass of *air* that is corrupted daily by the above mentioned causes; yet, if we consider the immense profusion of vegetables upon the face of the earth, growing in places suited to their nature, and consequently at full liberty to exert all their powers, both inhaling and exhaling, it can hardly be thought, that the remedy is not adequate to the evil. Dr. Franklin, in a reflection on this discovery, expresses his hope, that it will give some check to the rage of destroying trees that grow near houses, which has accompanied our late improvements in gardening, from an opinion of their being unwholesome; adding, from long observation, that there is nothing unhealthy in the *air* of woods, 'since the Americans have their country habitations in the midst of woods, and no people on earth enjoy better health, or are more prolific.' Dr. Priestley has since discovered that light is necessary to enable plants to purify *air*: however pure *air* is not produced by light on plants, but only by the purification of the impure *air* to which the plants have access. Obs. and Exp. on *Air*, vol. v. p. 18. 24. &c.

The sea, and other large bodies of water, are the second resource, which nature has provided for restoring the salubrity of corrupted *air*. Dr. Priestley found, that all kinds of noxious *air* were restored by continued agitation in a trough of water; the noxious effluvia being first imbibed by the water, and thereby transmitted to the common atmosphere. And he hence concludes, that the agitation of the sea, and of large lakes and rivers, must be highly useful for the purification of the atmosphere; the putrid matter being absorbed by the water, and imbibed by marine, and other aquatic plants, or applied to purposes yet unknown. Exp. and Obs. vol. i. sect. 2. and 4.

This ingenious philosopher apprehends, that the agitation of water, and the vegetation of plants, purify noxious *air*, by absorbing part of the phlogiston with which it is loaded; and that this phlogistic matter is the most essential part of the food and support of both vegetable and animal bodies. Ib. vol. i. p. 138, 139.

For an account of Dr. Priestley's numerous experiments and observations on these several species of *air*, the reader is referred to the excellent work already cited, which has furnished the greatest part of the preceding articles.

AIR, *innate*, in *Anatomy*, is a fine aerial substance, supposed, by some anatomists, to be enclosed in the labyrinth of the inner **EAR**, and to minister to the due conveyance of sounds to the sensory.

But the existence of such *innate air*, has been called in question, and rendered very improbable. See **EAR**.

AIR, in *Medicine*, &c. makes one of the fix **NON-NATURALS**.

From observations on bleeding in rheumatisms, and after taking cold, it is evident, the *air* can enter with all its qualities, and vitiate the whole texture of the blood, and other juices.

From the palsies, vertigoes, and other nervous affections caused by damps, mines, &c. it is evident, that *air* thus qualified can relax and obstruct the whole nervous system. And from the colics, fluxes, coughs, and consumptions produced by damp, moist, and nitrous *air*, it is evident it can corrupt and spoil the noble organs, &c. See **ATMOSPHERE**, and preceding articles.

AIR, in *Music*, signifies the **MELODY**, or the inflexion of a musical composition.

The word is also used for a tune, or song itself, that is, for a composition whose movements are just and equal; and the times, especially the first of such measure, well marked—being usually to be played pretty quick and lively, unless there be something to indicate the contrary; as, *larga*, or *affettuosa*, &c.

Thus we see an *air* of Lully: Handel's *airs*, with their symphonies and accompaniments, are made into concertos for the violin, &c.

AIR, in *Mythology*, was adored by the heathens under the names of Jupiter and Juno; the former representing the superior and finer parts of the *atmosphere*, and the latter the inferior and grosser parts. The augurs also drew prefaces from the clouds, thunder, lightning, &c.

AIR, in *Painting*, &c. denotes the manner and very life of action; or it is that which expresses the disposition of the agent.

It is sometimes also used in a sense somewhat synonymous with gesture or attitude.

AIR-bladder, a kind of *vesicula* found in the bodies of fish, by means whereof they are enabled to sustain themselves in any depth of water, and either to rise or sink at pleasure. The *air-bladder* is the same with what is otherwise called the *swim*, or *swimming-bladder*.

Dr. Priestley conjectures that this is not the only use of these *bladders*; but that the *air* enclosed in them may answer

some farther purpose in the animal oeconomy of fishes. The discovery of the use of the *air-bladder* took its rise from observing, that a bubble of *air* in rising from the bottom of a fluid, continually dilates till it reaches the top, by reason of the continual diminution of the weight, or pressure, of the incumbent water. For the *air*, in the bladder is like the bubble, more or less compressed, according to the depth the fish swims at, and takes up less or more space; and consequently the body of the fish, part of whose bulk this bladder is, is greater or less, according to the several depths, though it retains the same weight. The rule of hydrostatics is, that a body heavier than so much water as is equal in quantity to the bulk of it, will sink; a body lighter, will swim; a body of equal weight will rest in any part of the water. By which rule if the fish in the middle region of the water, be of equal weight with an equal bulk of the water, the fish will rest there, without any tendency either upwards or downwards; and if the fish be deeper in the water, its bulk becoming less by the compression of the bladder, and yet retaining the same weight, it will sink and rest at the bottom: on the other side, if the fish be higher than the middle region, the *air* dilating itself, and the bulk of the fish consequently increasing, without any increase of the weight, the fish will rise and rest at the top of the water.

Perhaps the fish by some action can emit *air* out of the bladder, and afterwards out of its body; and also when there is not enough, take in more *air*, and convey it to this bladder; in which case it will be no wonder, that there should be always a fit proportion of *air* in the bodies of all fishes, to serve their use, according to the depth of water they live in: perhaps also by some muscle, the fish can contract this bladder beyond the pressure of the weight of water; and perhaps it can by its sides, or some other defence, keep off the pressure of the water, and give the *air* leave to dilate itself. In these cases, the fish will be helped in all intermediate distances, and may rise or sink from any region without moving a fin. Phil. Trans. N^o 114.

If the *air-bladder* of a fish be pricked or broken, the fish presently sinks to the bottom, unable either to support or raise itself up again. Flat fishes, as soles, plaice, &c. which always lie groveling at the bottom, have no *air-bladder*.

In most fishes there is a manifest channel, leading from the gullet, or upper orifice of the stomach, to the *air-bladder*, which doubtless serves for conveying *air* into it. In a sturgeon Mr. Willughby observed, that upon pressing the bladder, the stomach presently swelled; so in that fish it seems the *air* passes freely both ways. Possibly the fish while alive may have a power to raise up this valve, and let out *air* on occasion.

All the cartilaginous kind want *air-bladders*: by what means it is they ascend and descend in water, is yet unknown. The cetaceous kind, or sea-beasts, are also without the *air-bladder*: indeed as these differ little from quadrupeds, but in the want of feet, the *air* which they receive into their lungs in inspiration, may serve to render their bodies equiponderant to water; and the constriction or dilatation of it, by the help of the diaphragm and muscles of respiration, may possibly assist them to descend, or ascend, in the water, by a light impulse thereof with their fins. Most of the **EEL**-kind have bladders, yet they can hardly raise themselves in the water, by reason of the length and weight of their tails; the *air-bladder* being near their heads, may help them to lift up their heads and fore part. Ray's Wild. of God, &c. p. i. p. 26. Phil. Trans. N^o 115.

There is great diversity in *air-bladders*, in respect of figure, substance, situation, and connection, in different fish.

In some, the *air-bladder*, is divided into two, e. gr. in *carps*; and in others, into three. Needham maintains, that all fish which have teeth in their jaws have only a single *air-bladder*; whereas those without teeth have a double one, or, which amounts to the same, the *air-bladder* of these last is divided into two cells. Sig. Redi refutes this distinction; giving instances of fish with teeth, whose *air-bladder* is double; and of others without teeth, who have only a single *air-bladder*.

The water-snake, in lieu of a bladder has a large membranous *air-bag* on its back, which empties and fills with *air* at pleasure, by an aperture, which it can shut very close, from without inwards, by means of a sort of valve, so that the least globule of water cannot enter without its consent. By this artifice it can enlarge or lessen the bulk of its body, and inhabit all depths of the water; though a conjecture has been advanced by Mr. Ray, that it is by the help of water which they take in, and let out, by two holes in the lower part of their abdomen, near to the ventricle. They sink in the water, by letting in some of it at these holes; the orifices whereof are opened and shut at pleasure, by means of proper muscles. The water being thus received into the cavity of

their abdomen, serves to make them preponderate the water, and descend; when they would ascend again, a compression is made by the muscles of their abdomen, and the water forced out again, at least so much as suffices to give the degree of levity wanted. Ray's *Wisd. of God*, p. ii. p. 346.

In the *Phil. Trans.* vol. lxiv. part i. p. 205. art. 29. an. 1774, there is an account of certain receptacles of *air* in birds, which communicate with the lungs, and are lodged both among the fleshy parts, and in the hollow bones of those animals, by John Hunter, F. R. S. who does not minutely describe all the particular communications of this kind in birds; but mentions, however, a number of general facts, sufficient for the introduction of this subject into natural history, and for opening a more particular enquiry into the final cause of this peculiarity in the structure of birds, hitherto unobserved or uninvestigated.

AIR-chamber, is a name given by Dr. Henshaw to a room contrived for obtaining the benefit of change of *air*, without going out of the house. According to his whimsical proposal, it is to be twelve feet square, and airtight, furnished with a very large pair of organ-bellows, to or from which, *air* is to be conveyed through the wall by a copper pipe, with valves for opening inwardly and outwardly as occasion shall require. With these bellows, the *air* in the room is either to be condensed and made heavier, by forcing *air* in, or lighter and rarer, by conveying *air* out of the room. See his *Acro-Chalinos*, or *Phil. Trans.* N^o 133. See VENTILATOR and Blowing-WHEEL.

AIR-gun, see WIND-gun.

AIR-pump, a machine, by means whereof the *air* may be exhausted out of proper vessels.

The use and effect of the *air-pump* is, to make, what we popularly call, a *vacuum*; but this, in reality, is only a degree of rarefaction sufficient to suspend the ordinary effects of the atmosphere.

By this machine, therefore, we learn, in some measure, what our earth would be without an atmosphere; and how much all vital, generative, nutritive, and alterative power, depend upon it.

The principle on which the *air-pump* is constructed, is the elasticity of the *air*; as that on which the common, or water-pump is founded, is the gravity of the same *air*.

The structure of the *air-pump* is, in itself, more simple even than that of the water-pump.—The latter supposes two principles, gravity and elasticity likewise: so that the water-pump must first be an *air-pump*, i. e. it must rarefy the *air* before it can raise the water.—In effect, water, being a dormant unelastic fluid, needs some external agent to make it ascend; whereas *air* ascends in virtue of its own elastic activity: its natural tendency is, to separate, and leave a *vacuum*; and all that remains for art, is to prevent the ambient *air* from supplying the place of that which thus spontaneously flies away.

To make water ascend, the force wherewith it is pressed downwards, is either to be diminished or increased in one part more than another; like a balance in *æquilibrio*, one of whose scales may be made to rise, either by diminishing its own weight, or increasing that of the other: the water, therefore, recedes from the common centre of gravity, by the very power wherewith it tends towards it, indirectly or secondarily applied; because, two similar centripetal forces being made to act contrary to each other, what in the one over-balances the other, must have the effect of a centrifugal force.—Whereas, the principle whereby *air* is rarefied or diminished, does not respect the centre of the earth, but the centres of its own particles; being no other than a certain implanted power, whereby they immediately tend to recede from each other. The invention of this noble instrument, to which the present age is indebted for so many fine discoveries, is ascribed to Otto de Guericke, the celebrated consul of Magdeburg, who exhibited his first public experiments with it, before the emperor and the states of Germany, at the breaking up of the imperial diet at Ratisbon, in the year 1654.

Dr. Hook, and M. du Hamel, indeed, ascribe the invention of it to Mr. Boyle; but that ingenious author frankly confesses de Guericke to have been beforehand with him. In a letter which he wrote to his nephew, lord Dungarvan, at Paris, about two years after Schottus's book was published, he introduces the acknowledgment of his obligation, for the discovery of this useful machine, to what he had heard of it, though he had not then perused it, by that well-applied passage of Pliny, *benignum est et plenum ingenui pudoris fateri per quos profeceris*. Some attempts, he assures us, he had made upon the same foundation, before he knew any thing of what had been done abroad: but the information he afterwards received from Schottus's *Mechanica Hydraulico-*

Pneumatica, published in 1657, wherein was an account of de Guericke's experiments, first enabled him to bring his design to any thing of maturity. From hence, with the assistance of Dr. Hook, after two or three unsuccessful trials, arose a new *air-pump*, more easy and manageable than the German one; and hence, or rather from the great variety of experiments that illustrious author applied it to, the engine came to be denominated *machina Boyliana*, and the *vacuum* produced by it, *vacuum Boylianum*.

AIR-pump, structure and use of the. The basis or essential part in the *air-pump*, is a metalline tube, answering to the barrel of a common pump, or syringe; having a valve at the bottom, opening upwards; and a moveable piston or *embolus*, answering to the sucker of a pump, furnished likewise with a valve opening upwards. The whole, duly fitted to a vessel, as a recipient.

The rest, being only circumstances chiefly respecting convenience, have been diversified and improved from time to time, according to the several views and address of the makers. That of Otto de Guericke, being less artful, laboured under several defects, in respect of the force necessary to work it, which was very great, and the progress very slow: beside that it was to be kept under water; and allowed of no change of subjects for experiments. Mr. Boyle, by degrees, removed several of these inconveniences, and alleviated others: but still the working of his pump was laborious, by reason of the pressure of the atmosphere, a great part of which was to be removed at every exsuction, after a *vacuum* was nearly arrived at.—But this inconvenience has since been removed by Mr. Hauksbee, who, by adding a second barrel and piston to the former, to rise as the other fell, and fall as it rose, made the pressure of the atmosphere on the descending one, of as much service as it was of disservice in the ascending one.

Some of the Germans have also brought the *air pump* to do the opposite office of a condenser: but this is not to make the instrument so much the better, as more complex.

The structure of the *air-pump*, as now made among us, with all its advantages, is represented in *Tab. Pneumaticæ*, fig. 16.

It consists of two brazen barrels or cylinders, represented by *a a a a*; which communicate with each other by a canal passing between them at *d d*; and with the receiver *o o o o*, by means of the hollow wire *b b*, one end whereof opens into the canal of communication, and the other into a like canal *n n*; which penetrating the plate *i i i i*, opens into the receiver.

Within the cylinders are two emboli, or suckers, made of brass, and fitted with cork and leather to the cavities of the barrels, so as exactly to fill the same; each being furnished with its valve, and terminating at top in a rack *c c*, by which it is worked.

At the bottom of either barrel is another valve, by which the *air* may pass out of the communicating canal *d d*, and consequently out of the hollow wire and the receiver itself, into the cylinder, below the piston; from whence by the valves of the piston it may proceed into the upper space of the cylinder, and thus into the open *air*.

For the application of this mechanism.—The winch *b b* being turned upward and downward, its spindle *f*, catching by its teeth into the racks, will raise and depress the two pistons, alternately.

Mr. Vream, a late pneumatic operator, made an improvement in Hauksbee's *air-pump*, by reducing the alternate motion of the hand and winch to a circular one. In his method, the winch is turned quite round, yet the pistons are raised and depressed alternately: by which the trouble of shifting the hand backward and forward, as well as the loss of time, and the shaking of the pump, are prevented. See the contrivance for this purpose described in *Clare's Motion of Fluids*, p. 154.

Now the consequence of depressing a piston is, that the *air* before enclosed between it and the bottom of the cylinder, being thus crowded into a less compass, will, by its elastic force, which now exceeds the pressure of the atmosphere, push up the valve of the piston, and thus escape; till that little which remains be of the same density with the external *air* incumbent on the valve.

This done, and the same piston being again raised in its turn, from the bottom of the cylinder to the top, the little *air* being left, will of necessity expand itself, so as to possess the whole space of the cylinder thus deserted by the piston: upon which, its force or pressure upon the valve at the bottom of the cylinder being now inconsiderable, the other denser *air* of the receiver, hollow wire, and canal of communication, by their superior elastic force, will lift up the valve, and thus pass into the cylinder of rarefied *air*, till both be of the same degree of density.

And thus is the *air* in the receiver diminished at each elevation of the piston, by the quantity of a cylinder-full;

full; abating for what little remained between the depressed piston, and the bottom: so that, by thus repeating the operation again and again, the *air* in the receiver is at length rarefied to such degree, that its density does not exceed the thin *air* remaining in the cylinder when the piston is raised: which done, the effect of the *air-pump* is at an end; the valve cannot now be opened; or, if it could, no *air* would pass it; there being a just equilibrium between the *air* on each side.

To judge of the degree of exhaustion, there is added a gage, *ll*; consisting of a tube, whose upper orifice communicates with the receiver; the lower being immersed in a basin of mercury, *mm*. Hence, the *air* in the tube rarefying as fast as that in the receiver, in proportion as the exhaustion advances, the mercury will be raised by the pressure of the column of external *air*, prevailing over that of the column of *air* included; till the column of *air*, and mercury together, become a balance to that of the external *air*. When the mercury is thus risen to the same height as it stands in the barometer, which is indicated by the scale of inches added to the gage, the instrument is a just Torricellian tube; and the vacuum may be concluded to be as perfect as that in the upper end of the barometer.

To let *air* again into the exhausted receiver, the cock *n* is to be turned, which makes a communication with the external *air*; upon which the *air* rushing impetuously in, the mercury in the gage immediately subsides into the basin.

To the *air-pump* belongs a large apparatus of other vessels, accommodated to the divers kinds of experiments.

There are several inconveniences attending *air-pumps*, of the common form, though much improved from what they used to be formerly. These inconveniences are enumerated, and a method shewn to remedy them, by Mr. Smeaton.

The principal improvements suggested by Mr. Smeaton respect the disposition of the valves, of the piston, and of the gage. Instead of one hole for the valves, he makes use of seven, all of an hexagonal shape, and of equal size; one being in the centre, and the other six round it; so that the valve is supported at proper distances by a kind of grating, made by the solid parts between these holes. In order to remedy the inconvenience attending the piston's not exactly fitting the barrel, the top of the barrel is shut up by a plate, having in the middle a collar of leather, through which the cylindrical rod works, that carries the piston. His gage consists of a bulb of glass, in shape resembling a pear, and sufficient to hold about half a pound of quicksilver. It is open at one end, and the other is a tube hermetically sealed at top. A scale divided into parts of about one tenth part of an inch, and answering to a 1000th part of the whole capacity, is annexed to it. The gage, during the exhaustion of the receiver, is suspended therein by a slip-wire. When the pump is worked as much as is thought necessary, the gage is pushed down, till the open end is immersed in a cistern of quicksilver placed underneath. The *air* being then let in, the quicksilver will be driven into the gage, till the *air* remaining in it becomes of the same density with the external; and as the *air* always takes the highest place, the tube being uppermost, the expansion will be determined by the number of divisions occupied by the *air* at the top. See Phil. Trans. vol. xlvii.

Mr. Smeaton's *air-pump* has only one barrel.

This ingenious artist has succeeded so well in his construction of the *air-pump*, as to be able to rarefy *air* a thousand times; whereas the best of the common *air-pumps*, esteemed good in their kind, and in complete order, never rarefied it above one hundred and forty times. Mr. Smeaton's *air-pump* is worked with much more ease than any other, and acts also as a condensing engine, by the very simple apparatus of turning a cock. So that this *air-pump* is an universal engine, for shewing any effect arising from an alteration in the density or spring of the *air*; and with a little addition may be made to shew the experiments of the *AIR-FOUNTAIN*. See GAGE, WIND-gun, &c. Phil. Trans. vol. xlvii. p. 422.

AIR-pump, portable, differs principally in size, and in the structure of the gage, from that above described. The gage consists of a glass tube, bent in the form of a syphon, hermetically sealed at one end, and open at the other. The longest leg is four inches, each of which is divided on an adjoined scale into twenty equal parts. After considerable exhaustion, the gage begins to act; and whilst the quicksilver falls in one leg, it rises in the other; and the quantity of *air* remaining will be determined by the difference of the height at which it stands in both tubes. This gage is placed under a small receiver on a plate, communicating by a pipe with the main pipe, that leads from the receiver, to be exhausted to the bottom of the barrels.

AIR-PUMP, laws of rarefaction in the receiver of it.—1. For the proportion of *air* remaining at any time in the receiver, we have the following general theorem.—In a vessel exhausted by the *air-pump*, the primitive or natural *air* contained therein, is to the *air* remaining, as the aggregate of the capacity of the vessel and of the pump (i. e. the cylinder left vacant in an elevation of the piston, with the wire and other parts between the cylinder and the receiver) raised to a power whose exponent is equal to the number of strokes of the piston, to the capacity of the vessel alone raised to the same power. M. Varignon gives an algebraical demonstration of this theorem, in the Memoires de l'Acad. Roy. an. 1693, p. 233, seq. Id. an. 1705, p. 397, seq. but it may be also demonstrated pneumatically, thus:—Calling the *air* remaining after the first stroke, the *first residual*; that after the second, the *second residual*, &c. and remembering that the *air* in the receiver is of the same density as that in the cylinder, when the piston is raised; it is evident, that the quantity of *air* in the receiver, is to the quantity of *air* in the cylinder, wire, &c. as the capacity of the receiver to that of the cylinder, and consequently, the aggregate of the *air* in the receiver and the cylinder, i. e. the whole primitive *air*, is to the *air* in the vessel alone, i. e. to the first residual *air*, as the aggregate of the capacity of the receiver and the cylinder, to the capacity of the receiver alone. After the same manner it may be proved, that the quantity of the first residual *air*, is to the second residual, as the aggregate of the capacity of the receiver and cylinder to the capacity of the vessel alone. And the same proportion does the second residual bear to the third, and so of the rest. Hence, the product of the primitive *air* into the first, second, third, fourth, &c. residuals, is to the product of the first residual into the second, third, fourth, fifth, &c. as the product of the capacity of the receiver and cylinder together, multiplied as oft into itself as the number of strokes of the piston contains units, is to the factum arising from the capacity of the receiver alone, multiplied so often by itself; that is, as the power of the aggregate of the capacity of the receiver and cylinder together, whose exponent is the number of strokes of the piston, to the capacity of the vessel alone, raised to the same power. Consequently, the primitive *air* is to the last residual, in the ratio of those powers.

2. The number of strokes of the piston, together with the capacity of the receiver and cylinder with the wire, &c. being given; to find the ratio of the primitive *air* to the *air* remaining:

Subtract the logarithm of the capacity of the receiver, from that of the sum of the capacity of the receiver and the cylinder; then, the remainder being multiplied by the number of strokes of the piston, the product will be a logarithm, whose natural number shews how oft the primitive *air* contains the remainder required.

Thus, if the capacity of the receiver be 460, that of the cylinder 580, and the number of strokes of the piston 6; the primitive *air* will be found to the remaining *air*, as 146,4 to 1.

For, suppose the capacity of the vessel = v , that of the cylinder and vessel together = a , the number of strokes of the piston = n , and the remaining *air* = 1. Since the primitive is to the remaining *air* as a^n to v^n , the primitive *air* will also be to the remaining *air*, as $a^n \div v^n$ to 1. Consequently, if the remaining *air* be 1, the logarithm of the primitive *air* is $a - v \times n$.

3. The capacity of the receiver and the barrel being given; to find the number of strokes of the piston required to rarefy the *air* to a given degree.

Subtract the logarithm of the remaining *air* from the logarithm of the primitive *air*; and the logarithm of the capacity of the receiver, from that of the aggregate of the capacity of the receiver and cylinder; then, dividing the former difference by the latter, the quotient is the number of strokes required.

Thus, if the capacity of the cylinder be supposed 580, that of the receiver 460, and the primitive *air* to the remaining *air*, as 146,4 to 10: the number of strokes required will be found to be 6. See Wolf. Elem. Math. tom. ii. p. 289, &c. Cotes's Hyd. and Pneum. Lectures, Lect. 13. Besides the effects, and the phenomena of the *air-pump*, recounted under the articles VACUUM, AIR, &c. we may add some others; which, related at large, make the substance of Mr. Boyle's Physico-Mech. Exper.—As, that the flame of a candle in *vacuo* usually goes out in a minute, though it sometimes lasts two, but the wick thereof continues ignited after; and even emits a smoke, which ascends upwards.—That a kindled charcoal is totally extinguished in about five minutes, though in open *air* it remain alive half an hour; that it goes out by degrees, beginning from the top and the outides.—That red-hot iron is not affected by the absence of the *air*; and yet that sulphur or gunpowder will not be lighted thereby,

thereby, but only fused.—That a match, after lying seemingly extinct in *vacuo* a long time, revives again upon the re-admission of the *air*.—That a flint and steel strike sparks of fire as copiously in *vacuo* as out of it; and that the sparks move in all directions, upwards, downwards, &c. here as in the *air*.—That magnets and magnetic needles, are the same in *vacuo* as in *air*.—That smoke in an exhausted receiver, the luminary being extinct, gradually settles to the bottom in a darkish body, leaving the upper part clear and transparent; and that inclining the vessel sometimes on one side, and sometimes another, the fume keeps its surface horizontal, after the nature of the other fluids.—That the siphon does not run in *vacuo*.—That water freezes in *vacuo*.—That heat may be produced by attrition in the exhausted receiver.—That camphor will not take fire in *vacuo*; and that gun-powder, though some grains of a heap be kindled by a burning-glass in *vacuo*, will not give fire to the contiguous grains.—That glow-worms lose their light in proportion as the *air* is exhausted, and at length become totally obscure; but upon the re-admission of *air*, presently recover it all.—That vipers and frogs swell much in *vacuo*, but will live an hour and half, or two hours; and though seemingly quite dead in that time, came to life again in some hours in the *air*.—That snails survive ten hours; and efts, or slow-worms, two or three days; leeches five or six.—That oysters will remain alive in *vacuo* twenty-four hours without harm.—That the heart of an eel taken out of the body, continues to beat in *vacuo*, more nimbly than in *air*; and this for a good part of an hour.—That warm blood, milk, gall, &c. undergo a considerable intumescence and ebullition in *vacuo*.—That a mouse, or other animal, may be brought, by degrees, to survive longer in a rarefied *air*, than naturally it does.—That *air* may retain its usual pressure, after it is become unfit for respiration.—And that silk worms eggs will hatch in *vacuo*.

AIR-SHAFTS, among *Miners*, denote holes or shafts let down from the open *air* to meet the adits, and furnish fresh *air*. The damp, want, and impurity of *air*, which occur, when adits are wrought 30 or 40 fathoms long, make it necessary to let down *air-shafts*, in order to give the *air* liberty to play through the whole work, and thus discharge bad vapours, and furnish good *air* for respiration: the expence of which *shafts*, in regard of their vast depths, hardness of the rock, drawing of water, &c. sometimes equals, nay exceeds, the ordinary charge of the whole ADIT.

Sir Robert Murray describes a method, used in the coal-mines at Liege, of working mines without *air-shafts*. Phil. Trans. N° 5.

When the miners at Mendip have sunk a groove, they will not be at the charge of an *air-shaft*, till they come at ore; and for the supply of *air* have boxes of elm exactly closed, of about six inches in the clear, by which they carry it down about twenty fathoms. They cut a trench at a little distance from the top of the groove, covering it with turf and rods disposed to receive the pipe, which they contrive to come in side-ways to their groove, four feet from the top; which carries down the *air* to a great depth. When they come at ore, and need an *air-shaft*, they sink it four or five fathoms distant, according to the convenience of the breadth, and of the same fashion with the groove, to draw as well ore as *air*. Phil. Trans. N° 39.

AIR-THREADS of spiders. See **THREADS**.

AIR-VESSEL, in *Hydraulics*, is a name given to those metalline cylinders, which are placed between the two forcing-pumps in the improved fire-engines. The water is injected by the action of the pistons through two pipes, with valves, into this vessel; the *air* previously contained in it will be compressed by the water, in proportion to the quantity admitted, and by its spring force the water into a pipe, which will discharge a constant and equal stream; whereas in the common squinting engine, the stream is discontinued between the several strokes.

AIR-VESSELS, in **PLANTS**, are certain canals, or ducts, whereby a kind of **RESPIRATION** is effected in vegetable bodies.

Air-vessels stand distinguished from *sap-vessels*; the former answering to the *trachea*, and lungs of animals; the latter to their lacteals, and blood-vessels.

Dr. Grew, in an enquiry into the motion and cause of the *air* in vegetables, shews, that it enters them various ways, not only by the trunk, leaves, and other parts above ground, but at the root. For the reception, as well as expulsion of *air*, the pores are so very large in the trunks of some plants, as in the better sort of thick walking canes, that they are visible to a good eye without a glass; but with a glass, the cane seems as if it were stuck full of large pin-holes resembling the pores of the skin in the ends of the fingers, and ball of

the hand. In the leaves of the pine, through a glass they make an elegant show, standing almost exactly in rank and file throughout the length of the leaves.

But though the *air* enters in part at the trunk and other parts, especially in some plants, yet its chief admission is at the root: much as in animals, some part of the *air* may continually pass into the body and blood by the pores of the skin; but the chief draught is at the mouth. If the chief entrance of the *air* were at the trunk, before it could be mixed with the sap in the root, it must descend; and so move not only contrary to its own nature, but in a contrary course to the sap: whereas by its reception at the root, and its transition from thence, it has a more natural and easy motion of ascent. See **CIRCULATION** of sap.

The same is farther argued, from the fineness and smallness of the diametral apertures in the trunk, in comparison of those in the root; which nature has plainly designed for the separation of the *air* from the sap, after they are both together received thereinto. Grew, Anat. of Root, chap. iii. p. 127.

Air-vessels are found in the leaves of all plants, and are even discoverable in many without the help of glasses; for upon breaking the stalk or chief fibres of a leaf, the likeness of a fine woolly substance, or rather of curious small cob-webs, may be seen to hang at both the broken ends. This is taken notice of only in some few plants, as in *scabious*, where it is more visible: but may also be seen more or less in most others, if the leaves be very tenderly broken. This wool is really a skein of *air-vessels*, or rather of the fibres of the *air-vessels*, loosed from their spiral position, and so drawn out in length. Id. ibid. chap. iv. p. 155.

That *air* is inspired by vegetables, has been fully proved by Dr. Hales, in his Statical Essays; and he has in many instances shewn, that *air* freely enters the vessels of trees, and that it is in great abundance wrought into their substance. But as to particular *air-vessels* in plants, he seems to speak doubtfully. He says, by way of question, may not the use of those spiral wreaths, that are coiled round the insides of those vessels, which are supposed to be *air-vessels*, and which are manifestly to be seen in several trees; as also in the leaves of the vine and *scabious*, may not these be designed by nature to promote the quicker ascent of *air*, by being in some measure conformed to its elastic contortions? For such spiral wreaths seem to be altogether useless, for promoting the ascent of any liquor, as the sap, which ascends most freely through innumerable other capillary vessels, having no such spiral coils in them: not that we are to suppose the *air* in its elastic state actually to touch, and thereby to be determined in the course of these spirals, as any liquor would be. But as the rays of light, when they are reflected from a solid body, are found to be reflected, without actually touching the reflecting body in the point of reflection; so it is not unreasonable to suppose, that elastic *air* may, like light, be diverted from one course, and so be determined to another, by the solid bodies it approaches, without touching them, but rebounding like light from those solid bodies near the point of contact.

Dr. Hales has observed, that these spirals are coiled in a course opposite to the course of the sun, that is, from west to east. Vide Static. Ess. vol. ii. p. 265, 266.

AIRA, in *Botany*, *hair-grass*, a genus of the *triandria digynia* class. See **DARNEL**.

AIRANI, in *Church-History*, a sect of Arians, in the fourth century, who denied the consubstantiality of the Holy Ghost with the Father and the Son.

They are otherwise called *Airanistæ*, and are said to have taken their name from one *Airas*, who distinguished himself at the head of this party, in the reigns of Valentinian and Gratian.

AIRING, in the general sense of taking, or going into the fresh *air*, is too well known to need any explanation.

The word is particularly used for exercising horses in the open *air*; which is of the greatest advantage to these animals. It purifies the blood, purges the body from gross humours, and enures the creature to fatigue, so as not to be hurt by it, when much greater than on these occasions; and it teaches him, as the jockies express it, how to make his wind rake equally, and keep time with the other motions of his body. It also sharpens the stomach, and keeps the creature hungry; which is a thing of great consequence, as hunters and racers are very apt to have their stomach fall off, either for want of exercise, or from the too violent exercise which they are often exposed to.

If the horse be over fat, it is best to air him before sunrise, and after sun-setting; and, in general, it is allowed by all, that nothing is more beneficial to these creatures, than early and late airings.

Some of our modern managers, however dispute this; they

they say, that the cold of these times is too great for the creature, and that if, in particular, he is subject to catarrhs, rheums, or the like complaints, the dews and cold fogs, in these early and late *airings*, will be apt to increase all those disorders. Nature, we see, also points out the sun-beams as of great use to these animals; those which are kept hardy, and lie out all night, always running to those places where the sun-shine comes, as soon as it appears in a morning.

This should seem to discommend those *airings* that are to be made before sun-set, and a little time after sun rise; and as to the caution, so earnestly inculcated by Markham, of using these early and late *airings* for fat horses, it is found unnecessary by many; for they say, that the same effect may be produced by *airings* at warmer times, provided only that they are made longer; and that, in general, it is from long *airings* that we are to expect to bring a horse to a perfect wind, and sound courage.

AIRS, in *Horsemanship*, denote the artificial or practised motions of a managed horse.

Such are the *demi-volt*, *curvet*, *capriole*, *croupade*, *balotade*, *step*, and *leap*; also, *advancing*, *jerking*, and *bounding*.

Some authors take *airs* in a more extensive sense; and divide them into *low* and *high*.

The *low airs* include the natural paces, as *walking*, *trotting*, *galloping*, and *terra-a-terra*. To which may be added *prancing*, *siding*, *stopping*, and *turning*.

The *high*, or *raised airs*, are all such motions as rise higher than the *terra-a-terra*; as the *demi-volt*, *curvet*, &c.

AIRY *triplicity*, among *Astrologers*, the signs of Gemini, Libra, and Aquarius. See **TRIPPLICITY**.

AISAMENTA, in *Law*. See **EASEMENT**.

AJUBATIPITA *Brasilienfium*, in *Botany*, a name given to a shrub that bears a black fruit like an almond, which yields a great deal of oil.

AJUGA, in *Botany*, the name of a genus of plants, of the *didynamia gymnospermia* class, according to Linnæus, which are called by Tournefort, and other authors, **BUGULA**.

AJURU-CATINGA, in *Ornithology*, the name of a Brazilian parrot. It is of the size of a pullet, and all over of a very fine bright green; its eyes are red, and the skinny circle about them is white; its beak and legs are also white. Marcgrave.

AJURU-CURAU, in *Ornithology*, the name of a Brazilian species of parrot, of the size and shape of the common green parrot, of which there are two kinds. The first an extremely beautiful one with a blue crown; the throat and sides of the head are of a fine yellow, and all the rest of the body of a cheerful green; the long-winged feathers are half black, and half of a fine strong yellow, and at their ends variegated with blue and green; and the tail edged with red, black, and blue. The other kind has the same colours differently disposed; its head is yellow, with a whitish cast; the throat and sides of the head about the eyes are of a clearer yellow; and there is a sea-green spot near the head.

Besides these, there is also yet another variety, the species of which have all the colours of the first kind, but have an admixture of black about the head, a yellow spot on the crown, another of the same colour below the eyes, and a blue one under the throat. Ray.

AJURU-PARA, in *Ornithology*, the name of a Brazilian species of parrot of a small size, all over of a beautiful green, and with white legs, a white beak, and white skinny circles round its eyes. Marcgrave.

AJUTAGE, or **ADJUTAGE**, in *Hydraulics*, part of the apparatus of an artificial fountain, or *jet d'eau*; being a sort of tube, fitted to the mouth, or aperture of the vessel; through which the water is to be played, and by it determined into this, or that figure.

The word is formed of the verb *ajouter*, to adapt.

It is chiefly the diversity in the *ajutages*, that makes the different kinds of fountains. And hence by having several *ajutages* to be applied occasionally, one fountain comes to have the effect of many.

Mariotte enquires into the best kind of *ajutages*, or spouts for *jets d'eau*, affirming from experiment, that an even polished round hole, in the end of the pipe, gives a higher jet than either a cylindric, or a conical *ajutage*; of which yet the latter is the better. Vide *Trait. du Mouvem. des Eaux*, part 4. Phil. Trans. N° 181.

The various sorts of *ajutages*, their structure, application, &c. see under **FOUNTAIN**.

AIX-LA-CHAPELLE waters, are volatile, sulphureous, saponaceous, powerfully penetrating, resolvent, and containing a portion of iron. The three most noted hot waters in Europe, are those of Aix-la-Chapelle, Bourbon, and Bath. Of these the first are the hottest, the most nauseous, purgative, and abundant in sulphur; the last is least so.

AIZOON, in *Botany*, a name given by some authors to **HOUSELEEK**. It is a distinct genus of the *icosandria pentagynia* class, in the Linnæan system; the calyx of

which is divided into five segments, without petals, and the capsule has five cells, with five valves. There are three species.

AKOND, an officer of justice in Persia, who takes cognizance of the causes of orphans and widows; of contracts, and other civil concerns.—He is the head of the school of *law*, and gives lectures to all the subaltern officers; he has his deputies in all the courts of the kingdom, who, with the second *sadra*, make all contracts.

AL, an Arabic particle, prefixed to words, to exalt, or give them a more emphatical signification,—As, in *Akoran*, *Algebra*, &c.

AL, or **ALD**, in our *Ancient Writings*, signifies as much as *old*, *ancient*.—This being prefixed to the names of places, expresses their antiquity; as *Aldborough*, *Aldgate*, &c.

ALA, a Latin term, literally signifying *wing*, used, in *Anatomy*, for several parts of the body, which bear some resemblance to the figure of a wing.

Thus, the lobes of the liver are sometimes called *alæ*.

The soft, spongy bodies in the *pubendum muliebre*, usually called the *nymphæ*, are denominated *alæ*.

The two cartilages of the nose, which form the nostrils, are called *alæ*.

And the same denomination is given to the tip of the **AURICLE**. It is also applied to the process of the *os sphenoides*.

ALA, in *Botany*, a name given by the Latin writers of *medicine*, in the later ages, to the *helenium*, or **ELECAMPANE**.

ALA is also used in *Botany, for the angle which the leaves, or the stalks or pedicles of the **LEAVES**, form with the stem, or branches of the plant from which they arise. This angle is usually acute, and always is directed upwards.*

ALA is sometimes also applied to the angle formed by the branches themselves, with the stem; which is also observed to be very regular and uniform.

ALA has several other different significations. It most frequently is used to express the hollow of the stalk of a **PLANT**, which, either the leaf, or the **PEDICLE** of the **LEAF**, makes with it; or it is that hollow turning, or *sinus*, placed between the stalk, or branch of a plant, and its leaf, from whence a new offspring is wont to put forth. Sometimes it is taken also for a little branch, as when we say, a stock, or stem of a plant, is armed with many *alæ*, because these small branches stand out from it, in form of so many wings.

ALÆ is also used to signify those petals, or leaves of the papilionaceous flowers, placed between those others which are called the *vexillum* and the *carina*, which make the top and bottom of the flower. Instances of flowers of this structure are seen in the flowers of peas and beans, in which the top-leaf, or petal, is the *vexillum*, the bottom the *carina*, and the side ones the *alæ*.

ALÆ is also used for those extremely slender and membranaceous parts of some seeds, which appear as wings placed on them, as in the *plumeria*, the fruit of the trumpet-flower, the fruit of the maple, and the like, which are called by botanists *alated* seeds.

ALÆ is, finally, used also for those membranaceous expansions, which run all the way along the stems of some plants, and are therefore called *alated* stalks.

ALÆ, in *Anatomy*, is sometimes applied to the arm-pits, otherwise called *axillæ*. These parts abound with glands, and are great receptacles of humours; whence a rank smell sometimes exhales, called *fætor alarum*.

ALÆ, in the *Military Art*, the two wings or extremes of an army, ranged in form of battle.

ALABARCHA, in *Antiquity*, a kind of magistrate among the Jews of Alexandria, whom the emperors allowed them to elect, to have the superintendency of their policy and decide differences and disputes, which arose among them.

ALABARDA, the name of a spear anciently used by the Helvetians and Germans.

ALABASTER, in *Natural History*, a kind of stone, softer than marble, yet harder than plaster of Paris: used for the making of figures, and other ornaments of sculpture. Some derive the word from *albus*, because of the whiteness of this stone.—Others, from *αλαβαστρον*, which they form from the privative *α*, and *λαμβάνω*, *capio*, to take; this stone being too smooth and slippery for the hand to fasten hold of it.

It is found of all colours; some extremely white and shining, which is the most common; some reddish or tawny; and some is called *onyx* from its colour, which resembles that of the *onyx*, though very different from it in its nature.

Alabaster cuts very smooth and easy, and is much used among sculptors, for little statues, vases, and columns.

They sometimes also employ it as plaster of Paris: in order to which, they burn and calcine it; after which

mixing it up with water to a thin consistence, it is cast into a mould, where it readily coagulates into a firm body. *Alabaster*, Mr. Boyle observes, being finely powdered, and thus set in a basin over the fire, will, when hot, assume the appearance of a FLUID, by rolling in waves, yielding to the smallest touch, and emitting vapour; all which properties it loses again, on the departure of the heat, and discovers itself a mere incoherent powder. The fineness and clearness of this stone render it, in some measure, transparent; whence it has been sometimes also employed for windows. There is a church at Florence still illuminated by *alabaster*-windows; instead of panes of glass, there are slabs of *alabaster* near fifteen feet high, each of which forms a single window, through which the light is conveyed. Naturalists also mention divers extraordinary kinds of *alabaster*, soft, yellow, variegated, Indian, Caramanian, German, &c. Grew speaks of a *bastard-ALABASTER*, spotted, which he calls *GYPsum variegatum*, whereof there are divers sorts and colours in the repository of the Royal Society. These all made a strong effervescence with spirit of nitre. They are found in Burgundy, Misnia, &c. Of these lightly burnt, is made what is popularly called PLAISTER of Paris.

Ancient authors speak much of the medicinal virtues of *alabaster*, as a discutient. Some recommend it as a specific in a dysentery. But modern physicians scarce allow it in either of these characters. Yet some dispensatories still retain a preparation of it under the title of *unguentum alabastrinum*, prescribed for the head-ach.

The countries of Europe, which abound most in *alabaster*, are Germany, toward Coblentz; the province of Maconnois, in the neighbourhood of Cluni in France; Italy, toward Rome; where that of Montaiout is particularly remarkable not only for its whiteness, but also for the bigness of its blocks, some of which are so large, that statues as big as the life may easily be cut out of them. F. Labat, in his journey to Italy, observes, that there are quarries of *alabaster*, in the neighbourhood of the village called de la Toffa, near Civita Vecchia: there is also *alabaster* to be found in some places of Lorrain; but it is not much esteemed.

Cornelius le Brun, in his Voyage to the Levant (tom. v. p. 284) relates, that he has seen mountains of *alabaster*, which are distant about a hundred and fifty leagues west from Archangel.

A new manufacture of *basso relievos*, from a singular species of factitious *alabaster*, has been lately established by Mr. Letapie, at the baths of St. Philip, in Tuscany. The stream at these baths deposits a peculiar kind of sand, which when collected and condensed in the cavities of any body employed to oppose its current, acquires the nature, hardness and colour of *alabaster*, and assumes the forms of those cavities in which it is thus lodged. See Abbé Rozier's Observations, &c. for June, 1776.

ALABASTER is also used for a vase, wherein odoriferous liquors were anciently put.

The reason of the denomination is, that vessels for this purpose were frequently made of the *alabaster*-stone, which Pliny and other ancients represent as peculiarly proper for this purpose.

Several critics will have the box mentioned in the Gospels as made of *alabaster*, to have been of glass. And though the texts say, that the woman broke it, yet the pieces seem miraculously to have been united, since we are told, the entire box was purchased by the emperor Constantine, and preserved as a relic of great price.

Others will have it, that the name *alabaster* denotes the form rather than the matter of this box. In this view, they define *alabaster*, by a box without a handle, deriving the word from the privative α , and $\lambda\alpha\sigma\tau\iota$, *anfa*, handle.

ALABASTER is also said to have been used for an ancient liquid measure, containing ten ounces of wine, or nine of oil.

In this sense, the *alabaster* was equal to half the *sextary*.

ALABASTRA, in a plant, are those little herbaceous leaves which encompass the bottoms of flowers, particularly the rose. See CALYX, &c.

Some, with Junyus, explain *alabastera*, by the globe or roundish bud of the rose just peeping out.

ALABASTRITES, *alabasters*, in *Natural History*, the name of a genus of fossils allied to the marbles, and defined to be stones composed of large separate concretions, of great brightness, and an elegant, but shattery structure, not very hard, not giving fire with steel, fermenting with and soluble in acids, and calcining in a slight fire.

ALABASTRITES is often used as synonymous with *alabaster*. But Anselmus Boetius distinguishes between *alabaster* and *alabastrites*, in making the criterion of the former to be so soft, that it may be cut with a knife; and of the latter, that it is so hard that it cannot be so cut.

Grew speaks of a sort of *alabastrites*, representing the transverse section of the trunk of a tree.

ALABASTRUM *dendroide*, in *Natural History*, a name given by authors to a species of alabaster, found in great abundance in the province of Hohenstein, and famous for the elegant delineations of trees, and other figures described in it. See GYPSUM.

ALACUOTH, among Arabian Physicians, an infirmity of the nerves, whereby a person in the act of venery, lets go at the same time his *jæces*.

ALADINISTS, a sect among the Arabs, answering to free-thinkers among us.

The *Aladinists* multiplied greatly under the two learned kings Almanfor and Miramolius.

ALAISEE, in Heraldry, the same with *humetty* or RACCOURCY.

ALALCOMENIUS, in *Ancient Chronology*, the Boeotian name for the Athenian month MÆMACTERION, which was the fourth of their year, and answered to the latter part of our September and beginning of October.

ALAMANNICUM, in *Antiquity*, a tribute imposed on the people by the emperor Alexias Angelus, for raising the sum of sixteen talents of gold, to be paid the *Alamanti*, as the conditions of a peace stipulated with them.

The ecclesiastics themselves were not exempted from this tax.

ALAMIRE, or A-LA-MI-RE, among Musicians, a note of the modern SCALE of music. See NOTE.

ALAMODALITY, *alamodalitas*, is defined by a late writer, a study or endeavour to accommodate a man's self in point of behaviour, dress, conversation, and other actions of life, to the reigning taste or custom, from a motive of complaisance, and to avoid the imputation of ill-breeding.

ALAMODALITY of writing, *alamodalitas scribendi*, is defined, by the same person, a particular study or endeavour of learned men to adapt the productions of their minds, both as to the choice of subject and the manner of treating it, to the genius or taste of the times, in order to render them more acceptable to the readers.

A German writer, under the name of Geamoenus, has a dissertation on *alamodality* in writing.

ALAMODE, in Commerce, a thin, light, glossy black silk, not quilted or crossed; chiefly used for womens hoods, and mens mourning scarves.

The name is French, though not given in the country to this fabric, for which they have no other name but *tasetas noir lustre*.

The importation of these silks is regulated by several acts of parliament. See 4 and 5 W. and M. cap. 5.—5 and 6 W. and M. cap. 20.—6 and 7 W. III. cap. 18.—8 and 9 W. III. cap. 36.—9 and 10 W. III. cap. 43.—5 Anne, cap. 10. 20.

ALANA-GIEBA, a name given to the yellowish-white TRIPOLI.

ALANA-TERRA, English *oker*; it is esteemed drying and astringent; its principal use is to mix with salts in distillation, in order to keep them from melting. It is thought that this stone is what the ancients called the SAMIAN stone.

ALANFUTA, in the Arabian *Physic*, the name given to a vein between the chin and under lip, anciently used to be opened against a stinking breath.

ALANORARIUS, in our *Ancient Customs*, a keeper or manager of spaniels, or setting-dogs, for the sport of hunting, hawking, &c.

The word is formed from the Gothic, *alan*, a greyhound.

ALAPOULI, in *Natural History*, the name of an East Indian tree, a species of the *bilimbi*, which is used in medicine as a purge and vomit, mixt with the seeds of mustard.

ALAUQUECA, a medicinal stone brought from the Indies, in small glossy fragments; much praised by some for its efficacy in hæmorrhages, when applied externally.

ALARAF, in the Mahometan Theology, the partition wall that separates heaven from hell.

Alaraf gives the denomination to the seventh chapter of the Alcoran, wherein mention is made of this wall. Some take it for a sort of *limbus* for the patriarchs, prophets, &c. Others place here such whose good and evil works so exactly balance each other, that they neither deserve reward nor punishment.

ALARES, in *Antiquity*, are supposed by some authors to have been a kind of militia, or soldiery, among the Romans; so called from *ala*, a wing, because of their lightness and swiftness in the combat.

Others make them a people of Pannonia; but others, with more probability, take *alares* for an adjective, or epithet, and apply it to the Roman cavalry; because placed in the two wings, or *ala* of the army, for which reason, a body of horse was called *ala*.

ALARES *musculi*, in Anatomy. See PTERYGOIDEUS.

ALARIS *vena*, the inmost of the three veins in the bend of the arm.

ALARM,

ALARM, properly denotes a sudden apprehension, conceived from some noise, or report, which makes men run to their arms, and stand on their guard.

The word is French, formed from the Italian *all' arme*, to arms; whence *gridare all' arme*, q. d. to call to arms.

Alarms are either true, that is, founded on just notice, or false.

ALARMS, *false*, are frequently given by an enemy, either to fatigue the other's army, or by way of diversion; to keep themselves safe and quiet from attacks. To remedy the inconveniences of formal alarms, and prevent the horror and confusion of trumpets, and noise of warlike cries, the captains usually give the *alarm*, by silent advice, without noise.

ALARM-post, is the ground appointed to each regiment, by the quarter-master-general, for them to march to, in case of an *alarm*.

In a garrison, the *alarm-post* is the place where every regiment is ordered to draw up, on ordinary occasions.

ALARM, in *Fencing*, denotes a step, or stamp, made on the ground with the advancing foot.

This coincides with what is otherwise called an *appel*, or challenge.

ALARM, or rather **ALARUM**, is also used for an instrument to awaken persons at a certain hour: one very simple contrivance of this kind, is that used by weavers. See **WEAVERS-alarum**.

ALARM-bell, that which is rung to call the people together on some such occasion as a fire, mutiny, or the appearance of an enemy. This is what the French call *toefin*.

ALASCANI, in *Church History*, a sect of Antilutherans, whose distinguishing tenet, besides their denying baptism, is said to have been this, that the words, *This is my body*, in the institution of the eucharist, are not to be understood of the bread, but of the whole action, or celebration of the supper.

They are said to have taken the name from one Joannes a Lasco, a Polish baron, superintendant of the church of that country, in England.

ALASTROB, among *Alchemists*, denotes lead; though some will have it to signify **CALX**.

ALATED quadrupeds. See **QUADRUPED**.

ALATED leaves, among *Botanists*, those made up of several pinnated ones; as in the *orobus*. See **LEAF**.

ALATERNOIDES, a name given by botanists to the **CASSINE**.

ALATERNUS, in *Botany*, the *rhamnus* of Linnæus. See **BUCKTHORN**, and **PRIVET**.

ALAUDA, in *Ornithology*, a genus of the order of *passeres* and class of *aves*, in the Linnæan system. See **LARK**.

ALAUDA, in *Ichthyology*, see **BLENNIUS**.

ALB, **ALBA**, **ALBE**, a robe, or vestment, of white linen hanging down to the feet, and tied round the waist of the wearer with a girdle or sash. It was anciently embroidered with various colours, ornamented with fringe, wherein the Romish priests performed divine service. The *alb* corresponds to the surplice among us.—The rubric of Edward VI. distinguishes between them. It takes its name from its colour, *albus*, *white*.

In the ancient church it was usual with those newly baptized to wear an *alb*, or white vestment, for eight days; and the Sunday after Easter was called *Dominica in albis*, on account of the *albs* worn by the Neophytes, who were baptized on Easter day. The *albs* were also worn by laymen living in monasteries.

ALB. See **ASPER**.

ALBADARA, signifies in Arabic the *sesamoide* bone of the first joint of the great toe, which is about the size of a small pea. Its use is to that joint much the same as the *patella* is to that of the knee.

ALBA FIRMA, or **ALBUM**, was a yearly rent, payable to the chief lord of a hundred; so called, because paid wholly in white money, or silver, and not in corn, which was called *black mail*.

ALBA TERRA, among *Alchemists*, denotes the philosophers stone, compounded of mercury and sulphur.

ALBANENSES, see **ALBIGENSES**.

ALBANI, in *Middle Age Writers*, denote strangers or foreigners: answering to what we call *aliens*.

ALBANI, in *Antiquity*, a college of **SALII**, or priests of Mars instituted by Tarquin, and denominated from mount Albanus, the place of their residence.

ALBANUM, among *Chemists*, denotes salt of urine.

ALBARA, or **ALBORA**, among *Physicians*, a mixt species of malignant itch, compounded of the *morpheus*, *serpigo*, and *lepra*.

The *albara* partakes most of the nature of the leprosy; some make it the same with the *leuce*, **VITILIGO**, or **MORPHEUS**. See **ALPHOS**. It signifies likewise the white **POPLAR**.

ALBARAZIN, or **ALBAZARIN**, a kind of Spanish wool.

ALBARDEOLA, in *Ornithology*, a name given by many authors to the *platea*, or *spoon-bill*; a bird approaching to the nature of the **HERON**.

ALBARI, in *Antiquity*, properly denoted those who gave the whitening to earthen vessels, &c. In which sense they stood contradistinguished from *dealbatores*, who whitened walls.

ALBARIUM opus, in the *Ancient Building*, the incrustation or covering of the roofs of houses with white plaister, made of mere lime. The workmen were called *albini*, or *albarii*.

This is otherwise called *opus album*. It differs from *tecturium*, which is a common name given to all roofing or cieling, including even that formed of lime and sand, or even lime and marble; whereas *albarium* was restrained to that made of lime only.

ALBATI equi, in *Antiquity*, was a denomination given to those horses in the games of the *Circus*, which were distinguished by white cloths or furniture.

In which sense, *albat* stands contradistinguished from *russati*, *prosimi*, and *veneti*.

ALBATROSSE, the name of a large sea-bird, common about the Cape of Good Hope, Cape Horn, and in many other places. This is a thievish creature, and principally feeds on the prey which another sea-bird, called the *booby*, provides for itself.

It is said that the head of the *albatrosse* changes from brown to a fine scarlet, while it sits on its eggs, and afterwards becomes brown again.

ALBELEN, in *Ichthyology*, the name of a fish of the truttaeous kind, called also *albula*, and much resembling the *ferra*. It is caught in the German and other lakes, and is found from five or six to twelve pounds weight, but that more rarely. Its colour is a fine silvery white.

ALBELLUS, a species of *anser*, in the Linnæan system, belonging to the genus of **MERGUS**.

ALBEOLA, a species of *anas*.

ALBERNUO, a kind of camblet, or barracan, that comes from the Levant by the way of Marseilles.

ALBERTISTS, a sect of scholastics, denominated from their leader Albertus Magnus.

ALBESIA, a kind of shield used by the ancient Albanes, a nation of the Mariti.

ALBICILLA, in *Natural History*, a name given by some authors to that species of eagle commonly called **PYGARGUS**, from the whiteness of part of its tail.

ALBIGENSES, a sect about Thoulouse and Alb, in Languedoc, whence they derived their name; who, in the twelfth century, became remarkable for their opposition to the discipline and ceremonies of the church of Rome. See **REFORMATION**.

They were also known by various other names; as, Petrobrussians, Arnoldists, Cathari, Patarins, Publicans, Tisserans, Bon-hommes, Passagers, &c. Some will have them to be the same with the Albanenses; and they who think them different, attribute the same opinions to both. They were a party of the Paulicians, who migrated from Bulgaria and Thrace into other countries. Their first settlement was in Italy, whence they sent out colonies into almost all the other provinces of Europe. It is said that Peter Bruys was the first that brought them into Languedoc, about the year 1125. See **PETROBRUSSIAN**.

The Romanists tax the *Albigenses* with abundance of heterodox opinions; as, for instance, that there are two Gods, the one infinitely good, and the other infinitely evil: that the good God made the invisible world, and the evil one that which we live in; with the rest of the Manichean tenets.

But this seems to be one of those pious frauds allowed particularly in that church, which esteems it a kind of merit to blacken heretics, and those whom they chuse to call so.

However this be, the *Albigenses* grew so formidable in a little time, that a holy league, or croisade, was agreed upon among the catholics; and war denounced against them, the pope himself raising the first standard.—In 1229, a peace was struck up, and an inquisition established at Thoulouse, from which time the *Albigenses* dwindled by little and little, till the times of the Reformation, when such of them as were left fell in with the **VAUDOIS**, and became conformable to the doctrine of Zuinglius, and the discipline of Geneva.

ALBINI, in *Antiquity*, see **ALBARIUM opus**.

ALBIREO, a star of the third or fourth magnitude, in the constellation **CYGNUS**.

ALBOGALERUS, in Roman *Antiquity*, a sacerdotal cap, or ornament, worn by the *flamen dialis*, which is otherwise called *galerus*.

ALBORAK, in the Mahometan *Theology*, the beast on which the prophet is said to have rode in his extraordinary aerial journeys. It is represented as of an intermediate

diate shape and size between an ass and a mule; and many fabulous accounts are given of it by the Arabian commentators.

ALBORO, in *Ichthyology*, a name by which the ERYTHRINUS, a small red fish caught in the Mediterranean, is commonly known in the markets of Rome and Venice.

ALBUCA, in *Botany*, a distinct genus in the Linnæan system, belonging to the class of *hexandria monogynia*.

ALBUCUS, a name used by some for the white *asphodel*.

ALBUGINEA, in *Anatomy*, the outermost coat, or tegument of the eye, otherwise called ADNATA, and *conjunctiva*. It takes its name *albuginea* from its whiteness; it being this that forms what we call the *album*, or white of the EYE.

ALBUGINEA is also applied to the third coat of the testicles; so called from its colour, which is white.

It is a strong thick membrane, very smooth on the outer surface; the inner, which adheres to the substance of the testicle, being rough and uneven. Into its upper part are inserted blood-vessels, nerves, and lymphatics, which from thence send divers branches into the substance of the testicles. See TUNICA.

ALBUGINEUS is applied, by some, to denote the aqueous humour of the eye.

ALBUGO, or ALBUM oculi, the same with *albuginea*, or the white of the eye.

ALBUGO is a whitish, dense, opaque spot, or film, growing on the horny tunic, by which it looses its native colour, and becomes white and opaque.

The *albugo* is the same with what is otherwise called LEUCOMA.

It is most commonly the consequence of inflammations, by the extravasation of humours, between the membranes of this tunic; and particularly in the small pox by the suppuration of pustules upon this part; but they sometimes arise from scars left after punctures in the cornea, from swords, knives, glass, &c. from burns, or from caustic substances falling into the eye, or by a peculiar tunic growing to the eye itself.

The cure is various, according to circumstances. If the disorder arises from inspissated humours, an attenuating diet and medicines, especially sudorific decoctions and infusions, together with phlebotomy, scarifications, blisters, and *pediluvia*, are useful. Cold and astringent *collyria*, especially those of white vitriol, are here pernicious; whereas warm applications are of the greatest service. But if these disorders be of long standing, there is little or no hope of a cure.

If the disorder proceeds from abscesses, or a suppuration of matter, after an inflammation, betwixt the laminae of the cornea, which they elevate like a pea, or pearl, whence they are sometimes called *pearls*, an incision ought to be made into the cornea, to discharge the included matter. But neither this nor any other method will succeed, so as to preserve the eye sight clear, if the matter be lodged deep.

If the pustules take their rise from burns, or the small-pox, the contained matter must be discharged, and the pellicle must be removed with *alum. ust. cum sacchar. cand.* & *ovor. test. pp.* applied every day to the cornea.

Spots in the cornea arising from wounds, scars, or the abuse of vitriolic *collyria*, are seldom curable.

Dr. Mead tells us of several cures of the *albugo*, performed by means of an eye-powder, which he recommends. The receipt is thus: take of common glass any quantity, pound it in a mortar to a very fine powder; then add an equal quantity of white sugar-candy, and levigate the mixture till it becomes impalpable.

A little of this powder put into the eye with a quill, every day, gradually wears off the spot.

Another method of removing the speck, is to have it pared by a surgeon every day with a knife: but this seems a doubtful remedy.

ALBULA, in *Ichthyology*, a genus of fishes of the truttaeous kind, having no teeth.

ALBULA Indica, the name of a small fish, resembling a herring caught about the shores of the East Indies, and called by the Dutch the *wit-fish*. Ray.

ALBULA nobilis, the name of one of the truttaceous fishes, caught in great plenty in the lakes of Germany, and other places.

ALBULA is also a name given, by some naturalists, to mineral waters of the aluminous kind; hence endued with an astringent quality, and of use in wounds.

The word is Greek, in which language it signifies the same.

ALBUM, in *Literary History*, is used to denote a kind of table, or pocket-book, wherein the men of letters with whom a person has conversed, inscribe their names, with some sentence, or motto.

This is called by divers names and titles, as *album amicorum*, *repositorium amicorum*, &c.

The famous Algernon Sydney being in Denmark, was by the university of Copenhagen presented with their *album*, whereupon he wrote these words:

Manus hæc inimica tyranni
Inse petit placidam sub libertate quietem.

ALBUM, in *Antiquity*, denotes a white table, or the like, whereon names, or other matters, were to be inscribed, or entered.

Hence we meet with *album prætoris*, *album decurionum*, *album judicum*, &c.

The high priest entered the chief transactions of each year into an *album*, or table, which was hung up in his house for the public use.

ALBUM, in *Natural History*, is used for the white of an egg; more properly called *albumen*.

ALBUM, among *Chemists*, is used for white lead, popularly called *ceruss*.

ALBUM is also used, among *Alchemists*, for a tincture pretended to transmute metals.

ALBUM is also applied, in *Pharmacy*, as a title, or epithet, of divers compound medicines. Thus we meet with *unguentum album cum camphora*, &c.

ALBUM Græcum, dogs white dung, is a medicinal drug, in the present practice, used with honey to cleanse and deterge, chiefly in inflammations in the throat; and for the most part outwardly, as a plaster; but as Dr. Quincy observes, seldom to any great purpose. See Neumann's Works, p. 585.

Some speak of its use internally, in the *angina*, and other inflammations; as also in the dysentery, colic, &c. and to prevent burns from rising into blisters.

ALBUM nigrum is used, among *Medical Writers*, for micedung, by some also called *muscerda*.

ALBUM oculi, among *Anatomists*, denotes the *tunica adnata*; sometimes also called *albugo*; popularly the white of the EYE.

ALBUMEN ovi, in *Natural History*, and in *Medicine*, the white of an EGG.

ALBURN, or AUBURN colour, a whitish brown, or mixt colour, partaking of red and white.

ALBURNUM, in *Phytology*, the exterior part of the wood of a tree, next the BARK.

ALBURNUS, in *Ichthyology*, the name of a fresh water fish, commonly known in English by the name of the BLEAK. It is common in our rivers, and in those of Germany and elsewhere, and is esteemed a well tasted fish. It is most in season in September. It is a species of the *cyprinus* of Linnæus.

ALBURNUS lacustris, in *Ichthyology*, a name given by the writers who have copied Gesner's errors, to the *ballerus* of the ancients, or the *pallerus*, or *pleysta*, of the moderns.

ALBUS piscis, the white fish, in *Ichthyology*, a name by which Salvian has called the fish more usually called the *capito lacustris*, and seeming the same with the blue chub, or, as it more frequently called, the JENTLING.

This fish is a species of the CYPRINUS, called by the Italians *alba*.

ALCA, in *Ornithology*, see ALKA.

ALCAHEST, see ALKAHEST.

ALCAICS, in the *Ancient Poetry*, a name common to several kinds of verses; so called from the poet Alcæus, the inventor of them.

The first species of *Alcaics* consists of five feet, of which the first may be either spondee, or iambic; the second is an iambic; the third, a long syllable; the fourth, a dactyl; and the fifth, a dactyl, or amphimacer: as these of Horace.

Omnes eodem cogimur, omnium

Versatur urna, serius, ocyus,

Sors exitura.

The second species of *Alcaics* consists of two dactyls, and two trochees; as

Exilium impositura cymbæ.

Besides these two kinds of verses, which are properly called *dactylic Alcaics*, there is a third sort, called simply *Alcaic*; whereof the first is an *Epitrite*, the second and third are *Choriambuses*, and the fourth a *Bacchius*; as,

Cur timit fluvium Tiberim | tangere? cur | olivum?

ALCAIC Ode consists of four strophes, each of which contains four verses: the two first are *Alcaic* verses of the first kind; the third an iambic dimeter hypercatalectic, i. e. of four feet, and a long syllable: as,

Sors exitura, & nos in æternum.

The fourth is an *Alcaic* of the second kind.—The entire *Alcaic* strophe is as follows:

Omnes eodem cogimur, omnium

Versatur urna, serius, ocyus,

Sors exitura, & nos in æternum

Exilium impositura cymbæ.

ALCAID, in matters of *Policy*, an officer of justice among the Moors, Spaniards, and Portuguese.

The word is also written *alcade*, *alcalde*, and *alcayd*: sometimes also *alvacide*.

It is originally Arabic, compounded of the particle *al*, and the verb *kad*, or *akad*, to rule, govern, administer.

The

The emperor of Morocco's court consists chiefly of seven or eight *alcalds*, his devoted slaves.

The *alcald*, or governor of a city or castle in Barbary, hath sovereign jurisdiction in civil and criminal concerns; and all fines and punishments are inflicted at his pleasure.

In some places the *alcalds* are much the same with the emperor's tax-gatherers.

Alcaid, among the Spaniards, &c. is a kind of inferior judge, or minister of justice, who takes cognizance of causes in the first instance, and answers in good measure to the French *prevost*, and an English justice of peace.

They had also their *alcald* of the whores, who took cognizance of cases of whoredom, and adultery. This officer was otherwise called *alcald* of honour. Du-Cange.

ALCALI, see ALKALI.

ALCALIZATION, or ALKALIZATION, which see.

ALCANNA, a cosmetic powder, much used in the Levant, made of the leaf of a species of shrub frequent in Barbary.

ALCANNA, or ALCANA, by the Turks called *knab*, a dying drug, brought from Egypt and the Levant, being the leaves of a plant called by botanists *ligustrum Egyptiacum*, or the Egyptian *privet*. The Egyptians call it *elle banne*. The colour drawn from these leaves is either red or yellow, according to the manner of the preparation; yellow when steeped in common water, and red when infused in vinegar, or alum-water.

The people of Cairo make a considerable traffic of these leaves; which they reduce to a powder called *archenda*, much used by the women to dye their nails and hair of a golden-yellow hue.—From the berries of *alcana* an oil is extracted, of a very agreeable smell, and some use in physic, as a calmer, called oil of Cyprus, a name which is sometimes also given to the plant. Phil. Trans. abr. vol. x. ii. 741.

ALCANNA is also a denomination given by some to isinglass, or ICHTHYOCOLLA, and the ANCHUSA.

ALCANTARA.—Order of ALCANTARA, an ancient military order. The precise year of its institution is not settled among antiquaries.

The knights of *Alcantara* make the same vows as those of Calatrava, and are only distinguished from them by this, that the cross fleur de lys, which they bear over a large white cloak, is of a green colour: they possess thirty-seven commandaries.

By the terms of the surrender of *Alcantara* to this order, it was stipulated, that there should be a confraternity between the two orders, with the same practices and observances in both; and that the order of *Alcantara* should be subject to be visited by the grand-master of Calatrava. But the former soon released themselves from this engagement, on pretence that their grand-master had not been called to the election of that of Calatrava, as had been likewise stipulated in the articles.

After the expulsion of the Moors, and the taking of Granada, the sovereignty of the order of *Alcantara*, and that of Calatrava, was settled in the crown of Castile, by Ferdinand and Isabella.

In 1540, the knights of *Alcantara* sued for leave to marry; which was granted them.

The history of this order is chiefly taken up in expeditions against the Moors, and broils with their neighbours.

ALCE, in Zoology, the ELK.

ALCEA, in Botany, VERVAIN-MALLOW.

Mr. Tournefort enumerates twenty species of this *alcea*, which is a medicinal herb, whose virtues are much the same with the mallow, but in less degree. It is used as an emollient, and is an ingredient in plasters, Dioscorides mentions the root, drank with wine or water, as a remedy against dysenteries and ruptures.

There is a species of this plant called *alcea Indica*, the seeds of which the Egyptians dry, and of which they mix the powder in their coffee, to make it more effectual in strengthening their head, stomach, &c.

ALCEA vesicaria, the bladder *alcea*, in Botany, the name of a species of KETMIA.

ALCEDO vocalis, in Ornithology, a name by which Bellonius, Aldrovandus, and some others, have called the red sparrow.

ALCEDO, a genus of birds belonging to the order of *picæ*, and comprehending fifteen species. The characters are, that the beak is three-cornered, thick, straight, and long; the tongue is short, fleshy, smooth, and acute, and the feet are formed for walking.

ALCHATA, in Ornithology, a species of the TETRAO.

ALCHEMIST, a person who professes ALCHYMY.

ALCHIMELECH, the Egyptian *melilot*. Ray's Hist. Plant.

ALCHIMELLA, see LADY'S mantle.

ALCHITRAM, among the Alchemists, denotes sometimes the oil of juniper, sometimes liquid pitch and sometimes arsenic, prepared by ablution.

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This is otherwise written *alchieram*, and *alchitran*; sometimes *alchytran*, and *alkytran*.

ALCOLLEA, a kind of food in use among the western Moors, being fleshy meat, pickled, dried, boiled, and potted.

ALCHYMY, or ALCHEMY, a higher, or more refined kind of CHYMISTRY, employed in the more mysterious researches of the art.

The word seems compounded of the Arabic augmentative particle *al*, and the Latin *chymia*, Egyptian *kemia*, or Greek *χημια*, *chemistry*. Though some object to this origin, and deny the Arabic any share in the composition of the word; urging, that *alchemia* occurs in an author who wrote before the Europeans had any commerce with the Arabians, or the Arabians any learning, i. e. before the time of Mahomet.

The name *alchymy*, however, is really of no ancient standing: the first time it occurs, is in Julius Firmicus Maternus, an author who lived under Constantine the Great, and who, in his *Mathesis* 3. 55. speaking of the influence of the heavenly bodies, asserts, 'that if the moon be in the house of Saturn, at the time a child is born, he shall be skilled in *alchymy*.'

The great objects or ends pursued by *alchymy*, were, 1. The making of gold, which is attempted three different ways; by separation, by maturation, and by transmutation; which last is to be effected by means of what they call the *philosophers stone*.

With a view to this end, *alchymy*, in some ancient writers, is also called *πομπικη*, *poetice*, and *χρυσοποιητικη*, *chryso-poetice*, q. d. the art of making gold.—And hence, also, the artists themselves are called *ποιηται*, *makers*; and *χρυσοποιηται*, *gold-makers*.

2. An universal medicine, adequate to all diseases. See ELIXIR.

3. An universal dissolvent, or ALKAHEST.

4. An universal ferment; or a matter, which being applied to any seed, shall increase its fecundity to infinity: if, e. gr. it be applied to gold, it shall change the gold into the philosophers stone of gold; if to silver, into the philosophers stone of silver, i. e. into a matter which transmutes every thing into silver; and if to a tree, the result is, the philosophers stone of the tree, which transmutes every thing, to which it is applied, into trees. See a History of *Alchymy*, and its Principles, &c. Dr. Lewis's *Commerc. Philosoph. Techn.* p. 199, & seq. and *PHILOSOPHERS stone*.

The origin and antiquity of *alchymy* are much controverted.—If regard may be had to legend and tradition, it must be as old as the flood. But in effect, not one of the ancient poets, philosophers, or physicians, from Homer till four hundred years after Christ, mention any such thing. The first author who speaks of making gold, is Zosimus the Panopolite, who lived towards the beginning of the fifth century, and who has an express treatise, *Περὶ τῆς ἱερᾶς τέχνης τῆς τοῦ χρυσοῦ καὶ τοῦ ἀργυροῦ ποιήσεως*, *Of the divine art of making gold and silver*, still extant, in manuscript, in the French king's library.

Kircher asserts, that the theory of the philosophers stone is delivered at large in the table of Hermes; and that the ancient Egyptians were not ignorant of the art, but declined to prosecute it. They did not need to transmute gold; they had ways of separating it from all kinds of bodies, from the very mud of the Nile, and stones of all kinds: however, he adds, these secrets were never written or published, but confined to the royal family, and handed down traditionally from father to son.

Kircher, instructed in all the secrets of chemistry, has fully exposed the artifices and impostures of *alchemists*.

An *alchemist* puts into a crucible the matter which is to be converted into gold; this he sets on the fire, blows it, stirs it with rods; and, after divers operations, gold is found at the bottom of the crucible, instead of the matter first put in: this there are a thousand ways of effecting, without any transmutation. Sometimes it is done, by dextrously dropping in a piece of gold concealed between the fingers, sometimes by casting in a little of the dust of gold, or silver, disguised under the appearance of some elixir, or other indifferent matter; sometimes a crucible is used which has a double bottom, and gold put between the two; sometimes the rod used to stir the matter is hollow, and filled with the dust of the metal desired; at other times there is metal mixed with the charcoal, the ashes of the furnace, or the like. Mr. Harris very properly distinguishes *alchemy* from *chemistry*; and defines the former to be *ars sine arte, cujus principium est mentiri, medium laborare, et finis mendicare*; and the Italians have a proverb, *non ti fidare al' alchemista provero o medico amalato*. The ruin which has attended this delusion has occasioned several states to make severe laws against pretences to *alchemy*. The Romans formerly banished all such as professed it; and the sacred canons likewise directed the thunder of their censure against them;

them. Dioclesian and Cæsar directed all books which treated of this subject to be burnt. Rymer furnishes us with a licence for practising *alchemy*, with all kinds of metals and minerals granted to one Richard Carter, in the year 1476. Rym. Fœd. tom. xii. Nevertheless, we have had severe laws against *alchemy*, and multiplying of metals, as much as against coining itself.

The best writers in *alchemy*, according to the judgment of Boerhaave, are Geber, Morienus, Roger Bacon, Ripley, Raim. Lully, Bern. count Trevisanus, John and Isaac Holandus, Sendivogius, Basil Valentine, Artephius, Paracelsus, Irenæus Philalethes, and Van Helmont. See Petri Borelli, Bibliotheca Chymica, five Catalogus Librorum Philosophicorum Hermeticorum, Par. 1654, 12mo. It contains an account of about four thousand writers.

ALCHYMY is also used, in a less proper sense, for the art of common *chemistry*.

In which sense, Libavius has published a Practice of Alchymy, describing the preparations of the chief chemical medicines. And. Libavii Praxis Alchemiæ, h. e. de Artificiofa Præparatione Præcipuorum Medicamentorum, Francof. 1604. 8vo.

ALCIBIADUM. See **ALCIBIUM**.

ALCIBIUM, in *Botany*, a word used sometimes by the ancients as an epithet for a kind of *echium*, or viper's bugloss, and sometimes as the name of a peculiar plant.

ALCMANIAN, in the *Ancient Poetry*, a kind of lyric verse, or metre, consisting of two dactyls, and two trochees. Such, e. gr. is

Virginibus puerisque canto.

The word is formed from *Alcman*, the name of an ancient Greek poet, in great esteem for his Erotics, or amorous compositions.

Some authors assign other *Alcmanian* verses, composed of three dactyls, and a long syllable :

E. gr. *Munera lætitiæque Dei.*

Others give an *Alcmanian*, composed of a dactyl, spondee, and another dactyl, and a long syllable :

E. gr. *Ne dubita, nam vera fides.*

ALCOHOL, or **ALKOOL**, in *Chemistry*, an Arabic term, chiefly understood of the purest spirit of wine, raised, or rectified, by repeated distillations, to its utmost subtilty and perfection.

The word is formed from the Arabic or Hebrew **קלף**, *kaal*, to attenuate, subtilize.

Alcohol is the most complete production of vegetable fermentation ; and, when brought to its highest degree of perfection, is the lightest fluid next to air ; perfectly transparent, very thin, most simple, totally inflammable, without producing any smoke, or diffusing any disagreeable scent while it is burning ; is exceeding volatile, without leaving any *fæces* ; absolutely immutable in distillation, extremely expansible by heat, very easily disposed to ebullition by fire, of a very pleasant smell, and of a particular grateful taste. All the humours of the human body that we are acquainted with, it coagulates in an instant, excepting the pure water and urine ; whilst it hardens all the solid parts, and thus preserves both from putrefaction, or spontaneous colligation. It preserves the bodies of insects, fish, birds, and other animals that are put into it, from corruption, or alteration, for ages, if closely stopped. With water, vinegar, any acid liquors, oils, and pure volatile alkaline salts, it suffers itself to be mixed, and that nearly of an equable mixture ; gummy and resinous substances it dissolves. So that we are acquainted with no liquid, produced either by nature or by the art of *chemistry*, that is capable of being united with more bodies than *alcohol* ; but in a particular manner it proves an excellent vehicle for the *spiritus rector* of vegetables, which, by uniting with it, may be extracted from its proper body, retained, and applied to medicinal and other uses.

In the human body, by its smell, taste, and vapour, it wonderfully quickens, gratefully affects, and invigorates the animal, natural, and vital spirits, nerves, and brain. Flames fed by *alcohol* of wine, though of the same bigness with other flames, cause different degrees of dilatation in metals. See Collect. Acad. tom. i. p. 113.

Since there are various, and sometimes very inviting occasions, in which chemists, and other artificers, stand in need of the true and purest *alcohol*, the least remainder of water rendering the operation unsuccessful, it is absolutely necessary we should have some marks by which we may be able to distinguish whether our *alcohol* be pure or not. The principal of these are,

1. If the supposed *alcohol* contains any oil dissolved in it, and so equally distributed through it, that it is no other ways perceptible than upon the pouring of water into it, the mixture will grow white, and the oil will separate from the *alcohol*.

2. If any thing of an acid lies concealed in *alcohol*, a little of it mixed with the alkaline spirit of sal ammoniac, will discover the acid by an effervescence ; for otherwise there would be only a simple coagulation.

3. If there be any thing in an alkali intermixed, it will appear by the effervescence excited by the affusion of an acid. As for other salts, they are seldom found in it.

4. But it is a matter of greater difficulty to discover whether there be any matter intermixed with it ; and therefore chemists have contrived certain methods by which this may also be determined, of which the best is this. Take a chemical vial with a long narrow neck, the bulb of which will hold four or six ounces of *alcohol*. Fill this two thirds full with the *alcohol* you intend to examine, into which throw a dram of the purest and driest salt of tartar, coming very hot out of the fire ; then mix them by shaking them together, and set them over the fire till the *alcohol* be just ready to boil. Being thus shaken and heated, if the salt of tartar remain perfectly dry, without the least sign of moisture, we are sure that there is no water in this *alcohol*.

The internal use of *alcohol* is highly destructive to the animal frame, as among other inconveniences, it dries and contracts the nerves, and coagulates the juices. *Alcohol*, however, and fermented spirits in general, are of good service externally applied in many cases. Thus spirit of wine, especially camphorated, is a very good addition to fomentations designed to resolve inflammations whether external or internal.

Pure *alcohol* likewise, according to Boerhaave, is the best of styptics. According to Juncker, it is a combination of the acetous acid, phlogiston, and water ; but the ablest chemists are not yet agreed as to the constituent principles of this fluid.

ALCOHOL is sometimes also used for a very fine, impalpable powder, which women in the East make use of as a kind of *fucus*. Dr. Shaw, in his Travels, speaking of the women in Barbary says, that none of those ladies think themselves completely dressed, until they have tinged their hair, and edges of their eye-lids with *al-ka-hol*, the powder of lead ore. From this impalpable powder the name was transferred to other subtle powders, and afterwards to spirits of wine, exalted to its highest purity and perfection. See **PORPHYRISATION**.

ALCOHOL, in the Arabian *Astrology*, is when a heavy slow-paced planet receives another lighter one within its orb, so as to come in conjunction therewith.

ALCOHOL Martis, filings of steel reduced to an impalpable powder, by turning it into rust with urine, then levigating it, and mixing it with a large quantity of water ; that is, about a gallon to two pounds and a half of filings. After it has stood a quarter of an hour, the upper part of the water is to be poured off, and evaporated to a dryness. The powder at the bottom is to be put into a paper in the form of a sugar-loaf, and washed, by gradually pouring in hot-water, till it is freed from the urinous salts. With regard to the remaining gross powder, the same process is to be repeated.

Musgrave has a great opinion of this preparation, as a remedy to bring back the gout from the nobler parts to the joints. He prescribes it thus : take of *alcohol martis* from five to ten grains, *theriaci Andromachi* from half a scruple to one drachm, mix these with as much syrup of clove-july-flowers, as is sufficient to make a bolus.

ALCOHOLIZATION, in *Chemistry*, the rectification of a vinous spirit.

This is otherwise called *alcolifation*.

Alcolifation, according to Starkey, denotes the circulation of a volatile spirit on a fixed alkali, till such time as out of the two arises only one neutral body, different from both the former. *Alcoholization* is one way of volatilizing alkalis.

ALCOHOLIZATION is also used for **PULVERIZATION**.

ALCOLA is used by alchemists, for the tartar of urine.

Alcola is found in three different forms, viz. 1. Resolved, or reduced into an impalpable substance. 2. Sandy, or voided under the appearance of small grains of whitish or reddish sand. 3. Mucilaginous, or viscous.

ALCOR, in *Astronomy*, a small star adjoining to the large bright one in the middle of the tail of *URSA major*.

The word is Arabic. It is a proverb among the Arabians, applied to one who pretends to see small things, but overlooks much greater, *Thou canst see Alcor, and yet not see the full Moon*.

ALCORAN, or **AL KORAN**, the Mahometan bible ; or revelations, doctrine, and prophecies, of the pretended prophet Mahomet.

It is vulgarly called *Alcoran* ; but the first syllable of the word is nothing more than an article signifying *the* ; and therefore the true orthography of the word is *Al Coran*, or *Al Koran*, that is *the Koran*. It is derived from the Arabic word *karoa*, to read, and signifies *the reading*, or what ought to be read. Thus Mahomet gave it this title by

by way of eminence, in imitation of the Jews and Christians, who call the Old and New Testament *Scripture*; and the *Bible*, i. e. the book.

It is the common opinion among us, that Mahomet, assisted by one Sergius, a monk, composed this book; but the Mussulmen believe it as an article of their faith, that the prophet, who, they say, was an illiterate man, had no concern in inditing it; but that it was given him by God, who, to that end, made use of the ministry of the angel Gabriel; that, however, it was communicated to him by little and little, a verse at a time, and in different places, during the course of twenty-three years—'And hence, say they, proceed the disorder and confusion visible in the work;' which, in truth, are so great, that all their doctors have never been able to adjust them. For Mahomet, or rather his copyist, having put all these loose verses promiscuously in a book together, it was impossible ever to retrieve the order wherein they were delivered.

Those twenty-three years which the angel employed in conveying the *Alcoran* to Mahomet are of wonderful service to his followers: inasmuch as they furnish them with an answer to such as tax them with such glaring contradictions wherewith the book is full: those contradictions they piously father upon God himself; alledging that in the course of so long a time, he repealed and altered several doctrines and precepts which the prophet had before received of him.

M. D'Herbelot thinks it probable, that when the heresies of the Nestorians, Eutychians, &c. had been condemned by oecumenical councils; many bishops, priests, monks, &c. being driven into the deserts of Arabia and Egypt, furnished the impostor with passages, and crude ill-conceived doctrines, out of the Scriptures; and that it was hence that the *Alcoran* became so full of the wild and erroneous opinions of those heretics.

The Jews also, who were very numerous in Arabia, furnished materials for the *Alcoran*; nor is it without some reason that they boast twelve of their chief doctors to have been the authors of this work.

The *Alcoran*, it is to be observed, while Mahomet lived, was only kept in loose sheets: his successor, Abubeker, first collected them into a volume, and committed the keeping of it to Haphsa, the widow of Mahomet, in order to be consulted as an original; and there being a good deal of diversity between the several copies already dispersed throughout the provinces, Ottoman, successor of Abubeker, procured a great number of copies to be taken from that of Haphsa; at the same time suppressing all the others not conformable to the original.

The chief differences, in the present copies of this book, consist in the points, which were not in use in the time of Mahomet, and his immediate successors; but were added since, to ascertain the reading; after the example of the Massoretes, who added the like points to the Hebrew texts of Scripture.

The work is divided into *suras*, or chapters; and the *suras* are divided into little verses, in Arabic called *ayat*, signs or wonders, which are all composed in a broken interrupted style, resembling prose rather than verse.—The division into *suras* is but of late standing; the usual number is one hundred and fourteen.

Beside these unequal divisions of chapter and verse, the *Koran* is divided into sixty equal portions, called *ahzab*, each of which is again subdivided into four equal parts. The chapters bear different titles, which are usually taken from the first word of note that occurs in them. Under the title, at the head of every chapter, except the ninth, is prefixed the following solemn form, called by the Mahometans the *bismillah*, in the name of the most merciful God; which form, as well as the titles, are considered by some commentators of divine original, though others believe them to be human additions.

There are seven principal editions of the *Alcoran*; two at Medina, one at Mecca, one at Cusa, one at Bassora, one in Syria, and the common, or vulgate edition. The first contains 6000 verses, the others surpassing this number by 200 or 236 verses; but the number of words and letters is the same in all; viz. 77639 words, and 323015 letters.

The *Alcoran* is held not only of divine original, but eternal and uncreated, remaining, as some express it, in the very essence of God. The first transcript has been from everlasting by God's throne, written on a table of vast bigness, in which are also recorded divine decrees, past and future. A copy from this table in one volume, on paper, was sent down from the lowest heaven, in the month of Ramadan, on the night of power. From whence it was delivered out to Mahomet by parcels, some at Mecca, and some at Medina; though he had the consolation of seeing the whole once a-year, and in the last part of his life twice. Ten new chapters were

delivered entire, the greater part only in separate periods, which were written down from time to time by the prophet's amanuensis, in such a part of any particular chapter, as he directed. The first parcel that was revealed, was the first five verses of the ninety-sixth chapter, which the prophet received in a cave of Mount Harah, near Mecca.

The general aim of the *Alcoran*, was to unite the professors of the three different religions, then followed in Arabia, idolaters, Jews, and Christians, in the knowledge and worship of one God, under the sanction of certain laws, and the outward signs of ceremonies, partly of ancient, and partly of novel institution, enforced by the consideration of rewards and punishments, both temporal and eternal, and to bring all to the obedience of Mahomet, as the prophet and ambassador of God, who was to establish the true religion on earth, and be acknowledged chief pontiff in spiritual matters. The chief point, therefore, inculcated in the *Alcoran*, is the unity of God, to restore which the prophet pretended was the chief end of his mission. The rest is taken up in prescribing necessary laws and directions, frequent admonitions to moral and divine virtues, the worship and reverence of the Supreme Being, and resignation to his will. One of their most learned commentators distinguishes the contents of the *Alcoran* into allegorical and literal; under the former are comprehended all the obscure, parabolical, and ænigmatical passages, with such as are repealed, or abrogated; the latter, such as are clear, and in full force.

The Mussulmen dare not so much as touch the *Alcoran*, without being first washed, or legally purified; to prevent which, an inscription is put on the cover or label: *Let none touch but they who are clean*. It is read with great care and respect, being never held below the girdle. They swear by it, take omens from it on all weighty occasions; carry it with them to war, write sentences of it in their banners, adorn it with gold and precious stones, and knowingly suffer it not to be in the possession of any of a different religion. Some say that it is punishable even with death in a Christian to touch it; others, that the veneration of the Mussulmen leads them to condemn the translating it into any other language as a prophanation; but these seem to be aggravations. The Mahometans have taken care to have their Scripture translated into the Persian, the Javan, the Malayan, and other languages; though out of respect to the original, these versions are generally, if not always, interlineated.

The style of the *Alcoran* is generally allowed to be beautiful and fluent; especially where it affects to imitate the prophetic manner, and scripture phraseology; adorned with bold figures after the eastern manner, enlivened with flowery and sententious expressions, and in many places, particularly where the majesty and attributes of God are described, truly sublime. On this miraculous circumstance Mahomet rests the credit of his divine mission. To this pomp and harmony of expression some ascribe all the force and effect of the *Alcoran*; but others suppose that the sensual pleasures of paradise which are so frequently displayed to the imagination of the reader, are the chief allurements to which it owes its effect.

The number of commentaries on the *Alcoran* are so large, that the bare titles would make a huge volume.—Ben Oschair has written the history of them, intitled, *Tarikh Ben Oschair*. The principal among them are, Reidhaori Thaalebi, Zamalehchari, and Bacai.

Beside the *Alcoran*, which is the basis of the Mahometan faith, they have also a book containing their traditions, which they call *Sonna*.

The Mahometans have a positive theology, built on the *Alcoran* and tradition; as well as a scholastical one, built on reason.—They have likewise their casuists, and a kind of canon law; wherein they distinguish between what is of divine, and what of positive right.

They have their beneficiaries too, chaplains, almoners, and canons, who read a chapter every day out of the *Alcoran*, in the mosques; and have prebends annexed to their office.—The *batib* of the mosque is what we call the parson of the parish; and the *scheics* are the preachers, who take their text out of the *Alcoran*. See Sale's Translation of the *Koran*, and Preliminary Discourse.

ALCORAN is also used in a more limited sense, for a portion or chapter of the *Koran*.

In which sense, the word is synonymous with *sura*.

ALCORAN is also figuratively applied to certain other books full of impieties and impostures.

In this sense we meet with the *Alcoran* of the Cordeliers, which has made a great noise; wherein St. Francis is extravagantly magnified, and put on a level with Jesus Christ.

ALCORAN, among the Persians, likewise signifies a kind of tower, or steeple, very high, and narrow; surrounded without, by two or three galleries, one over another; whence the Moravites, a sort of priests, repeat their prayers thrice a day, with a very loud voice; making the tour of the gallery all the while, that they may be the better heard all round.

ALCORANISTS, among Mahometans, those who adhere strictly to the letter or text of the *Alcoran*, from an opinion of its ultimate sufficiency and perfection. The Persians are generally *Alcoranists*, as admitting the *Alcoran* alone for their rule of faith. The Turks, Tartars, Arabs, &c. besides the *Alcoran*, admit a multitude of traditions.

The *Alcoranists*, among Mahometans, amount to much the same with the *textuaries* among the Jews. The *Alcoranists* can find nothing excellent out of the *Alcoran*; are enemies of philosophers, metaphysicians, and scholastic writers. With them the *Alcoran* is every thing.

ALCOVE, in *Building*, a part of a chamber, separated from the rest by an estrade, or partition of columns, and other corresponding ornaments; in which is placed a bed of state, and sometimes seats, to entertain company. The word is derived from the Spanish *alcoba*, and that from the Arabick *elcauf*, a cabinet, or sleeping-place; or from *elohat*, a tent.

The word is popularly used to denote an enclosed garden-seat.

ALCYON. See **HALCYON**.

ALCYON, a name given by the ancients to the ISPIDA, or king-fisher.

ALCYONIUM, in the Linnæan system, is a genus of ZOOPHYTES. See **CORALLINES**, &c.

ALCYONIUM, in *Ichthyology*, a species of **ALCEDO**.

ALCYONIUM is also a name given by Lloyd to a peculiar kind of fossil CORAL, of the ASTROITES kind, found in Wales. It is very plentiful in that country, and puts on the appearance of a sort of marble, being bedded in a marbly matter for its matrix. Phil. Trans. N^o 252.

ALDABARAM, in *Osteology*, a name given by some to the *sesamoide* bones in the great toe.

ALDARU, in *Botany*, a name given by Avicenna, Serapion, and other writers of the Arabian nation, to the LENTISK tree.

ALDEBAC, in the *Materia Medica* of the ancient Arabian physicians, the name by which they have called BIRDLIME. They place this among the vegetable poisons.

ALDEBARAN, an Arabian name for a fixed star, of the first magnitude, in the eye of the sign, or constellation, Taurus, or the Bull; and hence popularly called the Bull's Eye. Its longitude, latitude, &c. see among the rest of the constellation TAURUS.

ALDER, *alnus*, in *Botany*, classed by Linnæus under the genus BETULA. Its characters are these: it hath male and female flowers, which are produced at remote distances on the same plant; the male flowers are digested into a long katkin, which is loose, imbricated, and cylindrical; the female flowers are collected into a conical, scaly head, and are succeeded by scaly cones; the young fruit is of a squamose structure, and loaded with embryo seeds; this finally increases in size, and becomes a regular fruit, containing a number of compressed seeds. There are two species, the wood of which is much esteemed by turners, and is of great use for pipes to convey water, as it will last a long time under ground. See BORING.

The bark of the *alder-tree* is used by dyers in the preparation of some colours. It is a strong flyptic, though rarely or never used medicinally, unless in fomentations and epithems, by the common people.

ALDER, *berry bearing*, or *black*, *frangula*, in *Botany*. This is ranged under the genus *rhamnus*, in the class of *pentandria monogynia*, by Linnæus. Its characters are these: the flower has one petal, cut into five segments; and it has five stamina, of the length of the petal; in the centre is situated a globular germen, which becomes a round berry, inclosing two plain roundish seeds. There are two species.

ALDERAIMIN, in *Astronomy*, a star of the third magnitude on the right shoulder of the constellation CEPHEUS.

ALDERMAN, among our ancient Saxon ancestors, was the second of the three orders or degrees of nobility. The word, in its original, is *ealdorman*; compounded of *eald*, old; or *aldor*, elder; and *man*, q. d. Elderman. *Atheling*, was the first rank of nobility, *alderman* the second, and *thane* the lowest.

It must be observed, however, that among our Saxon ancestors there were several magistrates who bore the title of *alderman*. Among them there were *aldermannus totius Angliæ*, *aldermannus regis*, *comitatus*, *civitatis*, *burgi*, *castelli*, *hundredi*, *five wapentachii*, & *novemdecimurum*.

According to Spelman, the *aldermannus totius Angliæ*, seems to have been the same officer who was afterwards styled *capitulis justiciarius Angliæ*, or chief-justice of England; the *aldermannus regis* seems to have been an occasional magistrate, answering to our justice of assize; and the *aldermannus comitatus*, a magistrate who held a middle rank between what was afterward called the earl, and the sheriff; he sat at the trial of causes with the bishop: the latter proceeding according to ecclesiastical law, and the former declaring and expounding the common law of the land.

ALDERMAN, in the English *Polity*, an associate to the mayor, or civil magistrate, of a city or town, for the better administration of his office.

The *aldermen* are an order of magistrates, in our cities, and most of the municipal, or incorporate towns, who form a kind of council, and regulate things relating to the policy of the place.—They sometimes also take cognizance of civil and criminal matters; but that very rarely, and only in certain cases.

Their number is not limited, but in some places is more, in some less, from six to twenty-six.

Out of these are annually elected the mayors, or chief magistrates of places; who, at the expiration of their mayoralty, return again into the body of the *aldermen*, whose delegates they were before.

The twenty-six *aldermen* of London preside over the twenty-six wards of the city.

When one of them dies or resigns, the wardmote chuse a successor, who is admitted, and sworn into office, by the lord-mayor and court of *aldermen*.

All the *aldermen* are justices of the peace, by a charter of 15 Geo. II.

The *aldermen* of London, &c. are exempted from serving inferior offices; nor shall they be put upon assizes, or serve on juries, so long as they continue to be *aldermen*. 2 Cro. 585. See COURT.

Formerly there were also *aldermen* of the merchants, of hospitals, of hundreds, &c. See SENATOR.

ALDHAFERA, in the Arabian *Astronomy*, denotes a fixed star of the third magnitude, in the Lion's mane.

ALDII, in *Antiquity*, servants who attended their masters in expeditions to the wars.

These were otherwise called *aldiones*, *aldionii*, and *aldionarii*.

ALDROVANDA, in *Botany*, a genus of the *pentandria pentagynia* class of plants; the calyx of which is divided into five segments, with five petals; the capsule has five valves, one cell, and ten seeds. There is one species.

ALE, a popular drink made from malt.

For the method of brewing *ale*, see BREWING.

This liquor is of such antiquity in England, that we find mention of it in the laws of Ina, king of Wessex. But the first assize of ale was fixed by the famous stat. 51 Hen. II.

Ale is chiefly distinguished from beer, another potable liquor made from the same ingredients, by the quantity of hops used therein; which is greater in beer, and therefore renders the liquor bitterer, and fitter to keep.

The brewers also distinguish pale, or fine *ale*, brown *ale*, &c. Their several properties, effects, &c. see under MALT-Liquor.

The *zythum*, and *curmi*, mentioned by Tacitus, as the beverage of the ancient Germans, are supposed by Matthiolus to correspond to our *ale* and beer.

The duties on *ale* and beer make a considerable branch of the revenue in England. They were first imposed by the twelfth of Car. II. and have been continued by several subsequent acts of parliament to 1 Geo. III. which lays an additional duty of three pence per barrel. In the whole, the brewer of *ale* and beer for sale, shall pay eight shillings for every barrel of either, above six shillings a barrel; and for every barrel of six shillings, or under, the sum of sixteen pence.

ALE, *cerevisia*, is also a denomination given to divers medicated liquors, or diet-drinks, whereof *ale* is the basis or vehicle. The medicated *ales* make a large article in our old dispensaries. Such are the *cerevisia oxydrica*, for the eyes; *cerevisia anti-arthritis*, against the gout; *cerevisia cephalica*, for the head; *cerevisia epileptica*, &c.

ALE, *gill*, is prepared by infusing the dry leaves of *hedera terrestris*, i. e. ground-ivy, in malt-liquor; which hereby becomes impregnated with the virtues of that simple; and is therefore reputed absterfve and vulnerary; good in disorders of the breast, and against obstructions of the viscera.

Gill is an English name of ground-ivy.

ALE, *Dr. Butler's purging*, is prepared of polypody, fena, farsaparilla, aniseeds, scurvygrass, agrimony, and maiden-hair, put up in a bag, and hung in a vessel of *ale*.

We also meet in some dispensatories with syrup of *ale*, made by boiling that liquor to a consistence; this is used, against obstructions in the kidneys, and the flour albus.

ALE-beer. See BEER.

ALE-BERRY, is *ale* boiled with bread, and mace; sweetened, strained, and drunk hot.

ALE-CONNER, an officer in the city of London, whose business is to inspect the measures of the public houses.—There are four of them; and they are chosen by the common-hall of the city.

ALE-houses must be licensed by justices of the peace, who take recognizances of the persons licensed, and of their sureties, viz. 10*l.* each, that they will not suffer unlawful gaming, nor other disorderly practices in their houses. Every person, excepting those who sell *ale* in fairs, neglecting to procure a licence, is liable to a penalty of 40*s.* for the first offence, 4*l.* for the second, and 6*l.* for the third, with all costs. The licence is granted on the first of September, or within twenty days after, at a general meeting of the justices for the division to which he belongs, upon his producing a certificate to his character, unless, by living in a city, or town-corporate, this last circumstance is dispensed with, and continues in force for one year only. *Ale-house* keepers, selling *ale* in short measure, are liable to a penalty not exceeding 40*s.* and not less than 10*s.* and likewise to a fine of 10*s.* for permitting tipling, &c.

ALE-measure. See MEASURE.

ALE-silver, a rent, or tribute, yearly paid to the lord-mayor of London, by those who sell *ale* within the city.

ALE-taster, is an officer appointed, and sworn, in every court-leet, to take heed that there be a due size, and goodness of bread, *ale*, and beer, sold within the jurisdiction of the leet.

ALEA, in Roman *Antiquity*, signifies, in general, games of chance.

ALEA, in a more limited sense, is applied by Roman writers to a particular game played with dice, in a pair of tables somewhat after the manner of our back-gammon, or tric-trac. Instead of our men, they played with white and black stones, which were moved this way or that, as the dice directed.

Alea in this sense appears to have been the same game with what the Greeks called *pettia* and *chivia*; the Romans sometimes *tabula*, *teffara*, and XII. *scripta*.

ALEA, the surname of Minerva, given to her by Aleus king of Arcadia.

ALEATORIUM, in Roman *Antiquity*, was the place where they played at *alea*.

The *aleatorium* was near the *spheristerium*; that the sportsmen, when tired with the *pila*, or more robust exercises, might refresh themselves in the *aleatorium*.

ALEC, in *Ichthyology*, a name given by Gaza, in his commentaries on Aristotle, to the fish called by that author *mainis*, and by Ovid *menerela*. It is of the SPARUS kind.

ALECOST. See TANZY.

ALECTO, in *Mythology*, one of the three Furies; she is represented with vipers about her head and her wings, and armed with vipers, scourges, and torches. See a fine description of this Fury in Virgil, *Æn.* vii.

ALECTORIA, in *Natural History*, a stone said to be found in the stomach, liver, or rather gall-bladder, of old cocks.

The word is derived from *αλεκτωρ*, a cock.

It is ordinarily of the figure of a lupine, and seldom exceeds the bigness of a bean. It has abundance of virtues attributed to it; but most of them are fabulous.

This is otherwise called *alektorius lapis*, sometimes *alektorolithos*, in English the cock-stone.

The more modern naturalists hold the *alektorius lapis* to be originally swallowed down, not generated in the stomach or gizzard of cocks and capons.

ALECTORICARBITES, in *Natural History*, a name given by Plot, to a figured stone resembling a pullet's heart, with the fat near the basis of it, and the coronary vessels descending from it.

The word is compounded of the Greek *αλεκτωρ*, cock, and *καρδια*, heart.

ALECTORIUS lapis, is used for a small species of *busonites*, or disjunct segment of a palate of a fish, approaching to the nature of the *cheledonius lapis*.

ALECTOROLOPHUS. See PEDICULARIS.

ALECTOROMANTIA, an ancient kind of divination, performed by means of a cock.

The word comes from *αλεκτωρ*, a cock, and *μαντεια*, divination.

This art was in use among the Greeks; and the usual manner of it was this. A circle was made on the ground, and divided into twenty-four equal portions, or spaces: in each of which spaces was written one of the letters of the alphabet, and upon each of these letters was laid a grain of wheat. This done, a cock was turned loose in the circle, and careful observation was made of the

grains he pecked. The letters corresponding to those grains were afterwards formed into a word; which word was to be the answer desired.

It was thus that Libanius and Jamblichus sought who should succeed the emperor Valens; and the cock answering to the spaces ΘΕΟΔ, they concluded upon Theodore, but by a mistake, instead of Theodosius.

There are also other species of *alektoromantia*; in some the augury was taken from the crowing of the cock, wherein regard was had to the time of day, whether before noon or after; to which some added the consideration of the sign the sun was in, and the motion of the moon. Others speak of a kind of *alektoromantia* performed by help of a ring. Phil. Trans. N° 162.

ALECTRUONURUS gramen. See FESTUCA.

A-LEE, the situation of the helm, when it is pushed down to the lee-side of the ship; in order to put the ship about, or lay her head to the windward.

ALEGER, a name given to an inferior sort of vinegar, made of ale, or malt liquor, instead of wine. Power has given a description of the eels in *aleger*. V. Power, Exper. Philos. Obs. 3. p. 32.

ALEHOOF, in *Botany*. See GROUND-ivy.

ALEIPHA, from *αλειφα*, I anoint, in the *Materia Medica* of the ancients, a word used for all fatty bodies whatever. The oils of vegetables, and fat of animals, were all called by this general name. But these simple substances were not the only ones called by it, for it is very frequently used to express any sort of medicated oil impregnated with aromatic vegetables; but its general acceptation in this sense, was for such compositions as were intended to anoint the body; and therefore they were properly only vegetable or animal fats impregnated with the lighter parts of plants, and not clogged with an addition of powders, nor with wax, or any thing of that kind, which might have given them the consistence of ointments. The ancient physicians were very fond of these compositions, which they applied either to some diseased part only, or to the whole body, and after they had made the patient use the warm bath to relax and open the pores.

ALEMBIC, or LIMBEC, a chemical vessel, consisting of a matrafs or body, fitted with a roundish head, terminating in a sloping tube, for the condensed vapours to pass through in distillation.

The word is formed of the Arabic particle *al*, and the Greek *αμβιξ*, a sort of earthen culinary vessel, mentioned by Athenæus and Hesychius. Though Matthæus Sylvaticus, in his *Pandecta Medicinæ*, asserts the word *alembic* to be Arabic, and that it literally denotes the upper part of a distilling vessel.

Alembic is popularly understood of the whole instrument of distillation, with all its apparatus; but in the proper sense of the word, it is only a part of it; viz. a vessel usually of copper, whereof a concave, globular, metalline head is closely luted; so as to stop the rising vapours, and direct them into its rostrum, or beak.

The heat of the fire raising the volatile parts of the subject exposed in the bottom of the vessel, they are received into its head, where they are condensed, either by the coldness of the ambient air, or by water externally applied, and become a liquor, which runs out at the beak into another vessel called the RECIPIENT.

The head, or capital of the *alembic*, is sometimes incompassed with a vessel full of cold water, by way of refrigeratory; though this intention is now more commonly answered by a WORM-TUB.

There are divers kinds of *alembics*; as an *open alembic*, which is also called *rostratus*, where the head and cucurbit are two separate parts; and a *blind alembic*, or blind head, where the capital is sealed hermetically upon the cucurbit. But the invention of RETORTS seems to have superseded the use of *alembics*.

ALEMBROTH, in the writings of the *Alchemists*, a word used for a sort of fixed alkaline salt, which had the power of the famous *alcahest*, in dissolving bodies, opening the pores of most or all known substances, and thence, as well as by destroying sulphurs, promoting the separation of metals from their ores.

The word is said to be of Chaldee origin, and its natural meaning to be *clavis artis*, the key of art.

Some use the term *alembroth deficcatum*, for salt of tartar.

ALEMDAR, an officer in the court of the grand signior, who bears the green standard of Mahomet, when the sultan appears in public on any solemn occasion.

ALENON, a word used by some of the old medical writers; as a name for the oil of sweet almonds.

ALEORE, *αλεωρη*, a word used by the old medical writers; for an intermission of ease, from the raging pains of any violent acute distemper.

ALERION, in *Blasfany*. See ALLERION.

ALES, a name given to a compound salt; it also signifies *contracted*, when used by physicians as an adjective.

ALETON, signifies meal, as Erotian and Hesychius explain it. It seems derived from *αλεω*, to grind, and to import the meal of any sort of corn. The word is frequently used by Hippocrates.

ALETRIS, *bastard ALOE*.

ALEUROMANCY, *aleuromantia*, derived from *αλευρον*, meal, and *μαντια*, divination, is the same with what was otherwise called *alphetomantia*, and *critomantia*, and means an ancient kind of divination performed by means of meal or flour.

ALEXANDERS, in *Botany*, a genus of umbelliferous flowers. See **ALISANDERS**.

ALEXANDRIAN, in a particular sense, is applied to all those who professed or taught the sciences in the school of Alexandria.

ALEXANDRIAN is more particularly understood of a college of priests, consecrated to the service of Alexander Severus, after his deification.

ALEXANDRIAN Copy, is a manuscript, consisting of four volumes, in a large quarto size; which contains the whole Bible in Greek, including the Old and New Testament, with the Apocrypha, and some smaller pieces, but not quite complete. This manuscript is now preserved in the British Museum. It was sent as a present to king Charles I. from Cyrillus Lucaris, patriarch of Constantinople, by sir Thomas Rowe, ambassador from England to the grand signior, about the year 1628. Cyrillus brought it with him from Alexandria, where, probably, it was written. In a schedule annexed to it, he gives this account; that it was written, as tradition informed them, by Thecla, a noble Egyptian Lady, about thirteen hundred years ago, not long after the council of Nice. But this high antiquity, and the authority of the tradition to which the patriarch refers, have been disputed; nor are the most accurate biblical writers agreed about its age. Grabe thinks that it might have been written before the end of the fourth century; others are of opinion, that it was not writ till near the end of the fifth century, or somewhat later. Those who are desirous of farther information concerning it, may consult the Prolegomena of Mills, Wettstein, and Grabe.

ALEXANDRIAN Library was first founded by Ptolemy Soter. Besides the books which he procured, his son Ptolemy Philadelphus added many more, and left in this library at his death a hundred thousand volumes; and the succeeding princes of this race enlarged it still more, till at length the books lodged in it amounted to the number of seven hundred thousand volumes. Part of this library consisting of four hundred thousand volumes was destroyed in the war which Julius Cæsar waged with the inhabitants of Alexandria; but it was again supplied anew by Cleopatra and others, and continued, though frequently plundered, to be very considerable and famous, till it was burnt by the Saracens in the 642d year of the Christian æra.

ALEXANDRIN, or **ALEXANDRIAN**, in *Poetry*, the name of a kind of verse, which consists of twelve, or of twelve and thirteen syllables, alternately; the rest, or pause, being always on the sixth syllable.

It is said to have taken its name from a poem on the life of Alexander, intitled, the *Alexandriad*; written, or at least translated into this kind of verse by some French poets; though others will have it so denominated from one of the translators, Alexander Paris.

This verse is thought by some very proper in the epopea, and the more sublime kinds of poetry; for which reason it is also called *Heroic Verse*.

It answers in our language to the hexameters in the Greek, and Latin; though according to some, it rather answers to the *senarii* of the ancient tragic poets — Chapman's translation of Homer consists wholly of *Alexandrins*.

The advantages of the *Alexandrin* verse, are its keeping the rhimes from coming so near, and consequently hindering them from being so much perceived. To this may be added, that coming nearer to the nature of prose, it is fitter for theatrical dialogue, and supplies the office of the ancient iambics better than any other verse in rhyme.

ALEXICACUS, something that preserves the body from harm or mischief. The word is compounded of *αλεξω*, I drive away, and *κακον*, malum, evil.

Alexicacus amounts to much the same with *alexiterial*. Const. Rhodocanaces gives this name more peculiarly to the spirit of sea-salt, and has published a work under that title.

ALEXICACUS, in *Antiquity*, was an attribute of Neptune, whom the tunny fishers used to invoke under this appellation, that their nets might be preserved from the *ξίφιας*, or sword-fish, which used to tear them, and prevent the assistance which it was pretended the dolphins used to give the tunnies on this occasion.

ALEXIPHARMIC, in *Medicine*, expresses that property which a remedy, either simple or compound, hath to re-

sist, or destroy every thing of a poisonous or malignant nature.

The word is derived from *αλεξω*, arceo, I expel; and *φαρμακον*, poison.

The ancients had a notion, that there was a poison in all malignant diseases, and in the generality of those whose cause was unknown. Whence *alexipharmic* became a denomination of all remedies and antidotes against malignant diseases, and for **AMULETS**.

Alexiterial, *cardiac*, *antidote*, *alexipharmic*, and *counterpoison*, are all terms nearly of the same signification.

Alexipharmics are ordinarily divided into such as are general; and those more particular, supposed only to combat some particular disease. — But this division is founded more on speculation than experience.

Alexipharmic medicines in general contain a great number of volatile parts, and such as render the mass of blood fluid. The greatest part of them are aromatic and pungent to the taste. — Among the rest, it is true, there are some acid plants and juices; but these are only reckoned in the number, on account of their use in malignant and colliquative fevers.

Alexipharmics chiefly act by exciting, or increasing a diaphoresis, or perspiration; by which the noxious matter is thrown off. See **SUDORIFIC**.

Alexipharmics, whether simple or compound, are also esteemed preservatives against malignant and pestilential fevers: but they are to be used with caution; some of them being only proper in condensations, and others only in colliquations of the blood.

It is dangerous to administer *alexipharmics* to young people of plethoric habits, without previous evacuations; and Celsus advises only to promote a sweat, when the marks of one approaching are evident.

Alexipharmics are deemed proper correctors of **OPIMUM**, when it produces sickness, nausea, &c. They are also serviceable in those diseases which proceed from external cold, and obstructed perspiration; as catarrhs, rheumatisms, fluxes, coughs, and glandular tumors. *Alexipharmics* make a large class of medicines; but the principal ones are these: 1. Of the animal kingdom, hartshorn, bezoars, and the bones and teeth of different animals. 2. Of the vegetable kingdom, the leaves and flowers of all the aromatic plants, especially such as are umbelliferous. 3. Of the mineral kingdom, the different preparations of antimony, the dulcified spirit of vitriol with alcohol.

ALEXITERIAL, in *Medicine*, a term of the same import with *alexipharmic*; but chiefly applied to the milk-water of that name, and remedies against the poisonous bites of animals.

But it is said by some authors that *alexiterials* differ from *alexipharmics*: thus, *alexipharmics* signify medicines against poisons taken internally; whereas *alexiterials* are remedies against the poisons of venomous animals inflicted externally.

ALFANDIGA, the name of the custom house at Lisbon.

ALFAQUES, among the Spanish Moriscos, were the clergy, or those who instructed them in the Mahometan faith.

The *alfaques* differed from the *morabtes*, who answered to monks, or religious, among Christians.

ALFDOUCH, a name given by the Moors to a sort of *vermicelli*, which they make of flour and water, and are very fond of in their entertainments.

ALFECCA, in *Astronomy*, a name given to the star commonly called *LUCIDA corena*. It is also called *Alfeta*.

ALFET, anciently signified a large caldron, in which boiling water was put, for the accused to plunge his hand in up to the elbow, by way of trial or purgation.

ALGA, in *Botany*, the name of a genus of plants of the same kind with the sea *RUEUS*, or *zostera* of Linnæus, but they are composed of very long and narrow grassy leaves, or of long capillaceous filaments. Tournefort enumerates three species. Tournef. Inst. 569.

The *algas* are some *marine*, or growing in the sea; others *fluvialile*, or produced in rivers; others *fontal*, growing in springs; and some again grow on stones at the bottom of the water; others on shells by the shore; others even float on the surface of the water.

One of the most considerable of the tribe of *algas*, is the common, called *alga marina*; sometimes also *alga angustifolia vitriariorum*, as being used in the glass-works like kali.

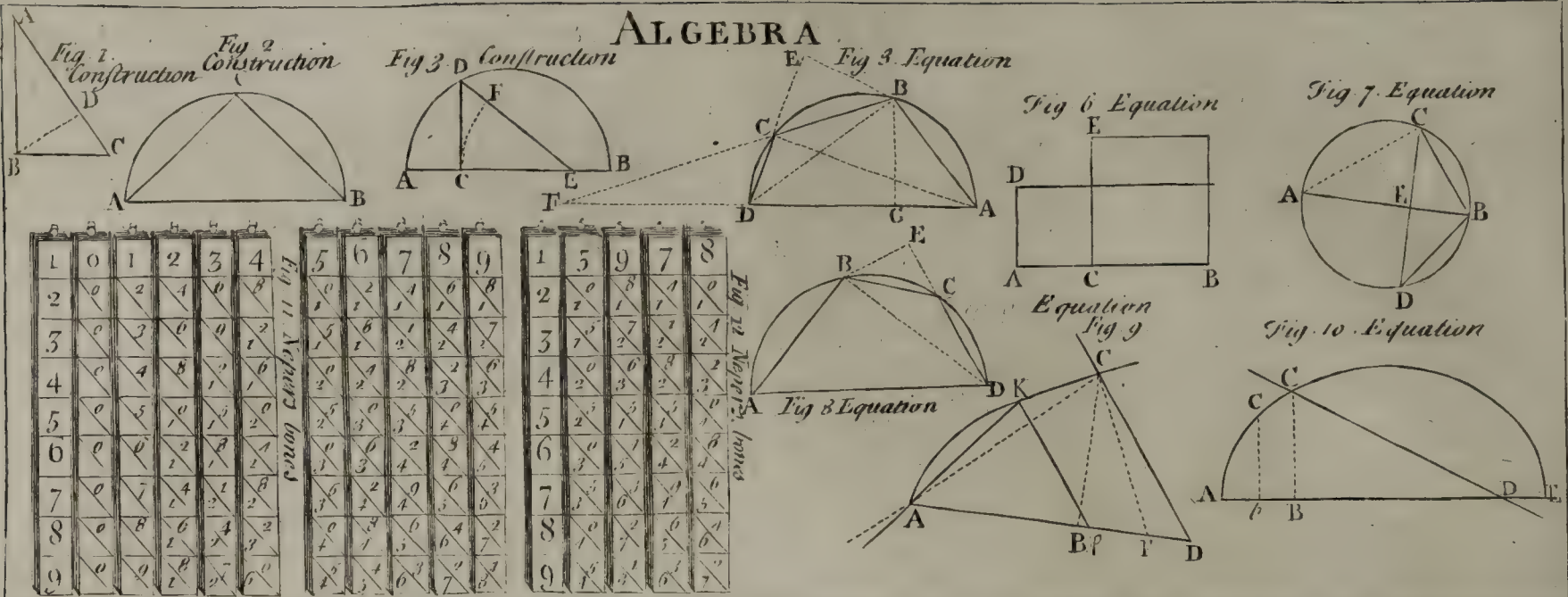
Its ashes afford great plenty of fixed salt.

Some speak of its medicinal properties as aperient, vulnerary, and desiccative.

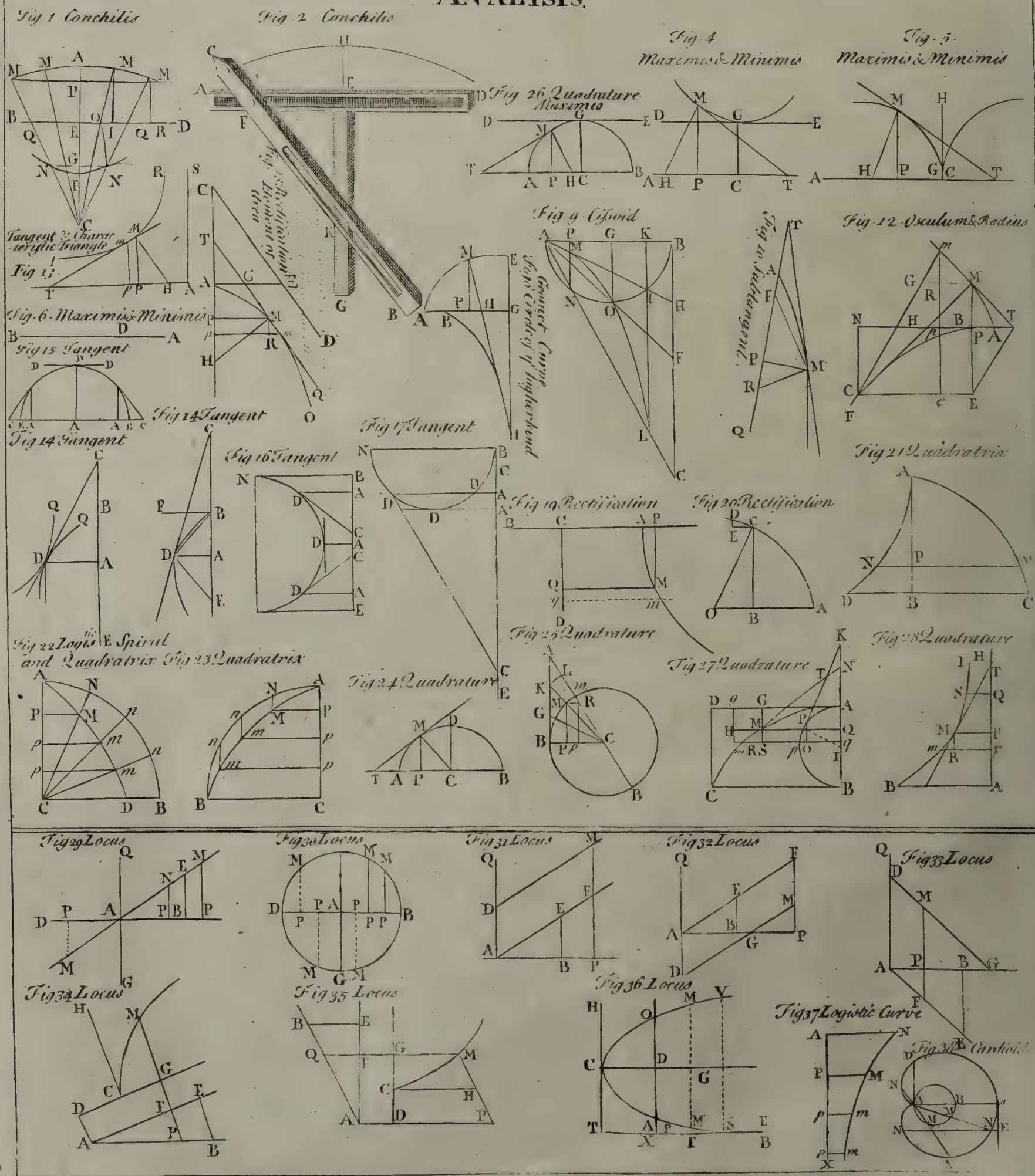
It is said that the *alga marina* put under the roots of coleworts, and other plants, will forward their growth.

Alga is popularly known in English by the name of *wreck*, being generally conceived rather as excrescences than

ALGEBRA



ANALYSIS



as regular plants; but this is unphilosophical, and false.

ALGÆ, *flags*, form one of the seven families of plants in the Linnæan distribution.

ALGALI, a name given, by some of the old chemical writers, to nitre.

ALGAROT, or ALGAREL, in the Arabian *Chemistry*, a powder prepared of butter of antimony; being in reality no more than the *regulus* of that mineral, dissolved in acids, and separated again by means of several lotions with luke-warm water, which imbibes those acids. Some derive the name from *Algaroth*, a physician of Verona, who, they say, invented the preparation.

This is also called *mercurius vitæ*, or simply *emetic powder*.

—It purges violently, both upwards and downwards; and is more properly called *antimonium mortis*. See BUTTER of ANTIMONY.

By collecting all the lotions, and evaporating two third parts, what remains is a very acid liquor, called *spirit of philosophical vitriol*.

There are divers ways of preparing *algarot*, as by precipitating the butter, or by distilling antimony, together with the sweet sublimate, or white precipitate of mercury.

ALGATRANE, a sort of pitch found in the bay formed by the point of the cape of St. Helena, on the south of the isle of Plata.

ALGAVAREIA, the language anciently spoken by the Moriscos in Spain.

The *Algavareia* was a sort of Arabic, and stood contradistinguished from the *Aljameia*.

ALGEBRA, a method of resolving problems, by means of equations.

Critics have given various etymologies of this word; but the most probable is from *geber*, a word whence, by prefixing the particle *al*, we have formed *algebra*, which is pure Arabic, and properly signifies the reduction of broken numbers to a whole number.—However, the Arabs, it is to be observed, never use the word *algebra* alone, to express what we mean by it; but always add it to the word *macabelah*, which signifies *opposition* and *comparison*.—Thus *algebra almocabelah*, is what we properly call *algebra*.

Some authors define *algebra* the art of solving all problems capable of being solved; but this is rather the idea of analysis, or the analytic art.

The Arabs call it, the *art of restitution and comparison*; or, the *art of resolution and equation*.—Lucas de Burgo, the first European who wrote of *algebra*, calls it, the *rule of restoration and opposition*.—The Italians call it, *regula rei et census*, that is the rule of the root and the square; the root with them being called *res*, and the square *census*.—Others call it *specious arithmetic*; others, *universal arithmetic*.

Algebra is a peculiar kind of ARITHMETIC, which takes the quantity sought, whether it be a number, or a line, or any other quantity, as if it were granted, and by means of one or more quantities given, proceeds by consequence, till the quantity at first only supposed to be known, or at least some power thereof, is found to be equal to some quantity or quantities which are known, and consequently itself is known.

Algebra is of two kinds, *numeral* and *literal*.

ALGEBRA, *numeral*, or *vulgar*, is that of the ancients, which only had place in the resolution of arithmetical questions.—In this, the quantity sought is represented by some letter or character; but all the given quantities are expressed by numbers. This is thought by some to have proved an introduction to the art of keeping merchants accounts by double entry.

ALGEBRA, *specious* or *literal*, or the *new algebra*, is that wherein the given or known quantities, as well as the unknown, are all expressed or represented by their species, or letters of the alphabet.

This eases the memory and imagination of the vast stress or effort, required to keep several matters, necessary for the discovery of the truth in hand, present to the mind: for which reason this art may be properly denominated *metaphysical geometry*.

Specious algebra is not, like the numeral, confined to certain kinds of problems, but serves universally for the investigation or invention of theorems, as well as the solution and demonstration of all kinds of problems, both arithmetical and geometrical.

The letters used in *algebra* do each separately represent either lines or numbers, as the problem is arithmetical or geometrical; and together they represent planes, solids, and powers, more or less high, as the letters are in a greater or less number.—For instance, if there be two letters, *a*, *b*, they represent a rectangle, whose two sides are expressed, one by the letter *a*, and the other by *b*; so that by their mutual multiplication they produce the plane *a b*. Where the same letter is repeated twice, as *a a*, they denote a square. Three letters, *a b c*, represent

a solid, or a rectangled parallelepiped, whose three dimensions are expressed by the three letters *a b c*; the length by *a*, the breadth by *b*, and the depth by *c*: so that by their mutual multiplication they produce the solid *a b c*.

As the multiplication of dimensions is expressed by the multiplication of letters, and as the number of those may be so great as to become incommodious; the method is only to write down the root, and on the right hand to write the index of the power, that is, the number of letters whereof the power to be expressed does consist; as *a*², *a*³, *a*⁴, *a*⁵; the last of which signifies as much as *a* multiplied five times into itself; and so of the rest.

For the symbols, characters, &c. used in *algebra*, with their application, &c. See CHARACTER, and QUANTITY, &c.

For the method of performing the several operations in *algebra*. See ADDITION, SUBTRACTION, and MULTIPLICATION.

The origin of this art is very uncertain and obscure.—

The invention is usually attributed to Diophantus, a Greek author, who wrote thirteen books, though only six of them are extant, first published by Xylander, in 1575, and since commented on, and improved by Gasper Bachet, of the French Academy; and since by M. Fermat. And yet *algebra* seems not to have been wholly unknown to the ancient mathematicians, long before the age of Diophantus: we see the traces and effects of it in many places, though it looks as if they had designedly concealed it.—Something of it there seems to be in Euclid; or at least in Theon upon Euclid, who observes that Plato had begun to teach it.—And there are other instances of it in Pappus, and more in Archimedes and Apollonius.

But the truth is, the analysis used by those authors is rather geometrical than *algebraical*: as appears by the examples thereof which we find in their works: so that we make no scruple to say, that Diophantus is the first, and only author among the Greeks, who has treated of *algebra* professedly. This art, however, was in use among the Arabs much earlier than among the Greeks. And it is said, that the Arabs too borrowed it from the Persians, and the Persians from the Indians.—It is added, that the Arabs carried it into Spain; whence, some are of opinion, it passed into England, before Diophantus was known among us.

The first who wrote on the subject in this part of the world; was Lucas Pacciolus, or Lucas de Burgos, a Cordelier; whose book, in Italian, was printed at Venice in 1494.—This author makes mention of Leonardus Pisanus, and some others, of whom he had learned the art; but we have none of their writings. He adds, that *algebra* came originally from the Arabs; and never mentions Diophantus, which makes it probable, that this author was not then known in Europe. His *algebra* goes no farther than simple and quadratic equations.

After Pacciolus appeared Stifelius, a good author, but neither did he advance any farther.

After him came Scipio Ferreus, Cardan, Tartaglia, and some others; who reached as far as the solution of some cubic equations. Bombelli followed these, and went a little farther. At last came Nunnius, Ramus, Schoner, Salignac, Clavius, &c. who all of them took different courses, but none of them went beyond quadratics.

About the same time, Diophantus was first made public; whose method is very different from that of the Arabs, which had been followed till then.

In 1590, Vieta entered on the stage, and introduced what he called the *specious arithmetic*, which consists in denoting the quantities, both known, and unknown, by symbols or letters.—He also introduced an ingenious method of extracting the roots of equations, by approximations; since much facilitated by Raphson, in his *Analysis Aëquationum*.

Vieta was followed by Oughtred, an Englishman, who, in his *Clavis Mathematica*, printed in 1631, improved Vieta's method; and has invented several compendious characters, to shew the sums, differences, rectangles, squares, cubes, &c.

Mr. Harriot, another Englishman, contemporary with Oughtred, left several treatises at his death; and among the rest, an *Analysis*, or *Algebra*, which was printed in 1631, where Vieta's method is brought into a still more commodious form; and this is much esteemed to this day.

In 1657, Des Cartes published his *Geometry*, wherein he made use of the literal calculus, and the *algebraic* rules of Harriot; and as Oughtred in his *Clavis*, and Marin Ghetaldus, in his books of *Mathematical Composition* and *Resolution*, published in 1630, applied Vieta's arithmetic to elementary geometry, and gave the construction

struction of simple and quadratic equations; so Des Cartes applied Harriot's method to the higher geometry, explaining the nature of curves by equations, and adding the constructions of cubic, biquadratic, and other higher equations. Des Cartes's rule for constructing cubic and biquadratic equations was farther improved by Tho. Baker, in his *Clavis Geometrica Catholica*, published in 1684, and the foundation of such constructions, with the application of *algebra* to the quadratures of curves, questions de maximis & minimis, the centrobaric method of Guldinus, &c. was given by R. Slufius, in 1668, as also by Fermat, in his *Opera Mathematica*; Roberval, in the *Mem. de Mathem. & de Physique*; and Barrow, in his *Lect. Geomet.*—In 1708, *algebra* was applied to the laws of chance and gaming by R. de Montmort; and since by de Moivre, and James Bernouilli, and others. Thus much for the progress of *algebra*.—The Elements of the Art were compiled and published by Kersey in 1671, wherein the specious arithmetic, and the nature of equations, are largely explained and illustrated by variety of examples: the whole substance of Diophantus is here delivered; and many things added concerning mathematical composition and resolution from Ghetaldus. The like has been since done by Prestet in 1694, and by Ozanam in 1703.—But these authors omit the application of *algebra* to geometry; which defect is supplied by Guisnee in a French treatise expressly on the subject, published in 1705, and L'Hopital in his *Analytical Treatise of the Conic Sections*, in 1707.—The rules of *algebra* are also compendiously delivered by sir Isaac Newton, in his *Arithmetica Universalis*, first published in 1707, which abounds in select examples, and contains several rules and methods invented by the author. This piece is rendered complete by Mr. Maclaurin's commentary on it, which is lately published and entitled a *Treatise of Algebra*.

Other writers on *algebra*, are Dr. Pell, who revised and published a piece of *algebra*, first published in Dutch. In this the doctor has given us a peculiar method of his own for applying *algebra* to problems of various kinds; and introduced the way of registering the whole process in the margin. This method has been followed by Mr. Ward, and Mr. Hammond, in their treatises on this subject. Dr Wallis published a treatise on *algebra*, both *historical* and *practical*, in the year 1664. There are many other treatises of *algebra*, of very various extent and value, that have been published since. See particularly Ward's *Mathematicians Guide to Algebra*; Jones's *Synopsis*; Wolfius's *Algebra*; Simpson's *Algebra*; Dodson's *Mathematical Repository*; Clairaut's *Elements of Algebra*; and Dr. Saunderson's *Treatise of Algebra*, in two volumes, quarto, which is the most comprehensive of any.

Algebra has been also applied to the consideration and calculus of infinites; from whence a new and extensive branch of knowledge has arisen, called the doctrine of FLUXIONS, or analysis of infinites, or the calculus differentialis.—The authors on this subject, see under ANALYSIS.

ALGEBRAICAL, something that relates to *algebra*.

Thus we say, *algebraical* CHARACTERS, or symbols, curves, solutions, &c.

ALGEBRAICAL curve, is a curve, wherein the relation of the abscisses to the semiordinates may be defined by an *algebraical* equation.

These are also called *geometrical lines*, or *curves*.

Algebraical curves stand contradistinguished to MECHANICAL or TRANSCENDENTAL ones.

ALGEBRAICAL solution. See RESOLUTION.

ALGEBRAISM, or ALGEBRISM, is affectedly used in some writers for *algebra* itself. In which sense, we read of the application of *algebraism*.

ALGEBRAIST, a person skilled in *algebra*.

ALGEDO, the name of an accident which sometimes happens in a gonorrhœa, by the stoppage of the running soon after it appears. Calomel repeated so as to purge, brings back the running, and the difficulties and danger disappear.

ALGENEB, or ALGENIB, in *Astronomy*, a fixed star of the second magnitude, on the right side of PERSEUS.

ALGIABARII, a Mahometan sect of predestinarians, who attribute all the actions of men, good or evil, to the agency or influence of God.

The *Algiabarii* stand opposed to the ALKADARII.

ALGOIDES, in *Botany*, a name given by Vaillant to a genus of plants, called by Micheli and Linnæus, ZANICHELLIA.

ALGOL, or Medusa's Head, a fixed star of the third magnitude, in the constellation PERSEUS.

ALGONQUIN, one of the chief American languages, spoken especially in Canada, or New France. The *Algonquin* is one of the two principal languages spoken in the Northern America, the other is the *Huron*.

It takes its name from an ancient people of the same denomination, now almost extinct, the Iroquois being the only remains.

The *Algonquin* tongue is spoken, with some diversity of

dialects, by most of the natives from the river St. Lawrence to that of Mississippi.

The baron la Hontan has given a little dictionary of the *Algonquin* language. Reland has also given a gloss on several words of the same. The first is entitled *Mem. de l'Amer. Septent. Hag. 1703*; the last is in his *Diff. Misc. p. 3. diff. 2.*

ALGOR is used by some *Medicinal Writers*, to denote a preternatural coldness or chiliness in a part. Muys speaks, in this sense, of an *alger* of the arm, attended with an atrophy.

ALGORAB, a fixed star, of the third magnitude, in the right wing of the constellation CORVUS.

ALGORITHM, an Arabic term, which some authors, and especially the Spaniards, make use of to signify the practical operation of the several parts of *specious arithmetic*, or *algebra*.

Sometimes it is also used for the practice of common arithmetic, by ten numeral figures.

Algorithm is properly the art of numbering truly, and readily; and comprehends the six common rules of arithmetic.—It is sometimes called *logistica numeralis*.

We say, the *algorithm* of integers, the *algorithm* of fractions, the *algorithm* of surds, &c.

ALGOSAREL, in *Botany*, a name used by Avicenna, and some other authors, for the common wild CARROT, or *daucus sylvestris*.

ALGUAZIL, in the Spanish *Policy*, a serjeant or official of a judge, or magistrate, appointed to see his decrees executed.

ALHABOR, among the Arabian *Astronomers*, is that star commonly called SIRIUS.

ALHAGI, the pliant thorny BROOM of Syria. The inhabitants of Aleppo gather from it a new kind of manna, the grains of which are somewhat larger than coriander. The leaves are of a hot drying nature, and the natives use the flowers as a purgative; one handful of which boiled in water suffices for a dose.

ALHANDAL, a term in the Arabian *Pharmacy*, signifying colocynth.—The TROCHES of *albandal*, *trochisci albandal*, are a kind of TROCHES composed of *colocynthis*, *bellium*, and *gum tragacanth*.

The word is formed of the Arabic *bandal*, or *handbal*, a name for *colocynthis*.

They are esteemed good purgatives, and are used on divers occasions.

ALHEN, in *Natural History*, a name by which Dr. Shaw, and others, have called a genus of plants, since named by Linnæus LAWSONIA.

ALHIDADE, or ALIDADE, the index or label of an astronomical, or geometrical instrument, for taking of heights or distances.

The word is Arabic, and it signifies the same thing.—In Greek and Latin, it is called *διοπτρα*, *dioptra*, and *linea fiducia*, *fiducial line*.

The *alhidade* is a kind of ruler moveable on the centre of the instrument; and carrying two SIGHTS, which are erected perpendicularly at the two extremities of it.

ALHIRTO, in *Astronomy*, a fixed star of the third magnitude, in the constellation CAPRICORN. This is otherwise called *rostrum Gallinæ*. Near this star, in the year 1600, appeared a new star, which lasted twenty-one years, and then disappeared again.

ALI gives a denomination to a sect or division, among the Mahometans, who adhere to the right of succession of *Ali*, the fourth caliph, or successor of Mahomet, and the reform of *Mussulmanism* introduced by him. Sale's Prel. Diff.

The sectaries of *Ali* are more particularly called *Schiites*, and stand opposed to the *Sunnites*, or sect of Omar, who adhere to the law, as left by Mahomet, Abubeker, and Omar.

Ali was cousin of Mahomet, and son-in-law of that prophet, having married his daughter Fatimah. After Mahomet's death, great disputes arose about the succession; many stood for *Ali*, but Abubeker was preferred, and elected the first caliph. *Ali* took his turn, after the death of Othman.

The Persians are the chief adherents to the sect of *Ali*, whom they hold to have been the legitimate successor of Mahomet, and Abubeker an usurper. On the contrary, the Turks are of the sect of Omar, and hold *Ali* in execration, having raised a furious civil war among the *Mussulmen*.

The Persian emperors of the family of Sophi pretend to be the direct descendants from *Ali*; but the descent is very darkly made out.

The distinguishing badge of the followers of *Ali*, is a red turban, which is worn by the Persians, who are hence called in derision, by the Turks, *kisilbachi*, q. d. red heads.

Ali is reputed the author of divers works, particularly a Centiloquium, in great repute among the Arabs and Persians

Persians; part of which has been published in English by Mr. Ockley.

ALJAMEIA is a name which the Moriscoes in Spain give to the language of the Spaniards.

Among other articles agreed on by the junto, which was appointed by the emperor Charles V. in 1526, in favour of the Moriscoes, this was one, that the Moriscoes should no longer speak *Algavareia*, i. e. Moorish, or Arabic, but should all speak *Aljameia*, i. e. Spanish, as it was called by the Moors, and all their writings and contracts should be in that language. Geddes's Misc. Tracts, tom. i. p. 23.

ALIARBUCHA, in *Natural History*, the Arabian name for a large kind of rat, common in that country, and good to eat, according to Bochart, who thinks it the same as the *schaphan*, mentioned in Leviticus, and there declared unclean. Levit. xi. 5.

ALIAS, in *Law*, a second or farther writ issued from the courts of Westminster, after a *copias*, &c. sued out without effect.

ALIBI, in *Law*, denotes the absence of the accused from the place where he is charged with having committed a crime; or his being *elsewhere*, as the word imports, at the time specified.

ALICA, in the *Ancient Physic and Diet*, a kind of food; but the various accounts given of it by authors, make it uncertain what it was; some representing it as a sort of grain, and others as an aliment made of grain.

The Greek word for *alica* was *χονδρος*, which term, and *πρωσων*, seem to have been general names for all spelt or hulled grain, beaten or ground into a pulp.

Ray, in his history, says the *alica* differs from the *χονδρος*, as the *genus* from the *species*.

ALICARIE, in *Ancient History*, a term synonymous with prostitutes.

ALICATICA, an Arabian weight.

ALICES, in *Medicine*, spots preceding the small-pox.

ALICULA, in *Antiquity*, a kind of puerile habit worn by the Roman children.

The *alricula* was a sort of *chlamys*: some explained it by *tunica manicata*.

ALIDES, in the *Mahometan History*, the descendants of Ali, otherwise called *Fatimites*.

The *Alides* had a long struggle with the Omniades, for the kaliphate, or succession of Mahomet; which is the Mahometan papacy.

ALIE-KRUYK, a Dutch name given to a kind of sea-snail, the history of which is given by Swammerdam. Bib. Nat. tom. i. p. 180.

ALJEMBUT, or, as some write it, *gembut*, a name given by the Arabians, Avicenna, and others, to a species of *ACACIA*, which they also call the Nabathæan pod, and ceration, or siliqua, and which some have supposed to be the same with the common carob; but they expressly distinguish it, by saying that it is an astringent, whereas the other is gently purgative; and that the fruit of it was given in hæmorrhages. Nay, Isidore goes so far as to say, that the acacia juice of the shops was made of its fruit, while unripe.

ALIEN, in *Law*, a stranger, or person born out of the king's allegiance; or under the jurisdiction of some other sovereign; and not naturalized, or made a denizen.

Of these there are two kinds; viz. *alien friends*, who are of those countries which are at peace and league with us; and *alien enemies*, who are of countries at war with us; to which some add a third, viz. *alien infidels*.

A man born out of the land, but within the limits of the king's obedience beyond the seas; or of English parents out of the king's obedience, provided the parents at the time of the birth be of such obedience, is no *alien*, but a subject of the king, stat. 2. 25 Edw. III. commonly called the statute *De natis ultra mare*.

Add, that if one born out of the king's allegiance come and dwell in England; his children begotten here are not *aliens*, but denizens.

By the statute 11 and 12 W. III. cap. 6. all persons being the king's natural born subjects, may inherit as heirs to their ancestors, though their ancestors were *aliens*. Children of an ambassador in a foreign country by a wife who is an English woman, are natural born subjects by the common law. 7 Rep. 11. And if an English merchant living beyond sea, marries a wife there, and hath a child by her and dies, this child is born a denizen, and shall be heir to him, notwithstanding the wife be an *alien*. Cro. Car. 605. Persons born in English plantations are natural born subjects.

An *alien* can hold no land by descent or purchase, or be tenant by the courtesy, or in dower; and if he purchase, the king shall have it; but he may purchase a house for years for habitation, during his residence, as necessary for trade. If an *alien* merchant leaves the kingdom, the king shall have the lease; if he be no merchant, the king shall have his lease for years, though it were for his habitation; and by the stat. 32 H. VIII. there is a pe-

nalty for letting houses to *aliens*. 5 Rep. 502.—7 Rep. 18.—1 Inst. 2. 129.—2 Inst. 741.

A devise of lands to an *alien* is void; and if a man be bound to an *alien* enemy in a bond, it is void to him, but the king shall have it.

Aliens, however, may obtain goods and personal estate by trade, &c. and may bring actions for the same; but an *alien* enemy cannot maintain any action whatever, nor obtain any thing lawfully within the realm. 1 Bulst. 124. Termes de Ley, 36.

Aliens are not to be returned on any jury; but where an *alien* is party in a cause, the jury are to be half denizens and half *aliens*, except in cases of high treason. 2 Inst. 17. By the stat. 12 W. III. cap. 2. *aliens* are incapable of being members of parliament, or of enjoying offices; neither have they any vote for the election of members. Hob. 271. *Aliens* likewise are by several acts of parliament put under several other restrictions, with regard to exercising trades, taking apprentices, and are likewise disabled from being factors in the plantations, &c.

ALIENS duty, an impost laid on all goods imported into England by *aliens*, or denizens, and even on certain goods imported by natural subjects, if they be brought on foreign bottoms, over and above what is paid for the same goods imported by British, and in British shipping. 12 Stat. Car. II.

Aliens duty is otherwise called *petty customs*, and *navigation duty*.

Fish, dried or salted, and codfish, or herring, not caught in British vessels, and cured by British, pay a double *aliens duty*.

Aliens duty outwards, is taken off by the following acts. 12 Car. II. cap. 4.—25 Car. II. cap. 6.—5 Ann, cap. 27.—6 Ann, cap. 10.—7 Ann, cap. 7.—9 Ann, cap. 6.—8 Geo. I. cap. 15.—11 Geo. I. cap. 29.

Scavage, *package*, and *balliage*, payable to the city of London, are properly *alien duties*. On what footing *aliens* are permitted to import foreign commodities into Great Britain, see **DUTY**.

ALIEN is sometimes used, in *Middle Age Writers*, for exempt. Du-Cange.

ALIEN-amy, or *alien friend*. See **ALIEN**.

ALIEN priories, a subordinate kind of monasteries in England, belonging to, and dependent on, other monasteries in foreign countries. Vide Dugd. Monast. Abr. p. 44.

ALIENATION, **ALIENATIO**, in *Law*, the act of making a thing another man's; or the altering or transferring the property, and possession of lands, tenements, or other things, from one man to another.

To *alienate*, or *alien* in **MORTMAIN**, is to make over lands or tenements to a religious community, or other body *politic*.

To *alienate* in **FEE**, is to sell the fee-simple of any land, or other incorporeal right.

All persons who have a right to lands, may generally *alien* them to others; but some *alienations* are prohibited; such as *alienations* by tenant for life, &c. whereby they incur a forfeiture of their estate. 1 Inst. 118.

By the statute of Edward I. a bar was put to *alienations*, by what we call *entails*, which is an expedient for procuring *perpetuities* in families; but counter-expedients were devised to defeat this intent, and a practice was introduced of cutting off entails by *finer*, and of barring remainders and reversions by *recoveries*.

The statute for *alienations* in Henry the Seventh's time, had a great effect on the constitution of this kingdom; as among other regulations of that reign, it tended to throw the balance of power more into the hands of the people. By the stat. 12 Car. II. cap. 24. *finer* for *alienations* are taken away.

Crown lands are only *alienable* under a faculty of perpetual redemption.

The council of Lateran, held in 1123, forbids any clerk to *alienate* his benefice, prebend, or the like.

By the laws of the ancient Jews, lands could only be *alienated* for the space of fifty years. At each return of the jubilee, all returned again to the primitive owners, or their descendants, to whom the lands were originally allotted, at the first distribution of Canaan.

ALIENATIO à familia. See **ABDICATIO**.

ALIENATION office, is an office to which all writs of covenants and entry, upon which fines are levied, and recoveries suffered, are carried, to have fines for *alienation* set and paid thereon.

ALIFORMES musculi, a pair of muscles, arising from the pterygoid bone, and ending in the neck of the lower-jaw, towards the internal seat of the head.

They are thus called from *ala*, wing, and *forma*, shape; as resembling wings.

ALIFORMES processus, in *Anatomy*, the prominences of the *OS CUNEIFORME*.

ALII multi, **ALII de regno**, are phrases which often occur in our ancient records and historians. Their mean-

ing has occasioned much dispute: Dr. Brady will have them to signify only tenants *in capite*; which Mr. Tyrel endeavours to refute, and shew that they denote the whole commons of the kingdom. Hist. of Eng. tom. i. Appen.

ALIMA, among *Mineralists*, a kind of sand found in gold mines, out of which lead is extracted.

ALIMENT, ALIMENTUM, in a physical sense, is whatever may be dissolved, and turned into chyle, so as to be afterwards converted into blood, for augmenting the body, or repairing its continual waste.

The word is formed of *alere*, to nourish. See CHYLIFICATION, DIGESTION, FOOD, and NUTRITION.

ALIMENT of plants. See PLANTS.

ALIMENTARY, ALIMENTAL, something that relates to aliment, or food.

The ancient physicians held, that every humour consists of two parts; an alimentary, and an excrementitious one.

ALIMENTARY duct, *ductus alimentalis*, is a name given by Dr. Tyson, and some others, to that part of the body through which the food passes, from its reception into the mouth, to its exit at the anus; including the gula, stomach, and intestines.

Dr. Morgan considers the whole alimentary tube (including the stomach, intestines, and lacteals), as constituting one gland; of the like nature, structure, and use, with the other glands of the body.

Every gland has its *vasa deferentia*, *secretoria*, and *expurgatoria*, together with its common ventricle, where the matter brought thither is first prepared by digestion, &c.

In this grand primary concoctive gland, the gula from the mouth of the *oesophagus* to its *vas deferens* the stomach, is its common receptacle, the lacteals are its *vasa secretoria*, or recipient strainers, and the intestines from the pylorus to the anus constitute its *vas expurgatorium*, or common expurgatory duct. The actions therefore of this, as of every other gland, are principally four, viz. solution, separation, glandular colature or secretion, and evacuation or expurgation.

The whole *ductus alimentalis*, from its uses, may be ordinarily divided into four parts. 1. That which conveys the food, called the *oesophagus*. 2. That which digests, or corrodes it, called the stomach. 3. That which distributes the chyle, called the intestines. 4. That which empties the *feces*, called the rectum. Phil. Trans. N° 144. p. 32 and 33.

This duct is said to be the true characteristic of an animal, or *proprium quarto modo*; there being no animal without it, and whatever has it, being properly enough ranged under the class of animals. Plants receive their nourishment by the numerous fibres of their roots, but have no common receptacle for digesting the food received, or for carrying off the recrement. But in all, even the lowest degree of animal life, we may observe a stomach and intestines, even where we cannot perceive the least formation of any organs of the senses, unless that common ore of feeling as in oysters. Phil. Trans. N° 269, p. 776, seq.

Dr. Wallis deduces an argument from the structure of the alimentary tube in man, to prove that he is not naturally carnivorous. To the cogency of which, Dr. Tyson makes some objections. Phil. Trans. N° 269. p. 777.

ALIMENTARY duct, is sometimes also understood of the thoracic duct.

ALIMENTARY law, *lex alimentaria*, was an old law among the Romans, whereby children were obliged to find sustentance for their parents.

ALIMENTARIJ pueri, &c. were certain children maintained and educated by the munificence of the emperors, in a sort of public places, not unlike our hospitals.

Trajan was the first that brought up any of these alimentary boys. He was imitated by Adrian. Antoninus Pius did the same for a number of maids, at the solicitation of Faustina; and hence, in some medals of that empress, we read *PVELLAE FAVSTINIANAE*.—Alexander Severus did the like, at the request of Mammea; and the maids thus educated are called *Mammeanae*.

ALIMENTATION is used by some naturalists, for what we more ordinarily call NUTRITION.

ALIMONY, ALIMONIA, properly signifies nourishment, or maintenance: but in a modern sense, in Law, it denotes that portion, or allowance, which a married woman sues for, upon any occasional separation from her husband, wherein she is not charged with elopement or adultery.

This was anciently called *rationabile estoverium*, reasonable maintenance, and was recoverable only in the spiritual court; but now is recoverable also in chancery.

Where a woman is divorced *a mensa & thoro*, she may sue her husband in her own name for alimony, or maintenance, out of her husband's estate, during the separation, either in the chancery, or in the spiritual court;

and it will be allowed, except in the cases of elopement and adultery, as aforesaid. 1 Inst. 235.

ALIMOS, in Botany, a name given by some of the Greek writers to the common liquorice. It has been thus called, from its quality of palling the appetite, and making it insensible either of hunger or thirst.

ALINDESIS, in the Ancient Gymnastic Medicine, a kind of exercise, wherein persons being besmeared with oil, rolled themselves naked in the dust.

The word is sometimes also written *alindos*.

ALIOS baton, in Ichthyology, a name given by Aristotle to the strange fish called by Artedi, LOPHIUS, and by others RANA piscatrix.

ALIPÆNOS, in the Ancient Physic, an appellation given to dry topical medicines, or such as have no fat mixed with them.

The word is sometimes also written *alipantos*. It is purely Greek, *αλιπαρος*, compounded of the privative *α*, and *λιπαρειν*, *pinguiscere*, to fatten. In which sense *alipæna* stands opposed to *lipara*, or plasters, which have fat in their composition; called also by Celsus, *lenia*.

Galen gives the name *αλιπη* to the remedies applied to fresh wounds, to check the inflammation, and hasten their healing.

ALIPILARIUS, or ALIPILUS, in Antiquity, an officer belonging to the baths, who, by means of wax, and waxen plasters, took off the hairs from the ALÆ, or arm pits. The women who performed this office were called *pilatrices*, and *partiltria*.

The *alipilus* answered to what the Greeks called *δρωπακισης*.

The ancient Romans made it a point of cleanliness to keep the arm-pits clear and smooth. In after-times, they went farther, and took off the hair from their arms, legs, and other parts, with pitch and rosin, and by the *volfellæ*, an instrument for that purpose.

ALIPOW MONTIS CETI, a kind of white turbith, which is a strong purgative. It is to be found in several places of Languedoc, particularly near Ceté, whence the modern botanists have given it its name. It is sometimes used instead of *sena*; which, however, may be dangerous, since it is a much stronger purgative.

ALIPTA, from *αλειψω*, *I anoint*, in the Ancient Gymnastics, an officer appointed to anoint the athletes.

In which sense the *aliptæ* amount to the same with what are otherwise called *unctores*, and *jatruliptæ*.

ALIPTA is sometimes also used, in a less proper sense, for the director, or superintendant of the exercises of the athletes.

In which sense, *alipta* is synonymous with *gymnastes*, and *paedotriba*.

ALIPTERIUM, *αλιπτεριον*, in Antiquity, a place in the ancient *palestra*; where the athletes were anointed before their exercises.

The *alipterium*, or *alipterion*, was otherwise called *ELÆOTHESION*, and *unctuarium*; sometimes also *ceroma*.

ALIQUNT part, is that which will not measure or divide any number exactly. Or an aliquant part, is that which being taken any number of times, is always greater or less than the whole. See MEASURE.

Thus, 5 is an aliquant part of 12; for being taken twice, it falls short; and when taken three times, it exceeds 12. The aliquant parts of a pound, or 20s. are

3s. an aliquant part composed of a tenth and 20th.

6s. of a 5th and a 10th.

7s. of a 4th and a 10th.

8s. of two 5ths.

9s. of a 4th and a 5th.

11s. of a half and a 20th.

12s. of a half and a 10th.

13s. of a half, a 10th, and a 20th.

14s. of a half and a 5th.

15s. of a half and a 4th.

16s. of a half, a 5th, and a 10th.

17s. of a half, a 4th, and a 10th.

18s. of a half, and two 5ths.

19s. of a half, a 4th, and 5th. See MULTIPLICATION.

ALIQOT part, is such part of any number or quantity, as will exactly measure it, without any remainder.—

Or, it is a part, which being taken a certain number of times, becomes equal to the whole, or integer.

The word is formed of *aliquoties*, any number of times. Thus, 3 is an aliquot part of 12; because, being taken four times, it will just measure it.

The aliquot parts of 20s. are.

10s. half of 20s.

5s. a fourth.

4s. a fifth.

2s. a tenth.

1s. a twentieth.

6s. 8d. a third.

3s. 4d. a sixth.

2s. 6d. an eighth.

1s. 8d. a twelfth.

1s. 4d. a fifteenth.

1s. 3d. a sixteenth.

10d. a twenty-fourth.

5d. a forty-eighth.

To multiply by the help of *aliquot parts*, see MULTIPLICATION.

We must not confound an *aliquot part* with that of a *commensurable*; for every *aliquot part* is a *commensurable*, but not *vice versa*. Thus four is *commensurable* with six, but is not an *aliquot part* of it. Phil. Trans. N^o 41.

ALISANDERS, *smyrnium*, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these: it has an umbellated flower; the principal umbel is unequal, the small ones are erect: they have no involucre, and the empalement of the flowers are scarce discernible; the flowers have five spear-shaped petals, which are a little inflexed, and five stamina the length of the petals, terminated by single summits; the germen is situated under the flower, supporting two styles, crowned by headed stigmas; the germen afterwards turns to an almost globular fruit, which is streaked, and splits in two, each containing one moon-shaped seed, convex on one side, marked with three streaks, and plain on the other. There are five species.

Alisanders used to be ordered by the college for medicinal use, but is seldom now prescribed; and at present is seldom cultivated in gardens; though formerly it was greatly used in the kitchen, before celery was so much cultivated, which hath taken place of *alisanders*, and entirely superseded the use of it.

The ancient Greeks have plainly described two different plants under this name; the one the common *alisanders*, the other the *petroselinum Cilicium*, or Cilician parsley. The former of these plants loves moist and rich ground, and the other grows nowhere but on rocky hills, and in the driest and most barren places. Pliny not observing that the ancient writers knew two plants under this name, accuses them of an error, in saying that the *smyrnium* loved dry and barren places, whereas the Romans, who cultivated the *smyrnium* at that time, found it delighted only in rich moist soils; but the ancients, whom he censures thus, had spoke what he records of the *petroselinum*, not of the great water *smyrnium*.

ALISMA, in *Botany*, a name given by some to the *plantago aquatica*, or water PLANTAIN. In the Linnæan system, it is a genus of the *hexandria polygynia* class.

ALITES, in *Antiquity*, a name given to those birds which afforded auguries by their wings and flight.

In this sense *alites* stand opposed to *oscines*, or birds, which gave auguries by their mouths, by singing, or croaking, &c.

To the class of *alites*, belong the buzzard, osprey, &c.

To that of *oscines*, the crane, raven, owl, &c.

The word is Latin, formed from *ala*, a wing.

ALKA, in *Ornithology*, the name of a water bird, of the diver kind, belonging to the class of *anætes* in the Linnæan system, and called, in different parts of England, the *auk*, the *razor bill*, and the *murre*. It approaches to the size of the common duck; and its head, neck, back, and tail, are all black; its belly and breast, and up half way of the throat, are white. The *alk* in Norway very much resembles this in size, shape, and colour; though Pontopiddan represents the latter as peculiar to that country. It is found on the rocks on the sea coasts, and makes no nest, laying its eggs in some hollow of the naked rock. The eggs are very large, and are white, with black spots.

ALKADARII, a sect among the Mahometans, who deny any eternal, fixed, divine decrees; and are asserters of free will.

The word is formed from the Arabic, *alkadar*, which signifies *decree*.

The *alkadarii* are a branch of **MOATAZALITES**. They stand opposed to the **ALGIABARII**.

ALKAHEST, or **ALCAHEST**, in *Chemistry*, a word coined by Paracelsus to signify a most pure and universal *menstruum*, or solvent, wherewith some chemists have pretended adequately to resolve all bodies into their first matter, and to perform other extraordinary and unaccountable operations.

The word *alkabest* is originally German, compounded of *al* and *geest*, i. e. *all spirit*.

The two eminent **ADEPTS**, Paracelsus and Helmont, expressly declare, that there is a certain fluid in nature, capable of reducing all sublunary bodies, as well homogeneous as mixed, into their *ens primum*, or original matter whereof they are composed; or into an uniform equable and potable liquor, that will unite with water, and the juices of our bodies; yet will retain its seminal virtues; and if mixed with itself again, will thereby be converted into pure elementary water. Whence they also imagined it would at length reduce all things into water.

This declaration, seconded by the asseveration of Helmont, who religiously swears himself possessed of the secret, has excited the succeeding chemists and alchemists to the pursuit of so noble a *menstruum*. Mr. Boyle was so fond of it, that he frankly acknowledges he had rather

have been master thereof than of the philosophers stone. The different conjectures of chemists, with relation to the matter of the *alkabest*, are innumerable. Boerhaave seems to expect it from sea-salt, and mercury together. — Few bodies but some alchemist or other has fixed on, as the object of his researches after the *alkabest*. Some wrought on equinoctial dew; others on rain water, others on talc, others on zinc, others on antimony itself. — Poterius and Glauber confined themselves to nitre; Beguinus did the same, only concealing it under the name of hermaphrodite salt. Angel Sala, sir Kenelm Digby, and several others, preferred vitriol. The disciples of Paracelsus, commonly chuse sea-salt; Sandivorgius, Tachenius, Beverovicus, Boyle, and some others, water. Pollemanus, Mullerus, &c. founded all their hopes on black lead; other preferred flint: some potters varnish. Helmont pretends, that the *alkabest* is prepared from common salt and raddish juice, unless his words are to be taken figuratively. Becher will have it made of a most penetrating mercurial earth; others of a foliated earth of tartar, and an urinous salt, combined, digested, and circulated together; others, of spirit of wine, and salt of urine, coupled in due form; others of sublimate mercury, and vitriol; others of the same mercury, and highly rectified spirit of wine, frequently cohobated; others of the sap of urine, exposed to the magnetism of the air, &c.

The generality of chemists take the *alkabests* of Paracelsus and Van Helmont for the same; some others conclude them to be entirely different things. It is certain these two authors speak of their respective *alkabests*, in terms very different. Paracelsus only speaks of his as a medicine for the liver, which would prevent disorders of that viscous, or even supply, and restore it, if entirely gone. Van Helmont chiefly speaks of his as a *menstruum* which would dissolve all bodies. Cnoëllius, after an exact comparison of the several passages of Van Helmont, wherein the *alkabest* is mentioned, concludes, that what he elsewhere calls *ignis gehennæ*, is not the same liquor with that which Paracelsus calls by the name of *alkabest*; but with that which Paracelsus calls his corrosive specific, which appears to be a different thing from his *alkabest*; since Paracelsus never used his specific internally, nor does Helmont, in all his writings, mention one word concerning the internal use of his *alkabest*, though he commends it externally for the leprosy. And it appears from Paracelsus himself, that it was only on account of its external application, that he ranked it among medicines.

Helmont is express, that this *menstruum* is entirely the product of art, and not of nature. — 'Though,' says he, 'a homogeneous part of elementary earth may be artificially converted into water, yet I deny that the same can be done by nature alone; for no natural agent is able to transmute one element into another.' And this he offers as a reason why the elements always remain the same. — It may let some light into this affair, to observe that Helmont, as well as Paracelsus, took water for the universal instrument of chemistry, and natural philosophy; and earth for the unchangeable basis of all things; that fire was assigned as the efficient cause of all things; that seminal impressions were lodged in the mechanism of earth; and that water by dissolving and fermenting with this earth, as it does by means of fire, brings every thing forth; whence originally proceeded the animal, vegetable, and mineral kingdoms; even man himself being thus at first created, agreeably to the account of Moses. The great character or property of the *alkabest*, we have observed, is, to dissolve and change all sublunary bodies, water alone excepted. The changes it induces proceed thus:

1. The subject exposed to its operation, is converted into its three principles, salt, sulphur, and mercury, and afterwards into salt alone, which then becomes volatile; and at length is wholly turned into insipid water. The manner of application is by touching the body proposed to be dissolved, e. gr. mercury, gold-sand or the like, once or twice with the pretended *alkabest*; and if the liquor be genuine, the body will on this be converted into its own quality of salt.

2. It does not destroy the seminal virtues of the bodies dissolved thereby. Thus, gold is, by its action, reduced to a salt of gold; antimony to a salt of antimony; saffron to a salt of saffron, &c. of the same seminal virtues or characters with their original concrete. — By seminal virtues, Helmont understands those virtues which depend upon the structure or mechanism of a body, and which make it what it is. Hence an actual and genuine *aurum potabile* might readily be gained by the *alkabest*, as converting the whole body of gold into salt, retaining its seminal virtues, and being withal soluble in water.

3. Whatever it dissolves, may be rendered volatile by a sand-

land-heat; and if, after volatilizing the solvent, it be distilled therefrom, the body is left pure insipid water, equal in quantity to its original self, but deprived of its seminal virtues. Thus, if gold be dissolved by the *alkalest*, the metal first becomes salt, which is potable gold; but when the *menstruum* by a farther application to fire is distilled therefrom, it is left mere elementary water. Whence it appears, that pure water is the last production or effect of the *alkalest*.

4. It suffers no change or diminution of force by dissolving the bodies it works on, and therefore sustains no reaction from them; being the only immutable *menstruum* in nature.

5. It is incapable of mixture, and therefore remains free from fermentation and putrefaction; coming off as pure from the body it has dissolved, as when first put thereon; without leaving the least foulness behind.

Van Helmont had another *menstruum*, which he called *circulatum minus*, said to be prepared by a circulation of nine weeks, from equal parts of spirit of urine rectified three times, alcohol, or highly rectified spirit of wine, and vinegar twice rectified. Those who are acquainted with the great effects which may be produced by these separately, will readily believe that these by an intimate union may be converted into a *menstruum* capable of doing surprising things; especially as we know that neutral *menstrua*, as this must be, will act upon some very hard bodies, which are not otherwise dissoluble by acid, alkaline, watery, or spirituous *menstrua*.

There are various processes described, whereby the *alkalest* may be procured, yet many, nevertheless, doubt of the possibility of such a *menstruum*. Though we have the express testimonies of Paracelsus, Helmont, Philalethes, Starkey, Faber, and others, that they were actually possessed of the secret, yet many among the later writers, as Boyle, Wedelius, Major, Martini, and others, persist in holding it impossible, and even to involve contradictions.

Either such a *menstruum* does not exist, or else there is not any body in nature which may not become an *alkalest*. For although certain substances have not hitherto been combined with others, the daily discoveries in chemistry of combinations formerly believed impossible, seem to prove, that by certain management, and certain circumstances, any substance may be combined with all others; or, in other words, that all bodies may be dissolved by any single substance.

Kunkel very well shews the absurdity of searching for an universal solvent, by asking, 'If it dissolves all substances, in what vessel can it be contained?'

The illustrious Boerhaave, after collecting every thing which has been said by Helmont, and other chemists, with regard to this wonderful liquor, concludes in the following manner. 'Perhaps, says he, you may now be willing to know my opinion of this matter, and whether I believe that any of the chemists were ever masters of this grand *arcanum*. To this I freely answer: Van Helmont complains, that the bottle was once given him, but that it is taken away again; and therefore he could not make many experiments with that liquor. And Paracelsus does not say so many, and so great things of his solvent; and therefore I really do not know what to say to it. This, however, I will venture to say, that if you examine sea-salt and mercury, by every chemical method possible, you will never repent of your trouble.'

ALKAHEST is also used in a more extensive sense, so as to comprehend all fixed salts volatilized, and reduced into a quintessence.

ALKAHESTIC is used by some to denote the quality of bodies which are powerfully solvent.

In which sense, *alkalestic* amounts to much the same with *menstruous*; except that the former imports a greater degree of the solutive power than the latter. See MENSTRUUM.

ALKALESCE, denotes a matter slightly *alkaline*, or which begins to turn to the *alkaline* and putrid fermentation.

ALKALI. See ALKALY.

ALKALI, in Botany. See KALI and SALT-wort.

ALKALINE, in a general sense, something that has the properties of an ALKALY.

In this sense we say, *alkaline salts*, *alkaline spirits*, *alkaline substances*, &c.

ALKALINE, in Chemistry, is more peculiarly applied to SALTS which will persist in, and bear a strong fire, without flying away and vanishing in the air. In which sense these *alkaline salts* are said to be fixed.

ALKALINE acrimony, in Medicine, signifies a morbid quality in the blood, which is indicated by a desire of and thirst after four things, loss of appetite, and aversion to alkalescent food, nidorous eructations, putrid ulcers on the lips, tongue, and other parts in the mouth, sickness

in the stomach, a frequent *diarrhœa*, a sense of heat, lassitude, and general uneasiness, a dissolution of the texture of the blood, the urine high coloured, and red. It produces a putrescency in the blood, &c. and is to be remedied by the same means as the sea scurvy, and other putrid disorders.

ALKALINE, or ALKALIZATE bodies, among Chemists, are such as have their pores naturally so formed, that they are fit to be pierced, and put into motion, by the points of an acid poured upon them.

ALKALIZATION, ALKALIZATION, in Chemistry, the act of impregnating a liquor with an *alkaline salt*.

This is done either to make it a better dissolvent, for some particular purposes; or to load the phlegm, so as it may not rise in distillation, whereby the spirituous parts may go over more pure.

ALKALIZATION, is a name applied to operations, by which *alkaline* properties are communicated to bodies; or to those by which *alkali* is extracted from bodies which contain it, or in which it may be formed; e. g. *Spirit of wine* is said to be *alkalized*, when it has been digested upon *alkali*; a part of which it dissolves, and thence acquires *alkaline* properties. On the other hand, when a neutral salt is decomposed, in order to obtain its *alkaline* basis, this salt is said to be *alkalized*. Vegetable substances when reduced to ashes, may also be said to be *alkalized*; because the ashes contained fixed *alkali*.

ALKALY, ALKALI, or ALCALY, in Chemistry, a name originally given by the Arabians to a salt extracted from the ashes of a plant called KALI; and by us *glass-wort*; because used in the making of glass.

Afterwards, the term *alkaly* became a common name for the lixivious salts of all plants: that is for such salts as are drawn by lotion from their ashes.

And hence, again, because the original *alkaly* was found to ferment with acids: the name has since become common to all volatile salts, and all terrestrial substances, which have that property.

ALKALY, then, in its modern extensive sense, is any substance, which, being mixed with an acid, occasions an ebullition and effervescence.

And hence arises the grand division of natural bodies into the two opposite classes of *acids* and *alkalies*.

Boerhaave scarce takes this circumstance to be enough to constitute any determinate class of bodies. In effect, *alkalies* are not of one similar homogeneous nature; but there are two several sorts of them.

The first are obtained from vegetable and animal substances, by calcination, distillation, putrefaction, &c. Such are spirits of urine, spirits of hartshorn, salt of tartar, &c. The second are of the terrestrial kind; as shells, chalk, &c.

These two species of *alkalies*, Boerhaave observes, differ widely from each other; having scarce any thing in common, but their being effervescible with acids. The one is a class of native, fixed, scentless, insipid, mild astringent bodies; the other, a set of such as are volatile, odorous, sapid, caustic, aperitive, and are procured by art. Hence, adds the same author, mere effervescence with acids must be allowed to be of itself insufficient to determine the nature of an *alkaly*; and that such a name, which properly denotes a caustic fiery substance, should not be affixed to any mild and gentle body, as chalk, &c. but other properties and considerations are to be taken in, and particularly their taste, which is pungent, the manner of procuring, and the change of colour they produce in bodies.

With regard to this last circumstance, those liquors which, being poured on syrup of violets, change it to a green colour, are *alkalies*; as those which turn it red, are acids. Thus oil of tartar turns it of a kindly green; and oil of vitriol of a carmine red; and if to the syrup thus made red by oil of vitriol, oil of tartar be poured, it turns that part, wherewith it comes in contact, green: leaving the rest red; and the like holds of oil of vitriol, poured on syrup made green by oil of tartar. But this change of colour is not peculiar to *alkalies*; since a solution of quick-lime in the marine acid changes the colour of syrup of violets to a green.

To the like effect, M. Homberg observes, that 'a mere heat and bubbling arising upon the admixture of a body with an acid, does not seem an adequate criterion of the *alkaline* nature; since distilled oils of all kinds are found to do thus much; and that many of them with more vehemence than *alkalies* themselves; so as sometimes even to take fire, which *alkalies* never do.'

The opinion that *alkalies* ferment only with acids, seems too hastily taken up: for the different *alkalies* will ferment with one another; spirit of hartshorn, spirit of wine, spirit of sal ammoniac, and other volatile spirits of the *alkaline* kind, when in the dry form of salts, all ferment with salt of tartar, or other fixed *alkalies* of the lixivial kind. Spirit of salt is an *alkali*, in regard to spirit

of

of nitre, and ferments with it; and many of the acids ferment with sulphur. A spirit of sulphur may be prepared so concentrated, that it will ferment violently with water, which will become hot, and as it were boiling, on mixing the one with the other; yet water is certainly neither an acid nor an *alkali*.

To the definition and character of an *alkali*, therefore, M. Homberg adds this circumstance; 'that after the action, the mixture coalesces and shoots into a salt, or saline matter.'—This excludes the oils above mentioned; which do not, after effervescence, unite with the acids into a saline substance, but rather compose a resinous one.

All lixivious salts have these characters of *alkali*.—And not only lixivious, but also all urinous salts, which are constantly found to imbibe acids with great eagerness, and, after ebullition, to unite and crystallize with them. Hence we have two kinds of *alkali* salts, viz. *fixed* or *lixivious*; and those that are *volatile* or *urinous*.

But beside *alkali* salts, there is an infinity of other bodies, not saline, which answer to the characters of *alkali*, i. e. which produce much the same effects with acids as the *alkali* salts above mentioned.—And these *alkaline* matters are, in other respects, of different natures. Some, e. gr. are merely *EARTHY*; as quick-lime, marble, chalk, &c.—Others are *METALLINE*; among which, some have their peculiar and appropriate acids to act on them, as gold, tin, and antimony, which only dissolve with aqua regia; silver, lead, and mercury, with aqua fortis; and the others with other sorts of acids, as iron, copper, zinc, bismuth, &c. There are others of the *ANIMAL* class; consisting 1. Of stony matters found in the viscera of certain species; as the *calculus humanus*, bezoards, crabs-eyes, &c.—2. Testaceous matters and shells; as pearls, oyster-shells, cuttle-fish bones, the shells or coats of lobsters, crabs, &c.—3. The parts of animals, which by length of time, or some other cause, are become stony, or even earthy; as the fossil unicorn's horn, &c. And lastly, almost all stony marine substances, as coral, &c.

After all, the *alkaline* property in fixed salts does not appear to be native, but rather producible by art. This opinion seems to have been first started by Helmont; before him, it was the standing opinion, that fixed *alkalies* pre-existed in mixed bodies; and were only separated or extricated from the parts of the compound. Helmont advanced, that they did not thus pre-exist in their *alkaline* form, but were productions of the fire, by whose violent action, part of the salt, which in the concrete is all volatile, lays hold of some part of the sulphur of the same body; and both melting together, are fixed into an *alkali*; which fixation he exemplifies by this circumstance, that, when salt-petre and arsenic, though both volatile, are exposed to the fire, they are fluxed by the operation thereof, and made to fix each other.

Some late chemists, and particularly M. Geoffroy, carry the point something farther; and assert, that all *alkali* salts whatever, both fixed and volatile, are wholly the effect of fire; because, before any action of the fire, they did not pre-exist in the mixt, wherein they afterwards appeared.

Notwithstanding all the seeming opposition and hostility between *acids* and *alkalies*, they may be converted into one another; at least, *acids* are convertible into *alkalies*; as is shewn at large by M. Geoffroy, the elder, in the Mem. de l'Acad. an. 1717, where the nature and origin of *alkalies* are ingeniously explained, p. 226 Hist. 34.

Alkali salts, according to this author, are only acids concentrated in little molecules of earth, and united with certain particles of oil, by means of fire.

When an acid, which we conceive in the general as a small, solid, pointed *spiculum*, happens to be absorbed or concentrated in a proper portion of earth, the whole becomes denominated a *saline*, *compound*, *neutral*, or *intermediate salt*; because the acid, thus inclosed in a sheath, cannot excite the same savour as when disengaged therefrom; and yet excites a saline taste; and for this reason is compound, &c.

Now, fire is the only agent capable of disengaging the acid from the earth with which it is thus invested. Upon this the acid, being lighter than the earth, rises and evaporates, leaving the earth at the bottom of the vessel; which for this reason is called *FIXED*, in contradistinction to the acid, which is *VOLATILE*. This earth, thus deprived of its acid, is left with its pores open and empty, which before were filled; and withal, in sustaining the action of fire, it necessarily retains some of the particles thereof, which give it an acrimonious taste, such as mere earth could never have. From this taste it is called *salt*; and from its pores being open, and thus disposed to admit and imbibe new acids, it is called *alkali salt*.

Now, it is not to be imagined, that an earth, which has

once been impregnated with acids, can ever be perfectly divested of it; there will still remain some, though much less than before. So that an *alkali* may be conceived as only a too small quantity of acid, inclosed in too large a quantity of earth.

The visible and sensible fire is not the only agent capable of separating acids from their earth; fermentation has the same effect, in virtue of that pure active fire produced or concerned therein. *Alkalies*, therefore, are the production either of the one, or of the other fire; and the same may be said of the acids disengaged from them; it being the disunion of the parts of the same salt occasioned by fire that produces both, the acids as well as the *alkalies*. All the difference is, that the *alkali* imbibes and retains certain corpuscles of the fire, whereas nothing foreign is superadded to the acid.

On this principle every acid is volatile, and every *alkali* should be fixed, if the *alkali* were only earth; but in regard the little acid still remaining in the *alkali*, may be united with a portion of oil, as well as a portion of earth, and oil is known to be volatile; the compound, that is, the *alkali*, must be volatile, in case the oil prevail in it.

In this case, the *alkali* is found to have a strong, penetrating, urinous taste and smell; and is what we call a *volatile urinous alkali salt*.

These things well considered, it will be easy to assign what must ensue upon the separations, or new unions, of the parts of a mixt.

An acid, it is evident, may become an *alkali*, because, after having been separated from its matrix, it may be restored in a small quantity to another matrix, either wholly earthy, or earthy and oleaginous. In the first case, it will become a fixed *alkali*; in the second, it may be a volatile *alkali*, if in the supposed matrix the proportion of oil prevail over that of earth; and in this case it will be urinous.

Again, what before was a fixed *alkali*, may become volatile, and urinous, by depositing or discharging part of its earth, and taking oil in its stead.

These transmutations are not found equally easy and practicable in the three different kinds of mixts, or the three kingdoms, by reason of the diversity of circumstances that must concur in the operation. They are much the most rare and difficult in the mineral realm; because, without doubt, the parts of minerals are more closely tied together, and have, as it were, less play. The only instance chemistry hath hitherto produced, of a mineral acid's being converted into a fixed *alkali*, is in the operation of fixing salt-petre.

The vegetable kingdom, it is observed, furnishes a very large quantity of fixed *alkali* salt; and very little volatile *alkali*: the animal kingdom, on the contrary, affords much volatile *alkali* salt, and but little fixed. The fossil kingdom affords a very little native fixed *alkali* salt, as the Egyptian *natrum*, and the salts produced by lotion from saline earth about Smyrna, and some other places of the East; and the chemists have also found a method of converting nitre into a fixed *alkali*; but nobody hath hitherto produced a volatile *alkali* from the acids of the mineral kingdom. And yet, if acid salts of the vegetable kind be convertible either into *FIXED* or *VOLATILE alkalies*, why may not mineral acids be susceptible of the same change, since vegetable acids are originally no other than mineral ones; for, from whence but the earth should plants derive their acid juice?

In effect, M. Geoffroy has at length shewn the operation feasible, by an actual transformation of the same acid nitre into a volatile urinous *alkali*. Mem. de l'Acad. an. 1717.

By the way, it is to be noted, that the instance of Egyptian *natrum*, or nitre, furnishes an objection against the general assertion of all *alkalies* being artificial, or produced by fire. Mr. Boyle, who had some of this salt sent him by the English ambassador, at the Porte, found that vinegar would work briskly on it, even in the cold.

'Whence, says he, it appears that the Egyptian nitre, acknowledged to be a native salt, and made only by the evaporation of the superfluous water of the Nile, is yet of a lixivious nature, or at least abounds with particles that are so, though produced without any precedent incineration, and the matter of it exposed to the violence of the fire, to make it afford an *alkali*.'

—He adds, 'however, he does not know any other body in nature, except this, wherein the *alkaline* properties are not produced. And proceeds to give instances of *alkalies* being made from sea-salt, and other acids; and shews, 'how the same body, without the addition of any other salt, may, by varying the manner of the fire's application, be made either to afford little else than acids, or a greater or less quantity of *alkali*.' Producib. of Chym. Princip.

ALKALI and acid, hypothesis of. Tachenius and Sylvius de

la Boe, followed by the tribe of vulgar chemists, strenuously assert *SAL alkali* and *acid* to be the only universal principles of all bodies; and by means of these, they account for the qualities of bodies, and the rest of the *phenomena* of nature; particularly those in the animal *oeconomy*. In a word, *alkali* and *acid* are substituted in the stead of matter and motion.

Mr. Boyle and Bohnius attack this hypothesis with great force of argument. In effect, it is at best but precarious to affirm, that *acid* and *alkaline* parts are found in all bodies.

When the chemists see aqua fortis dissolve filings of copper, they conclude, that the acid spirits of the menstruum meet in the metal with an *alkali*, upon which they work; but how unsafe a way of arguing this is, appears hence, that spirit of urine, which is allowed a volatile *alkali*, and accordingly makes a great conflict with aqua fortis, readily dissolves filings of copper, and that even more genuinely than the acid liquor.—So, when they see the magistery of pearl or coral, prepared by dropping oil of tartar into the solution of those bodies made with spirit of vinegar, they ascribe the precipitation to the fixed *alkali* of the tartar, which mortifies the acidity of the spirit of vinegar; whereas the precipitation would no less ensue, if, instead of the *alkalizable* oil of tartar, that strong acid, oil of sulphur *per campanam*, were used.

It may also be doubted, whether it be just to suppose, that when an acid is discovered in a body, the operation of that body on another, abounding with an *alkali*, must be the effect of a conflict between these two principles? For an acid body may do many things, not simply as an acid, but on account of a texture or modification, which endows it with other qualities as well as acidity. Thus, when the chemists see an acid menstruum, as aqua fortis, spirit of salt, oil of vitriol, &c. dissolve iron, they presently ascribe the effect to an acidity in the liquors; though well dephlegmated urinous spirits, which they hold to have a great antipathy to acids, will also really dissolve crude iron, even in the cold.

Farther, the patrons of this hypothesis seem arbitrarily to have assigned offices to each of their two principles, as the chemists do to each of their *tria prima*, and the Peripatetics to each of their four elements. But it is not enough to say, that an acid, for instance, performs these things, and an *alkali* those; and that they divide the operations, and phenomena of natural bodies between them; assertions of such moment ought not to be received, without farther proof.

Indeed, the very distribution of salts into *acids* and *alkalies*, has somewhat arbitrary in it; there being not only several things wherein the acids agree with *alkalies*, but also several things wherein each differs from itself. To say nothing of the diversity of fixed and volatile *alkalies* above mentioned; some, as salt of tartar, will precipitate the solution of sublimate into an orange-tawny; others, as spirit of blood and hartshorn, precipitate the same solution into a milky substance; and oil of tartar very slowly operates upon filings of copper, which spirits of urine and hartshorn will readily dissolve on the fire. And among acids themselves the difference is no less; for some of them will dissolve bodies which others will not; and this even where the menstruum that will not dissolve the body, is reputed much stronger than that which does; as dephlegmated spirit of vinegar will dissolve lead reduced to minute parts in the cold, which is an effect that chemists expected not from spirit of salt. Nay, one acid will often precipitate what another has dissolved, and *à contra*; as, spirit of salt will precipitate silver out of spirit of nitre. Add, the properties peculiar to some particular acids; as, that spirit of nitre, or aqua fortis, dissolves camphor into an oil, and coagulates common oil into a consistent substance like tallow; and though it will both corrode silver, copper, lead, and mercury, and keep them dissolved, it quickly lets fall almost the whole body of tin. It is no wonder that the definitions given of *acid* and *alkali* should be inaccurate and superficial, since the chemists themselves do not seem to have any determinate notion, or sure marks, whereby to know them distinctly. For to infer, that, because a body dissolves another, which is dissoluble by this or that known acid, the solvent must also be acid; or to conclude, that if a body precipitates a dissolved metal out of a confessedly acid menstruum, the precipitant must be an *alkali*, is precarious: since filings of speltre will be dissolved by some *alkalies*, viz. spirit of sal ammoniac, &c. as well as by acids; and bodies may be precipitated out of acid menstrua, by other acids, and by other liquors wherein there appears not the least *alkali*. Add, that a solution of bismuth, made in aqua fortis, would be precipitated both by spirit of salt, and by common water. Nor does that other criterion of *acids* and *alkalies*, viz. the heat, commotion, and bubbles, excited upon their being put together, appear more determinate; since almost any thing

fitted variously and vehemently to agitate the minute parts of a body, will produce heat in it.—Thus, though water be neither an acid, nor an *alkali*, it will quickly grow very hot, not only with the highly acid oil of vitriol, but with the *alkalizable* salt of tartar.

Neither is the production of bubbles on the mixture, though accompanied with a hissing noise, a certain sign; such production not being a necessary effect of heat, excited by conflict, but depending on the peculiar disposition of the bodies put together, to extricate, produce, or intercept, particles of air.—Hence, as oil of vitriol, mixed in a due proportion with fair water, may be brought to make the water very hot, without exciting bubbles; so Mr. Boyle has found, that *alkalizable* spirit of urine, drawn with some kinds of quick lime, being mixed with oil of vitriol moderately strong, would afford an intense heat, while it produced either no manifest bubbles at all, or scarce any; though the urinous spirit was strong, and in other trials operated like an *alkali*; and though, with the spirit of urine made *per se*, in the common way, oil of vitriol will produce a great hissing, and a multitude of conspicuous bubbles. On the other side, some acid spirits, as that of verdegrise made pure, poured on salt of tartar, will frequently make a conflict, and produce a large froth, though not accompanied with any manifest heat.

Many make the taste the touchstone whereby to try *acids* and *alkalies*; but there are a multitude of bodies, wherein we can so little discern by the taste which of the principles is predominant, that one would not suspect there was a grain of either of them therein: such are diamonds, most gems, and many ignobler stones; gold, silver, mercury, &c. There are also bodies abounding with *acid* or *alkalizable* salts, which either have no taste at all, or a quite different one from that of these chemical principles.—Thus, though glass be in great part composed of a fixed *alkali*, it is insipid on the palate; and crystals of silver and lead, made with aqua fortis, and containing numerous acid particles of the menstruum, manifest nothing of acidity in the mouth; the latter having a saccharine sweetness, and the former an extreme bitterness. And even in vegetable substances of a manifest taste, it is not easy to know by that, whether it be the *acid* or the *alkaline* principle which predominates in them: as, in the essential oil of spices, and the gross empyreumatical oils of wood; and even in *alcohol* of wine, which some contend to be an *ACID*, and others an *alkali*.

The peculiar properties of *alkalies* and *acids*, and the effects of their combination with each other, have been considerably explained by the modern discoveries of Dr. Black and others. *Alkaline* substances yield a quantity of fixable air, by combining them with acids, and by other processes. As their combination with this fluid is weaker than with acids, *alkalies* may be deprived of it by acids. Fire likewise will discharge it; and it may be extricated by means of other *alkaline* substances, with which it has a stronger affinity. Thus mild volatile *alkali* may be deprived of its air, or rendered caustic, by applying to it uncombined magnesia, fixed *alkali*, or calcareous earth, while these substances unite with the air, and are thereby rendered mild. When by any of these means, *alkalies* have been deprived of their fixable air, and are exposed to an atmosphere in which particles of it float, they readily absorb it; unless they have been previously combined with some other substance as an acid, with which they preferably unite, and resume their former state. Calcareous earth, combined with fixable air, forms the several masses of lime-stone, marble, chalk, &c. When any of these substances are deprived of the air combined with them, they become pure calcareous earth, or quick lime. *Alkaline* substances combined with fixable air, become capable of crystallization; so that the extrication of this air destroys the uniform texture of marbles, calcareous spars, crystals of vegetable or of mineral *alkali*. The combination of *alkalies* with fixable air diminishes their power of combining with other substances, which are incapable of expelling this air from them. Hence the power of *alkaline* salts to dissolve oil is lessened, so that soap-boilers find it necessary, in the preparation of soap, to deprive these salts by quick lime of all the fixable air united with them. *Alkaline* substances combined with fixable air are called mild, and when uncombined with it, caustic. In the former case they effervesce with acids, which they do not when rendered perfectly caustic; the effervescence being occasioned by the discharge of the fixable air. See Neumann's Chemical Works, by Dr. Lewis, and Macquer's Chem. Dict. See AIR, fixable.

Physicians have various methods of administering *fixed alkaline salts*. When such medicines are required, small doses are given warm every three or four hours, interposing a purge now and then. When intermitting fe-

vers return, this method, for a few days, is thought an excellent preparation for the bark. The *volatile alkaline salt* is either in a dry or liquid form; when dry it is called *salt*, when liquid, *spirit*; the first is obtained by *sublimation*, the second by *distillation*.

ALKANE, see ANCHUSA, and LITHOSPERMUM.

ALKEBLA, or ALKIBLIA. See KEBLA.

ALKEKENG, in Botany. See Winter CHERRY.

ALKEKENG, a medicinal fruit or berry, produced by the before mentioned plant, popularly also called the *winter-cherry*; of some use as an abstergent, dissolvent, and diuretic.

The fruit is celebrated for its lithontriptic quality; and prescribed to cleanse the urinary passages of gravel, and other obstructions. Its deterfive quality also recommends it against the jaundice, and other disorders of the *viscera*.

ALKERMES, in Medicine, &c. a term borrowed from the Arabs, denoting a celebrated remedy, of the form and consistence of a confection; whereof the *kermes* are the basis.

The other ingredients are rose-water, sugar, ambergrise, musk, cinnamon, aloes wood, pearls, and leaf gold, &c. but the sweets are usually omitted.

The *confectio alkermes* is chiefly made at Montpellier, which place supplies most parts of Europe with it. It is said to be better made there than it can be elsewhere; the reason of which doubtless is, that the drug, which gives it the denomination, is no where found so plentifully as there. The manner of preparing the grain for making the confection is described in the Phil. Trans. N° 20.

It is much used as a cordial; especially, says Dr. Quincy, among female prescribers, and in complaisance to them; but that author decries its value in that intention, and thinks it ought only to be regarded as a sweetener.

Count Marigli, in an enquiry into the composition of this medicine, shews, that many of the ingredients wherewith the ancients so plentifully loaded it, and which are still retained in it by the moderns, are not only useless, but hurtful; more particularly the *lapis lazuli*, by many mistakenly held cordial, on account of the appearance of veins of gold in it; whereas, in reality, it is only a marcasite of sulphur and vitriol, and contains a great quantity of acid, directly repugnant to the alkaline nature of the KERMES, and highly prejudicial in diseases where the blood tends to coagulation.

ALKES, a star in the constellation CRATER.

ALKOOL. See ALCOHOL.

ALKORAN. See ALCORAN.

ALKUSSA, in Ichthyology, a name given by the Swedes to a fish, which they also called *lake*. It is a species of the SILURUS, and is distinguished by Artedi by the name of the *silurus* with only one *cirrus*, or beard, under the chin. The common *silurus*, which is the *glanus* of the ancients, has four *cirri*.

ALKY of lead, among Alchemists, denotes a sweet substance procured from lead.

ALL Saints, in the Calendar, denotes a festival celebrated on the first of November, in commemoration of all the saints in general; which is otherwise called *All-hallows*.

The number of saints being so excessively multiplied, it was found too burdensome to dedicate a feast-day to each. In reality there were not days enough, scarce hours enough, in the year for this purpose. Hence an expedient was had recourse to, by commemorating such in combination, who had no peculiar days of their own. Boniface IV. in the ninth century, introduced the feast of *All Saints* into Italy, which was soon after adopted into the other churches.

ALL Souls, in the Calendar, denotes a feast-day held on the second of November, in commemoration of all the faithful deceased.

The feast of *All Souls* was first introduced in the eleventh century, by Odilon, abbot of Cluny, who enjoined it on his own order; but it was not long before it became adopted by the neighbouring churches.

ALLAH, or ALLA, an Arabic word, and the name which all who profess Mahometanism give to God, and make frequent repetitions of in their prayers.

ALLANTOIS, ALLANTOIDES, otherwise called *farcim-nalis*, in Anatomy, a thin, smooth, membranous substance, or vehicle, investing the *fetus* of divers animals, and replete with urinous liquor conveyed to it from the *urachus*.

The word is derived from *αλλας*, *farcimen*, a gut; and *ειδος*, *forma*, *shape*; because in many brutes it is in this form, though in some others it is round.

The *allantois* makes a part of the SECUNDINE.—It is conceived as an urinary tunic, placed between the *amnion* and *chorion*; which by the navel and *urachus* receives the urine that comes out of the bladder.

The *allantois* appears differently in different animals.

Fabricius ab Aquapendente will have dogs, cats, and the like animals, which have teeth both in the upper and nether jaw, to be without it. It is most conspicuous in the cow and sheep kind. Its length in the former extends to about twelve feet. It is very dilatable, and may be blown up to above a foot diameter. The inhabitants of Iceland make use of it, instead of glass for windows. It is a point controverted among anatomists, whether the *allantois* be found in the human species?—M. Drelincourt, professor of anatomy at Leyden, in an express dissertation on this membrane, maintains it peculiar to the ruminating kind.

Several anatomists who dispute the existence of the human *allantois*, allow of an intermediate membrane in the human species, between the *chorion* and *amnios*, but deny it the appellation of an *allantois*, as holding it to differ from the *allantoides* of brutes, in structure, as well as office. Neither artery nor vein can be discovered in this membrane. See Mem. Acad. des Scienc. 1701.

Dr. Hale, on the contrary, has given an accurate description of the human *allantois*; and assigned the reason why even those, who believed its existence, had not before fully found it out; and also an answer to those who yet deny its reality. See Phil. Trans. N° 271.

ALLAT, derived from the Arabic *Allah*, God, is the name of an Idol among the Arabians and idolatrous Jews.

ALLAY. See ALLOY.

ALLAZÆZIS, in the Language of the Chemists, denotes a philosophical brass, or copper, called also *as album*, *aqua-mercurii*, and by divers other names.

ALLE, a species of the *alca*. It is met with among fragments of ice, in the northern seas of Europe and America.

ALLECTOR, a species of the CRAX.

ALLEGATA, a word anciently subscribed at the bottom of rescripts and constitutions of the emperors, as *signata*, or *testata*, was under other instruments.

In this sense, *allegata* imports as much as verified, *verificata*.

Allegata was a kind of subscription, somewhat less usual than *data*, *propositum*, *accepta*, *subdita*, *supposita*, or *subscripta*.

ALLEGATION, is used for the producing of acts, or instruments, to authorize a thing.

Allegation, in a literary sense, denotes the act of citing or quoting an author, or passage of some book.

ALLEGES, or ALLEGIAS, a stuff manufactured in the East Indies. There are two sorts of them; some are of cotton, and others of several kinds of herbs, which are spun like flax and hemp. Their length and breadth are of eight ells, by five, six, or seven eighths; and of twelve ells by three fourths, or five eighths.

ALLEGIANCE, the legal faith and obedience; which every subject owes to his prince.

This was anciently called *ligeantia*, or *ligence*; from the Latin *ligare*, and *aligare*, to bind; q. d. *ligamen fidei*.

The oath of *allegiance*, taken by the people to the king, is only the counter-part to the coronation oath, taken by the king to the people, and, as such, partakes of the nature of a covenant; that is, is conditional, and ceases on a violation of the contract by the prince; at least this is the doctrine of some of the chief advocates for the Revolution. The anti-revolutioners, on the contrary, hold the oath of *allegiance* to be absolute and unconditional.

The convention of estates having offered the crown to the prince and princess of Orange, who accepted of it, the old oaths of *allegiance* imposed by the stat. 1 Eliz. and 3 James I. were abrogated; and a new oath was drawn up, to be taken by all the subjects of England, on penalty of being deprived of all employments, civil, military, and ecclesiastical. Sess. 1. cap. 8. Stat. Abridg. tom. iii. p. 8. sec. 8.

The form of the oath of *allegiance* by 1 G. stat. 2. cap. 13. is: 'I A. B. do sincerely promise and swear, that I will be faithful, and bear true *allegiance* to his majesty king George. So help me God.'

This oath is given to the king, in quality of a temporal prince, or sovereign; to distinguish it from the oath given to him as primate, or supreme head of the church, which is called the *Oath of Supremacy*.

Allegiance is either perpetual, where one is a subject born, or where one hath the right of a subject by naturalization, &c. Or it is temporary, by reason of residence in the king's dominions. To subjects born it is an incident inseparable; and as soon as born, they owe by birth-right obedience to their sovereign; and it cannot be confined to any kingdom, but follows the subject where-soever he goes. All persons above the age of twelve years are to be required to take the oath of *allegiance* in courts-leet.

The quakers are excused from taking the oath of *allegiance*;

allegiance; and, in lieu thereof, are only enjoined a declaration of fidelity. 8 Geo. cap. 6.

ALLEGORICAL, something containing an *allegory*.

The divines find divers senses in Scripture; as a *literal*, a *mystical*, and an *allegorical* sense. See **PROPHECY**, and **TYPE**.

ALLEGORY, **ALLEGORIA**, a figure in *Rhetoric*, whereby we make use of terms which, in their proper signification, mean something else than what they are brought to denote; or it is a figure whereby we say one thing, expecting it shall be understood of another, to which it alludes.

An *allegory* is, properly, a series or string of metaphors. Such is that beautiful *allegory*, in Horace. lib. i. Od. 14.

*O navis, referunt in mare te novi
Fluctus, &c.*

Where the *ship* is usually held to stand for the *republic*; *waves*, for *civil war*; *port*, for *peace and concord*; *oars*, for *soldiers*; and *mariners*, for *magistrates*.

Allegory includes parable, apologue, *μυθος*, or *fable*, and *paræmia*, or *proverbs*; at least, under *allegories* are comprehended such proverbs as are applicable to subjects of different kinds.

Scaliger considers *allegory* as one part, or side, of a comparison. It differs from *irony*, in that *allegory* imports a similitude between the thing spoken and intended; *irony* a contrariety between them.

The Old Testament is supposed, by many, to be perpetual *allegory*, or typical representation of the mysteries of the New.

In effect, *allegories* have entered into most religions.—The Jews, we know, abound with them. Philo Judæus has three books, of the *allegories* in the history of the six days.

Nor are the heathens without *allegories* in their religion: it may be even said, that the use hereof is of a much earlier standing in the Gentile than in the Jewish world.

—Some of their philosophers, undertaking to give a *rationale* of their faith, and to shew the reason and scope of their fables, and the ancient histories of their gods, found it necessary to put another construction on them, and maintain, that they signified something very different from what they seemed to express. And hence came the word *allegory*, or a discourse that, in its natural sense, *αλλο αλφουει*, signifies something other than what seems intended by it.

This shift they had recourse to, in order to prevent people from being shocked with those absurdities which the poets had introduced into their religion; and to convince the world, that the gods of Greece had not been those vile persons which their histories represented them to be. By this means the history, as well as religion, of Greece, was at once converted into *allegory*; and the world left to seek for them both in a heap of fables, few of which have been satisfactorily solved, either by ancient or modern writers.

The Jews, finding the advantages of this way of explaining religion, made use of it to interpret the sacred writings, so as to render them more palatable to the Pagans.

The same method was adopted by the primitive writers of Christianity.

Allegories are distinguished into divers kinds: as, *verbal*, *real*, *simple*, *allusive*, *physical*, *moral*, *political*, *theological*, &c.

ALLEGORY, *simple*, according to some writers, is that which is taken from any kind of natural things.

ALLEGORY, *allusive*, is that which relates to other words, or things.

ALLEGORY, *verbal*, is a thread, or series of metaphors; or a continuation of the same trope, chiefly metaphor, through many words. Such is that in Virgil:

Claudite jam rivos pueri, sat prata biberunt.

Where the metaphor of watering the ground is carried on to the shutting of the sluices, &c.

ALLEGORY, *perpetual*, or *continued*, is that where the allegorical thread is pursued through all the parts of a considerable discourse. Such are the books of Jonah, of Canticles, of Job, not to say the whole Old Testament, according to the hypothesis of some divines.

ALLEGORIES, *physical*, those wherein some point of natural philosophy is represented: such in Homer, are Juno, who represents the air; Jupiter, the æther, &c.

ALLEGORIES, *medical*, those wherein some secret of physic is revealed: such is Solomon's description of old age, Ecclef. xii. 1, &c. wherein, according to certain authors, the circulation of the blood is indicated: such also, according to a modern writer, is the story of the labours of Hercules.

ALLEGORIES, *chemical*, those relating to chemistry: such according to Suidas, and many moderns, is the story of the Argonautic expedition, wherein the process of making gold is exactly described: such also, according to Tollius, is the name and title of Basil, Valentine, Benedictine, Monk; under which are concealed the secret of the philosophical mercury.

ALLEGORIES, *moral*, those whereby some useful moral instruction is held forth: such in Homer, is the victory of Diomedes over Venus, or fleshly lust: such also are the Pythagorean metempsychosis, and the story of the judgment of Hercules, related by Prodicus. To which may be added, the fables of avarice and luxury; of the grotto of grief, and others in the Spectators and Tatlers. Spectat. N° 55. Tatler N° 97.

ALLEGORIES, *poetical*, those wherein some maxim of good government is artfully wrapped up; such is that celebrated one of Menenius Agrippa, whereby he prevailed on the Roman people, who had withdrawn in discontent at the magistrates, to return into the city; to which purpose he related to them the parable of a war raised by the several parts of the human body against the stomach.

ALLEGORIES, *theological*, those wherein some truth relating to the nature and attributes of God is couched.

ALLEGORY is also used for the drawing of some words, plainly and literally intended at first, from their natural and proper meaning, to a foreign sense; for the better instructing of our minds in some point of faith, or manners. This coincides with what is otherwise called **ACCOMMODATION**.

ALLEGRO, in *Music*, a word used by the Italians to denote one of the six distinctions of **TIME**.

Allegro expresses a sprightly, quick motion, the quickest of all excepting *presto*.

The usual distinctions succeed each other in the following order: *grave*, *adagio*, *largo*, *vivace*, *allegro*, and *presto*.

It is to be observed, that the movements of the same name, as *adagio*, or *allegro*, are swifter in triple than in common time. The triple $\frac{3}{4}$ is usually *allegro*, or *vivace*; the triples $\frac{6}{4}$, $\frac{9}{8}$, $\frac{3}{2}$, $\frac{12}{8}$, are most commonly *allegro*.

ALLEGRO, *piu*, in the Italian *Music*, intimates to play, or sing a little quicker.

ALLEGRO, *poco piu*, signifies, that the part it is joined to must be played, or sung, a little more brisk and lively, than *allegro* alone requires.

ALLELENGYON, in *Antiquity*, a kind of tax, or tribute, which the rich paid for the poor, when absent in the armies.

ALLELOPHAGI, from *αλληλας*, one another, and *φαγω*, I eat, in *Natural History*, a term used by Mouffet, and other writers on insects, to express a peculiar genus of flies, which feed on one another. They are thus called in distinction from another class, called the *heterophagi*, from their feeding on different substances, not on one another.

ALLELUJA, in *Botany*, a name used by many for the common wood-sorrel.

ALLELUJAH. See **HALLELUJAH**.

ALLEMAND, **ALMAIN**, a kind of grave, solemn music, originally invented by the Germans, where the measure is good, and the movement slow.

ALLEMANNIC, in a general sense, something relating to the ancient Germans. The word is also written *Alamannic*, *Alemannic*, and *Alemanic*. It is formed from *Alemanni*, *Allemanni*, or *Alamanni*; the name whereby the German nation was anciently known.

In this sense we meet with *Allemannic* history, *Allemannic* language, *Allemannic* laws, &c. Goldastus, and others, have published collections of writers on *Allemannic* affairs: *Allemanicarum rerum scriptores*.

Allemannic language was spoken throughout the southern parts of Germany. It is divided into several dialects; the principal of which are the Suevic, and Helvetic.

The *Allemanic* differed from the Francic, which was the language in use through the northern parts of Germany; the chief dialects of this are the Palatine, Franconian, and Saxon.

ALLEMANNIC law, *jus Allemannicum*, is the same with what is otherwise called the Suevic law, being that which obtained in the more southern parts of the country, as the Saxon law did throughout the northern.

Schilter has published the provincial *Allemannic law*, and also the code of the feudal *Allemannic law*.

ALLER, *good*, in our *Ancient Writers*. The word *aller* serves to make the expression of superlative signification. So, *aller good*, is the greatest good. Sometimes it is written *alder*.

ALLERION, or **ALERION**, in *Heraldry*, a sort of eaglet, represented without either beak, or feet.

The name is French; and is said to have been introduced for the word *eaglet*: it is added, that the practice of calling

calling eaglets, *allerions*, and of representing them spread, without feet and beaks, is not above a hundred years old, and is of French invention; introduced to represent the Imperialists as subdued. Hence, Menage derives the word from *aquilaris*, a diminutive of *aquila*.

The *allerion*, represented *Tab. Heraldry fig. 1.* appears much the same with the *martlet*, except that the wings of the latter are close, and it is represented, as it were, *passant*; whereas the *allerion* is spread, and is represented in *pale*. Add, that among our heralds, the *martlet* has a beak, which the *allerion* wants.

ALLEU, or ALLODE, in our *Ancient Customs*. See ALLODIUM.

ALLEVEURE, the smallest copper coin that is struck in Sweden; it is not worth quite two *deniers Tournois* of France.

ALLEVIARE, in *Old Records*, to LEVY or pay an accustomed fine or composition.

ALLEVIATION, denotes the art of making a thing lighter, and easier to bear or endure.

The word is originally Latin, compounded of *ad*, to; and *levis*, light.

In which sense, *alleviation* is synonymous with *lightening*, and stands opposed to *aggravation*.

ALLEY, in *Gardening*, a straight parallel walk, bordered, or bounded on each hand with trees, shrubs, or the like.

The word *alley* is derived from *aller*, to go; the ordinary use of an *alley* being for a walk, passage, or thoroughfare, from one place to another.

Alleys are usually laid either with grass or gravel.

According to lord Bacon, 'where *alleys* are close gravelled, the earth putteth forth the first year knot grass, and after spire-grass. The cause is, that the hard gravel, or pebble, at the first laying, will not suffer the grass to come forth upright, but turneth it to find way where it can; but after that the earth is somewhat loosened at the top, the ordinary grass cometh up.'

An *alley* is distinguished from a *path* in this, that in an *alley* there must be always room enough for two persons, at least, to walk a breast; so that it must never be less than five feet in breadth; and there are some who hold, that it ought never to have more than fifteen.

ALLEYS, *counter*, are the little *alleys* by the sides of the great ones.

ALLEY, *front*, is that which runs straight in the face of a building.

ALLEY, *transverse*, that which cuts the former at right angles.

ALLEY, *diagonal*, is that which cuts a square, thicket, parterre, &c. from angle to angle.

ALLEY, *sloping*, is that which, either by reason of the lowness of the point of sight, or of the ground, is neither parallel to the front, nor to the transverse *alleys*.

ALLEY, in the *New Husbandry*, implies the vacant space between the outermost row of corn on one bed, and the nearest row to it on the next parallel bed; and it is usually about four feet in breadth, exclusive of the partitions between the rows of corn in the beds. The first hoeing of wheat is performed in the beginning of winter, and the earth is ploughed away from the rows into the intervals, which forms small ridges in the middle between the double rows. The second hoeing is in the spring, which turns it back to the rows, leaving a furrow in the middle of the *alley*. The third hoeing is from the rows, after the wheat has blossomed; this turns the earth into the intervals, forming small ridges there, as at the first hoeing. The fourth hoeing returns the earth to the ridges, which is performed a month or more after the third hoeing. This commonly finishes the horse-hoeings, if the land is in good heart; otherwise one or two more hoeings are necessary.

ALLEY, in *ziczac*, is that which has too great a descent, and which, on that account, is liable to be damaged by floods; to prevent the ill effect whereof, it has platbands of turf run across it from space to space, which help to keep up the gravel.

This last name is likewise given to an *alley* in a labyrinth, or wilderness, formed by several returns of angles, in order to render it the more solitary and obscure, and to hide its exit.

ALLEY, in *Perspective*, is that which is larger at the entrance than at the exit; to give it the greater appearance of length.

ALLEY of *compartment* is that which separates the squares of a *parterre*.

ALL-GOOD, in *Botany*, *chenopodium*. See GOOSE-FOOT.

ALL-HEAL, *Hercule's*, in *Botany*, a name given to WOUNDWORT.

ALL-HEAL, *clowns*, *flachys*. See HOREHOUND.

ALLIANCE, the union or connection of two persons, or two families, by means of marriage; otherwise called AFFINITY.

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The word seems formed of the Latin *adligatio*, q. d. a tying together.

The law of the *Twelve Tables* forbids all *alliance* between persons of unequal rank and condition. And in Portugal, we are told, the daughters of the nobility are prohibited to *ally* with such as have never been in the wars.

ALLIANCE is also extended to the leagues or treaties concluded between sovereign princes, and states, for their mutual safety and defence; in which sense they are the same with what we otherwise call *confederacy*, *league*, &c. *Alliances* make a species of treaties; which are usually divided into treaties of peace, of commerce, and of *alliance*, properly so called. These are sometimes particularly denominated foreign *alliances*.

Alliances are variously distinguished, according to their object, the parties in them, &c. Hence we read of equal, unequal, triple, quadruple, grand, offensive, defensive, &c. *alliances*.

ALLIANCES, *unequal*, *foedera inequalia*, are those wherein one of the contracting powers promises patronage, or protection, and the other fidelity and observance; by which they stand contradistinguished from equal *alliances*, wherein the several powers treat on a par.

ALLIANCE, *offensive*, that whereby the parties oblige themselves jointly to attack some other power. This stands contradistinguished from defensive *alliances*.

The *triple alliance*, between England, Holland, and Sweden, is famous. So is the *quadruple alliance*, between England, Holland, the emperor, and the king of France. Though the title of *allies*, *foeci*, of the Romans, was a sort of servitude, it was much coveted. Ariarathes, we are told by Polybius, offered a sacrifice to the gods by way of thanksgiving for having obtained this *alliance*. The reason was, that thenceforwards people were sure not to receive any injuries except from them.

There were divers sorts of *allies*: some only united to them, by a participation of the privileges of Romans, as the Latini and Hernici; others by their very foundation, as the colonies; others by the benefactions they received from them, as Massinissa, Eumenes, and Attalus, who owed their kingdoms to Rome; others by three treaties, which last, by a long *alliance*, became subjects, as the kings of Bithynia, Cappadocia, Egypt, and most of the cities of Greece: lastly, others by compulsive treaties, and the law of subjection, as Philip and Antiochus. For they never granted peace to an enemy, without making an *alliance* with him; that is, they never subdued any people without using it as a means of subduing others.

The forms or ceremonies of *alliances* have been various in different ages and countries. Among us, signing and swearing, sometimes at the altar, are the chief: anciently eating and drinking together, chiefly offering sacrifices together, were the customary rites of ratifying an *alliance*. Among the Jews and Chaldeans, heifers or calves; among the Greeks, bulls or goats; and among the Romans, hogs were sacrificed on this occasion. Among the ancient Arabs, *alliances* were confirmed by drawing blood out of the palms of the hands of the two contracting princes with a sharp stone, dipping herein a piece of their garments, and therewith smearing seven stones, at the same time invoking the gods Vrotalt and Alilat, i. e. according to Herodotus, Bacchus, and Urania. Among the people of Colchis, the confirmation of *alliances* is said to be effected by one of the princes offering his wife's breasts to the other to suck, which he was obliged to do till blood issued.

It has been disputed, whether the states of the empire have a right of making *alliances*, without the emperor's participation. And whether the king of England be vested with absolute power of making *alliances* at discretion, without consent of parliament. Dr. Davenant asserts the negative. According to him, the contrary opinion owes its rise to the mere flattery of modern courtiers, having no foundation in the ancient laws and constitution of the kingdom. King John and Richard II. were, according to this author, the first that attempted any thing like it. It is certain there occur numerous instances in history, where the king has asked, or the parliament have offered, their advice, concerning the *alliances* to be made; but there are many others, at least of later times, wherein no footsteps of any such consultation appear.

There are instances likewise where the parliament have declined giving any advice concerning such arduous matters.

ALLIARIA, in *Botany*. See Dame's VIOLET.

ALLIGATION, in *Arithmetic*, a rule or operation, whereby questions are resolved, relating to the mixture of divers commodities or ingredients together, with the value, effect, &c. thereof in composition.

The word is formed of *alligare*, to tie together, by reason, perhaps,

perhaps, of a sort of *vincula*, or circular ligatures, ordinarily used to connect the several numbers together.

Alligation is of two kinds, *medial* and *alternate*.

ALLIGATION medialis, when, from the several quantities and rates of divers simples given, we discover the mean rate of a mixture compounded out of them. The several cases will come under the following rules.

1. The quantity of the ingredients, and the prices of each, being given; to find the price or value of some part of the mixture.

Rule. As the sum of the quantities given, Is to the sum of the said products; So is one ounce of the mixture, To its value.

Example. A refiner, or goldsmith, hath 12 $\frac{3}{4}$ of gold at 4*l.* per $\frac{3}{4}$, 8 $\frac{3}{4}$ at 4*l.* 5*s.* 3 $\frac{3}{4}$ at 4*l.* 6*s.* 8*d.* and 9 $\frac{3}{4}$ at 4*l.* 13*s.* 4*d.* per $\frac{3}{4}$; what is an ounce worth of all these melted together.

	<i>l.</i>	<i>s.</i>	<i>d.</i>	
12 \times by	4	0	0	the product is 48
8 by	4	5	0	34
3 by	4	6	8	13
9 by	4	13	4	42
32 total				137 sum.

Then as 32 $\frac{3}{4}$: 137 *l.* :: 1 $\frac{3}{4}$: 4*l.* 5*s.* 7*d.* $\frac{1}{2}$. By the same rule the value of any other quantity of that composition is to be found: as supposing 7 $\frac{3}{4}$.

For as 32 : 137 :: 7 : 29 $\frac{1}{2}$.

2. The prices of the several ingredients, and the sum paid or received for the mixture, being given; to find what quantity of each was bought or sold. Divide the sum paid or received, by the sum of the particular prices; the quotient is the answer.

3. The ingredients of a mixture being given, to augment or diminish the mixture proportionally.

Rule. As the sum of the particular quantities of the compound given, Is to the whole quantity proposed to be augmented or lessened;

So is each particular quantity in the given compound, To the due proportion required of that specie, fineness, &c.

Example. The compound in the foregoing instance is required to be augmented to 48 $\frac{3}{4}$: that is, 16 is to be added to 32, how much of each ingredient must be taken?

12	12 : 6 $\frac{3}{4}$
8	8 : 4
3	3 : 1 $\frac{1}{2}$
9	9 : 4 $\frac{1}{2}$
32 sum.	16 sum.

So that there must be 18 $\frac{3}{4}$ of gold at 4 0 0 per $\frac{3}{4}$

	<i>l.</i>	<i>s.</i>	<i>d.</i>
12	4	5	0
4 $\frac{1}{2}$	4	6	8
13 $\frac{1}{2}$	4	13	4

Sum = 48 for proof of the operation.

4. The nature, quality, &c. of the several ingredients of a mixture being given, to find the temperament or degree of fineness resulting from the whole. Place the several quantities of the mixtures in rows; against which place orderly their several qualities or fineness; and multiply each quantity by its own quality or degree of fineness: then, as the sum of the quantities is to their products, so is unity to the quality or fineness of the mixture.

5. The quantities of a mixture being given; to find the particular quantities of any ingredient in any part of the mixture.

Rule. As the total of the composition, Is to the quantity of any simple in that composition, So is the total quantity proposed, to be proportionably compounded, To the quantity of each simple to be in that proposed quantity.

Example. How much of each ingredient (or price of gold mentioned in the first case) is in a pound, or 12 $\frac{3}{4}$ of the 32, being the compound given?

	<i>l.</i>	<i>s.</i>	<i>d.</i>
12 $\frac{3}{4}$: 4 $\frac{1}{2}$ at 4 0 0 per $\frac{3}{4}$.			
8 : 3 at 4 5 0			
3 : 1 $\frac{1}{2}$ at 4 6 8			
9 : 3 $\frac{3}{4}$ at 4 13 4			
12 proof.			

6. Given the total of a mixture, with the whole value, and the values of the several ingredients; to find the several quantities mixed, though unequally.

This case admits of two varieties; first, where the mixture is of two simples; and secondly, when it consists of more than of two. For the first, the rule is—Multiply the total of the mixture by the least value, subtract

the product from the total value; and the remainder is the first dividend; then take the said least value from the greatest valued ingredient, and the remainder is the first divisor. The quotient of this division shews the quantity of the highest-priced ingredient, and the other is the complement to the whole.

Thus, still referring to the first example, and assuming the two first terms of it:

Gold at 4*l.* per $\frac{3}{4}$

Ditto at 4*l.* 5*s.*

Total of the composition = 20 $\frac{3}{4}$. Total value 82*l.*

$\times \frac{4}{80}$

—80

\div by $\frac{1}{4}$ (8 the quantity of the highest-priced ingredient.

Secondly, when the quantities are more than two in number.

These kinds of questions, as in those of *alligation alternate*, admit of various answers, all of them true, and are called **INDETERMINATE problems**. They are best done by parcel, two at a time, as in the preceding operation.

ALLIGATION alternate is, when the rates or qualities of divers simples are given; and the quantity of each is required, necessary to make a mixture of the given rate or quality.

Alligation alternate shews the due proportion of several ingredients; and counterchanges the place of such excesses or differences as arise between the mean price and the extremes; ascribing that to the greater extreme which proceeds from the lesser: and contrarily.

The rules which obtain in *alligation alternate* are as follow: every greater extreme is to be linked with one lesser. If either of the extremes be single, and the other extremes plural, the single extreme is to be linked to all the rest.

If both greater and lesser extremes be not plural, they may be linked so diversly, that several differences may be taken and a variety of answers may be made to the question, yet all true; but if one of the extremes be single, there can be but one answer.

The numbers being linked, take the difference of each from the mean or common price; and place this difference against the number it is linked to, alternately.

Every number, linked with more than one, must have all the differences of the numbers it is linked to, set against it.

These differences resolve the question, when the price of every one of the ingredients is given without their quantities: and the demand is, to mix them so as to sell a certain quantity at a mean rate.

But when the quantity of one, with the price of all the ingredients, is given, and the demand is to know the quantities of the other ingredients; then, the rule of three is to be used.

And when the price of every ingredient is given, without any of their quantities, and the demand is to make up a certain quantity to be sold at a mean rate; then all the differences added together will be the first number in the rule of three; the whole quantity to be mixed, the second number; and each difference apart, the several third numbers; and so many sorts mixed, so many operations of the rule of three.

We shall add an example, wherein both the kinds of *alligation* have place. Suppose a mixture of wine of 119 quarts, required to be made of wines of the following prices, 7*d.* 8*d.* 14*d.* and 15*d.* per quart; and so, as that the whole may be afforded at 12*d.* per quart.

Having linked 8 to 14, and 7 to 15, and counterchanged their differences from the common price, 12*d.* the sum of their difference is found to be 14; by which dividing 119, the quotient is 8 $\frac{7}{4}$, or 8 $\frac{1}{2}$, or for convenience in operation 1 $\frac{7}{2}$.

	Quarts.
8 { 2	1 $\frac{7}{2} \times 2 = 3 \frac{4}{2} = 17$
14 { 4	1 $\frac{7}{2} \times 4 = 6 \frac{8}{2} = 34$
7 { 3	1 $\frac{7}{2} \times 3 = 5 \frac{1}{2} = 25 \frac{1}{2}$
15 { 5	1 $\frac{7}{2} \times 5 = 8 \frac{5}{2} = 42 \frac{1}{2}$
14	119

Those who are curious to have a fuller explanation of this rule, may consult Ward, Wallis, Jaquet, Malcolm, and other books of *arithmetic*.

ALLIGATI, in *Antiquity*, the basest and worst kind of slaves, whom they kept locked up, or with fetters on.

The Romans had three degrees, or orders of slaves, or servants; the first employed in the management of their estates, the second in menial or lower functions of the family, the third called *alligati* above mentioned.

ALLIGATOR, in *Zoology*, a name given to the smaller kind of **CROCODILE** in the West Indies.

An *alligator* smells so strong of musk, as to affect the water and air at a considerable distance.

ALLIGATOR Pear, a species of **PEAR**.

ALLIONIA,

ALLIONIA, in *Botany*, a genus of the *tetrandria monogynia* class: having the common calyx oblong, simple, and three-flowered; the proper calyx obsolete; the corolla irregular, and the receptacle naked. There are two species.

ALLIOTH, in *Astronomy*, a star in the tail of the Great Bear, whose observation is much used at sea.

It is also written *alliot*, and *alist*, and literally denotes a horse. The Arabs give this name to each of the three stars in the tail of the Great Bear, on account of their appearing like three horses, ranged for the drawing of a waggon. See *URSA major*.

To find the latitude or elevation of the pole, by this star, see *LATITUDE* and *POLE*.

ALLIOTICUM (from *αλλιω*, to vary), a Galenical medicine, which alters and purifies the blood, consisting chiefly of the roots of dandelion, succory, fennel, and raisins; with the herbs endive, common ox-eye, lettuce, sorrel, fumitory, &c.

ALLIUM, *garlick*, a genus of the *hexandria monogynia* class. See *GARLICK*.

ALLOCATION, *ALLOCATIO*, the admitting or allowing of an article in an *ACCOUNT*; and passing it as such.

ALLOCATION is also an allowance made upon an account; used in the *exchequer*.

ALLOCATIONE faciendā, a writ directed to the lord-treasurer, and barons of the exchequer, upon the complaint of some accountant; commanding him to allow him such sums as he hath in execution of his office lawfully expended. Reg. Orig. p. 206.

ALLOCATO comitatu, is a new writ of exigent allowed, before any other county-court holden, when the former has not been fully served, or complied with, &c. Fitz. Exig. 14.

ALLODIAL, in *Ancient Customs*. See *ALLODIUM*.

ALLODIARIUS, the owner or proprietor of an *allodium*, or *allodial* lands: also used to denote a lord paramount of a manor.

This is otherwise written *alodiarus*, *alodarius*, *aloarius*, *aloer*, *alserius*, and *aleutier*.

ALLODIUM, or *ALLEUD*, land held of a man's own right, without acknowledgment of service, or payment of any new rent to another; and this is a property in the highest degree; but *feudum* is such land as is held of another for which service is done, or rent is paid, as an acknowledgment thereof. All the lands in England, except the crown-lands in the king's own hands, in right of his crown, are of the nature of *FEUDUM*, or *FEE*; for although many have lands by descent from their ancestors, and others have bought land, it cannot come to any either by descent or purchase, but with the burden that was laid upon him who had *novel-fee*, or first of all received it from his lord; so that there is no person hath *directum dominium*, i. e. the very property or demesne in any land, but the king, in right of his crown.

The origin of the word is controverted. Casseneuve says it is almost as obscure as the head of the Nile. There are few of the European languages, from which one etymologist or other has not derived it; yet some, not improbably, take it for a primitive French word without etymon.

Bollandus explains *allodium*, to be *prædium*, seu *quævis possessio libera, jurisque proprii, & non in feudam clientelari onere accepta*.

After the conquest of the Gauls, the lands were divided in two ways; viz. into benefices, *beneficia*; and *allodia*. Benefices consisted in lands given by the king to his officers and soldiers; either for life, or for a time fixed.

Allodia, or *alleuds*, were such lands as were left in property to the ancient possessors.—The sixty-second title of the Salic law, is *de allodiis*; where the word signifies hereditary lands, or those derived from a man's ancestors. Whence *allodium* and *patrimonium* are frequently used indiscriminately.

In the ancient capitulars of Charlemagne, and his successors, we find *allodium* constantly opposed to *fee*; but, toward the period of the second race of kings, it lost the prerogative; the feudal lords obliging the proprietors of *allodial* lands to hold of them for the future. The same change also happened in Germany, &c.

The usurpation of the feudal lords over the *allodial* lands went so far, that they were almost all either subjected to them, or converted into fees; whence the maxim *nulla terra sine domino*, no land without a lord.

In the customary laws of France, we find mention made of two kinds of *allodiums*, viz.

ALLODIUM nobile, *aleu nobile*, that to which *justitia* or jurisdiction was annexed; and which was also free from all homage and service.

ALLODIUM villanum, *aleu raturier*, that to which no jurisdiction was annexed.

ALLOGIA, in *Antiquity*, denote winter-quarters appointed for the soldiery.

Some will have the word of French origin from *logement*; others, with more probability, from the Italian *alloggio*, formed of *locus*, place.

ALLOM. See *ALLUM*.

ALLONGE, in *Fencing*, a thrust, or pass at the enemy.

The word is French, formed of the verb *allonger*, to lengthen out a thing.

ALLOPHYLUS, in *Botany*, a genus of the *ostandria monogynia* class, the calyx of which is a perianthium composed of four leaves of an orbicular figure, and two opposite ones, smaller than the others; the corolla consists of four petals less than the cup; the germen is didymous, and the stigma divided into four parts. There is one species.

ALL SEED. See *FLAX*.

ALL-SPICE. See *PIMENTO*.

ALLOTTING, or *ALLOTMENT* of goods, in matters of Commerce, is when a ship's cargo is divided into several parts, bought by divers persons, whose names are written on as many pieces of paper, which are applied by an indifferent person to the several lots or parcels; by which means the goods are divided without partiality; every man having the parcel which the lot with his name on is appropriated to. See *INCH of Candle*.

ALLOY, or *ALLAY*, in matters of Coinage, &c. a proportion of a baser metal, mingled with a finer, or purer. The word seems derived from the French *loy*, law; in regard the alloy is fixed by law.

Minters never strike any gold or silver coin without alloy, always mixing some copper with those two metals, according to a certain proportion, settled by the rules of the MINT; which in France cannot be altered but by the king's edicts, proclamations or ordinances.

Brass coin is made of an alloy of copper, mixed with a few parts of fine silver, regulated also by the prince. The jewellers, gold-wire drawers, gold-beaters, and gold and silversmiths, are obliged to use alloy in the gold and silver they work, but it ought to be less than that of coin, to prevent their melting it in order to use it in their works; called by the French *billonage*, which is an unlawful melting of gold or silver coin. The brass-founders also have their alloy of copper, pewter, and tin. This alloy differs according to what they design to cast, whether statues, guns, or bells. The pewterers in making their several vessels, dishes, plates, &c. also make use of an alloy of red copper, *regulus* of antimony, and some other minerals.

There are several kinds of alloy; such as *BRONZE*, *TOMBAC*, *BRASS*, *WHITE COPPER*, &c.

Metallic substances cannot unite directly with earthy matters, not even with their own earths when deprived of their inflammable principle, and consequently of their metallic properties. But in general it may be said, that all metals may be alloyed with each other, although more or less easily, and although some of them have not yet been made to unite. As metals are bodies naturally solid, the first condition for their union is that they be fused; they then unite like all bodies that reciprocally dissolve each other; and from these combinations new compounds result, which have the mixed properties of the component substances.

In metallic alloys, as in almost all other metallic combinations, phenomena appear which depart from the general rules of combination; and some of the properties of metals forming an alloy are altered, increased or diminished by their union. The ductility, for instance, of a metallic composition is generally less than the ductility of the component metals alone and pure. The density or specific gravity of metals and semi-metals, is also changed by alloying them with each other. Sometimes the specific gravity of the compound is intermediate betwixt the specific gravity of the component metals; sometimes it is less, and frequently greater; this depends upon the nature of the metal.

ALLOYS, metallic, are either *natural* or *artificial*.

ALLOYS, *natural*, are those made by nature, such as most minerals containing several metals, alloyed with each other. Native gold is always more or less alloyed with silver; and native silver with gold.

ALLOYS, *artificial*, are those made expressly for different uses, or for the sake of examining their properties.

There are two sorts of alloys practised in the coinage of money: the one when gold and silver are used which have not yet been coined; the other when several species of coin, or ingots of different fineness are melted together to coin new money. The proportion of the alloy with the finer metal is easy in the first case; since when once the fineness of the silver or gold is known by refining, it is only adding to it the alloy of copper required by law, to bring it to the legal standard.

In England the standard of gold coin is 22 carats of fine gold, and 2 carats of alloy, in the pound troy: the French, Spanish, and Flemish gold are nearly of the same fineness.

ness. The pound weight is cut into 44 pieces and $\frac{1}{2}$, each current for 21 shillings.

The standard of silver is 11 oz. 2 pennyweights troy of silver, and 18 pennyweights of alloy of copper. The alloy in gold coin is silver and copper, and in silver coin copper alone. Whether gold or silver be above or below standard, is to be found by ASSAY.

The chief reasons alledged for the alloying of coin are, 1. The mixture of the metals, which, when smelted from the mine, are not perfectly pure. 2. The saving of the expence it must otherwise cost if they were to be refined. 3. The necessity of rendering them harder, by mixing some parts of other metals with them, to prevent the diminution of weight by wearing, in passing from hand to hand. 4. The melting of foreign gold or coin which is alloyed. 5. The charges of coinage, which must be made good by the profit arising from the money coined. 6. And lastly, the duty belonging to the sovereign on account of the power he has to cause money to be coined in his dominions. See GOLD, SILVER, REFINING, and ASSAYS. See a particular account of the alloy of gold, its usefulness, and its proportion in different coins, in Dr. Lewis's *Commerc. P. Techn.* p. 144. & seq.

According to the different proportions of alloy, money is of different degrees of fineness or baseness; and is valued accordingly in foreign exchanges.

The silver coin among the Romans was long kept to a great degree of purity; which was first broke in upon by the tribune Livius Drusus, who mixed with it an eighth part of copper. But the acts of his tribunate were afterwards annulled, and the money restored to its ancient fineness. Thus things remained till the time of the emperor Severus, who increased the alloy still more; yet on his medals he took the title of *restitutor monetæ*.

ALLUM, ALLOM, or ALUM, a kind of mineral salt, of an austere taste, leaving in the mouth a sense of sweetness, accompanied with a considerable degree of astringency.

The word *allum* comes from *ἀλς*, salt; or perhaps from the Latin *lumen*, light; because it gives lustre to colours.

ALLUM is a crystalizable salt, composed of vitriolic acid, united with an argillaceous earth. It dissolves sufficiently well in cold, but in much larger quantity in boiling water. Neumann says, that *allum* requires ten times, and other authors say that it requires fourteen times its weight of water to dissolve it. It retains half its weight of water in crystallizing; of which crystallization it is susceptible by the evaporation and cooling of the water in which it is dissolved. The figure of its crystals, like that of the crystals of other salts, varies according to the circumstances concurring during the crystallization.

In Italy this salt is obtained from a soft reddish stone, about Puteoli, from several kinds of earth; and in England from a whitish or bluish stone, called Irish slate.

ALLUM, its generation and nature.

As *vitriol* is produced from a sulphureous mineral, either simple or compound, that is, of iron and copper, so *allum*, which is, as it were, a kind of white *vitriol*, is also generated of a kind of sulphureous minerals, partly bituminous, partly luteous. Therefore the acid which is extracted from *allum*, called *spirit of allum*, seems to be of the same nature and properties with what is afforded by *vitriol*, whatever difference there is in the earths or receptacles in which both these kinds of salts are coagulated. For the *caput mortuum* of *vitriol* is of a metalline, that is to say, of an iron or copper-like quality; but the earth of *allum* seems to be a peculiar kind of BOLE, very spongy and subtle.

Chemists are generally agreed in opinion, that the acid of *allum* is the pure vitriolic; but the precise nature of its earthy base has been a subject of dispute. For a long time it was considered as a calcareous earth; but the late experiments of Pott, Margraaf and Baron, have shewn that calcareous earths, united with vitriolic acid, form selenites, and not *allum*; and that these and the earth of *allum* have no common distinguishing properties. M. Baron therefore conjectures, that the earth of *allum* is of a metallic nature. Others, on the contrary, as M. Geoffroy, Hellot, and Macquer have urged experiments to prove, that the earth of *allum* is contained in clays. M. Macquer, in particular, in a Memoir read to the Academy of Sciences at Paris in 1762, expresses his full conviction that the earth of *allum* has an entire and perfect resemblance to the purest clay; and he recites a variety of experiments and observations in support of this opinion.

Though *vitriol* and *allum* be produced, as it were, from the same matter, and from one sulphureous matrix; yet each of them is endued with peculiar properties and

virtues. For *allum* and *vitriol* are very different in taste, and the common *vitriol* leaves no such astringency on the palate as is observed in *allum*. Again, a solution of *allum* makes no commotion nor precipitation in a solution of gold or silver, which a solution of *vitriol* is known to effect. Nor will a decoction of galls, or pomegranate flowers grow black, and be converted to ink, by the mixture and solution of *allum*, as with a solution of *vitriol*. Lastly, in *allum* the acid may be readily separated by the help of fire, from its earthy principle, in which it is inherent; but the case is otherwise with *vitriol*.

Allum and *sulphur* are both formed from the same saline spirit, which, if it meets with a stony substance, forms *allum*; if with a bituminous one, *sulphur*.

Allum may easily be decomposed by various intermediate substances, saline alkalies, calcareous earths, iron, and any matter containing *phlogiston*, treated properly, &c. It is formed on the universal acid, or fluid salt combining with a chalky earth.—The same acid with a mercurial earth forms common sea SALT, and with a moist rocky, or clay earth, SAL *gemma*.

This system is confirmed, by what naturalists have observed concerning the origin of the native *allum* in the isle of Chio. That island is a hollow spongy rock, penetrated on all parts by the sea-water. M. Tournefort considers the whole as a natural laboratory, wherein the sea-water undergoes much the same action in it as in our retorts. By this means, an acid spirit is separated from it, which penetrating the substance of the rocks, dissolves and incorporates with them, and forms mines of *allum*. This seems hardly to be doubted, inasmuch as by pouring spirit of salt on common stones, or chalk, aluminous concretions are readily formed. The same spirit mixing with a BITUMEN under-ground, forms SULPHUR.

Some attribute the original of *allum* chiefly to a sulphureous principle acting on, corroding of, and coagulating with a mineral substance, usually of a terrene and stony, rather than metallic nature, though that metal be often contained in the *allum* stone. That the sulphur is the chief efficient and material cause of this production, seems to appear hence, that many *allum* stones distilled *per descensum*, yield good brimstone, and all *allum* stones, during calcination, emit a sulphureous steam. An inquisitive naturalist gathered from the very same rock, and that within a few inches of each other, *vitriol*, *allum*, and *sulphur*, all of them excellent in their kinds. Indeed those three minerals are so nearly allied, that an ingenious chemist assures us, he can by some artifices convert *allum* into *vitriol*, or *vitriol* into *allum*, the same to all intents and purposes, with the natural. Phil. Trans. N^o 104.

Allum is ranked by Homberg, and others as an urinous neutral salt, on account of the urinous smell it exhales by burning, and its use in the volatilization of fixed salts. Yet some deny *allum* to belong to the class of salts, and rank it rather among stony substances; by reason that after dissolving *allum*, and precipitating the solution with oil of tartar *per deliquium*, the coagulation at the bottom resembles a stony calx, and being exposed to the fire, will neither melt nor sublime. The ore of *allum*, if mature, yields its salts immediately, and without trouble; but if less mature, it requires a previous calcination, as is the case in many of our English *allum* stones; and if very crude or immature, it must not only be burnt, but a long time exposed to the air before it will yield its salt. From this it appears, that the *allum* is not a genuine and native salt, but is composed by the acid of sulphur corroding some peculiar earth or stone, as *vitriol* is by its corroding some metal; and that, in both these operations, this corroding acid can sometimes perform its business, while it lies in the bowels of the earth; and sometimes, while it lies in the open air, though it failed of it when buried. Phil. Trans. N^o 104.

Allum distilled into an acid spirit, with copper, or iron, becomes good *vitriol*; and *vitriol* freed from its metallic parts becomes aluminous; and being distilled, yields a spirit not to be distinguished by the taste from that of *allum*, and even scarce by the most accurate scrutiny.

Rectified oil of *vitriol*, or spirit of *sulphur*, of the same degree of strength, will sometimes concrete into a solid and transparent substance, resembling crystallized *allum*; and this substance is no way different, whether prepared by one or other of these ways, and in both resembles the purest *allum*, so as not to be distinguishable from it unless by tasting it. *Aqua fortis* is as well made with *allum* as with *vitriol* and nitre.

Allum ores generally contain *vitriol* as well as *allum*, and are capable of great fermentation, when exposed to the air, though they would never have been subject to it while buried in the earth. They will become so hot in the heap,

heap, that it is scarce possible to endure the hand upon them; and sometimes will break out into absolute flame. The acid and the sulphur they contain are the occasion of this, as, according to Simpson and some others, they are the cause of all subterranean fermentations and heats; and the whole is not badly explained by the familiar instance of adding water to rectified oil of vitriol. The acid and the sulphur of that fluid are, as in these ores, so combined as not to exert their forces naturally against one another, but all is quiet as in these stones while under ground, but the water does to the one what the air does to the other; sends in a third, which not agreeing with either of the others, disturbs and sets their particles in motion, and the vessel containing the liquid becomes as hot to the touch in the one case, as the solids themselves are in the other.

Allum dissolves in water; what remains undissolved at bottom is a sort of *calx*, which soon dissolves in oil, or in spirit of vitriol; and hence arises some doubt whether *allum*, as it does not leave an earth behind, does properly belong to the class of salts. Mr. Boyle assures us that *allum-ore*, robbed of its salt, does, in tract of time, recover it again from the air.

ALLUM, the process of making it.

The process of making *allum* at Whitby in Yorkshire is thus described by Mr. Ray, at the end of his collection of English words, not generally used. They take the mine or ore picked from the delf or rock, and laying it in great heaps, burn it with whins, or wood, till it be white. When it is sufficiently burnt, they barrow it into a pit, ten feet long, six broad, and seven fourths of a yard deep, where it is steeped in water during the space of eight or ten hours; then they draw out the liquor, which is only a lixivium impregnated with the *alum* mine, into troughs, by which it is conveyed to the *allum* house, into a deep cistern, about twenty yards in circumference, and three yards and a half deep. After the first water is drawn off the mine into the pits, they do not presently cast away the mine, but pour fresh water on it a second time; and after the second water is drawn off, which is much weaker than the first, they cast out the mine, and put in new, and pour on fresh water as before. Out of the cistern they convey the lixivium by troughs into the pans, where it is boiled for the space of twenty four hours ordinarily. Then they take the liquor out of the pans, and examine it by weight, to know how much ley made of kelp, it will require, which for the most part is six inches of the pan's depth. This being put in, as soon as the liquor boils, or flows up, by the putting in of an iron coal-rake, or other iron instrument, they draw it off into a settler, and let it stand about an hour, that the sulphur and other dregs may settle to the bottom; which being done, it is drawn off into coolers, where it continues about four days and nights. The cooler being drawn about half full, they pour into it a quantity of urine, viz. about eight gallons into a cooler that contains about two half tuns. Having thus stood about four days and nights, it is quite cool, and the *allum* crystallized to the sides of the cooler. Then they scoop out the liquor, which they call the mother, into a cistern, and put it into the pans again, with new lixivium, to be evaporated by boiling, &c. The *allum* that is shotten and crystallized on the sides of the cooler they scrape off, and wash with fair spring water, then throw it into a bing, where the water drains from it. Thence it is cast into a pan, called the *re-ching* pan, and there melted; after which it is scooped out, and conveyed by troughs into tuns, in which it stands about ten days, till it be perfectly cool and condensed; then they unloop and stave the tuns, and taking out the *allum*, chip it, and carry it into the store-house. The exact proportion of kelp does not appear in this process; for though the workmen told Mr. Ray, that the ley was six inches of the pan's depth, yet they did not tell him how deep the pans were. Phil. Trans. N° 142.

See DOGGERS.

At Solfatara, near Puzzuoli, there is a considerable oval plain, the soil whereof is wholly saline; and so hot, that the hand cannot long endure it.—From the surface hereof, in summer time, there arises a sort of flour, or saltish dust; which being swept up, and cast into pits of water at the bottom of the plain, the heat of the ground, i. e. of certain subterraneous spiracles, over which the coppers are placed, without any other fire, evaporates the water, and leaves an *alum* behind.

Allum is made at Cypsella, in Thrace, by gently calcining the stone, and letting it dissolve afterwards in the air by the dews and rains; then boiling and crystallizing the impregnated waters.

ALLUM, its properties and uses.

Allum is of some use in medicine, in quality of an astringent; but, being apt to excite vomiting, is not much used inwardly, and rarely without some smooth aromatic, as a corrector. It is proper for diseases where the

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principal ingredients are to fortify and constringe. It is said to be good in hæmorrhages of all kinds, especially uterine hæmorrhages; whether to correct the frequent return of the *menfes*, or their too great abundance; to stop the flooding to which women with child are subject, or to moderate the flow of the too plentiful *lechia*. It is also said to be efficacious in the case of a *fluor albus*. *Allum* mixed with honey cures the *aphthæ*, and with the juice of knot-GRASS is good for *exanthemata* and rheums in the ears; with cabbage-leaves and boiled honey, it is effectual in the leprosy; and very good in warm water to make a fomentation for the itch, *paronychia*, *pterygia*, and kibes; to scour away all nits and lice, and to anoint scalds or burns. It is used outwardly also in astringent lotions, and is an ingredient in several dentifrices and cosmetics.

It is a principal ingredient in dying and colouring, neither of which can be well performed without it.—It serves to bind the colour upon the stuffs, and has the same uses there, that gum water and glutinous oil have in painting. It likewise disposes stuffs to take the colour, and adds a degree of brilliancy and delicacy to it; as we see visibly in cochineal, and the scarlet grain. Without *allum* these dyes would be only confused stains, which might be washed out by water.

This effect of *allum* seems also owing to its styptic or astringent quality, by which it binds the finer parts of colours together, and prevents their exhaling. Hence also it preserves paper that has been dipped in its water, from sinking when wrote upon.

Vintners fine down their wines, &c. with *allum*; fishermen use it to dry codfish with; and bakers have mixed it with the flour to make their bread compact and white; to this last use of it, great objections have been made, but unjustly, for it is entirely innocent, and now seldom used. It is recommended from ten to twenty grains, mixed with an equal proportion of sugar, gum arabic, or spermaceti, as a cure for colics. Dr. Percival adds, that in about fifteen cases, he has employed it with success. Percival's Essays, vol. ii. p. 194.

Naturalists speak of divers kinds of *allum*, which may be reduced to two, *native* and *artificial*.

ALLUMS, native, are those prepared and perfected under ground, by the spontaneous operations of nature, mixing the proper ingredients, water, earth, and salt, or sulphur. It is found in the coal mines near Whitehaven.

These are either *liquid*, or *solid* and *concrete*.

ALLUM, liquid, appears to be the primitive kind, as being that out of which the rest is formed.

It is not uncommon to find *liquid allum* in the places where subterraneous fires have raged. It is a milky thick liquor, and is found lodged in cavities of the strata of stone, when the sulphur and sal ammoniac have been sublimed away. The acid aluminous part of the matter will also escape with a great degree of heat, leaving in the place of the liquor only a dry styptic, and hard stony matter. The liquor itself is of a very styptic taste, and will yield one half its weight of pure crystalline *allum* on evaporation. Phil. Trans. N° 130.

ALLUM, solid or concrete, is divided into *scissile allum*, called by the Greeks *σχιστον*, as being soft and easily separable. This is said to bear a near resemblance to our *plumose allum*; only differing in this, that the former instead of whitish, is of a greenish hue. Some pretend to have done wonders with it against hæmorrhages, looseness of the teeth, the itch, *pterygium*, *pernas*, &c. In some of which its aluminous or astringent quality might be expected to do more harm than good.

ALLUM, round, alumen rotundum, called also *σπογγυλον*, is found ordinarily in roundish masses, though sometimes angular.

ALLUM, scissile, or fissile, is either composed of thin flakes, very friable to the fingers, or of *strice*, or whitish hairs; hence called *capillary*, usually *plumè allum*.

ALLUM, rock, or roche, is prepared from pyritous stones cut from the rocks of the quarry; and stands contradicting distinguished from the common *alum*, or that prepared from earths. It is sometimes called *ice-allum*. The method of making *allum* in Italy, is somewhat different from that described above.

It appears, that the names, *ice-allum*, and *rock-allum*, are synonymous, and confounded in commerce, because there is no difference in the price. There is this remarkable circumstance attends the crystallization of *allum*, that good crystals of this salt cannot be formed, unless an *alkaline lixivium* be added to the *lixivium* of *allum*, when set to crystallize.

Mr. Geoffroy had an exact information in Italy of the method of making *roche-allum* at Civita Vecchia. Near that city are quarries of a greyish or reddish stone, pretty hard, like the *travertin*. They calcine these stones in kilns, and then boil the *calx* in water over a strong fire. The water dissolves all the salt contained in the *calx*, and

there remains an insipid earth. The water thus impregnated is left to cool, and the salt shoots into crystals like tartar, about the sides and bottoms of the cask, which is a species of the *roche allum*, called *ROMAN allum*, the price of which is greater than that of common *rock allum*.

ALLUM, *saccharine*, bears a near resemblance to sugar.—It is a composition of common *allum* with rose-water and whites of eggs, boiled together to the consistence of a paste, and thus moulded at pleasure. As it cools, it grows hard as stone. It is used as a cosmetic.

ALLUM, *burnt*, *alumen ustum*, is prepared by melting the salt in a fire-shovel, or crucible, and letting it bubble till it come to a white hard substance. This is used as an escharotic; it gently eats proud flesh, but leaves such a hardness on the part, as makes it little esteemed in that intention.

ALLUM, *plume*, *alumen plumosum*, is a sort of saline mineral, of various colours, most commonly white bordering on green, resembling Venetian *TALC*, except that instead of scales, it rises in threads or fibres, resembling those of a feather; whence its name, from *pluma*, *feather*.

Some will have this to be the *lapis amianthus* of the ancients. It is chiefly found in the islands of Rhodes and Crete, where there are whole mountains of it. See *Phil. Trans.* vol. lxiv. art. 48. an. 1774, p. 489.

ALLUMEN *plumosum*, is also a name given by some chemists to a peculiar kind of sublimate of mercury, invented by Basil Valentine, whose name it also bears. It is a compound formed of arsenic, united with vitriolic acid.

ALLUMEN *scagliola*, or *scalola*, a squamose or flaky stone, the same with what is otherwise called *lapis SPECULARIS*.

Some take this for the same with what the ancients called *SCHISTON*.

ALLUMEN catini is a name which some have given to the ashes, or rather salt of the herb *kali*, used chiefly in the making of glass.

In this sense, *allumen catini* amounts to the same with what is more frequently called *ALKALI*.

ALLUMEN facis is made of the lees of wine, formed into round masses, dried by the sun, and then burnt or torried so long by the fire, as to turn white. Its chief use is among the women of Italy, to dye the hair of a yellow colour, much affected in that country.

ALLUM, *purified*, is that prepared by dissolving it in hot rain water, and evaporating it again, till it shoot into crystals.

By repeating this operation divers times, the sourness of the *allum* is much abated.

ALLUM, *crude*, is the salt, such as produced at the *allum*-works, without farther preparation. This stands contradistinguished from prepared *allum*.

It is used by some as a *nostrum* against the itch and swellings of the feet; but rather palliates than works a thorough cure.

ALLUM, *prepared*, is of divers kinds.—Under this class come *purified allum*, *saccharine allum*, *burnt allum*, *allum magisteries*, *tinctures* of *allum*, water, spirit, *dulcedo* of *allum*.

ALLUM, *Roman*, properly denotes a *rock allum*, of a red colour, prepared in the country near Rome.

In the genuine Roman *allum*, the red colour is not superficial but diffused through the whole substance of it; by which it may be distinguished from the spurious, or counterfeit kind, which is only the common English *allum* dyed red.

Allum mines are said to have been first found in Italy in the year 1460; and in 1506 king Henry VII. made a monopolizing grant of this commodity to Augustine Chigi, a merchant of Sienna. In the year 1608 the manufacture of *alum* was first invented, and successfully practised in England, meeting with great encouragement in Yorkshire, where it was first made, from lord Sheffield, and other gentlemen of that county. King James I. by advice of his ministry, assumed the monopoly of it to himself, and therefore prohibited the importation of foreign *allum*; and in 1625 the importation of it was farther prohibited by the proclamation of Charles I.

All the *allum* which is in commerce, is extracted by different operations from several *pyritous*, earthy, or stony matters, containing the vitriolic acid, and the earth proper for forming this salt. See *PYRITES*.

ALLUM WATER, see **ALLUMINOUS waters**.

ALLUM WORKS, places where *allum* is prepared, and manufactured in quantities for sale. They differ from *allum* mines, as in the former an *artificial ALLUM*, and in the latter *natural ALLUM*, is produced.

ALLUMINOR, from the French *allumer*, to *lighten*, is used for one who coloureth or painteth upon paper, or parchment; and the reason is, because he gives light and

ornament by his colours to the letters, or other figures. Such ornaments are styled illuminations. The word is used in stat. 1. R. III. cap. 9. But now such a person is called a *limner*.

ALLUMINOUS, any thing that contains *allum*, or partakes of the nature and qualities of that *SALT*, Grew describes some extraordinary kinds of *alluminous* earths in the repository of the Royal Society.

ALLUMINOUS waters are those impregnated with the particles of that salt.

Alluminous waters make a species of those called mineral or medicinal waters.

Such is the Spa at Scarborough observed to be by Witty, Simpson, &c.

According to the last author, that which gives the essence to this water is an acid *alluminous* mineral salt, preying on, and dissolving a slight mixture of iron. Dr. Highmore objects, that supposing *allum* the principal ingredient in these waters, the properties of *allum* being to dry, to astringe, and to incrassate, how comes it to pass that they are pretended to be so highly deopillative, and so beneficial to hypochondriac and cachectical persons, where their astringency should rather be noxious? Dr. Witty answers, that they do not derive these virtues from the *allum*, but from the other ingredients in them. It is disputed whether or no the bath at Lucca be *alluminous*. *Phil. Trans.* N^o 42, N^o 56, and N^o 160.

We have also factitious waters under the denomination of *alluminous*; such is that called in the shops *aqua aluminosa magisterialis*.

Its preparation is thus; take of *rock allum*, and white sublimate, *ana* ʒiii. boil them in rose and plantain water, *ana* lb i. till half is consumed; filter the remainder, and keep it for use.

This is prescribed against deformities of the skin, and often for the itch; but it is an uncertain remedy, and not to be used without caution.

ALLUSION, **ALLUSIO**, in *Rhetoric*, a figure whereby something is applied to, or understood of another, by reason of some similitude of name or sound.

The word is formed of *ad*, and *ludere*, to play.

Camden defines *allusion* a dalliance, or playing with words alike in sound, but unlike in sense; by changing, adding, or subtracting a letter, or two; whence words resembling one another become applicable to different subjects.

Thus the Almighty, if we may use sacred authority, changed Abram, i. e. high father, into Abraham, i. e. father of many.—Thus the Romans played on their tippling emperor Tiberius Nero, by calling him Biberius Mero; and thus in Quintilian the four fellow Placidus is called Acidus.

Allusions come very near to what we popularly call *puns*.

ALLUVION, **ALLUVIO**, in the *Civil Law*, a gradual addition or accretion made along the sea-shore, or the banks of large rivers.

The word is formed of *adluo*, *I wash to*, compounded of *ad* and *luvo*.

The civil law places *alluvion* among the lawful means of acquisition; and defines it to be a latent imperceptible accretion.—Hence, where any considerable portion of ground is torn away at once, by an inundation, and joined to some neighbouring estate, this is not acquired by right of *alluvion*, but may be claimed again by the former owner.

Great alterations are made in the face and limits of countries, by *alluvions* of the sea, rivers, &c. Whole plains are sometimes formed by *alluvions*. It is controverted whether *alluvions* should be considered as fruits, and as such accruing to *usufructuaries*.

ALLY. See **ALLIANCE**.

ALMACANTARS, **ALMACANTARAS**, or **ALMICANTHARATH**, in *Astronomy*. See **ALMUCANTARS**.

ALMACANTARS staff. See **ALMUCANTARS staff**.

ALMADE, in *SHIP-BUILDING*, a small vessel used by the negroes of Africa, about four fathom long; and made usually of the bark of a tree.

The same name is also given to the vessels of Calicut in India, which are eighty feet long, and six or seven broad, and square sterned.

These are otherwise denominated *cathuri*. They go with great swiftness. Witsen says, that they are twelve or thirteen paces long, sharp at head and stern, and that they are moved both by sails and oars. In time of war, the king of Calicut fits out two or three hundred of these vessels.

ALMAGEST, the name of a celebrated book, composed by Ptolemy; being a collection of many of the observations and problems of the ancients, relating both to geometry and astronomy.

In the original Greek it was called *συνηκτικὴ μεγίστη*, q. d. *great-st construction*, or *collection*: which last word *megiste*, joined

joined to the particle *al*, gave occasion to its being called *almagest* by the Arabians, who translated it into their tongue about the year 800, by order of the caliph Al-Maimon.—The Arabic word is *almaghesti*.

Ricciolus has also published a body of *astronomy*, which he intitles, after Ptolemy, the New *Almagest*: being a collection of ancient and modern observations and discoveries in that science.

We have also a botanical *almagest*, composed by Plukenet, being a kind of *pinax*, or general index of plants, containing the proper, and descriptive names, of upwards of six thousand. To which in a supplement, since published by the same author, have been added above one thousand others. *Almagestum Botanicum*, five Phytographiæ Plucnetianæ Onomasticon, &c. Lond. 1696. fol.

ALMAGRA, in *Natural History*, a name given in later ages to an earth of the ochre kind, called *fil atticum* by the ancients. It is an ochre of a fine and deep red, with some admixture of purple, very heavy, and of a dense yet friable structure, and rough dusty surface. It adheres very firmly to the tongue, and melts freely and easily in the mouth, and is of an austere and strongly astringent taste; it stains the skin in touching it, and ferments very violently with acid menstrooms; by which single quality, it is sufficiently distinguished from the *fil syricum*, to which it has in many respects a great affinity. It is found in immense quantities, in many parts of Spain; and in Andalusia there are in a manner whole mountains of it. It is used in *painting*, and in *medicine*, being a very valuable astringent.

ALMAGRA, in the cant of chemists, denotes red *bole*, or *RUDDLE*; sometimes a lotion, or wash.

ALMALECI, in *Medical History*, a celebrated work, containing a system of the ancient Arabian physic.

The word imports as much as the *royal work*.

Concerning the history, contents, &c. of the *almaleci*, see Freind's Hist. of Phys. p. ii. p. 36.

ALMANAC, a *calendar* or *table*, wherein are set down the days and feasts of the year, the course of the moon, &c. for each month of the year.

The original of the word is much controverted among grammarians.—Some derive it from the Arabic particle *al*, and *manab*, to count.—Others, and among them Scaliger, rather derive it from *al*, and *μανακος*, the course of the months: which is contradicted by Golius, who advances another opinion. He says, that, throughout the East, it is the custom for subjects, at the beginning of the year, to make presents to their princes; and, among the rest, the astrologers present them with their ephemerides for the year ensuing; whence those ephemerides came to be called *almanha*, i. e. handbills, or new-year's gifts. To say no more, Verstegan writes the name *almon-at*; and makes it of Saxon original. Our ancestors, he observes, used to carve the courses of the moon, of the whole year, upon a square stick, or block of wood, which they called *al-monaght*, q. d. *all-moon-head*.

The modern *almanac* answers to the *fajli* of the ancient Romans.

The necessities for making an *almanac*, the reader will find under the article *CALENDAR*.

Henry III. of France very prudently decreed, by an ordinance of 1579, that 'no *almanac*-maker should presume to give predictions relating to civil affairs, either of states, or private persons, in terms either express or covert.'

In the Philosoph. Collect. we have a perpetual *almanac*, described by Mr. R. Wood.

Many forms of a head-*almanac* have been proposed in some of our periodical publications; but the following distich will very well answer the purpose:

*At Dover Dwells George Brown, Esquire;
Good Christopher Finch, And David Frier.*

The twelve words answer to the twelve months; the first letter of each word stands in the Calendar against the first day of the corresponding month; and if the Dominical letter is known, it is easy to find on what day of the week any day of the month will fall throughout the year. In 1776, F being the Dominical letter, Dec. 25 is Wednesday, because the first day denoted by F is Sunday.

ALMANAC, *nautical*, is published annually, by anticipation, under direction of the commissioners of longitude. Beside every thing essential to general use that is to be found in any *almanac* hitherto published, it contains many new and interesting particulars; more especially, the distances of the moon from the sun and fixed stars for every three hours of apparent time, adapted to the meridian of Greenwich, by comparing which with the distances carefully observed at sea, the mariner may readily, and with little danger of mistake, infer his longi-

tude to a degree of exactness, that may be thought sufficient for most nautical purposes. And the publication of it is chiefly designed to facilitate the use of Mayer's lunar tables, by superseding the necessity of intricate calculations, in determining the longitude at sea. It began with the year 1767, and has been continued ever since. See *LONGITUDE*.

ALMANAR, in the Arabian *Astrology*, denotes the pre-eminence, or prevalence of one planet over another.

ALMANDIN, or **ALABANDIN**, a precious stone of the *RUBY* kind, something softer than the oriental ruby; and, as to colour, partaking more of that of the granate than the ruby.

It is ranked among the richest of stones, and takes its name from Alabanda, a city of Caria, whence Pliny says it was brought.

ALMARIA, in our *Ancient Records*, the archives of a church, or the like.

ALMEHRAB, among *Mahometans*, denotes a niche in their mosques, which directs to the *kebla*, that is, to the temple of Mecca, to which they are obliged to bow their faces in praying.

The word is Arabic, where it is properly written *al mehrab*.

ALMEISAR, a celebrated game among the ancient Arabs, performed by a kind of casting of lots, with arrows, strictly forbid by the law of Mahomet, on account of the frequent quarrels occasioned by it.

The manner of the game was thus: a young camel being brought and killed, was divided into a number of parts. The adventurers, to the number of seven, being met, eleven arrows were provided without heads or feathers; seven of which were marked, the first with one notch, the second with two, the third with three, &c. the other four had no marks. These arrows were put promiscuously into a bag, and thus drawn by an indifferent person. Those to whom the marked arrows fell, won shares in proportion to their lot; the rest to whom the blanks fell, were entitled to no part of the camel, but obliged to pay the whole price of it. Even the winners tasted not of the flesh themselves, more than the losers; but the whole was distributed to the poor.

ALMELILETU is used by Avicenna, for a preternatural kind of heat, a degree more remiss than that of a fever, and which sometimes remains after a fever is gone.

ALMENE, a name given, by some of the Arabian writers, to the prickly *lotus* of Africa, called by some of the ancients *lotus acanthus*, and by Virgil *acanthus* only.

ALMERICANS, were the followers of Almeric, or Amauri, in the thirteenth century. They maintained that the power of the father continued no longer than the Mosaic dispensation; that the empire of the Son extended only to the thirteenth century; and that then the reign of the Holy Ghost commenced, when all sacraments and external worship were to be abolished, and the salvation of Christians was to be accomplished merely by internal acts of illuminating grace. Their morals were as infamous as their doctrine was absurd. Their tenets were condemned by a public decree of the council of Sens, in the year 1209.

ALMERY. See *AMBRY*.

ALMIGGIM *wood*, a word used in the Scriptures, to signify a beautiful and light sort of wood. It has been conjectured to be several different sorts of woods now in use; others think it has been lost long since. But Meibomius proves, from the accounts of Josephus, that it was the wood of the Indian pine, or fir-tree. This was excellent for its whiteness, as well as remarkably light, and therefore was used in musical instruments.

ALMIZADIR, among *Alchemists*, is sometimes used for *verdegriſe*; sometimes for the process of the philosophers stone; and sometimes for the *aqua mercurialis*, or *aqua philosophorum*. See *ALKAHEST*.

ALMOGIZA, among Arabian *Writers*, denotes the limb, or circumference of the *ASTROLABE*.

ALMOHARRAM, one of the sacred months of the ancient Arabs.

The word is Arabic, *al moharram*. It was the first month of the Arab year. On some occasions they put off the observance of this month to the following month *Safar*.

ALMOIN, in *Law*. See *FRANK-almoïn*.

ALMOND, *amygdala*, a kind of medicinal fruit, the produce of the *ALMOND-tree*.

ALMOND-tree, *amygdalus*, in *Botany*, the name of a genus of trees, of the *icofandria monogynia* class, the characters of which are these: it hath a tubulous empalement of one leaf, which is cut at the brim into five obtuse segments; the flower hath five oval, obtuse, concave petals, which are inserted into the empalement. After the flower is past, the germen becomes an oval compressed large fruit, with a thin, tough, hairy covering, having a longitudinal furrow;

furrow; this opens and falls away, leaving an oval compressed nut.

Mr. Miller enumerates four species of this tree; which is propagated by inoculating a bud of any of the species into the stock of a plum, peach, or *almond*, of another species, in the month of July.

The second year after their budding, they are to be removed to the places where they are to remain.

The best season for transplanting them, if for dry ground, is in October; but for a wet soil, February is always found the properest season.

The fruit of this tree is of two kinds, the sweet *almonds*, and the bitter *almonds*.

ALMONDS, *sweet*, are of a soft, grateful taste; and are reputed cooling, healing, emollient, and nutritive: they are much prescribed in emulsions, and found of good effect in all disorders from cholerick and acrimonious humours. Neumann says, that when roasted they are a *succedaneum* to coffee. The oil of sweet *almonds*, drawn without fire, is a safe and useful remedy in nephritic pains: it is also of good repute for costiveness, and for gripes in children.

For the manner of procuring it, see OIL.

Half an ounce of it may be taken for a dose, with thirty drops of the mineral anodyne liquor. Some reckon two kinds of sweet *almonds*. 1. Jordan, which are the larger, longer, and dearer kind, chiefly sold to be eat with raisins. 2. Valentian and Barbary *almonds*, which are those from whence the oil is procured. Hought. Collect. N° 434. tom. ii. p. 76.

The tree that bears them is called *amygdalus sativa*. Their chief medical uses are to soften and obtund acrimony, and to render resinous substances soluble in water, and in the animal fluids. Neumann's Works, p. 389.

ALMONDS, *bitter*, are held aperient, detergative, and diuretic; and, on those accounts, they are commended in obstructions of the liver, spleen, uterus, &c. Some esteem them good to take off the effects of drunkenness. Accordingly, Plutarch relates, that Drusus's physician, a stout drinker, took down at every cup five bitter *almonds*, to allay the heat and fumes of the wine.

The expressed oil of bitter *almonds* is as tasteless as that of the sweet: it is much used to soften and deterge the wax out of the ear.—Some affirm, that bitter *almonds* are poisonous to birds, particularly: and Neumann adds, to all animals that come into the world blind. It is said that bruised, they stupify fowl, so that they may be easily taken with the hand: that this is a secret practised among the Bohemians; and that the husks, remaining, after the oil is expressed, have the same effect.

The kernels of bitter *almonds* give much the same relish in distillation, as the kernel of the cherry; on which account, some practise the making of a counterfeit cherry brandy with them. They are also frequently used instead of apricot kernels, in RATAFIA. See the chemical history of *almonds*, in Neumann, ut supra.

ALMONDS, *sweet*, and *bitter*, contain an expressible oil, and farinaceous earth; the bitter part of *bitter almonds* is not expressed with the oil, but may be dissolved by digestion in aqueous, and spirituous liquors, and with these may be distilled. Waters distilled from *bitter almonds*, or from most other bitter vegetables, fruits, and flowers, which have a similar flavour to them, are poisonous to birds, to some animals, and have sometimes been so to men. It is chiefly, if not solely, in the matter which arises in distillation, that the noxious qualities of the *bitter almonds* reside. Dr. Lewis. See more in Neumann's Works, p. 389, and n.

Almonds give the denomination to a great number of preparations in confectionary, cookery, &c. whereof they are the basis; as *almond cakes*, *almond cream*, *crisped almonds*, *almond milk*, *almond paste*, *almond snow*, &c. With sweet *almonds* blanched (that is, put into warm water a while, which makes them slip their skins) and water, is made *almond milk*, frequently used as a cooler in emulsions, &c. V. Hought. Collect. N° 434.

There is a preparation also called *almond-butter*, made of cream and whites of eggs boiled; to which is afterwards added, blanched *almonds*: the whole set over a slow fire, till it become thick.

ALMONDS are also a fruit which serves instead of small money, in several parts of the East Indies; particularly where the *cowries*, those small shells which come from the Maldives, are not current.

ALMOND, *dwarf*. See PERSICA.

ALMOND, *African*. See BRABEJUM.

ALMONDS, *amygdalæ*, in *Anatomy*, denote two glands of the *fauces*, more properly called the *tonsils*.

These are commonly called *almonds of the ears*; but ought rather to be denominated *almonds of the throat*.

They are two rough glands placed on the sides of the *basis* of the tongue, under the common membrane of the *fauces*, with which they are covered.

Each of them has a large oval *sinus*, which opens into the *fauces*; wherein are contained a great number of lesser ones, which discharge through the great *sinus*, a mucous and slippery matter into the *fauces*, *larynx*, and *œsophagus*, for the moistening and lubricating of those parts.

When the *œsophagus* muscle acts, it compresses the *almonds*; and as they are subject to inflammations, they frequently are the occasion of what the common people call a *sores throat*.

ALMOND, or **ALMAN-furnace**, is a peculiar kind of furnace, used in refining; to separate all kinds of metals from cinders, parts of melting pots, tests, bricks, &c.

The *almond-furnace*, called also the *sucep*, is usually six feet high, four wide, and two thick: it is built of brick, and having a hole in the middle of the top, eight inches over, which grows narrower towards the bottom, where, on the fore part, it ends in a point, encompassed with a semicircle of iron, to keep in the melted metal. About the middle of the back, there is another hole, to receive the nose of a pair of bellows, which require the continual strength of two men to work.

The matter, then, on which the operation is to be performed, being beat small, they kindle charcoal in the furnace, to anneal it; and when hot, they throw in two or three shovels of coals to one of the forementioned stuff; and so proceed during the whole work, putting lay upon lay, of one and the other. After eight or ten hours, the metal begins to run; and when the receiver below is pretty full, they ladle it out with an iron ladle, and cast it in bowls, in cavities, or forms made with ashes. In this furnace the refiners of silver out of lead melt the slags of the LITHARGE left in this operation, and reduce them into lead again. See FURNACE.

ALMOND, a measure in Portugal for OIL. The Portuguese sell their oil by *almonds*, twenty-six of which make a butt, or pipe.

ALMONDS, *amandes*. Thus the French lapidaries, and looking-glass makers, call those pieces of rock crystal, or cast crystal, which they cut with a wheel, giving them a figure something like that fruit. They are used to adorn branch-candlesticks, and other furniture made of glass or crystal.

ALMONER, anciently also written **AMNER**, an officer in a king's, prince's, or prelate's household, whose business is to distribute alms to the poor.

The *lord almoner*, or *lord high almoner*, of England, is an ecclesiastical officer, usually a bishop; who is to visit and relieve the sick, poor widows, prisoners, and others in necessity: for which purpose, he has the forfeiture of all deadlands, and the goods of *felos de se*, which he is to dispose of to the poor.

He has likewise, by an ancient custom, a privilege to give the first dish, from the royal table, to whatsoever poor person he pleases; or instead thereof, an alms in money.

He also distributes to twenty-four poor men, nominated by the parishioners of the parish adjacent to the king's palace or residence, to each, four-pence a day in money, and an alms of bread and small beer; each person first repeating the Creed, and the Lord's prayer, in presence of one of the king's chaplains, deputed by the lord *almoner* to be his *sub-almoner*; who is also to scatter new coined two-pences in the towns and places through which the king passes in his progress. See MAUNDY-Thursday.

He has also the charge of several poor pensioners to the crown below stairs; consisting of such as have spent their youth, and become superannuated, in the king's service; or the widows of such household servants as died poor, and were not able to provide for their wives and children: whom he duly pays. Chamberlayne's State of Great Britain, p. 98.

Under the lord *almoner*, besides the *sub-almoner*, there is a yeoman, and two grooms of the *almonry*, chosen by his lordship.

The French kings have their great *almoners*, first *almoners*, ordinary or quarterly *almoners*, &c.

Great *almoner*, *grand-aumonier*, is the highest ecclesiastical dignity in that kingdom. To him belongs the superintendency of all hospitals, and houses of lepers. The king receives the sacrament from his hand. He says mass before the king, in all grand ceremonies and solemnities.

ALMONER is also applied in *Ecclesiastical Writers*, to the DEACONS of churches.

ALMONER is also used, in *Historians of the Middle Age*, for him appointed by a person to distribute his alms to the poor. In this sense, *almoner* amounts to much the same with what has been since denominated executor.

ALMONER is also sometimes used for a person who left alms to the poor, by his last will.

A L M

ALMONER is sometimes also used for a legatee.

In this sense, it is the rule, that the same person could not both be *almoner* and heir.

ALMONER is also a more fashionable title given, by some writers, to chaplains.

In this sense we meet with *almoner* of a ship, *almoner* of a regiment.

ALMONRY, or **AUMBRY**, the office or lodgings of the almoner; also the place where the alms are given. See **AMBRY**.

ALMS, *eleemosyna*, something given out of charity or pity to the poor.

The ecclesiastics anciently subsisted wholly on *alms*.

—The *alms* of the primitive Christians were divided into three parts; one whereof belonged to the bishops, another to the priests, and a third to the deacons and subdeacons.—Sometimes they divided them into four; the last of which went to the poor, and to the repairing of churches.

The Romans extend the term *alms* to that which is given to the church, or to other pious uses.—Hence, what the church holds on this footing, is called *tenure in alms*.

Alms are of divers kinds.

ALMS, *paschal*, *eleemosyna paschales*, were those distributed at the solemnity of Easter, attended in some places with other acts of humility, as washing of feet, &c.

ALMS, *reasonable*, *eleemosyna rationalis*, a certain portion of the effects of persons dying intestate, set apart for the use of the church and the poor.

ALMS of *plough-lands*, *eleemosyna carucarum*, or *eleemosyna pro aratriis*, was a tax anciently paid for the benefit of the poor, at a penny for each plough-land.

ALMS of *the king*, denote what was otherwise called *Peter-pence*.

These were sometimes also called *alms* of St. Peter.

ALMS are divided by **MAHOMETANS**, into *voluntary* and *legal*.

ALMS, *voluntary*, are those left to every man's discretion, to give more or less as he sees fit.

The *voluntary alms* are properly denominated, by the Arabs, *serdeckad*.

No religious system is more frequent or warm in its exhortations to *alms*-giving than the Mahometan. The Alcoran represents *alms* as a necessary means to make prayer be heard.

ALMS, *legal*, those of indispensable obligation, as being commanded by the law, which directs and determines both the portion to be given, and the kind of things it is to be given of.

The *legal alms* are properly called, by the Mahometans, *zacad*, either on account of their increasing a man's store, or of their purifying the remaining part of his substance.

Some writers have given these the denomination of tithes, but improperly; since, in some cases, they fall short, and in others exceed the proportion of a tenth.

ALMS, *charter of*, *charta eleemosynaria*, that whereby a thing is given to the church.

ALMS, *aumone*, among the French, is also used for a compulsory payment, imposed by way of punishment, to be converted to pious or charitable uses.

In all adjudications to the king's right, there is an *alms* reserved. This amounts to what among us is usually called *forfeiture to the poor*.

ALMS-box, or *chest*, a small chest, or coffer, wherein anciently the *alms* were collected, both at church and at private houses. This is also in common use in several places.

The *alms-chest*, in churches, is a strong box, with a hole in the upper part, having three keys, one to be kept by the parson, or curate, the other two by the churchwardens.

The erecting of such *alms-chest* in every church was introduced by an act in 27 H. VIII. and it is enjoined by the Book of Canons, as also the manner of distributing what is thus collected among the poor of the parish.

ALMSFEOH, or **ALMESFEOH**, among our Saxon ancestors, *alms-money*; that is, **PETER-PENCE**, anciently paid in England on the first of August; called also *romesfeoh*, *romescot*, and *hearthpening*.

ALMS-HOUSE, a petty hospital; or an edifice built by a person in a private capacity, and endowed with a revenue, for the maintenance of a certain number of poor, aged, or disabled people.

ALMUCANTARS, in *Astronomy*, are circles parallel to the **HORIZON**, imagined to pass through all the degrees of the **MERIDIAN**.

The word is formed of the Arabic *almocantharat*.

As the meridians pass through the several degrees of the equator, the *almucantars* pass through those of the meridian of any place.

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A L N

The *almucantars* are the same thing with regard to the azimuths and horizon, that the parallels are with regard to the meridians and horizon.

They serve to shew the height of the sun and stars; and are described on many quadrants, &c. being also called *PARALLELS of altitude*.

ALMUCANTARS, *staff*, is an instrument usually made of pear-tree or box, having an arch of fifteen degrees; used to take observations of the sun, about the time of its rising and setting; in order to find the amplitude and consequently the variation of the compass.

ALMUCIUM, or **ALMUTIUM**, in *Middle Age Writers*, denotes a kind of cover of the head, part of it pendant over the neck and shoulders, worn chiefly by the ancient canons and monks.

The word is also written *almucia*, *aumucia*, *almucella*, *armutia*, and *amecia*.

The *almucium* appears to have been much the same with what is otherwise denominated *capitium*.

The *almucium*, though proper only to religious, was sometimes also assumed by laymen, princes, and even women of quality.

The part which covered the head was of a square form, making, as it were, four horns, as may be seen from the ancient pictures of canons. Hence appears the origin of the square caps, bonnets, &c. still retained in cathedrals and universities, which are no other than the upper part of the *almucium*, without the lower.

ALMUCIA is also used in some *Ancient Writers*, for the furs, or skins, worn by the canons, on their left arms, in the manner of muffs.

ALMUDHEBIS, in the Arabian *Astrology*, a kind of dignity, or pre-eminence accruing to a planet in some place, either from its disposition or benign aspect.

ALMUG-tree, a kind of wood mentioned in Scripture, imported by Solomon from Ophir, and used in the making of rails and pillars of the temple. 1 Kings, ch. x. ver. 11, 12. 2 Chron. ch. ii. ver. 8.

ALMUGEA, in *Astrology*, denotes a certain configuration of the five planets, in respect to the sun and moon, correspondent to that which is between the hours of those planets, and the sun's and moon's hours.

Thus Saturn will be in the *almugea* of the sun, when distant from him the space of five signs in succession, or in the *almugea* of the moon, when he is at the same distance, only contrary to the succession of the sign.

ALMUTAZAPHUS, a magistrate of Arragon, whose office is to search houses for stolen goods, weigh the bread, measure the wine, &c.

ALMUTHEN, in the Arabian *Astrology*, the planet which has the disposal of a place, that is, surpasses the rest in the number and efficacy of dignities, regard being had to the essential points, viz. *exaltation*, *terms*, *trigon*, and *phases*. This is otherwise called *almusteuli*.

ALNABATI, in the *Materia Medica*, a name given, by Avicenna and Serapion, to the *SILIQUA dulcis*, or carob-tree. They called both this and the **ACACIA**, by the common name *charnub*, or *charub*; but they sufficiently distinguish this, not only by this appellation, but by telling us it was a gentle purge, whereas the other was astringent.

ALNAGE, or **AULNAGE**, q. d. ell-measure; the measuring of woollen manufactures with an ell, and the other functions of the **ALNAGER**.

The word is French, formed of *aune*, or *alne*, an ell.

All the attempts which our forefathers made for regulating manufactures, when left to the execution of any particular officer, in a short time resolved into a tax on the commodity, without respect to the goodness thereof.

—As is most notorious in the case of *aulnage*, which was intended for a proof of the goodness of the commodity; and to that purpose a seal was invented, as a signal that the commodity was made according to their statute; which seals, it is said, may now be bought by thousands, and put on what the buyers please. Sir Jos. Child's Disc. on Trade.

It is probable that the abuses here mentioned by sir Josiah Child did, among other reasons, give occasion to the clause 11 and 12 W. III. cap. 20. by which *aulnage* duties are wholly taken away.

ALNAGER, **ALNEGER**, or **AULNEGER**, q. d. *measurer by the ell*; signifies a sworn public officer, who, by himself, or deputy, is to look to the assize of woollen cloth made throughout the land, i. e. the length, width, and work thereof; and to the seals for that purpose ordained. The office of king's *alnager* seems to have been derived from the statute of Richard I. A. D. 1197, which ordained that there should be only one weight and one measure, throughout the kingdom; and that the custody of the assize, or standard of weights and measures, should be committed to certain persons in every city and borough. His business was, for a certain fee, to measure

all cloths made for sale, till the office was abolished by the statute 11 and 12 W. III. cap. 20.

ALNAM, in *Botany*, a name used by some, for PENNY-ROYAL.

ALNASI, in the *Mahometan Law*, the transferring of the observation of a sacred month to a profane month.

ALNUS, in *Botany*, the ALDER.

ALNUS *baccifera*; the berry-bearing alder, in *Botany*, a name given, by some writers, to the *frangula*.

ALNUS also denotes a part in the ancient theatres, at the greatest distance from the stage.

ALOA, in *Antiquity*, a Grecian feast, celebrated by the Athenian husbandmen, in honour of Ceres, as inventress and protectress of corn and tillage.

The word is sometimes also written *άλωα*. It is formed of *αλω*, *grange*, or *barn*; it being in these places that much of the solemnity passed.

Authors are not agreed as to the time or occasion of the celebration of the *aloe*. Some suppose it to have been before the beginning of harvest; others will have it to have been a rejoicing after harvest, not unlike our HARVEST-home.

ALOE, a name applied to three different things. 1. To a very precious and scarce tree. 2. To a plant from the roots and leaves of which a drug, very useful in physic is extracted. 3. To that drug itself.

Most authors mistake the plant and tree for each other; because, no doubt, we have but little knowledge of the tree; and the drug which the plant produces is much better known, and of much greater use.

The *aloe*-tree grows in China, in the kingdom of Lao, and in Cochinchina, Champac, and Sumatra. It is about the same height and form as the olive-tree; its trunk is of three colours, and contains three sorts of wood; the heart is that of *tambac*, or *calambac*, which is dearer in the Indies than even gold itself; it serves to perfume cloaths and apartments; and is a sovereign cordial in fainting fits, and against the palsy. It destroys the *tinea* and *ascarides* in children. It is used at sacrifices, as incense, by the Chinese, and all the heathen Moors. It is also used to set the most precious jewels that are worked in the Indies.

The *aloes* wood is very highly valued; and divers strange fables have been invented, as to the origin of the tree that yields it; some feign that it grew in Paradise, and was only conveyed to us by means of the rivers overflowing their banks, and sweeping off the trees in their way. Others suppose it to grow on inaccessible mountains, where it is guarded by certain wild beasts, &c.—The Siamese ambassadors to the court of France, in 1686, who brought a present of this wood from their emperor, first gave the Europeans any consistent account of it.

ALOE-plant. The characters of this plant are these: the flower is liliaceous, and consists of one petal, which is of a tubular form, and is divided into six segments at the edge. In some species of this genus, the cup, and in others the pistil, finally becomes a fruit, or seed-vessel, of an oblong cylindric form, divided into three cells, and containing flat and semicircular seeds. Tournefort ranges this plant in his ninth class, and Linnæus in his sixth, called *hexandria monogynia*; because the flowers have six stamina and one style.

Mr. Miller enumerates twenty-five species of this plant, which grow in divers parts in the East and West Indies; and are also found in some countries of Europe, as Spain, and particularly the mountains of Sierra Morena.—Its leaves are green, very thick, hard, and prickly, yielding a kind of strong threads, whereof laces may be made.

The soil in which these plants thrive best, is one half fresh, light earth, from a common; and if the turf is taken with it, and rotted, it is much better; the rest should be white sea-sand, and sifted lime rubbish, each of these two, a fourth part; mix these together six or eight months at least before it is used, observing to turn it over often in this time. The middle of July is a very proper season to shift the plants; at which time you may take them out of the pots, and with your fingers open the roots, and shake out as much of the earth as possible, taking off all dead or mouldy roots, without wounding the young fresh ones: then fill the pot about three parts full of the above mentioned earth, putting a few stones at the bottom of the pot to drain off the moisture; and after disposing the roots in such a manner as to prevent their interfering too much with each other, put in as much of the same earth, as to fill the pot almost to the brim, shaking the plant so as to let the earth in between the roots, and settling it close to the roots with your hand, to place it steady in the pot; then water them gently, and set them abroad in a shady place, where they may remain for three weeks, giving them gentle waterings, if the weather be hot and dry.

Toward the latter end of September, in a dry day remove them into the house again, observing to give them as much free open air as possible, while the weather continues warm; but if the nights are cool, you must shut up the glasses, and give them air only in the day; and as the cold increases, you must decrease opening the glasses, only giving them gentle waterings till the middle of October, when you must abate them according to the heat of the house in which they are kept. For those plants which are placed in a stove, will require to be watered at least once a week, most part of the winter, whereas those which are kept in a green-house, without artificial heat, should not be watered in the winter oftner than once in a month.

The tender sorts should constantly remain in the stove, or be removed in the summer to an airy glass-case, where they may have free air in warm weather, but be protected from the rain and cold. With this management the plants will thrive and increase; and such of them as usually flower, may be expected to produce them in beauty at their seasons.

Some *aloes* are arborescent, inclining to make large trees, breaking forth into branches; others are so small that a whole plant does not exceed the bigness of a crown-piece. Some grow close to the ground, others are more aspiring, and have their crown of leaves raised upon a stem, somewhat above the earth. The kind most common in our gardens, with some few other sorts, are brought from America; but the greatest varieties, and, as some think, the best kinds, come from Africa, chiefly from the Cape of Good Hope.

The two kinds most considerable, the one for its curiosity, the other for its use, are the *aloe Americana*, or flowering *aloe*, and the *aloe Asiatica*, or drug *aloe*.

The American *aloe* seldom flowers in cold climates. See AGAVE.

ALOE, *bastard*, *aletris*, in *Botany*, a genus of the *hexandria monogynia* class; the corolla is funnel-shaped, and furrowed; the stamina are inserted in the base of the segments; and the capsula has three cells. There are three species.

ALOE, *water*, *stratiotes*, in *Botany*, a genus of the *polyandria hexagynia* class. Its characters are these: it has but one flower inclosed in a compressed obtuse sheath, composed of two leaves, which are keel-shaped, and permanent; the empalement of the flower is of one leaf, trifid, and erect; it has three almost heart-shaped petals, which are twice the size of the empalement, and about twenty stamina, inserted in the receptacle of the flower, terminated by single summits; the germen is situated under the empalement, supporting six styles, divided in two parts, crowned by single stigmas; the germen becomes an oval capsule, narrowed on every side, having six angles, and as many cells, filled with oblong incurved seeds. We know but one species, which is shaped like the *aloe*, and grows plentifully in standing waters in the isle of Ely, and other places. Linnæus mentions two species.

ALOES, in *Medicine* and *Pharmacy*, the inspissated juice of a particular species of the foregoing plant, much used as a purgative remedy, but very improper for such as are subject to the piles.

The juice, or extract, for Neumann thinks it is the true extract of *aloes*, is usually distinguished into three kinds.

—The first, which is called *Socotorine*, as being brought from Socotora, is the purest and most transparent; being friable, inodorous, black in the lump, but of a beautiful yellow colour when broken. It is brought in skins from the Levant and East Indies.

The second is called *hepatic*, because of its liver-colour: it is resinous, smells somewhat like myrrh, has a yellow colour when pounded, and is brought from China and Barbadoes. Some confound this with the following sort; as, in effect, there are but two sorts commonly known in our shops.

The third is the most impure, the blackest, and the strongest. It was formerly used by the Indians to pitch their vessels with; and is of little use among us, excepting for horses and cattle; for which reason it is called *caballine*, i. e. *horse-aloes*. It is prepared in Jamaica and Barbadoes, and brought over in large gourds.

A late writer describes the preparation of *aloes* thus: the leaves being pulled from the roots of the tree with the hand, or an instrument, and pressed, distil a juice, of which the thick part will subside, and the thinner is poured off, and put in the sun till it dries and hardens, in which time it gains a yellow colour. This is called *aloe Socotorina*. The thicker part remaining is put into another vessel, and by being inspissated in the sun, gains a liver-colour, and is called *aloe hepatica*. The thickest part is called *caballina*, or *horse-aloes*.

The general nature of these three kinds is the same; their particular differences consist in the different proportions of gum to their resin, and in their flavours,

which render them more or less disgusting for internal use. Good *aloes*, Neumann says, must be glossy, not very black, but brown; when chewed, rubbed, or cut, of a yellow colour; compact, but easy to break; easily soluble, of an unpleasant smell, and an extremely bitter taste. Such as is black, firm, and hard to break, we may suspect, he says, to be adulterated.

From M. Boulduc's analysis by extraction, it appears, that the *Socotorine aloes* contains scarce half the quantity of resin or sulphureous matter, and about a third more of saline substance than the *hepatic*. As for the *horse-aloes*, it is so impure, and contains so much earth in proportion to its sulphur and salts, that it deserves not to be regarded.

The different proportion of the principles of the *Socotorine* and *hepatic aloes*, might well be the cause of their different properties. As the resinous part of *aloes*, contrary to other cathartics charged with resin, is little or nothing purgative; the *Socotorine*, which has the least of that resin, has been always preferred to the *hepatic* for inward uses; and on the contrary, the *hepatic*, which has more of it, excels as much the other in its external usefulness, for cleansing wounds, and closing the lips of recent cuts, &c. M. Boulduc equals it in that respect to the natural balsams. It is plain enough that these effects are the natural result of the resinous and balsamic parts. The salts of the *aloes* are very active, and corrode the extremities of the veins, where the fibres are finest; whence proceed hæmorrhages. Therefore it highly concerns us that the saline part, which wants to be restrained by the resinous, be not separated from it; and yet this is the case in several preparations of *aloes*, when they have not been made by skilful hands. They have rejected the resinous part as too gross and good for nothing, because it kept at the bottom of the solution. Hist. de l'Acad. Roy. des Scienc. 1708. It is very observable that the essence of *aloes* stains the glass wherein it has been kept for some time of a deep red colour, covering it as it were with a coat of fine transparent varnish, which no other essence does. Neumann's Works, p. 307.

Aloes is extremely bitter, and purgative, whence some have called it *fel naturæ*; externally applied, either in substance or tincture, it prevents putrefaction and gangrene. Its bitterness makes it so nauseous, that it is rarely used in liquid forms, but it is generally made into pills, whereof half a dram is an ordinary dose. Scarce any of the officinal purging pills are without this in their composition.

Its cathartic virtue is best employed in watery, cold, and corpulent constitutions, as it heats and attenuates; being bad for thin and hectic constitutions. It is accounted efficacious in promoting the menses; and is also good to destroy worms. Guy Patin decries *aloes* as a sorry and noxious drug, which heats and dries the liver, disposes towards a dropsy, causes the piles, &c.

The *aloes*, as imported, is usually too foul for medicinal purposes, as having a mixture of straws, sticks, or gritty matter. To purify it, they gently dissolve it in water, enough to pass it conveniently through a flannel cloth when warm, and afterwards evaporate it to a consistence. Some for this purpose use spirit of wine, and others spirit of tartar, under the notion of better correcting the *aloes*; but that dissolvent seems most suitable, which leaves the drug its native qualities, after refinement, referring it to the physician afterwards to correct it in prescription as he pleases.

This drug applied to sores will cause a purging. Thus we find in the Medical Essays, that a pail made of myrrh, *aloes*, and honey, having been put every day into a cavity formed by an ulcer in the bone, the patient had a constant purging, which ceased the day after the *aloes* was omitted. Med. Ess. Edinb. vol. v. art. 241. where it is also observed, that the tincture of *aloes* applied to ulcers and carious bones, frequently brings on a purging.

Aloes is a prime ingredient in *elixir proprietatis*, and *species hiera picra*, with which the *tinctura sacra* is made.

Aloes was used among the ancients, in embalming, to preserve bodies from putrefaction. Of this *aloes*, interpreters understand that to have been which Nicodemus, in the Gospel, brought to embalm the body of Christ. John, ch. xix. ver. 39.

Several authors have treated expressly on *aloes*; as Bejer and Major; Durostantis, on its substance; Marquis, on its virtue; Martinez, on its choice; Fuchsius and Puteanus, on its opening the veins. Many particulars also relating to *aloes* are given occasionally by botanic and pharmaceutical writers.

ALOE rosata, is a preparation of the *Socotorine aloes*, made by dissolving it in juice of damask roses, and evaporating it to the consistence of a paste. Then more juice is added, and the evaporation repeated, again and again.—

This is held a gentler and safer cathartic than the *aloes* alone. If this be dissolved in a good quantity of the fresh juices of roses, violets, borage, and bugloss, mixed in equal proportions, and afterwards reduced by evaporation to its former consistence, the extract, thus prepared, is called *ALOE insuccata*, and with the addition of one third its weight of cream of tartar, *ALOE insuccata tartarizata*.

ALOE violata, is prepared by means of the expressed juice of violet flowers; and mixed with half its weight of cream of tartar; it is called *aloe violata tartarea*.

ALOE is applied by some writers, to a kind of mineral juice produced in Judea.

This is called fossil, mineral, or metalline *aloe*.—Some dispute the existence of any such *aloe*. Others suppose it to be no other than the ASPHALTUS.

ALOES, lignum. This wood, of which we have spoken before, by the Indians and Portuguese is called *calamba*, or *calambac*, being the same with what is otherwise called by medical writers *xyloaloes*, and *agalloschum*.

Grew describes a piece of *lignum aloes*, with its own gum growing on it, in the repository of the Royal Society. See Grew, Mus. Reg. Soc. p. ii. c. i. p. 179.

ALOEDARY, aloedarium, αλονδαριον, denotes a purging medicine, wherein *aloes* is an ingredient.

This amounts to the same with what we otherwise call an *ALOETIC*.

ALOEDARY is also used for a history of the class of plants under the denomination of *ALOES*.

ALOETICS, medicines wherein *aloes* is the chief or fundamental ingredient.

Aloetics open the orifices of the vessels, and are on this account found hurtful in cases of hæmorrhages, particularly at the nose, also in the *tenesmus, hemicranium*, &c. The immoderate use of *aloetics* tends to produce hæmorrhoids, hypochondriac pains, and inflations.

Joannius has a treatise expressly on *aloetic pills*.

ALOEUS, a species of *scarabæus* or beetle, found in America.

ALOGIANS, ALOGI, or ALOGIANI, a sect who denied that Jesus Christ was the *Logos*, or eternal Word; and on this ground also rejected the Gospel of St. John as spurious.

The word is compounded of the privative *a*, and *λογος* q. d. *without Logos*, or *Word*.

Some ascribe the origin of the name, as well as of the sect of *Alogians*, to Theodore Byzantium, by trade a currier, who, having apostatized under the persecution of the emperor Severus, to defend himself against those who reproached him therewith, said, that it was not God he denied, but only man. Whence his followers were called in Greek *αλογοι*, because they rejected the Word. But others, with more probability, suppose the name to have been first given them by Epiphanius in the way of reproach. They made their appearance toward the close of the second century.

ALOGOTROPHIA, in *Medicine*, an irregular nutrition of some part, attended with a vicious figure or conformation thereof, as in the rickets.

If the bones of the *vertebræ* of the back receive too much nutriment on one side, as sometimes happens in children, an incurvation necessarily ensues, which, as Charleton expresses it, is produced by an *alogotrophia*.

ALOIDES, in *Botany*, a name used by some for the *aloe palustris*, or fresh water *ALOE*, called in some parts of England, *water solduc*; and by Linnæus, *stratiotes*.

ALOOFF. See *LUFF*.

ALOPECIA, in *Medicine*, a total falling off of the hair in certain parts, occasioned either by the defect of nutritious juice, or by its vicious quality corroding the roots of it, and leaving the skin rough and colourless.

The word is formed from *αλωπηξ*, *vulpes*, a fox; whose urine, it is said, will occasion baldness; or because it is a disease which is common to that creature.

The *alopecia* properly differs from *defluvium capillorum*, as in the former, certain parts or patches are left, entirely bald, whereas in the latter, the hair only grows immoderately thin. It also differs from the *ophiasis*, as this latter creeps in spires about the head, like the windings of a serpent, whereas the former is not confined to any figure. See *PLICA Polonica*.

The cause as well as cure of the *alopecia* is the same as that of the *ophiasis*; though some would make a difference; urging that the primary intention in the former is to correct or carry off the vicious humour; in the latter, to supply the want of nutriment to the cutaneous parts. The remedies which remove the proximate cause of this malady, are called *μετασυκριτικά*, *metasykritica*. Here, first, if any corrupt hairs still remain, they are to be drawn out either with tweezers, or by *dropacism*; or the place must be shaved by a razor. Then the head is to be washed every night at going to bed, with a ley prepared

pared by boiling the ashes of vine-branches in red wine. A powder made by reducing hermodactyls to fine flour, is also recommended for the same purpose.

In cases where the baldness is total, a quantity of the finest burdock roots are to be bruised in a marble mortar, and then boiled in white wine, until there remains only as much as will cover them. This liquor, carefully strained off, is said to cure baldness, by washing the head every night with some of it warm. A ley made by boiling ashes of vine branches in common water, is also recommended with this intention. A fresh-cut onion rubbed on the part, until it be red and itch, is likewise said to cure baldness.

A multitude of such remedies are every where to be found in the works of Valescus de Taranta, Rondeletius, Hollerius, Trincavellius, Celsus, Senertay, and other practical physicians.

ALOPECIA is also used by Galen for a change of the hair to another colour.

ALOPECIAS, in *Ichthyology*, a name of the *vulpes marina*, or *Sea FOX*.

ALOPECOPITHECOS, in *Natural History*, a name derived from the Greek, and given by Aldrovand and others to that strange creature the *OPOSSUM*.

ALOPECURUS. See *Fox-tail GRASS*.

ALOPEX, in *Zoology*, a species of the *CANIS*, with a straight tail, and black tip. It is commonly called the *field-fox*.

ALOSE, a sort of fish, somewhat like the *sardine*, or *pilchard*, in shape, but much larger. Some will have it to be the *shad*, but it is quite another fish, and is very scarce in England. It is one of those called *passage-fish*, or fish of a season, because it never swims out of the sea into rivers, but in the spring.

The roes of *aloses* are as much valued in the East Indies, as those of the sturgeon in Russia, and form a very lucrative article of trade.

ALOUCHI, a kind of sweet-scented gum, which runs from the tree that produces white cinnamon.

ALP, in *Zoology*, an English name used by some for the *BULL-FINCH*.

ALPAGE, *alpagium*, in *Ancient Writers*, denotes the privilege of feeding cattle on the *ALPS* or high mountains, or a sum paid for the purchase of such a right. This is otherwise called *Alpaticum*.

ALPAGNA, an animal much like the *llamas*, and *vigognas*, except that its legs are shorter, and its muzzle thicker and flatter, so that it somewhat resembles a human face. The inhabitants of Peru reckon this animal among the beasts of burden, and make it carry a hundred weight. Of its wool they make stuffs, ropes, and bags, and of its bones tools for weavers. They even make an advantage of its excrement, using it for fuel.

ALPAM, is the *siliquosa indica flore tripetalo siliquis teretibus pulpa absque seminibus repletis*.

The stem of this plant, which divides itself twice or thrice, is covered with a bark of an ashy green colour, inodorous, and of an acid astringent taste. The branches are of a whitish wood, have a green pith running through them, and are distinguished into joints. The root is red, composed of a great number of capillary fibres. The leaves are of a narrow, oblong form, terminating in a point, of a deep green on the outside, but pale within. They have a smell not ungrateful, and taste somewhat acid. The flowers, which are of a dark purple colour, and inodorous, grow on very slender round pedicles, sometimes two or three together. To the flowers succeed the pods which are sharp, pointed, round, and full of a carnosé pulp, without any discernible seeds. It bears flowers and fruit as well at the end of the year as at the beginning, and is always full of leaves.

Any part of this shrub, made into an ointment with oil, is a powerful remedy in case of the scab, and old ulcers. The juice of the leaves, with *calamus aromaticus*, is good against the venom of serpents.

ALPHA, the name of the first letter of the Greek alphabet.

The word is originally Hebrew, formed from *aleph*, the name of the first letter in the Hebrew alphabet.

The Greek *alpha* answers to what in English we call simply *A*.

Alpha, according to Plutarch, was placed at the head of all the letters, because in the Phœnician language, it denotes an ox; which, with regard to use and service, is the first among beasts.

ALPHA, in *Composition*, denotes, sometimes, *privation*, in the same sense with *απερ*, *without*; sometimes *augmentation*, as *αγαρ*, *much*; and sometimes *union*, as *αμα*, *together*. See *A*.

ALPHA, is also used as a letter of order, to denote the *first*; and of number to signify *one*; but when it was a numerical letter, a little stroke, or an acute accent, was

drawn above it thus, *A'*, to distinguish it from the mere *A*, which was a letter of order.

ALPHA and *Omega*, in the *Divine Writings*, signify the beginning and the end, or the first and the last (viz. before and after all things); and therefore the hieroglyphic of God is formed of these two letters *A* and *Ω*.

These two letters were made the symbol of Christianity, and were accordingly engraved on the tombs of the ancient Christians, to distinguish them from those of idolaters.

ALPHA is particularly used among *Ancient Writers*, to denote the chief or first man of his class or rank.

In this sense the word stands contradistinguished from *beta*, which denotes the *second* person.

Plato was called the *alpha* of the wits; Eratosthenes, keeper of the Alexandrian library, whom some called a second Plato, is frequently named *beta*.

ALPHA is also a title given by some ancient writers to the Jewish legislator Moses. The reason of the application is much controverted.

ALPHABET, the several letters of a language disposed in their natural or accustomed order.

The word is formed from the names of the two first letters of the Greek *alphabet*, *alpha*, *beta*: which were borrowed from those of the Hebrew, *aleph*, *beth*.

In the English *alphabet* we reckon 26 letters, viz. *a b c d e f g h i j k l m n o p q r s t u v w x y z*. See each under its proper article, *A*, *B*, *C*, &c.

But as there is a much greater number of different sounds in our language, it is not without reason, that some grammarians maintain, that there ought to be a greater number of letters: as also, that the double letters, *x*, *y*, and *w*, and the superfluous ones, *k*, and *g*, should be retrenched.

The French *alphabet* contains only 23 letters. Pasquier indeed maintains it to consist of 25, because he adds the two double letters, *Œ* for *et* and *9* for *us*; but those are only abbreviatures. The abbé d'Angeau, on better grounds, reckons 34 different sounds in the French tongue; and urges, that the *alphabet* ought of consequence to consist of 34 different characters, setting aside the double letters *x* and *y*, and the superfluous one *q*.

The difference between languages, with respect to the number of letters in their *alphabets*, is very considerable: the Hebrew, Chaldee, Syriac, and Samaritan *alphabets*, have each 22; the Arabic 28; the Persian 31; the Turkish 33; the Georgian 36; the Cophtic 32; the Muscovite 43; the Greek 24; the Latin 22; the Slavonic 27; the Dutch 26; the Spanish 27; the Italian 20; the Indians of Bengal 21; the Bramas 19.

The Ethiopic has no less than 202 letters in its *alphabet*, there being seven vowels, which they combine with each of their 26 consonants; to which they add 20 other aspirated syllables. The like is said of the Tartarian; each of their letters is a syllable, having one of the vowels joined to its consonant; as *la*, *le*, *li*, &c.

The Chinese have no *alphabet*, properly speaking; except we call their whole language their *alphabet*; their letters are words, or rather hieroglyphics, and are in number about 80,000. See *Phil. Trans.* vol. lix. an. 1769, N^o 66.

In effect, *alphabets* were not contrived with design, according to the just rules of reason and analogy; but have been successively framed, altered, &c. as occasion offered. And hence many grievous complaints as to their deficiencies; and divers attempts to establish new, and more adequate ones in their places. Bishop Wilkins charges all the *alphabets* extant with great irregularities, with respect both to the order, number, power, figure, &c. As to the order, it appears inartificial, precarious, and confused; in that the vowels and consonants are not reduced into classes, with such order of precedence and subsequence as their natures will bear. Even the Hebrew order is not free from this imperfection.

As to number, they are both redundant and deficient; redundant, either by allotting several letters to the same power and sound; as in the Hebrew *ד* and *ש*, and the ordinary Latin *c* and *k*, *f* and *ph*; or by reckoning double letters among the simple elements of speech; as in the Hebrew *י*, the Greek *ξ* and *↓*, the Latin *q*, *cu*, *x*, *cs*, and the *j* consonant, or *jod*—Deficient in divers respects, especially in regard of vowels, of which there are seven or eight kinds commonly used, though the Latin *alphabet* only takes notice of five; whereof two, viz. *i* and *u*, according to our English pronunciation, are not properly vowels but diphthongs.

Add, that the difference among vowels in respect of long and short, is not sufficiently provided for: the ancients, we know, used to express a long vowel by doubling its character; as *amaabam*, *raata*, *ree*, *seedes*, *sanēlis-fimīs*; though the vowel *i*, instead of being doubled, was frequently prolonged, as *ædilis*, *pliso*, *vivus*. The ways used in English for lengthening and abbreviating

viating vowels, viz. by adding *e* quiescent to the end of a word, for prolonging a syllable; and doubling the following consonants, for the shortening of a vowel, as *wane wann, ware warr, &c.* or else by inserting some other vowel, for the lengthening of it, as *meet met, read red, &c.* are all improper; because the sign ought ever to be where the sound is.

As to their powers, again, those are not always fixed to the same signification: the vowels, for instance, are generally acknowledged to have each of them several sounds: *vocales omnes plurisonæ*, says Lipsius; and Vossius assures us, the ancients used their vowels in very different ways, *aliquando tenuius exiliusque, nunc crassius, nunc intermedio sono*. Thus the power of the vowel *i* is expressed in writing no less than in six several ways, viz. by *e*; as in *he, me, she, ye*; by *ee*, in *three, free, we*; by *ie*, in *field, yield, shield, chief*; by *ea*, in *near, dear, bear*; by *eo* in *people*; by *i*, in *privilege*. So is the power of the vowel *a*; as in *all, aul, aw, fault, caught*; which are only various ways of writing the same long vowel; besides the other distinct ways of expressing the same vowel when used short: again, the power of the vowel *o* is written five ways: *o*, as in *to, who, move*; *oe*, as in *doe*; *oo*, in *shoo, moon, noon*; *ou*, in *could, would*; *wo*, in *two*; and so of the rest.—Nor are the consonants of more determinate powers; witness the different pronunciation of the same letter *c* in the same word *circo*; and of *g* in *negligence*.—To say no more, the letters *c, f, z*, are used alike, to denote the same power; and the letter *f* is commonly used for *z*; and which is yet worse, some letters of the same name and shape, are used at one time for vowels, and at another for consonants; as *j, v, w, y*; which yet differ from one another, says bishop Wilkins, *sicut corpus & anima*.

From this confusion in the power of letters, there arise divers irregularities; as, that some words are distinguished in writing, which are the same in pronunciation, e. gr. *cessio* and *sessio, &c.* and others are distinguished in pronunciation, which are the same in writing; as *get, acquirere*, and *get, gagates, &c.* Hence also the Latin *male* is a dissyllable, and the English *male* is a monosyllable.

The names also, in most alphabets, are very improperly expressed by words of divers syllables; *alpha, beta, &c.* in which respect, the Roman and our English alphabets, which only name the letters by their powers, have a great advantage over the rest.

Lastly, their figures are not well concerted; there being nothing in the characters of the vowels answerable to the different degrees of apertion; nor in the consonants, analogous to the agreements or disagreements thereof. Wilkins's Ess. towards a real Character, &c. b. i. c. 4.

All these imperfections are obviated in the *universal alphabets*, or characters, of M. Lodwick, bishop Wilkins, &c. See *Universal CHARACTERS*.

In the French king's library, is an Arabic work, intitled *Sepbat Alacham*; containing divers sorts of imaginary alphabets, which the author distributes into *prophetical, mystical, philosophical, magical, talismanical, &c.*

Monsieur Leibnitz had it in view to compose an *Alphabet of Human Thoughts*. Mem. de l'Acad. Roy. an 1716.

It is no wonder that the number of letters in most languages should be so small, and that of the words so great; since from a calculation made by Mr. Prestet, it appears, that, allowing only twenty-four letters to an alphabet, the different words or combinations that may be made out of those twenty-four letters, taking them first one by one, then two by two, three by three, &c. would amount to the following number, 1391,724288,887252,999425, 128493,402200. See *COMBINATION*.

It may be here observed, that every combination may make a word, even though that combination have not any vowel in it; because the *e* mute, or quiescent, insinuates itself imperceptibly between the consonants, or after the consonants, where they are but two, the latter of which would not be heard without it.—The use of this silent *e* is very remarkable in the Armenian, Welsh, and Dutch languages; wherein the generality of words have several consonants together.

Nor must it be omitted, that every single letter may make a word: which is very apparent, where the letter is a vowel; words of that kind being found in most languages. Thus, *a* and *o* make words in the Greek; *a, o*, in the Latin; *a, i, o*, in English; *a, o, y*, in French; *a, e, i, o*, in Italian; *a, y*, in Spanish; *a, o*, in the Portuguese; *o*, in most languages, and even in the Dutch and Swedish. Any consonant also becomes a word, by adding an *e* mute to it in pronunciation.

In fine, though a considerable number of the possible combinations of twenty-four letters were retrenched, yet the number remaining would still be immense, and vastly superior to that of the words in any language known.

Of all known languages, the Greek is looked upon as

one of the most copious, the radices only of which are esteemed about 3244, but then it abounds exceedingly in compounds, and derivatives. Bishop Wilkins thinks these may be moderately computed at about ten thousand. Hermannus Hugo, indeed, asserts, that no language has so few as 100,000 words; and Varro is frequently quoted by learned men, as if he affirmed that there are in the Latin no less than 5,000,000; but upon enquiring into the scope of the passage, bishop Wilkins observes, that this number is not intended by him to express the just number of words in the Latin; but the great variety made thereof, by the inflection and composition of verbs.—To this purpose he lays it down, that there are above one thousand radical verbs in the Latin; and that each verb admits of five hundred several varieties. He farther supposes, that each of these may be compounded with nine prepositions; as, *cessit, recessit, accessit, decessit, processit, successit, &c.* which amounts to five millions. See *WORD*.

Concerning the origin and progress of *alphabetical* writing, see *LETTERS*.

ALPHABET, in matter of *Polygraphy*, is a duplicate of the key or cypher, which each of the parties corresponding are to keep by them.

It is properly an *alphabet* of the usual letters disposed in their order; opposite, or underneath which, are the secret characters corresponding thereto, with the blank or useless letters, and the other signs or symbols serving to obscure and render it difficult to decipher. See *DECIPHERING*.

ALPHABET, among *Merchants* and *Traders*, is a kind of index, with the twenty-four letters in their natural order, in which are set down the names and surnames of those with whom open accounts are kept; and which refers to the folios of the ledger where those accounts are written, in the form of debtor and creditor; serving to find easily, and without any trouble, such accounts as are necessary to be turned to.

ALPHABET, among the French, signifies also those punches or iron tools, which engravers upon metal use to engrave the several letters, or characters, which belong to their works, either for legends, or for other inscriptions. The book-binders have also small brass tools, which they call alphabets, and with which they put the titles, and the number of the volume, on the back of books.

ALPHÆNIX, white barley-sugar, to which is given an extraordinary name, to render it more valuable. This sugar, which is thought good for colds, is made of common sugar, which is boiled until it becomes easy to crack, when they pour it upon a marble table, greased with oil of sweet almonds, and mould it into various figures with a brass crochet. It is easily falsified with starch.

ALPHARD. See *COR hydra*.

ALPHERATZ, in *Astronomy*, a fixed star of the third magnitude in *AQUARIUS*.

This is otherwise called *alpharatz*. Some also give the denomination *enif alpharatz*, and *marhab alpharatz*, to two other stars in the right shoulder of *PEGASUS*.

ALPHESERA, in *Botany*, a name by which the Arabian, and some other authors, express the white *BRYONY*.

ALPHESTES, in *Ichthyology*, the name of a fish, called by others *CINÆDUS*, seeming to approach very much to the *turdus*, or *wrasse* kind, but having the rays or nerves of its back-fin prickly all the way to the tail; whereas the *turdi* have only the anterior rays of that fin prickly, the rest smooth. It is a small fish, and is always caught about the shores, and among rocks: its back is purple, and its sides and belly yellowish. Its mouth is small and has thick and fleshy lips. Gesner.

ALPHETA, in *Astronomy*, a fixed star in the northern crown; otherwise called *lucida corona*.

ALPHITIDON, in *Surgery*, a species of fracture, wherein the bone is broke into a great number of small parts, or particles.

The word is formed of *αλιτον*, *farina, flour*; q. d. a bone ground to flour or powder.

ALPHITOMANTIA, in *Antiquity*. See *ALEUROMANCY*.

ALPHONSIN, is the name of a surgeon's instrument used in the extraction of bullets from the body.

The *Alphonsin*, so called from its inventor Alphonsus Ferrer, a physician of Naples, consists of three branches, which are closed together by means of a ring. The instrument thus closed, being conveyed into the wound to the bullet, the operator draws back the ring towards the handle, upon which the branches, opening themselves, lay hold of the ball: after this he pushes the ring again, from the haft, whereby the branches grasp the bullet so firmly, that it must needs come out with them.

ALPHONSINE Tables. See *TABLES*.

ALPHOS, in *Medicine*, a distemper described by Celsus, under the name of *vitiligo*; wherein the skin is rough, and becomes sprinkled as it were with drops of white; and thence denominated *leuce*. Where the spots are black,

black, it is called *nigra*; and is also called, *melane*. It bears the same relation to the *leuce*, as the *scabies* to the *lepra*; the first is superficial and cutaneous, the second sinks deeper into the flesh. The *albus melas*, and *leuce*, are but one and the same disorder, only differing in its degree of inveteracy.

ALPIEU. See BASSET.

ALPINE. See CISALPINE.

ALPINIA, in *Botany*, so called from Prosper Alpinus, a celebrated botanist, who died in 1616, a genus of the *monandria monogynia* class. Its characters are these: the flower has one *stamen*, and one style; it is cut into six parts at the top, and has a swelling tube, with three spreading lobes. We know but one species of this genus, viz. the white branching *alpinia*, with leaves like the flowering reed. This plant is a native of the West Indies, from whence it has been brought into some of the curious gardens of Europe, where it must be preserved in a warm stove, and the pots plunged into a hot-bed of tanner's bark, otherwise it will not thrive in this country. The leaves decay every winter, and are pushed out from the roots every spring like the ginger and *maranta*, so should be managed in the same manner as is directed for those two plants; and may be propagated by parting the roots, when the leaves decay. It grows naturally in moist places in the West Indies.

ALPISTE, or ALPIA, a sort of seed used to feed birds with, especially when they are to be nourished for breeding. The *alpiste* seed is of an oval figure, of a pale yellow inclining to an isabel colour, bright and glossy. It is an article of the corn-chandlers and feedsmen's trade.

ALPS, in *Geography*, beside its proper signification, by which it denotes a certain chain of mountains, which separate Italy from France and Germany, is sometimes used as an appellative to denote any mountains of extraordinary height.

In this sense, Ausonius, and others call the Pyrenean mountains, *Alps*; and Gellius, the Spanish *Alps*, *Alpini Hispani*.

Sidonius gives the same appellation of *Alps* to mount Athos. Other authors speak of Norman *Alps*, *Alpes Arvenne*, *Alpes Astoricenses*, *Alpes Dofrina*, *Alpes Romania*, *Alpes Bastarnica*.—The Appennines are also called by Johannes Villeneuf, *Alpi D'Appennini*.

ALPS is also used to denote pastures on the mountains, wherein cattle are fed in the summer time; or rather in the vallies, and spaces between the mountain tops. Some will have this to be the primary signification of the word *Alps*, which is supposed by these authors literally to denote the streights or apertures between hills.

ALQUIER, which is also called *cantar*, a liquid measure for oil, used in Portugal. It contains six *cavadas*, or *canadors*. Two *alquiers* make an *almeede*, or *almonde*.

ALQUIER is also a measure for grain, at Lisbon.

ALQUIFOU, or ARQUIFOU, as the merchants spell it, is a sort of mineral *lead*, very heavy, easily reduced into powder, and hard to melt. When it is broken, it parts into shining scales, much like the colour of needles of antimony. The potters use it to give their works a green varnish. In England it is commonly called *potter's ore*. It is found in Cornwall; the potters mix manganese with it, and then the varnish, or glazing, on their wares becomes of a blackish colour.

ALRAMECH, or ARAMECH, in *Astronomy*, the Arabic name of a star of the first magnitude, otherwise called ARCTURUS.

ALRATICA, among the Arabian Physicians, is where the *vulva*, or *vagina*, of a woman is imperforate, or at least the *foramen* smaller than ordinary, whether naturally, or by accident.

ALRAUPE, in *Ichthyology*, a name given by the Germans, to the *mustela fluviatilis*, or eelpout, a species of the GADUS.

ALRUKAK, in the *Materia Medica*, a word used by Avicenna, and others of his nation, for what was called by the Greeks *leptos libanotis*, and *manna thuris*. This was the fragments of frankincense, which were broken off from the larger pieces in the collecting or packing up, and were most esteemed in medicine, as being the driest and purest kind.

ALRUM, in the *Botanical Writings of the Ancients*, a name given to the tree which produces the *bdellium*. This gum was originally known to be the exudation of a tree growing in Arabia and the East Indies, and well known to Avicenna, and others, and by all of them called by that name.

ALRUNES, a name given by the ancient Germans to small figures of wood of which they made their LARES.

ALSADAF, in the *Materia Medica*, a name given by Avicenna and Serapio, to the *unguis adoratus*, and also to the *murex*, or purple fish, of the shell of which it was supposed to be a part.

ALSAHARATICA, a name used in *Botany*, by some, to signify the *parthenium*, or FEVERFEW.

ALSCHARCUR, in the *Materia Medica*, a name given by Rhafes, and some others of the old writers, to the SKINK, a small animal of the lizard kind, used in medicine as a cordial, and as a provocative to venery.

ALSCNEFU, in *Botany*, a name used, by some authors, for WORMWOOD.

ALSEBON, a name given, by some of the chemical writers, to sea-salt.

ALSIMBEL, in the *Materia Medica*, a name given, by Avicenna and others, to the *spikenard* of India. It is thus called from its having the appearance of a spike, or ear, and also *simbalath*, a word which signifies its being a congeries of many spikes, or ears, and such is much of the *nardus Indica*, or Indian *spikenard*, that we receive at this day.

ALSINASTRUM, in *Botany*, the *elatine* of Linnæus; a name given by Vaillant to a genus of plants, on account of their general resemblance to the *alfines*, or *chickweeds*. The characters of the *alsinastrea* are these: the flower and fruit are the same with those of the *alfine*; but the flower-cup in these is composed only of one leaf, whereas in those it is made up of several. Tournefort mentions two species. Inf. 244.

ALSINE, CHICKWEED, in *Botany*, a genus of the *pentandria trigynia* class of plants, the calyx of which is a perianthium, consisting of five concave, oblong, and acuminate leaves; the corolla consists of five equal petals, longer than the cup; the fruit is an oval covered capsule, containing only one cell, with three valves; the seeds are numerous and roundish. There are three species.

ALSINELLA, in *Botany*, the name by which Dillenius calls the plant *sagina*.

ALSINOIDES, the *bufonia* and *montia* of Linnæus.

ALSIRAT, in the Mahometan Theology, a bridge laid over the middle of hell, finer than a hair, and sharper than the edge of a sword, over which people are to pass, after their trial on the day of judgment.

To add to the difficulty of the passage, Mahomet assures, that the *alsirat*, narrow as it is, is beset with briars and thorns; none of which, however, will be any impediment to the good, who shall fly over it like the wind; Mahomet and his musfulmen lead the way; whereas the wicked by the narrowness of the path, the entangling of the thorns, and extinction of the light, which directed the former to paradise, will soon miss their footing, and tumble headlong into hell, which is gaping beneath to receive them. Vide Sale's Prelim. Disc. to Koran, sec. iv. p. 90. See MAHOMETANS.

ALSTROEMERIA, in *Botany*, a genus of the *hexandria monogynia* class; the corolla of which hath six petals, with two lower petals, tubulous at the base, and declining stamina. There are three species.

ALT, in *Musical*. See DIAGRAM and SCALE.

The word is formed of the Latin, *altus*, high.

ALTAR, ALTARE, ARA, a place or pile whereon to offer sacrifice to some deity.

The Jews had their brazen *altar*, for burnt-offerings, and a golden *altar*, or *altar* of incense.

Among the Romans, the *altar* was a kind of pedestal, either square, round, or triangular; adorned with sculpture, with basso relievos, and inscriptions, whereon were burnt the victims sacrificed to idols.

According to Servius, those *altars* set apart for the honour of the celestial gods, and gods of the higher class, were placed on some pretty tall pile of building; and for that reason were called *altaria*, from the words *alta* and *ara*, a high elevated *altar*.—Those appointed for the terrestrial gods, were laid on the surface of the earth, and called *ara*.—And, on the contrary, they dug into the earth, and opened a pit for those of the infernal gods, which they called *σολοι λακκοι*, *serobiculi*. But this distinction is not every where observed: the best authors frequently use *ara* as a general word, under which are included the altars of the celestial and infernal, as well as those of the terrestrial gods. Witness Virgil, Ecl. 5.

—En quatuor aras,

Where *ara* plainly includes *altaria*; for whatever we make of Daphnis, Phœbus was certainly a celestial god. So Cicero, pro Quint. *Aras delubraque Hecates in Græcia vidimus*.

The Greeks also distinguish two sorts of *altars*; that whereon they sacrificed to the gods, was called *βωμος*, and was a real *altar*, different from the other, whereon they sacrificed to the heroes, which was smaller, and called *εσχαρα*. Pollux makes this distinction of *altars* in his Onomasticon: he adds, however, that some poets used the word *εσχαρα*, for the altar whereon sacrifice was offered to the gods.—The Septuagint version does sometimes also use the word *εσχαρα*, for a sort of little low *altar*, which may be expressed in Latin, by *craticula*; being a hearth, rather than an *altar*.

The

A L T

The Jews also gave the name *altars* to a kind of tables occasionally raised in the country or field, whereon to sacrifice to God. In such a place, *he built an altar to the Lord.*

Altars were of divers kinds, with regard to their qualities, use, matter, form, accidents, and the like, and were sacred to gods, heroes, virtues, vices, diseases, &c. Thus we read of inner and outer, stationary and portable, public and private *altars*, &c.

Altars are doubtless as ancient as sacrifices themselves; consequently their origin is not much later than that of the world. Gen. ch. iv.

Some attribute their origin to the Egyptians; others to the Jews; others to the patriarchs before the flood. Some carry them as far back as Adam, whose *altar* is much spoken of by Jewish, and even Christian writers. —Others are contented to make the patriarch Enoch the first who consecrated a public *altar*. Be this as it will, the earliest *altars* we find any express testimony of, are those erected by Abraham.

ALTAR of Adam, in *Antiquity*, is pretended, by some rabbins, and others, to have been erected by the first man, soon after the fall; when being overwhelmed with sorrow, a promise was made him, by the ministry of the angel Haniel, that a redeemer should be sent. In gratitude for this news, and for a perpetual remembrance thereof, Adam is said to have built an *altar*, and sacrificed on it a heifer.

The reliques of this *altar* have been mentioned by several writers of late ages.

ALTAR is sometimes also used, among Christians, for a square table, placed on the eastern side of a church, raised a little above the floor, and set apart for the celebration of the eucharist.

Its form is not borrowed, either from that of the heathen *altars*, or even from that of the Jews in the temple: but, as the eucharist was instituted by Jesus Christ, at supper, and upon a table, the modern *altar* is made in form of a table; whence it is more usually, and even more significantly, denominated *Communion Table*.

In effect, the denomination *altar* is founded on this supposition, that the eucharist is a proper sacrifice; which, though the standing doctrine of the church of Rome, is utterly denied by most of the reformed.

In the primitive church, the *altars* were only of wood; as being frequently to be removed from place to place. But the council of Paris, in 509, decreed that no *altar* should be built but of stone.

At first there was but one *altar* in each church; but the number soon increased; and from the writings of Gregory the Great, who lived in the sixth century, we learn, that there were sometimes in the same church twelve or thirteen. In the cathedral of Magdeburg there are no less than forty-nine *altars*.

The *altar* is sometimes sustained on a single column, as in the subterraneous chapels of St. Cecilia, at Rome, &c. and sometimes by four columns, as the *altar* of St. Sebastian of Crypta Arenaria; but the customary form is, to be a massive of stone-work, sustaining the *altar-table*.

These *altars* bear a resemblance to tombs: to this purpose, we read in church-history, that the primitive Christians chiefly held their meetings at the tombs of the martyrs, and celebrated the mysteries of religion upon them. For which reason it is a standing rule to this day in the church of Rome, never to build an *altar*, without inclosing the relics of some saint in it.

In lieu of proper *altars*, the Greeks in process of time made use of **ANTIMENSIA**.

ALTAR of *Prothesis*, is a name given by the modern Greeks to a smaller, preparatory kind of *altar*, whereon they bless the bread, before it be carried to the large *altar*, where the solemn liturgy is performed.

F. Goar maintains, that the table of *prothesis* was anciently in the sacristy, or vestry; which he makes appear from some Greek copies, where sacristy is made use of in lieu of *prothesis*.

ALTAR, is also used, in *Church History*, for the oblations or contingent incomes of the church.

In ancient days they distinguished between the church and the *altar*. The tithes, and other settled revenues, were called the *church*, *ecclesia*; and the other incidental incomes, the *altar*.

ALTAR, in *Astronomy*. See **ARA**.

ALTAR-thane, in our *Ancient Law Books*, denotes a priest, or parson of a parish.

In this sense the word is synonymous with *church-thane*.

ALTARAGE, includes not only the offerings made upon the altar, but also the profit that arises to the priest on account of the altar.

ALTARIST, *altarista*, properly denotes the vicar of a church, who serves the altar, and to whom the altarage, or produce of the altar, is assigned for his maintenance. Du-Cange.

A L T

The *altarist* is sometimes also called *altararius*, sometimes *altar priest*.

ALTARIST is also used for *chaplain*.

ALTASRIF, in *Literary History*, the title of a medicinal book written in Arabic, describing the method of practice in use among the Arabs.

It was written by Alfaravius, an author in the fifteenth century, and translated into Latin by P. Riccius, in 1519.

Concerning the history and contents of the *Al Tasrif*, see Freind, Hist. Phys. p. ii. p. 124, seq.

ALTAVELA, in *Ichthyology*, the name of a flat cartilaginous fish, of the *aquila marina* kind; but with its wings, as they are called, that is, its thin and flat sides, broad and obtuse towards their lower part. The fishermen, from the resemblance these flat sides have to wings, have an opinion that this fish can fly. The tail is very short, scarce being of half the length of the body. Its flesh is solid, and well tasted, and it always sells well in the markets. It is caught in the Mediterranean, and is frequently brought to market at Rome. Fab. Columna.

ALTE'S basse, in *Middle Age Writers*, denotes sovereignty, or a thing done with the supreme power. Du-Cange.

ALTERANT, or **ALTERATIVE**, in *Medicine*, a property, or power, in certain remedies, whereby they induce an alteration in the body, and dispose it for health and recovery, by correcting some indisposition, without occasioning any sensible evacuation.

Alteratives, therefore, must generally be either such remedies as destroy some prevailing acrimony in the *primæ viæ*, or in the juices; or else such as resolve concretions in the blood-vessels, and dispose them, when thus resolved, to pass out of the body by perspiration, or some of the least remarkable evacuations.

Alteratives are generally divided into four kinds, which are, *absorbents* for imbibing and blunting the acid juices; *temperating medicines* for checking and mitigating the rage of the bilious intemperies; *penetrating medicines* for dissolving and attenuating the thick and viscid juices; and, in fine, *demulcents* for sheathing and mitigating their burning and corrosive acrimony.

We meet with medicines of the purgative kind, represented by practical writers as *alterants*; the *colocynth* particularly by Helmont; for all medicines which operate in the farthest passages, they frequently include under that appellation. Phil. Trans. N° 365.

Dr. Woodward enquires into the efficacy of several of the most celebrated *alterants*, and endeavours to shew on what little foundation their great use is established. Of this number, according to him, are the absorbents, *cortex Peruvianus*, bitters, salts, steel, and its preparations, mineral waters, &c.

The more efficacious and useful *alterants*, according to the same writer, are cordials, stomachics, attenuants, *mercurius dulcis*, vegetable oils, mucilages, certain absorbents, and some preparations of opium.

According to this learned physician, all that is commonly alledged concerning the change of the principles, or ferments of diseases, by *alterant* remedies, is merely chimerical and imaginary; that there is no change made to the advantage of the human body, without a successive renovation, and discharge of what is hurtful, and a supply of its place by something innocent.

The primitive and constituent elements of bodies never change their figure, magnitude, solidity, or gravity, but remain still the same as at the creation. Hence some infer, 1. The vanity of all pretences to the transmutation of metals. And, 2. The folly of pretending to change the mass of blood, by those remedies called *alterants*.

The mixtures and combinations of the primitive elements are almost infinite, and their alterations as to sense and external appearances are so too. It may be added, that among *alterant* medicines, there are several which change the scene of the symptoms; others suspend the action of the morbid matter for a time; and others diminish the sensibility of the organs. But these remedies, which hold the morbid principles captive for a time, are only palliatives, and even, on some accounts, dangerous, since they may as well captivate other principles necessary to life. Woodward gives the preference to evacuants, as being the only medicines capable of freeing the machine from that which incommodes it.

Some take a contrary course, and ascribe even the salutary effects of evacuants to their *alterative* nature. This has been alledged of mercury in the venereal disease; the like is urged concerning minoratives, which some maintain do not work a cure by evacuation, so much as by alteration. The like is alledged of *ipeacuanha* in the cure of dysenteries, and of divers other emetics, in cases of apoplexies. In effect, evacuating medicines, as they do not separate the good from the bad, seem indifferently disposed, either to do harm or good. See Woodward's State of Physic, *passim*.

ALTERATE. See **SESQUIALTERATE**.

ALTERA-

ALTERATION, **ALTERATIO**, in *Physic*, the act of changing the circumstances and manner of a thing; its general nature and appearance remaining the same.—Or, it is an accidental, and partial change in a body: without proceeding so far, as to make the subject quite unknown, or to take a new denomination thereupon.—Or, it may be defined, the acquisition or loss of such qualities as are not essential to the form of the body.

Thus a piece of iron, which before was cold, is said to be *altered*, when it is made hot; since it may still be perceived to be iron, is called by that name, and has all the properties thereof.

By this, *alteration* is distinguished from *generation* and *corruption*; those terms expressing an acquisition or loss of the essential qualities of a thing.

The modern philosophers, after the ancient chemists and corpuscularians, hold all *alteration* to be effected by means of local motion. According to them, it always consists either in the emission, accession, union, separation, or transposition of the component particles.

Aristotle makes a peculiar kind of motion, which he calls the *motion of alteration*.

ALTERATION is used, in *Medicine*, to denote a change in the state and qualities of an animal body, in respect of temperature or constitution, health or sickness.

In this sense, *alteration* includes both *evacuation* and *accretion*.

ALTERATION is more strictly taken for a change in the quality of the body, contradistinguished from *evacuation* and *apposition*.

In which sense, *alteration* is the effect of medicines called **ALTERANTS**.

Alteration is chiefly applied in respect of the fluids, or humours of the body. When applied to the solids, it is chiefly in respect of the humours, or the motions of them.

ALTERATION is sometimes also applied in respect of the vital motions of the body.

Thus specifics are applied to alter and rectify convulsive and other disorderly motions. The *alteration* of the humours is either extrinsic, or intrinsic.

ALTERATION, *extrinsic*, is a change produced in the sensible appearances, as colour, thickness, and the like.

ALTERATION, *intrinsic*, is a change in the primitive crasis, or constitution of a fluid.

ALTERATION, in a sense still more strict, denotes that conversion which the food undergoes, to render it nourishment.

In this sense *alteration* both includes the digestion performed in the stomach, and the assimilation in the habit of the body.

It is disputed among physicians what the *alteration* is which the food undergoes.—Some reduce it to a mere comminution or trituration.—Others assert a total transubstantiation. See **DIGESTION**.

ALTERATION, in *Alchemy*, denotes the conversion of one body into another by similitude.

ALTERATION of quantities, among *Algebraists*, denotes what we otherwise call variations, or permutations.

ALTERATIVE, in *Medicine*, the same with **ALTERANT**.

ALTERCATION, a debate or contest between two friends, or acquaintance.

The word comes from *altercari*; which anciently signified to converse or hold discourse together.

Thus, we say, they never come to an open quarrel; but there is continually some little *altercation* or other.

ALTERCUM, in *Botany*, a name by which some of the old authors express the *hyoscyamus*, or *HENBANE*.

ALTERITY is used by some philosophers for **DIVERSITY**.

The word is formed of the Latin *alter*, another.

Alterity amounts to the same with what others call *aliety*, *aliety*.

ALTERN base, a term in *Trigonometry*, contradistinguished from *true base*, thus—In an oblique triangle, the true base is either the sum of the sides; in which case, the difference of the sides is called the *altern base*; or, the true base is the difference of the sides; in which case, the sum of the sides is called the *altern base*.

ALTERNATE, or **ALTERNATIVE**, is understood of several things which succeed, or are disposed after each other by turns.

We say, an *alternate*, or *alternative* office, or trust, which is that discharged by turns; so, two general officers, who command each his day, are said to have the command *alternately*.

In *Botany*, the leaves of a plant are said to be *alternate*, or placed *alternately*, when there is a correspondence between the two sides of a branch; the leaves of the one standing a little above those of the other, not one opposite to the other.

ALTERNATE, in *Arithmetic*. See **ALLIGATION**.

ALTERNATE angles, in *Geometry*, are the internal angles made by a line cutting two parallels, and lying on the

opposite side of the cutting line; the one below the first parallel, and the other above the second.

Thus x and u , and z and y (*Tab. II. Geometry, fig. 46.*) are *alternate* angles.

There are also two external angles, *alternately* opposite to the internal ones. See **PARALLEL**.

ALTERNATE ratio or proportion, is where the antecedent of one ratio is to its consequent, as the antecedent of another to its consequent; the very same ratio, in this case, holding *alternately* in respect of the antecedents to each other, and the consequents to each other.

Thus, if $A : B :: C : D$; then, *alternately*, $A : C :: B : D$.

ALTERNATE, in *Heraldry*, is used in respect of the situations of the **QUARTERS**.

Thus in quarterly *ecartelé*, the first and fourth quarters are *alternate*; and are usually of the same nature. And the like holds of the second and third.

ALTERNATION, in its primary sense, denotes a succession by turns.

ALTERNATION is more particularly used, among *Civilians*, for disjunction, as in saying this or that.

ALTERNATIONS, a term sometimes used to express the divers changes, or alterations of orders, in any number of things proposed.

This is also called *permutation*, &c. and is easily found by a continual multiplication of all the numbers, beginning at unity.

Thus, if it be required to know how many changes or alterations can be rung on six bells, multiply the numbers 1, 2, 3, 4, 5, 6, continually one into another; and the last product gives the number of changes.

ALTERNATIVE, is particularly used for the choice of two things proposed.—In this sense we say, to take the *alternative* of two propositions.

ALTHÆA, in *Botany*, a genus of the *monadelphia polyandria* class. See **MARSH-MALLOW**.

ALTIMETRY, **ALTIMETRIA**, the art of taking or measuring **ALTITUDES** or heights, whether accessible or inaccessible.

The word is compounded of *altus*, high, and *μετρον*, *metron*, to measure.

Altimetria makes the first part of geometry; including the doctrine and practice of measuring both perpendicular and oblique lines; whether in respect of height, or depth.

ALTIN, a money of account in Muscovy; worth three *copecks*, one hundred of which make a *ruble*, worth about four shillings and six pence sterling.

ALTINCAR, among *Mineralists*, a species of factitious salt used in the fusion and purification of metals.

The *altincar* is a sort of flux powder. Divers ways of preparing it are given by Libavius.

ALTITH, in *Botany*, a name given by some authors to the plant of which the *asa foetida* of the shops is the gum.

ALTITUDE, **ALTITUDO**, in *Geometry*, the third dimension of body, considered with regard to its elevation above the ground—called also *height* or *depth*.

ALTITUDE of a figure, is the distance of its vertex from its base, or the length of a perpendicular let fall from the vertex to the base.

Thus, KL (*Tab. Geometry, fig. 19*) being taken for the base of the rectangle-triangle, KLM ; the perpendicular KM will be the *altitude* of the triangle.

Triangles of equal bases and *altitudes* are equal; and parallelograms, whose bases and *altitudes* are equal to those of triangles, are just the double thereof.

ALTITUDE, in *Optics*, is usually considered as the angle subtended between a line drawn through the eye, parallel to the horizon, and a visual ray emitted from an object to the eye.

For the laws of the vision of *altitude*, see **VISION**.

If through the two extremes of an object, S and T (*Tab. Optics, fig. 13.*) two parallels, TV and SQ be drawn; the angle TVS , intercepted between a ray passing through the vertex S , and terminating the shadow thereof in V , makes, with the right line TV , what is called, by some writers, the *Altitude of the Luminary*.

ALTITUDE, in *Cosmography*, is the perpendicular height of an object, or its distance from the horizon, upwards.

Altitudes are divided into *accessible* and *inaccessible*.

ALTITUDE, *accessible*, of an object, is that whose base you can have access to, i. e. measure the nearest distance between your station, and the foot of the object on the ground.

ALTITUDE, *inaccessible*, of an object, is that when the foot or bottom of it cannot be approached, by reason of some impediment; such as water, or the like.

There are three ways of measuring *altitudes*, viz, *geometrically*, *trigonometrically*, and *optically*.—The first is somewhat indirect and unartful; the second is performed by means of instruments for the purpose; and the third by shadows.

The instruments chiefly used in measuring of *altitudes*, are the

the quadrant, theodolite, geometric quadrat, or line of shadows, &c. the descriptions, applications, &c. whereof, see under their respective articles QUADRANT, THEODOLITE, and QUADRAT.

ALTITUDES, to take accessible. To measure an accessible altitude, geometrically.—Suppose it required to find the altitude AB (Tab. IV. Geometry, fig. 88.) plant a staff DE perpendicularly in the ground, of such height as may equal the height of the eye. Then, lying prostrate on the ground, with your feet to the staff; if E and B prove in the same right line with the eye C; the length CA is equal to the altitude AB. If some other lower point, as F, prove in the line with E, and the eye, you must remove the staff, &c. nearer to the object: on the contrary, if the line continued from the eye over E, mark out some point above the altitude required; the staff, &c. are to be removed farther off, till the line CE raise the very point required.—Thus, measuring the distance of the eye C from the foot of the object A, the altitude is had; since $CA=AB$.

Or thus: at the distance of thirty, forty, or more feet, plant a staff DE (fig. 89.) and at a distance from this, in C, plant another shorter one, so as that the eye being in F, E and B may be in the same right line therewith. Measure the distance between the two staves, GF; and between the shortest staff, and the object, HF; as also, the difference of the heights of the staves, GE.—To GF, GE, and HF, find a fourth proportional BH.—To this add the altitude of the shorter staff, FC. The sum is the altitude required, AB.

To measure an accessible altitude, trigonometrically.—Suppose it required to find the altitude AB (Tab. Trigonometry, fig. 23.) choose a station in E; and with a quadrant, theodolite, or other graduated instrument duly placed, find the quantity of the angle of altitude ADC. Measure the shortest distance of the station from the object, viz. DC, and this of consequence is perpendicular to AC.

Now, C being a right angle, it is easy to find the line AC; since, in the triangle ACD, we have two angles, viz. D and A its complement, and a side opposite to one of them, CD, the side opposite to the other may be easily found by this canon. As the sine of the angle A is to the given side opposite thereto DC; so is the sine of the other angle D to the side required CA. See TRIANGLE. To the side thus found, adding BC, the sum is the perpendicular altitude required.

The operation is best performed by logarithms. See LOGARITHM.

If there happen an error in taking the quantity of the angle A (fig. 24.) the true altitude BD will be to the false one BC, as the tangent of the true angle DAB, to the tangent of the erroneous angle CAB.

Hence, such error will be greater in a greater altitude than in a less; and hence also, the error is greater, if the angle be lesser, than if it be greater. To avoid the inconveniences of both which, the station is to be pitched on at a moderate distance; so that the angle of altitude DAB, may be nearly half right.

Again, if the instrument were not horizontally placed, but inclined, e. gr. to the horizon in any angle, the true altitude will be to the erroneous one, as the tangent of the true angle to that of the erroneous one.

To measure an accessible altitude optically, by the shadow of the body, see SHADOW.

To measure an accessible altitude by the geometrical quadrat. Suppose it required to find the altitude AB (Tab. IV. Geom. fig. 90.) choosing a station at pleasure in D, and measuring the distance thereof from the object DB; turn the quadrat this and that way, till the top of the tower A appear through the sights.

If, then, the thread cut the right shadows, say, as the part of the right shadow cut off, is to the side of the quadrant, so is the distance of the station DB, to the part of the altitude AE. If the thread cut the versed shadows, say, as the side of the quadrant is to the part of the versed shadow cut off, so is the distance of the station DB, to the part of the altitude AE.

AE, therefore, being found in either case, by the rule of three, and the part of the altitude BE added thereto, the sum is the altitude required. See QUADRAT.

ALTITUDE, to measure an inaccessible, geometrically. Suppose AB (fig. 89.) an inaccessible altitude, so that you cannot measure to the foot of it. Find the distance CA, or FH, as taught under the article DISTANCE; then proceed with the rest as in the article for accessible distances. See STAFF.

To measure an inaccessible altitude, trigonometrically.—Choose two stations, G and E (Tab. Trigonometry, fig. 25.) in the same right line with the required altitude AB, and at such distance from each other, DE, as that neither the angle FAD be too small, nor the other station G too near the object AB. With a proper instrument take the quantity of the angles ADC, AFC, and CFB. See ANGLE. And also measure the interval FD.

Then, in the triangle AFD, we have the angle D, given by observation; and the angle AFD, by subtracting the observed altitude AFC, from two right angles; and consequently the third angle DAF, by subtracting the other two from two right ones; and also the side FD; from whence the side AF is found by the canon above laid down, in the problem of accessible altitudes. And again, in the triangle ACF, having a right angle C, an observed angle F, and a side AF, the side AC, and the other CF, are found by the same canon. Lastly, in the triangle FCB, having a right angle C, observed angle CFB, and a side CF; the other side CB, is found by the same canon. Adding, therefore, AC, and CB, the sum is the altitude required, AB.

To find an inaccessible altitude by the shadow, or the geometrical quadrat.—Choose two stations in D and H (Tab. IV. Geom. fig. 90.) and find the distance DH, or CG: observe what part of either the right or versed shadow is cut by the thread.

If the right shadows be cut in both stations, say, As the difference of the right shadows in the two stations, is to the side of the square; so is the distance of stations GC to the altitude EA.—If the thread cut the versed shadow at both stations, say, As the difference of the versed shadows marked at the two stations, is to the lesser versed shadow; so is the distance of the station GC, to the interval AE.—Which being had, the altitude EB is also found by means of the versed shadow in G; as in the problem for accessible altitudes. Lastly, if the thread in the first station G, cut the right shadows, and in the latter, the versed shadows; say, As the difference of the product of the right shadow into the versed, subtracted from the square of the side of the quadrat, is to the product of the side of the quadrat into the versed shadow; so is the distance of the stations GC, to the altitude required AE.

The utmost distance at which an object may be seen, being given, to find its altitude.—Suppose the distance DB (Tab. Geography, fig. 9) turn this into degrees; by which means, you will have the quantity of the angle C: from the secant of this angle subtract the radius BC, the remainder will be AB, in such parts, whereof BC, is 10000000.—Then say, as 10000000 is to the value of AB in such parts, so is the semidiameter of the earth BC 19695539, to the value of the altitude AB in Paris feet. Suppose, e. gr. the altitude be required of a tower AB, whose top is visible at the distance of five miles: then will DCB be 20', from whose secant 10000168, subtracting the whole sine 10000000; the remainder AB is 168, which will be found 331 Paris feet.

The method of taking considerable terrestrial altitudes, of which those of mountains are the greatest, by means of the BAROMETER, is very easy and expeditious. This is done by observing on the top of the mountain how many inches, &c. the mercury is fallen below what it was at the foot of the mountain. When this is done, you will have its altitude by the help of a table calculated for that purpose. A very accurate table of this kind may be found in the Hist. de l'Acad. Roy. des Scien. 1703, and 1705, calculated by M. Cassini; and also in the Phil. Trans. Eames's and Martyn's Abr. vol. vi. p. 34.

ALTITUDE, determinative, in Mechanics, is sometimes used for the height, whence a falling body acquires, by acceleration, a certain velocity. Hermannus, Phoron. lib. i.

ALTITUDE of the eye, in Perspective, is a right line let fall from the eye, perpendicular to the geometrical plane.

ALTITUDE, in Astronomy, is the distance of a star, or other point, in the mundane sphere, from the horizon.

This altitude may be either TRUE or APPARENT. If it be taken from the rational, or real horizon, the altitude is said to be true, or real; if from the apparent or sensible horizon, the altitude is apparent. Or rather, the apparent altitude is such as it appears to our observation; and the true is that from which the refraction has been subtracted.

The true altitudes of the sun, fixed stars, and planets, differ but very little from their apparent altitudes; because of their great distance from the centre of the earth, and the smallness of the earth's semidiameter, when compared thereto. But the difference between the true and apparent altitude of the moon is about 52'.

The altitude of a star, or other point, is properly an arch of a VERTICAL circle, intercepted between the assigned point and the HORIZON. Hence

ALTITUDE, meridian. The meridian being a vertical circle; a meridian altitude, that is, the altitude of a point in the meridian, is an arch of the meridian intercepted between it and the horizon.

To observe the meridian altitude of the sun, of a star, or other phenomenon, by means of the quadrant, see MERIDIAN Altitude.

To observe a meridian altitude by means of a gnomon, see GNOMON.

The sun's *altitude* may also be found without a quadrant, or any the like instrument, by erecting a pin or wire perpendicularly, as in the point C (*Tab. Astronomy, fig. 62.*) from which point you have described the quadrantal arch AF. Make CE equal to the height of the pin or wire, and through E draw ED parallel to CA, and make it equal to CG, the length of the shadow; then will a ruler, laid from C to D, intersect the quadrant in B; and BA is the arch of the sun's *altitude*, when measured on the line of chords.

An irregularity has been observed in the apparent *altitudes* of the stars near the MERIDIAN. On some occasions, when they are mounting towards the meridian, they appear to fall, and after passing the meridian, to rise. *Hist. Acad. Scienc. 1719. p. 75.*

M. Parent suggests a new method of taking *altitudes* at sea, by a common watch. It is obvious, that in an oblique sphere, the difference between the rising and setting of two stars, on the same meridian, is greater, as they are farther distant from one another.

Now, the astronomical tables furnishing us with tables of the right ascensions and declinations of all the fixed stars, it is easy, after observing the difference of time between the rising of two stars, to distinguish that part of the difference which accrues from their different position from that which arises from the obliquity of the sphere.—But such difference is the precise height of the pole of the place of observation.

Indeed, the ship not being immovable, but changing place between the two observations, seems to lay the method under some difficulty; but to this M. Parent answers, that a small alteration either of the ship's longitude or latitude, will make no sensible error; and that if she have gone a large distance between the two observations, it is easy reckoning how much it is, and accordingly allowing for it. See SAILING.

ALTITUDE, *the, of the Sun*, may be computed by the following rule, proposed by Mr. Lyons for nautical purposes. By the rules in the Nautical Almanac, for 1771, find the logarithm ratio; subtract it from the rising found answering to the given distance of time from noon, in the tables of the same Almanac; the remainder is the logarithm of a number, which subtracted from the natural sine of the sun's meridian *altitude*, leaves the natural sine of the *altitude* at the required time. For finding the *altitude* of the moon or a star, he gives the following rule. From the tables abovementioned, take out the rising, corresponding to the horary angle in the distance of time from the star's passing the meridian; add to it the logarithmic cosine of the star's declination, and the logarithmic cosine of the latitude of the place; the sum, abating twenty from the index, is the logarithm of a number, which subtracted from the natural sine of the star's meridian *altitude*, leaves the natural sine of the *altitude* at the given time. These rules are of great importance in determining the longitude at sea. See Naut. Alm. for. 1778.

In taking of *altitudes* from the visible horizon, where great exactness is required, an allowance is to be made for refraction, and the height of the observer's eye above the surface of the sea.

ALTITUDE of the pole, is an arch of the meridian, intercepted between the pole and the horizon.

The *altitude* of the pole coincides with the latitude of the place.

To observe the *altitude* or ELEVATION of the pole, see POLE.

ALTITUDE of the equator, is the complement of the *altitude* of the pole to a quadrant of a circle. See ELEVATION of the equator.

To find the *altitude* of the stars, &c. by the globe, see GLOBE.

ALTITUDE of the tropics amounts to the same with what is otherwise called the *solstitial altitude* of the sun.

ALTITUDE of the horizon, or of stars seen in it, is variable by the refraction, according to the quantity of which the horizon is either elated or depressed more or less.

ALTITUDE of the moon's atmosphere is thought, by some, to be much greater than that of the earth; the former being not less than sixty-four French leagues. But the existence of this atmosphere has been disputed and denied by modern astronomers. See MOON.

M. de la Hire proposed a method of discovering the *altitude* of the earth's atmosphere, the hint of which was first given by Kepler, viz. by the magnitude of the arch whereby the sun is sunk below the horizon, when the CREPUSCULUM begins or ends.

ALTITUDE of the aurora borealis in 1719, has been much contested, viz. whether it were above the atmosphere, or within the limits of it: the former opinion being defended by Dr. Halley, the latter by Mr. Whiston. The name meteor, which is given it, seems to favour the latter.—Besides, it appears not by any observation to have

been above thirty-eight miles high. See AURORA Borealis. Phil. Transf. N° 360.

ALTITUDE, in speaking of fluids, is more frequently expressed by the term depth.

The ingenious Dr. Hales, in his Vegetable Statics, proposed a method for measuring unfathomable depths of the sea; on the principles of which Dr. Defaguliers contrived an instrument called a SEA-GAGE, which was tried before the Royal Society; and is described in the Phil. Transf. N° 405. A more particular description of this instrument by Dr. Hales himself is as follows

Suppose AB (*Tab. II. Miscellany, fig. 20.*) to be an iron tube, or musquet-barrel, of any length, as fifty inches, having its upper end A well closed; if this tube be let down in this position about thirty-three feet into the sea, a column of water of that height is nearly equal to the mean weight of our atmosphere, and consequently from a known property of the air's elasticity, it will be compressed into half the space it took up before, so that the water will ascend half way up the tube; and if the tube be let down thirty-three feet deeper, the air will be compressed into $\frac{1}{3}$ of its first dimensions, and so on $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, &c. the air being constantly compressible in proportion to the incumbent weight; whence by knowing to what height the water has ascended in the tube, we may readily know to what depth the tube has descended into the sea.

Now to measure the depth of one of these columns of sea-water: first, by a line let the iron tube, with a weight at its bottom, sink about thirty-three feet, which depth in salt-water will nearly answer to the weight of the air at a mean height of the barometer; then draw up the tube, and observe how far the water rose. If thirty-three feet of water be equal to one atmosphere, then will the water rise so high as to fill exactly one half of the tube. But if the water rises higher or lower than half-way, then by the rule of three say, as the number to which the water rises is to one, so is thirty-three to the number of feet, measuring the depth of the column required. For example, suppose the water rises, when the tube is let down thirty-three feet, only $\frac{2}{3}$ of half-way, then say, 9:10::33:36 $\frac{1}{2}$ feet the depth of each column, which being once known, the number of columns of water is to be multiplied by this number of feet, whereby the depth of the sea in feet will be known.

But since, when the instrument has descended to the depth of 99 columns, or 99 times 33 feet, the air will be compressed into the $\frac{1}{100}$ part of 50 inches, that is, into half an inch, the divisions both for some space below and also above that will be so very small, that the difference in depth of several columns of water will not be sensible. So that an instrument of no greater length than this would scarcely give an accurate estimate of half a mile's depth, that is 2640 feet, or 80 columns depth of water. The lengthening of this instrument to 4, 5, or 10 times this length, would obviate this defect, and make the difference of the degrees of descent much more sensible. But since it is impracticable to make a metalline tube of so great a length, and if it were made, it would be so unwieldy as to be easily broken, the difficulty may be obviated in the following manner.

Let there be a globose metalline body, of iron or copper, nearly of this form (*fig. 21.*) K, L, M, N, Q whose capacity within may be equal to nine times the capacity of the metalline tube, Z, K, L; let this globose body be firmly screwed to the metalline tube, at K, L, with a leathern collar well soaked in some unctuous matter at the shoulder, or joining, thereby to secure that joint in the most effectual manner. Let there be a small hole at X for the sea-water to enter freely in, and let some coloured oil be poured into the globose body, to fill it up to the hole X. Let there be also provided a slender rod *ab*, screwed, or fastened into the metalline tube *ss*, which must also be made to screw in and out, thereby to take out the rod at pleasure; the rod must also have a small button *d* fastened to its upper end, which will prevent its being daubed by falling against the sides of the tube.

The capacity of the tube must be estimated by pouring water in, when the rod and metalline tube are fixed in their places.

Now since the lower vessel is supposed to contain nine times as much air as the tube ZL, which is the same thing as if the tube were nine times as long, therefore the air in the globose vessel will not all be forced within the capacity of the tube, till the vessel has descended to the depth of nine columns, or nine times 33 feet; for then the air will be compressed within one tenth of the space it first took up. Supposing, therefore, the instrument to have descended to the depth of 99 columns of water, or 99 times 33 feet = 3267: then the air will be compressed within $\frac{1}{100}$ part of 500 inches (the capacity of the whole vessel being supposed equal to the tube of that

that length) that is, within five inches of the top of the tube; and consequently the rod *db* will be found tinged with the oil, within five inches of its top.

Suppose again the instrument to have descended to the depth of 199 columns, of 33 feet each, then the air will be compressed within $\frac{1}{100}$ part of the whole, that is, nearly within $2\frac{1}{4}$ inches of the top of the tube. In this case the instrument will have descended 6567 feet; that is, one mile and a quarter, and 132 feet.

Suppose again the instrument to have descended to the depth of 399 columns, then the air will be compressed into $\frac{1}{100}$ part of the whole, that is, nearly within one inch and a quarter of the top of the tube. In this case the instrument will have descended two miles and a half, wanting 53 feet, which may probably be the greatest depth of the sea.

The larger the capacity of the vessel *K, L, M, N, Q*, the deeper will the gage be enabled to sink, the instrument being made stronger, and its joints being secured in proportion.

The instrument being thus prepared, a large buoy, *i*, must be fixed to it, which ought to be a solid piece of light wood, well tarred, to prevent the water's being pressed into the sap-vessels; and as it may rise at a considerable distance from the ship, it may be adviseable to fix on the top of the buoy broad fans of tin, properly painted, so as to be easily seen.

In order to sink the instrument, a weight must be fixed to it in the following manner. See the diagram. *W* is a weight of ballast, hanging by its sheet shank *T*, in the socket *ff*, which socket is screwed fast to *NQ*. The shank is retained in its place by the ketch *k* of the spring *O*, while the machine is descending; but as soon as *W* touches the ground at the bottom of the sea, the ketch *O* *k* sinking by the descending force, a little below the upper part of the hole *k*, is thereby at liberty to fly back, and so lets go the weight; then the buoy rises up to the surface of the water with the machine. Springs might also be fixed on the inside of the socket *ff*, so as to fly back in the same manner, when the weight touches the ground. It might be adviseable to keep an exact account of the stay of the machine under water, which might be done by a watch, or by a pendulum vibrating seconds. As Dr. Hooke found upon trial, that a leaden ball which weighed two pounds, fixed to a wooden ball of the same weight, and both let down in fourteen fathom water, reached the bottom in seventeen seconds, and the detached wooden ball ascended to the surface in seventeen more. See *Phil. Trans. Lowthorp's Abr.* vol. i. p. 258. So that if this machine descended and ascended greater depths with the same velocity, it would reach to the depth of a mile in seventeen minutes, and reascend in the like time. This, however, might be a vague estimate, until experience has furnished a rule.

This machine was tried in various depths of the Thames, and answered very well, always returning, and leaving the ballast behind. It was afterwards tried near the Bermudas, when several ships were in company; but though a good look-out was kept for three or four hours, it was not seen to return. *Hales's Statics*, vol. ii. p. 328.

ALTITUDE of the sea's surface is not every where the same, as appears from the drift or **CURRENTS** setting strong out of one SEA into another.

ALTITUDE of the mercury, in the **BAROMETER**, is marked by degrees placed on the face of that instrument, the variations of which are the chief object of *barometrical* observations.

The mean *altitude* of the mercury at London is about 29 inches.—The extreme *altitudes* are $27\frac{1}{2}$ inches, and $31\frac{1}{2}$ inches. Some suggestions have been made, as if the *altitude* of the mercury were regularly greater in the morning than in the evening; at least something of this kind was observed to hold for a considerable time at Berlin. *Hist. Crit. Rep. Lett.* tom. xiv. p. 239.

ALTITUDE of the pyramids in Egypt was measured so long ago as the time of Thales, by means of their shadow, which makes one of the first geometrical observations we have an exact account of. Plutarch has given an account of the manner of this operation, which according to this author, was done by erecting a staff perpendicular upon the end of the shadow of the pyramid; and by two triangles made by the beams of the sun, he demonstrated, that there was the same proportion between the shadows as between the pyramid and the staff. *Stanl. Hist. Phil.* P. i. p. 9.

ALTITUDE, in *Astrology*, denotes the second of the five essential dignities, which the planets acquire in virtue of the signs they are found in.

In this sense, *altitude* is otherwise called *exaltation*.

ALTITUDE of the nonagesimal, is the *altitude* of the 90th degree of the ecliptic, reckoned from the orient, or east point. See **NONAGESIMAL**.

ALTITUDE, refraction of, is an arch of a vertical circle, as

S s (*Tab. Astronomy*, fig. 28.) whereby the *altitude* *SE*, of a star, or other body, is increased by means of the refraction.

ALTITUDE, parallax of, is the difference *CB* (*Tab. Astron.* fig. 27.) between the true and apparent place of a star; or, the difference *BC*, between the true distance of a star *AB*, and the observed distance *AC*, from the zenith *A*. The parallax diminishes the *altitude* of a star, or increases its distance from the zenith.—To find the parallax of *altitude*, &c. see **PARALLAX**.

ALTITUDE of motion, is a term used by Dr. Wallis for the measure of any motion, estimated according to the line of direction of the moving force.

ALTITUDE, circles of. See **CIRCLES**.

ALTITUDE, parallels of. See **PARALLELS**.

ALTITUDE, quadrant of. See **QUADRANT**.

ALTITUDE instrument, equal, is that used to observe a celestial object, when it has the same *altitude* on the east and west sides of the meridian, or in the morning and afternoon. This instrument consists of a telescope about thirty inches long (with two vertical; and three or five horizontal wires in its focus) supported on the end of an iron bar, or axis, thirty inches long, and about an inch in diameter; the axis being sustained in a vertical position, by passing through a hole in one end of a brass box, whose other, or lower end, sustains the lower joint of the axis. The box, which is about twenty-one inches long, with ends about four inches square, has only two sides, which are fixed at right angles. From one of these sides project four flat arms, with a hole in each, whereby the box is, by screws, fixed in a vertical position to an upright post. On the lower end of the box lies a brass plate, which slides in grooves, and can, by means of a screw, be gently moved forwards or backwards; in this plate is a fine punched hole, to receive the smooth conical point, into which the lower end of the axis is formed. On the upper end of the box are two plates, which slide also in grooves; and, by the means of screws, can be gently moved sideways, till their angular notches embrace the axis, which, in this part, is made perfectly cylindrical, and very smooth. To the upper part of the axis is fixed, by its radius, a brass sextant (or arch of 60° , to a radius of seven or eight inches) with the arch downwards, so that the centre is just above the top of the axis: also a spirit-level is fixed at right angles across the axis, just under the arch, so as to be clear of the upper end of the box. To the under part of the telescope is fixed a brass semicircle, of the same radius with the sextant, both arches having a common centre-pin. In the semicircle is a groove cut through the plate parallel to its limb, to receive two screw-pins, which go into the sextantal arch, near its ends; by these screw-pins, the two arches may be pressed close, and the telescope fixed in any desired elevation; which might be nearly ascertained, by graduating the semicircle, and putting a Vernier's scale on the sextant.

When this instrument is used, the box is fixed to the post, and the axis put into the box, letting the conical point drop into the punched hole; the level is screwed on, and the telescope is annexed, observing to insert the centre and arch-pins: then, by the help of the screw-plates at the bottom and top ends of the box, the vertical position of the axis is corrected, so that the same end of the air-bubble in the level may stand at the same point through the whole revolution of the axis, which will thereby be known to be then truly vertical, so that the telescope will describe a parallel of *altitude*. The tube, thus adjusted, is to be directed to the sun, or star, and fixed at the desired elevation, by pressing the two arches together with the two screw-pins. This instrument is very useful in adjusting clocks, &c. and comparing *equal* and *apparent* time.

ALTO & BASSO, or in **ALTO & in BASSO**, in *Law*, signifies the absolute reference of all differences, small and great, high and low, to some arbitrator, or indifferent person.—*Pateat universis per presentes, quod Willielmus Tylar de Yetton, & Thomas Gower de Almstre, posuerunt se in Alto & in Basso, in arbitrio quatuor hominum; viz. de quadam querela pendente inter eos in curia.—Nos & terram nostram altè & bassè ipsius domini Regis supposuimus voluntati.*

ALTO relievo. See **RELIEVO**.

ALTOLIZOIM, among some *Chemists*, denotes the *lutum* *Paracelsi*, well beaten, calcined, and boiled to the form of an oil, called also *fel terræ*; because it is a bitter salt.

ALTUMAL, a term used to denote the mercantile style, or dialect.

In this sense, we meet with *altumal cant*, to denote the language of petty traders and tars.

ALVAH, the wood wherewith Moses sweetened the waters of Marah. *Exod.* ch. xv. ver. 25.

The name of this wood is not found in Scripture, but the Mahometans give it that of *alvah*, and pretend to

trace its history from the patriarchs before the flood. Josephus, on the contrary, says, that Moses used the wood, which he found next lying before him.

ALVARID, among the Spanish Moors, denoted a judge. The word is also written *alvarilus*. In this sense, *alvaridus* amounts to much the same with what is otherwise called **ALCAID**.

ALVARISTS, in *Church History*, a sect or branch of modern Thomists, denominated from Alvares, whose method and principles they follow. The *Alvarists* differ from the ancient Thomists, in that the former are asserters of sufficient grace, the latter of efficacious grace. The former come near to the Jesuits, the latter to the Jansenists.

ALUCITÆ, a subdivision of insects belonging to the genus of *PHALÆNA* and of the *lepidoptera* order, in the Linnean system: comprehending eight species.

ALUCO, in *Ornithology*, the name by which authors have called the common white owl, or, as we commonly call it, the barn-owl, or church-owl.

ALUDELS, in *Chemistry*, subliming pots, or vessels used for the sublimation of mineral flowers. *Tab. CHEMICAL*, &c. fig. 20. *Aludels* are a large range of earthen tubes, or pots, without bottoms; fitted one over another, and diminishing as they advance towards the top. The lowest is adapted to a pot, placed in the furnace, wherein the matter to be sublimed is lodged. And at the top is a head, to retain the flowers which ascend the highest. The *aludel*, which terminates this tube above, ought to be closed in its upper part, or to have but a very small opening. The tube composed of these *aludels* is nothing but a kind of capital, or head, that may be enlarged or lengthened at pleasure, and adapted to a cucurbit. This apparatus is intended to collect and retain dry and volatile matters, which may be reduced into flowers by **SUBLIMATION**. It may be employed for the preparation of flowers of sulphur, of arsenic, of antimony, of benjamin, &c.

ALVEARIUM, in *Anatomy*, the bottom of the *concha*, or hollow of the auricle, or outer **EAR**. The *alvearium auriculæ* is a cavity, terminating at the *meatus auditorius*, wherein that bitter yellowish excrement is collected, called *cerumen*, or ear-wax.

ALVEARIUM also signifies a bee-hive. The word is formed of *alveus*, a channel, or cavity; in allusion to the *alveoli*, or cells, in bee-hives. Some of the ancients use also the word *alvearium* for a bee-house, more usually called among us, **APIARY**.

ALVEARIUM is sometimes also used figuratively, to denote a collection. In which sense, *alvearium* amounts to much the same with what we otherwise call *thesaurus*, *cornucopia*, or the like. Vinc. Boreus has published an *alvearium* of law.

ALVEHEZIT, among *Arabian Writers*, denotes what we ordinary call *falling-stars*, or **STAR-SHOT**.

ALVEOLI, in *Anatomy*, those little sockets in the jaws, wherein the teeth are set. The *alveoli* are lined with a membrane of exquisite sense, which seems to be nervous, and is wrapt about the roots of each tooth; from whence, and from the nerve, proceeds that pain called *odontalgia*, or tooth-ach. Of these *alveoli* there are usually sixteen in each jaw.

ALVEOLI is more especially used, among *Naturalists*, for those waxen cells in the combs of bees, wherein their honey is deposited.

ALVEOLUS, in *Natural History*, the name of a marine body, found frequently fossil, sometimes lodged in the cavity, at the end of the *belemnite*, and sometimes loose; and in this last case, often so large, that we cannot suppose any *belemnite* ever to have existed so large as to have been able to contain it. We do not meet with these at this day in their recent state, but what we find of them fossil, are ever larger at one end, and tapering to a point at the other, and are composed of several hemispheric cells, like so many bee-hives jointed into one another, and having a *siphunculus*, or pipe of communication, like that in the thick *nautilus*. These are sometimes found perfect and whole, but much more frequently truncated, or wanting a part of their smaller end. Klein.

ALUESEN, in *Botany*, a name used, by some, for the *peucedanum*, or hog's-FENNEL.

ALVEUS properly denotes a channel. *Alveus* is applied, by some *Anatomists*, to the tumid lacteal branches arising from the *receptaculum chyli* under the *diaphragm*.

ALVEUS is also used, in *Antiquity*, to denote a small vessel, or boat, made out of the trunk of a single tree, by boring or cutting it hollow. Such was that wherein Romulus and Remus are said to have been exposed.

ALVIDUCA, a term used by some writers for laxative or purgative medicines. The word is compounded of *alvus* and *duco*, I draw.

ALUM, **ALUMEN**. See **ALLUM**.

ALUMTA, in *Botany*, a name given by some of the old Latin writers to the plant otherwise called *lutum* and *corniola*, and by the Greeks *cymene*. It was the same with our *genistella tinctoria*, or dyer's weed, and was used by the dyers, and by the ladies, to tinge their hair yellow, the colour that was esteemed most beautiful in those times.

ALUNGU, in *Natural History*, is a word of the Malabar language, and the name given by the Malabarians to an animal resembling a large lizard, except as to head and tail, which are both pointed. It is a German ell, and $\frac{3}{4}$ long, and its breadth is half an ell. It is a species of the **MANIS** of Linnaeus, and belongs to the family of **ANT-eaters**, which have no teeth, but a long round tongue, with which they catch the ants. *Phil. Trans.* vol. lx. N^o 5. an. 1770.

ALUS, in the *Materia Medica* of the ancients, a name given to two different plants.

ALUSMA Caramanica, in *Botany*, a term used sometimes to express a plant growing in Caramania, and sometimes a preparation of that plant, or pigment made from it. The word frequently occurs in the writings of Avicenna and Serapion.

ALVUS, among *Anatomists*, is sometimes used to express the lower belly, or *venter*.

ALVUS is more usually taken among *Physicians*, for the state and condition of the *feces*, or excrements, contained within that cavity. Thus, when a person is laxative, it is called *alvus liquida*; and when costive, *alvus adstricta*. They who are of a loose belly in their youth are generally costive in their old age; and they who are bound in youth, are often loose when old. A laxer state in youth, and rather bound than loose in old age, is most desirable. Binders of the belly are labour, sitting in a chair, fuller's clay laid over the body, diminution of food, eating once a day instead of twice, little drinking, and that only after a full meal, rest after meals. On the contrary, things which loosen the belly, are, walking and eating more than usual, stirring after meat, intermixing draughts with eating; and it ought to be observed, that a vomit binds a loose belly, and loosens a bound one; and that a vomit taken immediately after meat binds the belly, but delayed until a considerable time after, loosens the same. Celsus.

ALWAIDII, a sect of Mahometans, who hold that all great crimes are unpardonable, and the criminals reprobated to eternity. The *alwaidii* stand in opposition to the **MORGII**. They attribute less efficacy to the true belief in the salvation of men, than the rest of the Mussulmen.

ALYPIAS, in the *Materia Medica*, a species of *turbith*, prescribed by some physicians for the purging of bile. Some write the word *alypon*, and define it by white *turbith*. Galen used *alypum*, *αλυπον*, for a minorative, or medicine that gently purges.

ALYPON MONTIS CETI, otherwise **WHITE TURBITH**, a plant which grows in several parts of France, particularly in Provence and Languedoc. It is a kind of **SENA**.

ALYPUM, in *Botany*, a name given, by some authors, to a species of spurge, the **TITHYMALUS amygdaloides angustifolius**, or narrow-leaved almond spurge of Tournefort. See **SPURGE**.

ALYPUM is likewise a name given, by some authors, to a species of **DOG'S-bane**, distinguished by Mr. Tournefort, by the name of **APOCYNUM maritimum Venetum, salicis folio flore purpureo**; the purple-flowered sea *apocynum* of Venice, with willow-like leaves.

ALYPUM is also a name given to the *globularia* of Linnaeus.

ALYSSON, in *Botany*, a name given, by some authors, to the **MYAGRUM**, or gold of pleasure.

ALYSSON, *rough-leaved*, the **SUBULARIA** of Linnaeus.

ALLYSSUM, called *alyssoides*, by Tournefort. See **MADWORT**.

ALYTARCHA, in *Antiquity*, a priest of Antioch in Syria, whose office was to lead up the *mastigophori*, or *flagellipori*, officers with whips in their hands, who attended at the games or combats of the *athletæ*, encouraged them to behave stoutly, and, on occasion, served to preserve good order, and keep off the crowd. The officer who presided at the Olympic games was also sometimes denominated *alytarcha*. Some will have the *alytarcha* to be the same with the *hellenodici*, of which opinion are Faber and Prideaux. Van Dale shews them to be different offices; not but that the *altarchi* might sometimes be substituted for the *hellenodici*, to perform some parts of their function. The *altarchi* were the same with what were called, in some other places, *alytæ*.

ALZACHI, in the *Materia Medica*, the name given, by the

the Arabian *Physicians* to that kind of gourd called in the shops the *CITRUL*, and by the people of some parts of Italy, the *anguria*. It is an oblong, and usually crooked gourd, and contains in its cavity a considerable quantity of water, which is drank by people of the places where the plant is common, to quench thirst. It contains seeds of an oblong figure, flattened, and covered with a hard skin.

ALZAGIAT, in the *Materia Medica*, a name given, by the Arabian writers, to all the vitriolic minerals. It is also written *zagi*, or *ZEGI*.

ALZARAC, in the *Materia Medica* of the Arabians, a name given to a kind of *CAMPHOR*, which was coarse, and of a brown colour. It seems to have been the same with our rough camphor, as imported from the Indies, before it is purified.

ALZIZ, in the *Materia Medica*, a name given by Serapio and Avicenna, to the roots of the *trafi*. The word *Ziz* is the name of a river in Africa, according to Leo; and the roots probably had this name from their being found in great plenty on the banks of that river, the *trafi* always growing in wet places.

ALZUM, in *Botany*, a name given, by the ancients, to the tree which produces the gum *BDELLIUM*. It is also written *airum* and *aldum*, which last seems the proper way. The gum of this tree was called, by the Arabians, *mokel*, and the same word *mokel* is used as the name of a fruit of a palm-tree.

AMA, in *Ecclesiastical Writers*, denotes a vessel wherein wine, water, or the like, were held, for the service of the eucharist.

In this sense, the word is also written *amula*; sometimes also *bama*, and *hamula*.

AMA is sometimes also used for a wine-measure, as a cask, pipe or the like.

AMA, **AME**, or rather **AMES**, *apms*, a sort of cake. Aretæus uses this word to express the quantity of hellebore which is sufficient for a dose in strong constitutions, when given in a *vertigo*.

AMABYR, or **AMVABYR**, in some *Ancient Customs*, the price of a maidenhead; or a sum of money to be paid the lord upon marrying a maid of his manor. This custom is said to have anciently obtained in Wales, where *amabyr* was paid to the prince; also in the honour of Clun belonging to the earl of Arundel, till earl Henry, in the time of queen Mary, in consideration of sixty pounds, released it to all his tenants by the name of the custom of *amabyr* and *chevage*.

AMADOW, a kind of *black-match*, tinder, or touch-wood, which comes from Germany. It is made of a sort of large mushrooms, or spongy excrescences, which commonly grow on old trees, especially oaks, ash, and firs. This substance being boiled in common water, and afterwards dried and well beaten, is then put into a strong ley prepared with salt-petre, after which it is again put to dry in an oven. The druggists sell this match wholesale in France, and several hawkers retail it.

Some give to the *amadow* the name of *pyrotechnical sponge*, because of its aptness to take fire.

AMADOWRY, a kind of cotton which comes from Alexandria, by the way of Marseilles.

AMAIN, or **AMYNE**, a sea term, used by a man of war, to his enemy; and signifying *yield*.

Hence, to *strike amain*, is, to lower, or let fall, the top-sails.

The word is also written *amayne*. Waving *amain*, is to make a sign to another vessel, by waving a bright sword, or other thing, as a demand for striking its top-sails. This is commonly done either in the fore-top, or on the poop.

AMAIN is also a term used in letting down a thing, by a tackle, into the hold, or elsewhere, in the lowering a yard, or the like, to denote, that the sailors are to let go that part of the rope which they held before, and let it run at once, or suddenly.

AMALGAMA, or **AMALGAM**, in *Chemistry*, a mass of *MERCURY*, united and incorporated with a *METAL*.

The word *amalgama* is formed of the Greek, *αμα*, together, and *γαιειν*, to join; and is applied to the *ALLAYS* of metallic metals with *mercury*, which is capable of being *allayed* more or less easily with almost all metallic substances.

The *amalgama* of *mercury* with lead, is a soft, friable substance, of a silver colour.

By washing and grinding this *amalgama* with fair warm water in a glass mortar, the impurities of the metal will mix with the water; and by changing the water, and repeating the lotion again and again, the metal will be farther and farther purified. Boerhaave mentions it as one of the greatest secrets in chemistry, to contrive to bring off the liquor, at last, as clear and unfulled as when first poured on the *amalgama*; which, he says, might afford

a method of making the nobler metals, or procuring them from the baser.

This philosophical way of purifying metals, may be easily applied to all the metals, except iron and copper.

AMALGAMATION is either done in the *dry*, or in the *humid* way.

AMALGAMATION in the *dry* way, is performed in a mortar for the purpose, described by Becher and others.

AMALGAMATION in the *humid* way, is when part of the metal is first dissolved in its proper *menstruum*, and afterwards precipitated into an *amalgama*, by the addition of *MERCURY*.

This operation is denoted by chemists by the letters **A A A**.

The *amalgams* of gold, silver, tin, lead, zinc, bismuth, and copper, with quicksilver, are all white; and when the quantity of metal is large in proportion to that of the mercury, they thicken into a kind of paste.

All *METALS*, except iron and copper, spontaneously unite and *amalgamate* with mercury; but gold with the greatest facility; silver the next; then lead, and tin; copper, and regulus of antimony, with difficulty; iron, and, as Mr. Geller says, cobalt, scarce at all; but with all other metals, and semi-metals, mercury may easily be *amalgamated*. The *amalgamation* of all metals with mercury is much facilitated by heat; but with respect to the metals which unite with difficulty with mercury, it cannot be effected without heat. All metals ought to be divided into very small parts, when they are to be *amalgamated* by *trituration*, without fusion or heat.

AMALGAMATION of *copper*. The *amalgamating* mercury with copper is a very difficult process, mercury not mixing well with that metal unless when in fusion, and the heat sufficient to keep it in that state being great enough to evaporate the mercury. *Trituration*, however, may be made to supply the place of heat, first reducing the copper to an exceeding fine powder. This *amalgama* boiled in river water, and then distilled in a retort, and cohobated twice, leaves the copper, in form of a new metal, of the colour of gold, and more ductile than before. Shaw's Lectures, p. 433.

Amalgamations of *copper* may likewise be performed by dissolving the metal in *aqua fortis*, diluting the solution with twelve times the quantity of pure water, then heating it, and putting into it polished plates of iron; by this means the copper will be precipitated to the bottom, and the iron dissolved. Pour off the liquor, and wash the precipitated powder with hot water, till it become insipid. The powder being well dried, and put into a glass mortar, with an equal quantity of hot mercury, an *amalgama* will be made.

AMALGAMATION of *gold* is usually performed by heating the *laminae* or plates of that metal red-hot; after which, quicksilver, previously heated, is to be poured upon them, and the mixture is to be stirred with a little iron rod, till it begins to rise into smoke. It is then thrown into a vessel full of water, where it coagulates, and becomes manageable.

This *amalgamation* is in great use among goldsmiths and gilders; who, by this means, render gold fluid and ductile for their purposes. Such mixture or *amalgama* being laid on any other metal, for instance, copper; and this afterwards placed on the fire to evaporate, the gold will be left alone on the surface of the copper; which makes what we call *GILDING*.

The blackness adhering to the *amalgama* may be washed away with water; and a great part of the mercury may be pressed out through a linen cloth; and the rest being evaporated in a crucible, by a gentle and gradual heat, the gold remains behind in an impalpable power, which admits better of being burnished, than that which is procured by grinding of gold-leaf. Gold retains about thrice its own weight of mercury. See *Tables of AFFINITY*.

The method of extracting gold by *amalgamation* is thus described by Dr. Lewis: the gold sands, first cleared of grosser particles by water, are dried, and a small proportion, less than a hundredth part of their weight, of mercury, is poured on them; the whole is well kneaded together, that the mercury may penetrate, as much as possible, into all the interstices between the grains; upon which it imbibes the atoms of gold it meets with, and the sand is afterwards washed off with water. In the mines of the Spanish West Indies, where the gold is bedded in stones, the stony matter is reduced to a very fine powder, that every atom of the gold may be laid open to the mercury. The powder is soaked for some time in a solution of common salt; the mercury is squeezed in through a linen cloth, so as to fall like dew all over the surface; and the mixture being well stirred and kneaded, a gentle heat is applied, by which the ac-

tivity of the mercury is so far increased, that the incorporation of the gold with it, which in the cold requires about thirty days, is effected by this method in five or six days.

There is another method of expediting the *amalgamation*, described by Alonso Barba. He puts the powder, with a suitable quantity of mercury and water, into a deep copper vessel fixed in a furnace, and applies a fire sufficient to keep the water boiling. He likewise employs a small wooden mill to assist the ebullition of the water in giving motion to the earthy powder, which continually rising and falling down again, is brought into frequent contact with the mercury at the bottom, so as to give out its gold to the mercury in as many hours as the common process without heat requires days.

When the gold is judged to be united with the mercury, the earthy powder is washed off by water, so as to leave the *amalgam* clean. The gold-dust, or filings, dispersed through the sweepings of the goldsmiths shops, are recovered also by *amalgamation* with mercury. Com. Phil. p. 193, &c. See GOLD.

AMALGAMATION of iron. It is well known that this operation has been reckoned extremely difficult, if not absolutely impossible. However, M. Navier succeeded in combining mercury with iron by the following process. Having made strong solutions of iron and of mercury separately in distilled vinegar, he put equal quantities of each into a matras, which he placed in *balneo Mariae*. As soon as the liquor became very hot, there began to be formed on its surface, and within it, an extremely light, fine, white substance, resembling snow, which evidently contained mercury and iron, in a saline form, intimately united with each other. The liquor being filtered, left behind this snowy substance, which, when washed and dried, appeared to be a silvery mass, made by the union of innumerable crystals in the form of thin plates, without acidity or acrimony. Mem. de Math. & de Phys. vol. vi. Mem. 2.

AMALGAMATION of lead is thus performed. Melt a proper quantity of pure lead in an iron crucible, remove the vessel from the fire, and when the metal is a little cooled, pour to it an equal weight of clean mercury, which will immediately enter the lead with a hissing noise. Stir the mixture well together with an iron rod, and when cold, it will appear in the form of a softish brittle mass, called the *amalgam* of mercury with lead.

Bismuth promotes the action of mercury upon lead in a remarkable manner. Mercury impregnated with one fourth, one eighth, one twelfth its weight of bismuth, dissolves masses of lead, in a gentle warmth, without the agitation, or triture, or comminution, or melting heat, necessary for uniting lead with pure mercury. Lewis's Ed. of Neumann's Works, p. 93.

AMALGAMATION of platina. Dr. Lewis rubbed together one ounce of *platina* with six ounces of pure quicksilver, together with a little common salt and water, and a few drops of spirit of salt, in an iron mortar. After the grinding had been continued for about six hours, the grains of *platina* appeared to be coated with the quicksilver, so as to cohere together into a kind of imperfect *amalgam*. After repeating the experiment several times, and evaporating the mixture, he always found, upon examining the dark coloured powder, intermingled with shining particles which remained, that a part of the *platina* was dissolved by the mercury, and that the undissolved grains were coated with it. Com. Phil. &c. p. 508.

AMALGAMATION of silver is performed much after the same manner with that of gold; or it may be previously dissolved in *aqua fortis*, and then precipitated. Mr. Gellert observes concerning this *amalgam*, that its specific gravity is not only greater than the intermediate specific gravity of the mercury, and of the silver, but that it is even greater than the specific gravity of mercury, although silver is much lighter. Metall. Chym. tom. i. This *amalgam* is used in the operation of silvering, and also in making the *Arbor Dianae*.

Method of extracting silver by *amalgamation* is this: wash the ores, earths, stones, sands, &c. in which silver lies hidden in its metallic form, and when well washed, infuse them in very four vinegar, in a clean wooden, or glass vessel; about one tenth part of alum must also be first boiled, and dissolved in this vinegar; let the vinegar entirely cover the ore, and leave it thus for one or two days. Decant off the vinegar, and wash the macerated powder in pure warm water, till the water becomes quite insipid, when just poured upon it; dry the powder, and put it into an iron mortar; then add mercury four times the quantity of the dried powder, and with a wooden pestle fitted to the size of the mortar with a large round head, beat the whole till every part of the powder is rendered of a blackish colour, by the minute globules of

mercury mixt with it; at this time pour water on the whole, and continue rubbing it with the pestle for some time; pour out the turbid water, and add fresh, till all the loose powder is washed off; then dry the *amalgama* with a sponge. Cramer's Art of Assaying, p. 232.

To separate the silver from this *amalgama*, spread a thin leather over a wide earthen or glass vessel, fold it up in the form of a bag, and put the *amalgama* into it; tie the bag very firmly at the top, and squeeze it very hard, and the greatest part of the mercury will be forced through into the vessel placed underneath; untie the bag, and all the silver and gold, if there be any there, will be found remaining in it, with about an equal quantity of the mercury mixed with it. Put this paste into a glass retort, set it in a sand heat, adapt on a receiver, with a quantity of water in it; let the nose of the retort be immersed in the water, make a fire considerably strong, and the mercury will all be driven into the receiver, falling into the water with a hissing noise. If you hear a crackling in the retort, diminish the fire a little; when no more quicksilver can be driven over by a great fire, let the retort grow cool, then take it away, and split it by means of a thread dipped in brimstone tied round the belly of the retort, and then set on fire: take out the mass, and in an open fire run it, with the help of borax, into a mass. Ibid.

AMALGAMATION of tin is made in the same way with that of lead. This is used for tinning looking-glasses, and for making mercury-balls, used in purifying water. Mr. Canton first observed, that a small quantity of this *amalgama*, with a very little chalk or whiting, being rubbed on the cushion of a glass globe, or on the oiled silk-rubber of a tube, would contribute to increase the power of electricity; so that they might be excited by this means to a very great degree with very little friction, especially if the rubbers be made more damp or dry, as occasion may require. Phil. Trans. vol. lli. p. 461. See Experiments, &c. in ELECTRICITY.

AMALGAMATION is also applied, in a less proper sense, to a solution of sulphur with mercury.

In this sense *amalgamation* amounts to the same with molification, or softening; in which sense the word is used by some ancient chemists.

AMALOZQUE, in *Ornithology*, a name under which Nieremberg describes a Mexican bird. The neck of this is berd; it is of the size of the turtle, and lives about the lakes and rivers, but has not webbed feet; the breast, belly, and under-part of the wings are white; the tail is variegated with black and yellow, and it has two black circles, a finger's space asunder, round the neck and breast. It has a very long and slender beak, and feeds on the insects common in watery places. Ray.

AMAN, a sort of blue cotton cloth, which comes from the Levant by the way of Aleppo.

AMANDAVAS, in *Ornithology*, a species of the FRINGILLA, common in the East Indies.

AMANITA; see AGARICUS.

AMARACUS, among *Ancient Naturalists*; see SAMPSUCHUS.

AMARACUS, in *Botany*; see Bastard FEVERFEW.

AMARADULUS, in *Botany*, a name sometimes given to the woody NIGHTSHADE.

AMARANTH, an order of knighthood, instituted in Sweden by queen Christina in 1645, at the close of an annual feast, celebrated in that country, and called *Wirtschaft*.

This feast was solemnized with entertainments, balls, masquerades, and the like diversions, and held from evening till the next morning. That princess, thinking the name too vulgar, changed it into that of the *feast of the gods*, because each person here represented some deity, according as it fell to his lot. The queen assumed the name of *Amarante*, that is *unfading*, or *immortal*. The young nobility, dressed in the habit of nymphs and shepherds, served the gods at the table. At the end of the feast, the queen threw off her habit, which was covered with diamonds, leaving it to be pulled in pieces by the masques; and, in memory of so gallant a feast, founded a military order, called, in Swedish, *geselchafft*, into which all that had been present at the feast were admitted, including sixteen lords, and as many ladies, besides the queen. Their device was the cypher of *amarante*, composed of two A's, the one erect, the other inverted, and interwoven together; the whole inclosed by a laurel crown, with this motto, *dolce nella memoria*.

Bullstrode Whitlock, the English ambassador from Cromwell to the court of Sweden, was made a knight of the order of *amarante*. On which account it seems to be, that we sometimes find him styled Sir Bullstrode Whitlock.

AMARANTH, **AMARANTHUS**, *flower-gentle*, or *prince's feather*, in *Botany*, a genus of the *monocotyledon pentandria* class. The characters are these: it hath male and female flow-

flowers on the same plant. The flower hath no petals, but the empalement consists of three or five leaves, which is common to both sexes. The male flowers have in some species three, in others five slender stamina. The female flowers have three short styles; the seed-vessel hath one cell, in which is lodged a single globular seed. There are several species.

The species of this plant cultivated in gardens for their beauty, are raised on hot-beds; and in June or July may be planted into the borders of the pleasure garden, shading them until they have taken new root; and in dry weather they should be well watered.

All the species of this plant are drying and astringent, but heat not in a violent degree. Schroder recommends the flowers of the common large garden-kind dried and powdered, as good in diarrhoeas, dysenteries, hæmorrhages of all kinds, and incontinence of urine; but they are very little used in the present practice.

AMARANTH expresses a colour inclining to purple. The name is derived from the flower.

AMARANTHOIDES, in Botany, globe amaranth, or GOMPHRENA of Linnæus.

The culture and propagation of these plants is, in all respects, the same with that of the AMARANTH; only that they must have a greater share of heat, and must be forwarded more in the spring.

The flowers of this plant are commonly known by the name of *everlasting flowers*; and, if kept in a dry place, after having been gathered in their full perfection, and before they begin to decay on the plant, they will retain their full beauty many years.

AMARYLLIS, in the Linnæan system of Botany, the name of a genus of plants of the *hexandria monogynia* class, called in English *daffodil-lily*, and by other botanical writers *lillo-narcissus*: the corolla is bell-shaped, with six petals; the stigma is divided into three segments.

AMATIDES, in Natural History, a name given by Bartholomæus Anglus, and other writers of his time, to a stone, of which they recorded a wonderful virtue in resisting the fire.

AMATORII musculi, in Anatomy, an appellation sometimes given to those muscles of the eyes which give them a cast sideways, and assist in that particular look by some called *ogling*.

When the *abductor* and *humilis* act together, they give this oblique motion.

AMAUROSIS, in Surgery, a deprivation of sight; the eye remaining fair, and seemingly unaffected.

The word is formed of *αμαρωσ*, *I darken*.

Amaurosis is the same with what the Latins more usually call *GUTTA serena*.

A *perfect amaurosis* is when the blindness is total; when there is still a power of distinguishing light from darkness, the disease is called by M. de St. Ives an *imperfect amaurosis*. There is a periodical sort which comes on instantaneously, continues for hours, or days, and then disappears. The *nyctalops* is considered by some as a species of this disease. This disorder must be carefully distinguished from the *glaucoma*, or CATARACT, and a vertigo, which require different methods of treatment. If the *amaurosis* succeeds a fever, or comes upon the aged, or very infirm, a cure is not to be expected; if one eye fails, the other usually soon follows. But if the case be slight, and the habit of the body robust, if it happens after the measles, or small-pox, or in pubertine virgins, it is sometimes cured.

Mr. Hey, surgeon at Leeds, mentions several cases of patients afflicted with the *amaurosis*, who were relieved by being electrified. Med. Obs. and Inq. vol. v.

This distemper is sometimes denominated *suffusio nigra*, the black catarrh.

The *amaurosis* differs from the AMBLYOPIA, this being in an inferior degree. For methods of cure, &c. see Heister, Hoffman, St. Ives, &c.

AMAUUSA, a name by which the chemists have called the PASTES made of lead and crystal with various admixtures, for imitating gems.

AMAXOBII; see HAMAXOBII.

AMAZON, in Antiquity, denotes a bold, courageous woman, capable of daring, hardy achievements.

AMAZONS, in a more peculiar sense, denote an ancient nation of warlike women, who founded an empire in Asia Minor, upon the river Thermodoon, along the coasts of the Black Sea.

The *Amazons* are said to have formed a state out of which men were excluded. What commerce they had with that sex, was only with strangers; they killed all their male children, and cut off the right breasts of their females, to make them more fit for the combat.—From which last circumstance it is, that they are supposed to take their name, viz. from the privative *α*, and *μασος*, *mamma*, *breast*.

It is a point controverted, even among ancient writers,

whether ever there really were such a nation of *Amazons*?—Strabo, Palæphatus, and others, absolutely deny it: on the contrary, Herodotus, Pausanias, Diodorus Siculus, Trogus Pompeius, Justin, Pliny, Mela, Plutarch, &c. expressly assert it.

Hippocrates mentions a law among the *Amazons*, whereby they were doomed to remain virgins, till such time as they had slain three men of their enemies—He adds, that the reason of their cutting off the right breast was, to make the right arm the stronger; as supposing this would now receive the whole nutriment, which would otherwise have been divided between both.

Some authors relate, that, instead of killing, they only twisted the legs of their male children, to prevent their being able to contend with them for the mastery.

Dr. Bryant, in his Analysis of Ancient Mythology, explodes the above account of the etymology and establishment of the *Amazons* as fabulous; and observes, that they were, in general, Cuthite colonies from Egypt and Syria, who formed settlements in different countries, and that they derived their name from *zon*, the *sun*, which was the national object of worship. Vol. iii. p. 463.

M. Petit, a French physician, published a Latin dissertation, in 1685, to prove, that there was really a nation of *Amazons*; it contains abundance of curious inquiries, relating to their habit, their arms, the cities built by them, &c.—On medals, the *Amazons* bust is usually armed with a little ax, called *bipennis*, or *securis*, borne on the shoulder, and a buckler, in form of a half-moon, by the Latins called *pelta*, on the left-arm.—Hence that of the poet:

*Non tibia Amazonia est pro me sumenda securis,
Aut excisa levi pelta gerenda manu.*

Ov. ex Pont.

We read of Scythian *Amazons* in Herodotus; of Lybian *Amazons*, in Diodorus Siculus; and of German *Amazons*, in Lucius Florus. Later geographers and travellers also speak of Mingrelian and Georgian *Amazons*; *Amazons* in America, in Monomotopa, in the Philippine islands, in Denmark, &c.

The *Amazons* of South America, living on the banks of the great river which bears their name, make the greatest figure in modern story. They are represented as governed and led to war only by their queen. No men are suffered to live among them; though those of some neighbouring nations are suffered to visit them, at a certain season, for the sake of procreation. The females issuing from this commerce are bred up with care, and instructed in what relates to war and government; as to the males, they are sent away into the country of their fathers.

Some modern geographers and travellers mention *Amazons* still in being.—John de los Sanctos, a Portuguese Capuchin, in his description of *Æthiopia*, speaks of a race of *Amazons* in Africa; and *Aeneas Silvius* gives us a very precise account of a republic of real *Amazons*, in Bohemia, which lasted nine years; founded by the courage of a maid named Valasca.

AMAZON is also applied, in a figurative sense, to bees, because among these insects the females alone are commonly supposed to bear sway.

Aristotle, treating of the breeding of bees, professes himself ignorant of their sex; and therefore, willing to keep up the prerogative of the males, calls their governor βασιλεως, *rex*, in which he has been followed by the generality of authors.

An ingenious writer of our own country, takes the liberty to strain the ordinary signification of the word *rex*, and in such places translates it *queen*, this being an *Amazonian*, or female kingdom.

Mr. Warder has published a work under the title of the True *Amazons*, or Commonwealth of BEES.

AMAZONIAN, something relating to, or resembling AMAZONS.

AMAZONIAN kingdom, is particularly used for a feminine one, or that wherein the females alone bear rule.

AMAZONIAN habit, in Antiquity, denotes a dress formed in imitation of the *Amazons*.

Martia, the famous concubine of the emperor Commodus, had the appellation *Amazonian*, because she charmed him most in a habit of this kind.—Hence also that prince himself engaged in combat, in the amphitheatre, in an *Amazonian* habit; and of all titles the *Amazonius* was one of those he most delighted in.—In honour either of the gallant, or his mistress, the month December was also denominated *Amazonius*.

Some also apply *Amazonian habit* to the hunting dress worn by many ladies among us.

AMAZONIUS is an appellation given to a kind of pastil, or *trache*, anciently used against risings of the stomach, and vomitings.—The ingredients of which it is composed,

posed, are smallage, anise-feed, worm-wood, myrrh, pepper, *castoreum*, *opium*, and cinnamon.

AMBA, in *Botany*, a name by which some authors have called the *manga Indica*, or MANGO-tree, called also *ambalam*, and *ambe*.

AMBACHT, in *Topography*, denotes a kind of jurisdiction, or territory, the possessor whereof has the administration of justice, both in *alto* and *basso*; or of what is called in the Scotch law a power of pit and gallows, i. e. a power of drowning and hanging.

In some ancient writers *ambacht* is particularly used for the jurisdiction, government, or chief magistracy of a city. The word is very ancient, though used originally in a sense somewhat different. Ennius calls a mercenary, or slave hired for money, *ambactus*; and Cæsar gives the same appellation to a kind of dependents among the Gauls, who, without being slaves, were attached to the service of great lords.

AMBAGES, *circumlocution*; an indirect discourse, or phrase, tending to express or shew something by a compass of words or sentiments fetched from afar.

AMBAIBA, the name of a tree in Brasil, called by the Indians, *tipioca*. Ray's Hist. Plant.

AMBAITINGA, the name of a tree, whose leaves are so rough, that they may be used to polish hard wood. Ray's Hist. of Plant.

AMBAR-feed, in the *Materia Medica*, a name by which some have called musk-feed.

AMBARVALIA, in *Antiquity*, a feast, or ceremony, among the Romans, celebrated annually, in honour of the goddess Ceres, in order to procure a happy harvest.

At these feasts they sacrificed a bull, a sow, and a sheep; which, before the sacrifice, were led in procession thrice around the fields; whence the feast is supposed to have taken its name: from the Greek *αμμι*, about; or the Latin *ambio*, I go round; and *arvum*, field. Though others write it *ambarbalia*, and *ambarbia*, and deduce it from *ambire urbem*, to go round the city.

From the beasts offered in sacrifice, the ceremony was also called SUOVETURILIA.

Some will have the *ambarvalia* to have been held twice a year; the first time towards the end of January, or, as others think, in April; and the second time in July, or, as Rosinus imagines, in August; at the time when the harvest was ripe, *maturis frugibus*. Which opinion is the more probable, because Ovid, who, in his *Fasti*, describes the feasts in the first six months of the year, from January to June inclusive, says nothing of the *ambarvalia*.

The sacrifice offered on this occasion was hence called *ambarvale sacrum*, and *hostia ambarvalis*.

The *ambarvalia* were of two kinds, *public* and *private*.

The *private* were those solemnized by the masters of families, accompanied with their children and servants, in the villages and farms out of Rome. They walked three times round the grounds, every one being crowned with leaves of oak, and singing hymns in honour of Ceres. After the procession, they went to sacrifice.

The *ambarvale carmen* was a prayer preferred on this occasion; whereof we have the *formula* preserved in Cato.

The *public ambarvalia* were those celebrated in the boundaries of the city; and in which the twelve *fratres arvales* officiated pontifically, walking, at the head of a procession of the citizens, who had lands and vineyards at Rome.

The prayer, or *formula*, here used, was *avertas morbum, mortem, tabem, nebulam, impetiginem, pestilentem*.

Some make a quinquennial as well as an annual *ambarvalia*, the one performed once every *lustrum*, the other once a year.

The priests who chiefly officiated at the solemnity, were called *fratres ARVALES*.

AMBARVALIS *flos*, in *Botany*, a name given, by some authors, to the *polygala*, or milkwort.

AMBASSADOR. See EMBASSADOR.

AMBE, in *Anatomy*, a superficial jutting out of a BONE.

AMBE, in *Surgery*, is also used as the name of an ancient instrument, with which they reduced dislocated bones. The *ambe* or *commander*, is mentioned by Hippocrates, and has its partizans among the moderns, especially for replacing the arm.

It consists of an horizontal lever, and a fixed point made of a piece of wood standing vertically, to the extremity of which the lever is jointed by a hinge. The patient sitting, and his arm that is hurt being raised, the machine is pushed forward under the arm-pit, as far as can be: *curandum*, says Hippocrates, *ut quam penitissimè alam subeat*. The arm is tied to this horizontal piece, and then an assistant bears upon the scapula and the clavicle, whilst another presses down the lever, and thus makes the bone come into its place again.

The capital defect of the *ambe* is, that it pushes the head of the bone into its cavity, before the extension and

counter extension are made; the dangerous consequences of which are, first, that the reduction is very difficult, because the bone is not conducted by the same way it took in luxating itself, and that one meets with obstacles from the parts that surround it, even the *scapula* itself, on which it articulates. Secondly, in making efforts for surmounting those obstacles, one runs the risque of turning inwards the cartilaginous edge of the cavity of the *scapula*, or the *capsula ligamentosa*. The third defect of the *ambe* of Hippocrates is, that it cannot move the luxated bone, but from below upwards; consequently the machine is only proper in luxations directly downwards; and yet it is certain, that the arm luxates itself both outwards and inwards, and luxations forward are very frequent. In those cases, the *ambe* is useless, and being dangerous in luxations downwards, it follows, that this machine labours under very great defects.

Mr. le Cat, in the *Phil. Trans.* N^o 469, has endeavoured to remedy these defects, by giving the description and use of a new *ambe*, not subject to the inconveniences of the old one.

AMBER, *succinum*, or *karabe*, in *Natural History*, &c. a yellow, transparent substance, of a gummy or bituminous form or consistence, of a resinous taste, and a smell like oil of turpentine; chiefly found in the Baltic sea, along the coasts of Prussia, &c. of use in medicine, and in divers arts.

The word is originally Arabic, *ambar*, or *anbar*, which signifies the same.

This substance has been of great repute in the world from the very earliest times we have any knowledge of; many years before Christ it was in esteem as a medicine; and Plato, Aristotle, and Herodotus, and among the poets, Æschylus, and others, have commended its virtues. In the times of the Romans it became in high esteem as a gem; and in the luxurious reign of Nero, immense quantities of it were brought to Rome, and used for ornamenting works of various kinds. Long after this, Theodoric king of the Goths shewed a high esteem for it. However well known, and however highly esteemed this substance was in these ages, its nature and origin yet remained unknown through a long series of time, and various conjectures were made about it in the different places where people were possessed of it among their gems.

The generality of the false accounts of *amber* have been owing to the ignorance of the persons who have taken upon them to give the history of it: they have, in general, taken upon hearsay what they have related, or borrowed it from books they were not able to understand. Thus we find the many places in Asia and Africa, celebrated for producing large stores of *amber*, are taken upon credit from the old authors, who have mentioned *ambra* as being found there: these copiers not distinguishing, that *ambra* in these places is not given as the name of *succinum*, or *amber*, but that of the rich perfume called *ambergris*, which is found there, though the real *amber* never was.

The name of *oriental amber*, so common with some, seems to have been also owing to a mistake, but of another kind; the *gum COPAL*, brought from the East Indies, is very like *amber*, and some of the fantastic writers in chemistry have called this by the forced name of *oriental amber*. Hence those who read their works, without perfectly understanding them, have supposed that *amber* was common in the East Indies; and as all the gems of that part of the world are superior to those of other places, they began to call all the fine pieces of this fossil, by the pompous name of *oriental amber*. But it is certain, that we have no authentic account of its ever having been found in any of those regions. All the intelligent persons, who have resided in the East Indies, say, that they never saw or heard of *amber* being found there. And, upon the whole, it seems very rational to conclude, that our *oriental amber* never existed, otherwise than in the error before mentioned, of calling *COPAL* by that name. This we are very well assured of, that the Chinese, who are as cunning a people as any in the world, expend annually with us vast sums of money in buying European *amber*, and have done so at all times since we have trafficked with them; and it is by no means to be supposed that they would purchase it of us, if they had it nearer home. Europe seems the only region of the world where *amber* is produced: it seems also to be produced almost all over Europe, but not in equal plenty, nor perfection; the German dominions, and the country about the Baltic, claim the prerogative above all other places. Hartman, who has given the above mentioned account of the errors of the ancients, &c. in regard to the places of its origin, has been too free in censuring the moderns for giving it to some parts even of Europe: he scruples to believe that Italy, Spain, and even England, produce *amber*; but

but in this he errs: he supposes that *jet*, which is called by some *black amber*, being found in these places, has imposed upon the authors of these accounts, and made them say *amber* was found there; but nothing is more certain, than that *amber*, and that of the finest kind in the world, is found in England at least, if not in the other places where he doubts of its production.

Amber is at this time thrown on the shores of Yorkshire, and many other places, and found even in our clay-pits; the pits dug for tile-clay, between Tyburn and Kensington Gravel-pits, have afforded many specimens; and that behind St. George's Hospital, at Hyde-park Corner, has afforded fine specimens, one of which has been wrought into a beautiful cane-head of three inches long; and if we mention Dr. Woodward, and the other authors, who have themselves taken it up, we shall have no room to doubt of its being real *amber*, not *JET*, as Hartman supposes.

Poland, Silesia, and Bohemia, are famous for the *amber* dug up there at this time. Germany affords great quantities of *amber*, as well dug up from the bowels of the earth, as tossed about on the shores of the sea and rivers there. Saxony, Misnia, and Sweden, and many other places in this tract of Europe, abound with it. Denmark has afforded, at different times, several quantities of fossil *amber*; and the shores of the Baltic abound with it. But the countries lying on the Baltic afford it in the greatest abundance of all; and of these the most plentiful country is Prussia, and the next is Pomerania. Prussia was, as early as the times of Theodoric the Goth, famous for *amber*; for this substance coming into great repute with this prince, some natives of Prussia, who were about his court, offered their service to go to their own country, where that substance, they said, was produced, and bring back great stores of it. They accordingly did so; and from this time Prussia had the honour to be called the *Country of Amber*, instead of Italy, which had before undeservedly that title.

The *amber* of Prussia is not only found on the sea coasts, but in digging; and though that of Pomerania is generally brought from the shores, yet people, who dig on different occasions in the very heart of the country, at times find *amber*. Phil. Trans. N° 248. p. 5. See MATRIZ Succini.

Junker describes, after Neumann, the Prussian *amber-mines*, which are the richest known.

First, at the surface of the earth, is found a *stratum* of sand. Immediately under this sand is a bed of clay, filled with small flints of about an inch diameter each. Under this clay lies a *stratum* of black earth, or turf, filled with fossil wood, half decomposed, and bituminous; this *stratum* is extended upon a bank of minerals, containing little metal, except iron, which are consequently pyrites. Lastly, under this bed the *amber* is found, scattered about in pieces, or sometimes accumulated in heaps.

Naturalists are greatly divided as to the origin of *amber*, and what class of bodies it belongs to; some referring it to the vegetable, others to the mineral, and some even to the animal kingdom. Its natural history, and its chemical analysis, afford something in favour of each opinion.

Pliny describes it as, 'a resinous juice, ousing from aged pines and firs (others say from poplars, whereof there are whole forests on the coasts of Sweden), and discharged thence into the sea, where, undergoing some alteration, it is thrown, in this form, upon the shores of Prussia, which lie very low: he adds, that it was hence the ancients gave it the denomination *succinum*, from *succus*, juice.'

This opinion of the ancient naturalists seem confirmed by observations of many of the modern ones; particularly of the learned father Camelli. Phil. Trans. N° 290.

Some suppose it a BITUMEN, trickling into the sea from subterraneous sources; and there concreted into this form, and thrown ashore by the waves. But as good *amber* has been found in digging at a considerable distance from the sea, as that gathered on the coast.

Others suppose *amber* a compound substance—Prussia, say they, and the other countries which produce *amber*, are moistened with a bituminous juice, which mixing with the vitriolic salts abounding in those places, the points of those salts fix its fluidity, whence it congeals, and the result of that congelation makes what we call *amber*; which is more or less pure, transparent, and firm, as those parts of salt and bitumen are more or less pure, and are mixed in this or that proportion.

Mr. Brydone, in his Tour to Sicily and Malta, says, that the river Gearretta, formerly celebrated by the poets under the name of Simetus, throws up near its

mouth great quantities of *amber*. Vol. i. Lett. 12. p. 282.

He mentions also a kind of artificial *amber*, not uncommon there, made, as he was told, from COPAL, but very different from the natural. Ib. p. 284.

If the people, who collect *amber* on the shores of the Baltic, were more curious and particular in their observations of the masses they find, we should doubtless have much more lights into its true history and nature. There is no question but that some pieces of it are tossed up there so imperfectly formed, that the process of nature may be seen in its different stages. Pieces have been sometimes found so soft, as to receive the impression of a seal: these are always not only perfect *amber* in other respects, but they are observed to have a smell stronger than the common *amber* has. These pieces sometimes harden immediately, on being exposed to the air, but sometimes they retain this softness many months. We have an account of such a piece, which had retained this softness a whole year, in which time it had lain among other pieces of *amber*; and of another mass very soft on one side, and hard on the other, and containing in the soft part a fly buried. Phil. Trans. N° 57.

Hartman has undertaken to prove, that *amber* is formed of a BITUMEN, mixed with vitriol and other salts; and though this is allowed him in regard to the fossil *amber*, many dispute whether the sea or *haustile amber*, as they express it, be so produced. It is, however, very evident, that all *amber* is of the same origin, and probably all the *haustile amber* is first washed into the sea out of the cliffs; though Hartman thinks it very possible, that some of it may be formed in the earth under the sea, and be washed up thence. The *haustile*, or *sea amber*, is usually finer to the eye than the *fossile*; but the reason is, that it is divested of that coarse coat with which the other is covered while in the earth. Hartman's Hist. Succini.

The chemists are as much divided on this head as the naturalists. *Amber* being found by distillation to yield an acid spirit, which precipitates into salt, is inferred, by some to be of a mineral nature; this being a circumstance peculiar to that kingdom, and never found in the distillation of vegetables: to which may be added, that *amber* dissolves in *alcohol*, not in water; and melts at the fire, and is inflammable; which are characters that seem to refer it to the class of sulphurs, or bitumens.

Others, on the contrary, argue it to be of the vegetable kind, from its resolving into the same principles with vegetables, viz. water, spirit, salt, and oil. See MATRIZ Succini. Boerhaave resembles it to camphor, which is a concrete oil of the aromatic plants of hot countries, elaborated by heat into a crystalline form.

Amber, though fusible with a small fire, and concreting again when cold, yet differs from the metals, and other fusible bodies of that kind, in this, that as soon as cold they are the same as before melting; but *amber*, when it has once been melted, is no longer *amber*, it loses its beauty and hardness; and the true reason of this is said to be, that being composed of BITUMEN and salt, the salt flies off in the heating, and leaves the remainder little better than the simple *residuum* of an evaporated *petroleum*, or any other liquid bitumen. There have been people, at different times, who have pretended to have an art of melting small pieces of *amber* into a mass, and constituting large ones of them; but this seems such another undertaking as the making of gold; all the trials that have yet been made by the most curious experimenters, proving, that the heat which is necessary to melt *amber*, is sufficient to destroy it. Phil. Trans. N° 248. p. 25.

Hartman indeed mentions an accident, which shews a possibility of many pieces of *amber* being combined into one by an operation of nature, though it never could be effected by art. A sheep was once killed in Prussia, in whose stomach a large piece of *amber* was found, which was composed of several other smaller pieces, the joinings of all which might be seen, though as firm as the pieces themselves. This is a proof that the creature had swallowed the whole in small pieces with its food, and that nature, by the heat and juices of its stomach, had softened those pieces without melting them, so as to make them unite firmly, though not so as to be thoroughly blended with each other. Could art arrive at this, which it is not probable it ever will, even this is far short of what is pretended of melting *amber*, and casting it into what forms desired.

There are several indications which discover where *amber* is to be found.—The surface of the earth is there covered with a soft scaly stone; and vitriol in particular always abounds there, which is sometimes found white, sometimes reduced into a matter, like melted glass, and sometimes figured like petrified wood.

Amber assumes all figures in the ground: that of a pear, an almond, a pea, &c. In *amber* there have been said to be letters found very well formed; and even Hebrew and Arabic characters.—Within some pieces of *amber* have likewise been found leaves, insects, &c. included; which seems to indicate, either that the *amber* was originally in a fluid state, or that having been exposed to the sun, it was once softened, and rendered susceptible of the leaves, insects, &c. which came in its way. The latter of these suppositions seems the more agreeable to the phenomenon, because those insects, &c. are never found in the centre of the pieces of *amber*, but always near the surface.

It is observed by the inhabitants of the places where *amber* is produced, that all animals, whether terrestrial, aerial, or aquatic, are extremely fond of it; and that they frequently find pieces of it in their excrements, and in their bodies when opened.

The bodies of insects, found buried in *amber*, are viewed with admiration by all the world; but of the most remarkable of these, many are to be suspected as counterfeit, the great price, beautiful specimens of this kind sell at, having tempted ingenious cheats to introduce animal bodies in such artful manners into seemingly whole pieces of *amber*, that it is not easy to detect the fraud. The factitious curiosities in *amber*, which are pretended to be pieces of this fossil, with insects embedded in it, are usually no other than a hardened varnish, not having the hardness, or other qualities of *amber*. Some few of them are *amber melted*, into which the insects have been put in that state, but these are very coarse and brittle. These two kinds of cheat are discovered by their want of hardness, or by observing the sides of the piece, to find the joining where it had been split.

Many species of the fly kind, however, are obviously and indisputably lodged by nature there. Among this tribe of animals, the several species of the *ichneumon* fly are found the most numerous; the common house and flesh flies are also frequently found thus preserved; and it is remarkable, that of those some have preserved, and others have wholly lost their natural colours. These are sometimes found in cloudy pieces of *amber*, but much more frequently in the perfectly clear and fine ones; and in these many are seen plainly to be encrusted with a thin coat of the matter of the *amber*, separate from the mass.

Some of these, which are inclosed in it, are plainly seen to have struggled hard for their liberty, and even to have left their limbs behind them in the attempt; it being no unusual thing to see in a mass of *amber* that contains a flout beetle, the animal wanting one, or perhaps two of its legs; and those legs left in different places, nearer that part of the mass from which it has travelled. This also may account for the common accident of finding legs, or wings of flies, without the rest of their bodies, in pieces of *amber*, the insects, to which these have belonged, having, when entangled in the yet soft and viscid matter of the *amber*, escaped, at the expence of leaving these limbs behind them. Drops of clear water are sometimes also preserved in *amber*. These have doubtless been received into it while soft, and preserved by its hardening round them. They are usually contained in cavities too large for them, though sometimes the holes are filled up. In some specimens, the holes alone remain without any moisture. Naturalists, who have been so curious as to examine this liquor contained in the *amber*, have found it to be of an austere taste, like that in which vitriol had been dissolved: others mention the having met with it wholly insipid, and some tasting of sea-salt. It is easy to account for a drop of water, of any of the three kinds, being found in *amber*, but the vitriolic water is the most natural there, as there is always great plenty of vitriol where the *amber* is found. Beautiful leaves of a pinnated structure, resembling some of the ferns, or maiden-hairs, have been found in some pieces; but these are rare, and the specimens of great value.

Mineral substances are also found at times lodged in masses of *amber*. Some of the pompous collections of the German princes boast of specimens of native gold and silver in masses of *amber*; but as there are many substances of the marcasite, and other kinds, that have all the glittering appearance of gold and silver, it is not to be too hastily concluded that those metals are really lodged in these beds of *amber*. Iron is found in various shapes immersed in *amber*, and as it is often seen eroded, and sometimes in the state of vitriol, it is not impossible but that copper, and the other metals, may be also sometimes immersed in it in the same state; and that the bluish and greenish colours, sometimes found in the recent pieces of *amber*, may be owing, like the particles

of the gem colours, to those metals; but as the gems, by their dense texture, always retain their colours, this lighter and more lax bitumen usually loses what it gets of this kind, by keeping some time. Small pebbles, grains of sand, and fragments of other stones, are not unfrequently also found immersed in *amber*.

There is one very easy way of distinguishing also whether these are real and natural curiosities, or whether art has been concerned in them; which is by examining at what depth in the mass the creature lies. *Insects* naturally embodied in *amber* are always found near its surface, or, at least, there are few found otherwise. The artificially buried creatures are always lodged in or near the centre. The reason of this is plain; for the artist knows the deeper the creature lies, the better his art will be concealed; and that if he had lodged it near the surface, the natural transparency of the thin plate of *amber* which lay over it, would have shewn the fallacy, by bringing the artificial hollow too near the eye. Phil. Transf. N^o 248. p. 21.

The most remarkable property of *amber* is, that, when rubbed, it draws or attracts other bodies to it; and this, it is observed, it does even to those bodies which the ancients thought it had an antipathy to; as oily bodies, drops of water, sweat of human bodies, &c.

Add, that by the friction it is brought to yield light pretty copiously in the dark; whence it is reckoned among the native *phosphori*.

This property which *amber* possesses of attracting light bodies was very anciently observed. Thales of Miletus, six hundred years before Christ, concluded from hence that it was animated. But the first person, who expressly mentions this substance, is Theophrastus, about the year 300, before Christ. The attractive property of *amber* is likewise occasionally taken notice of by Pliny and other later naturalists particularly by Gassendus, Kenelm Digby, and sir Thomas Brown; but it was generally apprehended that this quality was peculiar to *amber* and jet, and perhaps agate, till Gilbert published his treatise *De Magnete*, in the year 1600. From *ηλεκτρον*, the Greek name for *amber*, is derived the term *ELECTRICITY*, which is now very extensively applied not only to the power of attracting light bodies inherent in *amber*, but to other similar powers, and their various effects, in whatever bodies they reside, or to whatever bodies they may be communicated.

Some distinguish *amber* with regard to its colours, into *yellow*, *white*, *grey*, and *black*. But the two latter are properly of a different nature and denomination; the one called *JET*, the other *AMBERGRIS*.

The *white* is most valued for medicinal uses, as being best digested, of the most odoriferous smell, and containing the greatest quantity of volatile salt. The *yellow* is most prized by those who work it into beads, and other toys, by reason of its transparency.

There are two methods of rendering *amber* transparent; either by cementing lumps of it with sand, during forty hours, in an iron pot; or by digesting them, during twenty-four hours, in boiling rape-seed oil.

AMBER is the basis of all varnishes. For the method of dissolving this substance into varnish, see *VARNISH*.

But if *amber* could be dissolved without impairing its transparency, or one large mass be made of it by uniting several small ones, it is easy to see what would be the advantages of such a process. The art of embalming might possibly be also carried to a great height by this, if we could preserve the human corpse in a transparent case of *amber*, as the bodies of flies, spiders, grasshoppers, &c. are, to a great perfection. Something of a substitute of this kind we have in fine rosin, boiled to a great hardness, and perfect transparency; this being dissolved by heat, and the bodies of small animals several times dipped in it, they are thus coated with colophony, that in some degree resembles *amber*; but this must be kept from dust. Shaw's Lectures, p. 425.

For the methods of dissolving *amber* in oils, the advantages of such solutions, and a farther account of its preparation for varnishes, the curious may consult Dr. Lewis's *Commerc. Phil. Techn.* p. 366, & seq.

AMBER is reputed of some medicinal efficacy; being used in suffumigations, to remove defluxions; and in powder, as an alterant, absorbent, sweetener, and astringent.

In times of the plague, those who work in *amber* at Koenigsberg, are said to be never infected; whence it is held a preservative. It is also esteemed a lithontriptic, diuretic, and promoter of the *menfes*.

It is prescribed in the *fluor albus*, in convulsions, and in all disorders of the nerves. It is also given in coughs, and diseases of the lungs; and is by some greatly recommended in inveterate head-achs. Its dose is from one scruple to two.

Its preparations are as follow :

AMBER, spirit of, is an acid liquor, procured from *amber*, by pulverising and distilling it with a sand heat, with or without the addition of tobacco-pipes, bricks, sand &c.

It is chiefly used externally in rheumatic pains and aches; and internally, in inveterate gleans, &c.

AMBER, oil of, is a fine, transparent, ponderous, yellow oil, procured after the spirit, by increasing the degree of fire. This, by rectification, becomes a good antihysterical, and emmenagogue; being very subtil and penetrative.

To purify the dark muddy oil of *amber* drawn *per se*, take two pounds of good brandy, one of sea-salt, half a pound of the oil; mix them, and distil them together, and a large proportion will come over very transparent, and finely coloured.

AMBER, volatile salt of.—The principal chemical production of *amber*, is a peculiar acid salt; which rises after the oil, and fixes in the neck of the retort, &c. Mr. Potts concludes from several experiments, that the acid of this salt is essentially different from the three mineral acids, and approaches nearest to those of the vegetable kingdom. See *ACID of Amber*.

It is a good cephalic, and detergent; and Quincy says, it extremely attenuates, and cuts, and penetrates, the most remote and minute recesses; and thus scours, as it were, the whole nervous system. Its chief tendency, he adds, is to secretion, and what it carries along with it, is by urine. It also contributes, with alexipharmics, to promote a *diaphoresis*; and is scarce ever omitted in prescription for chronic cases, as epilepsies, palsies, &c. The great consumption of this medicine, and the small proportion that *amber* yields of it, occasions it to be frequently adulterated with sal ammoniac, nitre, cream of tartar, salt of coral, &c.

AMBER, tincture of, is procured by digestion in spirit of wine with a sand heat. It is prescribed with the same intentions as the salt of *amber*.

AMBER, black, gages. See *JET*.

AMBER, liquid, and balsam of. See *BALSAM*.

AMBER-SEED, or musk-seed, is a seed that is somewhat like the millet, of a bitterish taste, and brought dry to us from Martinico and Egypt. The Egyptians use it internally, as a cordial, to fortify the heart, stomach, and head, and to provoke lust.—It gives a grateful scent to the breath, after eating; but it is not proper for those who are inclinable to vapours.

AMBER-TREE, anthospermum, in *Botany*, a genus of the *polygamia dioecia* class. Its characters are these: it is male and female in different plants, and the male flowers have no petals. The female flowers have the same structure as the male, but have no stamina; an oval germen is situated in the bottom, which becomes a roundish capsule having four cells, and containing several angular seeds. There is but one species.

The beauty of this shrub is its small evergreen leaves, which grow as close as heath, and being bruised between the fingers emit a very fragrant odour.

It is but of late years, that this plant could be propagated by seeds, no female plants being in our gardens; they were, therefore, continued from cuttings, until seeds were procured from the Cape of Good Hope, from which both kinds were raised.

AMBERBEL, in Botany. See *CENTAURY*.

AMBERGRIS, from amber and gris, grey, AMBER GREASE, AMBRA GRISIA, a fragrant drug, that melts almost like wax; and is commonly of a greyish or ash-colour, and is used both as a perfume, and a cordial.

It is found on the sea-coasts, in several countries; as, along the southern and eastern parts of Africa, Madagascar, the Maldives, some parts of the Mediterranean, and in the West Indies, about the islands of Bermudas and Jamaica; also on the coasts of Carolina, and the western coasts of Ireland. It is likewise said to be found on the coasts of Norfolk, and in the islands of Orkney. It is sometimes whitish, brownish, and streaked with yellowish, blackish, &c.

There is a great variety of opinions among naturalists with regard to its origin and production: to rehearse them all, would make a volume. Klobius recites eighteen, to which we could add half as many more. The principal may be reduced to these which follow.

1. Some take it for the excrement of a bird, called in the Madagascar language *aschibobuch*; which being melted by the heat of the sun, and washed off the shore by the waves, they say is swallowed up by whales, who return it back in the condition we find it.

2. Others speak of it as the excrement of a cetaceous fish; because sometimes found in the intestines, and sometimes in the faces themselves, of such animals.

But to both these hypotheses it is objected, that we have no instance of any excrement capable of melting like wax. Besides, the error of these opinions may be detected by chemical experiments; the dung of all animals admitting of a solution in aqueous menstrua, but obstinately resisting the most highly rectified spirit of wine. Add, that if it were the excrement of a whale, it should rather be found in such places where those animals abound, as about Greenland, &c. than about the Maldivian islands, Soffala, Melinda, Cape Comorin, &c. where no whales are found.

3. Others take it for a kind of wax, or gum, which distils from trees, and drops into the sea, where it congeals, and becomes *ambergris*.

4. Others, and particularly many of the orientals, imagine it springs out of the bottom of the sea, as *naphtha* does out of some fountains.—They add, that the only springs hereof are in the sea of Ormus; between the Arabian and Persian Gulfs. Edrissa, who is of this opinion, in the first climate of his Geography, mentions pieces of *ambergris* on those coasts, weighing a full quintal. Paludanus and Linschotten also speak of it as a sort of bitumen, gradually working up from the bottom of the sea and hardening in the sun.

5. Others take it for a sea mushroom, torn up from the bottom by the violence of tempests; it being observed, that *ambergris* is never found but during the south-west monsoons, after storms.

6. Others assert that it is a vegetable production, issuing out of the root of a tree, whose roots always shoot toward the sea, and discharge themselves into the same. This account we have in the Philosophical Transactions, from one of the Dutch factors at Batavia; and the same is confirmed by Mr. Boyle.

7. Others suppose it a spongy kind of earth, which the working of the sea washes from off the rocks, where, being lighter than water, it floats. Others are of opinion, that it is a bituminous matter; that it is at first liquid, and runs into the sea; and that it is there condensed, and reduced into a mass.

8. Others maintain, that *ambergris* is made from the honey combs which fall into the sea from the rocks, where the bees have formed their nests. This opinion seems to have something of experience on its side; several persons having seen pieces that were half *ambergris*, and half plain honey-comb; and others, again, having found large pieces of *ambergris*, in the middle of which, when broken, they discovered both honey-comb and honey. But the error of this hypothesis may be detected by chemical experiments; as honey likewise admits of a solution in aqueous menstrua, but resists the most highly rectified spirit of wine.

9. Dr. Boylston, and Mr. Dudley, in the Philosophical Transactions, assert, that the *ambergris* is a true, animal concrete, formed in balls, in the body of the male spermaceti whale, and lodged in a large oval bag, over the testicles, at the root of the penis. Phil. Trans. N° 385. and 387.

It is certain the whale-catchers have divers times found *ambergris* in their spermaceti whales, and that chiefly in the larger and older sort; and it is from the informations of Mr. Atkins, and other whale-catchers, that Mr. Dudley chiefly drew his account. But it is added, that it is not one spermaceti whale in a hundred that is found to have *ambergris*. Mr. Neumann absolutely denies it to be an animal substance, as not yielding, in the analysis, any one animal principle. It may indeed, he says, be found in whales; but it must have been swallowed by them.

Mr. Neumann, chemist to the king of Prussia, after an ample recital of all the different opinions advanced by others, gives us his own; which is, that *ambergris* is a BITUMEN, issuing out of the earth into the sea; at first of a viscous consistence, but hardening, by its mixture with some liquid *naphtha*, into the form wherein we find it. Phil. Trans. N° 433, N° 434, N° 435. Mr. Cartheuser is of the same opinion.

This opinion seems to be the best founded, and is strengthened by this circumstance, that *ambergris* is found in the greatest quantities in the sea, about the island of Madagascar, where the subterranean parts are supposed to be impregnated with bituminous matter.

The pieces are frequently seen composed of divers strata, laid one over another, with stones and other bodies inclosed therein, and the strata are sometimes full of little shells, which seem a species of *concha anatifera*; whence it may be conjectured; that the *ambergris* has originally been in a fluid state, or, at least, that it has been dissolved and in that state has formed itself afresh, and enveloped such bodies as happened to be in its way.

Ambergris is of considerable use among perfumers, who melt

melt it over a gentle fire, and make extracts, essences, and tinctures of it. It would be of more use in physic too, were not its smell apt to occasion vapours.

There is a preparation, however, recommended by Hoffman, which is said not to be attended with these ill consequences. The preparation is made in the following manner.

Let the spirit of roses, perfectly dephlegmated, be, not only once, but twice, at least, drawn off from the salt of tartar, which is burnt, or calcined, into a vehement fire. By this means there is produced a spirit, which, by its penetrating quality, enters into the inmost substance of the *ambergris*, and so separates and resolves its oleous contexture.

This, we are assured, will not excite commotions and agitations in a weak body, as does the common preparation of *ambergris*, which is made with a mixture of musk or civet. Hoffm. Observ. Physic. Chem. lib. i. cap. 18.

It enters into the composition of many cordial, sudorific, and alexiterial waters. But its chief virtue consists in its antispasmodic and sedative qualities, similar to those of musk and castor, and its power of relieving certain hysterical, convulsive, and other nervous affections. It may be taken inwardly from half a grain to ten or twelve grains, or more; for as to doses there can be no fixed rules about remedies and diseases of these kinds.

Amberegris is very commonly counterfeited and adulterated. The first generally consists of musk, civet, storax, laudanum, and aloes wood, mixed together; the latter of a large quantity of bullock's blood, duly flavoured with musk and civet. It is one of the most agreeable perfumes; but must be proportioned so sparingly, as that while it improves the smell of what it is added to, its own may not be felt.

Neumann gives the chemical characters of this bitumen, and its analysis, by distillation. He distinguishes the sophistications of *ambergris*, and observes, that it is totally soluble in oils and vinous spirits, and that it yields the same products as AMBER. See the particulars and the proofs of this in Neumann's Works, p. 239, & seq.

We have various instances in authors, of vast pieces of this matter: one of the largest that has been known in Europe, was brought by the Dutch East-India company, toward the close of the last century, and kept in their house for some years. It was almost round; measured two feet in diameter, and weighed a hundred and eighty-two pounds. The great duke of Tuscany offered fifty thousand crowns for it. We are told, however, that one was taken up, near the Cape of Good Hope, which weighed three hundred pounds; and another, if we may credit the relation, fifteen thousand pounds. Phil. Trans. N^o 263. N^o 232.

AMBERERIS, may be known to be genuine by its fragrant scent, when a hot needle or pin is thrust into it, and its melting like fat, of an uniform consistence. Whereas the counterfeit will not yield such a smell, nor prove of such a fat texture.

One thing however is very remarkable, that this drug, which is the most sweet of all the perfumes, should be capable of being resembled in smell, by the preparation of one of the most odious of all stinks. Mr. Homberg found, that a vessel in which he had made a long digestion of the human *faeces*, acquired a very strong and perfect smell of *ambergris*, insomuch that any one would have thought a great quantity of essence of *ambergris* had been made in it. The perfume was so strong and offensive, that the vessel was forced to be removed out of the elaboratory. Mem. Acad. Roy. 1700.

AMBERING is used, by some writers, to denote the giving a scent or perfume of *amber* to any thing.

This is otherwise called *enambling*. Hooke, Phil. Collect. N^o 4.

Dr. Hooke mentions an extraordinary method of *ambering in infinitum*, i. e. with a small quantity of *amber*, and other requisites, *enambling* a hundred, or a thousand pounds of sugar, or the like, so as the first matter still remains undecayed, to be used again. Ibid.

AMBIDEXTER, one who uses both hands alike, the left as well as right, or in cases where only the use of one is necessary.

The word is compounded of *ambo*, both, and *dexter*, right hand; by analogy to the Greek, *αμφιδέξιος*, which signifies the same.

Women, according to the observation of Hippocrates, are never *ambidextrous*. But this is denied by some moderns, who give instances of the contrary; though it is owned, they are but few in comparison of those that are found in the other sex.

It may be imputed to education and habit, that men as

well as brutes are not all *ambidexters*, there being no difference of right and left in the nature of things. Nurses are even forced to be at some pains to enure the infants under their care to forego the use of their left hand. How far it may be our advantage to be deprived of half our natural dexterity, may be doubted. It is certain, there are infinite occasions in life, when it would be better to have the equal use of both hands. Surgeons and oculists are of necessity obliged to be *ambidexters*; bleeding, &c. in the left-arm or left-ankle, and operations on the left-eyes, cannot be well performed but with the left-hand. Divers instances occur in history, where the use of the left hand has been cultivated preferably to the right. But by the laws of the ancient Scythians, people were enjoined to exercise both hands alike, without partiality either for the right or left; and Plato enjoins *ambidexterity* to be observed and encouraged in his republic.

In the Grecian armies, their more distinguished foldiers, their pikemen and halberdeers, as those who formed the first line of their battalions, were to be able to fight indifferently with left hand or right. We find it mentioned in Scripture, that, on an extraordinary occasion, the single tribe of Gad produced 700 brave men, who fought with the left hand as well as the right. And the Roman historians assure us, that they had gladiators who were trained up to the same exercise. An ingenious French writer is surprised, that among all the modern refinements in the art of war, none have thought of restoring the ancient practice of forming *ambidexters*, which it is certain might be of considerable service in the way of stratagem.

AMBIDEXTER, in a legal sense, denotes a person who takes money from both of the contending parties to farther them in their cause. In this sense the word may be applied to a judge, juror, a solicitor, or the like. The penalty on a juror, in such a case, is to forfeit DECIES TANTUM, ten times as much as he receives.

AMBIEGNA, in *Antiquity*, an appellation given to a victim, which was surrounded, or attended at the time of offering it, with other lesser ones.

In this sense, the word is also written *ambegui*. We read of *ambiegnae oves* used in sacrificing to Juno, which were sheep, having brought forth twins, and offered up with their two lambs fastened on either side.

AMBIENT, a term applied to such things as encompass others round about.

The word is formed of *ambire*, to encompass.

Thus, the bodies situate around another body, are called *ambient*, and often the CIRCUM-AMBIENT bodies. The whole body of air, because it encompasses all things on the face of the earth, is often by physical writers called by way of eminence, the *ambient*, or *ambient air*.

AMBIGENAL *hyperbola*. See HYPERBOLA.

AMBIGU denotes a kind of mixed entertainment, wherein both flesh and fruit are served together; so that it seems doubtful whether to denominate it a mere collation, or a meal.

AMBIGUOUS, something dubious, obscure, or which may be taken in different senses. See EQUIVOCAL.

The word is formed of *ambo*, both, and *ago*, I drive; q. d. that which keeps the mind wavering, or in suspense; not knowing which side to choose.

The answers of the ancient oracles were always *ambiguous*.

An anonymous writer has published a dictionary of *ambiguous* words. Lexicon Philosophicum de *Ambiguitate* Vocabulorum, Francof. 1597, 4to.

Ambiguity is occasioned either by a wrong choice of words, and the use of equivocal terms, or by an improper arrangement of them. *Ambiguities* of the last kind are either, where the arrangement leads to a wrong sense, or where the sense is left doubtful. Dr. Campbell expresses the former by the term equivocation, and appropriates that of *ambiguity* to the latter. See Elem. of Criticism, vol. ii. p. 20, 54. and Campbell's Philosophy of Rhetoric, vol. ii. p. 28, 38.

AMBIT, AMBITUS, of a figure, in *Geometry*, denotes the *perimeter*; or the sum of all the lines, that constitute, or include it.

Isaac Vossius has a particular inquiry concerning the *ambit*, or circumference of ancient Rome. That of the city he makes to be 60 $\frac{3}{4}$ miles, or *mille passus*, and that of the city and suburbs together 72 miles; exceeding ancient Babylon, whose *ambit* was only 60 miles.

AMBIT, *ambitus*, was particularly used, in *Antiquity*, to denote a space of ground to be left vacant betwixt one building and another. By the laws of the Twelve Tables, houses were not to be built contiguous, but an *ambit*, or space of 2 $\frac{1}{2}$ feet, was to be left about each, for fear of fire.

The

The *ambitus* of a tomb, or monument, denoted a certain number of feet, in length and breadth around the same, within which the sanctity assigned to it was limited. The whole ground, wherein a tomb was erected, was not to be separated from the common uses; for this reason, it was frequent to inscribe the *ambit* on it, that it might be known how far its sanctuary extended: thus, *in fronte pedest tot, in agrum pedes tot.*

AMBITUS, among the ancient Romans, the act of soliciting or making interest, for offices, or honours.

The candidates, in this case, went about the city, and into all public places and assemblies, to beg votes; which was called *ambitus*; *am*, in the ancient Latin, signifying *circum, about, and ire, to go.*

Among the Romans, it differed from *ambition*, as the former lies in the act, the latter in the mind.

Ambitus was of two kinds, one lawful, and even laudable; the other infamous.

The first, called also *ambitus popularis*, was when a person offered his service to the republic frankly, leaving it to every body to judge of his pretensions as they found reasonable.

This kind was not prohibited by any law, but always approved and practised by the best and greatest men.

The means and instruments here made use of were various: 1. *Amici*, or friends, under divers relations, including *cognati, affines, necessarii, familiares, vicini, tribules, clientes, municipales, sodales, collegæ.* 2. *Nomenclatura*, or the calling and saluting every person by his name; to which purpose, the candidates were attended with an officer, under the denomination of *interpres*, or *nomenclator.* 3. *Blanditia*, or obliging persons by serving them, or their friends, patrons, or the like, with their vote and interest on other occasions. 4. *Prensatia*, the shaking every person by the hand, offering him his service, friendship, &c. 5. *Affiduitas.* 6. The *toga candida*, worn loose. 7. *Benignitas*, the distributing largesses, *congiaria*, &c.

The second kind was that wherein force, cajoling, money, or other extraordinary influence was made use of. This was held infamous, and severely punished, as a source of corruption and other mischiefs.

This kind of *ambitus* was at one time the great trade of Rome, and demanded a constant supply of great sums of money. Tully assigns this as the cause of the high rate of interest, and tells us it had raised it from 4 to 8 per cent. Bribery was come to the pitch of 80729l. per tribe; and there being no less than thirty-five tribes, it is obvious how expensive this corruption was grown. It is also well known where it ended.

Several laws were made against it, as the *Lex Acilia, Calpurnia, Aufidia, Bæbia, Æmilia, Cornelia, Fulvia, Fabia, Julia Augusti, Julia Cæsaris, Licinia, Maria, Patelia, Pompeia, Tullia Verus.*

In the year of Rome 321, the use of the *toga candida* was prohibited. In the year 398, the candidates were forbid to go to the markets and meetings in the neighbouring towns. In 571, severe penalties were laid on the givers of largesses. In 594, this was made punishable by banishment. In 697, heavy fines were imposed. By the *Lex Tullia*, made in the consulship of Cicero, the candidates were forbidden to bestow any combats of gladiators on the people, to make any public feasts, or to cause themselves to be followed by a crowd of clients, for two years before they put in for any place.

A senator, who was guilty of a breach of this law, was punished with ten years banishment; others were fined, and rendered incapable of any dignity for ever.

Ambitus was not only practised at Rome and in the forum, but in the meetings and assemblies of other towns in Italy, where numbers of citizens were usually found, on account of trade and business.

The practice ceased in the city from the time of the emperors, because posts were not then to be had by courting the people, but by favour from the prince.

Persons who had causes depending, practised the same, going about among the judges to implore their favour and mercy.

They who practised this were called *ambitiosi*. Hence we also meet with *ambitiosa decreta*, and *ambitiosa jussa*; used for such sentences and decrees as were thus procured from the judges, contrary to reason and equity, either gratuitously, or for money.

AMBITUS, in *Music*, a name sometimes appropriated to signify the particular extent of each tone, or modification of grave and sharp.

AMBIX, in *Ancient Writers*, denotes a vessel of glass, or shell.

Hence the origin of the word *alembic*, which we sometimes also find denoted by the word *ambix*.

AMBLE, **AMBLING**, in *Horsemanship*, a peculiar kind of pace, wherein a horse's two legs, of the same side, move at the same time.

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The *ambling* horse changes sides at each remove; two legs of a side being always in the air, and two on the ground, at the same time: an *amble* is usually the first natural pace of young colts; which, as soon as they have strength enough to trot, they quit. There is no such thing as an *amble* in the manege; the riding-masters allowing of no other paces beside walk, trot, and gallop: their reason is, that a horse may be put from a trot to a gallop, without stopping him; but not from an *amble* to a gallop, without stopping; which loses time, and interrupts the justness and cadence of the manege.

There are various practices and methods of discipline, for bringing a young horse to *amble*; some choose to toil him in his foot-pace through new-plowed lands; which naturally inures him to the stroke required in the *amble*. But its inconveniences are, the weakness and lameness that such disorderly toil may bring on a young horse.

Others attempt it by sudden stopping, or checking him in the cheeks, when in a gallop; and thus putting him into an amazement, between gallop and trot; so that losing both, he necessarily stumbles upon an *amble*. But this is apt to spoil a good mouth and rein, and exposes the horse to the danger of a hoof-reach, or sinew-strain, by over-reaching, &c.

Others prefer *ambling* by weights, as the best way; and to this end, some overload the horse with excessive heavy shoes, which are apt to make him interfere, or strike short, with his hind feet. Others fold leaden weights about the fetlock pasterns; which are not only liable to the mischiefs of the former, but put the horse in danger of incurable strains, crushing of the coronet, and breeding of ring-bones, &c. Others load the horse's back with earth, lead, or the like massy substance; but this may occasion a swaying of the back, overstraining the fillets, &c.

Some endeavour to make him *amble* in hand, before they mount his back, by means of some wall, smooth pail or rail, and by checking him in the mouth with the bridle-hand, and correcting him with a rod on the hinder hoofs, and under the belly, when he treads false. But this is apt to drive a horse to a desperate phrensy, before he can be made to understand what they would have of him; and to rear, sprawl out his legs, and to make other antic postures, which are not easily quitted again. Others think to effect it by a pair of hind shoes, with long spurs or plates before the toes; and of such length, that if the horse offers to trot, the hind-foot beats the fore-foot. But this occasions wounds of the back-sinews, which often bring on an incurable lameness.

Some attempt to procure an *amble*, by folding fine, soft list, strait about his gambrels, in the place where he is gartered for a stiffler strain; and turn him thus to grass for two or three weeks, and afterwards take away the list. This is a Spanish method, but disapproved; for though a horse cannot then trot but with pain, yet the members must be sufferers; and though the *amble* be gained, it must be slow and unsightly; because attended with a cringing in the hind-parts. In effect, *ambling* by the tramel, as practised by us, appears the nearest to nature, and the best and most assured way.

There are divers errors, however, usually practised in this method: as, that the tramel is often made too long, and so gives no stroke, but makes a horse hackle and shuffle his feet confusedly; or too short, which makes him volt and twitch up his hind-feet so suddenly, that by custom it brings him to a string-halt, from which he will scarce ever be recovered. Sometimes the tramel is misplaced, and to prevent falling put about the knee, and the hind hoof. In which case, the beast cannot give any true stroke, nor can the fore-leg compel the hind to follow it: or if, to evade this, the tramel be made short and strait, it will press the main sinew of the hind-leg, and the fleshy part of the fore-thighs; so that the horse cannot go without halting before, and cringing behind.

As to the matter of the tramel; some make it all of leather, which is inconvenient; in that it will either stretch or break, and thus confound the certainty of the operation. In a true tramel, the side ropes are to be so firm, as not to yield a hair's breadth; the hose soft; and to lie so close, as not to move from its first place; and the back-band flat, no matter how light, and to descend from the fillet so as not to gall.

When the horse, by being tramed on one side, has attained to *amble* perfectly in the hand, it is to be changed to the other side, and that is to be likewise brought to rule.

When by this changing from one side to another, with a half-tramel, the horse will run and *amble* in the hand readily and swiftly, without snappering and stumbling; which is ordinarily done by two or three hours labour; the whole tramel is to be put on, with a broad, flat, back-band, and both sides tramed alike. See **TRAMEL**, **AMBLYGON**.

AMBLYGON, or **AMBLYGONIUM**, in *Geometry*, denotes a triangle, one of whose angles is obtuse, or consisting of more than ninety degrees. The word is composed of *αμβλυσ*, *obtuse*; and *γωνία*, *angle*.

AMBLYOPY, **AMBLYOPIA**, in *Medicine*, a disease of the eyes, otherwise called *GUTTA serena*, and *amaurosis*. The word comes from *αμβλυσ*, *dull*; and *οπτομαι*, *I see*.

AMBO, or **AMBON**, a kind of pulpit or desk, in the ancient churches, where the priests and deacons stood to read or sing part of the service, and preach to the people; called also *analogium*.

The term is derived from *αναβαίνειν*, *to mount*. The *ambo* was mounted upon two sides; whence some also derive the application from *ambo*, *both*.

The *ambo* was ascended by steps; which occasioned that part of the office performed there to be called the *gradual*. The Gospel was read at the top of the *ambo*; the Epistle a step lower.

The modern reading desks and pulpits have been generally substituted instead of the ancient *ambos*, though, in some churches, remains of the *ambos* are still seen. In that of St. John de Lateran at Rome, there are two moveable *ambos*. M. Thiers inveighs against the disuse of the ancient *ambo*. Those by whom this innovation has been effected, he calls by a new word *ambonoclastes*. It was in the *ambo* that publication was made of feasts, fasts, processions, &c. Here were read the acts of the martyrs, the *sancta sanctis*, the diptychs, or commemoration of the dead; the letters of peace and communion, which one church sent to another. Here new converts made their public confession of faith, and bishops their defence against accusations brought against them. Here treaties of peace were sometimes also concluded, and coronations of kings and emperors performed, &c.

Divers antiquaries hold, that the *ambo* was anciently the place from whence the bishops and presbyters made their sermons; pulpits for that purpose having only been introduced by the mendicants at the beginning of the thirteenth century.

A late writer combats this opinion, and shews, that the usual place from whence the ancients preached, was the steps of the altar; not but St. Chrysostom and St. Augustine both appear to have preached from the *ambo*; but this was looked on as a thing somewhat extraordinary.

AMBONOCLASTES, a name given, by a late writer, to the demolishers of the *ambos* used in the primitive church.

AMBONUM, in *Natural History*, a term used, by some of the old writers, to express the prominent tubercles on certain stones.

AMBREADA; thus they call the false or facitious amber, which the Europeans use in their trade with the negroes on the coast of Africa, and particularly on the river Senegal. There are some large and red pieces of it, a thousand of which making twenty ropes of strings, weigh three pounds. There are others small, and also red, which weigh but two pounds and a half.

AMBROSE. *St. Ambrose in the wood*, by the Italians called *al nemo*, is an order of religious, confirmed in 1431, under the rule of St. Augustine.

The monks of *St. Ambrose al nemo* wear the image of the saint engraven on a little plate, and make use of the Ambrosian office.

In the province of Berry in France, the title *fathers of St. Ambrose* is also given to the canons regular of St. Augustine, because their abbey at Bourges is dedicated to St. Ambrose de Cahors.

AMBROSIA, in the *Heathen Theology*, &c. a delicious kind of food, whereon the gods were supposed to feed.

The word is compounded of the privative particle *α*, and *βροτος*, *mortal*; because it rendered those who fed thereon immortal, or because it was the food of the immortals.

Lucian, rallying the poetical gods, tells us, that *ambrosia* and *nectar*, of which one is the meat, and the other the drink of the gods, were not so excellent as the poets describe them; since these deities would leave them for blood and fat, which they come to suck from the altars like flies.

But though the *ambrosia* is commonly represented as the solid food of the gods, by way of contradistinction from the fluid, which was called *nectar*; yet the appellations are sometimes inverted, and the name *ambrosia* given to the drink of the deities, as that of *nectar* to the meat.

Wedelius has a dissertation on *ambrosia* and *nectar*, wherein he shews, that the terms are sometimes used to denote honey, sometimes wine, sometimes perfumes, and particularly ambergris; sometimes the method and ingredients for embalming or preserving dead bodies from putrefaction, and sometimes also for a state of unchangeableness or immortality.

AMBROSIA is also a splendid kind of title, given, by some physicians, to certain alexipharmic compositions, of extraordinary virtue.

In this sense, *ambrosia*, *αμβροσία*, amounts to much the same with *αθανασία*, *athanasia*, as being supposed to conduce to immortality.

This name was particularly given to a famous antidote of Philip of Macedon, against all poisons, bites, and stings of venomous creatures, as well as many internal diseases.

AMBROSIA is also used for a pure spirituous kind of medicine, artfully extracted from the gross elementary parts of a body, and which being administered in the smallest dose is of considerable virtue, and may be taken without disgust, or inconvenience.

In this sense, *ambrosia* amounts to much the same with what we otherwise call *QUINTESSENCE*.

Nic. Abr. Frambesa has a treatise on the preparation of these *ambrosia*. *Ambrosiopœa*, Lugd. Bat. 1628. 12mo. Francof. 1629. 4to.

AMBROSIA, in *Botany*, the name of a genus of plants belonging to the *monocia pentandria* class; the characters of which are these: it hath male and female flowers on the same plant; the male flowers are of one leaf, funnel-shaped, and cut into five parts at the brim; the female flowers are placed under the male in the same spike; they have no petals, but an oval germen placed in the bottom of the empalement; the germen afterward becomes an oval capsule with one cell, inclosing one roundish seed. There are according to Linnæus four, and according to Miller five species of this plant, which is perennial, and may be propagated by cuttings, or by seeds; if by the former they should be planted in a shady border, in either of the summer months. In a month or five weeks they will have good roots, and therefore should be then taken up and potted; for when they are left longer in the full ground, they will grow very luxuriant, and will not so soon recover their removal as those which are transplanted earlier. The plants are hardy, so may be exposed to the open air in the summer; and in winter, if they are sheltered in a common green-house with myrtles, and other hardy exotic plants, they will live several years.

The seeds of this sort seldom come up the same year when they are sown in the spring; but those which have fallen in autumn, have grown in the following year as well as those sown at the same season.

It revives the heart and brain; it stops fluxes; it resolves and fortifies; and is prescribed both internally and externally.

AMBROSIA is also used, by some of the *Ancient Writers*, to express what they judged to be the food of the BEES.

This substance is, by some, taken to be a gross or solid honey; and is contradistinguished from the liquid or purer sort, which is denominated *nectar*.

The *ambrosia* will not keep, and if not speedily spent, corrupts and turns sour, making what is sometimes called, *coom*, or *stopping*, or after the Greeks, *sandarak*; highly offensive and pernicious to the hive. See *PAIN des Abeilles*.

AMBROSIA, in *Antiquity*, denotes a feast celebrated by the Aconians, in honour of Bacchus.

The *ambrosia* were also denominated *choa* and *lenæa*. They were held in the month called *Lenæon*.

AMBROSIAN rite, or office, denotes a particular office or formula of worship, used in the church of Milan, which is sometimes also called the *Ambrosian church*.

The denomination takes its rise from St. Ambrose, archbishop of Milan, in the fourth century, who is usually supposed to have been the author of this office. Yet some are of opinion the church of Milan had an office different from that of the Roman, and other churches of Italy, before the time of that father. In effect, till the time of Charlemagne, each church had its several office; and when in after-days the pope took on him to impose the Roman office on all the other churches of the West, that of Milan sheltered itself from the imposition, under the name and authority of St. Ambrose; from which time, the phrase *Ambrosian rite* has obtained, in contradistinction to the Roman rite.

We also meet with the *Ambrosian chant*, or song; which was distinguished from the Roman, in that it was stronger and higher. See *Choral SERVICE*.

The public library of Milan is called the *Ambrosian Library*.

AMBROSIN, in *Middle Age Writers*, denotes a coin struck by the lords or dukes of Milan, whereon was represented St. Ambrose on horse-back, with a whip in his right-hand. The occasion of this coinage is said to have been a vision of that saint, who appeared to the Milanese general, in 1339, during the time of a battle.

AMBROSINIA, in *Botany*, a genus of the *gynandria polyandria* class of plants, with a single-leaved and divided *spatha*. There is only one species.

AMBRY,

AMERY, the place where the arms, plate, vessels, and every thing belonging to house-keeping, were formerly kept.

Hence, probable, the *Ambry* at Westminster was so called, because formerly set apart for that use; or rather, from *aumonery*, a house adjoining to an abbey, in which the charities were laid up and distributed to the poor. The word is still used in Scotland, in the same sense.

AMBUBAJÆ, in *Antiquity*, a kind of wanton minstrels about Rome, who lived by playing and dancing in places of resort, and prostituting their bodies for hire.

Authors speak as if there had been a regular college, or community of *ambubajæ*, and that these were the same with what were otherwise called *tibicinae*. Some suggest that the *ambubajæ* were of the male kind, only dressed in the habit of women.

Antiquaries have been greatly divided about the *ambubajæ*; some will have them to have come to Rome out of Syria; others suppose them to have been Roman women, though called by a name of Syriac origin.

Torrentius, Turnebus, and Pulmannus, derive the name from *ambu*, or *am*, an old Latin preposition, denoting *circum*, *about*, and *bajæ*, a delicious place near Naples; and maintain, that the *ambubajæ* were a kind of courtezans, who frequented the baths of that city. Cruquius is of a different opinion, taking the word *ambubajæ* to have been used for *ambubeja*, and primarily to denote a feller of *ambubeja*, an herb mentioned by ancient naturalists. These fellers of *ambubeja* being a kind of empirics, their name became afterwards applied to all charlatans and quacks.

Hoffman has a discourse on the *ambubajæ*.

AMBUBEIA, in *Botany*, a name given, by some authors, to wild fuccory.

AMBULANT, or AMBULATORY; they give in France the name of *ambulant* commissioners to those commissioners, or clerks of the king's farms, who have no settled office, but visit all the offices within a certain district, to see that nothing be done in them against the king's right, and the interest of the farm.

AMBULANT is also used to denote those brokers at Amsterdam, or exchange agents, who have not been sworn before the magistrates. They transact brokerage business, but their testimony is not received in the courts of justice.

AMBULATION, or walking. See EXERCISE.

AMBULATION, in *Physic*, is used by some for the spreading of a gangrene or mortification.

AMBULATORY, a term anciently applied to such courts, &c. as were not fixed to any certain place; but held sometimes in one place, and sometimes at another.—In opposition to stationary courts.

The word is formed from *ambulare*, to walk.

The court of parliament was anciently *ambulatory*; so also were the courts of king's bench, &c.

We sometimes also say, in a legal sense, a man's will is *ambulatory*, to the time of his death; meaning, that he has it always in his power to revoke it.

AMBULON, in *Botany*. See SWEET WILLOW.

AMBURBIUM, or AMBURBIALE *Sacrum*, in *Antiquity*, a religious feast, or ceremony, practised among the Romans, wherein they made processions around their city. Hence also we have *amburbiales victimæ*, the victims carried along in the procession, and afterward sacrificed.

The word is compounded of *ambio*, I go round; or of *amb*, or *ambu*, an ancient preposition, signifying *around*, and *urbs*, a city.

Scaliger, in his notes on Festus, followed by many others, maintains the *amburvia* to be the same with *amburvalia*. Servius, however, expressly distinguishes between the *amburvia* and *amburvalia*, and says, the one was performed in the city, and the other in the country.

AMBURY, or ANBURY, a name given, by our farriers, to a kind of soft and spongy swelling growing on the bodies of horses, somewhat sore to the touch, and full of blood. The method of curing it is, to tie a horse-hair very hard round it, at the root; in about a week after this, it will fall off, and the part is then to have some powder of verdigris strewed upon it, to prevent the return of the complaint, and finally to be healed up with the common green ointment.

This is the common method when the *ambury* is high and prominent; but sometimes it is flat and low, with a broad base: in this case, it is impossible to take it off by ligature, and there is a necessity of having recourse to a severer operation. It must in this circumstance be taken away either by the knife or fire; if the former way be agreed on, the method is this; the skin is to be drawn back tight, and then the whole swelling cut off close to the common level of the rest of the flesh: if in the other way, an iron is to be heated red-hot, and applied to it, continuing it on till the whole is burnt down to the even flesh. In both cases, care must be taken not to spare in the cutting or burning, so as to leave any root

behind, for then the complaint will be renewed. When it is taken off, the common ointment of hogs-lard, and turpentine, will complete a cure. There are some circumstances, however, in which the knife and cautery may be both improper, as, if it grows in a sinewy part, or the like; in this case, the proper method is, to eat out the core with oil of vitriol, or white sublimate, and then stop the hole with flax dipped in honey, and lime unslaked. Some for the first day or two dip it only in the white of an egg, and after that, in the mixture of quick-lime and honey; and this seems the better way.

Many of our farriers boast of a secret, which infallibly cures all kinds of protuberances of this kind, the preparation of which is this: take three ounces of green vitriol, and one ounce of white arsenic; beat them to a coarse powder, and put them into a crucible; place the crucible in the midst of a charcoal-fire, stirring the substance, but carefully avoiding the poisonous steams; when the whole grows reddish, take the crucible out of the fire, and when cool, break it and take out the matter at the bottom; beat this to powder in a mortar, and add to four ounces of this powder five ounces of *album rhosis*; make the whole into an ointment, and let it be applied cold to warts, rubbing them with it every day: they will, by this means, fall off gently and easily, without leaving any swellings. It is best to keep the horse quiet, and without working during the cure. What sores remain on the parts which the swellings fall off from, may be cured with the common application, called the *countess's* ointment.

AMBUSCADE, AMBUSH, AMBUSHMENT, a body of men who lie in a wood, &c. in readiness to rush out upon, or inclose an enemy unawares.—Or, the place wherein such a corps hide themselves.

AMBUSTIO, in *Medicine*, a BURN.

AMBUTUA. See PAREIRA Brava.

AMEA, in *Botany*, a name given, by the natives of Guinea, to a plant which they use in bleedings at the nose, drying and powdering the leaves, and snuffing up the powder. It seems to be of the family of the plant called *pajamirioba*, by Sir Hans Sloane, in his Jamaica Catalogue. Its leaves are large and alated, and of a beautiful green, even when dried. Phil. Trans. N° 232.

AMEDEI, *Amedians*, a congregation of religious in Italy, instituted in 1400.

Their name is formed of the Latin *amans Deum*, q. d. *lover of God*, or rather of *amatus Deo*, *beloved of God*.

The *Amedei* wore a grey habit, and wooden shoes, had no breeches, and girt themselves with a cord. They had twenty-eight convents, and were united by pope Pius V. partly with the Cistercian order, and partly with that of the Socolanti, or wooden-shoe wearers.

AMEIVA, in *Zoology*, the name of a Brazilian species of lizard, resembling the *taraguira* in figure, but having a bifid tail. This is Marcgrave's account of it; but Mr. Ray very judiciously questions the fact, not believing that there is in nature any such species. Probably indeed it is only an accidental variety of the *TARAGUIRA*, or some other common lizard, perhaps from a wound, or other accident; perhaps from the egg, as we have lately seen from Barbadoes a snake with two heads, taken out of an egg of some common kind; for assuredly there never was any such species as a two-headed serpent.

AMEL. See ENAMEL.

AMELLUS, in *Botany*, a name used, by some authors, to express the *CALTHA palustris*, or *marsh-MARYGOLD*; and by Virgil, for the *ASTER atticus*.

AMELLUS is used by Linnæus to denote a genus of plants of the *syngenesia polygamia superflua* class: with a chaffy receptacle, simple down, imbricated calyx, and undivided corollulæ. Of this genus there are two species.

AMEN, a church-term, used as the conclusion of all solemn prayers, &c. and signifying, *so be it*, or *fiat*.

The Hebrews had four kinds of *amen*. That just mentioned they called *amen past*; which was accompanied with the greatest attention and devotion: in this sense, the word has passed in almost all languages, without any alteration.

Some authors are of opinion, that the word *amen* is formed of the initial letters of these words, *Adonai, Melech, Neeman, Dominus Rex Fidelis*; an usual expression among the Jews, when they would give weight or sanction to any thing they said. In effect, it is known, that to express the words *אֲדֹנָי מֶלֶךְ נֶעְמָן Adnai Melech Neeman*, in the ordinary way of abbreviations; the rabbins only take the initial letters; which, joined together, are really the letters of the word *אֲמֵן amen*.

On the other hand, there are some of the Cabbalists, who, according to their usual manner of finding a hidden meaning in words, which they call *notaricon*, out of the letters of the word *amen* form the whole phrase, *Adonai Melech Neeman*.

Yet it is certain also, that the word *amen* was in the Hebrew tongue before ever there were any such things as cabbala

cabbala or cabbalists in the world; as appears from Deuteronomy, chap. xxvii. ver. 15.

The primitive of the word *amen* is the verb *aman*, which, in the passive voice, signifies to be true, faithful, constant, &c.—Hence came the noun *amen*, which signifies *truth*. And, lastly, of this noun *amen* they make a kind of affirmative adverb, which, when placed at the end of any phrase, or proposition, signifies, *so be it, be it true, I acquiesce in it, &c.* Thus, in the passage above cited from Deuteronomy, Moses ordered the Levites to cry aloud to the people, *Cursed is he that makes any graven or molten image, &c. and all the people shall say amen*, i. e. yes, may he be cursed, we desire, we agree to it.—But at the beginning of a phrase, as in several passages of the New Testament, it signifies, truly, verily.—When it is redoubled, or repeated twice together, as is always done by St. John, it has the effect of a superlative; agreeably to the genius of the Hebrew tongue, and her two daughters, the Chaldee and Syriac.—In this sense we are to understand *amen, amen, dico vobis*. The Evangelists usually preserve the Hebrew word *amen*, in their Greek *amen*, though St. Luke sometimes renders it by *αληθως*, *truly*, or *veritas*, *certainly*.

AMENABLE, or **AMAINABLE**, is applied in our law-books to a woman, who is supposed to be governable by her husband.

It is likewise used to signify a right or power of bringing persons before a particular jurisdiction: thus, we say, a person is *amenable* before such a court, or magistrate.

AMEND, or **AMENDE**, in the French *Customs*, a mulct, or pecuniary punishment, imposed by a sentence of the judge; for any crime, false prosecution, or groundless appeal.

AMENDE HONORABLE denotes an infamous kind of punishment, used in France, &c. on traitors, on parricides, sacrilegious persons, and other heinous criminals.

It consists in this, that the offender is delivered up to the common hangman; who having stript him to his shirt, and put a rope about his neck, and a wax taper in his hand, leads him to the court, where he is to beg pardon of God, the king, the court and his country.

Sometimes the punishment ends here; and sometimes death, or the galleys, are added.

The phrase *amende honorable* is also used by way of allusion, where a person is condemned to come into court, or into the presence of some person injured, and make an open recantation, ask pardon, &c.

AMENDMENT, in a general sense, a change made in a thing for the better.

Amendment amounts to much the same with melioration, reformation, correction, &c.

AMENDMENT is more particularly used for a **MANURE** laid on the ground, to fatten or enrich it.

AMENDMENT, in a literal sense, is used to denote the corrections and other alterations made in the posterior editions of books.

In this sense, *amendments* are also denominated *emendations*.

AMENDMENT, in *Law*, the correction of an error committed in a process, and discovered before judgment.

If the error be committed in giving judgment, *viz.* if a wrong judgment be given, there they cannot amend it; but the party aggrieved must bring his writ of error.—However, where the fault appears to be in the clerk who writ the record, it may be amended; chiefly if it be in matter of *fact*, not in point of *law*.

Original writs are not amendable at common law, for if the writ be not good, the party may have another: judicial writs may and have been often amended. Indictments of treason and felony, writs of appeal, &c. are excepted out of the statutes of *amendments*; though some things in them are *amendable* at common law. *Amendments* are usually made in affirmance of judgments; and seldom or never to destroy them: and where *amendments* were at common law, the party was to pay a fine for leave to *amend*. Terms de Ley, 39. 8 Rep. 157. Palmer, 258. Mod. Caf. 269. 3 Salk. 29.

AMENDMENT of Bills in parliament, means some alteration, made in the original draught; and we read of *amendments of amendments, amendaments* or returns of representatives, &c.

In cases of wrong returns, so reported by the committee of privileges and elections, and voted by the house of commons, it is usually ordered, that the returns be *amended* by the returning officer, according to the directions of the house, without issuing a new writ.

Amendments ought always to be in that house from whence the thing to be *amended* originally proceeded, though the directions for the *amendments* came from the other house. Hakew. Mann. of Passing Bills, p. 167.

AMENTACEOUS, in *Botany*, a term applied to the flowers of certain trees and plants, which are composed of

vast numbers of *apices* or *antheræ*, hanging down in form of a rope, such as the hazel, &c.

AMENTUM, among *Alchemists*, denotes *alumen scissum*.

AMENTUM, in *Antiquity*, a leathern thong fastened about the middle of a dart, or javelin, whereby, after casting it at the enemy, it might be drawn back again to the owner.

The *amentum* served also to increase the force of the stroke; for which reason, some of their great men refused to use it, as confiding wholly in the natural strength of their own arms.

AMENTUM, in *Botany*. See **CATKIN**.

AMERADE, a kind of officers among the Saracens, answering to the governors of provinces among the Europeans.

The name is originally the same with that of *emir*.

AMERCEMENT, or **AMERCIAMENT**, in *Law*, a pecuniary punishment imposed upon offenders, at the discretion of the court; frequently also called *misericordia*.

There is this stated difference between fines and *amercements*; that fines are punishments certain, and determined by some statutes; but *amercements* are arbitrary impositions, proportioned to the fault, and wholly at the mercy of the court.—Manwood, in his *Forest Law*, makes another difference; as if an *amercement* were a more easy and merciful penalty, and a fine a more sharp and grievous one.

If *amercements* were too grievous, release might be sued by an ancient writ called *moderata misericordia*.

Fines are also imposed and assessed by the court; *amercements* by the country: and no court can impose a fine, but a court of record; other courts can only *amerce*. 8 Rep. 39. 41. A town shall be *amerced* for the escape of a murderer in the day-time; and if the town be walled, it is said it shall be subject to *amercement* whether by day or night. 3 Inst. 53.

By the statute of *Magna Charta*, a freeman is not to be *amerced* for a small fault, but proportionable to the offence, and that by his peers. 9 Hen. III. c. 4.

In the New Terms of the Law, *amercement* is said to be properly a penalty assessed by the peers or equals of the party *amerced*, for an offence done; for which he puts himself upon the mercy of the lord.

Amerciament royal is used by some to denote a pecuniary punishment laid upon a sheriff, coroner, or such like officer of the king, by justices, for some offence or abuse in his office.

AMERICAN *sea-sun-crown*; **CORONA solis marina Americana**, a name given by John Andrew Peyssonnel, M. D. F. R. S. to a marine insect, because of the resemblance it bears to the flower called *corona solis*. The curious may see a very particular description of it in the Phil. Transf. vol. 1. part 2. N^o 112. an. 1758. The gentleman who describes it could not tell how it lived, or what its mechanism was, not being able, as he says, to distinguish either a mouth, or any *viscera*, nor any other organ serving to its nourishment.

AMERICIMA, in *Zoology*, the name of a Brazilian species of lizard, very small, being not above three fingers breadth long, and of the thickness of a swan's quill. Its body appears square; its whole back is covered with deep grey scales, and its head, legs, and sides, with brown ones, and its tail with blue. All of them are very glossy, and extremely smooth to the touch. Its feet are scarce thicker than hogs bristles. It is generally esteemed a poisonous animal. See *Tab. of Serpents*, N^o 35.

AMETHYST, in *Natural History*, a precious stone of a violet colour, bordering on purple, frequently yellowish or reddish.

Plutarch says the *amethyst* takes its name from its colour; which, according to him, resembles that of wine mixed with water; and not from its preventing drunkenness, which, however, was a common opinion, and gave occasion to its being hung about the neck of great drinkers.—Those who ascribe this virtue to the *amethyst*, derive its name from the privative *a*, and *μεθυσια*, to *inebriate*. See **GEM**.

There are divers sorts of *amethysts*.—The oriental, which is the hardest, the scarcest, and most valuable, and which is of a deep-purple colour; the German, which is of a violet colour; and the Spanish, which has the colour of a pansy.

This gem is pellucid, the seventh in degree of hardness from diamonds, fusible by fire, which also destroys its colour. It is found among *quartz*, and is probably only a coloured quartz crystal. This stone may be imitated by adding to a frit of crystal glass eight parts of magnesia, and one part of zaffre. The purple of the *amethyst* as well as the blue of the sapphire, and the green of the emerald, are very perishable, being all totally destroyed by a moderate degree of heat. Lewis.

There are some orientals also of a paler colour and others white,

white, and like the diamond.—There are also beautiful ones found in the Pyrenean mountains, and in those of Auvergne.

Amethysts are dug in a hill named St. Sigminont, two leagues from Viçt, in Catalonia.—They find the stones by following a vein of reddish or black earth, or a vein in the rock so coloured. They are all hexangular, and pointed like crystal. There are three sorts: the best are the blackest, or deepest violet; others are almost quite white; and some few are tinged with yellow. Sometimes there is a great number found sticking together, like the Bristol diamonds; but these are never good: the best are found loose in the chinks of the rock, in a fatty reddish or yellowish earth. They rake out this earth with long narrow knives, which enter the chinks; and then crumble it with their fingers to feel for the stone. Ray's Trav. p. 402.

The occidental *amethyst* is not extremely hard, but may be cut with a leaden wheel, smeared with emery moistened with water.—It is polished on a pewter wheel with *tripoli*.—It is easily engraven on, either in CREUX or RELIEVO.

Mr. Morin shewed Dr. Lister a huge block of French *amethyst*, two or three hundred pounds weight. Ray speaks of a mountain of *amethysts*. Spars and crystals tinged red and yellow, &c. are sold for *amethysts*. The false ones come from Germany, are tinged by vapours in the mines, and contain some lead.

Amethysts may be counterfeited by glass, to which the proper colour or stain is given. There were fine ones made in France, about the year 1690, which may even impose on connoisseurs, unless the stone be taken out of the collet.

The method of giving this colour to glass is as follows: take crystal-frit, made with the most perfect and fine tarso; then prepare a mixture of manganese in powder, one pound; zaffer prepared, one ounce and a half; mix these powders well together, and add to every pound of the frit, an ounce of this powder. Let it be put into the pots with the frit, not into the already made metal. When the whole has stood long enough in fusion to be perfectly pure, work it into vessels, and they will resemble the colour of the *amethyst*.

Some physicians distinguish a particular class of medicines, under the denomination of *amethysta*, *amethysta*, under which they comprehend all preservatives from drunkenness.

Among the medicinal qualities attributed to this stone, it is said to be good to stop a looseness, and to absorb the acid particles, when too much abounding in the stomach; which virtue it has in common with other alkaline substances.

AMETHYST, in *Heraldry*, signifies the purple colour in the coat of a nobleman, which in gentlemen's escutcheons below that degree, is called *purpure*; and in those of sovereign princes, *Mercury*.

AMETHYSTEA, *amethyst*, in *Botany*, a genus of the *diandria monogynia* class. The characters are: the flower has one leaf, which is cut into five equal pointed segments at the brim; it hath two slender stamina, which stand under the upper lip. After the flower is past, the germen becomes four naked seeds, shut up in the empalement.

We know but one species of this genus, viz. *amethystea*, Hort. Upsal. 9. Mountain upright *amethyst*. This plant is a native of the mountains in Siberia, from whence the seeds were sent to the imperial garden at Peterburgh.

It is annual, and hath an upright stalk, which rises about a foot high, and towards the top puts out two or three small lateral branches; these are garnished with small trifid leaves, sawed on their edges, and of a very dark green colour; at the extremity of the branches the flowers are produced in small umbels; these are of a fine blue colour, as are also the upper part of the branches, and the leaves immediately under the umbel; so that though the flowers are small, yet from their colour with those of the upper part of the stalks, the plants makes a pretty appearance, during their continuance in flower. If the seeds of this plant are sown in the autumn, or are permitted to scatter, the plants will come up early in the following spring, and these will flower the beginning of June; but those sown in the spring will not flower until July.

When the plants come up, they will require no other care than to keep them clean from weeds, and where they are too close, to thin them, for they do not thrive when transplanted; the seeds, therefore, should be sown where they are to remain.

AMETHYSTINE is applied, in *Antiquity*, to a kind of purple garment dyed of the hue of *amethyst*.

In this sense *amethystine* differed from *Tyrian*, as well as from *hyacinthine* purple, being a kind of medium between both.

AMGAILA, or AMGAILAM, in the *Materia Medica* of the Ancients, a name given by Avicenna, and others, to a plant sometimes called ACANTHA Arabica, and *leucacantha* by the Greeks; the roots of which were called *bunkon*, and much used in medicine by the Arabian physicians.

The *amgaila*, called also *sucaba*, or *zucabai*, is described as a prickly herb, having roots like those of the cyprus; formed of several joints, or knots. They were used in stomachic and cardiac compositions, and were chosen by their lightness and good smell.

AMIA, in *Ichthyology*, the name of a very large sea-fish, called by some also *glaucus*, and by others *leccia*. It grows to a vast size, and in figure resembles the salmon. It is very common in the Mediterranean, and grows to four or five feet long.

AMIA is also the name of a fish called, by some authors, *pelamys*, but different both from the *pelamys farda*, more usually called simply *pelamys*, and from the *pelamys* of the ancients, which was no other than the *thynnus*, or tunny-fish, at a certain time of its growth.

This is, in shape and figure, very like the mackrel; it is common in the Mediterranean, and is brought to the markets of Italy, &c.

The *amia* is a species of the SCOMBER, in the Linnæan arrangement, and also the name of a genus of abdominal fishes.

AMIALE numbers, denote numbers which are mutually equal to the whole sum of each others aliquot parts.—Such are the numbers 284 and 220. See NUMBERS.

AMIANTHUS, in *Natural History*, the name of a genus of fossils, of the class of the FIBRARIÆ; the characters of which are, that the bodies of it are flexible and elastic, and composed of short and abrupt filaments: See Tab. of Fossils, Class 1.

It has been a common error to confound the species of this genus one with another, and all with the several species of the *asbestos*, the consequence of which has been the loss of the art of spinning, and working the ASBESTOS into incombustible cloth.

Dr. Grew, in his *Cosmologia Sacra*, printed at London, in English, in the year 1701, observes, that the *amianthus* is full of parallel threads like silk stuffs; and that it seems that diamonds, *amianthus*, and talc, both on account of their hardness, and because fire cannot spoil them, are composed of earthy and stony particles properly so called; and that it may be inferred from hence, that those bodies being of regular figures, are composed of regular atoms.

With regard to its medicinal virtues, not to speak of the fabulous properties attributed to it by Pliny, and others, it is said to resist poison, and to cure the itch.

It is the lightest and softest of all stones; its fibres are so flexible, that cloth has been made of them. It is indissoluble by acids, and was long thought unfusible by fire, till Mons. d'Arcet discovered, that by violent and long continued heat it is fusible, and forms a black glass. By strong heat it is whitened and hardened so as to strike fire with steel, and become brittle. This stony concrete is of the talcky kind, though differing from talc in its external appearance. The shorter filaments that separate in the washing of the stone, may be made into paper in the common manner. For the method of its preparation for manufacture into cloth, see Phil. Trans. N° 273, and Dr. Lewis, in his edition of Neumann, p. 30.

The species of this genus, at present known in the world, are four, two of which are composed of larger, and two of finer or smaller filaments.

AMICABLE benches, *scamna amicabilia*, in *Antiquity*, are generally supposed to denote the seats in the Roman courts, whereon the advocates were placed.—Some think that these had but little title to the denomination of *amicables*, and therefore will have the word to be here used for the benches whereon the *assessors*, or those called *judices pedanei*, were placed.

AMICABLE compounder, *amicabilis compositor*, is used by some ancient LAW-WRITERS, for an ARBITRATOR.

AMICABLE, or *amiable compounder*, among the French, is a person who acts the part of a common friend, to reconcile two merchants or traders who have disputes, or are at law together. He differs from the *arbiter*, in that, in order to make the two disputants agree, he often prevails upon both to give up some part of their right or claim which an *arbiter* who performs the functions of a judge, is not, it seems, at liberty to do.

AMICABLE society. See ASSURANCE.

AMICIA. See ALMUCIUM.

AMICITIA.—*Tenure in AMICITIA*, is applied in *Ancient Writers*, to land granted freely, and of mere good will, to be enjoyed at the discretion of the donor.

AMICTUS, in our *Ancient Writers*, the uppermost of the

fix garments, worn by priests; the others are *alba*, *cingulum*, *stola*, *manipulus*, and *planeta*.—It was tied round the neck, *Ne inde ad linguam transeat mendacium*; and covered the breast and heart, *Ne vanitates cogitet*.

This garment is otherwise called *anabolagium*; sometimes *ambolagium*, *anagolagium*, and *humale*. In ancient English writers it is called *amitte*.

The *amict* is also worn by deacons, sub-deacons, and acolyti, when they officiate at the altar.

The priest and deacons, in some dioceses, wear *amict* on their heads from All saints to Easter; though, by the canons, they be expressly forbid to wear the *amict*, without some considerable occasion.

Mr. Thiers asserts, that the use of *amicts* was introduced into the Latin church before the twelfth century. Dom. de Vert. maintains the contrary, chiefly from a figure of St. Fermin, first bishop of Amiens, supposed to have suffered martyrdom towards the beginning of the seventh century, whereon he is represented in his pontifical habit, with the *amict* on his head.

AMICTUS, in Roman Antiquity, denotes any upper garment worn over the tunica.

AMICULUM, in Antiquity, denoted an upper garment worn by the women.—The *amiculum* is said to have differed from the *palla*; but wherein the precise difference lay does not appear. An *amiculum* was also in use among the men. This seems to have been the same with the *chlamys*, or *paludamentum*.

AMIDA, a god worshipped by the Japanese, who has many temples erected to him in the island of Japan, of which the principal is at Jeddo. The Japanese have such a confidence in their idol *Amida*, that they hope to attain eternal felicity by the frequent invocation of his name. One of the figures of this idol is represented at Rome.

AMID-SHIPS, a nautical term, denoting the middle of a ship, either with regard to her length or breadth.

AMIESTES, cotton cloths which come from the East-Indies.

AMILICTI, in the Chaldaic Theology, denote a kind of intellectual powers, or persons in the divine hierarchy.

The *amilicti* are represented as three in number, and constitute one of the tryads, in the third order of the hierarchy.

AMINEUM *acetum*, a name by which some of the medical writers have called white-wine vinegar, to distinguish it from other kinds. See AMMINEA *uva*.

AMIRANTE, a great officer in Spain, answering to the lord high-admiral in England.

AMISS *araving*. See DRAWING.

AMISSA, *lex*. See LEX.

AMITTERE *legem terræ*, a law-pharse, signifying the forfeiture of the right of swearing in any court or cause; or the becoming infamous.

This is the punishment of a champion overcome, or yielding in the combat; of jurors found guilty in a writ of attain; and of persons outlawed. Vide Glanvil. lib. ii. and see the stat. 5 Eliz. cap. 9. against *perjury*.

AM-KAS, in History, a name given to a spacious saloon in the palace of the great Mogul, where he gives audience to his subjects: and where he appears on solemn festivals with extraordinary magnificence. His throne is supported by six large steps of massy gold, set with rubies, emeralds, and diamonds; and estimated at 60,000,000*l*.

AMMA, or HAMMA, from *αμμα*, *vinculum*, a girdle or truss used in ruptures; to hinder the intestines from bearing down too much.

AMMA, in Middle Age Writers, denotes a spiritual mother. In this sense, the word was chiefly understood of an abbess, or superior of a nunnery.

AMMAN, in the German and Belgic Policy, denotes a judge who has the cognizance of civil causes.

The word is also written *amant*. Thus it occurs in writers on the French officers, where it stands for a notary, or parochial officer, who draws acts or instruments.

AMMANNIA, in Botany, a genus of the *tetrandria monogynia* class, in the Linnæan system; the characters of which are these: it has a bell-shaped empalement, divided at the brim into four slender parts; the flower hath no petals; it has four slender stamina, which are inserted in the empalement; the empalement afterwards becomes a round capsule with four cells, which are filled with small seeds. Linnæus mentions three and Miller two species of it; the first grows naturally in moist places in Jamaica, from whence Dr. Houston sent the seeds to England. It grows about a foot high, with an upright square stalk, and long narrow leaves, set in form of a triangle, whose base half furrounds it. The second sort grows naturally in Virginia and Carolina; this is an annual plant, which rises about a foot high, with red succulent stalks, putting out side branches, which grow opposite: the flowers are produced single from the wings, on the lower part of the branches.

AMMI, in Botany, called *ammoides*, by Boerhaave. See BISHOP'S Weed.

AMMI, or *Semen AMMEOS*, a kind of aromatic seed, of some use in medicine; the produce of the plant above mentioned.

This seed is brought from the Levant: it is found to contain a great deal of essential oil, and volatile salt; and to be attenuating, aperitive, hystric, carminative, cephalic, and alexipharmic; being one of the four lesser hot seeds.—It expels wind, provokes the menses, &c. It is also thought to have the property of resisting poison, and to be good against the bites of serpents. According to Lemery, the plant takes its name *ammeos*, from *αμμος*, *arena*; its seed being very like grains of sand.

AMMINEA *uva*, in Botany, a name given by the old writers, to the grapes of a wild vine, common in the hedges of Italy, and some other places. They used to make wine of these grapes, which they mixed with other richer wines, and had in common use.

Some write the word *taminea*, instead of *amminea*.

AMMITES, in Mineralogy, a kind of figured stone, of a loose open contexture, formed of a number of small globular stones.

Ammites is the same with what is otherwise called *ammonites*. The word is derived from *αμμος*, *sand*; because the *ammites* appear to the eye as a composition of large sand. The *ammites* is found in divers countries of Germany, &c. of different colours, as well as different degrees of hardness. It bears a near resemblance to the *coccodes*.

AMMOCETUS, in Ichthyology, a name given by Gesner, and some others, to the AMMODYTES, or sand-eel; called also *tobianus*, by Schoneveldt and others.

AMMOCHOSIA, from *αμμος*, *sand*, and *χων*, *I lay along*, in the Ancient Physic, a kind of remedy, or operation for drying the body, by lying along on warm sand, and having the body covered with it. Some prefer salt for this purpose to sand.

AMMOCHRYSOS, from *αμμος*, *sand*, and *χρυσος*, *gold*, a name given by authors to a stone very common in Germany, and seeming to be composed of a golden sand. It is of a yellow gold-like colour, and its particles are all very glossy, being all fragments of a coloured talc. It is usually so soft as to be easily rubbed to a powder in the hand; sometimes it requires grinding to powder in a mortar, or otherwise. It is also used as sand to strew over writing. The Germans call it *katzengold*; and there is another kind of it less common, but much more beautiful, consisting of the same sort of glossy spangles, but those not of a gold colour, but of a bright red, like vermillion.

AMMOCHYSUS, in Natural History, a kind of gem, supposed to be the same with the *venturine*.

AMMODYTES, in Zoology, the name of a species of serpent, called also *serpens cornutus* by some, from certain protuberances in the head. It is about the size of the viper, and is of a yellowish or sand colour. Its head is shaped like that of the viper, but its jaws are wider; and, in the upper part of its head, it has a sort of wart-like excrescence, which is supposed to resemble a horn; and thence its name of *serpens cornutus*, as it has its other of *ammodytes* or sand-snake, from its sand-like colour, or from its quality of sometimes running under the sands. It is found in Lybia, and in some parts of Italy.

AMMODYTES, in Ichthyology, the name of a genus of fish, the characters of which, according to Artedi, are these: the *branchiostege* membrane contains on each side seven bones, but these are, in great part, hid by the *lamina* of the *branchia*. The head is compressed, the body oblong and slender, nearly cylindrical, but a little compressed, and it has no belly-fins. The fish is of the *malacopterygious*, or soft-finned kind; and the characters of the species, enumerated by Artedi, are these: the lower jaw is the longest; the lateral lines are double, or two on each side: the pectoral fins have each twelve rays; the back-fin has fifty-four; that of the anus twenty-eight: the tail is bifid, and has fifteen long rays: the mouth is toothless; the anus is nearer to the tail than the head. We call the fish the *sand-eel*: Schoneveldt, the *tobianus*. The fish is commonly found at about half a foot deep under the sand, when the tide has run out, and caught there with iron hooks, with which the fishermen pull them out.

The name is formed of *αμμος*, *sand*, and *δυτης*, a *diver*, expressing the quality of this creature, to dive into, or bury itself under the sand.

This genus belongs to the order of *apodes*, in the Linnæan system.

AMMON, or HAMMON, in Antiquity, an epithet given to Jupiter in Lybia; where was a celebrated temple of that deity under the denomination of Jupiter *Ammon*.

There has been a great dispute about the origin of this name.—Some derive it from *αμμος*, *sand*; because the temple was situate in the burning sands of Lybia; others borrow it from the Egyptian *anam*, a *ram*; as having been first discovered by that animal.—Others will have

Ammon

Ammon to signify the sun, originally derived from *Ham*; and the horns wherewith he is represented, the sun-beams. Plutarch says, that of all the Egyptian names which seemed to have any correspondence with the Zeus of Greece, *Amon*, or *Ammon*, was the most peculiar and adequate. Bryant's Mythol. vol. i. p. 5.

However this be, Jupiter *Ammon* was usually represented under the figure of a ram; though in some medals he appears of a human shape, having only two rams horns growing out beneath his ears.

AMMONIAC. Gum **AMMONIAC**, or as it is sometimes, though improperly, called **ARMONIAC**, is a kind of gum, brought from the East Indies, and is said to ouse from an umbelliferous plant.

Dioscorides says, it is the juice of a kind of *ferula*, growing in Barbary; and that the plant which produces it was called *agasyllis*.

Pliny calls the plant whence it flows, *metopion*; and says, the gum takes its name from the temple of Jupiter *Ammon*, nigh which it grows. But it is much to be questioned whether we have at present the *gum ammoniacum* described by the ancients; and indeed their descriptions of that drug seem to evince that we have not.

The good *ammoniac* ought to be in dry drops, white within, yellowish without, easily fusible, resinous, somewhat bitter, and of a very sharp taste and smell, somewhat like garlick. It should also be of a pale colour, and not mixed with any scrapings of wood, stone, or sand; this by the Greeks was called *σπαρμα*, *fragment*. The other, which is full of stone or sand, was called *σπρμα*, that is, *mixture*.

Some say, this gum served the ancients for incense in their sacrifices. It is a gum resin, from an ounce of which six drams may be dissolved by spirit of wine, or six drams two scruples and a half may be dissolved by water. Neumann.

It enters several medicinal compositions, as an attenuant and detergent, against disorders arising from viscidities and grumes. Outwardly applied, it is resolute and suppurative; and, as some say, will of itself draw out splinters, &c. This gum contains plenty of essential, or volatile oil, some phlegm, and earth.

Some dissolve the gum in vinegar, and other liquors, and call these *lec ammoniaci*; much used in asthmas, and obstructions of the lungs. It is frequently also given in pills. It is often adulterated with common rosin.

AMMONIAC, sal, is natural and artificial.

AMMONIAC, sal, natural, is a neutral salt, composed of marine acid, and of volatile alkali; combinations of other salts with volatile alkalies are also called, from the name of this salt, *sal ammoniac*, more usually written *armoniac*.

AMMONIAC, sal, natural, used by the ancients, was found in the sands of Lybia, near the temple of Jupiter *Ammon*, from whence it derives its name. It was supposed to be generated in these sands from the urine of camels. Nor will this appear strange, if we suppose these sands to be naturally impregnated with common salt; for then the urine of these animals, by the intense heat of the sun, must cause a fermentation, which will unite the acid of the common salt with the urinous salt, and consequently produce *sal ammoniac*. What the ancients called by this name is supposed to be a species of *sal gem*. M. Lemery had a salt taken from mount Vesuvius, which they call *natural sal ammoniac*. It was of a compact substance, pretty ponderous, very white, and the inside crystalline; it would not attract much humidity from the air, had no smell, was of an acrid saline taste, and very much like that of *sal ammoniac*. Hist. de l'Acad. Roy. des Scien. 1705.

The true modern *sal ammoniac* is never found native, at least in any tolerable pure state, or in such quantities as to answer the demands of artists.

AMMONIAC, sal, artificial, or common *sal ammoniac*, is chiefly brought from Egypt; and though there is hardly a more common drug, it is but very lately we have known in what manner it is made. M. Lemery, who was consul at Grand Cairo, in the year 1720, has given us the following account of the method used by the Egyptians, in making *sal ammoniac*.

Concerning *sal ammoniac* (says he), I shall observe, 1. the matter, 2. The vessels that contain it. 3. The disposition of the furnaces. 4. The manner of working. 5. The quantity and use of that salt.

1. The matter is pure foot, and nothing else; but such as is swept from chimneys, where they burn tufts of the dung of animals fed with straw, which is the common fuel of the country. These tufts, which are impregnated with alkaline and urinous salts, communicate to the foot certain properties, which it could not be expected to receive from the smoak of wood or coal, and yet are absolutely necessary for the production of *sal ammoniac*.

2. The vessels which contain the matter, are exactly of the figure of bombs. They are large round glass bottles, a foot and a half in diameter, with a neck two fingers in height. They case over these bottles with a fat earth, and fill them with foot to four fingers short of their neck, which continues void and open. They contain each about forty pounds of foot, which at the end of the operation, yield six pounds or more of *sal ammoniac*, according to the goodness of the foot.

3. The furnaces are built like our common ovens, excepting that their vaults are perforated with several longitudinal clefts; upon each cleft are four bottles, placed in such a manner, that the bottom of the bottle being sunk in, and exposed to the action of the flame, only the neck of the bottle continues exposed to the air, the parts of the cleft contained between the bottles being strongly closed with cement. Every furnace has four clefts, and consequently contains sixteen bottles, and a very great laboratory consists of eight furnaces, disposed in two rooms; so that there are at once an hundred and twenty-eight bottles employed.

4. In each furnace, for three days and nights successively, there is kept up a constant fire, made of the dung of animals, mixed with straw. The first day the thick phlegm of the foot exhales in a thick fume through the neck of the bottle. On the second, the acid and alkaline salts being sublimed, coalesce and harden near the necks of the bottles. The third day the coagulation continues, depurates, and is finished. In the mean time, they make a small hole in the side, a little below the neck of each bottle, to see if the matter be sufficiently baked, and all the salt sublimed. After making these observations, they carefully stop the hole with lute, and open it from time to time as they see occasion. When the operation is finished, they take out the fire, break the bottles, and separate the ashes from the sublimed mass, or *sal ammoniac*, which is a round, white, transparent substance, three or four fingers thick.

5. In two towns of the Delta, near each other, a league from the city of Munfoure, there are twenty-five large laboratories, and some small ones, which make every year fifteen hundred, or two thousand quintals, of *sal ammoniac*. In all Egypt beside there are but three laboratories more, two of which are also in the Delta, and the other in Grand Cairo, which do not produce above twenty or thirty quintals of this salt. Mem. de l'Acad. Roy. des Scien. 1720.

Some, however, doubt, whether so prodigious a quantity of foot can be furnished by such a country as Egypt, whose climate is so warm, that fires are only used for culinary purposes, and for bagnios; and therefore conclude, that the Egyptians have had the address to keep the process a secret from the Europeans, and that they use some other materials than foot; and it is said that very good *sal ammoniac* may be made without any foot at all.

Ammoniac salt is principally used by whiteners of copper-vessels, and goldsmiths; and is a noted drug with chemists and physicians. F. Sicard, a missionary, and an eye-witness, say they add a little sea salt, and urine of beasts.—Mem. de l'Acad. Roy. des Scien. 1720.

See the method of making *sal ammoniac* in Egypt, as communicated by Dr. Linnæus, from his pupil Dr. Hasselquist. His account does not essentially differ from that above recited. Phil. Trans. vol. li. N° 48. an. 1760.

AMMONIAC is sometimes made by the chemists of urine, sea-salt, and wood foot, boiled into a mass, and then sublimed.

We are told, that at the works carried on lately at Newcastle, *sal ammoniac* was made from *bittern* and urine; and it is farther said, that from one hundred weight of salt made from *bittern*, sold under the name of Epsom salt, and three hogheads of urine, fifty-six pounds of *sal ammoniac* may be procured.

AMMONIAC, sal, properties of. It is soluble in four times its quantity of water; and if the solution be duly evaporated, it shoots into thin fibrous substances, resembling feathers. *Sal ammoniac* neither coagulates milk, nor changes the colour of a solution of sublimate. It makes a considerable effervescence with the vitriolic acid, attended with a great degree of cold. Exposed to a considerable heat, it totally sublimes; and if previously ground with metallic, and certain other ponderous substances, elevates some part of them along with itself, and concretes with the rest into a mass, which exposed to a moist air, readily flows into a liquor. Mixed with a due quantity of alkaline salts, it yields, by a small degree of heat, two thirds its weight of pure volatile alkali; what remains in the subliming vessel, being dissolved in water, and crystallized, readily assumes the form of cubical crystals, like those of common salt, the properties of which it likewise possesses. *Sal ammoniac*, mixed

mixed with nitre, and injected into a red-hot crucible, boils up, and emits flashes of light, and thus betrays its animal origin. Sublimed in a retort, with double its weight of chalk, it is said to be increased in its weight. See Mem. de l'Acad. des Scienc. 1735.

In this operation, as M. Duhamel has observed, a true decomposition of the *sal ammoniac* takes place by the intervention of the chalk; which combining with the acid of the salt, discharges its *fixable air*. This again combines with the volatile alkali of the *sal ammoniac*, and occasions that increase of weight, which Duhamel, and other chemists, erroneously ascribed to a part of the calcareous earth carried off during the operation.

A mixture of quick-lime and *sal ammoniac* set to sublimation, affords an exceeding penetrating spirit, but gives nothing in the form of a solid salt: if the quantity of lime be considerable, a volatile alkaline part of the *sal ammoniac* will be almost totally absorbed by it.

The volatile alkali obtained by this process is called *volatile spirit of sal ammoniac*; as it is caustic, or uncombined with *fixable air*, it is always in a liquid state. Moreover, fixed alkali, either vegetable or mineral, and most metallic substances, are capable of decomposing *sal ammoniac*.

Lastly, of all salts, *sal ammoniac* most intensely cools the water, in which it is dissolved, whose coldness in hot weather equals that of water ready to freeze.

From what has been said, it appears that *sal ammoniac* is a neutral salt, compounded of a volatile alkaline salt, and an acid.

The *sal ammoniac* derives its name from the various kinds of acid forming the composition. And accordingly we have *sal ammoniac animal*, *nitrous*, *vitriolic*, and *vegetable*, denoting the different combinations of volatile alkali with these acids respectively. That formed by volatile alkali and vinegar, is called *spirit of Mindererus*.

But it must be observed, that *sal ammoniac* is a very different substance from most of the preparations made from it; for when alkaline salts are mixed with the crude *sal ammoniac*, they absorb the acid, which renders the *sal ammoniac* neutral; and then the volatile urinous salts, being freed from the acid, rise in distillation.

Boerhaave says, that *sal ammoniac* preserves all animal substances from putrefaction; that its brine penetrates into the most minute parts; and that it is the noblest aperient, attenuant, resolvent, stimulant, errhine, sternutatory, diaphoretic, sudorific, antiseptic, and diuretic. It is made use of in sundry mechanic businesses, by the dyers and glass-makers, but especially by those who work on metals, for the purpose of folding.

There are several preparations of this salt made use of in the present practice of physic, as,

AMMONIAC, *sal*, *volatile*, made by subliming *sal ammoniac*, mixed with salt of tartar. It is used for pocket smelling-bottles; but Boerhaave, with the greatest appearance of reason, condemns the custom of smelling to these salts as highly pernicious. Some put aromatics into the retort, which give it a more agreeable smell. It is prescribed in malignant fevers as a sudorific.

AMMONIACI, *spiritus salis*, *spirit of sal ammoniac*. This is a spirit distilled from *sal ammoniac*, mixed with salt of tartar, or pot-ash, and dissolved in a proper quantity of water. Some use lime instead of salt of tartar, in order to increase its volatility; but this should never be used internally.

The *aqua regia*, with which so many experiments are made, particularly in dissolving gold, is made from *sal ammoniac* and nitre. But the most celebrated medicine now in the shops from this substance, is the *Spiritus salis volatilis oleosus*, generally called *sal volatile*, the oily spirit of volatile salt. This is a spirit distilled from *sal ammoniac*, salt of tartar, and spirit of wine, impregnated with aromatic oil. There is also the

AMMONIACI, *spiritus salis*, *succinatus*, spirit of *sal ammoniac* with amber; which is reckoned to be cephalic, and exceedingly well suited to all nervous indispositions; its dose is from ten drops to forty.

AMMONIAC, *fixed*, is a name given to the *residuum* formed by decomposing *sal ammoniac*, with a calcareous earth. It is a salt composed of that earth, and marine acid.

AMMONIACUM *regeneratum*, in *Chemistry*, the name given to a sort of *sal ammoniac*, procured by chemistry from its principles.

The method of preparing it is this: take four ounces of alkaline spirit of *sal ammoniac*, dilute it with three times its weight of water, in a tall glass, and drop in spirit of sea-salt, till the alkali is saturated, and no more effervescence happens. The saturation being nicely hit, the liquor will be scentless, and of the taste of *sal ammoniac*; let it be filtrated and evaporated, and it will shoot out a fine woolly salt; or if it be evaporated to a dryness, a white salt will remain, and either one or the other of these will be found to be true genuine *sal am-*

moniac, capable of rising in flowers, and standing all the tests of the common *sal ammoniac*.

The volatile alkali of animal and vegetable substances, which of itself indifferently receives all acids, is here determined, by the acid of sea-salt, into a semi-volatile sea-salt; hence the chemical rule, that acids are capable of determining alkalies into their own nature, seems to receive confirmation, while the alkali either gives fixedness, or volatility, as itself is fixed, or volatile; and therefore, as a large quantity of volatile alkali is continually generated from putrified animals and vegetables, if there was in nature a spirit of sea-salt floating about in several places, *sal ammoniac* would, in these places, be continually produced; and the same spirit meeting with a fixed alkali, produced from the ashes of vegetables, would immediately produce a true fixed sea-salt, as appears by the process of the regenerated sea-salt.

But though it is easy to manifest these fixed alkalies by experiments, yet it is very difficult to shew the existence of such acids in nature, unless we had the secret of Mr. Boyle, who, in his treatise of Mechanical Experiments, declares, that by a secret and long continued digestion, sea-salt may be so disposed as to part with its acid, by a gentle heat, and that before its water, and without any addition of any other substance. Boerh. Chem. part ii. p. 261.

For the chemical history of this substance, see Neumann's Works, p. 312.

AMMONIS, *cornu*, in *Natural History*. See **CORNU Ammonis**.

AMMONITÆ, in *Natural History*. See **SNAKE-stone**, and Phil. Trans. abr. vol. x. part ii. p. 641.

AMMOSCHISTA, in *Natural History*, a genus of stones of a laminated structure, and splitting only horizontally, or into flat plates.

The *ammoschista* are coarse, harsh, and rough stones, of a very loose texture, and appearing something porous. They are considerably heavy, and composed of a large, coarse, and obtusely angular GRIT, surrounded, and in part held together, by a loose earthy spar. They are very soft and friable in the mass, but much more so when reduced to small pieces. They make a violent effervescence with aqua fortis, and will not easily strike fire with steel.

The species of *ammoschista* are fix.

AMMUNITION, in general, signifies all sorts of warlike stores and provisions, more especially powder and ball.

The word is *anonitio*, which, according to Du-Cange, was used in the corrupt state of that language for *subsistence*.

Ammunition, or gun-powder, may be prohibited to be exported at the king's pleasure, by 12 Car. II. cap. 4. § 13.

By 1 Jac. II. cap. 8. § 2. *ammunition*, arms, utensils of war, or gun-powder, imported without licence from his majesty, are to be forfeited with treble the value. Such licence obtained, except for the furnishing his majesty's public stores, is to be void, and the offender to incur a premunire, and be disabled to hold any office from the crown.

Whoever is curious to know the quantity of *ammunition* necessary for the siege of a place, may consult the chevalier de St. Julien's treatise De la Forge de Vulcain; and the quantity requisite for the defence of a place, will be found in Suireg. de St. Remy's Memoires d'Artillerie.

AMMUNITION-bread, shoes, &c. what is provided for, and distributed to, the soldiers of an army or garrison.

Such an officer has so many rations of *ammunition-bread*, &c.

AMNA, in *Physical Writers*, denotes the water found in limy soils, and which is consequently tinged with a whitish colour, as in many places of England.

In this sense, Paracelsus speaks of the medical virtues and uses of *amna*.

AMNESTY, or **AMNISTY**, from *a*, *not*, and *μνησμαι*, *I remember*, a kind of general pardon, which a prince grants to his subjects, by a treaty or edict, wherein he declares, that he forgets and annuls all that is past, and promises not to make any farther enquiry into the same.

The word is *αμνηστια*, *amnesia*; which was the name of an ancient law of this kind, passed by Thrasylus upon the expulsion of the thirty tyrants out of Athens. Andocides, an Athenian orator, whose life is written by Plutarch, and of whom we have an edition of the year 1575, gives us, in his Oration upon Mysteries, a formula of the *amnesty*, and the oaths taken thereupon.

Amnesties are usually practised upon reconciliations of the sovereign with his people, after rebellions, general defections, &c.

Amnesty is either general and unlimited, or particular and restrained, though most commonly universal, without condition or exceptions: such as that which passed in Germany,

Germany, at the peace of Osnabrug, in the year 1648.

Amnesty, in a more limited sense, denotes a pardon granted by a prince to his rebellious subjects, usually with some exceptions: such was that granted by king Charles II. at his restoration.

Amnesty also, in a military sense, signifies the pardon granted by a sovereign to deserters, on condition of their rejoining their regiments.

AMNIMODAR, in *Astrology*, the planet that rectifies a geniture, or rather a method of rectifying a nativity, and finding the precise degree in the horoscope at the time of an infant's birth, from the condition of the planet, which had the rule in the last preceding conjunction, or opposition of the luminaries. Vital. Lex. Math.

AMNIOS, or AMNION, in *Anatomy*, the innermost membrane wherewith the *fœtus* in the womb is immediately invested.

The word seems to be derived from *αμνος*, a lamb; q. d. *pellis agnina*, lamb's skin.

The *amnios* is a white, soft, thin, transparent membrane; making part of the secundine, and lying under the *chorion*.

The existence of the *allantois* in human subjects is questioned; but the *amnios* is found in all animals both viviparous and oviparous. Dr. Hunter says, that the *amnios*, viewed in the microscope, appears to have blood vessels, but that they are really lymphatics.

It contains a limpid liquor, like a thin jelly-broth; which, because the stomach of the *fœtus* is always found full of it, is supposed to be the matter of its nourishment.

But authors differ widely as to the quantity and quality of the liquor of the *amnios*.

The liquor of the *amnios*, according to Mr. Monro, serves to keep the *fœtus* and its membranes soft and extensible, hinders them from cohering, and defends the *fœtus* from pressure and other violence, which it needs most to be protected from; while its parts are very tender.

It is a question, however, whether the liquor of the *amnios* be a proper food for the *fœtus*. Mr. Monro is of opinion, that whether the liquor of the *amnios* be in a sound or in a morbid state, it appears to be very ill calculated for serving as food to be taken into the stomach of a *fœtus*.

It is also controverted, whether the liquor of the *amnios* passes into the stomach of the *fœtus*. Mr. Monro asserts, that the liquor of the *amnios* does not pass into the stomach of the *fœtus*; and answers the arguments brought by several learned men for the contrary opinion. Medic. Edinb. vol. i. and ii.

On its outside lies the *allantois*, or urinary membrane. In some subjects, the urinary membrane and *chorion* stick so close to one another, that they appear to be but one. The *amnios* hath all its vessels from the same origin as the *chorion*.

See some observations, proving that the *fœtus* is in part nourished by the liquor *amni*, by Malcolm Fleming, M. D. Philos. Transact. vol. xlix. part 1. N° 42. an. 1755.

AMNIS *alkalisatus*, among *Chemists*, denotes water impregnated with an alkalious quality, by passing through a limy or other alkaline substance under ground.

This amounts to much the same with what Paracelsus calls AMNA.

AMNITES, in *Natural History*, a name used by some for the *banmites*, or spawn-stone, a stone supposed to be composed of the petrified spawn of fishes; but they are, in reality, a *congeries* of small STALAGMITÆ, or drop-stones.

AMOEBÆUM, in the *Ancient Poetry*, denotes a kind of poem, or composition, wherein two parties speak alternately in the same number of verses, but so as that he who answers, either goes beyond or contradicts the other.

The word is *αμωβαιος*, signifying *mutual* or *alternate*. Hence also we meet with *epistolæ amœbææ*. Such, e. g. are those of Pliny and Trajan.

AMOGABARI, a kind of ancient Spanish soldiery, in great repute for their bravery.—These are otherwise denominated, by some writers, *almugaveira*.

AMOGLOSSUS, in *Ichthyology*, a name of a peculiar kind of flat fish, somewhat resembling the foal, and called in some parts of England, the *lantern*. It is of a very slender, pellucid and white body, never exceeds three inches in length, and is exceedingly smooth to the touch, being covered only with a number of very thin scales, which fall off on touching it. Its flesh is very finely tasted, and requires very little dressing.

AMOMI is used, by the Dutch traders, for what we otherwise call Jamaica pepper.

AMOMUM, in *Botany*. See GINGER.

AMOMUM of Pliny. See SOLANUM.

AMOMUM, in the *Materia Medica*, a small and rich aromatic fruit, growing in bunches like grapes, valued

highly for its medicinal virtues. It is commonly classed among the *seeds*.

The commentators on Pliny and Dioscorides, have never been able to agree upon the ancient *amomum*; the generality of them seek it in fruits different from our's.—Some will have the rose of Jericho pass for it.—F. Camelli is positive he has discovered the real *amomum* of Dioscorides, and that it is the *tugus* or *biraz*, or *caropi*, growing in the Philippine islands: the grains or berries whereof are worn by the natives about their necks; both on account of their agreeable odour, and of their supposed virtue in preserving from infection, curing the sting of the scorpion, &c. Phil. Trans. N° 248.

Scaliger is confident, that the *amomum* of the ancients was not a fruit, but the wood itself, which bore some resemblance to a bunch of grapes, and was particularly used in embalming of bodies; and hence, says he, the term MUMMY was given to the bodies of Egyptians, embalmed with it. On this account, likewise, all medicines and unguents used in the embalming and preserving of dead bodies, were called *amomia*.

The ancient *amomum* was of divers kinds; but the Armenian was most esteemed. It was a heater, drier, and astringent; used as a narcotic, to appease pain, cure poisonous bites, inflammation of the eyes, &c.

The true *amomum* of the ancients resembles the muscat grape, and grows like it, in clusters; it is about the bigness of a large chick-pea, round, membranous, and divided into three cells, which contain several brown angular grains; of a very strong aromatic taste and smell; and is of the cardomum kind.

This fruit is brought from the East Indies; and makes part of the composition of Venice treacle.—It is of a hot, spicy taste and smell.

Besides this, there is likewise another paler seed, which bears the name *amomum*; but neither this nor the former are much used in physic.

The modern *amomum*, used in the shops, under the denomination of *amomum vulgare*, or *amomum officinarum*, appears to be the seed of the *sison* or *sum* of the ancients, answering to what in English we call *bastard-stone-parsley*.

It is esteemed a powerful diuretic, and is good in all nephritic cases. It is also commended as an aperient in general, and prescribed in obstructions of the liver and spleen, and in suppressions of the menses. The people in some parts of England bruise the seeds, and give them in warm ale, in colics; but those of caraway, or anise, are better. See SKIRRET.

AMORÆANS, from *אמוראים*, *dixit*, a sect or order of *gemaric* doctors or commentators on the Jerusalem Talmud.

The word is otherwise written *amoræi*, and *amoraitæ*, *amoraim*.—The *amoræans* are also called, by Scaliger, *sophistæ*; by Atling, *γλωσσολογί*, or, *speakers of sentences*; by Bartolocius, *dicentes*, or *disceptantes*, because they conferred and disputed together in a scholastic manner.

The *amoræans* succeeded the *mischnic* doctors. They subsisted 250 years; and were succeeded by the *seburæans*.

AMORE, in *Ichthyology*, the name of a genus of fishes, of which there are three species. 1. The *amore pixuma*. 2. The *amore guacu*. And, 3. The *amore tinga*.

The *amore pixuma* has a very broad head, and a very large mouth, but has no teeth. Its body is oblong, and its back and sides are of a dusky iron colour. Its belly, which is protuberant, is white. Its skin is soft; and it has seven fins, besides the tail, which is rounded at the end. Its flesh is firm, and well-tasted.

The *amore guacu* is like the former, of an oblong figure; but it grows to six inches in length. Its head is thick, its gills large, and its mouth is furnished with small teeth. Its eyes are small, their pupil black, and the iris yellow. It has seven fins besides the tail, which is long, and rounded at the end. This species is covered with somewhat large scales, and is of a rusty iron colour, but somewhat paler on the belly than on any other parts.

The *amore tinga* is of the same shape with the former, but is much smaller, and is covered with whitish scales all over, but spotted with brown spots. Its tail is brown, and waved with different degrees of that colour. All the three species are eaten, but the first is esteemed the best. They are caught about the American shores. Marcgrave's Hist. Brasil.

AMORPHA, *bastard indigo*, in the Linnæan system of *Botany*, a genus of plants belonging to the *diadelphia decandria* class, of which the characters are: the flowers are of the butterfly kind, having an oval concave standard, but no wings, or keel; this is inserted between the two upper segments of the empalement; the germen afterward becomes a reflexed, moon-shaped pod, having one cell, in which are lodged two kidney-shaped seeds. We know but one species of this genus.

This shrub grows naturally in Carolina, where formerly the inhabitants made a coarse sort of *indigo* from the

young shoots, which occasioned their giving it the title of *bastard indigo*.

It rises with many irregular stems to the height of twelve or fourteen feet, with very long winged leaves, in shape like those of the common ACACIA. At the extremity of the same year's shoots, the flowers are produced in long slender spikes, which are very small, and of a deep purple colour. After the flowers are pist, the germen turns to a sharp pod, having two kidney-shaped seeds; but these do not ripen in England.

This shrub is become very common in all the gardens and nurseries near London, where it is propagated as a flowering shrub, for the ornament of the shrubbery. It is generally propagated by laying down the young branches, which in one year will make good roots, and may then be taken off and planted, either in the nursery, or the places where they are designed to remain.

AMORTIZATION, or AMORTISEMENT, in *Law*, the act of turning lands into mortmain, i. e. of alienating or transferring them to some corporation, guild, or fraternity, and their successors.

The word is formed of the French *amortir*, to *extinguish*. See EXTINGUISHMENT.

The term is also used for the licence or privilege which the king or superior lord grants, to enable such a corporation, &c. thus to receive lands in MORTMAIN; which otherwise they cannot do.—There is always supposed to be some fine or acknowledgement paid to the king, or the lord, in consideration hereof; to make them satisfaction for several incidental dues and profits, which would have fallen to them in the common way; which are hereby cut off.

This practice was borrowed from the ancient *Lex Papiria*, whereby it was forbidden to consecrate any land to religious uses without the consent of the people.

AMOS, or the *Prophecy of Amos*, a canonical book of the Old Testament. This prophet boldly remonstrates against the crying sins that prevailed among the Israelites; and reproves the people of Judah for their sensuality and injustice. He terrifies them both with frequent threatenings, and pronounces that their sins will at last end in the ruin of Judah and Israel. He begins with denunciations of judgment and destruction against the enemies of the Jews, and concludes with promises of restoring the tabernacle of David, and of erecting the kingdom of Christ.

AMOVING, the act of removing or expelling another from his place, office, or the like. We have statutes for *amoving* papists out of London and Westminster, and ten miles round the same. 1 W. and M. cap. 9.

AMOVING a guardian, *amovendo custode*. See CUSTODE.

AMPANA, in *Botany*, a name given, in the Hortus Malabaricus, to a genus of plants, since described by Linnaeus, under the name of BORASSUS.

AMPELIS, in *Botany*, the *vine*. See VINE.

AMPELIS, in the Linnæan system of *Zoology*, the name of a genus of birds of the order of the *passeres*; the distinguishing characters of which are, that the tongue is furnished with a rim, or margin, all round; the beak is of a convex form, and straight. There are seven species.

AMPELIS is also the name of a bird, of the magpye-kind, called by some GARRULUS *Bohemicus*. See ROLLER.

AMPELITES, canal-coal, in *Natural History*, a black bituminous substance, called also PHARMACITIS, and nearly resembling pit-coal, inasmuch, that the difference between them is scarce sensible. Accordingly, Theophrastus gives its description under the class of these coals; and Dr. Woodward seems of the same opinion. The *ampelites* of the shops, according to him, is the same with our canal-coal found in Lancashire.

It differs from the common pit-coal, in that it is more friable and fat; and also less compact and solid; which, it must be owned, does not agree with Woodward's description of canal-coal, which he represents as very fine and hard, so as to take a pretty good polish.

The best, according to Dioscorides, is that of a black colour, resembling small pieces of the *lapis piceus*, or pit-coal, equally glossy on all sides, though, when kneaded up with a little oil, it readily melts.

It is found in many parts of England, in the same places with pit-coal. It is also to be met with in a quarry near Alençon, in France. It is used by husbandmen, &c. to smear their vines with, against vermin, and is endued with a drying discussive power; on which account it is also used for the dying of hair.

It makes no effervescence with *aqua fortis*. Being applied to the belly, it is reputed good for killing worms. It is capable of a fine polish, and for that reason is turned into a vast number of toys, as snuff-boxes, and the like.

Ampelites is by some called vine-earth, because it kills the worms that creep upon vines.

Libavius has treated at large of the *terra ampelites*.

AMPELOGRAPHIA, the natural history, or description of the VINE.

The word is originally compounded of *αμπελις*, a *vine*, and *γραφον*, *description*.

Phil. James Sachs has published an *Ampelographia, seu Vitis viniferæ ejusque partium consideratio physica, &c.* Uratislay 1661, 8vo.

AMPER, a local term used in Essex for a tumor or phlegmon. In this sense, the word is also written *ampor*.

AMPHERES, from *αμφι*, on both sides, in *Antiquity*, a kind of vessels, wherein each mariner wrought two oars at the same time, one with the right-hand, and the other with his left, answering to our *scullers*. This is also called *amphericum*.

AMPHIARTHROSIS, in *Anatomy*, a neutral or dubious kind of articulation; distinguished from the *diarthrosis*, in that it has no conspicuous motion; and from the *synarthrosis*, in its not being without sensible motion.

The word is derived from *αμφι*, both, and *αρθρωσις*, articulation, the *amphiarthrosis* being compounded of both the other sorts.—Whence some also call it *diarthrosis synarthroidalis*.

Of this kind is the articulation of the ribs with the *vertebræ*; and that of the *carpus* with the *metacarpus*.

AMPHIBALUM, among *Middle Age Writers*. See AMPHIMALLUM.

AMPHIBIA, in *Natural History*, the third class of animals, whose essential characters are, according to Linnaeus, that they have either a naked, or else a scaly body, with no grinders, or *dentes molares*, their teeth all sharp and pointed, and without radiated fins; or, their heart has but one ventricle, and they respire through their lungs.

This class is divided into three orders, viz. *reptiles*, *serpents*, and the swimming *amphibia*, comprehending 24 genera, and 289 species.

AMPHIBIOUS, in *Natural History*, a term applied to a sort of animals which live both on land and in the water; that is, which breathe the air, but pass part of their time in the water, as affording them their chief food.

The word comes from *αμφι*, *utrumque*, both ways, and *βιος*, *vita*, *life*; as living in either place.

Such as the *frog*, *castor*, *otter*, *tortoise*, *sea-calf*, *crocodile*, &c.—Most of the *amphibious* kind, the *castor* and *otter* excepted, have peculiar provisions in their structure, to fit them for so various a way of living; particularly in the heart, lungs, *foramen ovale*, &c.

In some of these animals, as the *frog*, *tortoise*, &c. the heart has but one cavity, with an artery to receive the blood coming out of it, and a vein to convey it thither. In others, the *foramen ovale* appears to be still open for the passage of the blood from the *vena cava* to the *arteria venosa*, without the help of breathing.

In the *castor* dissected by the academists of Paris, though the *foramen* was not found actually open, yet the marks of it appeared; and the cause of its closure might well enough be accounted for, from the animal's having been detained a good while from the water, by which the part having been in disuse closed up. In the *otter* the case is different; there is no appearance of any thing like a *foramen*, and hence the necessity the creature is under of rising, from time to time, above water, to take in air. Phil. Trans. No 124.

The structure of the feet of the *CASTOR* pronounces it *amphibious* at first sight, the fore-feet being formed like those of terrestrial animals, who hold their food in their feet, e. gr. *squirrels*, while the hind-feet are fashioned after the manner of river fowl, with webs or membranes between the toes, as the *goose*, *duck*, &c.

A great part of the fly-kind may be said, in one sense, to be *amphibious*. Gnats drop their eggs in water, where hatching, the young live and breathe after the manner of fishes, till at length undergoing a metamorphosis, they take wing, quit their native element, and become inhabitants of the air. May not swallows also be ranged under this class, which have been sometimes found to pass their winter asleep under water, from which the warmth of the spring awakes, and calls them forth?

Elias Geissler has written expressly concerning *amphibious* animals. M. Otwald of Dantzick has left behind him anatomical observations on *amphibious* animals.

Dr. Hunter observes that, properly speaking, there are no *amphibious* animals; for that fish cannot live long without air, though much longer than men. See two ingenious dissertations on this subject by Dr. Parsons, in the Phil. Trans. vol. lvi. 1766.

The term *amphibious* is sometimes also extended to men, who have the faculty of living a long time under water.

We have divers instances of such *amphibious* men; the most remarkable is of a Sicilian named the *Fish-Colas*. Kircher relates, that by a long habitude from his youth, he had so accustomed himself to live in water, that his nature seemed to be quite altered; so that he lived rather after

after the manner of a fish, than a man: See Brydōne's Tour, vol. i. p. 77.—The PEARL-fishers also arrive at a surprising art of this kind.

AMPHIBIOUS plants. See PLANTS.

AMPHIBIOUS lipes. See SIREN.

AMPHIBLESTROIDES, in *Anatomy*, a tunic, or coat of the eye, more usually called *retina*.

The word is compounded of *αμφι*, *βλεπρον*, *net*, and *ειδος*, *form*; on account of its net-like texture; whence the Latins also call it *retiformis*.

AMPHIBOLOGY, or AMPHIBOLIA, in *Grammar*, a fault in language, whereby it is rendered obscure, and liable to be understood in a double sense.

The word comes from *αμφιβολος*, *ambiguous*, and *λογος*, *discourse*.

Amphibology is chiefly used in respect of a phrase, as equivocal is in respect of a word.

Of this kind was that answer which Pyrrhus received from the oracle: *Aio te, Æacida, Romanos vincere posse*; where the *amphibology* consists in this, that the words *te* and *Romanos*, may either of them precede, or either of them follow, the words *posse vincere*, indifferently. See ORACLE.

The English language usually speaks in a more natural manner, and is not capable of any *amphibologies* of this kind: nor is it so liable to *amphibologies* in the articles, as the French, and most other modern tongues.

AMPHIBRACHYS, the name of a foot in the Latin and Greek poetry; consisting of three syllables, the first and last whereof are short, and that in the middle long.

The word comes from *αμφι*, *circum*, and *βραχυς*, *brevis*, q. d. a foot short at both ends, and long in the middle.—Among the ancients it is also called *janus*, and *folius*. Diom. iii. p. 475.

Such are the words *amārē*, *ābirē*, *pāternūs*, *Ομηρός*, &c.

AMPHICOME, in *Natural History*, a kind of figured stone, of a round shape, but rugged, and beset with eminences, celebrated on account of its use in divination. The word is originally *αμφικουμν*, q. d. *utrinque comata*, or *hairy on all sides*.

AMPHICTYONS, AMPHICTYONES, in *Antiquity*, the deputies of the cities and people of Greece, who represented their respective nations in a general assembly; having a full power to concert, resolve, and appoint, what they should think fit, for the service of the common cause.

Some suppose the word *αμφικτυονες* to be formed of *αμφι*, *about*, and *κτιειν*, or *κτιζειν*, because the inhabitants of the country round about met here in council. Others, with more probability, derive it from *Amphictyon*, son of Deucalion, whom they suppose to have been the founder of this assembly; though others will have Acrisius, king of the Argives, to have been the first who gave a form and laws to this body.

The *amphictyones* very much resembled the states-general of the United Provinces; or rather, what in Germany they call the DIET of the empire.

Authors give different accounts of the number of the *amphictyons*, as well as the states who were entitled to have their representatives in this council; according to Strabo, Harpocration, and Suidas, they were twelve from their first institution, sent by the following cities and states; the Ionians, Dorians, Perrhæbians, Bœotians, Magnesians, Achæans, Phthians, Melians, Dolopians, Ænians, Delphians, and Phocæans. Æschines only reckons eleven, instead of the Achæans, Ænians, Delphians, and Dolopians, he only gives these three, the Theffalians, Cætans, and Locrians. Lastly, Pausanias's list only contains ten *amphictyons*; namely, the Ionians, Dolopians, Theffalians, Ænians, Magnesians, Melians, Phthians, Dorians, Phocians, and Locrians.

In the time of Philip of Macedon, the Phocians were excluded the alliance, for having plundered the Delphian temple, and the Lacedæmonians were admitted into their place; but the Phocæans, sixty years after having behaved gallantly against Brennus and his Gauls, were restored to their seat in the *amphictyonic* council. Under Augustus, the city Nicopolis was admitted into the body; and to make room for it, the Magnesians, Melians, Phthians, and Ænians, who till then had distinct voices, were ordered to be numbered with the Theffalians, and to have only one common representative. Strabo speaks as if this council were extinct in the times of Augustus and Tiberius; but Pausanias, who lived many years after, under Antoninus Pius, assures us it remained entire in his time, and that the number of *amphictyons* was then thirty.

The members were of two kinds; each city sending two deputies, under different denominations, one called *τερομνημων*, whose business seems to have been more immediately to inspect what related to sacrifices and ceremonies of religion; the other *πυλαγορας*, charged with

hearing and deciding causes and differences between private persons. Both had an equal right to deliberate and vote, in all that related to the common interests of Greece. The *hieromnemon* was elected by lot; the *pylagoras*, by plurality of voices.

Though the *amphictyons* were first instituted at Thermopylæ, M. de Valois maintains that their first place of residence was at Delphi, where, for some ages, the tranquillity of the times found them no other employment than that of being, if we may so call it, church-wardens of the temple of Apollo. In after-times the approach of armies frequently drove them to Thermopylæ, where they took their station, to be nearer at hand to oppose the enemies progress, and order timely succour to the cities in danger. Their ordinary residence, however, was at Delphi.

Here they decided all public differences and disputes between any of the cities of Greece; but before they entered on business, they jointly sacrificed an ox, cut into small pieces, as a symbol of their union. Their determinations were received with the greatest veneration, and even held sacred and inviolable.

The *amphictyons*, at their admittance, took a solemn oath never to divest any city of their right of deputation, never to avert its running waters; and if any attempt of this kind were made by others, to make mortal war against him; more particularly, in case of any attempt to rob the temple of any of its ornaments, that they would employ hands, feet, tongue, their whole power, to revenge it. This oath was backed with terrible imprecations against such as should violate it; e. gr. May they meet all the vengeance of Apollo, Diana, Minerva, &c. their soil produce no fruit, their wives bring forth nothing but monsters, &c.

The stated terms of their meeting was spring and autumn; the spring meeting was called *Εαρινη Πυλαια*, that in autumn *Μετοσπωρινη*. On extraordinary occasions, however, they met at any time of the year, or even continued sitting all the year round.

Philip of Macedon usurped the right of presiding in the assembly of the *amphictyons*, and of first consulting the oracle which was called *Ηρομαντεια*.

The Romans never thought fit to suppress the meeting of the *amphictyons*. Strabo informs us that they subsisted in his time. Potter's Arch. Græc. Mem. Acad. Inscr. tom iv. and vii. Æschin. Orat.

AMPHIDROMIA, from *αμφι*, and *δρομος*, a *course*, in *Antiquity*, a feast celebrated the fifth day after the birth of a child, called *dies lustricus*, or LUSTRAL day.

AMPHIDRYON, in *Ecclesiastical Writers*, a veil or curtain usually drawn before the door of the BEMA in ancient churches.

AMPHIMACER, a foot in the *Ancient Poetry*, consisting of three syllables; the first and last whereof are long, and that in the middle short.

The word is derived from the Greek *αμφι*, *circum*, and *μακρος*, *longus*, by reason both extremes are long.

Such are the words *ὀμνῖν*, *κασιῶν*, *γροῦματων*, &c. This foot is also called *creticus*, and sometimes *fescennius*.

AMPHIMALLUM, from *αμφι*, and *μαλλος*, a *fleece of wool*, whence *covering*, or *garment*, in *Ecclesiastical Writers*, is otherwise called *amphibalum*, and *amphibulum*, from *αμφι*, and *βηλω*.

Magri suggests the *amphimallum*, spoken of by ecclesiastical writers, to have been a garment peculiar to bishops.

AMPHIPNEUMA, *αμφιπνευμα*, among *Ancient Physicians*, a great degree or species of difficult respiration.

AMPHIPOLES, from *αμφι* and *πολις*, *city*, in *Antiquity*, archons, or chief magistrates of the city of Syracuse.

They were first established by Timoleon, after his expulsion of Dionysius the Tyrant. They governed Syracuse for the space of three hundred years; and Diodorus Siculus assures us, they subsisted even in his time.

AMPHIPPIL, in *Antiquity*, those who practised riding on two horses, by jumping from one to the other.

The word is Greek, *αμφιπτοι*; they are sometimes also called *ιππαγωγοι*, and sometimes by corruption, *αριπτοι*. The appellation was given to a sort of cavalry in the Grecian armies, who, for their conveniency, had two horses a-piece, on which they rode by turns, leading the other.

AMPHIPRORÆ, from *αμφι*, and *πρωα*, *prow*, in *Antiquity*, were ships which had prows at both ends, that no time might be lost in turning them, and also on account of the rapidity of streams, and narrowness of channels.

AMPHIPROSTYLE, in the *Ancient Architecture*, a kind of temple, which had four columns in front, and as many behind.

The word is derived from *αμφι*, *about*, *πρι*, *before*, and *συλος*, *column*.

AMPHISBÆNA, from *αμφι* and *βαινα*, *I go*, in *Zoology*, the name of a genus of serpents in the Linnæan system. It goes with equal ease, as its name imports, either forward or backward.

Linnaeus enumerates two species, viz. the fuliginous, and white. They are both found in America.

AMPHISBÆNA aquatica, a name given, by Bertrutius, Albertus, and several other authors, to that long and slender insect, called by others the *seta aquatica*, and *vermis setarius*. It has the name *amphisbæna*, from its going backwards or forwards with equal ease and celerity. The usual size is four or five inches long, and the thickness of a large hair.

Dr. Lister accidentally found out the origin of this worm, in his researches into the history of a very different sort of insect. Dissecting one of the common black beetles dug up in a garden, he found in its belly two of these hair worms, or *amphisbæna*; and renewing the experiment on other beetles of the same species, he found that they usually contained one, two, or three of these worms. As soon as the body of the beetle is opened, they always crawl out. When put into water, they will live a considerable time, and swim nimbly about; but often put up their heads above water, as if endeavouring to make their escape, and sometimes fastening themselves by the mouth to the sides of the vessel, and drawing their whole bodies after them.

These creatures are not only found in the waters, but buried in earth, and sometimes on the leaves of trees, in our gardens and hedges. Phil. Trans. N° 83.

AMPHISCII, in *Geography* and *Astronomy*, the people who inhabit the torrid zone.

The word comes from *αμφι*, about, and *σκια*, shadow.

They are thus denominated, as having their shadow turned sometimes one way and sometimes another, i. e. at one time of the year to the north, and at another to the south.

The *amphiscii* are called also **ASCHII**.

AMPHISMILA, or **AMPHISMELA**, an anatomical knife, edged on both sides.

The word is formed from *αμφι*, utrimque, on both sides, and *σχις*, knife.

AMPHITANE, *αμφιταν*, in *Natural History*, a name of a stone described by the ancients, and said to have the power of the magnet, or load stone; but with this remarkable difference, that as that stone attracts only iron, so this is supposed to exert its influence only on gold. For this fabulous property, however, there does not appear to be the least foundation.

AMPHITAPA, in *Antiquity*, a kind of carpets, or clothing, having a soft warm nap on each side.

AMPHITHEATRE, a spacious building of an oval figure, having its *area* or *arena* encompassed with several rows of seats, rising gradually one over another; with porticos both within and withoutside.

The word is derived from *αμφι*, about, and *θεατρον*, theatre, from *θεαομαι*, contemplor; so that an *amphitheatre*, strictly speaking, is a place whence a person may see all around him.

Among the ancients, the *amphitheatre* was appointed for the exhibiting of spectacles or shews to the people; as the combats of gladiators, those of wild beasts, and the *naumachia*, or sea-fight.

Amphitheatres were at first only of wood; and it was not until the reign of Augustus, that Statilius Taurus built one for the first time of stone. The lowest part was of an oval figure, and called *arena*, because, for the convenience of the combatants, it was usually strewed with sand; and round the *arena* were vaults, styled *caveæ*, in which were confined the wild beasts appointed for the shews.

Above the *caveæ* was erected a large circular peristyle *podium*, adorned with columns. This was the place of the emperors, senators, and other persons of distinction. The rows of benches were above the *podium*. Their figure was circular, and they were entered by avenues, at the end of which were gates called *vomitores*.

Their theatre was built in form of a semicircle, only exceeding a just semicircle by one fourth part of the diameter; and the *amphitheatre* was nothing else but a double theatre, or two theatres joined together; so that the longest diameter of the *amphitheatre* was to the shortest, as 1½ to 1.

There are *amphitheatres* still standing at Rome, at Pola, at Nismes, &c. The *amphitheatre* of Vespasian, called the Coliseum, and that at Verona in Italy, are the most celebrated now remaining in all antiquity. Remains of *amphitheatres* are shewn also at Arles, Bourdeaux, &c.

The *amphitheatre* at Pola, an ancient republic of Istria, is very entire: it consists of two orders of Tuscan pillars, one over the other. The lower have pedestals, which is extraordinary; this order having scarce ever more than *bases* to support them.

The *amphitheatre* of Titus is computed to have been capable of holding 85,000 spectators. That of Verona is the best preserved: for, though most of the great and best stones of the outside are picked out, yet the great vault, on which the rows of the seats are laid, is entire;

The rows also (which are 44 in number) are entire. Every row is a foot and a half high, and as much in breadth; so that a man fits conveniently in them; and allowing for a seat a foot and a half, the whole will hold 23,000 persons.

Pliny mentions an *amphitheatre* built by Curio, which turned on large iron pivots; so that of the same *amphitheatre* two several theatres were occasionally made, whereon different entertainments were sometimes presented at the same time.

Mr. Brydone mentions an *amphitheatre* at Syracuse, the theatre of which is so entire, that the *gradini* for seats still remain; but it is a small theatre, he says, in comparison of that at Taurominum. Tour to Sicily, vol. i. p. 295.

AMPHITHEATRE is also used for a room formed with circular seats above one another, for the convenience of those who attend chirurgical experiments and operations.

AMPHITHEATRE, in *Gardening*, certain dispositions of trees and shrubs on the sides of hilly places, which, if the hill or rising be naturally of a circular figure, always have the best effect. They are to be formed of evergreens, such as hollies, phillereys, laurustines, bays, and such plants, observing to plant the shortest growing trees in the front, and those which will be the tallest behind, such as pines, firs, cedars of Lebanon, &c.

Amphitheatres are also sometimes formed of slopes on the sides of hills covered only with turf, and, when well kept, they are a great ornament to large gardens.

AMPHITHURA, in *Ecclesiastical Antiquity*, a name given to the veil, or curtain, which divided the chancel from the rest of the church.

The word is *αμφιθυρα*, thus called, on account of its opening in the middle, after the manner of folding doors.

AMPHITRITE, *Αμφιτριτη*, from *circumferendo*, in the *Heathen Mythology*, the wife of Neptune, daughter of Nereus, and goddess of the sea, sometimes taken for the sea.

AMPHITRITE, in *Zoology*, the name of a small naked sea insect, of an oblong figure, with only one *tentaculum*, resembling a piece of thread. There are several species of this animal, some of which are marginated, and variously furrowed, so as to bear some resemblance to a quill.

AMPHODONTA, in *Zoology*, a designation given to animals which have teeth in both jaws, the upper as well as under.

The word is compounded of *αμφι* and *οδους*, tooth.

AMPHORA, in *Antiquity*, an earthen vessel, which served as a kind of liquid measure, among the ancient Greeks and Romans.

It is called in Homer *αμφιφορεως*, from *αμφι* and *φορεω*, and by *syncope*, *αμφορος*, on account of its two *ansæ*, or handles, for carriage.—It is the same with the *quadrantale*. But we meet with two kinds of *amphora* in ancient writers, the *Italic* and *Attic*.

AMPHORA, *Italic*, was that used by the Romans, and which is therefore sometimes called the *Roman amphora*. The *Italian amphora* was also called *quadrantale*, and sometimes *cadus*. It contained 72 pounds of wine or water, 80 of oil, and 180 of honey.

The *amphora* was equal to 2 *urnæ*, or 3 *modii*, 6 *semodii*, 8 *congi*, 48 *sextaries*, 96 *heminae*, 192 *quartarii*, and 570 *cyathi*, amounting to about 7 gallons one pint, English wine measure. Arbuthnot.

The ancient *amphora* were either *sessile*, i. e. such as would stand, or *non sessile*, terminating in a sharp bottom. Of both which kinds, we meet with figures on ancient medals.

The *amphora capitolina* was the standard of this measure, which was kept in the Capitol, to adjust others by.

Suetonius tells us of a man, who stood for the questorship, and who drank an *amphora* of wine at one meal, with the emperor Tiberius.

Supposing the *amphora* to have been a cube of four feet each side, as Politiu asserts it to have been, we may venture to say, that ten of the greatest drinkers on earth could not have emptied it. Buddæus's computation is much more reasonable; he makes the *amphora* of wine amount to about 4½ gallons Paris measure.

AMPHORA, *Attic*, was that used by the Greeks, and therefore sometimes also called the *Grecian amphora*.

The *Attic amphora* was one third part bigger than the *Italic*; so that as the latter contained 2 *urnæ*, or 48 *sextaries*, the former contained 3 *urnæ*, or 72 *sextaries*, amounting to about 10 gallons 5½ pints, English wine measure. This was called *αμφορεως*, sometimes also *νεραμιον*, and, by way of distinction from the Roman kind, *μετριτης*.

AMPHORA was sometimes also used as a dry measure, containing three bushels; the standard whereof was kept at Rome in the Capitol, to prevent false measures.

AMPHORA is also used to denote the largest liquid measure in use among the Venetians. The *amphora* contains

tains four *bigots*, seventy-six *muſſachi*, or two boats, or *muids*.

AMPHORA, in *Aſtronomy*, a name given to the ſign more uſually called **AQUARIUS**.

AMPHORARIUM vinum, in *Antiquity*, denotes that which is drawn or poured into *amphoræ*, or pitchers, by way of diſtinction from *vinum doliare*, or *coſt wine*.

The Romans had a method of keeping wine in *amphoræ* for many years, to ripen, by faſtening the lids tight down with pitch or **GYPſUM**, and placing them either in a place where the ſmoke came, or under-ground. Colum. Re Ruſt. lib. i. cap. 6. Plin. Nat. Hiſt. tom. ii. lib. 23. cap. 1.

AMPHOTEROPLON, among *Civilians*, denotes a kind of naval inſurance, where the inſurers run the riſque both of the going out and return of a veſſel.

In this ſenſe, the word ſtands oppoſed to *heteroplon*, where only the voyage outwards is inſured.

AMPHOTIDES, in *Antiquity*, a kind of defence, or armour for the ears, worn by the ancient *Pugiles*, to prevent giving their adverſaries a handle by that part.

Authors have been in the dark as to the nature and office of the *amphotides*. Some explain them as a ſort of helmet for covering the noſe and ears.

Fabretti firſt aſcertained their real uſe, from the figure of a *Pugil*, which had *amphotides* over its ears, joined by a piece coming over the forehead, and tied with ſtrings under the chin.

AMPLEXATIO, or *Baſiatio*, among *Alchemiſts*, denotes a kind of union betwixt their *philophical mercury*, which they call the white female, and by which they mean *regulus of antimony*, and the red husband, by which they mean *gold*. This embracing, ſome of them expreſs in terms not very decent.

AMPLIATION, is uſed, by ſome writers, for the act of enlarging the compaſs or extent of a thing.

On a medal of the emperor Antoninus Pius, we find the title *ampliator civium* given him, on account of his having extended the *jus civitatis*, or right of citizenship, to many ſtates and people, before excluded from that privilege. In effect, this prince is generally ſuppoſed to have made the famous conſtitution, whereby all the ſubjects of the empire were made citizens of Rome. M. Spanheim reſutes this notion, and makes the emperor Caracalla to have been the author of that conſtitution.

AMPLIATION, in the Roman *Law*, denotes the act of deſerring a judicial ſentence, either as the cauſe is not clear, or in favour of him againſt whom it is to paſs.

Ampliation differed from *comperendination*, as the former was granted on the mere motion or pleaſure of the judge, the latter at the petition of one or both the parties. Beſides, the former was not limited to any certain time, whereas the latter could not be extended beyond the third day. Beſides, *ampliation* might be repealed, which *comperendination* might not.

The firſt introduction of *ampliation* was in favour of the *rei*, or perſons accuſed. But it was afterwards uſed on other occaſions; e. gr. when certain witneſſes were wanting, or the crime or the fact had not been ſufficiently proved for a final deciſion, or the kind or meaſure of puniſhment was not agreed on, &c.

In theſe caſes, the prætor ſignified his intention, by pronouncing the word *amplius*, or the letters *N. L.* for *non liquet*, by which he denoted that the cauſe was not clear, but that the ſecond action muſt be brought.

The perſon whoſe ſentence, whether of condemnation or abſolution, was thus deſerred, was ſaid to be *ampliatus*.

Hence the phraſes, *bis ampliatus*, *tertiò abſolutus eſt reus*.

AMPLIATION is alſo uſed, among *Schoolmen*, to denote the acceptance of a term for a different time from that ſignified by the verb in the propoſition, e. gr. *juſtus peccavit*, i. e. *before he ſinned he was juſt*.

AMPLIFICATION, in *Rhetoric*, part of a diſcourſe or ſpeech, wherein a crime is aggravated, a praiſe or commendation heightened, or a narration enlarged, by an enumeration of circumſtances; ſo as to excite the proper emotions in the ſouls of the auditors.

Such is the paſſage in Virgil, where inſtead of ſaying merely that Turnus died, he *amplifies* the circumſtances of his death.

— *Aſt illi ſolvuntur frigore membra,
Vitaque cum gemitu fugit indignata ſub umbras.*

The maſters of eloquence make *amplification* to be the ſoul of diſcourſe. Longinus ſpeaks of it as one of the principal means which contribute to the ſublime: but he cenſures thoſe who define it a diſcourſe which magnifies things; this equally agreeing to the ſublime, the pathetic, &c. The ſame author diſtinguiſhes *amplification* from the ſublime by this, that the latter conſiſts wholly in the elevation of words and ſentiments, whereas the former conſiſts alſo in their multitude: the ſub-

lime is ſometimes found in a ſingle thought; but *amplification* cannot ſubſiſt, excepting in abundance.

There is likewiſe a difference between the *amplification*, and the proof; becauſe the one ſerves to clear the point, and the other to heighten and exaggerate it.

There are two general kinds of *amplification*; the one of things, the other of words. The firſt is produced in divers manners; as, 1. By a multitude of definitions; thus it is Cicero *amplifies* on hiſtory: *Hiſtoria eſt teſtis temporum, lux veritatis, vita memoria, maſtra vitæ, nuntia vetuſtatis*. 2. By a multitude of adjuncts; of which we have a fine inſtance in Virgil's lamentation for Cæſar's death, by enumerating the many prodigies and monſters that either preceded or ſucceeded it. *Vox quæque per lucos vulga exaudita ſilentes ingens, & ſim: lacra modis palentia miris viſa ſub obſcurum noctis; pecudeſque locuſtæ, inſandum! ſiſtunt amnes terræque debiſcunt; et metum illacrymat templis ebur, æraque ſudant*. 3. By a detail of cauſes and effects. 4. By an enumeration of conſequences. 5. By compariſons, ſimilitudes, and examples, &c. 6. By the contraſt of antithets, and by rational inference.

Amplification by words is effected ſix ways. 1. By uſing metaphors. 2. By hyperboles. 3. By *ſynonyma*. 4. By ſplendid and magnificent terms; as that of Horace, *Scandit æratas vitioſa naves cura, nec turmas equitum relinquit, ocyor cervis, & agente nimboſ ocyor euro*. 5. By *periphræſes*, or circumlocutions. 6. By repetition. To which may be added, by gradation.

AMPLITUDE of the range of a **PROJECTILE**, denotes the horizontal line ſubtending the path in which it moved.

AMPLITUDE, in *Aſtronomy*, an arch of the horizon, intercepted between the true eaſt or weſt point, and the centre of the ſun, or a ſtar, at its riſing or ſetting; ſo that the *amplitude* is of two kinds; *eaſtern*, or *oriſive*; and *weſtern*, or *occiduouſ*.

The eaſtern and weſtern *amplitudes* are alſo called *northern* and *ſouthern*, as they fall in the northern and ſouthern quarters of the horizon.

The complement of the eaſtern or weſtern *amplitude* to a quadrant, is called the *azimuth*.

To find the ſun's or ſtar's *amplitude*, either riſing or ſetting, by the globe, ſee **GLOBE**.

To find the ſun's *amplitude* trigonometrically; having the latitude and the ſun's declination, given. Say, as the coſine of the latitude is to the radius, ſo is the ſine of the preſent declination to the ſine of the *amplitude*. Suppoſe, e. gr. the latitude 15° 30', and the declination 11° 50';

Sine comp.	15° 30' ſubtr. from radius,	0,0160895
Sine of declin.	11° 50'.	+ 9,3118926

9,3279821

Amplitude required 12° 15'

AMPLITUDE, *magnetical*, is an arch of the horizon, contained between the ſun at its riſing, and the eaſt or weſt point of the compaſs; or it is the difference of the riſing or ſetting of the ſun, from the eaſt or weſt points of the compaſs.

It is found by obſerving the ſun, at its riſing or ſetting, by an azimuth compaſs. If the compaſs had no variation, the *magnetical amplitude* would be the ſame as the true one.

AMPOTIS, *αμπτωτις*, ſignifies properly the reſceſs or ebb of the tide. But Hippocrates, who was of Cos, one of the Grecian iſles, and muſt have had many opportunities of obſerving the tides, very elegantly applies this word to the reſceſs of humours, from the circumference of the body to the internal parts.

AMPTRUARE, in *Antiquity*, denoted a kind of dancing performed by the chief of the *ſalii*, and answered with a correſpondent motion by others in the *chorus*.

This is ſometimes alſo called *amburvare*, the answer of the *chorus* was particularly called *redamtruare*.

AMPULLA, in *Antiquity*, an oil-vial with a large belly, uſed for unctiions at the baths.

The word *ampulla* was alſo uſed for a drinking veſſel uſed at table.

AMPULLA, among *Eccleſiaſtical Writers*, denotes one of the ſacred veſſels uſed at the altars.

The word is ſometimes alſo written in Engliſh *ampul*. *Ampullæ* were alſo uſed for holding the oil uſed in chriſtiation, conſecration, coronation &c.

Among the ornaments of churches, we find frequent mention made of *ampuls*, or *vials*. In the inventory of the cathedral of Lincoln, we meet with *ampuls* of crystal, variously enriched with ſilver-ſeet and covers; one containing a tooth of St. Chriſtopher, another a tooth of St. Cecily, another a bone of the head of St. John Baptiſt. Dugdale Mon. tom. iii. p. 272.

AMPULLA, *Knights of St. Ampulla*, belong to an order inſtituted by Clovis I king of France; at the coronation

they bear up the canopy, under which the *ampulla* is carried in procession.

AMPULLA, a species of *bulla*, in the Linnæan arrangement of worms.

AMPULLACEÆ conchæ, in *Natural History*, a name by which some authors have called a genus of shells, named by others *conchæ globosæ*, and *dolia*, and by the French naturalists *tonnes*. See **DOLIUM**.

AMPUTATION, in *Surgery*, the operation of cutting off a limb, or other part of the body with an instrument.

The usual method of performing it, in the instance of a leg, is as follows.—The proper part for the operation being four or five inches below the knee, the skin and flesh are first to be drawn very tight upwards, and secured from returning by a ligature two or three fingers broad; above this ligature another loose one is passed, for the gripe; which being twisted by means of a stick, may be straitened to any degree at pleasure.

Then, the patient being conveniently situated, and the operator placed on the inside of the limb, which is to be held by one assistant above, and another below the part designed for the operation, and the gripe being sufficiently twisted, to prevent too large an hæmorrhage, the flesh is with a stroke or two to be separated from the bone with the dismembering knife. Then the *periosteum* being also divided from the bone with an instrument called a *cataline*, saw the bone asunder with as few strokes as possible. When two parallel bones are concerned, the flesh that grows between them must likewise be separated before the use of the saw.

This being done, the gripe may be slackened, to give an opportunity for searching for the large blood-vessels, and securing the hæmorrhage at their mouths, either by the actual cautery, the ligature, stitching them up, applying vitriol buttons, or the like. After this a dry pledget of lint, or one dipped in spirit of wine, and sprinkled with a *diapente*, may be applied to the stump: then loosen the first ligature, and pull both the skin and flesh as far as conveniently may be, over the stump, to cover it; and secure them with the cross-stitch, made at the depth of half or three quarters of an inch in the skin.

It remains to apply over the whole stump two large pledgets, dipped in oxycrate, dried, and afterwards charged with astringents; over these to apply a plaster of the de minio, or simple diachylon; over all these, an ox-bladder, wetted in oxycrate; and finally, over all, a cross-cloth pretty tight, secured with rollers.

After all this, the gripe may be slackened, so as to be made easy to the patient; or even entirely taken away, after he is put to bed; in which he must lie with the stump somewhat raised; an assistant for twelve or fourteen hours keeping fast the dressing with his hand, to prevent any violent hæmorrhage.—In three or four days the dressing may be removed; and proper digestives mixed with astringents, applied; having an actual cautery, or some powerful styptic, in readiness, in case of a violent hæmorrhage at the first opening. M. Sabourin, surgeon of Geneva, is recorded in the history of the Royal Academy of Sciences, an. 1702, for an improvement in the method of *amputation*, proposed to that academy; the whole secret consists in saving a piece of flesh and skin, a little lower than the place where the section is to be, wherewith the stump is to be afterwards covered. The advantages hereof are, that in less than two days time, this flesh unites with the extremes of the divided vessels, and so saves the necessity either of binding the ends of those vessels with thread, or of applying caustics or astringents; which are methods very dangerous, or at least very inconvenient: and, that the bone thus covered up, does not exfoliate. This method of Messrs. Sabourin and Verduin, is called *l'opération de l'amputation à lambeau*.

Dr. Motherby, in his Medical Dictionary, says, that in the year 1674, Mr. Morrel, a French surgeon introduced the *tourniquet*, as it is now used; but the first mention of the instrument is in the *Currus Triumphalis à Terebintho*, Lond. an. 1679, from which book it also appears, that the operation *de l'amputation à lambeau*, was then the practice of the English surgeon, who published it.

In the year 1713, it is said in the *Collect. Acad.* tom. iii. p. 517. that M. Sabourin, a surgeon of Geneva, had discovered the method of what is called *amputation à lambeaux*; and that he came that year to Paris, to propose it to the academy, with a view of introducing it into practice in the course of a war that was then beginning. It is added, that he disclosed it without reserve or presumption, and in a manner that did him great honour; but that the academy declined adopting the practice, suspended its judgment, and waited for the additional recommendation of experience.

Many and important improvements on the methods of

amputation have been made in this century, in the course of which the crooked needle, and most other parts of the *apparatus* in this branch of surgery, have either been introduced or improved. The double-edged knife, called the *cataline*, formerly used to clear away the *periosteum*, is now laid aside, as unnecessary or hurtful; it having been discovered, that in consequence of scraping off the *periosteum*, an exfoliation sometimes follows from the subjacent bone.

In most *amputations* the operation should be performed the breadth of a finger or more, above the sphacelated or otherwise injured part. The *trochar* should be so applied, as that it may press upon the chief artery of the limb to be taken off. The practice of making a short stump is most general; but others prefer amputating between the calf of the leg and the ankle, in cases that will admit of saving so much of the leg; and are confident that the motion of the long stump is more easy than that of a short one. Mr. White and Mr. Bromfield are entirely of this opinion.

The use of sponge as a part of the dressing, as soon after the *amputation* as the digestion is begun in the stump, is recommended by Mr. Kirkland, to prevent the evil, and sometimes fatal consequences, of an absorption of the matter from the wound, after the inflammation is gone off, particularly when the digestion does not proceed kindly. See *Lond. Med. Obs. & Inq.* vol. ii. art. 23. p. 278.

According to his method, so soon as the digestion is complete, the wound is first covered with thin layers of dry lint, over them pieces of fine sponge are applied, which imbibe the thinnest part of the matter from the lint, and that which remains becomes too thick to be absorbed. Vide *Essays Physic. and Liter.* Edinb. vol. iii. art. 22. See a general account of the cases that are ordinarily supposed to indicate and require *amputation*, and the various methods of amputating particular parts, &c. *Med. Dict.* Sharp's *Operations of Surgery*, and *Crit. Inq.* Heister's *Surgery*; Bilguer's *Dissert. on Amputation*; Le Dran's *Operations*, &c.

AMSDORFIANS, in *Church History*, a sect of protestants, in the sixteenth century; so denominated from their leader *Amsdorf*.

Saunders represents them as maintaining, that good works were not only unprofitable, but even opposite and pernicious to salvation.

AMSEGETES, in *Antiquity*, those whose grounds abutted on the highway. Vide *Fest. de Verb. Signif. in voc.*

The laws of the Twelve Tables decree, *amsegetes viam muniunto*.

AMTRUSTIO, in *Ancient Charters*, denotes a sworn or liege tenant, or vassal, of the ancient French or German kings.

The word is also written *antrustio*. Spelman derives it from the German *ampt*, office, business, and the English *trustee*.

AMULET, **AMULETUM**, a kind of external medicament, to be worn about the neck, or other part of the body, to prevent, or remove diseases.

The word *amulet* is formed from *amoliri*, to remove.

Such are quills of quicksilver, or arsenic, which some hang on the neck, or wear under the shirt, against the plague, and other contagious diseases; as also the bloodstones worn by others against hæmorrhages; and that worn by the women of the East Indies to bring the menses.

Amulets are also frequently no other than a sort of spells, or charms; consisting of quaint words and characters, supposed to have the virtue of warding off ill. Pliny makes frequent mention of them.

The Greeks called this kind of remedies *φυλακτήρια*, *phylacteries*; *περιαπτά*, *periapta*; *αποτελεσματα*, *periammata*, *βεβηλα* and *εγκολπια*. The Latins call them *amulata*, *appensa*, *pentacula*, &c.

Some think this word derived from *amula*, a small vessel with lustral water in it, anciently carried in the pocket by the Romans, for the sake of purification and expiation. This last opinion appears the more probable, in that some *amulets* were made in the shape of little vessels, as appears from the testimony of Pliny, who observes, that pieces of amber, cut in form of little vessels, were hung about childrens necks for *amulets*.

Amulets are by some considered as a natural species of *talismans*. Others rather make *talismans* a species of *amulets*. The *bulla*, worn by the ancients; the *abraxas* of the Basilidians, &c. were also *amulets*.

The ancients made great use of gems for *amulets*: the whole East, according to Chifflet, wore a kind of jasper for this purpose.

That species of *amulets* compounded of poisons, used as preservatives from the plague, are more particularly denominated *zenezhta*.

Under *amulets*, some also include medical or other substances

stances fixed to brutes, or even plants, to preserve them from certain diseases and dangers.

Charms, words, scrolls, magic figures and numbers, make a large class of *amulets*, to which the Turks are still greatly devoted. Their *amulets*, called *chaimaili*, are little bits of paper of two or three fingers breadth, rolled up in pieces of silk, containing short prayers or sentences out of the Alcoran, with circles and other figures, in which they inscribe the name of Jesus, the figure of the cross, &c. They hang them about their necks, or place them under their arm-pits, or in their bosom near their hearts, and especially when they go to war, as a preventive against the dangers of it.

The pope is supposed to have the virtue of making *amulets*, which he exercises in the consecrating of *Agnus Dei's*, &c.

Amulets are now much fallen from the repute they were anciently in; yet the great Mr. Boyle alledges them as an instance of the ingress of external effluvia into the habit; in order to shew the great porosity of the human body. —He adds, that he is persuaded some of these external medicines do answer: for that he himself, having once been subject to bleed at the nose, and reduced to use several remedies to check it, found the moss of a dead man's skull, though only applied so as to touch the skin till the moss was warm thereby, the most effectual of any. The same Mr. Boyle shews how the effluvia, even of cold *amulets*, may in tract of time, pervade the pores of a living animal; by supposing an agreement between the pores of the skin, and the figure of the corpuscles. Bellini has demonstrated the possibility of the thing in his last propositions, *De Febribus*; and the like is done by Dr. Wainwright, Dr. Keill, &c. However, these are principally used at present by empirics, women, and credulous, superstitious persons.

AMULET, in a more particular sense, is restrained to such medicines, as do not operate by any physical virtue, or to those wherein there is no proportion between the cause and effect.

In this sense medicines, which operate by effluvia, odours, and the like, do not belong to the class of *amulets*.

In this sense also those essence-vessels worn by hysterical women on their breasts, called by the Greeks *καρδιοφυλακτα*, and by the Latins *domus pectoris*, were not properly *amulets*.

AMULET is sometimes also applied, in a more extensive sense, to all medicines, whether internal or external, whose virtue or manner of operation is occult.

AMULET, in *Cookery*. See **OMELET**.

AMULETICS, in *Medicine*, is used by some writers for what is more frequently called an *amulet*.

Amuletics amount to the same with what are otherwise called *sympathetics*, and are chiefly used of late times to stop bleeding; such are the *persicaria*, *lapis hæmatites*, dried toads, &c. also against warts, *sarcomas*, &c.

Sir Kenelm Digby's sympathetic powder is one of the principal *amuletics* in cases of hæmorrhages; and with many the *ancora sacra*.

AMUND, in *Ancient Writers*, denotes a person free or discharged from tuition or wardship.

The word is also written *aamund*, *amond*, and *amont*; and is compounded of the privative *a*, and the Saxon *munde*, *defence*, *tuition*.

AMURACORY, in some *Writers of the Middle Age*, denotes a kind of Turkish soldiery belonging to the corps or order of Janizaries.

They seem to be the same with those otherwise called *Saraptarii* and *Pocillatores*.

AMURCA, in *Pharmacy*, a medicine made of the refuse or recrement of expressed **OLIVES**.

Amurca being boiled in a copper vessel to the consistence of honey becomes a drug of some use in medicine, being reputed an astringent and drier; and as such sometimes prescribed in ulcers, as well as against diseases of the teeth, eyes, &c.

Hippocrates applies the term *amurca* to a crude, immature, putrid state of the liver.

Some authors have also given the name *amurca* to the juice or fluid found in the **RENES succenturiati**.

AMY, in *Law*, the person next of kin to an orphan, or infant, who is to be intrusted for him; properly called **PROCHEIN amy**.

The word in French literally signifies *friend*.

AMY, *alien*, is a foreigner here, subject to some prince, in friendship with us.

AMYGDALA, in *Natural History*, the name of a species of *ECHINUS marinus*, of the genus of the **BRISOIDES**.

AMYGDALÆ, in *Surgery*, denotes superfluous flesh growing at the root of the tongue.

AMYGDALÆ, in *Anatomy*. See **ALMONDS**.

AMYGDALÆ. See **ALMOND**.

AMYGDALATE, an artificial milk, or emulsion, made of blanched almonds, &c.

AMYGDALOIDES lapis, in *Natural History*, the name given by authors to a stone which resembles the kernel of an almond in figure. It is no natural fossil, but the petrified spine of an *ECHINUS marinus*, or sea-urchin, of the nature of the *LAPIS Judaicus*, but wanting the pedicle or stalk of that spine.

AMYGDALUS, in *Botany*, the **ALMOND-tree**.

AMYLON, in *Ancient Writers*, a kind of aliment answering, as some apprehend, to our firmity.

The word is Greek *αμυλον*, thus called, because made *sine mola*.

AMYLUM. See **STARCH**.

AMYNTE, in *Literary History*, a beautiful pastoral comedy, composed by Tasso; the model of all dramatic pieces, wherein shepherds are actors. The *Pastor Fido*, and *Filli di Sciro*, are only copies of this excellent piece.

AMYNTICA emplastrum, in *Pharmacy*, defensive, or strengthening plasters.

AMYNTOR properly denotes a person who defends or vindicates a cause. The word is *αμυντορ*, formed of the verb *αμυνω*, *I defend*, or *avenge*.

In this sense, Mr. Toland entitles his defence of Milton's life, *Amyntor*, as being a vindication of that work against Mr. Blackall, and others, who had charged him with questioning the authority of some of the books of the New Testament, and declaring his doubt that several pieces under the name of Christ and his Apostles, received now by the whole Christian church, were supposititious.

AMYRALDISM, a name given by some writers to the doctrine of universal grace, as explained and asserted by Amyraldus, or Moses Amyraut, and others his followers, among the reformed in France, towards the middle of the seventeenth century.

This doctrine principally consisted of the following particulars, viz. that God *desires* the happiness of all men, and none are excluded by a divine decree; that none can obtain salvation without faith in Christ; that God refuses to none the *power of believing*, though he does not grant to all his assistance, that they may improve this power to saving purposes; and that many perish through their own fault. Those who embraced this doctrine were called **UNIVERSALISTS**, though, it is evident, they rendered grace universal in words, but *partial* in reality, and are chargeable with greater inconsistencies than the **SUPRALAPSARIANS**.

Amyraldism is said to have been a system worked up, to bring on a reconciliation with the Lutherans.

AMYRBERIS, in *Botany*, a name used by some authors, to express the **BARBERRY-tree**.

AMYRIS, in *Botany*, a genus of the *oëlandia monogynia* class, with a four-toothed calyx, four oblong petals, a four-cornered stigma, and a pulpy berry.

AMZELL, in *Ornithology*, the name of a bird of the *merula*, or black-bird kind, of which there are two species. The ring-amzel, or *merula torquata*, and the *merula montana*, called simply the *amzell*.

The ring *amzell* is a little larger than the common black-bird. Its back is of a dusky blackish brown, and its throat and breast are beautifully variegated with spots and streaks of white, and the lower part of the throat is adorned with a fine broad white ring, whence the bird has its name; this ring is of a lunated shape, the points ending at the sides of the neck. The wings and tail are blackish, but are somewhat variegated with white in the female; the white looks greyish. The female is said also by some not to have the ring round its neck, and has by that means been mistaken for the *merula montana*, or common *amzell*. This feeds on insects and on berries. It is common about the Peak in Derbyshire, and is there called the rock-*amzell*. The common *amzell*, or *merula montana*, differs from this, in that it has no ring round the throat, which is variegated with a brownish red, and with spots of black, and the belly with grey and black spots. It seems however not determined certainly, whether this is any other than the female of the ring-*amzell*. Ray. See **OUZELL**.

ANA, *āā*, in *Medicine*, denotes an equal quantity of any things, whether in liquid, or in dry measure.

Hence *anatica proportio* is used by some writers to signify the *ratio*, or *proportion of equality*.

ANA, in *Matters of Literature*, a Latin termination, adopted into the titles of several books in other languages. *Anas*, or books in *ana*, are collections of the memorable sayings of persons of learning and wit; much the same with what we otherwise call **TABLE-talk**.

Wolffius has given the history of books in *ana*, in the preface to the *Casauboniana*. He there observes, that though such titles be new, the thing itself is very old; that Xenophon's books of the deeds and sayings of Socrates, as well as the dialogues of Plato, are *Socraticana*; that the apophthegms of the philosophers, collected by Diogenes Laertius; the sentences of Pythagoras, and those of Epictetus; the works of Athenæus, Stobæus, and divers others, are so many *anas*. Even the *Gemara* of

of the Jews, with several other oriental writings; according to Wolfius, properly belong to the same class. To this head of *ana* may likewise be referred the *Orphica*, the *Pythagoræa*, *Æsopica*, *Pyrrhonica*, &c.

Scaligerana was the first piece that appeared with a title in *ana*. It was composed by Isan de Vassan, a young Champenois, recommended to Jos. Scaliger, by Caufabon.—Being much with Scaliger, who was daily visited by the men of learning at Leyden, De Vassan wrote down whatever things of any moment he heard Scaliger say.—And thus arose the *Scaligerana*, which was not printed till many years after, at Geneva, in 1666. Patin. Let. 431.—Soon after came the *Perroniana*, *Thuana*, *Naudæana*, *Patineana*, *Sorberiana*, *Menagiana*, *Anti-Menagiana*, *Furettiana*, *Chevræana*, *Leibnitziana*, *Alequiniana*, *Poggi-ana*, &c.

ANA is used among some occult philosophers to denote the human mind. Hence, according to some, is derived the word *anapsota*, a demon invoked to the assistance of a sick person.

ANABAPTISM, see ANABAPTISTS, *infra*.

ANABAPTISTON. See ABAPTISTON.

ANABAPTISTS, a name given to Christians who maintain that *baptism* ought always to be performed by immersion; that it ought not to be administered to children before the age of discretion, or that at this age it ought to be re-administered to those who have been baptized in their infancy, because they say, the administration of this sacrament is neither valid nor useful, if it be done by sprinkling only, and not by immersion; or if the persons who receive it, be not in a condition to give the reasons of their belief.

The word *Anabaptist* is compounded of *ana*, new, and *βαπτισμός*, a baptism; and this general denomination has been indiscriminately applied to people of very different principles and practices; though many of them object to the name, and hold nothing in common, excepting some one or other of the above mentioned opinions concerning BAPTISM.

The NOVATIANS, the CATAPHRYGIANS, and the DONATISTS, may be considered as a kind of *Anabaptists*, in the earlier ages, though not then denoted by this name; for they contended that those Christians of the catholic church, who joined themselves to their respective parties, should be rebaptized. But we must not class under the same denomination those bishops of Asia and Africa, who, in the third century, maintained, that *baptism*, administered by those whom they called heretics, was not valid; and therefore that such of them as returned into their churches ought to be re-baptized. Nor does it appear that there is sufficient authority to affirm, that the *Vaudois* and the *Albigenses* were predecessors of the modern *Anabaptists*; though some of them adopted the practice of adult baptism.

It was not till a little after the time when the Lutherans separated from communion with the Romish Church, that the *Anabaptists* began to make a noise in Germany. Storck, Stubner, and Munzer, were the first disciples of Luther, who, about the year 1521, were styled *Anabaptists*. But well knowing that their opinions were very different from Luther's doctrine, they availed themselves of his absence to disseminate them in Wittemburgh, and had the address to over-reach the piety of Melancthon. Their principal purpose was to gain over the populace, and to form a considerable party. To effect this, says Bayle, they were industrious and active, each in his own way. Storck wanting knowledge, boasted of inspiration; and Stubner, who had both genius and erudition, laboured at commodious explications of Scripture. Not contented with discrediting the court of Rome, and decrying the authority of consistories, they taught, that men being entitled under the Gospel to equal liberty, could not be justly subjected to any civil power, nor erect superiorities over each other; that, as all magistracy was an usurpation on Christian freedom, no true Christian could be either magistrate, or subject, nor consequently pay any impost, give any oath, or bear arms; that violence and arms ought never to be made use of, excepting against princes, and people in power, from whom they were permitted to revolt, as from so many usurpers, who were to be pulled down, in order to erect the kingdom of God. They pretended that Christians, being all free, equal, and independent, there ought to be no tribunal among them, nor laws, nor any distinction of property, but that every thing should be in common, nor any restraints with regard to the number of wives which they might marry. In other respects they affected singular austerity, recommending macerations, fastings, and the utmost simplicity of apparel. Their sermons were, for the most part, declamations against the communion of the reformed; and they were incessantly exhorting every body to join with them, who, as they said, were sent of God, to re-establish the kingdom of his Son. They made high promises to all who would

unite with them to extirminate the impious, if this massacre proved the epocha for the commencement of Christ's reign upon earth, when the just, meaning themselves, were to reign also, instead of the unrighteous usurpers of authority. They moreover affected to speak with a kind of contempt concerning external worship, the sacraments, the ministry, and even the word of God, with a view to enhance the merit of the extacies, visions, and inspiration, to which they pretended, and on which they valued themselves. They dealt much in predictions, especially concerning the nearness of the last judgment; and finally, to give a greater eclat to their party, they rebaptized all those who joined them; and to make their practice succeed, they taught that baptism administered to infants was void.

Munzer took the lead of this party; and, in 1525, assembled a numerous army of associates; but this insurrection was soon suppressed, and Munzer put to an ignominious death. Many of his followers, however, survived, and propagated their opinions through Germany, Switzerland, and Holland. In the year 1533, they formed a new community at Munster, under the direction of two *Anabaptist* prophets, John Matthias, a baker of Haerlem, and John Blockholdt, a journeyman taylor of Leyden. Having made themselves masters of the city, they deposed the magistrates, confiscated the estates of such as had escaped, and deposited the wealth they amassed together in a public treasury, for common use. They made preparations of every kind for the defence of the city, and sent out emissaries to the *Anabaptists* in the Low Countries, inviting them to assemble at Munster, which was now dignified with the name of Mount Sion, that from hence they might be deputed to reduce all the nations of the earth under their dominion. Matthias, who was the first in command, was soon cut off in an act of phrensy by the bishop of Munster's army; and was succeeded by Blockholdt, who was proclaimed, by a special designation of heaven, as he pretended, king of Sion, and invested with legislative powers, like those of Moses. The extravagancies of Blockholdt were too numerous to be recited; it will be sufficient to add, that the city of Munster was taken after a long siege, and an obstinate resistance; and Blockholdt, the mock monarch, was punished with a most painful and ignominious death. The *Baptists* in England and Holland, or, as they are there called the *Mennonites*, are very different from those who first gave rise and name to the sect.

It must be acknowledged, that the first insurgents in Germany had been grievously oppressed; and that they took up arms principally in defence of their civil liberties; nor should subsequent extravagancies of violence be attributed to their religious principles, much less charged on their successors.

The sequel of their history, and distinguishing tenets, may be seen under the article ANTI-PÆDO-BAPTISTS, BAPTISTS, MENNONITES, WATERLANDIANS, &c.

ANABASII, in *Antiquity*, the couriers who travelled on horse-back, or in chariots, for the greater expedition.

The word comes from the Greek *αναβασις*, mounting.

ANABASIS, *αναβασις*, *ascension*, derived from, *αναβαινω*, to ascend.

ANABASIS, in *Medicine*, the state of a disease in its growth.

ANABASIUS, a name given by Pliny to a plant, which he calls also *ephedra*, and describes as hanging down from the branches of large trees, in form of tufts of hair. The plant described by Pliny, and others of the ancients, under this name is the USNEA, or long hairy tree-moss.

ANABATA, in *Ancient Customs*, a cope, or sacerdotal vest, to cover the back and shoulders of the priest.

It is otherwise called *anaboladium*, formed of *αναβαλλω*, to cast over or cover.

The word *anabala* seems to be used in the same sense.

ANABATHRA, from *αναβαινω*, I ascend, in *Ancient Writers*, denote a kind of steps or ladder, whereby to ascend to some eminence. In this sense we read of the *anabathra* of theatres, pulpits, &c.

Anabathra appears to have been sometimes also applied to ranges of seats rising gradually over each other.

ANABATHRA is more particularly applied to a kind of stone-blocks raised by the highway sides, to assist travellers in mounting or alighting, before the use of stirrups was invented.

The first author of this contrivance, among the Romans, was C. Gracchus, brother of Tiberius.

ANABIBAZON, in *Astronomy*, the DRAGON'S tail.

ANABLATUM, in *Botany*, a name used by some authors for the *squammaria*, or tooth-wort, called *dentaria* by others.

ANABIIPS, in the *Artedean System of Ichthyology*, the name of a new genus of fish, of the *malacopterigios* kind, the characters of which are these: the *branchiostegæ* membrane contains six bones, and there is only one small fin at the extremity of the back. There is a specimen of this fish, in the great collection of Albertus Seb.

Sena in Holland. The *anableps* is a species of the *cobitis*, in the Linnæan system.

ANABOLÆUM, in *Antiquity*, denotes any kind of upper garment worn over the coat or tunic.

This is otherwise called *anabole*, from *ανα* and *βαλλω*.

ANABOLEUS, among the *Ancients*, a servant whose office was to assist in mounting on horseback. These were in use before the invention of stirrups, or of those stones called *anabathra*.

ANABOLEUS is also used by Eustathius, to denote a small piece of iron, whereon the foot was set, in order to mount; from which Buddæus infers, that the ancients had stirrups or foot-boards; to which Lipsius objects, that it does not appear this *anaboleus* was any pendent part fixed to the saddle, after the manner of our stirrups, but rather a portable engine brought by a servant, and placed by the horse's side.

ANABROCHISMUS, from *ανα*, upwards, and *βροχος*, a loop, in the *Ancient Physic*, the operation of taking away offensive hairs in the eye-lids.

The manner of performing the *anabrochismus* is described by Gorræus.

ANABROSIS, in *Medicine*, otherwise called *diabrosis*, the issuing of blood at a hole worn in a vein by corrosion.

The word is *αναβρωσις*, q. d. *erosio*.

ANACA, in *Zoology*, the name of a Brazilian species of **PARRQUET**. It is of the size of a lark; its beak is brown and crooked; the crown of its head is covered with feathers of a liver-colour, and there are circles of brown ones near its eyes. Its throat is grey; the upper part of its neck and sides are green; its belly is of a reddish brown; its back green, with a pale brown spot, and its tail a pale brown. There is a deep blood-red mark at the top of each wing, the rest of the wings is green, except their extremities, which are bluish. Its thighs are covered with green feathers, and its legs and feet are grey.

ANACALYPTERIA, in *Antiquity*, feasts celebrated among the heathens on the day that the bride was permitted to lay aside her veil, and to be seen in public.

They were thus called from *ανακαλυπτειν*, to uncover.

According to Suidas, it also means the presents which were made to the bride by her husband's relations and friends on that day.

ANACAMPSEROS. See **PURSLANE**.

ANACAMPTERIA, in *Ecclesiastical Antiquity*, denote little hospitals, or inns, for the entertainment of the poor and strangers, built adjoining to the ancient churches.

ANACAMPTIC, from *ανα* and *καμπω*, *flexio*, I bend, signifies as much as *reflecting*; and is frequently used in reference to echoes, which are said to be sounds produced *anacamptically*, or by reflection.

Hence, also, *anacamptics* is by some used for the science of reflecting rays; otherwise called **CATOPTICS**.

ANACANDAIA, in *Zoology*, the name of a species of serpent found in the island of Ceylon, and very mischievous among the cattle, whence it is called **BUBALINUS**.

ANACARDIUM, in *Botany*, the cashew-nut, or *acajou*, a genus of the *enneandria monogynia* class. For the characters, see **ACAJOU**.

We have but one species of this genus, viz.

ANACARDIUM, Hort. Cliff. 161. This tree grows to a considerable height in its native country, which is the West Indies. But in England the plants are with great difficulty preserved; though by their first shoots from the seeds, they appear so strong and vigorous, as to promise a much greater progress, than they are ever seen to make here.

The milky juice of this tree will stain linen of a deep black, which cannot be washed out again; but whether this has the same property with that of the eastern *anacardium*, has not yet been fully experimented; for the inspissated juice of that tree is the best sort of lack which is used for staining of black in China or Japan. Phil. Transf. vol. xlix. part ii. p. 872. and Dr. Lewis's Commercium, Phil. Techn. p. 329, &c.

ANACARDIUM, in *Medicine*, the fruit of the above mentioned tree, brought from the East Indies, anciently in great esteem as a cephalic.

The word is formed of *ανα* and *καρδια*, *heart*, on account of the figure of this fruit, which bears some resemblance to a heart.

The pith or medullary part of the *anacardium* is extremely pungent and acrimonious; whence the ancients made great use of it in cold diseases of the head, particularly to strengthen the memory; but the abuse of it sometimes making them stupid, delirious, or even mad, the moderns rarely venture on the use of it, at least not without great correctives.

ANACARDIUM antarticum is also used by some for the *cajou*-fruit. This is also called by others *anacardium occidentale*, and is ordinarily used for the true, or eastern kind.

ANACATHARSIS, in *Medicine*, properly denotes a purgation by spitting; in which sense, it stands contradistinguished from *catharsis*, or evacuation downward.

In this sense is the word used by Hippocrates and Galen.

len; agreeably also to this Blasius restrains *anacatharsis* to expectoration. Only Blancard, on what authority does not appear, extends *anacathartic* medicines to all those which work upwards, by the glands of the head, whether vomitories, sternutatories, or masticatories.

ANACATHARSIS is also a name given by civil lawyers to the *Basilicon repetitæ Prelectionis* made by order of the emperor Constantine Porphyrogenitus.

It was thus called as being a review or correction of the Basilicon.

ANACATHARSIS, among *Divines*, denotes the clearing up some obscure passage, by a spiritual, or anagogical interpretation.

ANACATHARTIC, is usually understood of a vomit, or a purging medicine that works upwards.

The word comes from *ανα*, upwards, and *καθαίρω*, I purge.

ANACEIA, an Athenian festival in honour of the Dioscuri. It took its name from those deities, who were also called *Ανakes* and honoured with a temple called *Ανακειον*, *Anaceum*.

The sacrifices offered at that time were named *Ξενισμοι*, because those deities were *ξενoi*, or *strangers*; and consisted of three offerings, which were called *Τριτιαι*.

Athenæus mentions plays acted in honour of these deities.

ANACEPHALÆOSIS, in *Rhetoric*, a recapitulation, or a short and summary repetition of the heads of a discourse. The word comes from *ανα*, which in composition signifies *again*; and *κεφαλη*, *head*.

ANACHIS, in *Mythology*, one of the four deities, to whom the Egyptians imagined the peculiar care of each person was committed at his birth: the other three were *Dymon*, *Tyche*, and *Heros*. They are also called *Dynamis*, *Tyche*, *Eros*, and *Ananche*; i. e. Power, Fortune, Charity, and Necessity.

ANACHORESIS, denotes a withdrawing from society, or retiring into solitude.

The *anachoresis* was not allowed to persons, before they had spent thirty years in the community.

ANACHORET, a hermit or devout person, living alone in some desert, to be farther out of the reach of the temptations of the world, and more at leisure for meditation. The word comes from *αναχωρεω*, I retire into a solitary place.

Such were St. Antony, St. Hilarion, &c. Paul the Hermit was the first of the tribe of *anachorets*.

When many of the habitations of *anachorets* were placed together in the same wilderness, at some distance from one another, they were all called by one common name, *laura*, which, as Evagrius informs us, differed from a *cœnobium*, or *convent*, in that a *laura* consisted of many cells divided from each other, where every monk provided for himself; but a *cœnobium* was one habitation, where the monks lived in society, and had all things in common. *Anachorets*, popularly *anchorets*, were very numerous among the Greeks, consisting principally of monks; who not caring for the fatigues and offices of the monastery, purchase a little spot of ground, with a cell, whither they retreat, and never appear in the monastery again, excepting on solemn days. These are sometimes also called *ascetæ* and *solitaries*.

They have their chapel, and after prayers apply themselves to the culture of their vineyards, olives, fig-trees, and the like, which afford them provision for the year.

These *anchorets* only differ from the conventual monks, in that they have less intercourse with the world, and live but in small bodies.

The *anchorets* of Syria and Palestine retire into the most obscure and unfrequented places; hiding themselves under rocks and mountains, and living on the spontaneous productions of the earth.

There have also been *anchorets* in the West. Peter Damian, who was of the order of hermits, frequently speaks of them with great praise. He represents them as by far the most perfect sort of monks; holding them in much higher opinion and veneration than the *cœnobites*, or monks residing in monasteries.

Many of these retire, with the leave of their abbots, and have an allowance from the monastery. The people, on account of their piety, present them with good sums of money, which they carefully hoard up, and at their death bequeath to the monastery they had belonged to.

ANACHORITA, in *Ecclesiastical Writers*, a name sometimes given to the cells of recluses.

By the ancient canons, no *anachorita* could be erected without consent of the bishop.

ANACHRONISM, in *Chronology*, an error in computation of time; whereby an event is placed earlier than it really happened.

The word is compounded of *ανα*, higher, and *χρονος*, time.

Such is that of Virgil, who placed Dido in Africa, at the time of Æneas; though, in reality, she did not come there till 300 years after the taking of Troy. An error

on the other side, whereby a fact is placed later or lower than it should be, is called a *parachronism*; though this distinction is not commonly observed.

ANACLASTIC *glasses, vitra anaclastica*, a kind of sonorous phials, or glasses, chiefly made in Germany; which have the property of being flexible, and emitting a vehement noise by the human breath. They are also called vexing glasses, by the Germans *vexier glaser*, on account of the fright and disturbance they occasion by their respiration.

The *anaclastic* glasses are a low kind of phials with flat bellies, resembling inverted funnels, whose bottoms are very thin, scarce surpassing the thickness of an onion-peel: this bottom is not quite flat, but a little convex. But upon applying the mouth to the orifice, and gently inspiring, or as it were sucking out the air, the bottom gives way with a horrible crack, and from being convex becomes concave. On the contrary, upon expiring or breathing gently into the orifice of the same glass, the bottom with no less noise bounds back on its former place, and becomes gibbous as before.

The *anaclastic* glasses first taken notice of were in the castle of Goldbach; where one of the academists *Natura Curioforum*, having seen and made experiments on them, published a piece expressly on their history and phenomena. Rosini Lentilii Oribasii Sched. de Vitris Anaclasticis. Vid. Ephem. Acad. N. C. Dec. 2. Ann. 3. p. 489, seq. Their figure may be seen in the book above cited.

They are all made of a fine white glass. It is to be observed in these, 1. That if the bottom be concave at the time of inspiration, it will burst, and the like will happen if it be convex at the time of expiration. 2. A strong breath will have the same effect even under the contrary circumstances.

ANACLATICS, or **ANACLASTICS**, that part of OPTICS which considers refracted light. The term is derived from *ana* and *κλαω*, *I break*.

Anacletics is the same with what we more usually call *dioptries*.

ANACLETERIA, in *Antiquity*, solemn feasts celebrated in honour of kings and princes when they came of age, and took upon them the administration of the state, and made a solemn declaration thereof to the people.

The word is formed of *ana* and *καλεω*, *voco*, *I call*.

ANACLETICUM, in the *Ancient Art of War*, a particular blast of the trumpet, whereby the fearful, and flying soldiers were rallied, and recalled to the combat.

ANACLINOPALE, from *ana*, *κλινω*, *I recline*, and *παλον*, *arms*, in *Antiquity*, a kind of wrestling, wherein the champions threw themselves voluntarily on the ground, and continued the combat by pinching, biting, scratching, and other methods of offence.

The *anacclinopale* stood contradistinguished from the *orthopale*, wherein the champions were erect. In the *anacclinopale*, the weaker combatant sometimes gained the victory.

ANACLINTERIA, in *Antiquity*, a kind of pillows on the dining-bed, whereon the guests used to lean.

The ancient tricliniary beds had four *ενκλινατα*, one at the head, another at the feet, a third at the back, and a fourth at the breast. That on which the head lay, was properly called by the Greeks, *ανακλιντηρον*, or *ανακλιντρον*; by the Romans *fulcrum*, sometimes *pluteus*.

According to other writers, *anacclinteria* is more properly understood of the backs of chairs whereon we lean.

ANACOINOSIS, from *ana* and *κοινωω*, *I communicate*, *communicatio*, a figure in *Rhetoric*, when we consult the adversary, or appeal to the judges what ought, or could have been done on such an occasion.

Such as that of Cicero, *Quæro, si te hodie domum tuam redeuntem, coacti homines et armati, non modo limine testoque ædium tuarum, sed primæ adita vestibuloque prohibuerint, quid æturus sis?* Cicero pro Cecin.

ANACOLLEMA, in *Physic*, denotes a liniment or other medicine applied to the forehead, to stop or prevent defluxions of the eyes.

The word is formed of *ανακολλω*, *conglutino*.

Anacollema make a species of medicines called *frontalia*.

The qualities required are, to be drying, cooling, thickening, astringent, conglutinant, &c.

To the class of *anacollema* belong bran, manna, myrrh, terra samia, acacia, &c.

Junker describes an *anacollema frontale* for stopping hæmorrhages at the nose.

ANACOLUTHON, from *ανακολουθος*, *incoherent*, among *Ancient Grammarians*, denotes an incoherence, or a construction which does not hang together. This is usually signified by the appellation of a figure which ought rather to be nominated an innaccuracy.

ANACONDO, in *Zoology*, is a name given, in the isle of Ceylon, to a very large and terrible RATTLE-SNAKE,

which often devours the unfortunate traveller alive, and is itself accounted excellent and delicious fare.

ANACREONTIC, in the Greek and Latin *Poetry*, something invented by Anacreon; or in the manner and taste of Anacreon, a poet of Teios, who lived upwards of 400 years before Christ, famous for the delicacy of his wit, and the exquisite, yet easy and natural, turn of his poetry.—We have several of his odes still extant; and there are few of the modern poets who have not written *Anacreontics* in imitation of them. They are mostly composed in verses of seven syllables; or rather of three feet and a half; spondees and iambics, though sometimes anapaests. Hence verses in that measure are sometimes called *Anacreontics*, or *Anacreontic verses*.

ANACRISIS, from *ανα* and *κρινω*, *I judge*, among the *Ancient Greeks*, is used for a kind of trial, or examination, which the *archons*, or chief magistrates of Athens, were to undergo, before their admission into that office.

The *anacrisis* stands distinguished from the *docimasia*, which was a second examination in the forum.

The *anacrisis* was performed in the senate house. The questions here proposed to them were concerning their family, kindred, behaviour, estate, &c.

Some maintain that all magistrates underwent the *anacrisis*.

ANACRISIS, in the *Civil Law*, denotes a search or inquiry into the truth by examination of witnesses.

ANACROSIS, in *Antiquity*, denotes a part of the Pythian song, wherein the combat of Apollo and Python are described.

The *anacrosis* was the first part, and contained the preparation to the fight.

ANACTON *padon*, in *Antiquity*, a festival held at Amphissa, the capital of Locris, in honour either of the Dioscuri, or of the Curetes, or Cabiri, about which authors are not agreed.

ANACYCLUS, in *Botany*, a genus of plants of the *Synanthesia polygamia superflua* class of Linnaeus, being the same with the *santolinoides* of other authors. It is a sort of camomile, of little beauty, and of no known use.

ANADAVADÆA, in *Ornithology*, the name of a small bird of the East Indies, which has the beak of a chaffinch, and the feet of the lark. It is sometimes brought over to England alive in cages, and will live here very comfortably.

ANADEMA, among the *Ancients*, denotes an ornament of the head, wherewith victors at the sacred games had their temples bound.

The word is formed of *αναδεσμαι*, *to be bound round*.

Some confound the *anadema* with the *diadema*, worn by the ancient Persian kings.

Anademata are also mentioned by ancient writers among the ornaments of the heads of women.

According to some, *αναδεμα* answers to what the Latins call *redimiculum*.

ANADIPOSIS, *αναδιπλωσις*, from *ana*, *again*, and *διπλω*, *I double*, denotes a repetition of the last word of the former verse or member in the beginning of the next; e. gr.

Addit se sociam timidisque supervenit Ægle.

Ægle Naiadum pulcherrima—

—sequitur pulcherrimus Astur,

Astur equo fidens—

If children, then heirs, heirs of God, and joint heirs with Christ.

ANADIPOSIS, in *Medicine*, denotes the redoubling or return of the paroxysm of a fever, chiefly of a semiter-tian.

This is otherwise called *epanalepsis*, and *epanadiplosis*.

ANADOSIS, from *ανα* and *διδωμι*, *I give*, in the *Ancient Medicine*, denotes the distribution of the aliment by the vessels of the body.

In this sense, *anadosis* makes a part of nutrition or DIGESTION.

ANADROMOUS, in *Ichthyography*, a term of distinction among fishes, denoting such as have their times of going from the fresh water to the salt, and afterwards returning back to the fresh water again.

The word is derived from *ανα*, *back again*, and *δρομος*, *a course*. The *truttaceous* fishes are many of them of this kind, and the method nature has appointed for their course of changes seems to be this; they are first produced from the spawn in fresh water rivers; they live there till they acquire some strength and size, and then seek the salt water to feed more at large in, and grow to their full extent: at which period they return into the fresher again to lay their spawn, that their young brood may have the same advantages which they had before, of being placed first in fresh water. Some use the word *cata-nadromi* in the same sense.

ANADUOMENE *Venus*, in the Grecian *Mythology*, answered to the *Sea-Venus* in the Roman, and was the appellation

pellation given to one of the chief deities of the sea. The most celebrated picture in all antiquity was that of this goddess by Apelles; and the famous Venus of Medici is a *Sea-Venus*.

ANADYSIS, among *Ancient Divines*, denotes the ceremony of the emersion in BAPTISM.

In which sense *ανανυσσις* stands contradistinguished from *καταδυσσις*, or immersion.

ANÆDEIA, in *Antiquity*, a denomination given to a silver stool placed in the *aræopagus*, on which the defendant, or person accused, was seated for examination.

The word is *ανανδεια*, which imports *imprudence*; but according to Junius's correction, it should rather be *αναντια*, q. d. *innocence*.

The plaintiff, or accuser, was placed on an opposite stool, called *hybris*, or *injury*; here he proposed three questions to the party accused; to which positive answers were to be given. The first, are you guilty of this fact? The second, how did you commit the fact? The third, who were your accomplices?

ANAERETA, in *Astrology*, a place in the heavens, at which the *apheta* arriving, an infant born at that time, is pronounced by astrologers, in danger of death.

The word is Greek, and literally imports a *cutter off*. In this sense, *anaereta* stands opposed to *apheta*.

ANAERETA, among the Greek *Astrologers*, amounts to the same with what the Arabs call *abazin*.

ANAESTHESIA, *αναesthesia*, in *Medicine*, a privation of sense, or of the faculty of perceiving external objects. The species or degrees of this are, *stupor*, *hebetudo*, *depravatio*, &c.

ANAGALLIDASTRUM. See CENTUNCULUS.

ANAGALLIS, in *Botany*. See PIMPERNEL.

ANAGALLIS Aquatica is called by *Botanists*, *veronica aquatica*, or *becca bunga*; in English, *BROOK-LIME*.

ANAGLYPHA, in *Ancient Writers*, denote vessels, or other things, adorned with sculpture in *basso relievo*; and hence the *anaglyphic* art is the art of carving, chasing, engraving, or imbossing plate.

ANAGLYPHICE, or **ANAGLYPTICE**, denotes that species of sculpture wherein the strokes or figures are prominent, or imbossed; and is contradistinguished from *diaglyphice*, where the strokes are indented.

The word comes from the Greek *αναγλυφω*, *exsculpo*.

ANAGNOSES, or **ANAGNOMATA**, from *ανα* and *γινωσκω*, *I know*, in the Greek *Church*, denotes an ecclesiastical book, containing the lessons read at divine service, in the several feasts, &c. of the year.

ANAGNOSTA, or **ANAGNOSTES**, among the *Ancients*, denotes a kind of servant retained in the families of persons of rank, to read to them at meals.

These were called by the Greeks *αναγνοσαι*, and by the Romans *lectores*; sometimes also *a studiis*.

Even private families, who lived in any degree politely, were not without this kind of literary servants. Servius makes mention of a female *anagnosta*, under the denomination of *lectrix*. Sometimes the master himself performed the office of reader. The emperor Severus read himself at table. Martial mentions one Ligurinus, who read his own poems at dinner, to the great disgust of the guests.

Among the Greeks there were also *anagnostæ* in their theatres for public reading of the poets.

Some speak of the *anagnostæ*, as a species of *acroamata*, from which, however, in propriety, they differed.

Cornelius Nepos relates of Atticus, that no *acroama* was ever heard at his meals, but an *anagnostes*. He never supped without reading, so that the minds of his guests were no less agreeably entertained than their appetites.

The same custom Eginhard observes was kept up by Charlemagne, who at table had the histories and acts of ancient kings read to him. This custom seems to have been a relique of that of the ancient Greeks, who had the praises of great men and heroes sung to them, while at table.

The ancient monks and clergy kept up the like usage, as we are informed by St Augustin. Sidonius praises a man of quality in his time, who, in this respect, lived a clerical life, though he was no priest.

Bilbergius, and Th. Raynaud, have dissertations express on *anagnostæ*.

ANAGNOSTIC, in *Middle Age Writers*, is sometimes used for an epistle, or other writing.

ANAGOGIA, in *Antiquity*, solemn sacrifices to Venus at Eryx, in Sicily, where she was honoured with a magnificent temple.

The name of this solemnity was derived, *απο της αναγωγης*, i. e. *from returning*; because the goddess was said to leave Sicily, and return to Africa, at that time.

ANAGOGICAL, *transporting*, something that raises the mind to things eternal and divine; the great objects of the next life.

The word is derived from *αναγωγη*, *carrying away*, which is formed of the preposition *ανα*, *upwards*; and *αγωγη*, *leading*.

The term is principally used in speaking of the diverse senses of Scripture.—The *literal* sense is the first, and natural sense; the *mystical* sense is founded on the natural sense, from whence it is taken by analogy or comparison, by similitude or resemblance of one thing to another; and is divided into several kinds.

Where it regards the church, and matters of religion, it is called the *allegorical* sense.

Where it regards our morals, it is called the *tropological* sense.

And where it regards eternity, or the life to come, it is called the *anagogical* sense.

ANAGOGY, **ANAGOGE**, a rapture or elevation of the soul, to things celestial and eternal.

Anagogy, in a more particular sense, denotes the application of the types and allegories of the Old Testament to subjects of the New; thus called, because the veil being here drawn, what before was hidden is exposed to open sight. Some of the fathers place *αναγωγη* in opposition to *ιστορια*, *history*.

ANAGOGY, in *Medicine*, denotes a return of humours, or the rejection of a matter upwards, or by the mouth.

Anagogy amounts to the same with what is otherwise called *anabole*.

ANAGOGY, *αναγωγια*, in *Ancient History*, denotes a loose education or discipline.

ANAGRAM, **ANAGRAMMA**, a transposal of the letters of a name; with a combination thereof in some new manner, so as to exhibit one or more words, either to the advantage or disadvantage of the person to whom it belongs.

The word is formed from *ανα*, *backwards*, and *γραμμα*, *letter*.

Thus, the *anagram* of Galenus is *angelus*; that of Logica, *caligo*; that of Alstedius, *sedulitas*; that of sir Edmundbury Godfrey, *I find murdered by rogues*; or, *by Rome's rude finger die*; that of Loraine, is *alerion*; on which account it was, that the family of Loraine took *alerions* for their armoury.—Calvin, in the title of his Institutions, printed at Strasburg in 1539, calls himself *Alcuinus*, which is the *anagram* of Calvinus, and the name of an eminently learned person in the time of Charlemagne, who contributed greatly to the restoration of learning in that age.

Barclay, in his *Argenis*, *anagrammatizes* Calvinus by a less creditable name, *Ufnulca*; and Rabelais, to be revenged of the same Calvin, who had made an *anagram* of his name, found in that of Calvin, *Jan. Cul*.

Such as keep close to the definition of *anagram*, take the liberty to omit or retain the letter H, and that letter only; but such as stand up for the poetical licence, make bold sometimes to use E for Æ, V for W, S for Z, and C for K; and *vice versa*.

This way of writing was scarce known among the ancients: Daurat, a French poet in the reign of Charles IX. is usually said to be the first that broached it; yet Lycophron, who wrote under Ptolemy Philadelphus, about 280 years before Christ, appears to have been no stranger to the art of making *anagrams*.

Canterus, in his *Prolegomena* to Lycophron, gives us two of his pieces in this kind; the first on the name of king Ptolemy, Πτολεμαϊος, in which he found *απο μελιτος*, *of honey*; to insinuate the sweetness and mildness of that prince; the second was on queen Arsinoë, Αρσινωη, of whom he made *Ιον Ηρας*, *Juno's violet*.

There are two ways of making *anagrams*: for, 1. Some only consist in dividing a single word into several: thus the *enigma* of the god Terminus, mentioned by Aulus Gellius, lib. xii. cap. 6. is founded on the *anagram* TER MINUS; and thus *sustineamus* yields *sus tineamus*. This kind alone seems to have been used among the Romans.

The second is, where the order and situation of the letters is changed: such are those abovementioned; and also these; *Roma*, *Maio*, *Amor*; *Julius*, *Livius*; *Corpus Porcus*, *Procus*, *Spurco*.

To find all the *anagrams* any name will admit of, *algebraically*, see COMBINATION.

The finest and happiest of all the *anagrams* extant, is that on the question put by Pilate to Jesus Christ; *Quid est veritas?* which *anagrammatically* makes *Est vir qui adest*: the *anagram*, here, is the best and justest answer that could possibly be given.

Besides the ancient kind of *anagrams*, there have been new ones invented: as, the mathematical *anagram*, invented in 1680, by which the abbot Catelan found, that the letters of the name of Lewis XIV. made *vrai heros*, i. e. *true hero*.

We are now likewise furnished with the numerical *anagram*, more properly called *chronogram*; where the numerical letters (i. e. such as in the Roman cyphering stood for numbers) taken together, according to their numerical values, express some epocha: of which kind is that distich of Godart on the birth of Lewis XIV. in the

year 1638, on a day wherein there was a conjunction of the eagle with the lion's heart:

eXorIensDeLphInaqVILæCorDIqVe LeonIs

CongressV galLos spe LætitiaqVe refeCit:

ANAGRAMMATIST, a maker or composer of *anagrams*; Thomas Billon, a Provençal, was a celebrated *anagrammatist*, and retained by Lewis XIII. with a pension of 1200 livres, in quality of *anagrammatist* to the king.

Lipenius gives a long list of *anagrammatists*.

Thomas Billon has given a set of prophecies in *anagrams*;

Gul. Blancus, the art of composing *anagrams*.

ANAGROS, a measure for corn, used in some cities in Spain containing somewhat more than the Paris *mine*.

This is otherwise called *anegros*.

Four *anegros* make a *cabi*, four *cabis* a *tanega*.

ANAGYRIS, in *Botany*, stinking bean **TREFOIL**, a genus of the *decandria monogynia* class. The characters are: the flower is of the butterfly kind; the standard is heart-shaped, and much longer than the empalement; the wings are oblong, plain, and longer than the standard, as is also the keel; the germen afterward becomes a large oblong pod, in which are lodged several kidney-shaped seeds. We have but one species in England, viz.

Anagyris foliis ovatis floribus lateralibus: stinking bean *trefoil*, with oval leaves, and flowers proceeding from the wings of the stalks. This sort grows wild in the south of France, as also in Spain and Italy. It is a shrub which usually rises to the height of eight or ten feet, and produces its flowers in April and May, which are of a bright yellow colour, growing in spikes, somewhat like those of the **LABURNUM**.

Tournefort, however, enumerates two species. Tourn. Inst. p. 647.

The leaves of the *anagyris* are resolute, and its seed emetic.

ANALECTA, the fragments, or offals of meat, which dropped from the table on the ground.

Analecta was also used for a servant appointed to gather up the offals of the tables.

In this sense, the word is sometimes also written *analectes*. Satellius Quadratus, in the way of derision, advised Calvisius Sabinus, a man of great wealth, and much affectation of learning, but with little memory, and less genius, to keep *analecta*, *ut grammaticos haberet analectas*; a phrase which has occasioned much dispute among critics and antiquaries.

ANALECTA is likewise, in a literary sense, used for a collection of small pieces or compositions.

The word is formed of *αναλεσθαι*, *I gather*.

ANALEMMA, a planisphere, or projection of the **SPHERE**, on the plane of the meridian, orthographically made, by straight lines and ellipses; the eye being supposed to be at an infinite distance, and in the east or west points of the horizon.

The word is derived from *αναλημμενα*, of *αναλαμβάνω*, *re-sumo*, *I take backwards*.

The *analemma* was invented by John de Royas, a Spaniard. The advantages of this above the *astrolabes* of Ptolemy and Gemma Frisius, are, that all the lines proceeding from the eye are parallel to each other, and perpendicular to the plane of projection; consequently not only the equator is a right line, as in the *astrolabe* of Gemma Frisius, but all the parallels to the equator are so too; since, in virtue of the infinite distance of the eye, they are all in the same case, as if their plane passed through the eye: for the like reason, the horizon, and its parallels, are also right lines. On the other hand, whereas in the two former *astrolabes* the degrees of circles converted into right lines become very small towards the centre, and large towards the circumference, they become here small towards the circumference, and large towards the centre: so that their figures will be no less altered in this than in the others. Add, that most of the circles here degenerate into ellipses, which are often difficult to describe.

ANALEMMA is also used for a *gnomon* or *astrolabe*, consisting of the furniture of the same projection, drawn on a plate of brass, or wood; with an horizon, or *cursor* fitted to it.

Its use is for finding the time of the sun's rising and setting, the length of the longest day in any latitude, and the hour of the day.

The *analemma* is also of considerable use among *Diallists*, for laying down the signs of the zodiac, with the length of days, and other matters or furniture, upon dials.

ANALEPSIS, the restoration of a body wasted by disease, by the use of a nutritious diet.

ANALEPSIS is also used for the method of hanging a broken or dislocated member, especially the hand, in a sling. This operation to the arm is called *analepsis*; to the foot, *thesis*.

ANALEPTICS, in *Medicine*, restoratives; or remedies proper to restore the body, when wasted or emaciated, either by the continuance of a disease, or by want of food.

The word is derived of *αναλαμβάνω*, *I re-establish*.

ANALOGICAL syllogism. See **SYLLOGISM**.

ANALOGISM, in *Medicine*. See **ANALOGY**.

ANALOGISM, among *Logicians*, the arguing from the cause to the effect.

ANALOGISTA, among *Civil Law Writers*, a tutor who is not obliged to give an account of his conduct.

Persons dying sometimes appointed friends to be tutors to their children, with this clause, that they should be *analogistæ*.

Some lawyers hold, that this did not exempt a tutor guilty of glaring mismanagement, from being called to account, and punished accordingly.

ANALOGIUM, in *Ecclesiastical Writers*, denotes an *ambo*, or reading-desk.

ANALOGIUM is sometimes also used for a *martyrology*, or *obituary* of a monastery.

ANALOGY, in *Philosophy*, a term denoting a certain relation, proportion, or agreement, which several things bear to each other in some respects, though different in others.

The word is Greek, which the Latins usually render by *comparatio*, and *proportionalitas*.

The schoolmen define *analogy* to be a resemblance, joined with some diversity: its foundation, according to them, is laid in the proportion of several things, considered as that proportion proceeds upon different considerations.

Thus, a sound animal, a sound food; and a sound proposition, agreeing in this, that they have a common denomination, but the reason or quality whereon the denomination is founded, different, are said to have an *analogy*, or to be *analogous*. Accordingly, *analogous* things are defined to be such as have a common name, but the thing immediately signified by that common name, different; yet with some correspondence or relation discernible therein.

Philosophers usually distinguish three kinds of *analogy*, viz. of *inequality*, where the reason of the common denomination is the same in nature, but not in degree or order: in which sense, animal is *analogous* to man and brute.—Of *attribution*; where, though the reason of the common name be the same, there is a difference in its habitude or respect thereto: in which sense, healthy is *analogous* both to a man, and an exercise.—Of *proportionality*; where, though the reasons of the common name do really differ, yet they bear some proportion to each other. In this sense, the gills of fishes are said to be *analogous* to the lungs in terrestrial animals; and thus, the eye and the understanding are said to bear an *analogy* to each other.

Reasonings by *analogy* may serve to explain and illustrate, but not to prove any thing; yet is a great deal of our philosophizing no better founded.

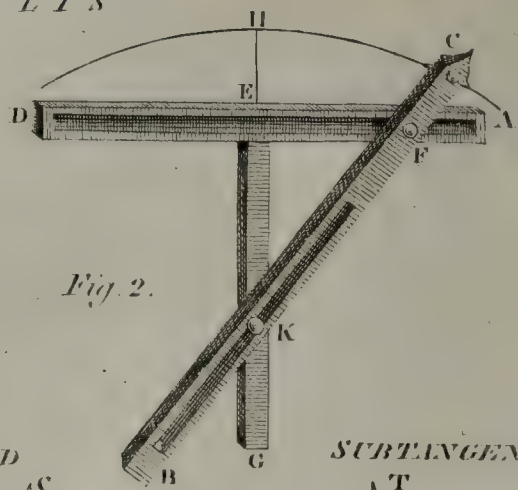
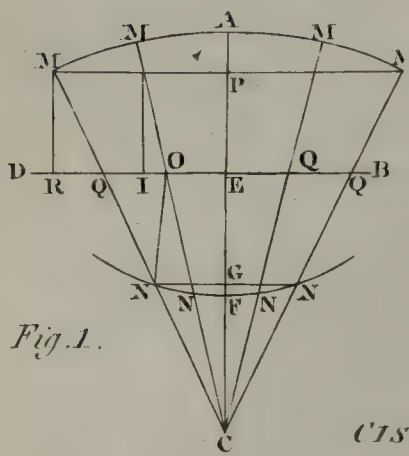
From a few *data*, a few points known and allowed, we reason by *analogy*, and deduce a number of others. It is thus that most branches of knowledge are extended to their present dimensions. There are but few things actually observed, few experiments made; and all the observations and experiments we have are only singular. Such an effect was found from such an individual body, under such and such circumstances. We infer, that what has been observed of one body under such circumstances, will, from the *analogy* and uniformity in the works of the Creator, equally hold in all other bodies of the same species under the like circumstances. Thus, without having recourse to experiment, we never hesitate to conclude, that the fruit of trees of the same species will have the same taste and properties. This has many times drawn us into great errors; it continues every day to lead us into new ones, and may be said to be the source of most of the mistakes committed in pursuit of science. But nevertheless, while mankind extend their thoughts toward unknown and inaccessible objects, they have no other guide to direct their researches but the supposed correspondence between the objects they are acquainted with, and those which are the subjects of their investigation.

The *analogy* between the three kingdoms of plants, animals and minerals, has been the source of a variety of discoveries, either real or imaginary: hence it is we have learnt, that stones vegetate; that plants breathe; that the sap circulates in them; that generation is performed by eggs in the human kind; that the planets have their atmospheres, their inhabitants, their trees, their seas, &c. Indeed, if we will follow whither *analogy*, real or imaginary, will lead us, there is no end of science.

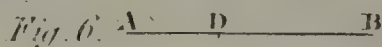
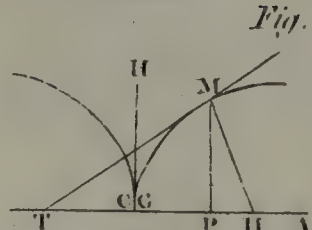
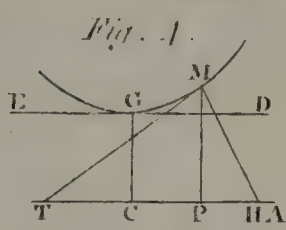
As to divine and supernatural matters, it is asserted we know nothing of them, but by *analogy*; that is, by the mediation and substitution of those ideas we have of ourselves and other natural beings. Our ideas of God himself arise from this spring; we have no direct and immediate perception of him. The knowledge we have of the

ANALYSIS.

CONCHILIS



MINIMIS et MAXIMIS

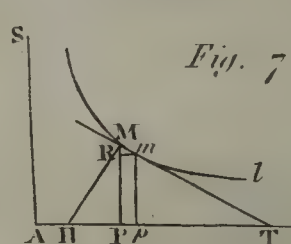
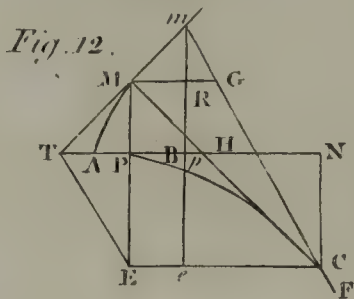
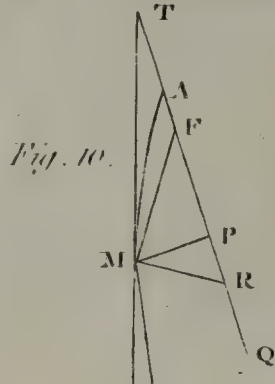
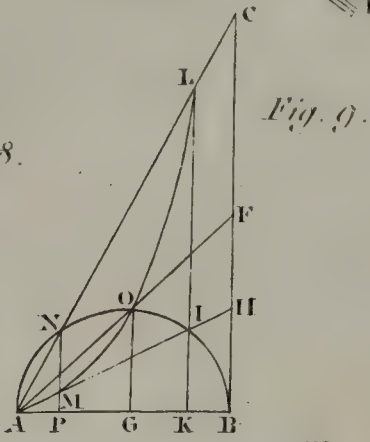
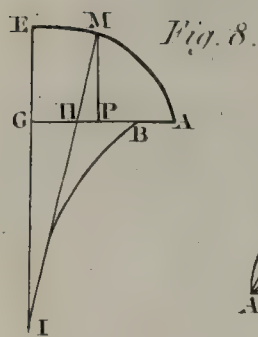


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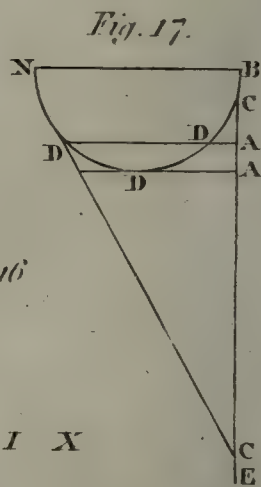
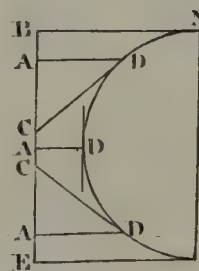
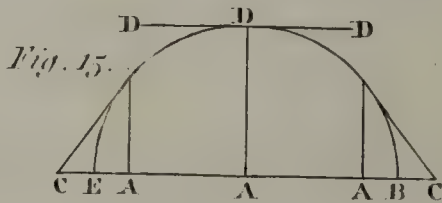
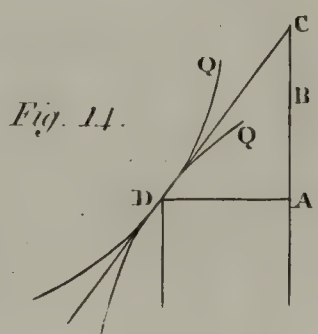
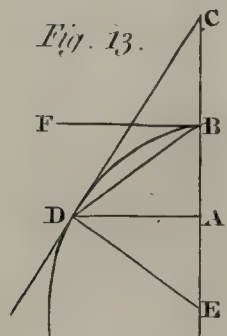
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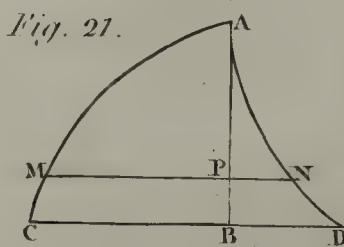
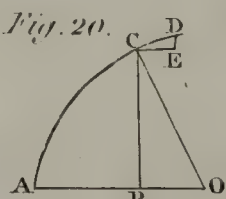
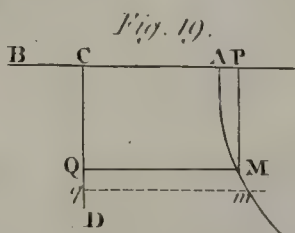
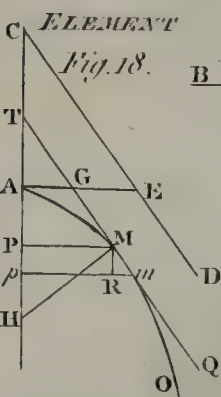


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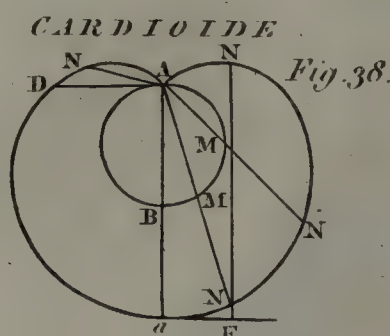
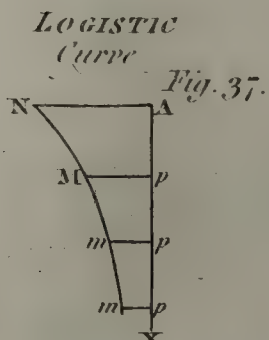
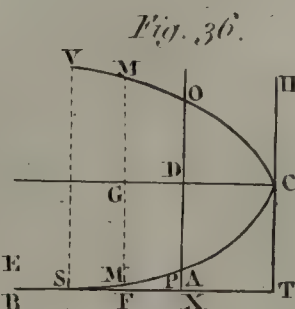
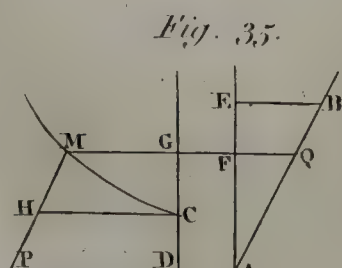
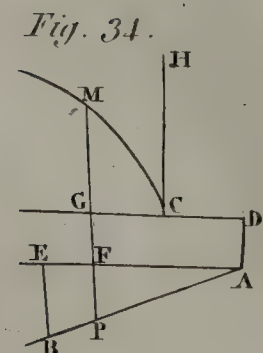
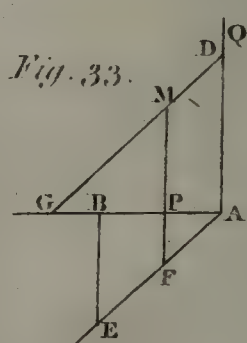
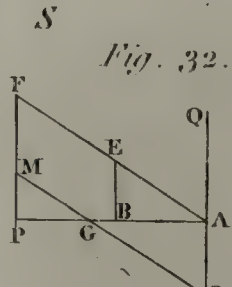
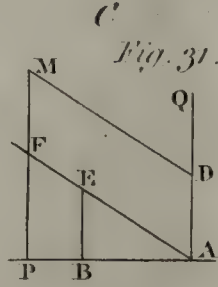
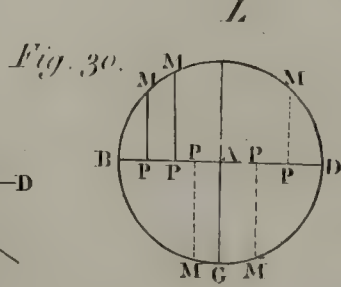
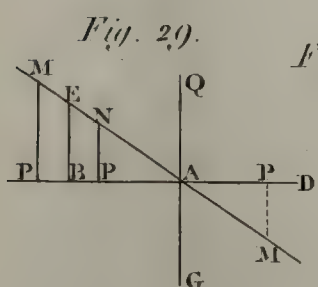
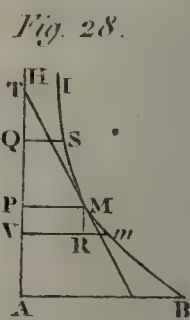
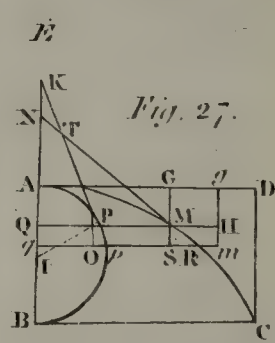
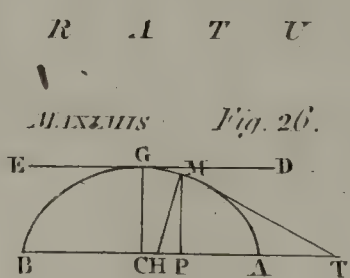
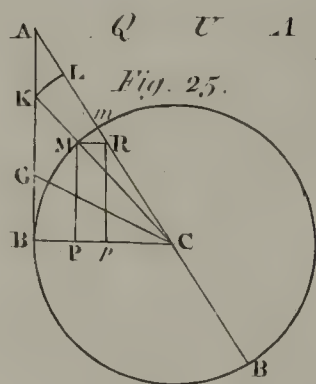
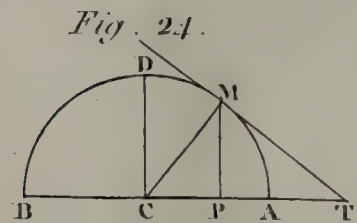
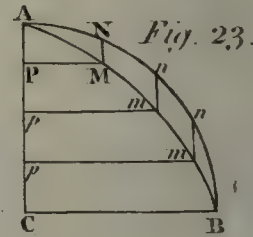
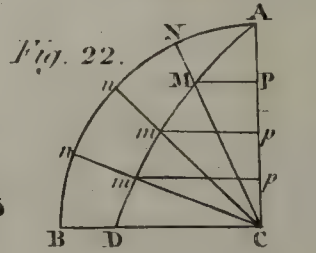


QUADRATRIX

RECTIFICATION



LOGISTIC



ANALYSIS TAB. II.

CONSTRUCTION of Cubic and Biquadratic Equations.

CROWN Fig. 39

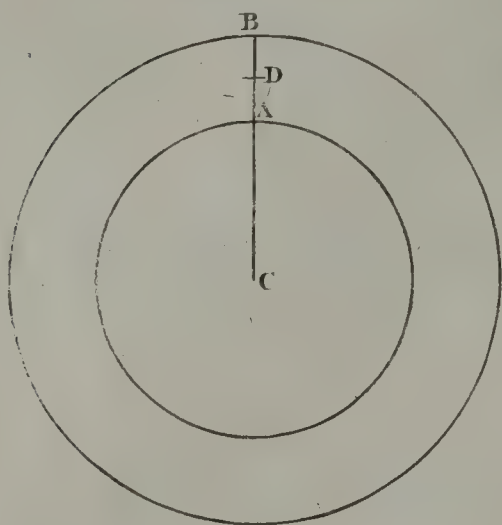


Fig. 40

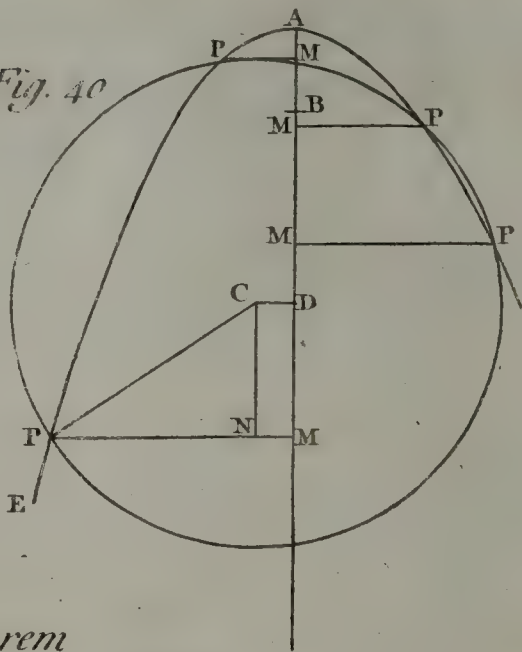
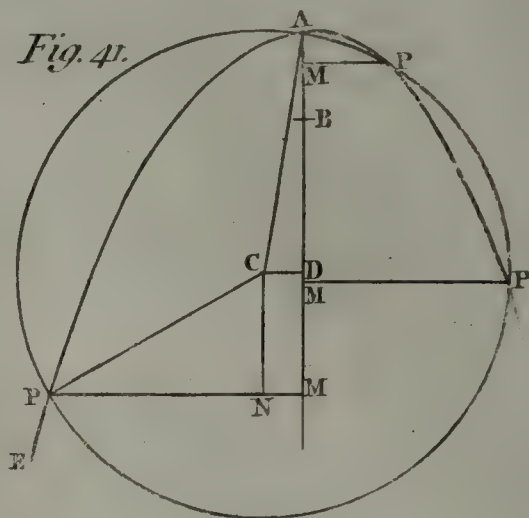


Fig. 41



COTESIAN Theorem

CURVATURE.

Fig. 42

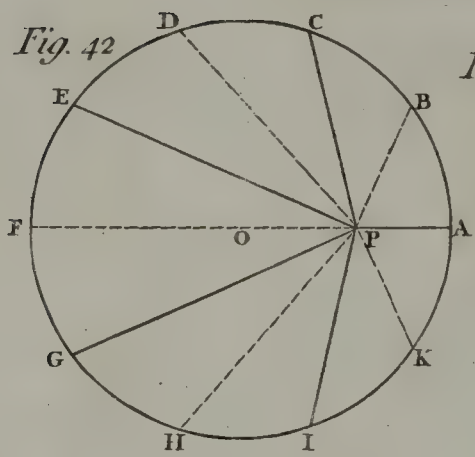


Fig. 43

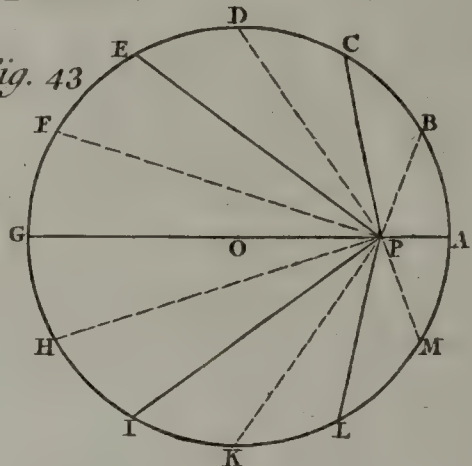


Fig. 44

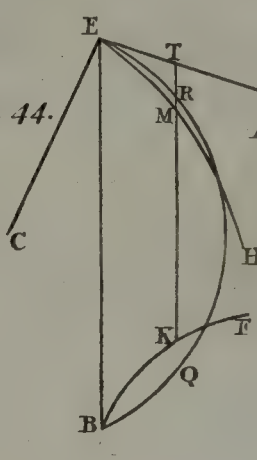
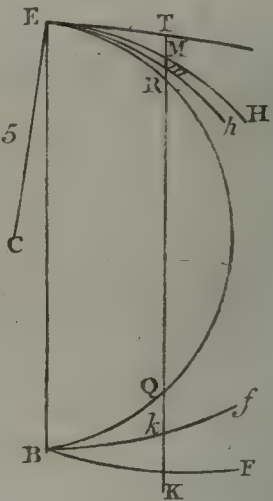


Fig. 45



C A U S T I C

CURVE

Fig. 47

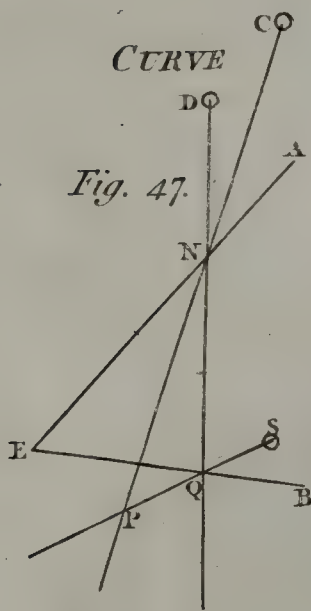
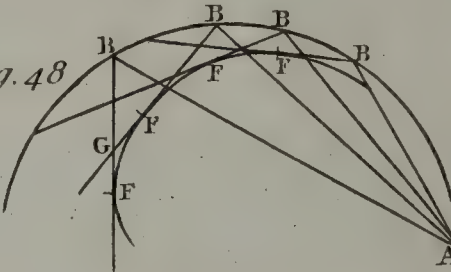


Fig. 48



Hyperbolic LOGARITHMS.

Fig. 49

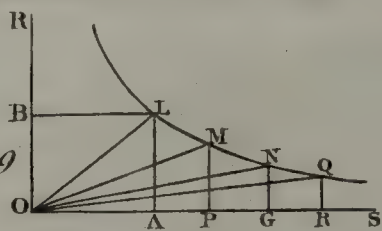
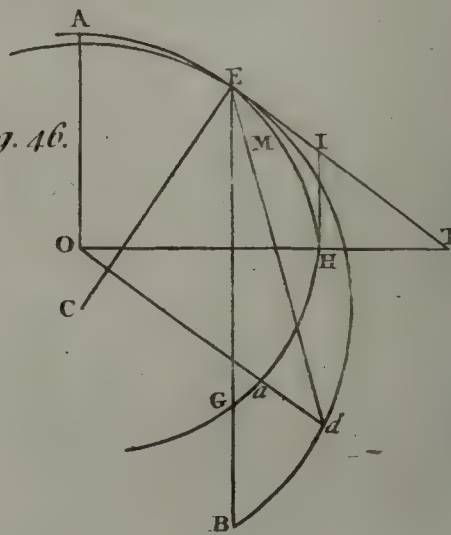


Fig. 46



LOGARITHMIC.

Fig. 50

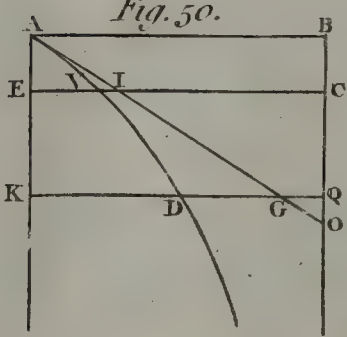


Fig. 51

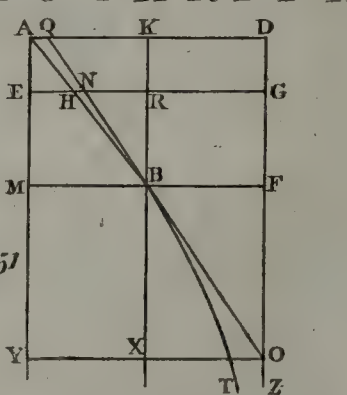


Fig. 52

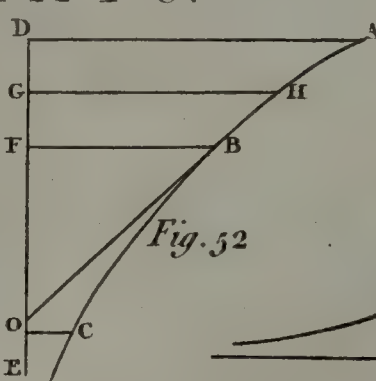
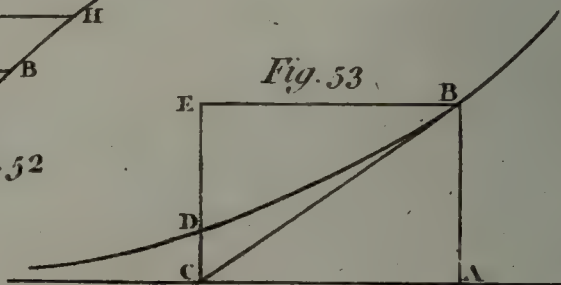


Fig. 53



Atmospherical LOGARITHMIC.

Fig. 56

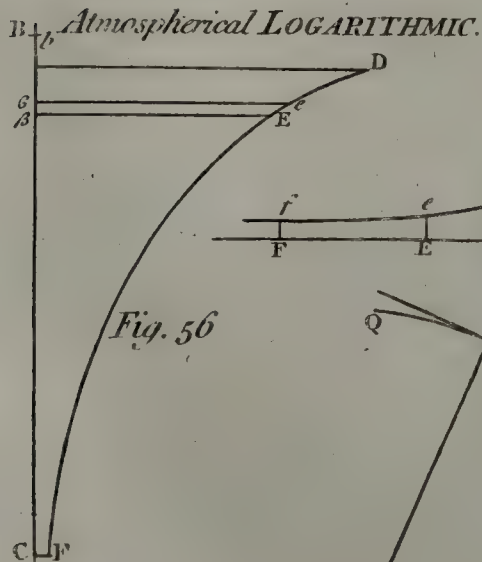


Fig. 54

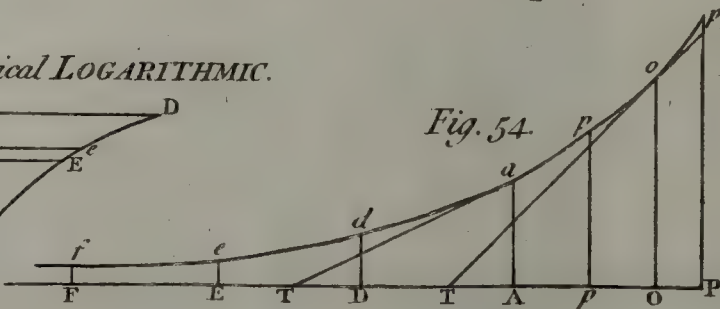
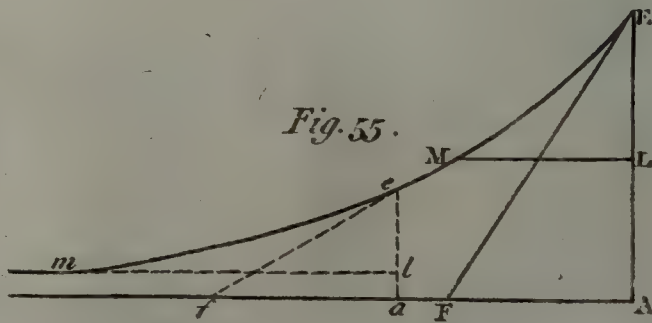
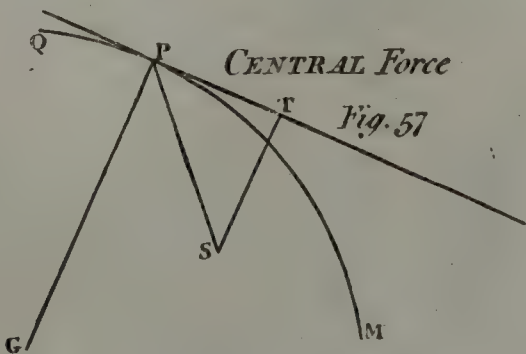


Fig. 55



CENTRAL Force

Fig. 57



Analytic PARALLELOGRAM.

Fig. 58

x^4	x^3y	x^2y^2	xy^3	y^4
x^3	x^2y	xy^2	y^3	y^2
x^2	xy	y^2	y	1
x	y	1	0	0
1	0	0	0	0

ANALYSIS. Tab.III.

Fig. 59.

HYPERBOLA

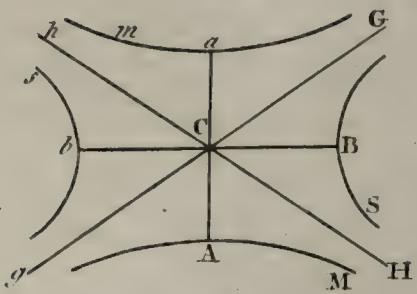


Fig. 60.

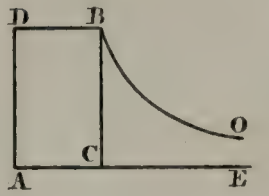


Fig. 61.

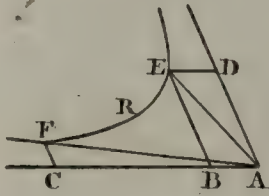
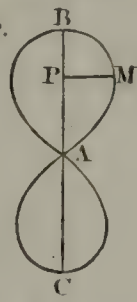
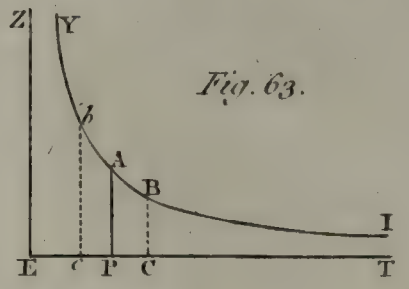


Fig. 62.



LEMNISCATE LOGARITHM

Fig. 63.

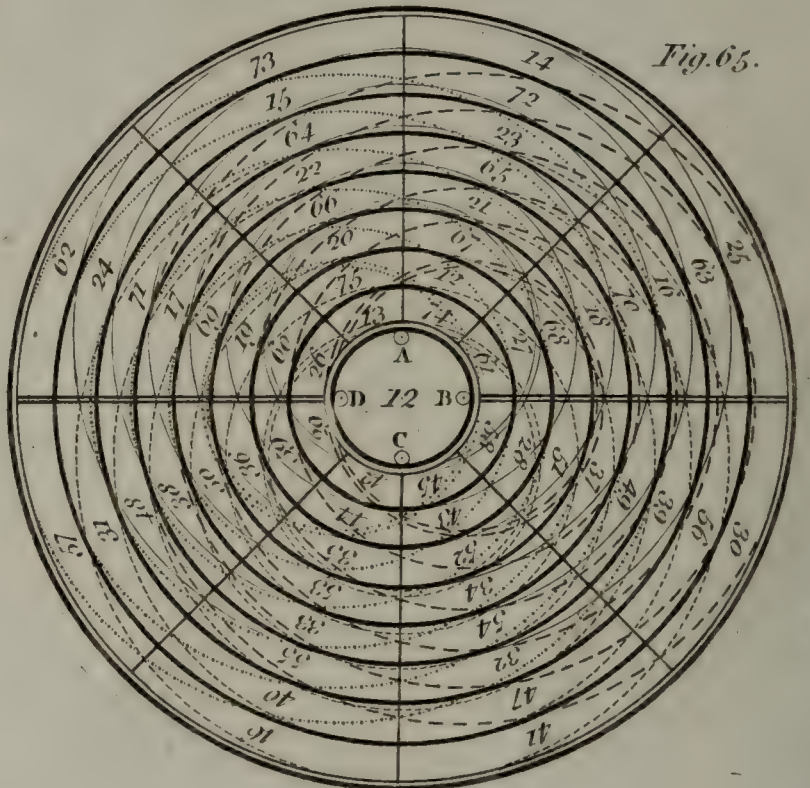


MAGIC Square of Squares.

Fig. 64.

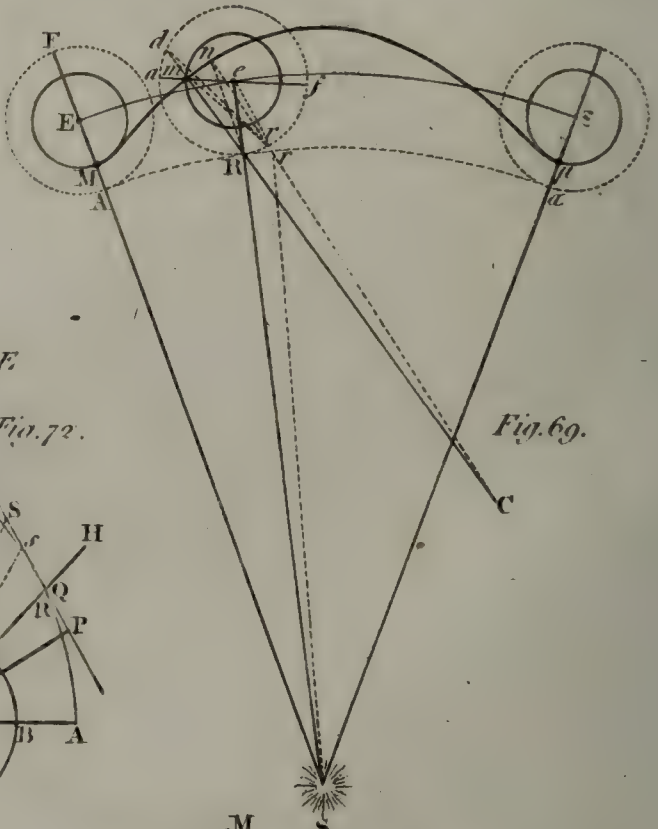
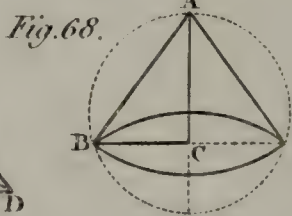
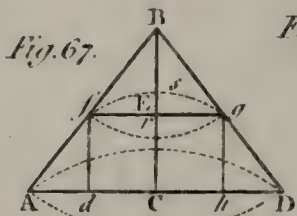
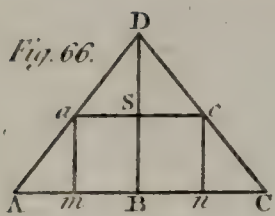
200	217	232	249	8	25	40	57	72	89	104	121	136	153	168	181
58	39	26	7	250	231	216	100	186	167	154	135	122	103	90	71
198	210	230	251	6	27	36	59	70	91	102	123	134	155	166	187
60	37	28	5	262	229	220	107	188	165	136	133	124	101	92	69
201	216	233	246	9	24	41	56	73	88	105	120	137	152	160	184
55	42	23	10	247	234	245	202	183	170	151	138	119	106	87	74
203	214	225	246	11	22	43	54	75	86	107	128	139	150	171	182
53	44	21	12	243	236	213	204	181	172	149	140	117	108	85	76
205	212	237	244	13	20	45	52	77	84	100	116	141	148	173	180
54	46	20	14	243	238	241	206	170	174	147	142	115	110	83	78
207	210	220	242	15	18	47	50	79	82	104	114	143	146	175	178
49	48	17	16	241	240	200	208	177	176	145	144	113	112	82	80
196	221	228	243	4	29	36	61	68	93	100	125	132	157	164	180
192	225	230	3	251	227	222	105	100	163	158	131	126	99	94	67
194	223	226	255	2	31	34	63	66	95	98	127	130	159	162	191
94	33	32	1	256	225	224	103	102	161	160	129	128	97	96	65

MAGIC Circle of Circles.



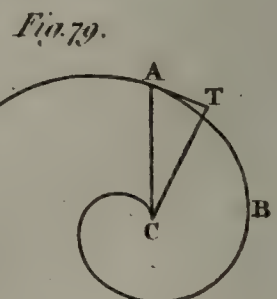
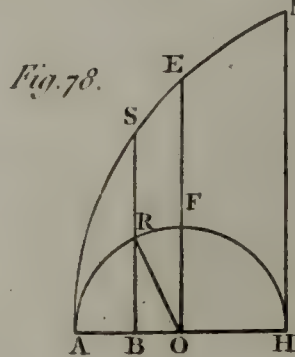
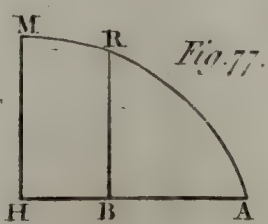
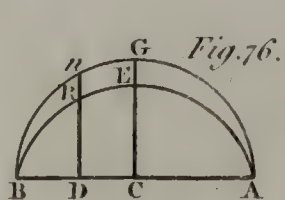
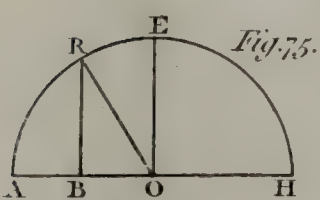
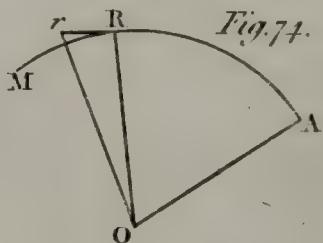
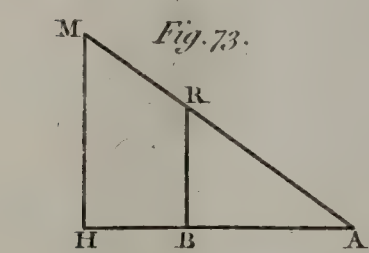
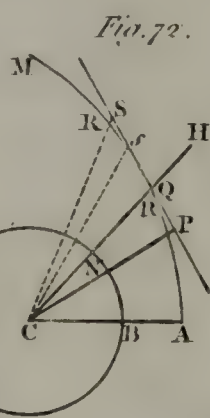
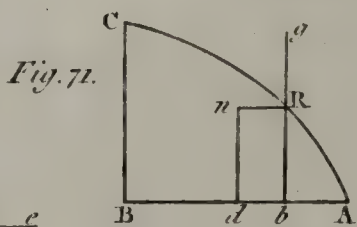
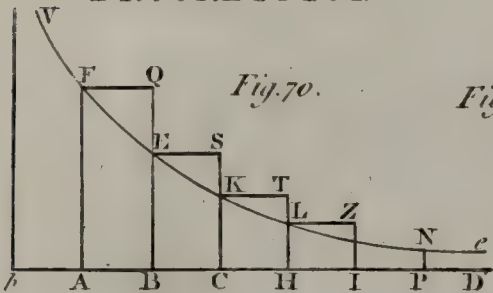
De MAXIMIS et MINIMIS

M O O N

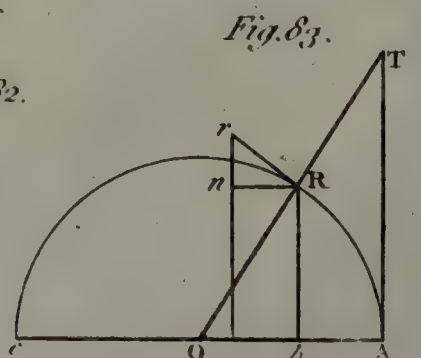
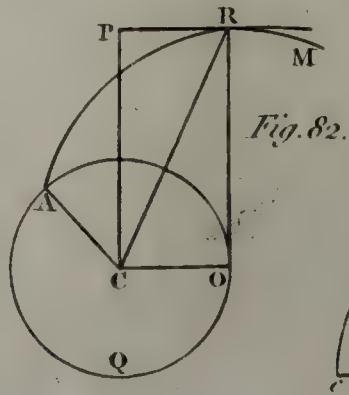
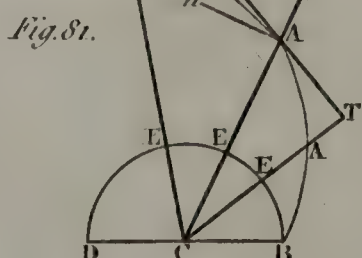
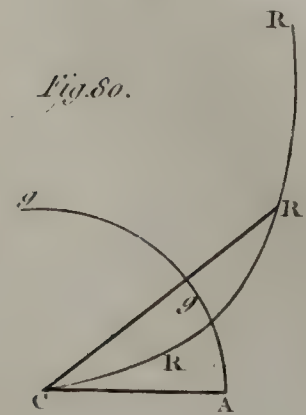


PROGRESSION

QUADRATURE



RECTIFICATION



ANALYSIS *Tab. IV.*

S O L I D I T Y

Fig. 84.

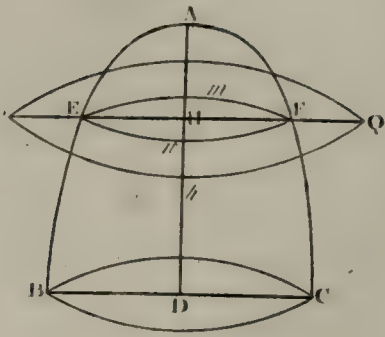


Fig. 85

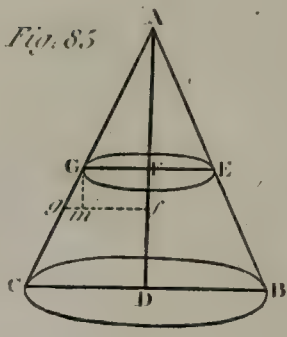


Fig. 86

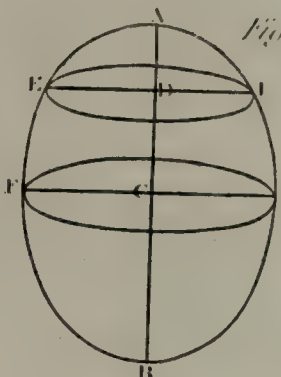
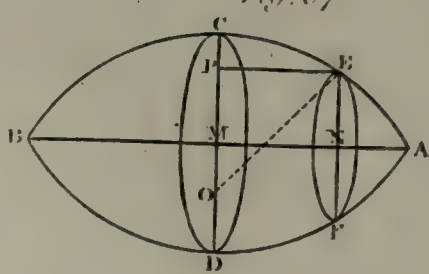


Fig. 87



S U P E R F I C I E S

Fig. 88

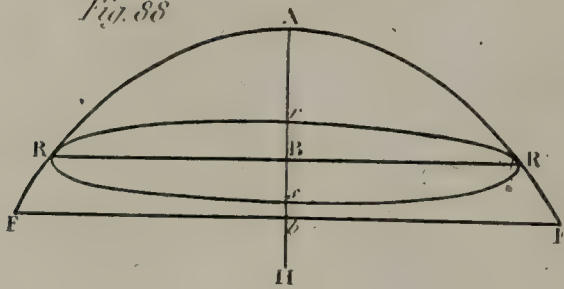


Fig. 89

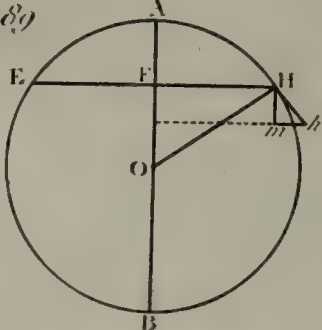
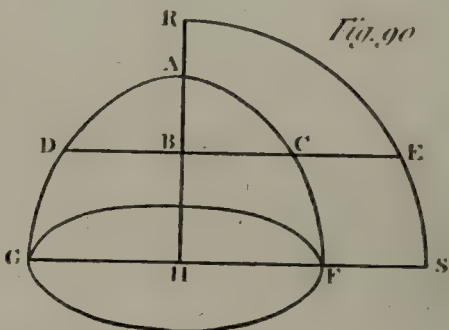


Fig. 90



T A N G E N T

Fig. 91

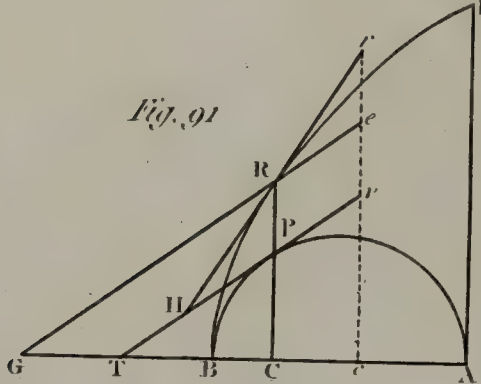
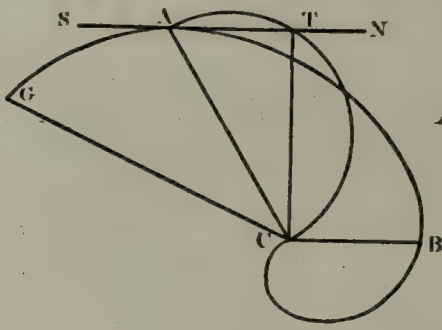


Fig. 92



ALGEBRA

C O N S T R U C T I O N

E Q U A T I O N

Fig. 1.

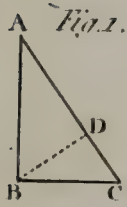


Fig. 2.

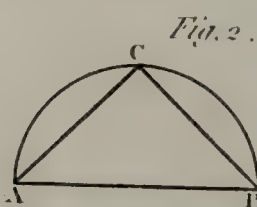


Fig. 3.

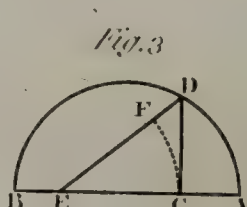


Fig. 3 A^{re} 2

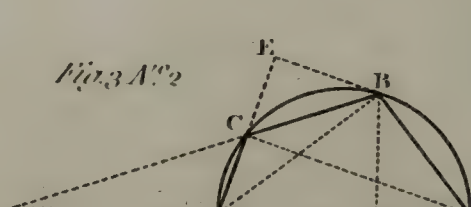


Fig. 6

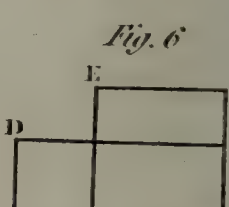


Fig. 7

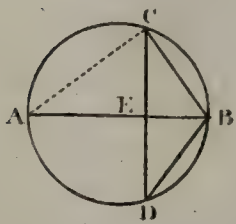


Fig. 8

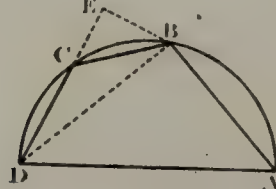


Fig. 9

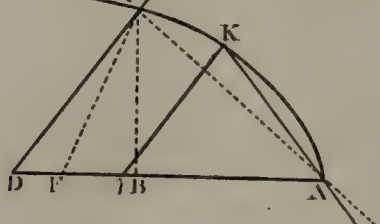
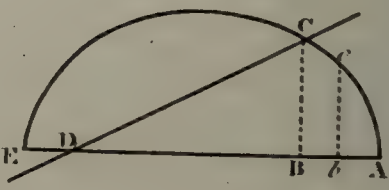


Fig. 10



N E P E R ' S bones

Fig. 11.

1	0	1	2	3	4
2	0	2	4	6	8
3	0	3	6	9	2
4	0	4	8	2	6
5	0	5	0	5	0
6	0	6	2	8	4
7	0	7	4	1	8
8	0	8	6	4	2
9	0	9	8	7	6

5	6	7	8	9
0	2	4	6	8
1	1	1	1	1
5	8	1	4	7
1	1	2	2	6
0	4	2	3	5
2	0	3	0	4
5	6	2	8	4
0	3	4	4	5
3	3	4	6	3
5	2	9	5	6
3	4	4	6	2
0	8	5	6	7
4	4	5	2	1
5	4	3	2	8

Fig. 12

1	5	9	7	8
2	0	8	4	6
3	1	1	1	1
3	5	7	2	4
4	0	6	8	2
5	2	3	2	3
5	5	5	5	0
6	2	4	3	4
6	0	4	2	8
7	3	5	4	4
7	5	3	9	6
8	0	2	6	4
8	4	7	5	6
9	5	1	3	2
4	4	8	6	7

the Supreme Being, is only an observation of his works, and a reflection of the mind, which shews what power, wisdom, &c. appear necessary to enable him to produce them. Having no proper ideas of his perfections, we give them the names of those faculties of men, which we judge necessary. See an excellent treatise on the *Analogy* of Religion, natural and revealed, to the Constitution and Course of Nature, by bishop Butler: in which, by evincing the *analogy* or likeness that subsists between the system of things and dispensation of providence, which revelation informs us of, and that system of things and dispensation of providence, which experience and reason inform us of, i. e. the known course of nature, he is led to ascribe both to the same author and cause.

ANALOGY, in *Grammar*, denotes the suitableness, or agreeableness of a word or phrase to the common rules, or forms of language.

In this sense, *analogy* stands opposed to **ANOMALY**.

ANALOGY, in respect to language, denotes a conformity with other points already established, serving as a rule, or model, for the making of new words and phrases similar to those already in use.

Or, *analogy* may be considered as a general or established usage, applied in similar cases, to certain words, phrases, or constructions not yet established. Or, *analogy* is only a particular usage which, in certain cases, is inferred from a general usage already established.

Grammarians are divided into two parties. Some, with Sanctius, contend, that the *analogy*, or reason, reigns through all the parts, all the phrases and dictions of the Latin tongue. On the contrary, others, with Perizonius, assert, that there are many phrases, contrary to *analogy* and reason, derived all originally from the populace. Such, e. gr. are, *Nemo homo, deorsum, versum*, &c.

Varro and Cæsar wrote expressly on the *analogy* of Latin words, but their works are now lost. Jac. Operarius has endeavoured to supply that loss, by tracing the *analogy* of 20,000 Latin words. Fab. Bib. Lat. lib. i. cap. 10.

ANALOGY of conjugation, *analogia conjugationis*, is not only when a verb is conjugated like another, but agrees with it in the quantity of the syllables.

Thus *clamo* is conjugated like *amo*, and *clamabam* pronounced like *amabam*.

ANALOGY of declension, *analogia declinationis*, is not only when a noun, pronoun, or participle, is declined like another, but agrees with it in respect of the quantities of the syllables.

Thus, e. gr. *mater* is declined like *pater*, *salans* as *amans*, *seus* as *tuus*. So *pennarum* is pronounced as *menfarum*, and *funeris* as *muneris*.

ANALOGY of doctrine, among Critics, is one of the great rules to which regard is to be had in the interpretation of authors.

We are first to learn from the author himself, the general system which he follows; and as no writer is to be easily supposed to contradict himself, our interpretation is to be so conducted, as that nothing be admitted which is contrary to, or tends to overthrow this system.

Thus, in interpreting an author who follows the Platonic scheme, we are to prefer a sense which is consistent with the Platonic doctrine, to another which is contrary to it, unless there be some evident proof, that the author contradicts himself, or asserts things which are inconsistent.

ANALOGY, in *Rhetoric*. See **COMPARISON**.

ANALOGY, in *Geometry*, denotes a similitude of ratios, or proportions.

ANALOGY of faith, among Divines, denotes that relation which the several articles of faith bear to each other.

Analogy of faith stands opposed to tradition and authority, which is the great rule of interpretation among catholics. By this it is required, that whether we interpret Scripture, or explain the doctrines of Christianity, all our positions and explanations be consistent with the *analogy* of our faith, and those evident propositions deduced from Scripture.

Tortschius, Antonius, Franckius, &c. have written expressly on the *analogy* of faith.

ANALOGY, in *Medicine*, is a certain relation or resemblance between diseases, in virtue whereof, we may reason and conclude from one to another, and treat them all much in the same manner; e. gr. a pleurisy, being a species of inflammation, produced like inflammations of other parts, is to be treated like them, relaxing the solids, which are too much stretched, and giving free passage for the humours.

This method of deduction was called, by the ancients, *medicina rationalis*, or *dogmatica*, in opposition to the *empirica*, called also *epilogism*, which was conducted by appearances only, without theory.

ANALYSIS, in a general sense, is the resolution of something compounded into its constituent parts.

ANALYSIS, in *Logic*, is a method of applying the rules of reasoning, to resolve a discourse into its principles, in order to a discovery of its truth, or falshood.—Or it is

an examination of some discourse, proposition, or other matter, by searching into its principles, and separating and opening its parts; in order to consider them more distinctly, and arrive at the more precise knowledge of the whole.

The word is *αναλυσις*, which literally signifies *resolution*; formed of *ανα* and *λυω* *solvo*, I solve.

Analysis makes one great branch or species of method; called also **RESOLUTION**.

It is particularly used for the reduction of an imperfect syllogism to a perfect one. This is otherwise called **REDUCTION**.

The order of the *synthesis* is contrary to that of the *analysis*, one beginning where the other ends. The two methods cannot always be used indifferently; the *analysis* is most proper for the discovery of truth, and **SYNTHESIS** for teaching and explaining it in a systematical way. Hence some call *analysis* the method of invention.

ANALYSIS, in *Mathematics*, may be divided into *ancient* and *modern*.

The modern *analysis* is what is often called *algebra*; but they ought to be distinguished, algebra being only a part of the *analytic* art.

The moderns are at some loss concerning the *ancient analysis*, i. e. concerning the art and method whereby the ancients resolved problems, and invented theorems. Some traces of their method are extant in Pappus, Apollonius, and Euclid; and Dr. Hook suspects, that their *analysis* went backwards through almost all the same steps by which their demonstrations went forwards.

That this might often be the case, seems evident to any one who has studied Euclid with care. They have indeed left us no precepts of their art. This, like almost all others, must be acquired by imitation, and the excellent examples left us by the Greeks. Men of genius among the moderns, who had studied the works of the ancient geometers, have been thereby enabled to imitate them, and penetrate into their methods: the works of Huygens and Newton, and of late the treatise of Conic Sections by Mr. Simpson, professor of mathematics in the university of Glasgow; as also several parts of Mr. Maclaurin's Treatise on Fluxions, are evident proofs of this.

Weigelius has endeavoured to retrieve the ancient *analysis* of Aristotle, from Euclid and other ancient geometricians.

ANALYSIS is divided by some authors into *simple* and *compound*.

ANALYSIS, *simple*, is that employed in solving problems reducible to simple **EQUATIONS**.

ANALYSIS, *compound* or *complex*, that which gives the expressions or solutions of problems in compounded **EQUATIONS**.

ANALYSIS is farther divided, with regard to its object, into that of *finites*, and that of *infinites*.

ANALYSIS of *finite quantities*, is what we otherwise call *specious arithmetic*, or **ALGEBRA**.

ANALYSIS of *infinites*, called also the new **ANALYSIS**, is particularly used for the *method* of **FLUXIONS**, or the *differential calculus*.

ANALYSIS of *powers*, denotes the resolving them into their **ROOTS**.

In this sense *analysis* amounts to the same with what we otherwise call **EVOLUTION**.

We find divers other kinds of *analysis* treated of by mathematical writers, as the *analysis* of *indivisibles*, &c. M. Leibnitz spoke of an *analysis situs*, different from the *analysis* of magnitudes.

The *analysis* of geometrical curves shews their properties and internal constitution, their curvature, points of inflexion, station, retrogradation, variation, &c.—In this *analysis*, curves are usually considered as polygons composed of an infinite number of infinitely little sides; but this supposition is neither accurate nor necessary, though it sometimes affords convenient hints for invention.

F. Renau of the *Oratory* has given a large system of algebra under the title of *analysis*. F. Castel censures it as not sufficiently methodical or systematical. The great divisions and members are lost in the multitude of particular rules and methods.

ANALYSIS of *ideas*, that whereby an idea is resolved into the ideas of its ingredients, and the ideas of these again into simple ones, till at length we arrive at the most simple.

ANALYSIS, *grammatical*, is that employed about words, their etymons, homonymas, or various acceptations, synonymas, constructions, uses, and the like.

Pasor has given a grammatical *analysis* of the difficult words in Hesiod, &c. Sturmius has published a method of making the *analysis* of Latin words.

ANALYSIS, *rhetorical*, is that which examines the connections, tropes, figures, and the like, inquiring into the proposition, division, passions, arguments, and other apparatus of rhetoric.

Several authors, as Freigius and others, have given *analyses* of Cicero's Orations, wherein they reduce them to their

their grammatical and logical principles; strip them of all the ornaments, and additions of rhetoric, which otherwise disguise their true form, and conceal the connection between one part and another. The design of these authors is to have those admired harangues, just such as the judgment disposed them, without the help of imagination; so that here we may coolly view the force of each proof; and admire the use Cicero made of rhetorical figures, to conceal the weak part of a cause.

A collection has been made of the *analyses* formed by the most celebrated authors of the sixteenth century, in three volumes folio.

ANALYSIS is also used, in *Chemistry*, for the decomposition of a mixed body; or the separation of the principles and constituent parts of the compounded substance.

To *analyse* bodies, or resolve them into their component parts, is indeed the chief object of the art of chemistry. Chemistry furnishes several means for the decomposition of bodies, which are all founded on the differences of the properties belonging to the different principles of which the body to be analysed is composed. If, for example, a body be composed of several principles, some of which have a great, and others a moderate degree of volatility, and, lastly, others are fixed, its most volatile parts may be first separated by a gradual heat, in distilling vessels, and then the parts which are next in volatility will pass over in distillation, and lastly, those parts which are fixed, and capable of resisting the action of fire, will remain at the bottom of the vessel.

There are two methods of *analysis* which chemists make use of; *analysis* by fire, and *analysis* by *menstrua*. The last is at least of as extensive utility as the first, since it takes place in almost all the operations of chemistry. The operations called by chemists *PARTING*, ought to be considered as the true *analysis* by *menstrua*. It is true, that in many cases, the *analysis* by *menstrua*, as well as the *analysis* by fire, is incomplete. Frequently it is necessary, in order to make a perfect *analysis* of bodies, to unite these two methods, by fire and by *menstrua*, so that the one may be made to assist the other; and from these combined means a decomposition results much more perfect and more accurate than could have been obtained by either of them separately. Nothing more need be said here on *analysis* in general; the subject is so extensive, that to make particular applications of it, we should be obliged to consider all the objects in chemistry. Those who know the use of general principles, will apply these to particular operations, and longer details would be fatiguing and useless to others. It is, nevertheless, proper to mention the general articles which relate to this. See therefore *EXTRACTION*, *DECOMPOSITION*, *DISTILLATION*, *SUBLIMATION*, *PRECIPITATION*, and *SOLUTION*.

All bodies by a chemical *analysis* resolve into water, earth, salt, sulphur, and mercury, though every body does not afford all these parts; but some more, some fewer, of them, according to the kingdom they belong to. The *analysis* of vegetables is easy; that of fossils, particularly of metals, and semi-metals, difficult.

The many *analyses* that have been made of plants by Bourdelin, and others, have generally proved useless with regard to any discoveries of the properties and virtues of the plants analysed. The most salutary plants, in this way of treatment, yield much the same principles as the most poisonous. The reason apparently is, that the too great action of the fire, in distillation, changes the plants, and their principles: on this account, instead of distillation, M. Boulduc has made his *analyses* by decoction only. Vid. Mem. Acad. R. Scienc. an. 1734. p. 139. Hist. 63. Some bodies of the fossil tribe consist of particles so very minute, and so firmly united, that the corpuscles thereof need less heat to carry them off, than to separate them into their principles: so that the *analysis* is impracticable in such bodies.—Hence arises the difficulty of *analysing* sulphur.

Analysis of metals, and metallic minerals, consists in what they call the *MERCURIFICATION* of them: the *analysis* of other bodies is performed by *distillation*, *lixivation*, &c.

The order of matters which arise in *analysing* vegetable and animal bodies is different, according as those bodies have been fermented or not; if they have, the spirits and volatile salts arise first, then aqueous liquors, then foetid oil, after which a *caput mortuum*, which by *calcination* and *lixivation*, is reduced to a fixed salt, and insipid earth. In bodies unfermented, the aqueous parts rise first, afterwards the rest succeed in the same order as above.

The anatomical dissection of an animal, is also a kind of *analysis*.

ANALYSIS is also used for a kind of syllabus, or table of the principle heads or articles of a continued discourse; disposed in their natural order and dependency.

Analyses are more scientific than alphabetical indexes; but they are less used, as being more intricate.

Analysis is likewise used for a brief, but methodical illustration of the principles of a science; in which sense it is nearly synonymous with what we otherwise call a *synopsis*.

ANALYST, a person who analyses a thing, or makes use of the *analytical* method.

Some restrain the word more peculiarly to denote a mathematician, who makes a great use of the algebraic method or *calculus* in geometry, in exclusion of the *synthetic*, or strict geometrical method.

In which sense *analyst* amounts to much the same with *computist* or *calculator*.

In a sense not unlike this, Dr. Berkeley, an ingenious writer, gives the title *analyst* to a book against the modern geometry, or doctrine of FLUXIONS.

ANALYTIC, ANALYTICAL, something that belongs to, or partakes of, the nature of analysis.

Thus we say, an *analytical* demonstration; *analytical* inquiry; *analytical* table, or scheme; *analytical* method, &c. The *analytic* method stands opposite to the *synthetic*.

ANALYTICS, ANALYTICA, the science, or doctrine, and use of *analysis*.

The great advantage of the modern mathematicians above the ancient, is in point of *analytics*.

The authors on the ancient *analytics* are enumerated by Pappus, in the preface of his seventh book of mathematical collections; being, Euclid, in his *Data*, and *Porismata*; Apollonius, *De Sectione Rationis*; Apollonius in his *Conics*, *Inclinations*, and *Tactions*; Aristæus *De Locis Solidis*; and Eratosthenes, *De Mediis Proportionalibus*. But the ancient *analytics* were very different from the modern.

To the modern *analytics* principally belongs algebra; the history of which, with the several authors thereof, see under ALGEBRA.

The chief writers upon the analysis of infinites are, its inventor, Sir Isaac Newton, in his *Analysis per Quantitatem Series, Fluxiones, & Differentias, cum Enumeratione Linearum tertii Ordinis*; and *De Quadratura Curvarum*; and M. Leibnitz, in *Act. Eruditor.* an. 1684. The Marquis De l'Hôpital, in his *Analyse des Infiniment petites*, 1696. Carre, in his *Méthode pour la Mesure des Surfaces, la Dimension des Solides, &c. par l' Application du calcul. integral.* 1770. G. Manfredi, in a posthumous piece, *De Constructione Equationum differentialium primi gradus*, 1707. Nic. Mercator, in *Logarithmotechnica*, 1668. Cheyne, in *Methodus Fluxionum inversa*, 1703. Craig, in *Methodus Figurarum lineis rectis & curvis comprehensarum Quadraturas determinandi*, 1685; and *De Quadraturis Figurarum curvilinearum & locis, &c.* 1693. Dav. Gregory, in *Exercitatio Geometrica de Dimensione Figurarum*, 1664; and Nieuwentijt, in *Considerationes circa Analysis ad Quantitates infinite parvas applicata principia*, 1695.—The sum of what is found in l'Hôpital, Carre, Cheyne, Gregory, and Craig, is collected into one volume, and very well explained, by C. Hayes, under the title of a Treatise of Fluxions, &c. 1704. And the substance of most of the rest in Pere Reyneau's *Analyse Démontrée*, 2 vols. 4to. 1728. De Moivre also, Maclaurin, and Mr. T. Simpson, may be added to the number.

ANALYTICS, in *Literary History*, is particularly used to denote certain writings of Aristotle under this title.

Aristotle's *Analytics* consist of four books, two under the denomination of *former*, *Αναλυτικῶν προτέρων*, and as many under that of *latter*, *ὕστερον*.—They belong to the class of his *acromatic* works. Fabr. Bibl. Græc. lib. iii. cap. 6.

ANALYTICS is also used by some for a part of LOGIC, which teaches to decline and construe reason, as grammar does words.

ANAMNESEIS, from *ανα* and *μνησμαι*, *I remember*, in *Ancient Writers*, denote encomiums of persons who had behaved well in war, or on other occasions, rehearsed before the emperors of Constantinople, to put them in mind of bestowing suitable rewards.

ANAMNESTICS, in *Medicine*, are used by some writers, to denote those signs which help to discover the past state of a patient's body: in which sense it stands opposed to PROGNOSTICS.

These are otherwise called *rememoratives*.

ANAMNESTIC is also applied by Blancard to remedies proper for restoring or strengthening the memory.

Such, according to this author, are all spirituous things.

ANAMORPHOSIS, in *Perspective* and *Painting*, a monstrous projection; or a representation of some image, either on a plane or curve surface, deformed and distorted: which at a certain distance shall appear regular, and in proportion.

The word is compounded of *ανα* and *μορφη*, *form*.

To make an *anamorphosis*, or monstrous projection on a plane.—Draw the square ABCD (*Tab. Perspective fig. 10. N^o 1.*) of a bigness at pleasure, and subdivide it into

into a number of areolas, or lesser squares.—In this square, or reticle, called the *craticular prototype*, let the image to be distorted be drawn. Then draw the line *ab* (fig. 19. N^o 2.) equal to *AB*; and divide it into the same number of equal parts, as the side of the prototype *AB*; and in *E*, the middle thereof, erect the perpendicular *EV*, so much the longer; draw *VS* perpendicular to *EV*, so much the shorter, as the image is desired to be more distorted. From each point of division draw right lines to *V*, and join the points *a* and *S*, by the right line *aS*. Through the points *d e f g* draw lines parallel to *ab*; then will *abcd* be the space which the monstrous projection is to be delineated in; called the *craticular ectype*.

Lastly, in every *areola*, or small *trapezium* of the space *abcd*, draw what appears delineated in the correspondent *areola* of the square *ABCD*: by this means you will obtain a deformed image, which yet will appear in just proportion to an eye distant from it the length *EV*, and raised above the height *VS*.

It will be diverting to manage it so, that the deformed image may not represent a mere chaos, but some other image: thus, we have seen a river with soldiers, wag-gons, &c. marching along the side of it, so drawn, that when viewed by an eye in the point *S*, it appears to be the satirical face of a man.

An image also may be distorted mechanically, by perforating it here and there with a needle, and placing it against a candle or lamp; and observing where the rays, which pass through these little holes, fall on a plane, or curve superficies; for they will give the correspondent points of the image deformed; by means whereof, the deformation may be completed.

ANAMORPHOSIS, to draw the, or deformation of an image, upon the convex surface of a cone.—It is manifest from the former case, that all here required is, to make a *craticular ectype* on the superficies of the cone, which shall appear to an eye duly placed over its vertex, equal to the *craticular prototype*.

Let the base, or periphery, *ABCD*, therefore, of the cone (fig. 20.) be divided by diameters into any number of equal parts; and let some one radius be likewise divided into equal parts; and through each point of division draw concentric circles: thus will the *craticular prototype* be made.—With double the diameter *AB*, as a radius, describe the quadrant *EFG* (fig. 21.) so as the arch *EG* be equal to the whole periphery: then this quadrant, folded duly up, will form the superficies of a cone, whose base is the circle *ABCD*.—Divide the arch *EG* into the same number of equal parts as the *craticular prototype* is divided into; and draw radii from each of the points of division. Produce *GF* to *I*, so that *FI=FG*: and from the centre *I*, with the radius *IF*, draw the quadrant *FKH*; and from *I* to *E* draw the right line *IE*. Divide the arch *KF* into the same number of equal parts as the radius of the *craticular prototype* is divided into; and draw radii through each of the points of division, from the centre *I*, meeting *EF*, in 1, 2, 3, &c. Lastly, from the centre *F*, with the radii, *F 1*, *F 2*, *F 3*, &c. describe the concentric arches.—Thus will the *craticular ectype* be formed, the *areola* whereof will appear equal to each other.

Hence what is delineated in every *areola* of the *craticular prototype*, being transferred into the *areola* of the *craticular ectype*, the images will be distorted or deformed: yet an eye being duly raised over the vertex of the cone, will perceive it in just proportion.

If the chords of the quadrants be drawn in the *craticular prototype*, and chords of the fourth part in the *craticular ectype*, all things else remaining the same, you will have the *craticular ectype* in a quadrangular pyramid.

And hence it will be easy to deform any image, in any other pyramid, whose base is any regular polygon.

Because the eye will be more deceived, if from contiguous objects it cannot judge of the distance of the parts of the deformed image; therefore, these kinds of deformed images are to be viewed through a small hole; and when they are made to appear like the objects which they are intended to represent, by means of a mirror of any particular construction, these *anamorphoses* are said to be reformed. See MIRROR.

ANANAS, in *Natural History*, by some called *nanas*, by others *jayama*, and by us popularly the *pine-apple*, on account of the resemblance it bears to the cones of pines and firs, is a fine Indian fruit, which grows on an herbaceous plant, with leaves like those of the aloe. See PINE-APPLE.

ANAPÆST, **ANAPÆSTUS**, a FOOT in the Greek and Latin poetry, consisting of two short, and one long syllable, being the reverse of the *daetyl*.

The word is derived from *αναπατω*, *contra ferio*, because,

in dancing this measure, the ground was struck in a contrary order from what it was in the *daetyl*. Whence the Greeks called it *αντισακυλος*. Diom. iii. p. 74. Such are the words *legērent*, *sāpīens*, *κῦρι' εἰς*.

ANAPÆSTIC, or **ANAPÆST**, is sometimes used in a substantive sense.

Such is the *anapæstus Aristophanæus*, in Cicero, which is a verse consisting of eight feet, as

Axena ponti per freta colchos denique delatus adhæsi.

Vid. Cic. in Orat. cap. 56. Fabr. Thes. in voc. *Anapæstus*.

This is otherwise called *anapæstus obsonarius*.

ANAPÆSTIC, in an adjective sense, something relating to or composed of *anapæsts*.

ANAPÆSTIC kind, *genus anapæsticum*, is a sort of verse composed of pure Aristophanic or Parthenaic *anapæsts*.

Anapæstic verses are either Aristophanic or Pindaric.

Anapæsticus Aristophanæus, called also *Parthenaicus*, consists of three *anapæsts*, and one long syllable, but so as that instead of the first two *anapæsts* as many spondees may be used.

Its type stands thus:

— — — — —
— — — — —
— — — — —

*Venient cito sæcula quum jam
Socius calor ossa revivet
Animataque sanguine vivo
Habitacula pristina gesset
Lacrymas suspendite cuncti
Mors hæc reparatio vitæ est. Bona.*

Pindaric anapæst admits, in the first place, either of an *anapæst* or a spondee; in the second, only of an *anapæst*; in the third, of an *anapæst* or a spondee; in the fourth, either of a spondee or a trochee.

As in the following type:

— — — — —
— — — — —
— — — — —

*In summa pericula venturi
Multos timor ipse mali mittit.*

ANAPHORA, in *Rhetoric*, a figure whereby one or more words are repeated in the beginning of several sentences or verses.

The word is *αναφορα*, signifying *repetition*.

Such, e. gr. is this of the Psalmist: *The voice of the Lord is powerful: the voice of the Lord is full of majesty: the voice of the Lord shaketh the wilderness.*

ANAPHORA is used in the *Ancient Medicine*, for the rejection of matter by the mouth.

Hence also we meet with the term *anaphorici*, *αναφορικοι*, used for those labouring under an *hæmoptoe*, who bring up blood from the lower part by the mouth.

ANAPHORA, among *Ecclesiastical Writers*, denotes the host or species offered in the *eucharist*.

ANAPHORA is also used to denote the rehearsing a person's name from the *DIPTYCHS* in the liturgy.

ANAPHORA is also a title given to those little Syriac liturgies, wherein are contained the prayers after the *osculum pacis*. Ignatius, patriarch of the Maronites, enumerates forty of these *anaphoræ*.

ANAPHORA, in *Astrology*, denotes the second house, or that part of heaven which is thirty degrees distant from the *HOROSCOPE*.

The term *anaphora* is sometimes also promiscuously applied to some of the succeeding houses; as the second, fifth, eighth, and eleventh. In this sense *anaphora* amounts to the same with *epanaphora*, and stands opposed to *CATAPHORA*.

ANAPHORA is also applied by some to the oblique ascensions of the stars.

ANAPHRODISIA, from *ανα* and *Αποδισιν*, *Venus*, denotes impotency in respect of venery. Some also use it for a want of desire or inclination to the sex.

In this sense, the academists *Naturæ Curiosæ* give an extraordinary instance of this kind, in a person otherwise healthy and robust. Eph. Acad. N. C. Dec. 1. ann. 8. Obs. 94.

ANAPHYSEMATA, from *ανα* and *φυω*, *I send forth*, in some *Ancient Writers*, denote winds issuing from under ground; at the clefts or apertures thereof.

These are sometimes called by latter writers *apogæi*.

ANAPLASIS, from *ανα* and *πλασσω*, *I form*, in *Medicine*, the complete restitution of a broken bone, so that the two ends meet and close exactly together. This is the same with what is otherwise called *diaplasis*.

ANAPLASIS also signifies a renutrition of the extenuated flesh.

ANAPLEROSIS, in the general sense, denotes *REPLETION*. *Anaplerosis* is more particularly used to denote that part of surgery whereby things wanting are supplied.

In which sense, *anaplerosis* amounts to the same with what we otherwise call apposition, or PROSTHESIS.

ANAPLEROSIS, in the *Civil Law*, is a name which some give to the four last books of Justinian's Code.

ANAPLEROTICS, in *Medicine*, such remedies as incarnate, and fill up ulcers and wounds with new flesh. The word comes from *αναπλερω*, *I fill up*.

Anaplerotics are the same with what we otherwise call INCARNATIVES.

ANAPODOPHYLLON, in *Botany*. See DUCK's-foot.

ANARCHI, in *Antiquity*, a name given by the Athenians to four supernumerary days in the year, during which they had no magistrates.

The Attic year was divided into ten parts, according to the number of tribes, to whom the presidency in the senate fell by turns.

Each division consisted of thirty-five days; what remained after the expiration of these, to make the lunar year complete, which, according to their computation, consisted of three hundred and fifty-four days, were employed in the creation of magistrates, and called *αναρχοι ημεραν*, and *αρχαιρεσιον*.

ANARCHY, the want of government in a nation, where no supreme authority is lodged, either in the prince, or other rulers; but the people live at large, and all things are in confusion.

The word is derived from the Greek privative *α*, and *αρχη*, *principality*.

All kinds of states are subject to *anarchies*. We read of civil *anarchies*, ecclesiastical or spiritual *anarchies*, and even *anarchies* in the republic of letters.

Anarchy is supposed to have reigned after the deluge, before the foundation of monarchies. We still find it obtain in divers parts, especially of Africa and America; e. gr. among the Itinois, who are observed by travellers to live in a perfect independency of any superior; among the Californians, where every family makes its own laws, as well as religion; in Chili, where every master of a family is a king; in the Marian islands, where neither prince nor law is known, but every person governs himself according to his own will; and to mention no more, among the Hottentots, where the only resemblance of government is, that in each neighbourhood, the eldest is the first in honour, and his advice chiefly followed, not from any civil authority he is vested with, but on account of his superior experience.

Some extend the idea of *anarchy* farther, so as to make it comprehend all the more popular governments.

In this sense, *anarchy* amounts to much the same with DEMOCRACY.

Hobbes, in this sense, calls the Roman commonwealth an *anarchy*.

It has been sometimes controverted which of the two is best, a state of *anarchy*, or of tyranny and arbitrary power. This controversy, however, does not appear to be of any great use; it is of little purpose to determine which is best, since a state of *anarchy* naturally, nay necessarily, paves the way for despotism; and confusion is always the parent of oppression.

ANARCHY is also applied to certain troublesome and disorderly periods, even in governments otherwise regular.

—In Germany, the space from the election of Richard duke of Cornwall, to that of duke Rud. of Hapsburg, is commonly called the *anarchy*, or *interregnum*.

In England, the period between the death of Cromwell and king Charles's Restoration, is commonly represented as an *anarchy*. Every month produced a new scheme or form of government. Enthusiasts talked of nothing but annulling all the laws, abolishing all writings, records, and registers, and bringing all men to the primitive level. No modern nation is more subject to *anarchies* than Poland: where every interval between the death of one king, and the election of another, is a perfect picture of confusion, inasmuch that it is a proverb among that people, Poland is governed by confusion.

The Jewish history presents numerous instances of *anarchies* in that state, usually denoted by this phrase, *that in those days there was no king in Israel, but every man did that which was right in his own eyes*; which is a just picture of an *anarchy*. The first *anarchy* we read of in that commonwealth, is that which ensued on the death of Joshua, who leaving no successor, the government devolved to the elders of the tribes, who ruled each according to his own will. After the death of these elders, the *anarchy* became complete.

ANAGYRUS, from *α* and *αγυριον*, *money*, in *Ancient Writers*, denotes a person without money, though otherwise sufficiently accommodated with land, and other effects.

In a like sense, we sometimes also meet with the word *anagyria*, used by lawyers for the condition of a person without ready money.

Mart. Phil. Fabricius has a dissertation express *De Exceptione Anagyriae*.

ANAGYRI, in *Ecclesiastical History*, is an appellation given to certain saints in the Greek church, who having been physicians, gave not only their advice, but their remedies, *gratis*.—They are also called *argentinos*.

ANARRHAPHE, from *ανα* and *ραφη*, *future*, in *Surgery*, denotes a kind of suture or retraction of the upper eye-lid, when relaxed and hanging over the eye.

This is by some also called *sutura blepharica*, by others *abbreviatio*, *contractio*, *collectio*, or *suspensio superioris palpebræ*.—It is used in the *phalangosis*, *ptosis*, or *chalasis*; where the sight is obstructed, by a *prolapsus* of the part, or the eye-lid itself is too thick beset with bristly hairs both within and without.

ANARRHICAS, in *Ichthyology*, the name given by Artedi, to the fish called by others the LUPUS marinus. It is a genus of the order of *apodes*, in the Linnæan system.

ANARRHINON, in *Botany*, a name given by some of the ancients to the plant called by others LYCHNIS *agria*, and by others *antirrhinum*. Pliny tells us, that this plant resembled flax; that it had scarce any root; that its flower was the colour of the hyacinth, and its fruit resembled the nose of a calf. It is from this resemblance that we at this time call the plant *calve's snout*. Dioscorides says, that it was like the *anagallis*.

ANARTHRA, from *α* and *αρθρον*, *joint*, a class of naked insects, distinguished from all others, by having neither wings nor limbs. To this class belong all kinds of worms and leeches.

ANAS, *duck*, in the Linnæan system of *Zoology*, the name of a large genus of birds, of the general order of ANSERES. The distinguishing characters of this genus are, that the beak is convex, and ends in an obtuse point. The birds of this genus are the swan, goose, widgeon, &c. see DUCK.

ANAS campestris, in *Ornithology*, the name of a bird common in France, and usually called TETRAX, and *canne petriere*. It is of the size of a pheasant, and of the nature of the *buslard*, having no hinder toe; it runs very swiftly, and sits on the ground as the duck does in the water, whence it has its name.

ANASARCA, from *ανα* and *σπαξ*, *flesh*, in *Medicine*, a sort of universal dropsy, wherein the whole substance of the body is stuffed or bloated with pituitous humours.

This distemper is sometimes also called *catafarca*, sometimes *hypofarcidium*, sometimes *epifarcidium*, sometimes *aqua inter cutem*, or *intercus*, because the pituitous humour spreads itself through the flesh. Serenus Samonicus elegantly calls it *lymphaticus error*; Albucasis calls it a dropsy by infiltration.

Anasarca is a peculiar species of universal dropsy, differing from both the *ascites* and *tympanites*. It differs from the *ascites* in that, though it usually arises from the same causes, the waters in an *ascites* do not possess the upper parts of the body, at least while the patient keeps in an erect posture, which they do in the *anasarca*.

Some distinguish between the *anasarca* and the *leucophlegmatia*, in that the latter comes from the *pituita*, the former from an ichorus serosity discharged in the very habit of body; apparently through the fault of the lymphatic vessels.

The *anasarca* sometimes stops at half its growth; in which case it is called by the ancients *phlegmatia*, where the bloating is conspicuous, yet soft and loose.

In an *anasarca*, the legs swell at first, especially towards night, and then pit remarkably; the urine is pale, the appetite decays; at length the swelling rises higher, and appears in the thighs, belly, breast, and arms. The face becomes pale and cadaverous; the flesh soft and lax; and a difficult respiration comes on, attended with a slow fever.

The usual method of cure among us is much the same as that of the *ascites*. The ancients had a peculiar method adapted to it.

Aetius relates, from Asclepiades, the manner of curing an *anasarca*. This is by making incisions on the inside of the leg, about four fingers breadth above the ankle, as deep as generally those in bleeding are made. At first a little blood issues out, afterwards there is a continual discharge of water, without any inflammation, so that the aperture cannot be closed, till the humour is spent, and the swelling gone down; and this drain cures the distemper, without any internal medicine.

Leonides says farther, that if the incisions in the legs do not make a discharge quick enough, some ought to be made in other parts of the body; in the thighs, in the arms, or in the *scrotum*, if swelled, by which means a great quantity of watery matter may be evacuated.

The operation itself is mentioned by Hippocrates, and had been practised from his time down to our days, with success; though sometimes mortifications have been known to ensue.

In some cases the *anasarca* appears to have been advantageous, inasmuch that the cure of it has killed the patient.

Dr. Dover's cure for an *anasarca* is an electary composed of steel prepared with sulphur and crude antimony, each an ounce; *diagridium*, four ounces; make a fine powder of these; then add as much of any syrup as will make a soft electary.

ANASSAS, in *Natural History*, the name of a fruit very common in Guinea, and in some other parts of Africa. It is very beautiful to the eye, and not less agreeable both to the taste and smell, and is by some accounted the finest fruit in the world. The descriptions we meet with of it are very imperfect; but as there is nothing in them that contradicts its being the PINE-APPLE, it may be that fruit, and if so, it deserves all the praise that is given it.

ANASTASIS, a Greek word adopted into the English language, which denotes a resurrection.

Chifflet has given us a dissertation on Childeric's tomb, under the title of *Anastasis Childerici*. Truer has published the figure of a man and woman in the ancient German habit, as found in an ancient urn, under the title of *Anastasis veteris Germani Germanæque Faminæ*.

ANASTASIS, among *Ancient Physicians*, denotes a rising up to go to stool. It likewise signifies a migration of humours, when expelled from one place and obliged to remove to another.

ANASTATICA, ROSE of Jericho, in *Botany*, a genus of the *tetradynamia filiculosa* class. *Anastatica*, Hort. cliff. 328. The characters are: the flower hath four roundish petals, placed in form of a cross; the seed-vessel in this is blunt-pointed, bordered, and crowned, and the valves open oblique to the style.

This plant grows naturally on the sands, near the borders of the Red Sea, and in many parts of Syria.

It hath had the epithet of *rosa Mariæ* given to it by the monks, who have superstitiously supposed that the flowers open on the night that our Saviour was born. But the truth is, that the dry woody plant being set for some time in water, will dilate and open, so as to disclose the seed-vessels and seed. This has been done when the plants have been many years gathered; so that some curious persons preserve them in their repositories of curiosities, for the singularity of this property.

This plant is propagated by seeds, which should be sown the beginning of April, on a border of light sandy earth, where it is designed to remain; for it will not bear transplanting. If the season proves favourable the plants will flower in August; but unless the autumn proves warm and dry, they will not ripen their seeds in England.

ANASTOMASIS, or ANASTOMOSIS, in *Anatomy*, is sometimes used to express such aperture of the mouths of the vessels as lets out their contents.

The word is formed of *ana*, through, and *stoma*, mouth.

ANASTOMASIS is more frequently used to denote the opening of two vessels into one another; or the union and juncture of the mouths of two vessels, whereby they come to communicate with one another.

There are various *anastomoses* of this kind, e. gr. of an artery with an artery, a vein with a VEIN, and of a vein with an ARTERY.

The circulation of the blood in the *fœtus* is effected by means of the *anastomoses*, or inosculation of the *vena cava* with the pulmonary vein; and of the pulmonary artery with the *aorta*.

The circulation is also performed in adults by the *anastomoses*, or continuation of the capillary arteries with the veins.

After the circulation of the blood through the heart, lungs, and large blood-vessels, was demonstrated by Harvey, it was only guessed how the extremities of the arteries transmitted the blood to the veins; till Leewenhoeck's microscopes had discovered the continuations of the extremities of those vessels, in fish, frogs, &c.—However, there were not wanting those who doubted of the like continuations of the extremities of the arteries and veins in human bodies, and quadrupeds; since those animals it had hitherto been chiefly seen in satisfactorily, were either such fish or amphibious kinds, as have but one ventricle in their hearts, and whose blood is actually cold; beside that in them it does not circulate with such rapidity as in animals whose hearts have two ventricles. This difference in the principal organs of circulation moved Mr. Cowper to make experiments on animals whose organs differ only from the human in their gross figure, and not in their intimate structure.—The result was a plain discovery of the like inosculation of the arteries and veins in the *omentum* of a cat.

George Frederic Francus, of Frankenau, a physician of Copenhagen, published in the year 1705, a learned and copious work, intituled, *Anastomosis Reteſta*.

It is a question among *anatomists*, whether the uterine arteries and veins *anastomose* with the veins and arteries of the secundines. Mr. Alex. Monro holds the negative, and

he thinks that several inconveniencies are avoided by the want of this *anastomosis*. Med. Ess. Edinb. vol. ii. p. 133, &c.

ANASTOMATICS, or ANASTOMATIC medicines, are such as have a faculty of opening and dilating the cavities of the vessels: and by that means of making the blood circulate the more freely.

The word comes from *αναστροφή*, I unstop.

ANASTROUS signs, in *Astronomy*, an appellation given to the *duodecatimoria*, or the twelve portions of the ecliptic which the signs possessed anciently, but have deserted by the precession of the *æquinex*.

ANASTROPHE, from *ανα* and *στροφή*, I turn; in the *Ancient Military Art*, denotes the return of a battalion to its former station, after a turn or evolution either to the right or left.

The *anastrophe* stands opposed to the *epistrophe*.

ANASTROPHE also denotes a grammatical figure, whereby a preposition, which regularly ought to precede, is placed after its case, e. gr. *Saxa per et scopulos*.

ANASTROPHE, in *Rhetoric*, denotes a quaint inversion of the order of the words in a sentence, e. gr. *ut scire possis ad quo te expediat loqui*, for *quoad expediat te loqui*.

ANATHEMA, from *ανα* and *τιθημι*, I lay up, in *Antiquity*, denotes a present offered to some god; and hung up in his temple.

Making presents to the gods was a custom even from the earliest times, either to pacify them when angry, or to obtain some future benefit, or as a grateful acknowledgment of some past favour. They consisted of crowns and garlands, garments, cups of gold, and other valuable metals, and any other things which conduced to the ornament, or the enriching of the temples.

These were commonly termed *αναθήματα*, and sometimes *ανακείμενα*; from their being deposited in the temple, where they sometimes were laid on the floor, sometimes hung upon the walls, doors, pillars, or the roof; or any other conspicuous place. Sometimes the occasion of the dedication was inscribed either upon the thing itself, or when the matter of that could not bear an inscription, upon a tablet hung up with it.

When any person left his employment, or way of life, it was customary to dedicate the instruments belonging to it, as a grateful commemoration of the divine favour and protection. Thus in an ancient Greek epigram we find a fisherman makes a present of his nets to the Nymphs of the sea. Shepherds hung up their pipe to Pan, or some of the country deities; as we find done by one in Tibullus. So Lais, decayed with age, dedicates her mirror to Venus. Pausanias has left us a particular description of the *anathemata*, in the Delphian temple, which was the richest of any in Greece.

The term *anathema* also occurs in a like sense, applied to Christian offerings.

The *anathemata* or ornaments of the ancient churches, are otherwise called in ecclesiastical writers *donaria*.

Such in particular were those called *εκτυπωματα*, answering to the votive tablets of the heathens. Also pictures, mosaics, inscriptions, and at length images, statues, crucifixes, &c.

Cebes's beautiful *Tablature of Human Life*, is said, in the introduction to it, to have been among the *αναθήματα*, in the temple of Saturn.

ANATHEMA, in an ecclesiastical sense, denotes an EXCOMMUNICATION, attended with execrations and curses. In this sense, the word is usually written in Greek *αναθεμα*, to distinguish it from an offering to the gods, called, *αναθήμα*; though it is certain several of the Greek fathers do not observe this distinction; but use *αναθήμα* indifferently for either.

There are two kinds of *anathemas*; the one *judiciary*, the other *abjuratory*.

The former can only be pronounced by a council, a pope, bishop, or other qualified person; and differs from a simple excommunication in this, that an excommunication only prohibits the criminal from entering within the church, or from holding communion with the faithful; whereas an *anathema* cuts him off from the body, the society, and even the commerce of the faithful, and delivers him over to the Devil.

The latter kind of *anathema* usually makes a part of the ceremony of ABJURATION; the convert being obliged to *anathematize* the *heresy* he abjures.

The critics and commentators are divided about the manner wherein St. Paul wishes to be *anathema* for his brethren. Romans, ch. ix. 3. See ACCURSED.

In ancient censures we meet with an extraordinary formula, called *maranatha*; and authors are divided concerning its import and use.

St. Chrysostom says it is a Hebrew word, signifying *the Lord is come*; and he particularly applies it to the confusion of those who still abuse the privilege of the Gospel, notwithstanding that the Lord was come among them.

St. Jerom says it was more a Syriac than an Hebrew word, though it had something in it of both languages, signifying *our Lord is come*. But he applies it against the perverseness of the Jews and others who denied the coming of Christ, making this the sense of the apostle; *if any man love not the Lord Jesus Christ, let him be anathema, the Lord is come*.

According to this sense, *maranatha* could not be any part of the form of *excommunication*, but only a reason for pronouncing the *anathema* against those who expressed their hatred against Christ, by denying his coming, either in words, as the Jews did who blasphemed him, and called Jesus *anathema* or accursed, or else by wicked works, as those who lived profanely under the name of Christians. Others of the ancients interpret the word of the future coming of Christ, particularly St. Austin, who says, *maranatha* is a Syriac word, signifying *the Lord will come*. And he particularly applies it against the Arians, who could not be said, as he uncharitably thought, to love the Lord, because they denied his divine nature. Dr. Hammond and others will have *anathema maranatha* to have answered to the third and highest degree of excommunication among the Jews, called *shammatha*.

Balduinus, Deutrohmannus, Durrius, Stevartius, and others, have written expressly concerning *anathemas*. Hen. Labertus, a German writer, has given an *Anathematologia*, or a discourse on the church curses. See a form of the *anathema* denounced against robbers in the middle ages, in Bouquet's Recueil des Hist. tom. x. p. 517. The English reader may see it in the An. Regit. vol. xii. an. 1769. p. 147.

ANATHEMATIZING, the act of pronouncing an *anathema*.

In which sense it amounts to the same with *excommunicating*. The term is not only applied in speaking of persons, but of doctrines and opinions.

ANATHEMATISM denotes the same with *anathema*, or imprecation.

ANATHREPSIS, in *Medicine*, amounts to much the same with *ANALEPSIS*.

ANATICULA, a diminutive of *anas*, and used by the old Roman Authors, as a term of fondness, to express the passion of love. There is another of the same kind from a different bird, *palumbula*.

My little duck, my little dove, were the most endearing terms the lovers of those times could use; nor was this the custom of the Romans only, but the Greeks, as far back as Aristophanes, have it.

ANATIFERA concha, in *Natural History*, the name of a genus of shells, the characters of which are these; it is a shell-fish of the multivalve kind, being of a triangular figure, flat, and composed of five shells fastened to a long pedicle, and furnished with fourteen hairs. Of this genus of shell-fish, the cabinets of the curious afford us four species.

This genus of shells obtained this strange name from an erroneous opinion, that they produced ducks, or a species of wild-fowl of that kind, the name signifying a shell producing ducks.

ANATOCISM, **ANATOCISMUS**, an usurious contract, wherein the interests arising from the principal sum are added to the principal itself, and interest exacted upon the whole.

The word is originally Greek, but used by Cicero in Latin; whence it is descended into most other languages. It comes from the preposition *ana*, which in composition signifies *repetition* or *duplication*, and *τοκος*, *usury*.

Anatocism is what we properly call *interest upon interest*, or *compound interest*.

This is the worst kind of usury, and has been severely condemned by the Roman law, as well as by the common laws of most other countries.

ANATOMY, the art of dissecting, or artificially taking to pieces the solid parts of animal bodies; in order to an exact discovery of their structure and œconomy.

The word is *ανατομή*, q. d. *section* or *cutting*; formed of *ανατεμνω*, *I cut asunder*.

Anatomy makes a great branch of that division of medicine called *physiology*.

It is sometimes divided, with regard to its end, into *speculative* and *practical*; a division of very little moment.—

It is also divided, with regard to its subject, into *human* and *comparative*.

ANATOMY, *comparative*, is that which considers brutes, and other animals, and even vegetables; chiefly with a view to illustrate the human structure.

There is some dispute among physicians and naturalists concerning the usefulness of comparative *anatomy*. On the one hand it is urged, that the parts less apparent in one animal, are found more distinct and conspicuous in another; so that the knowledge of the structure of the former, may be improved by analogy, from that of the latter. On the other hand it is objected, that the diversity is so great between one animal and another, ac-

cording to the different manners of life they are intended for, that it is never safe concluding by mere analogy, from the structure of one to that of the other. Malpighi has been very large in the refutation of this objection.

ANATOMY, *human*, which is absolutely and properly denominated **ANATOMY**, is that employed on the human body; by some called also *anthropology*.

The subject of *anatomy*, viz. the body, is variously divided into parts, *organical*, and *inorganical*; *similar*, and *dissimilar*, *specific*, &c.

Its more obvious division is into *solids* and *fluids*, or into the containing and contained parts.

Under the solids come the bones, muscles, nerves, arteries, veins, cartilages, ligaments, membranes, &c.—Under the fluids come chyle, blood, milk, fat, lymph; &c. See each under its proper article.

But some divide *anatomy*, with regard to its objects, into **OSTEOLOGY** and **SARCOLOGY**.

The first treats of the bones and cartilages; the second is subdivided into *splanchnology*, which comprehends the history of the internal parts, and more particularly of the viscera; *myology*, or the doctrine of the muscles; and *angiology*, which treats of the vessels, viz. the nerves, arteries, veins, and lymphatic vessels.

Others divide *anatomy*, with regard to its objects, into that of living bodies, and that of dead carcases.

Herophilus and Erasistratus, we are told by Celsus, dissected living persons; condemned criminals were sent to the former by princes, on purpose that they might have an opportunity of seeing the parts in their natural state, before any alterations induced in them by diseases or death.

The bodies of persons who have suffered a violent death, among which those who have been hanged, or lost their lives by strangulation with a cord, are the most proper, and to be preferred before the rest. It is for that reason that Riolan rejects those dead carcases which have been suffocated in the water, as improper for *anatomy*; though Galen used most frequently to drown such of his living creatures, as he had chosen for his anatomical operations.

Anatomy is by others divided into *medicinal* and *physical*.

ANATOMY, *physical*, *anatomia physica*, is that employed in enumerating and describing the several solid parts of the body, as bones, cartilages, membranes, muscles, tendons, nerves, ligaments, arteries, veins, lympheducts, &c. describing their figure, situation, connection, &c.

ANATOMY, *medicinal*, *anatomia medica*, is that which, to the former inquiries, adds that of the office and use of the several parts, and their concern in health or diseases. Some give a particular species of this under the denomination of *chirurgical anatomy*.

Some considerable physicians have endeavoured to check a minute study of *anatomy*, as of no use in physic. It is in reality but a small part of the science, as it now stands, that falls under immediate consideration in the medicinal practice. It seems enough for a physician to know the number, situation, communication, and use of the parts, without losing time in a minute investigation of their intimate structure, not excepting the smallest fibres, of which they are composed.

Others again recommend an exact and curious knowledge of *anatomy*, which does not barely include the situation of one or other of the viscera, or the magnitude, colour, figure, and order of the internal parts, but is of very wide extent. For, say they, it is necessary to inspect, with all our curiosity, the peculiar structure of each part, which we see to be formed with the highest art and skill; to find out its use, what function it performs in the body, what connection it has with the other members, and to comprehend what influence it has, after a wonderful manner, on different and remote parts.

Such a knowledge of *anatomy* they esteem as a most firm foundation, on which the whole body of medicine may securely rest. If this be removed, all rational explications in medicinal matters must fail, practice is in danger, and even *medicine* itself falls to ruin. The use of *anatomy*, in *surgery*, they add, is so undoubted, that none but such as are little versed in the *medicinal* art, will have the rashness to deny it.

Anatomy is not only of use in *medicine*, but also in *painting*, *designing*, *statuary*, &c. Leonardo da Vinci, and all the great masters, studied it with particular application. Titian took so much delight in it, that he designed the figures for Vesalius's *Anatomy*. M. de Piles, under the fictitious name of Tortebat, and the Rossi at Rome, have published books of *anatomy* particularly accommodated to this use. A translation of this has been given in England, under the title of *Anatomy improved and illustrated*, with regard to the Use thereof in *Designing*.

ANATOMY, *its history*.—With respect to the antiquity of *anatomy*, it seems scarcely possible, but that the slaughter of beasts for the use of man, casualties, murders, and the

accidents of war, must have furnished mankind with a general knowledge of the structure of the parts, in very early ages of the world. But it is not very certain at what period it began to be cultivated as a *science*. This however must have been very early, especially if we pay any regard to Manetho, the famous Egyptian writer, who, according to the report of Eusebius, relates that Athotis, an Egyptian king, wrote some treatises of *anatomy*. This king, if the Egyptian chronology was to be depended on, lived many ages before Adam. This, however false with respect to time, amounts to a sort of proof of the antiquity of this *science*. It is inferred that Solomon was no stranger to the structure of the human body, from some passages in the twelfth chapter of the book of Ecclesiastes.

It is very certain however that before, or at least in the days of Homer, *anatomy* was much cultivated; since this author appears to have had a competent knowledge of the parts, and to have been very well versed in the enunciation of wounds, as the moderns call it, so as to give an accurate account of their effects in almost all the parts of the body.

But Hippocrates is the first author, at least extant, who treated of *anatomy* scientifically. This writer, conscious of his noble and exalted genius, published many *anatomical* observations, which, though disjointed and scattered here and there in his works, yet made up an entire body of *anatomy*, when taken together; but that he made it his principal business to understand and explain the bones of the human body, is plain from those valuable books upon Fractures, and the Joints, which evidently discover his perfect knowledge of, and intimate acquaintance with, the bones; and that his diligence, his industry, and skill in this way, might the more effectually be transmitted to future ages, he consecrated, if we may believe Pausanias, a brazen skeleton to the Delphian Apollo.

The writings of this great man are interspersed with many things relating to the blood, which seem to shew some knowledge of the circulation, and also of the secretion of the various humours. Dr. Douglas has pointed out such of them as seem to be the most glaring and unexceptionable proofs of this.

Galen, by general consent of writers, is the prince of *anatomists*. By his early application, his unwearied assiduity, great sagacity, and penetration of mind, as well as dexterity of hand, he not only carried the art infinitely beyond what had been done by those before him, but even to that perfection wherein we find it at this day, abating only some few discoveries made by modern anatomists. In reality, many of the discoveries with which late writers plume themselves, are due to him. Dr. Douglas enumerates several of the discoveries made by Galen in the structure and use of the parts of the human body.

Anatomy suffered with the other *sciences* by the invasions of the Goths and Vandals, and at length sunk into total barbarism; from which it was restored in the fourteenth century by Mundinus, a Milanese, who composed rudiments of that art in the year 1315, which, notwithstanding the barbarous style wherein they are written, remain still in esteem, and are the only system now taught in some of the principal schools in Italy. The statutes of the university of Padua expressly enjoin the professors to follow the text of Mundinus in their lectures and expositions.

Some, with Fallopius, rather ascribe the honour of the restoration of *anatomy* to Jac. Berengarius, called also Carpus or Carpenis, who lived two hundred years after Mundinus. He set out with commenting on that author, but afterwards wrote a much better book on the subject; of his own; in order to which he dissected above one hundred bodies. Some have even charged him with the crime of Herophilus. It is alleged that he bore an implacable hatred to the Spaniards; and that, having got some of them into his custody, he intended to have proceeded to dissection, but his design being discovered, he was banished. Others deny the charge, and give other reasons for his exile.

The honour of reforming *anatomy*, and bringing it to its present perfection, is commonly ascribed to Vesalius, whose inclination to this science was so great, that, when, a boy, he could not forbear dissecting moles, dormice, cats, and the like. As he grew up, his passion increased; when bodies were wanting for skeletons, he would steal them from the gibbets; for which he was expelled Louvain, as he himself informs us. Bodies which he dug out of their graves, he would keep several weeks in his bed-chamber. He published his famous work on the structure of the human body at twenty-eight years of age. He was chief physician to the emperor Charles V. and Philip II. of Spain; but growing weary of a court-life, he undertook a pilgrimage to Je-

rusalem, and died in his return. The motive of this expedition is attributed to his opening the body of a young Spaniard of quality, supposing him dead; whereas, when he came to the heart, he found it still beating. Others give a different account of his misfortunes.

The writers of *anatomy* may be divided into such as either treat on the subject *professedly* or *occasionally*.

Under the latter are comprehended *physicians*, *natural historians*, those who treat of human nature, and of brutes. Among the *professed* writers on *anatomy*, some treat of the whole subject, others only of a part.

The ancient writers in *anatomy*, Hippocrates, Democritus, Aristotle, Galen, and others, looked upon this as the most important part of physic, and that, without which the uses of the parts of a human fabric, and consequently the causes of diseases incident to it, could no way be discovered. And yet this art, useful as it is, was entirely discontinued for several ages; till in the sixteenth century it began to flourish afresh.—The dissection of a human body was looked upon as sacrilege before that time; and we have seen a consultation which the emperor Charles V. appointed to be held by the divines of Salamanca, in order to be satisfied, whether or no it were lawful, in point of conscience, to dissect a dead carcase?—We may add, that to this day the use of *anatomy* and skeletons is forbid in Muscovy: the first as inhuman, the latter as subservient to witchcraft: and O'earius assures us, that one Quirin, a German surgeon, being found there with a skeleton, hardly escaped with life; and the skeleton, after being solemnly dragged about the streets, was burnt in form. Boyle's Usefulness of Philosophy.

After Vesalius, a Flemish physician, who died in 1564, succeeded Carpus, Sylvius, Fernelius, Fallopius, Eustathius, Fabricius, Pareus, Bauhinus, Hoffman, Riolanus, &c.

These were followed by others, to whom some of the finest discoveries in *anatomy* are owing.—Asellius, in the year 1622, discovered the lacteal veins, though he modestly declines the honour of this discovery, and says they were known to Hippocrates, Erasistratus, and Galen; and in 1628, the immortal Harvey published his admirable discovery of the circulation of the blood.—Pecquet discovered the reservoir of the chyle, and the thoracic duct, in 1651.—Rudbecks, a Swede, and Bartholine, a Dane, found out the lymphatic vessels, in 1650; and 1651. Wharton, in 1655, discovered the lower salivary ducts; and Steno the upper salivary ducts, those of the palate, the nostrils, and eyes, in 1661. Wirtfungus, in 1642, discovered the pancreatic duct.—Willis, who came after him, published an anatomy of the brain, and nerves, in a manner much more exact than had been done before him; yet he had omitted some considerable things, which were afterwards observed by Vieussens.—In short, Glisson treated particularly of the liver; Wharton, of the glands; Havers, of the bones; Graaf, of the pancreatic juice, and the parts of generation; Lower, of the motion of the heart; Thurston, of the respiration; Peyer, of the glands of the intestines; Brown, Cowper; and Douglas of the muscles; and Drelincourt, of the conception of the ova in women, the placenta, and the membranes of the *fœtus*; Dryander, of the head; Hoffman and Rudius, of the use of the parts; Rufus, Ephesius, and Camerarius, of the names of the parts; Galen, Cappivaccius, Hippolitus, Boscus, and Lacuna, of the art of dissecting; Horstius, on the art of preserving carcases; and Monro of *osteology*, and *comparative anatomy*. Malpighi, who died in 1694, is one of those to whom *anatomy* owes the most: he made a great number of discoveries in the lungs, brain, liver, spleen, glands, and lymphatics, by help of the microscope, &c. Nor must it be omitted, that Ruysch, who died in 1727, has let great light into many of the finer and more intricate parts of the human frame, particularly the glands, by means of his injections.

An account of the later discoveries controverted between Monro, Hunter, and Hewson, who all claim the merit of first making them, shall be given under the articles LYMPHATICS and LACTEALS. The reader may find a particular information about them, and the pretensions of the different claimants, in Monro's Inaugural Dissertation.

Among those who treat of the whole subject of *anatomy*, Winslow is most deservedly esteemed. This author's works have been translated into English by Dr. George Douglas. We have also an excellent compendium of *anatomy* by Heister. The merit of Albinus's Tables, and of his writings, is well known; as is that of Mr. Cheselden; so that after reading Heister, Winslow, Monro, and Cheselden, consulting the Tables of Vesalius and Albinus, a student may, we believe, consider other books rather curious than necessary.

Manget and Le Clerc, two physicians of Geneva, have given us a *Bibliotheca Anatomica*, containing all the new disco-

discoveries that have been made in this art, but with many mistakes, the detecting of which has been undertaken by Morgagni, who has published several volumes with that view, under the title of *Adversaria Anatomica*.

ANATOMY is also used for an artificial representation of the structure and parts of the human body in metal, plaister, wax, or the like.—In this sense we say, the wax-work *anatomy*. R. Dickenson, statuary, finished an human *anatomy* in plaister of Paris, representing a man standing upright, with his skin flayed off.

There is likewise a wax-work *anatomy*, said to have been invented by Gaetano Giulio Zumba, a Sicilian of Syracuse. Yet M. des Noues, who learnt it of him, and probably made some improvements in it, bringing it to Paris, arrogated the chief honour of it to himself. Some prefer before all the rest, for public lectures and courses, the use of real parts of dead bodies, prepared by injection. *Anatomical* injections, are either of mercury, or mixtures of equal parts of bismuth, lead, and tin. Neumann. The inconveniencies that attend the dissecting of dead carcases, have occasioned the invention of another cleaner and more durable kind of subjects. Reifelius contrived a human statue, wherein the circulation of the blood was represented to the sight, and something of the like kind was shewn by M. Chovet; and more lately still by Madam Bicheron, who has brought this art to great perfection. See her observations on the artificial *anatomy*, in the Memoirs of the Acad. des Scienc. an. 1759. Hist. 94.

ANATOMY is sometimes used to denote the subject to be anatomized. Thus (by 39 H. VIII. cap. 22.) the company of barbers and surgeons may have and take yearly four persons condemned, adjudged, and put to death for felony, for *anatomies*; and to make incision of the same dead bodies.

And by 25 Geo. II. cap. 37. the bodies of felons convicted of murder, in the county of Middlesex, or city of London, are, after execution, to be delivered to the hall of the surgeon's company, to be dissected and anatomized; and in case such conviction and execution shall happen to be in any other county, or place, in Great Britain, then the body of such murderer shall be delivered by the sheriff, &c. to such surgeon as the judge shall direct.

ANATOMY is also used, in an improper sense, for the **ANALYSIS** of mixt bodies.

In this sense the chemists sometimes call their art *spagyric anatomy*, *anatomia spagyrica*.

In which sense we sometimes say the *anatomy* of vitriol, the *anatomy* of sulphur, the *anatomy* of Rhenish wine, &c.

ANATOMY is also used, in a less proper sense, to denote the art of resolving compound bodies into simple ones.

In this sense any kind of compound body may be considered as the object of *anatomy*; that is, any body wherein there are divers parts joined together; even the taking asunder an artificial, political, or moral being, may, in this sense, come under *anatomy*.

ANATOMY is also used, *figuratively*, for an exact search or examination of the parts of a discourse, business, or the like: in which sense we say the *anatomy* of a book, a doctrine, or the like.

ANATOMY of plants may be considered as a branch of comparative *anatomy*, otherwise called *dendronatomy*.

The parts of **PLANTS** which come under anatomical consideration are, the root, wood, bark, pith, fruit, leaves, flowers, &c.

The *anatomy* of vegetables is chiefly owing to the industry of Malpighi, and Dr. Grew, though considerably promoted also by Ruysch, who by a peculiar method of injection has produced divers skeletons or systems of vessels of fruit, leaves, and the like. Something of the same kind has also been done by Thummigius.

Some pretend to make F. Fabri the father of this science; and alledge that Malpighi took many of his discoveries from him. Dr. Highmore in his book of Generation, Dr. Sharrock on the propagation of plants, and Dr. Hook in his *Micrographia*, have also given some observations tending this way, though only collaterally.

ANATRIPSIS, from *ana* and *τριβω*, *I wear*, in the *Ancient Medicine*, denotes friction.

The word is sometimes also written simply **TRIPSIS**.

ANATRON, or **NATRON**, a kind of native salt-petre, or nitre found in Egypt. It is of a cineritious colour, and bitter taste, approaching to sal ammoniac.

It is the produce of a huge lake, on the surface of which it is gathered, in form of a scum.

ANATRON is also used for the salt and scum of the composition of glass, when in fusion.

When pounded, it yields a kind of powder; which being dissolved in the air, or in a proper liquor, becomes common salt, after coagulation.

The *anatron* skimmed from glass fusion is the same with what others call *sal vtri*, or *gall of glass*.

ANATRON is likewise the name of a nitrous juice, which condenses in vaults, arches, and other subterraneous places.

ANATRON is also used by some writers, for a compound salt, made of quicklime, alum, vitriol, common salt, and nitre; used as a flux to promote the fusion and purification of metals.

ANATRON, lastly, is used for the **TERRA Saracenica**; of which there are several kinds, black, red, and blue.

ANATROPE, *ανατροπή*, from *ανατρέπω*, *to subvert*; a subversion literally, or relaxation of the stomach, attended with the loss of appetite, vomiting, and nausea.

ANAUDIA, among *Naturalists*, denotes dumbness, or a want of the use of speech.

Anaudia is, by some, made to differ from *aphasia*, as the former is owing to a defect of the nerves of the tongue, the latter to that of the nerves of the larynx.

Infants and mutes are *anaudi*, *αυδαί*, not *aphoni*, *αφονοί*.

ANAVINGA, in *Botany*, a tree of middle size, that grows in Malabar, in the East Indies, especially about Cochin. It is an evergreen, and its fruit or berries are ripe in August.

The juice of the berries drank, excites sweat, cures malignant distempers, and keeps the body soluble. A decoction of the leaves in water makes a fit bath for such as are afflicted with pains in the joints.

ANAUMACHION, from *a*, *vau* ship, and *μαχουαι*, *I fight*, in *Antiquity*, the crime of refusing to serve in the fleet. The punishment assigned for this offence was infamy.

ANAX, in *Ancient Writers*, denotes a hero or a god.

The word seems formed of the Hebrew *anacim*, or *enacim*, which signifies the same.

Some will have it originally to import giants, called also *γνυετες*, *earth-born*. Cicero assures us, that the three eldest sons of Jupiter, called *Διοσκυροι*, were also denominated *anaces*.

ANAXAGORIA, in *Antiquity*, a festival observed in honour of Anaxagoras.

The occasion of its being instituted was this; Anaxagoras dying at Lampacus, the magistrates of that city asked him, whether he desired any thing to be done for him? He replied, that on the anniversary of his death the boys should have leave to play.

ANAXIMANDRIANS, a name given by some writers to the followers of Anaximander. These are otherwise denominated *hylopathii*; and stand opposed to the *atomists*. The *Anaximandrians* make the most ancient sect of *philosophical atheists*; they allow of nothing in nature but bodies. These bodies, they assert, admit of qualities which produce and destroy each other, in a circle without beginning or end.

ANBERTKEND, in the *Eastern Language*, a celebrated book of the Brachmans, wherein the Indian *philosophy* and *religion* are contained.

The word in its literal sense denotes the cistern, wherein is the water of life.

The *anbertkend* is divided into fifty *beths*, or discourses, each of which consists of ten chapters.

It has been translated from the original Indian into Arabic, under the title of *Morat al Maani*, q. d. *the marrow of intelligence*.

ANBLATUM, in *Botany*. See **APHYLLON**.

It is also named by Linnaeus **LATHRAEA**, &c.

ANBURY, in *Parriery*. See **AMEBURY**.

ANCA, in *Middle Age Writers*, denotes the thigh or hind-leg.

In which sense, the word is also written **ANCUS**.

ANCESTORS, *progenitors*, are those from whom a person is descended; exclusive of his immediate parents.

The word is derived from the Latin *anceps*, written, by contraction, for *anteceps*, q. d. *goer before*.

Most nations have paid honours to their *ancestors*.

It was properly the departed souls of their fore-fathers that the Romans worshipped under the denominations of *lares*, *lemures*, and household gods.

Hence the ancient tombs were a kind of temples, or rather altars, wherein oblations were made by the kindred of the deceased.

The Russians have still their anniversary feasts in memory of their *ancestors*, which they call *roditoli sabot*, q. d. *kingsfolk's sabbath*, wherein they make formal visits to the dead in their graves, and carry them provisions, eatables, and presents of divers other kinds. They interrogate them, with loud lamentable cries, What they are doing? how they spend their time? what it is they want? and the like.

The Quojas, a people of Africa, offer sacrifices of rice and wine to their *ancestors*, before ever they undertake any considerable action. The anniversaries of their deaths are always kept by their families with great solemnity. The king invokes the soul of his father and mother to make trade flourish, and the chase succeed.

The Chinese seem to have distinguished themselves above all

all other nations in the veneration they bear their *ancestors*. By the laws of Confucius, part of the duty which children owe their parents, consists in worshipping them when dead. This service, which makes a considerable part of the natural religion of the Chinese, is said to have been instituted by the emperor Kun, the fifth in order from the foundation of that ancient empire.

The Chinese have both a solemn and ordinary worship which they pay their *ancestors*. The former is held regularly twice a year, viz. in spring and autumn, with much pomp. A person who was present at it gives the following account of the ceremonies on that occasion.

The sacrifices were made in a chapel well adorned, where there were six altars furnished with censers, tapers, and flowers. There were three ministers, and behind them two young acolytes; he that officiated was an aged man, and a new Christian. The three former went with a profound silence, and frequent genuflexions towards the five altars, pouring out wine: afterwards they drew near to the sixth, and when they came to the foot of the altar, half bowed down, they said their prayers with a low voice. That being finished, the three ministers went to the altar, the priest took up a vessel full of wine, and drank; then he lifted up the head of a deer or goat; after which taking fire from the altar, they lighted a bit of paper; and the minister of the ceremonies turning towards the people, said with a high voice, that he gave them thanks in the name of their *ancestors* for having so well honoured them; and in recompence he promised them, on their part, a plentiful harvest, a fruitful issue, good health and long life, and all those advantages that are most pleasing to men.

All the Chinese, pagans as well as Christians, give their *ancestors* another simpler and more private worship. To this end they have in their houses a niche or hollow place, where they put the names of their deceased fathers, and make prayers, and offerings of perfumes and spices to them at certain times, with bowing, &c. They do the like at their tombs.

It has been a question warmly agitated of late years, whether the worship which the Chinese pay their *ancestors* be religious, or only of a civil nature. The Jesuits who not only allow their neophytes, or new converts, to join in it, but even assist in it themselves, are necessitated to maintain the latter, to screen themselves from the charge of idolatry; the Dominicans, and other missionaries, maintain the former, and prohibit the service as absolutely unlawful.

The Jesuits argue, that with relation to the first institution, those honours might be given to our *ancestors*, since at first they appear to have been only civil; even though they should since, through the superstitious disposition of the people, have degenerated into idolatry. But it is answered, that by this argument the most gross worship of idols might be authorised, because all idolatry appears at first only to have been civil worship, as is maintained in the book of Wisdom, chap. xiv. ver. 15.

The Jews settled in China are said to worship their *ancestors* like the heathens, and with the same ceremonies, except that they offer not swine's flesh. Near their synagogue they have a hall, or court of *ancestors*, wherein are niches, for Abraham, Isaac, &c.—The Jesuits also conformed, and were permitted by their general to conform to this, and many other superstitious customs of the Chinese. See the proof of this in Paschal's Provincial Letters, *passim*.

There is one peculiarity of another kind, wherein the Chinese shew their regard for their *ancestors*, in proportion as any of their descendants are preferred to a higher degree or dignity, their dead *ancestors* are at the same time preferred and ennobled with them. The kings Ven, Van, Veu, Van, Cheu, and Cum, who were descended from vassal kings, when they mounted the imperial throne, raised their *ancestors* from the vassal or depending state wherein these had lived, to the dignity of emperors; so that the same honours were for the future rendered them, as if they had been emperors of China. The same example was followed by the subsequent kings, and now obtains among the grandees and literati; all now worship their *ancestors*, according to the rank which they themselves hold in the world. If the son be a mandarin, and the father only a doctor, the latter is buried as a doctor, but sacrificed to as a mandarin. The like holds in degradations, where the condition of the fathers is that of their sons.

The law distinguishes between *ancestor* and *predecessor*; the former being applied to a natural person, as such an one, and his *ancestor*; and the latter to a body politic or corporate, as a bishop, and his *predecessors*.

ANCESTOR, *disability by the act of*. See DISABILITY.

ANCESTREL, in Law, something relating to a man's ancestors.—Thus,

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ANCESTREL, *homage*, signifies homage that has been done or performed by one's ancestors.

ANCESTREL, *action*. See ACTION.

ANCHILOPS, in Medicine, denotes an abscess, or collection of matter between the great angle of the eye, and the nose.

The same abscess when broken is no longer denominated *anchilops*, but *ÆGHIOPS*.

Strictly speaking the *anchilops* is only a tumor not yet exulcerated; nor is the tumor always within the *sacculus lacrymalis*, but sometimes only near it.

If the *anchilops* be suffered to remain too long, or be unskillfully managed, it degenerates, the stagnating humours corrupt, and an ulcer is produced.

It makes a species, or rather a degree, of the *FISTULA lacrymalis*.

Care must be had to examine strictly, whether the abscess opens into the lacrymal bag, or whether it be only superficial, between the skin and the orbicular muscle. In the latter case, there is no occasion to fear its changing to a *fistula*, if the matter be not lodged between the bag and the muscle.

When the tumor is broke, and the tears flow involuntarily, while the *os lacrymale* is not carious, it is an *ægylops*; but when the ulcer is of a long standing, deep, fetid, and the *os lacrymale* becomes carious, it is a *FISTULA*.

The *anchilops* is sometimes attended with an inflammation, and then resembles a *PHLEGMON*; but when not inflamed, it approaches nearer to those tumors called *atheromata*, *steatomata*, and *melicerides*.

Its cure is by restriction and excision; tying it at the root on the *glandula lacrymalis*; and when ready, cutting it off.

ANCHIROMACUS, in Middle Age Writers, denotes a kind of vessel, which, on account of its nimble sailing, was used for the conveyance of anchors, and other necessary utensils of ships.

In this sense, the word is also written *ancymagus*, *anchiromachus*, *ancymachus*, *angromagus*, *anquiromagus*, and *anguromagus*.

ANCHOR, ANCHORA, an instrument used at sea, and in rivers, to retain and fasten a vessel by.

The word comes from the Latin *ancora*, or *anchora*, of the Greek *ἄγκυρα*, which comes from *ἄγκυλος*, *incurvus*, *crooked*.

An anchor is a large strong piece of iron, crooked at one end, and formed into two barbs, resembling a double hook; and fastened at the other end by a cable.

The goodness of the anchor is a point of great importance; the safety and conservation of the vessel depending principally upon it. Great care is to be taken, that the metal it is made of be neither too soft nor too brittle; the latter rendering it liable to break, and the former to straiten.

ANCHORS, *method of making*. The shank, arms, and flukes, are first forged separately; then the hole is made at one end of the shank for the ring, which being also previously forged, is put into the hole of the shank, and the two ends shut together. After which the arms are shut to the shank, one after the other, and the anchor is finished.

Proof is made of anchors, by raising them to a great height, and then letting them fall again on a kind of iron block placed across for the purpose.—To try whether the flukes will turn to the bottom, and take hold of the ground, they place the anchor on an even surface, with the end of one of the flukes, and one of the ends of the stock resting on the surface; in case the anchor turns, and the point of the fluke rises upwards, the anchor is good.

Travellers tell us of people in the Indies who make use of wooden anchors in their navigation.—The inhabitants of the island of Ceylon, in lieu of anchors, use huge round stones; and, in other places, their anchors are a kind of machines of wood, laden with stones. Sometimes bags of sand have been made use of, but these chiefly obtained in rocky places, where anchors would not take hold.

In England, France, and Holland, anchors are made of forged iron; but in Spain they are sometimes made of copper, and likewise in several parts of the South Sea.

The parts of an anchor, are, 1. The ring, into which the cable is fastened. 2. The beam, or shank, which is the longest part of the anchor. 3. The arm, which is that which runs down into the ground; at the end of which is, 4. The fluke, or fluke, by some called the palm; being that broad and picked part, with its barbs, like an arrow-head, which fastens into the ground. 5. The stock, a piece of wood fastened to the beam, near the ring, serving to guide the fluke, so that it may fall right, and fix in the ground.

The first anchors of iron had only a fluke on one side.

The contrivance was completed by Eupalamius, who made them fluked both ways; though some ascribe the honour of this to Anacharsis the Scythian.

All *anchors* have now two arms; not but they might still be used with only one arm, which structure would have this advantage, that they would be lighter, and yet in fine weather would hold equally firm with the double kind. The reason of having two arms is, that the *anchor* may always take, in order to which it is necessary that it be very heavy; besides, that *anchors* with a single arm would require more preparation for service.

For the proportions of *anchors* according to Manwaring, the shank is to be thrice the length of one of the flukes, and half the length of the beam. According to Aubin, the length of the *anchor* is to be four-tenths of the greatest breadth of the ship; so that the shank, e. gr. of an *anchor* in a vessel thirty foot wide, is to be twelve foot long. When the shank is, for instance, eight foot long, the two arms are to be seven foot long, measuring them according to their curvity. As to the degree of curvity given the arms, there is no rule for it; the workmen are here left to their own discretion.

Aubin, in his *Marine Dictionary*, gives a table from a Flemish writer, wherein the lengths of the shanks of *anchors*, for vessels of all widths, is computed, as well as the weights of the *anchors*, from a vessel eight foot wide within, which requires an *anchor* $3\frac{1}{5}$ foot long, weighing thirty-three pounds; to a vessel forty-five foot wide, which demands an *anchor* eighteen foot long, and weighing 5832 pounds.

He likewise observes, that the *anchor* of a large heavy vessel is smaller, in proportion, than that of a lesser and lighter one. The reason he gives, is, that though the sea employs an equal force against a small vessel as against a great one, supposing the extent of wood upon which the water acts to be equal in both, yet the little vessel, by reason of its superior lightness, does not make so much resistance as the greater; the defect whereof must be supplied by the weight of the *anchor*.

From these and other hydrostatic principles, the following table has been formed; wherein is shewn, by means of the ship's breadth within, how many feet the beam or shank ought to be long, giving it $\frac{2}{10}$ or $\frac{2}{5}$ of the ship's breadth within: by which proportion may be regulated the length of the other parts of the *anchor*. In this table is represented likewise the weight an *anchor* ought to be for a ship from 8 feet broad to 45, increasing by 1 foot's breadth; supposing that all *anchors* are similar, or that their weights are as the cubes of the lengths of the shanks.

Breadth of the Vessel	Feet.	Feet.	Pounds
	8	$3\frac{1}{5}$	33
	9	$3\frac{3}{5}$	47
	10	4	64
	11	$4\frac{2}{5}$	84
	12	$4\frac{4}{5}$	110
	13	$5\frac{1}{5}$	140
	14	$5\frac{3}{5}$	175
	15	6	216
	16	$6\frac{2}{5}$	262
	17	$6\frac{4}{5}$	314
	18	7	373
	19	$7\frac{2}{5}$	439
	20	8	512
	21	$8\frac{2}{5}$	592
	22	$8\frac{4}{5}$	681
	23	9	778
	24	$9\frac{2}{5}$	884
	25	10	1000
	26	$10\frac{2}{5}$	1124
	27	$10\frac{4}{5}$	1259
	28	11	1405
	29	$11\frac{2}{5}$	1562
	30	12	1728
	31	$12\frac{2}{5}$	1906
	32	$12\frac{4}{5}$	2097
	33	13	2300
	34	$13\frac{2}{5}$	2515
	35	14	2744
	36	$14\frac{2}{5}$	2986
	37	$14\frac{4}{5}$	3242
	38	15	3512
	39	$15\frac{2}{5}$	3796
	40	16	4096
	41	$16\frac{2}{5}$	4426
	42	$16\frac{4}{5}$	4742
	43	17	5088
	44	$17\frac{2}{5}$	5451
	45	18	5832

N. Bouguer directs to take the length of the shank in inches, and to divide the cube of it by 1160 for the weight. The reason is obvious; because the quotient of the cube of 201 inches, which is the length of an *anchor* weighing 7000lb. divided by the weight is 1160, and therefore by the rule of three, this will be a common divisor

for the cube of any length, and a single operation will suffice.

Mr. Bouguer, in his *Traité de Navire*, gives the following dimensions of the several parts of an *anchor*. The two arms generally form the arch of a circle, whose center is three eighths of the shank from the vertex, or point where it is fixed, to the shank; and each arm is equal to the same length or the radius; so that the two arms together make an arch of 120 degrees: the flukes are half the length of the arms, and their breadth two fifths of the said length. With respect to the thickness, the circumference at the throat, or vertex of the shank, is generally made about the fifth part of its length, and the small end two thirds of the throat, the small end of the arms of the flukes, three fourths of the circumference of the shank at the throat. These dimensions should be bigger, when the iron is of a bad quality, especially if cast iron is used instead of forged iron.

Vessels that sail on rivers have at least one *anchor*; those which sail in the canals of Zealand, have two *anchors*; but those which go to sea have always three, four, or more.

There are three kinds of *anchors* commonly used; the *kedger*, the *grapnel*, and the *stream anchor*.

The distinctions of *anchors* are taken from their use, and the proportion they bear in the ship, where they are employed; for that which in one ship would be called but a *kedger*, or *kedger-ANCHOR*, in a lesser would be a *sheet-ANCHOR*.

ANCHOR, kedger is the smallest, which, by reason of its lightness, is first to stop the ship in *kedging* a river.

This is what the Dutch sailors call *werp ANCHOR*, the French *ancre a touer*. It ought to weigh 450 pounds.

The *grapnel* is an *anchor* for a small ship or boat.

ANCHOR, stream, is a small *anchor* fastened to a stream-cable, wherewith to ride in rivers, and gentle streams, and to stop a tide withal in fair weather.

ANCHOR sheet, or *sheet*, is the biggest and strongest, being that which the seamen call their last hope; never to be used but in great extremity.

This is what the Romans call *anchora sacra*; the Dutch *plegt-anker*, and *stop-anker*; the French *maitresse-ancre*, or *grand-ancre*.

The other *anchors* are called by the name of the first, second, and third *anchor*; by any of which the ship may ride in any seasonable weather, sea-gate, or tide.—These are something bigger one than another, and usually when they sail in any freights, or are near a port, they carry two of these at the bow; in which respect they are also called by the name of first and second bowers.

ANCHOR, second, called by the Dutch *boeg-anker*, or *daagc-lyks-anker*, is that ordinarily made use of.

ANCHOR, cross, called by the Dutch *tuy-anker*, or *vertuy-anker*, and by the French *ancre d'assourche*, is a middling *anchor* thrown across or opposite to another.—This ought to weigh 1500 pound, or near as much as the second *anchor*.

ANCHOR, riding at, in the *Sea Language*, the state of a vessel moored and fixed by her *anchors* at some proper station.

Where a great number of vessels are moored in the same port, care is to be taken by the pilots, or those who have the command, that each ship be at a due distance from the rest, to prevent their running foul of each other; also that they be neither too near, nor too far from land. The proper space betwixt vessels is, from two to three cable's length.

ANCHOR, dropping, or *let fall the*, otherwise called *casting anchor*, imports the letting it down into the sea.

In some cases it is necessary to drop two *anchors* opposite to each other, one of them to keep the ship firm against the tide, or flow, the other against the ebb.

ANCHOR, weighing, imports the act of withdrawing, or recovering the *anchor* into the vessel, in order for sailing. The *anchor* is ordinarily weighed, or recovered by means of a *CAPSTAN* or *WINDLASS*.

ANCHOR, dragging, is when the *anchor* gives way, or loses its hold in the ground by the force of the wind, or sea, and the vessel drives from the place.

ANCHOR, clearing the, signifies the getting the cable off the fluke.

Generally also, when they let fall the *anchor*, they use this term, to see that the buoy-rope, nor any other ropes, hang about it.

ANCHOR, fetching, or *bringing home the*, denotes the weighing it in the boat, and bringing it aboard the ship.

The *anchor* is said to come home, when the ship drives away with the tide or sea.—This may happen, either because the *anchor* is too small for the burden of the ship, or because the ground is soft, and oozy; in such places *shoeing* is used.

ANCHOR, shoeing the, denotes putting boards on the flukes, in the form of flukes themselves, to make it broader than before,

before, used when they are obliged to *anchor* in bad ground to prevent the ship from driving.

This is what the French mariners call *breder Pancre*, and the Dutch *Panker bekleeden*.

In some cases they have been known to tallow the *anchors*, where the ground being soft, the ordinary would not hinder them from coming home. Manwaring saw an instance of tallowing the *anchor* in Porto Tareen by Tunis. The reason of the advantage is hard to assign; he supposes it to be, that the tallow sinks deeper into the ooze, and finds some harder ground at the bottom, than the other.

Other terms and words of command relating to the *anchors* are, *the anchor is a peeke*, that is, when heaving up the *anchor*, the cable is right perpendicular betwixt the hawse and the *anchor*: *the anchor is cock-ball*, when the *anchor* hangs right down by the ship's side: this word is given by the masters, when they are ready to bring the ship to an *anchor*: *the anchor is foul*, that is when the cable, by the turning of the ship, is hitched, or got about the fluke; which will not only cut the cable asunder, but hinder the *anchor* from holding.

On this account, when they come to an *anchor* where there is a tide, they lay out two *anchors*, by which means on the turning of the tide the ship winds up clear of either.

ANCHOR, in *Architecture* and *Sculpture*, denotes an ornament in form of an *anchor*, or arrow's head; frequently carved on the ovolo of the capital, in the Tuscan and Ionic orders, as well as in the bed-moulding of Ionic and Corinthian corniches.—See *Tab. Archit. fig. 10*.

The *anchors* are usually intermixed with representations of eggs; whence the *echinus*, or ovolo itself, is popularly called *eggs* and *anchors*.

ANCHOR, *anchora*, in *Literary Matters*, the figure of an *anchor*, represented in ancient books; which is of two kinds, *superior* and *inferior*. The *superior*, &c.—is where the crooked part is uppermost, used to denote a thing or passage strongly expressed.

The *inferior* is where the crooked part is at the bottom, to denote a thing poorly or meanly set forth.

ANCHOR is also used in a less proper sense, for any thing that holds another thing fast, to prevent its driving.

In this sense, sea-muscles are said to *ride at anchor*, by a sort of threads the thickness of a large hair, which they emit out of the body, to the number sometimes of a hundred and fifty, which fastening to the stones and other adjacent bodies, keep them firm in their place.—The same is done by the *PINNA marina*.

ANCHOR, in *Heraldry*, is the emblem of Hope; and is taken for such in a *spiritual*, as well as in a *temporal* sense.

ANCHOR, a measure. See **ANKER**.

ANCHORAGE, ground fit to hold a ship's *anchor*, so that she may ride safely.

The best ground for a ship to anchor in is stiff clay, or hard sand; and the best riding at anchor is when a ship is land-locked, and out of the tide.

ANCHORAGE, in *Law*, denotes a duty taken of ships for the pool of the haven, where they cast anchor.

The ground in all ports and havens being the king's, no man can let an anchor fall in any port, without paying for it to the king's officer appointed by patent.

ANCHORED, or **ANKERED**, in *Heraldry*.—A cross *anchored*, or *ancree*, is a form of cross, so called, because the four extremities resemble the fluke of an anchor.

This cross is so like the *CROSS molin*, that the resemblance has occasioned many mistakes in heraldry.

ANCHOVY, in *Matters of Commerce*, &c. a little sea-fish, much used by way of sauce, or seasoning.

The word is derived from the Spanish *anchova*, or rather from the Italian, *anchioe*, which signifies the same.

Scaliger describes the *anchovy* as of the herring kind, about the length of a finger, having a pointed snout, a wide mouth, and no teeth, but gums as rough as a saw.—Others make it a sort of sardine, or pilchard: but others, with better reason, hold it a peculiar species, very different from either.

The *anchovy* is caught in the months of May, June, and July, on the coasts of Catalonia, Provence, &c. at which season, it constantly repairs up the streights of Gibraltar, into the Mediterranean. Collins says, they are also found in plenty on the western coasts of England and Wales.

The fishing for them is chiefly in the night-time; when a light being put on the stern of their little fishing-vessels, the *anchovies* flock round, and are caught in the nets. But then it is asserted to have been found by experience, that *anchovies* taken thus by fire, are neither so good, so firm, nor so proper for keeping, as those which are taken without fire.

When the fishery is over, they cut off the heads, take out their gall and guts; and then lay them in barrels, and salt them.—The common way of eating *anchovies* is with oil, vinegar, &c. in order to which they are first

boned, and the tails, fins, &c. slipped off.—Being put on the fire, they dissolve almost in any liquor. Or they are made into sauce by mincing them with pepper, &c.

Some also pickle *anchovies* in small delf, or earthen pots, made on purpose, of two or three pounds weight, more or less, which they cover with plaster, to keep them the better. *Anchovies* should be chosen small, fresh pickled, white on the outside, and red within. They must have a round back; for those which are flat or large, are often nothing but sardines. Besides these qualities, the pickle, on opening the pots or barrels, must be of a good taste, and not have lost its flavour.

ANCHUSA, in *Botany*, called also *bugloss* and *alkanet*, a plant of the *pentanaria monogynia* class, of which the characters are: the flower is of one leaf, having a cylindrical tube, at the brim it is cut into five obtuse segments, which spread open; the germen afterwards becomes four oblong, blunt seeds, shut up in the empalement.

It grows with us only in gardens, and flowers in June. The roots only are used. Parkinson highly commends the infusion of the bark in *petroleum*, as excellent in fresh cuts and green wounds. At present it is very little used. The common *alkanet*, *anchusa offic.* is brought from Languedoc and Provence; being the root of the *buglossum radice rubra*, *sive anchusa vulgarior*. The root is astringent, and proper in hæmorrhages of all kinds; it is employed to colour ointments, &c. It must be boiled in oil; for it does not readily communicate its tincture to water. The ancients used it as a colmetic. See its history, as a colouring drug, in Neumann's Works, p. 337.

ANCHYLOBLEPHARON, in *Physic*, a distemperature of the eye-lids, wherein they sometimes cohere to each other, and sometimes to the globe of the eye itself. This is easily distinguishable from the slight glewing up of the eye-lids occasioned by the small-pox, or other the like causes. This disorder is sometimes brought with an infant into the world; sometimes it comes upon adults by a fleshy excrescence from the angles of the eyes; and sometimes it happens from accidents, as blowing up of gun-powder, and the like. This is always dangerous, and difficult of cure, but most so when the eye-lids grow to the *cornea*. They are to be divided by a blunt-pointed pair of scissars, and when separated from each other, it must be tried whether they adhere to the eye; if they do, they must be separated with great caution with a blunt pointed scapel; but there is, in this case, great danger of injuring the sight: when separated, they must be kept from touching one another, to prevent their cohering again, by lint or a plate of lead.

ANCHYLOPS, in *Medicine*. See **ANCHILOPS**.

ANCHYLOSIS, **ANCYLE**, or **ANCYLOSIS**, in *Physic*, is when a juncture or articulation becomes immoveable.

The word is derived from *αγκυλν*, a *baraness* or *contraction* of a joint.

Anchylosis bears an affinity to *contractures*, *shrinkings*, or *witherings* of the parts.

This symptom sometimes happens in fractures near the joints, where the nutritious juice oozes into the cavities thereof.

This disease, when once formed, is incurable, but while yet fresh, is sometimes removed by motion, friction, and the use of discutient medicines.

ANCI, in Greek *γαιαγυνοεις*, *weasel-elbowed*, from *γαια*, a *weasel*, and *αγκυον*, an *elbow*. So Hippocrates calls those, who from slipping the head of the *os humeri* into the *ala*, have an arm shorter and smaller than it ought to be, and the cubit or elbow of a weasel; whence they are called by some *mustelani*, which fully expresses the Greek word, or barely *anci*. The disorder that gives occasion for the name, happens either in the womb, where the *os humeri* suffers a laxation, from too much moisture; or in tender years by means of an abscess deeply seated about the head of the *os humeri*.

ANCIENT, or **ANTIEN**, in its usual sense, denotes a thing, which existed in times long ago.

The word comes from the French *ancien*, of the Italian *anceano*, and that of the Latin *antiquus*, which denotes the same.

In which sense *ancient* stands opposite to *modern*.

Ancient differs from *antique* as the *genus* from its *species*.

We say *ancient* nations, *ancient* architecture, sculpture, philosophy, &c. *ancient* manner, ceremonies, poets, physicians, and the like.

ANCIENTS, in *Church Discipline*. See **ELDERS**.

ANCIENTS, in *Inns of Court*, imports a distinction of a certain degree.—Thus, the society of Gray's Inn consists of *benchers*, *ancients*, *barristers*, and *students* under the bar: here the *ancients* are the elder barristers.

In the inns of Chancery there are only *ancients*, and *students*, or clerks; and among the *ancients*, one is yearly the principal, or treasurer.—In the Middle Temple,

ancients

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ancients are such as have gone through, or are past their reading.

ANCIENT is sometimes also used, in a military sense, for the colours, or an ENSIGN.

ANCIENT, in the *Naval Armament*, is the FLAG, or streamer borne in the stern of a ship.

ANCIENT *demesne*, or *demain*, in *Law*, is a TENURE, whereby all manors belonging to the crown in William the Conqueror's and St. Edward's time were held.

The number, names, &c. hereof, were entered by the Conqueror, in a book called *Domesday Book*, yet remaining in the Exchequer; so that such lands as by that book appeared to have belonged to the crown at that time are called *ancient demesne*.

The tenants in *ancient demesne* are of two sorts; one who hold their lands frankly by charter; the other by copy of court-roll, or by the verge, at the will of the lord, according to the custom of the manor.

The advantages of this tenure are, 1. That tenants holding by charter cannot be rightfully impleaded out of their manor; and, when they are, they may abate the writ by pleading the tenure. 2. They are free from toll for all things relating to their livelihood, and husbandry; nor can be impanelled on any inquest.

These tenants held originally by plowing the king's land, plashing his hedges, and the like service, for the maintenance of his household; and it was on this account that such liberties were given them, for which they may have writs of *monstraverunt* to such as take the duties of toll, &c.

No lands are to be accounted *ancient demesne*, but such as are held in socage. Whether land be *ancient demesne* or not, shall be tried by the BOOK of DOMESDAY.

ANCIENT *differences*, in *Heraldry*. See BORDURES.

ANCIENTY, in some *Ancient Statutes*, is used for eldership or seniority.

The elder sister can demand no more than her other sisters, beside the chief mesne, by reason of her *ancienty*. This word is used in the statute of Ireland, 14 Hen. III.

ANCLABRIS, in the *Religion of the Ancient Romans*, denoted a table in temples, whereon the priests eat their portion of the sacrifices and oblations.

ANCLE, *luxated*, in *Surgery*.—The *ancla* is subject to be luxated, either in running, in jumping, or even in walking; and that in all four directions, either inward or outward, backward or forward. When the *ancla* is luxated inward, the bottom of the foot is turned outward; and, on the contrary, when it is luxated outward, the bottom of the foot is turned inward, which latter case is indeed much more frequent than the others. If it is dislocated forward, the heel becomes shorter, and the foot longer than it should be; and if backward, the contrary signs to these will appear. The *ancla* however can scarce possibly be luxated outwards, unless the *fibula* be separated from the *tibia*, or else quite broken, which may happen to the external *ancla*; nor is it uncommon for a luxation of the *ancla* to be attended with very grievous symptoms, especially when occasioned by some great external violence. Nor can it indeed well happen otherwise in this case, since the distortion of the foot must necessarily overstrain the adjacent tendons, ligaments, and nerves, and thence excite very violent pains, and other bad symptoms: or the veins and arteries may also be very easily lacerated, which will occasion a large extravasation of blood about the whole foot, and too often give rise to a gangrene.

It is however necessary to observe, that the *ancla* is not always luxated, after it has been violently strained by leaping, or turning the foot on one side; for it sometimes happens that the *ancla* is not dislocated on these occasions, but only the parts violently contused and strained. The *ancla*, when truly luxated, is more or less difficult to be reduced, according to the violence of the force by which the accident was occasioned. The most ready way, however, of reducing a luxation of the *ancla*, is to place the patient upon a bed, seat, or table, letting the leg and foot be extended in opposite directions by two assistants, while the surgeon replaces the bones with his hands and fingers in their proper situation. When the foot is by this means restored to its proper position, it is to be well bathed with oxycrate and salt, and then carefully bound up with a proper bandage. The patient must be enjoined to keep his bed for a considerable time, till the bad symptoms are gone, and the *ancla* has recovered its strength so far as to bear the weight of the body, without any uneasiness or danger.

We have an account of the *menfes* regularly evacuated at an ulcer of the *ancla*, in the *Medic. Ess. Edinb.* vol. iii. art. 9.

ANCON, in *Anatomy*, denotes the curvation or flexure of the arm, whereon we rest in leaning.

This is otherwise called OLECRANUM.

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ANCON, in *Architecture*, is used to denote the corners or quoins of walls, cross beams, or rafters.

ANCON is also used in the *Ancient Architecture*, to denote the two parts or branches of a square, which meet in an angle resembling the letter L.

ANCON is also used by Vitruvius, to denote a kind of *mensula*, or tables before doors, bent somewhat after the manner of *volute*s, so as to resemble the letter S.

In this sense *ancones* amount to the same with what the Greeks call *περὶθυρίδες*, *prothyrides*.

ANCON is particularly applied in the *Ancient Architecture*, to the brackets, or shouldering-pieces, called CONSOLES and CORBELLS by the moderns.

ANCON was also used by the Carthaginians, to denote a dark prison or dungeon. Suidas mentions one of this kind, in which Gelimer used to put all who displeased him; from which Belisarius delivered many merchants of the East, whom the tyrant intended to put to death.

ANCON is also applied to the angles or flexures of rivers; sometimes also to the tops of mountains.

ANCONÆUS *Musculus*, in *Anatomy*, the sixth muscle of the elbow so called, as being situate behind the folds of the *ancon*, or elbow.—See *Tab. Anat. (Myol.) fig. 7. n. 46.*

It arises from the back part or the extremities of the humerus, passes over the elbow, and is inserted in the lateral and internal part of the *cubitus* about three or four fingers breadth above the *olecranon*.—Its use is to assist in extending the arm.

Some *anatomists* make the following distinctions, according to Winslow.

ANCONÆUS *externus*, a long muscle, lying on the outer part of the backside of the *os humeri*, from its neck to the external condyle.

ANCONÆUS *internus*, a muscle shorter, and more fleshy than the *anconæus externus*, and lying towards the inner part of the lower half of the *os humeri*.

ANCONÆUS *major*, a long fleshy muscle lying on the backside of the *os humeri*.

ANCONÆUS *minor*, a small muscle obliquely triangular, lying in the oblong *fossula* on the outside of the *olecranon*.

ANCONY, in the iron mines, a bloom wrought into the figure of a flat IRON bar, about three feet long, with two square rough knobs, one at each end.

The process for bringing the iron to this state is this: they first melt off a piece from a sow of cast iron, of the proper size; this they first hammer at the forge into a mass of two feet long, and of a square shape, which they call a *bloom*; when this is done, they send it to the finery, where, after two or three heats and workings, they bring it to this figure, and call it an *ancony*. The middle part beat out at the finery is about three feet long, and of the shape and thickness the whole is to be; this is then sent to the chafery, and there the ends are wrought to the shape of the middle, and the whole made into a BAR.

ANCREE, in *Heraldry*, the same with ANCHORED.

ANCTERES, in the *Ancient Medicine*, seem to have been the same, at least to have answered the same uses, as our SUTURES.

Some also speak of a strong kind of sticking plaster under this denomination.

ANCTERIASMUS, in *Medicine*, the operation of applying a *fibula* to close the too patent lips of wounds.

This is also called by Latin writers, *infibulatio*.

ANCTERIASMUS is more particularly used to denote the passing a *fibula* through the prepuce of the ancient stage-players and buffoons.

ANCUBITUS, among *Ancient Physicians*, denotes a disease of the eyes, wherein there is an appearance of sand, or little stones sprinkled on them.

This is otherwise called PETRIFICATION.

ANCUS, a name for such as have an arm bent crooked, so that they cannot extend it.

ANCYLE, in *Antiquity*, denotes a small kind of brazen shield, said to have fallen from heaven into the hands of Numa Pompilius, at the same time that a voice was heard, that Rome should be mistress of the world, while she preserved that shield.

Though there was but one *ancyle* that fell from heaven, yet were there twelve preserved; Numa, by the advice, as it is said, of the nymph Egeria, having ordered eleven others, perfectly like the first, to be made by Veturius Mamurius, that if any should attempt to steal it, as Ulysses did the Palladium, they might not be able to distinguish the true *ancyle* from the false ones.

These *ancylia* were preserved in the temple of Mars; and were committed to the care of twelve priests, or *salii*, instituted for that purpose.

They were carried every year, in the month of March, in procession all round Rome; and the thirtieth day of that month they were again deposited in their place.

ANCYLE, see ANCHYLOSIS.

ANCYLO-

ANCYLOBLEPHARON, *inviscatio*, or *adglutinatio palpebrarum*, a disease wherein the eye-lids are stuck fast, or glued together.—The cure is by manual operation.

ANCYLOGLOSSUS, *αγκυλογλωσσος*, from *αγκυλος*, *crooked*, and *γλωσσα*, *tongue*, one that is tongue-tied, or has an impediment in his speech, arising from a contraction of the *frænum* of the tongue.

This disease is also called *ancyloglossum*, which is either *natural*, i. e. born with the infant, or *accidental*, occasioned usually by some ulcer under the tongue, which leaves behind it a hardness, or *eschar*. It is the common opinion of midwives, that none are born without this infirmity; and hence, one of the first things after a birth, is to cut the string of the infant's tongue.

The effect of the *ancyloglossum* is not only to hinder the use of speech, but in children it also disables them from sucking. The cure is performed by a careful section of the *frænum*, so as not to hurt the nerves, or other vessels. This operation is never to be performed, where the infant is able to thrust its tongue straight out of the mouth. Fabricius ab Aquapendente complains severely of the officiousness of midwives, who, without ever examining the condition of the *frænum*, practise the operation promiscuously on all infants, from an opinion, that without it the child would never be able to speak. But according to this author, there is scarce one child in 100,000 in whom this ligament needs any cutting at all. In some parts of Italy the midwives nourish a long nail on their right thumb, which is fashioned after the manner of a knife's point, wherewith, as soon the child is born, they cut the ligament. In other places, from a vain opinion that there is something malignant in the nail, the operation is performed with the edge of a piece of money.

The operation is painful to the infant, and is sometimes followed by inflammations, and even death itself.

ANCYLOMELE, *αγκυλομηλη*, from *αγκυλος*, *crooked*, and *μηλη*, a *probe*: a surgeon's crooked probe, or a probe with a hook.

ANCYLOCIS, **ANCHYLOSIS**.

ANCYROIDES, *αγκυροειδης*, is used by some writers in *Anatomy*, for the process or shooting forth of the shoulder-bone, in form of a beak; otherwise called *coracoides*.

ANDA, *G. Pison*; is a tree of Brasil, the wood of which is spongy and light; the leaf longish, fibrous, and pointed; the flower large and yellow; and the fruit a grey nut, which encloses, under a double rind, two kernels of the taste of chefnuts. The fruit is said to be purgative, and a little emetic: two or three of the kernels are a dose. They extract oil by expression from these kernels, with which the natives anoint their limbs. The rinds of the fruit are esteemed proper to stop a looseness; thrown into ponds, they kill the fish.

ANDABATÆ, in *Antiquity*, a kind of **GLADIATORS**, who fought hoodwinked; having on a sort of helmet that covered the eyes, and even the face.

They were called *andabatæ*, *quasi αναβαται*, *ascensores*, because they fought mounted on horseback, or out of chariots. Others derive the word from *αντα*, *against*, and *βαινω*, *I go*.

Some say, the *andabatæ* fought in the dark, or late at night, after the *circensia* were over. There were two men in the chariot, viz. the driver, or *auriga*, and the *παράβατης*, who was also called *ανέβατης*, q. d. *adscensor*, or *mounter*; whence, by corruption, the Latins formed the *andabata*.

It has been disputed among critics, whether the *andabatæ* were a people who actually fought blindfold, in their wars, or a set of combatants who only practised this method of fighting for exercise sake.

ANDELANGA, in *Middle Age Writers*, occurs as part of the formula of divers donations.

In this sense, we meet with *donare per andelangam & festucam*, *vendere & tradere per andelangam*, &c. Some will have the term properly to denote what we call an *andiron*; others a long staff, or rod, which it is known was much used in the act of putting into possession.

The word is sometimes also written *andelangus*, *andelago*, *andilago*, or *andalagus*, &c.

ANDENA, in *Ancient Writers*, denotes a swath in mowing. The word is likewise used to signify as much ground as a man can stride over at once.

ANDERENZÆ, *sal*, in *Natural History*, a name given, by many of the old writers, to the nitre of the ancients, or **NATRON**. Some have, since their time, applied it to our common nitre; and it has been wondered at, that the accounts do not agree with the substance. But it is to be observed, that the nitre, or *natron*, of the ancients, is a fixed salt, approaching to the nature of *pot-ash*, and not at all inflammable with sulphur, as our nitre is. It is, therefore, no wonder if the things related of the one should not be found to agree with the other.

ANDIRA, or **ANGELYN**, in *Botany*, *G. Pison*; a tree in Brazil, the wood of which is hard and proper for building. Its bark is of an ash colour; its fruit is of the shape and size of an egg, green at first, but growing blacker by degrees. It is covered with a hard rind, inclosing a grain, or yellowish kernel, of bitterish, astringent taste.

They pulverize this nut, and give it for worms; but not more than one scruple; for more than this is said to be poisonous.

ANDIRA, in *Zoology*, is an animal called also *andira-guacu*, a kind of bat in Brasil; the largest of which are as big as our pigeons: they call them horned bats, from a sort of excrescence, or pliant body, above their beak. Some of these are very dangerous; for they get into chambers in the night, and so subtilly open the veins in the feet of those who are in bed, that they are not perceived but by the flowing of the blood, which is difficult to be stopped. The inhabitants reckon the tongue and heart of that animal among poisons.

ANDIRIAR, in *Botany*, the name by which Rhafes, and some others, express the **FABAGO**.

ANDORINHA, in *Ornithology*, a name by which the Portuguese in the Brasil call the Brazilian swallow, more usually known by its Brazilian name *tapera*.

ANDRACHNE, in *Botany*. See *Bastard ORPINE*.

ANDRACHNE is also a name given, by the ancients, sometimes to a tree of the **ARBUTUS**, or strawberry-tree kind, and sometimes to the herb **PURSLAIN**. Some of the later Latin writers have also called it *porcala*, and some of the later Greeks have called it *cairebotanon*.

ANDRAPODISMUS, in *Ancient Writers*, the selling of persons for slaves.

Hence also *andrapodistes*, *ανδραποδιστης*, a dealer in slaves, more particularly a kidnapper, who steals men or children, to sell them; a crime the Thessalians were noted for.

ANDRAPODOCAPELI, in *Antiquity*, a kind of dealers in slaves. The *andrapodocapeli* had a particular process of taking off moles, and the like disfigurements on the faces of the slaves they kept for sale, by rubbing them with bran.

At Athens several places in the former were appointed for the sale of slaves. Upon the first day of every month, the merchants brought them into the market, and exposed them to sale, whilst the crier standing upon a stone erected for that purpose, called the people together.

ANDREW, *Knights of St. Andrew*, or the thistle. See **THISTLE**.

Knights of St. Andrew, is also an order instituted by Peter the Great of Muscovy, in 1698; the badge of which is a golden medal, on one side of which is represented St. Andrew's cross, and on the other, are these words, *Czar Pierre, monarque de tout la Russie*. This medal being fastened to a blue ribbon, is suspended from the right shoulder.

ANDREW'S CROSS, is a badge worn in the hat, by the people of Scotland, on the day of the feast of that saint.

It consists of blue and white ribbands, disposed into a cross, or *saltier*; and is intended as a commemoration of the crucifixion of St. Andrew, the tutelary saint of Scotland.

ANDRIA, in *Antiquity*, a name given by the Cretans to the public entertainments, at which whole cities, tribes, or other bodies of men, were present.

The hall, or place of eating, where these entertainments were held, was denominated *andrion*, in the uppermost part of which was a constant table set apart for strangers.

ANDRIA, is also used by some naturalists, to denote a species of hermaphrodite, wherein the female sex has the predominancy.

ANDRODAS, in *Ancient Writers*, denotes the sixty-third year of man's life.

This is otherwise called, *annus Ægyptius*, and *climacter magnus*.

ANDROGYNA, in *Botany*, plants bearing male and female flowers on the same root.

ANDROGYNUM, in *Ecclesiastical Writers*; is used to denote matrimony, or even one of the parties married.

ANDROGYNUM, *balneum*, denotes a bath common to both sexes.

ANDROGYNUS, or **ANDROGYNOUS**, an **HERMAPHRODITE**, or one born with two sexes, being male and female in the same person.

The word comes from *ανδρογυνος*, a compound of *ανης*, *man*, and *γυν*, *woman*, q. d. *man-woman*.

The astrologers also give the appellation *androgynous* to such of the planets as are sometimes hot, and sometimes cold; as mercury, which is reputed hot and dry when near the sun, and cold and moist when near the moon.

ANDROIDES, an **AUTOMATON**, in the figure of a man; which, by virtue of certain springs, &c. duly contrived,

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trived, walks, and performs other external functions of a man.

The word is compounded of *ανηρ*, *ανδρος*, *man*, and *ειδος*, *form*.

Albertus Magnus is recorded as having made a famous *androides*.

ANDROLEPSY, ANDROLEPSIA, in *Antiquity*.—If an Athenian were killed by a citizen of some other place, and such city refused to deliver up the criminal to punishment, it was held lawful to take three inhabitants of that city, and punish the homicide in them.—This the Greeks called *androlepsia*, and the Romans *CLARIGATIO*. The word is formed of *ανηρ*, *man*, and *λαμβάνω*, *capio*, *I take*.

Some authors also use *androlepsia* for *REPRISALS*.

ANDROMACHI theriaca, or *treacle of ANDROMACHUS*, in *Pharmacy*, is a capital alexipharmic composition; called also *Venice Treacle*.

ANDROMEDA, in *Astronomy*, a constellation of the northern hemisphere, representing the figure of a woman chained.

It is supposed to have been formed in memory of *Andromeda*, daughter of Cepheus and Cassiopeia, and wife of Perseus, by whom she had been delivered from a sea-monster, to which she had been exposed to be devoured for her mother's pride. Minerva translated her into the heavens.

Dr. Hook thinks he has discovered the hidden meaning of the story of *Andromeda*. Vide *Post. Works*, p. 401. The stars in the constellation, *Andromeda*, in Ptolemy's catalogue, are twenty-three, in Tycho's twenty-three, in Hevelius's forty-seven, in Mr. Flamsteed's no less than sixty-six.—They are as follow.

Situation of stars.	Bayes's Cha.	Signs.	Longitud.	Latitude. N.	Magnitude.
Preceding those in the right hand	γ	ο ι ιι	ο ι ιι	ο ι ιι	ο ι ιι
5.		3 29 27 43 45 38	3 29 27 43 45 38	3 29 27 43 45 38	3 29 27 43 45 38
		3 57 22 44 3 8	3 57 22 44 3 8	3 57 22 44 3 8	3 57 22 44 3 8
		10 21 16 49 53 26	10 21 16 49 53 26	10 21 16 49 53 26	10 21 16 49 53 26
		7 53 15 46 35 5	7 53 15 46 35 5	7 53 15 46 35 5	7 53 15 46 35 5
		10 21 9 48 56 23	10 21 9 48 56 23	10 21 9 48 56 23	10 21 9 48 56 23
		6 15 11 43 57 5	6 15 11 43 57 5	6 15 11 43 57 5	6 15 11 43 57 5
		11 26 45 48 34 11	11 26 45 48 34 11	11 26 45 48 34 11	11 26 45 48 34 11
		12 8 29 47 45 17	12 8 29 47 45 17	12 8 29 47 45 17	12 8 29 47 45 17
		6 36 29 41 39 54	6 36 29 41 39 54	6 36 29 41 39 54	6 36 29 41 39 54
10.		7 8 12 41 46 32	7 8 12 41 46 32	7 8 12 41 46 32	7 8 12 41 46 32
		12 9 27 47 15 55	12 9 27 47 15 55	12 9 27 47 15 55	12 9 27 47 15 55
		4 44 16 38 20 45	4 44 16 38 20 45	4 44 16 38 20 45	4 44 16 38 20 45
		9 15 12 41 46 59	9 15 12 41 46 59	9 15 12 41 46 59	9 15 12 41 46 59
		7 38 10 38 14 42	7 38 10 38 14 42	7 38 10 38 14 42	7 38 10 38 14 42
		9 1 14 38 46 4	9 1 14 38 46 4	9 1 14 38 46 4	9 1 14 38 46 4
15.		14 0 43 43 48 34	14 0 43 43 48 34	14 0 43 43 48 34	14 0 43 43 48 34
In the right hand.	λ	11 47 25 41 1 26	11 47 25 41 1 26	11 47 25 41 1 26	11 47 25 41 1 26
	ι	17 32 35 46 55 32	17 32 35 46 55 32	17 32 35 46 55 32	17 32 35 46 55 32
	κ	13 0 16 41 43 6	13 0 16 41 43 6	13 0 16 41 43 6	13 0 16 41 43 6
	↓	15 39 13 42 56 29	15 39 13 42 56 29	15 39 13 42 56 29	15 39 13 42 56 29
20		9 58 53 25 41 1	9 58 53 25 41 1	9 58 53 25 41 1	9 58 53 25 41 1
In head, and navel of Pegasus	α	20 9 52 40 24 33	20 9 52 40 24 33	20 9 52 40 24 33	20 9 52 40 24 33
		17 34 35 35 46 13	17 34 35 35 46 13	17 34 35 35 46 13	17 34 35 35 46 13
		16 51 54 33 22 53	16 51 54 33 22 53	16 51 54 33 22 53	16 51 54 33 22 53
In the right arm.	θ	16 3 52 31 35 56	16 3 52 31 35 56	16 3 52 31 35 56	16 3 52 31 35 56
25.	σ	14 33 36 28 54 15	14 33 36 28 54 15	14 33 36 28 54 15	14 33 36 28 54 15
		17 16 50 32 23 11	17 16 50 32 23 11	17 16 50 32 23 11	17 16 50 32 23 11
		14 59 3 24 11 42	14 59 3 24 11 42	14 59 3 24 11 42	14 59 3 24 11 42
In the right shoulder	π	18 19 47 27 8 28	18 19 47 27 8 28	18 19 47 27 8 28	18 19 47 27 8 28
In the left shoulder	ς	16 37 2 23 0 57	16 37 2 23 0 57	16 37 2 23 0 57	16 37 2 23 0 57
30.		17 28 14 24 20 35	17 28 14 24 20 35	17 28 14 24 20 35	17 28 14 24 20 35
Between the two shoulders	δ	22 13 13 31 51 36	22 13 13 31 51 36	22 13 13 31 51 36	22 13 13 31 51 36
		23 31 40 33 20 44	23 31 40 33 20 44	23 31 40 33 20 44	23 31 40 33 20 44
		16 16 29 17 35 51	16 16 29 17 35 51	16 16 29 17 35 51	16 16 29 17 35 51
In the left arm	ζ	24 48 52 32 33 13	24 48 52 32 33 13	24 48 52 32 33 13	24 48 52 32 33 13
Under the girdle	ν	17 40 58 16 19 35	17 40 58 16 19 35	17 40 58 16 19 35	17 40 58 16 19 35
35.		24 48 45 29 39 20	24 48 45 29 39 20	24 48 45 29 39 20	24 48 45 29 39 20
		18 6 8 15 55 19	18 6 8 15 55 19	18 6 8 15 55 19	18 6 8 15 55 19
In the elbow of the left arm	μ	27 35 23 31 40 9	27 35 23 31 40 9	27 35 23 31 40 9	27 35 23 31 40 9
	η	22 54 41 23 3 47	22 54 41 23 3 47	22 54 41 23 3 47	22 54 41 23 3 47
40		29 58 16 33 33 13	29 58 16 33 33 13	29 58 16 33 33 13	29 58 16 33 33 13
In the right knee	δ	8 2 8 1 36 20	8 2 8 1 36 20	8 2 8 1 36 20	8 2 8 1 36 20
Under the girdle.	φ	26 2 44 25 56 19	26 2 44 25 56 19	26 2 44 25 56 19	26 2 44 25 56 19
	β	29 26 27 31 41 40	29 26 27 31 41 40	29 26 27 31 41 40	29 26 27 31 41 40
		27 24 8 27 42 18	27 24 8 27 42 18	27 24 8 27 42 18	27 24 8 27 42 18
45		8 3 33 44 33 47	8 3 33 44 33 47	8 3 33 44 33 47	8 3 33 44 33 47
	γ	29 54 29 26 39 3	29 54 29 26 39 3	29 54 29 26 39 3	29 54 29 26 39 3
	δ	4 28 45 33 17 31	4 28 45 33 17 31	4 28 45 33 17 31	4 28 45 33 17 31

A N D

Situation of stars.	Bayes's Cha.	Signs.	Longitud.	Latitude. N.	Magnitude.
In the train		ο ι ιι	ο ι ιι	ο ι ιι	ο ι ιι
In the left ham, northerly	α	5 49 27 34 30 55	5 49 27 34 30 55	5 49 27 34 30 55	5 49 27 34 30 55
50.		4 16 27 28 58 21	4 16 27 28 58 21	4 16 27 28 58 21	4 16 27 28 58 21
In the right foot S. of Perseus	ο	8 8 36 35 23 45	8 8 36 35 23 45	8 8 36 35 23 45	8 8 36 35 23 45
In the train	λ	6 11 26 31 27 43	6 11 26 31 27 43	6 11 26 31 27 43	6 11 26 31 27 43
In the left ham, southerly	τ	4 36 1 27 54 6	4 36 1 27 54 6	4 36 1 27 54 6	4 36 1 27 54 6
In the right N. foot of Perseus	φ	10 18 13 36 49 13	10 18 13 36 49 13	10 18 13 36 49 13	10 18 13 36 49 13
		7 9 40 27 4 8	7 9 40 27 4 8	7 9 40 27 4 8	7 9 40 27 4 8
55.		6 13 5 23 39 13	6 13 5 23 39 13	6 13 5 23 39 13	6 13 5 23 39 13
Above the left foot	γ	9 55 44 27 46 7	9 55 44 27 46 7	9 55 44 27 46 7	9 55 44 27 46 7
		8 56 41 23 18 11	8 56 41 23 18 11	8 56 41 23 18 11	8 56 41 23 18 11
		9 54 32 24 13 24	9 54 32 24 13 24	9 54 32 24 13 24	9 54 32 24 13 24
	δ	12 32 20 28 52 35	12 32 20 28 52 35	12 32 20 28 52 35	12 32 20 28 52 35
60.		15 27 48 32 48 36	15 27 48 32 48 36	15 27 48 32 48 36	15 27 48 32 48 36
	ε	15 4 19 31 22 28	15 4 19 31 22 28	15 4 19 31 22 28	15 4 19 31 22 28
		16 38 31 33 49 31	16 38 31 33 49 31	16 38 31 33 49 31	16 38 31 33 49 31
		17 11 58 33 28 27	17 11 58 33 28 27	17 11 58 33 28 27	17 11 58 33 28 27
		17 52 19 33 33 50	17 52 19 33 33 50	17 52 19 33 33 50	17 52 19 33 33 50
65.		8 18 4 41 33 47 35	8 18 4 41 33 47 35	8 18 4 41 33 47 35	8 18 4 41 33 47 35

ANDROMEDA, in *Botany*, a genus of the *decandria monogynia* class. We have no English name for this plant. The characters are, that the empalement of the flower is cut into five small acute segments; the flower is of one leaf, oval, and bell-shaped, and is divided into five parts at the brim, which are reflexed; it hath ten stamina; the germen afterwards turns to a round, pentagonal vessel, having five cells, which are filled with small round seeds. Mr. Miller enumerates five, and Linnæus ten species, most of which are natives of America.

ANDROMEDA, in *Middle Age Writers*, denotes a kind of garment made of ram-skins.

ANDRON, or **ANDRUM**, in *Antiquity*, an apartment in houses assigned for the use of the men. This was otherwise denominated *androna*, and *andronitis*.

The *andron* stood opposed to the *GYNECEUM*, or apartment of the women.

The Greeks also gave their dining-rooms the title *andron*, because the women had no admittance to feasts with the men.

ANDRONA, in *Ancient Writers*, denotes a street, or public place, where people met and conversed together.

In some writers *androna* is more expressly used for the space between two houses. In which sense the Greeks also use the term *ανδρωνας*, for the way or passage between two apartments.

The word is sometimes also written *andra*, *andron*, and *andronium*.

ANDRONA is also used, in *Ecclesiastical Writers*, for that part in churches destined for the men. Anciently it was the custom for the men and women to have separate apartments in places of worship, where they performed their devotions asunder; which method is still religiously observed in the Greek church.

The *ανδρων*, or *androna*, was on the southern side of the church, and the women's apartment on the northern.

ANDRONION, in *Physic*, the name of a pastil, invented by an ancient physician named Andro, said to have been of great efficacy against the carbuncle and *HERPES*.

Its ingredients, according to *Ægineta's* prescription, are the *squame* of copper, *æsustum*, *sal ammoniac*, *alumen rotundum*, shavings of verdigris, and frankincense, all wrought up with wine. Celsus gives another recipe, and Aetius a third.

ANDROPHAGI, from *ανηρ*, *man*, and *φαγω*, *I eat*, among *Ancient Geographers*, denotes man-eaters.

These are more usually called *anthropophagi*.

Herodotus and Pomp. Mela, speak of a nation of *androphagi* in Scythia.

ANDROPOGON, in *Botany*, a genus of the *polygamia monoecia* class. Its characters are, that it has hermaphrodite and male flowers; the calyx of the former is an uniflorous glume, and the corolla a glume bearded at its base; the stamina are three, the styles two, and the seed single; the calyx, corolla, and stamina of the male are the same. There are eighteen species.

ANDROSACE, in *Botany*. We have no English name for this plant. The characters are, that the flowers grow in an umbel set in an involucre, and is divided into five parts; it hath five small stamina within the tube; the empalement afterward becomes a round capsule of one cell, which is full of round seeds. It is of the *pentandria monogynia* class.

Mr. Miller enumerates three, and Linnæus six species.

The *androsaces* approach much to the nature of the *auricula*, but differ from the structure of the flower.

Androsace so is called, from its bringing relief to men,

q. d. *avsp̄i akos oep̄osa*. It is aperitive, and good for the dropsy, for retention of urine, and for the gout.

ANDROSÆMUM, in *Botany*. See *St. John's Wort*.

ANDROTOMY, or **ANDRATOMY**, from *avsp̄*, man, and *τεμνω*, I cut, the anatomy or **DISSECTION** of human bodies. It is thus called in opposition to *zootomy*, which is used to denote that of brutes.

Anatomy is the genus, and comprehends all dissections in general, whether of men, beasts, or plants; and *andro-tomy* and *zootomy* are the species.

ANDRUM, in *Physiology*, a local disease, epidemical among the people of Malabar, being a peculiar species of *hydrocele*, or watery tumor of the *scrotum*.

The *andrum*, in the language of the country, is also called *perical*; sometimes paraphrastically, *andu wajaku*, q. d. a popular water rupture.

Its origin is derived from the vicious quality of the country waters, impregnated with corrosive muriatic salts, the source of most other diseases that affect the Malabarians. Its signs, or symptoms, are an erysipela of the *scrotum*, returning every new moon, by which the lymphatics being eroded, pour a serous saline humour into the cavity of the *scrotum*.

The *andrum* is incurable; those once seized with it, have it for life; but it is not dangerous, nor very troublesome, to those used to it; though sometimes it degenerates into a *hydrofarcocoele*.

The means of prevention is by a heap of sand fetched from a river of the province Mangatti, and strewed in the wells. This is practised by the rich. As to the cure, they have only a palliative one, which is by incision, or tapping and drawing off the water from the *scrotum*, once in a month or two.

ANDRYALA, downy sow-thistle; in *Botany*, a genus of the *syngenesia polyg. equal.* class. The characters are, that it hath a short round hairy empalement; the flowers are composed of many hermaphrodite flowers, which are uniform and of one leaf, stretched out like a tongue on one side; the germen is situated at the bottom of each floret; and becomes afterwards a single oval seed, crowned with a down.

Mr. Miller enumerates two, and Linnæus three species, which are natives of the southern parts of Europe.

ANECDOTES, **ANECDOTA**, a term used by some authors, for the title of *Secret Histories*; but it more properly denotes a relation of detached and interesting particulars.

The word is Greek *avēdota*, q. d. things not yet known, or hitherto kept secret.

Procopius gives this title to a book which he published against Justinian, and his wife Theodora; and he seems to be the only person among the ancients, who has represented princes such as they are in their domestic relation.—Varillas has published *Anecdotes* of the house of Medicis.

ANECDOTES is also an appellation given to such works of the ancients as have not yet been published.

In which sense, M. Muratori gives the name *Anecdota Græca* to several writings of the Greek fathers, found in the libraries, and first published by him.—F. Martene has given a *Thesaurus Anecdotarum Novus*, in folio, 5 vols.

ANEE, in *Commerce*, denotes a corn-measure, used in some provinces of France, particularly in Languedoc and Maconnois.

It is otherwise called *asnee*.

The *anee* is not so properly a measure, as the denomination, or assemblage of a certain number of other measures. The *anee* at Lyons consists of six *bichets*, equal to one *septier* and three bushels, Paris measure. At Macon, the *anee* is somewhat more.

ANEE is also used for a quantity of wine, supposed to be an ass's load; and is fixed to eighty pots.

ANELE, or **ANIL**, the same with *indigo*. 23 El. cap. 9.

ANEMIUS furnus, among *Chemists*, a wind-furnace; used to make fierce fires for melting, &c.

The word is formed of *avēpos*, wind.

ANEMOMACHIA, from *avēpos*, wind, and *μαχη*, fight, in some *Ancient Writers*, denotes a whirlwind, or hurricane. In which sense, we sometimes also meet with *anemozale*, *anemotaraxis*, &c.

ANEMOMETER, a machine wherewith to measure the strength of the wind.

The word is compounded of *avēpos*, wind, and *μετρον*, measure.

The *anemometer* is variously contrived. In the *Philosophical Transactions* we have one described, wherein the wind being supposed to blow directly against a flat side, or board, which moves along the graduated limb of a quadrant, the number of degrees it advances shews the comparative force of the wind.

Wolfius gives the structure of another, which is moved by means of sails, A B C K (*Tab. Pneumatica*, fig. 17), like those of a wind-mill; which raise a weight, L, that,

still the higher it goes, receding farther from the centre of motion, by sliding along hollow arm KM, fitted on to the axis of the sails, becomes heavier and heavier, and presses more and more on the arm, till being a counterpoise to the force of the wind on the sails, it stops the motion thereof. An index, then, MN, fitted upon the same axis at right angles with the arm, by its rising or falling, points out the strength of the wind, on a plane divided like a dial-plate into degrees.

It is objected to this machine, however, that it requires a considerable wind to make it work. Lientmannus has contrived another, wherein the sails are horizontal, and are more easily driven about, and will turn what way soever the wind blows.

M. d'Ons en Bray invented a new *anemometer*, which of itself expresses on paper, not only the several winds that have blown during the space of twenty-four hours, and at what hour each began and ended, but also the different strength and velocities of each. Vide *Mem. Acad. Scienc. an. 1734.* p. 169. See *WIND Machine*.

ANEMONE, in *Botany*, wind-flower, a genus of the *polyandria polygynia* class. Its characters are, that the flower is naked, having no empalement, and consists of two or three orders of leaves, or petals, which are oblong, and disposed in three series over each other; it hath many germens collected into a head, which afterwards become so many seeds inclosed with a down, which adhere to the foot-stalk, and form an obtuse-cone.

Mr. Tournefort enumerates 168 species; Linnæus 23; Mr. Miller, however, mentions no more than 6.

The proper soil and culture of many varieties of this beautiful flower are these: for the soil take a quantity of fresh light sandy loam, or hazel-earth from a common, or dry pasture, not dug above eight or ten inches deep; mix this with a third part its quantity of rotten cow-dung, and lay it up in a heap; turn this over at least once a month, and every time pick out the stones and break the clods. After this mixture has been twelve months made, it will be fit for use.

The beds of this earth must be prepared in September, and should be made eight inches deep, if it be in a wet soil; but if in a dry one, three or four inches will be sufficient; three weeks after this has been laid in, stir it for six inches deep with a spade, and then with a stick draw lines each way of the bed, at four inches distance, so that the whole may be in squares; then make a hole three inches deep in the center of each square, and plant a root in each; and when all are planted, rake the earth of the whole bed smooth, so as to cover the roots two inches thick. The season of planting these roots for forward flowers, is the middle of September, and for the later in October: this is best done at a time when there are gentle rains. Some roots should also be saved to be planted after Christmas, for fear of accidents to the former from very hard weather.

These usually flower three weeks after those planted in autumn. In the beginning of April the early planted roots will begin to flower, and they will keep in flower near a month, if the weather prove favourable, and they are properly shaded with mats, laid over hoops in the greatest heat of the day: the second, and last planted ones, will follow these; and, in the whole, there will be at least two months fine flowering.

Toward the latter end of May the first planted roots will lose all their leaves, and they must be then taken up and washed clean, and laid to dry on mats in the shade; after which they are to be put up in paper bags, and hung up till the time of planting them comes on again. The later planted ones are to be taken up also as soon as their leaves are decayed, and not suffered to remain to make new shoots; for then it is too late to remove them.

They are propagated two ways, either by dividing the roots, or by sowing. The roots are to be divided as soon as they are taken up out of the ground: they will succeed if broken into as many parts as there are eyes or buds in them; but they flower most strongly, if not parted too small.

The way, by sowing, is this: choose first some good kinds of *anemones*, plant these early, and they will produce ripe seed three weeks after the flower first blows. This must be carefully gathered, and in August it should be sowed in pots or tubs, or a very well prepared bed of light earth, rubbing it between the hands with a little dry sand, to prevent several of the seeds from clinging together, and spreading them as even as possible all over the bed; after this a light hair-brush should be drawn many times over the surface of the bed, to pull asunder any lumps of seed that may yet have fallen together; observing not to brush off the seed, and as much as possible not to brush it into heaps. When this is done, some light earth, about a quarter of an inch deep, should be sifted over the bed. If the weather be hot, the bed must be at times covered with mats laid hollow, and gently watered.

In about two months after sowing, the plants will appear, if the season has been favourable, and they are to be carefully defended from the hard frosts by proper covering, and from the heat of the sun afterwards by a moveable reed-fence. As the spring advances, if the weather be dry, they must be gently watered, and when their green leaves decay, there must be a quarter of an inch more earth sifted over them, and the like again at Michaelmas; and the bed must be kept clear from weeds, and the following spring they will flower.

The *anemones* are good for pains of the head, and for inflammations; help diseases of the uterus, and procure milk into the breasts. Taken in ptisan, or applied to the part in wool, they provoke the menses. The root, chewed in the mouth, draws out phlegm, and makes the teeth sound; and the decoction thereof cures inflammations in the eyes.

All the *anemones* are acrimonious and deterfive, drawers, and endued with the faculty of opening the mouths of the veins.

ANEMONES, *sea*, a species of the **ACTINIA**, the history of which has been lately elucidated by the abbé Dicquemarre. He has already discovered four or five different species of them. They vary in their size, shape, and colour; but are generally found to resemble a truncated cone, and many of them are of an uniform colour, whilst others are spotted either in regular stripes, or in a more irregular manner. They are found adhering to rocks or stones in the sand, or in oyster-beds: and they are observed to stretch out their limbs and mouth, in order to lay hold of any thing that touches the surface of the sand, &c. where they lie. This accurate observer could easily distinguish these animals from plants by their progressive motion, by the means they make use of to seize their prey, and to defend themselves, by their deglutition, digestion, and evacuations, and also by the propagation of their species. He accordingly classes them among spontaneous animals.

The *anemones* have a wonderful faculty of reproduction; for, by many experiments, M. Dicquemarre ascertained this property, and he conjectures that it is owing to their gelatinous texture. Their limbs budded out successively after several amputations. Nay, some of them were dissected through the body: and the basis, together with that part of the stump which was left survived, projected new limbs, and the animal moved and eat bits of muscles, which are its usual nourishment. They appeared to bear a considerable degree of heat, and to live in a vacuum, at least in a very rare air; and they require, for a very considerable time, no other food than what they find disseminated in sea-water.

Anemones are irritable to such a degree, that light very much affects them, though to appearance they have no eyes; and by means of this property, the abbé has made use of them for indicating the different changes of temperature in the atmosphere; and he gives the following account of this new kind of *barometers*.—The sea-water, in which the *anemones* are placed, must be renewed every day, and this must be their only nourishment; and the observation should be made at intervals equally distant from the renewals of the water. If the *anemones* be shut and contracted, there is reason to apprehend an approaching storm; that is, high winds, and a rough, agitated sea. When they are all shut, but not remarkably contracted, they forebode a weather somewhat less boisterous, but still attended with gales, and a rough sea. If they appear in the least open, or alternately and frequently opening and closing, they indicate a mean state both of winds and waves. When they are quite open, tolerably fine weather, and a smooth sea, may be expected. And lastly, when their bodies are considerably extended, and their limbs divergent, they surely prognosticate fixed, fair weather, and a very calm sea. The glass in which they are deposited may be swung at sea, in the same manner as the compass, so that the rolling of the ship may agitate the water as little as possible. These animals are viviparous; for several of them brought forth eight, ten, and twelve young ones, in the hand. They feed upon wandering nettles, or sea-jellies; and they are all fit for food. Upon being removed in fresh water, they acquired a pale colour, their coat becomes flabby, and they soon die. Phil. Transf. vol. lxiii. part ii. vol. lxv. part ii. and vol. lxvii. part i. See **ACTINIA**, **ANIMAL flower**, **URTICA Marina**, &c.

ANEMONOSPERMOS, in *Botany*. See **ARCTOTIS**.

ANEMOSCOPE is sometimes used for a machine invented to foretel the changes of the wind.

The word is derived from *ανεμος*, wind, and *σμεπτομαι*, I consider.

It has been observed, that **HYGROSCOPES** made of cat's-gut, &c. prove very good *anemoscopes*; seldom failing, by the turning of the *index* about, to foretel the shifting of the wind. See an account of two different *anemoscopes*;

one by Mr. Pickering. Phil. Transf. vol. xliii. part ii p. 9. the other by Mr. Martin, in his Philof. Brit. vol ii. p. 211.

The *anemoscope* used by the ancients seems, by Vitruvius's description of it, to have been intended rather to shew which way the wind actually blew, than to foretel into which quarter it would change.

Otto de Gueric also gave the title *anemoscope* to a machine invented by him, to foretel the change of the weather, as to fair and rain.

It consisted of a wooden little man, who rose and fell in a glass tube, as the atmosphere was more or less heavy.

—Accordingly, M. Comiers has shewn, that this *anemoscope* was only an application of the common **BAROMETER**. See **WIND**.

The *anemoscope* of Væroe is famous. It is made of the bird *lunde*, whose feathers are picked, the skin stripped off, *viscera* taken out, and the skin in this state drawn anew over the bones; this being hung up in the chimney, is said always to direct its bill to the point from whence the wind is like to blow. Ephem. Acad. N. C. Dec. 3. An. 9. App. p. 245.

ANETHUM, in *Botany*. See **DILL**.

ANETHUM, *ashes of*, *cinis anethi*, are procured by mere conflagration. They are commended by Galen in humid ulcers, especially about the *pudenda*.

ANETHUM, *water of*, *aqua anethi*, is procured from the leaves, while in flower, by distillation in *balneo Mariae*. It is accounted stomachic, carminative, and anodyne.

ANETHUM, *oil of*, is either procured by infusion, or distillation. The former kind is prescribed by Dioscorides, as a proper emollient for disorders of the privities; also a warm discutient, digestive, &c. The latter is held to be aromatic, stomachic, &c.

ANEURYSM, **ANEURYSMA**, in *Surgery*, a soft, throbbing, ruddy tumor, occasioned by a dilatation, or by a wound of an artery.

The word comes from *ανευρεω*, dilato, I dilate.

Surgeons distinguish two kinds of *aneurism*, which they call the true and the spurious. The true *aneurism* is formed by a dilatation only of the artery, either all round, or only one side, much in the manner of the *varices*, or tumors of the veins; this has always a pulsation.

This kind of *aneurism* is seldom fatal; though reckoned, when large, incurable; the chief inconveniencies are, the magnitude of the tumor, and the pulsation.

Mr. Littre gives us the history of an *aneurysma* of this kind, in the *aorta*; the cause whereof he attributes to an extraordinary diminution of the cavity of the axillary and subclavian arteries. Hist. de l'Acad. Roy. an. 1712.

Another history of an *aneurysma* of the same part we have, by Mr. Lafage, in the Philosophical Transactions. It was occasioned by some violent shocks the patient received on the breast which threw him into spitting of blood, and soon after formed the tumor, whereof he died. Upon dissection, the *aneurysma* was found so big, that it filled the whole cavity of the thorax on the right side.

There is another remarkable history of an *aneurysm*, in the London Medical Observations. There is also a remarkable case of the same kind, with an account of the uncertainty of discovering the symptoms of the disease, by Jos. Warner, F. R. S. Phil. Transf. vol. 1. part i. No 44. an. 1757.

The spurious *aneurism* is, when the artery having been opened, by puncture or incision, or other accident, the blood is extravasated between the muscles and integuments, and the limb appears swelled and livid, and there is little or no pulsation. The most common seat of an *aneurism* is in the brachial artery, and its most common occasion a puncture of that artery in bleeding; but the same accident may happen to any artery, and from various causes, and is often the case in the internal arteries, from falls, blows, and violent strains; in the arm it often happens from the outer coat only of the artery having been cut in bleeding, and the inner one giving way by degrees, as not of strength to bear the impulse of the blood. These are at first very small, and disregarded by the patient, but they grow at length to the size of an egg, and sometimes even to that of a man's head.

The *aneurisms* of the great internal arteries are the most fatal of all; those of their external branches are often remedied, but those in the arm frequently after the operation are attended with a wasting of the arm, and an amputation becomes necessary. The natural bursting of an *aneurism* is very dangerous, as the patient may be lost in a minute's time, if the artery be not compressed above; sometimes surgeons have also opened the larger *aneurisms*, mistaking them for abscesses.

The

The method of curing a slight *aneurism* in the arm, or elsewhere, is either by deligation and compression, or by incision; the first ought always to be first tried, and is done either by strait bandages with compresses, or by an engine invented for that purpose. Small *aneurisms* are often thus cured; but when large and dangerous, the operation by the knife must be used. In this the first care is to stop the course of the blood by the tourniquet; the second to denude the artery, and free it from the adjacent integuments, and the last to contract or constrict it either by medicine or ligature.

The spurious *aneurism* is often produced by the bursting of the true kind, under the integuments; and in this case is to be treated as the true, and cured by the operation with the knife, and by ligature, or caustics; but in all these cases, the ligature seems the best method.

When any part of an artery has lost its spring, it is less capable than before to resist the impulse of the blood. This part of a canal, which is continually pushed by the blood, must therefore become gradually more and more dilated; and by degrees there becomes formed in the part that sort of tumor which surgeons and anatomists call an *aneurism* by dilatation, or the true *aneurism*; and this dilated part of the vessel is, properly speaking, a kind of bag through which the blood that first formed it is continually passing.

When an artery has been by any means wounded, the blood which escapes through the orifice causes another sort of tumor; and this is called an *aneurism* by wounding, or a spurious *aneurism*. Heister.

The most common *aneurisms* by wound happen from bleeding in the arm; in these, if the artery be but slightly wounded, and the bandage and compress properly applied, the cure is often performed, so that no farther mischief ensues; but if the wound is larger, or the compression less regular, bad symptoms come on sooner or later, and there often is a necessity at last of submitting to the operation of opening the skin, discharging the blood, and closing the vessel. Mem. Acad. Scienc. Par. 1736.

Dr. Hunter, who has treated largely on this subject, divides *aneurisms* into four kinds, the true, the false, the mixed, and the varicose. The true *aneurism* is formed by a dilatation of the artery, and may happen in any part of the body. The false *aneurism* is formed by a rupture, or wound, in the coats of the artery, and may be either diffused or circumscribed. The mixed *aneurism* is formed partly by wound, or rupture, in the artery, and partly by dilatation.

The varicose *aneurism* is owing to the wound of an artery through a vein, so that the blood passes from the trunk of the artery into the trunk of the vein, and so back to the heart. See Lond. Med. Obs. and Inq. vol. i. art. 26. vol. ii. art. 30 and 36. vol. iii. art. 37. 12.

If an artery happens to be cut, the blood gushes out impetuously, by starts, and is not easily stopped; and an inflammation and discoloration of the part succeeds, with a tumor, and inability to move the part. The symptoms are nearly the same in case of a corrosion of the coats of the artery; only in this case they are less violent.

If the blood cease to flow from the wounded artery, and pour itself between the interstices of the muscles, recourse is had to manual operation; which being neglected, the extirpation of the limb frequently becomes unavoidable. See cases of *aneurisms*, with remarks, by Dr. Donald Monro, in the third volume of Ess. Phys. and Liter. Edinb. 1771. art. 12. p. 178.

ANFELDTYHDE, or ANFEALTHILE, in Law, a simple accusation; for the Saxons had two sorts of accusation, viz. *simplex* and *triplex*. That was called single, when the oath of the criminal, and of two more, were sufficient to discharge him: but his own oath, and the oaths of five more, were required to free him a *triplice accusatione*.

ANGARI, or ANGARI, in Antiquity, denote public couriers, appointed for the carrying of messages.

The ancient Persians, Budæus observes, had their *αγγαρίων δρομῖμα*, which was a set of couriers on horseback, posted at certain stages or distances, always in readiness to receive the dispatches from one, and forward them to another, with wonderful celerity, answering to what the moderns call posts, q. d. *posti*, as being posted at certain places or stages. Herod. lib. viii.

The *angari* were also called by the Persians *astandæ*; by the Greeks *ἡμεροδρομοί*, on account of the long journies they made in one day, which, according to Suidas, amounted not to less than 1500 stadia.

ANGARI is also applied figuratively to porters, and others employed in laborious offices, as bearing burdens.

ANGARIA is used, in a general sense, for any burden, or incumbrance, forcibly imposed on persons.

Some define *angaria*, by personal services, which a party is compelled to discharge in his own person, or to serve

at his own expence. — Or, such services imposed on lands, whereby a person is obliged to work for another, either with his horse, his ass, or the like.

ANGARIA, in the Civil Law, denotes a duty required of the subjects to furnish out horses and carriages for conveying of corn for the soldiers, and such things as belonged to the *ffcus*.

This duty goes by the name of *curfus publicus*, *angaria*, *parangaria*, *translatio*, and *eVectio*. The horses used in this service are particularly called *paraveredi*, and *equi cursuales*.

Angaria are generally understood as exclusive of ships; though, on some occasions, these were pressed into the service for transporting provisions and the like.

Angaria differ from *parangaria*, in that the former are confined to public or main roads, the latter to oblique or cross-roads.

In the Book of Feuds, the performance of *angaria* and *parangaria* is ranked in the number of royal services. Lib. ii. tit. 56.

The clergy were exempted from this service by two laws of Constantius; but he revoked this privilege in 360. The privilege was restored in 382, and confirmed by Honorius in 412; but was taken away again in 440. Bingham. Orig. Ecclesiæ, lib. v. cap. 3. § 10.

ANGARIA is also used, in Ancient Military Writers, for a guard of soldiers posted in any place for the security of it. Veget. lib. i. cap. 3. lib. ii. cap. 19. lib. iii. cap. 8.

ANGEOGRAPHIA, the knowledge, or description, of all kinds of ancient instruments, vessels, and utensils, both domestic, military, and nautical.

The word is compounded of *αγγειον*, *vas*, vessel, and *γραφω*, *scribo*, I describe.

Angiography also includes the consideration of the WEIGHTS, MEASURES, &c. used by the several nations.

ANGEOLOGY, ANGEIOLOGIA, in Anatomy, the history, or description, of the vessels in a human body; e. gr. the nerves, veins, and lymphatics. — See Tab. Anat. part ii.

The word is derived from *αγγειον*, a vessel, and *λογος*, discourse.

Angiology is a branch of SARCOLOGY.

ANGEIOTOMY, in Surgery, is used by some to denote an artificial section of the vessels, as in bleeding.

The word is formed of *αγγειον*, vessel, and *τεμνω*, *seto*, I cut.

In this sense *angiectomy* may be divided into PHLEBOTOMY and ARTERIOTOMY.

ANGEL, a spiritual intelligent substance; the first in rank and dignity among created beings.

The word *angel*, *αγγελος*, is not properly a denomination of nature, but of office; denoting as much as *nuncius*, *messenger*, a person employed to carry one's orders, or declare his will. — Thus it is St. Paul represents *angels*, Heb. i. 14. where he calls them *ministering spirits*; and yet custom has prevailed so much, that *angel* is now commonly taken for the denomination of a particular nature.

The existence of *angels* is supposed in all religions, though it is incapable of being proved *a priori*. — Indeed, the ancient Sadducees are represented as denying all spirits; and yet the Samaritans and Caraites, who are reputed Sadducees, openly allow them: witness Abusaid, the author of an Arabic version of the Pentateuch; and Aaron, a Caraites Jew, in his comment on the Pentateuch; both extant in manuscript in the king of France's library.

In the Alcoran, we find frequent mention of *angels*. — The Mussulmen believe them of different orders or degrees, and to be destined for different employments both in heaven and on earth. They attribute exceeding great power to the angel Gabriel; as, to be able to descend in the space of an hour from heaven to earth; to overturn a mountain with a single feather of his wing, &c. The angel Asrael, they suppose, appointed to take the souls of such as die; and another angel, named Esraphil, they say, stands with a trumpet ready in his mouth to proclaim the day of judgment.

The heathen philosophers and poets were also agreed as to the existence of intelligent beings, superior to man; as is shewn by St. Cyprian, in his treatise of the vanity of idols, from the testimonies of Plato, Socrates, Trismegistus, &c.

Authors are not so unanimous about the nature as about the existence of *angels*. — Clemens Alexandrinus believed they had bodies; which was also the opinion of Origen, Cæsarius, Tertullian, and several others. Athanasius, St. Basil, St. Gregory Nicene, St. Cyril, St. Chrysostom, &c. hold them to be mere spirits.

Ecclesiastical writers make an HIERARCHY of nine orders of *angels*.

By the ancient councils, men are forbid to frame or give particular names to *angels*; the only names owned by the church are Michael, Gabriel, and Raphael, to which is sometimes added Uriel. Du-Cange.

Before the Babylonish captivity the Jews did not know the name of any *angel*; at least we find none mentioned in the books written before this event. Calmet. Dict. Bib. Authors are divided as to the time of the creation of *angels*; some will have it to have been before the creation of our world, or even before all ages, that is, from eternity; this was Origen's opinion, who, according to Leontius, held that all spirits, *angels*, devils, and even human souls, were from eternity.

Others hold *angels* to have been created before the world, yet not from eternity; of which opinion are Nazianzen, and others. Others again maintain that they were created at the same time with our world, but on what day is disputed. Theodoret and Epiphanius fix their date from the first day.

Good *angels* are called *angels of light*, and *guardian angels*; and those on the contrary, who are the devil's ministers, *angels of darkness*, and *fallen angels*.

ANGEL is more particularly understood of a spirit of the ninth and lowest class, or order of the HIERARCHY, or heavenly choir.

There was an officer of the Synagogue, among the Jews, who had the name of *angel*; and he was called *ἄγγελος*, or *episcopus*, because he overlooked the reader of the law. In the Apocalypse, the denomination *angel* is also given to the pastors of several churches: who are called, the *angel* of the church of Ephesus; the *angel* of the church of Smyrna, &c. Du-Cange adds, that the same name was anciently given to certain popes, and bishops; by reason of their singular sanctity, &c.

ANGEL is also used, in *Commerce*, for an ancient gold coin struck in England; so called from the figure of an *angel* impressed upon it.

Its value in 1 Hen. VI. was 6s. 8d. in 1 Hen. VIII. 7s. 6d. in 34 Hen. VIII. 8s. in 6 Edw. VI. it was 10s. in 2 Eliz. it was 10s. and in 23 Eliz. the same.—And the *half angel*, or, as it was sometimes called, the *angelot*, was the moiety of this; and the *quarter angelot*, proportionable.

The *angel* now subsists no otherwise than as a money of account; denoting 10s.

The French have also had their *angels*, *demi-angels*, and *angelots*; but they are now disused.

ANGEL-fish, in *Ichthyology*, the English name of the fish called by the generality of authors the *SQUATINA*, and by some the *SQUATUS* and *RHINE*. It is also called the *MONK-fish*, and is, according to the Artedean system, a species of the *squalus*, distinguished from the others of that genus by the name of the *squalus* with no *pinna ani*, and with the mouth placed in the top of the head.

ANGELIC, or ANGELICAL, something belonging to, or that partakes of the nature of *angels*.

We say an *angelical* life, &c.—St. Thomas is styled the *angelical doctor*.—The *angelical* salutation is called by the Romanists *Ave Maria*; sometimes simply *angelus*.

ANGELIC garment, ANGELICA vestis, among our *Ancestors*, was a monkish garment, which laymen put on a little before their death, that they might have the benefit of the prayers of the monks.

It was from them called *angelical*, because they were called *angeli*, who by these prayers *animæ salutis succurrebant*.—Hence, where we read the phrase *monachus ad succurrendum* in our old books, it must be understood of one who had put on the habit when he was at the point of death.

ANGELICA, in *Botany*, a genus of the *pentandria digynia* class, a medicinal plant, of which the characters are, that it is umbelliferous, the greater umbel being composed of many small ones; the empalement of the flowers is indented into five parts; the flowers of the whole umbel are uniform. The germen is situated below the flower, which afterward becomes a roundish fruit, splitting into two, and composed of two seeds, which are plain on one side, convex on the other, and are bordered.

Mr. Miller enumerates five species.

It grows in gardens, and flowers and seeds in June and July; the root perishing after the ripening of the seed, which is in the second year of its growth. It is of a sweet smell, of an aromatic taste, and is loaded with a highly exalted oil, and volatile salt.

The roots of the garden *angelica* are of considerable use in medicine; the leaves also are sometimes used, and the seeds. It is a stomachic, a cordial, and sudorific; it is good in flatulencies, and is by many ranked among the vulnerary herbs. It is prescribed in malignant diseases of all kinds, against the effects of poison, and in the plague.

It has been a custom with some physicians, in the times of contagion of this kind, to make a paste of the fresh roots beaten with vinegar, and to carry this in a box about them readily to be applied to the nose occasionally; others prefer the holding a piece of the dry root in the mouth, and others the drinking a glass of strong vinegar, in which it has been infused, fasting.

It has also been a custom to sprinkle the powder of the root over the cloaths of persons who go among the infected, through an opinion that it preserves them from imbibing the effluvia, which otherwise they might carry elsewhere.

A dram of the powder of the root alone, or half that quantity with a dram of venice treacle, are recommended to be given as a remedy in the plague, to be repeated every six hours; and a gentle sweat to be kept up all the time.

The root is used in many of our shop compositions, as in the plague-water, &c. and the dried leaves are a principal ingredient in the ladies red-powder, famous in England for the cure of fevers.

The Laplanders are extremely fond of *angelica*, and use it in great abundance both in meat and medicine. They use only the stalks, never meddling with the roots or seed, in which we find the highest flavour, and greatest virtue. They gather the large stalks before the plant is run to seed, and roast them or bake them till they are thoroughly tender, and then eat them as a delicate dish.

When they are sick, they boil either these stalks or the roots of the moss, which they call *jerth*, in water, and in worse cases in whey made of rein-deer milk, and give large draughts of this decoction to keep up a breathing sweat.

ANGELICA, berry-bearing. See ARALIA.

ANGELICA, wild. See ÆGOPodium.

ANGELICA water is one of the compound waters of the shops; thus called from the *angelica* root, which is the chief ingredient in the composition, and the most active part of that plant. Neumann.

ANGELICA grana; a technical name given to Anderson's Scots pills.

ANGELICA was also a celebrated dance among the ancient Greeks, performed at their feasts.

It was thus called, from *ἄγγελος*, *nuncius*, *messenger*; because, as Pollux assures us, the dancers were dressed in the habit of messengers.

ANGELICI, an ancient order of knights, instituted in 1191, by Isaacus Angelus Flavius Comnenus, emperor of Constantinople.

They were divided into three classes; but all under direction of one grand-master.—The first were called *torquati*, from a collar which they wore, and these were fifty in number.—The second were called the *knights of justice*, and were ecclesiastics.—And the third were called *knights servitors*.

Justiniani will have this order to have been instituted in the year 313, by Constantine; and supposes the occasion thereof to have been the appearance of an angel to that emperor, with the sign of a cross, and these words, *In hoc signo vinces*; but that there was such a thing as any military order in those days, is a mere fable.

ANGELICI were also a sect of ancient Christians.—St. Augustine supposes them thus called from their yielding an extravagant worship to angels, and such as tended to IDOLATRY; though Epiphanius derives the name from their holding, that the world was created by angels.

ANGELINA zanoni acosta, in *Botany*. This is a tree of vast size, sometimes above sixteen feet thick, growing on rocky and sandy places in Malabar, in the East Indies. It bears ripe fruit in December, and continues bearing for a whole century.

The dried leaves heated, alleviate pains and stiffness in the joints, and discuss an intumescence of the *testes* occasioned by a contusion, or any external violence; as also an *hydrocele*, or *pneumatocle*. It is efficacious likewise in some venereal complaints, and hæmorrhoidal fluxes.

ANGELITÆ, *Angelites*, in *Ecclesiastical History*, certain Christians, thus denominated from *Angelium*, the name of a place in Alexandria, where their first assemblies were held.

The *Angelites* appear to have been the same with what are otherwise called *Severites*, sometimes *Theodosiani* and *Damianisti*, from the names of their leaders: sometimes also *Tabellionistæ*.

They made their first appearance in the time of the emperor Anastasius, and pope Symmachus, about the year of Christ 494.

The distinguishing tenets of the *Angelitæ* were, that the several persons of the Trinity had no distinct essence, substance, or deity; but only a subsistence or deity in common, or indivisible among them.

ANGELOLATRIA, from *ἄγγελος*, *angel*, and *λατρεῖν*, *I worship*, the superstitious worship, or adoration of angels.

ANGELOLOGIA, from *ἄγγελος* and *λογος*, *discourse*, the doctrine or science of angels, their nature, office, &c. Gerhard has published a sacred *Angelologia*, Musæus an apostolical *Angelologia*.

Some use the term *angelosophia* in a sense much the same.

A. Varenus has given an *Angelosophia*.

ANGELOGRAPHIA, from *ἄγγελος* and *γραφω*, *I describe*, a description of angels, their orders, names, discipline, &c.

This

This amounts to much the same with what others call *angelologia*.

Casmannus and Manitiis have published *Angelographies*.

ANGELOT, an ancient English gold coin, struck at Paris while under subjection to the English.

It was thus called from the figure of an angel supporting the scutcheon of the arms of England and France.

There was another coin of the same denomination struck under Philip de Valois.

ANGELOT is also used in commerce to denote a small, fat, rich sort of cheese, brought from Normandy.

Skinner supposes it to have been thus called from the name of the person who first made it up in that form, and perhaps stamped it with his own name. Menage takes it to have been denominated from the resemblance it bears to the English coin called *angelot*.

It is made chiefly in the Pays de Bray, whence it is also denominated *angelot de Bray*.

It is commonly made in vats, either square or shaped like a heart.

ANGELUS, in the *Church History* of France, denotes a prayer to the Holy Virgin, established by Louis XI. to be rehearsed three times a day, at the sound of a bell rung for that purpose.

The *angelus* is the same with what is otherwise called *Ave Maria*, or the angelic salutation.

ANGER.—Hutcheson defines *anger*, a propensity to occasion evil to another, arising upon an apprehension of an injury done by him.

Anger is either deliberative or instinctive; and the latter kind is rash and ungovernable, because it operates blindly, without affording time for deliberation or foresight. Bishop Butler very justly observes, that *anger* is far from being a selfish passion, since it is naturally excited by injuries offered to others, as well as to ourselves; and was designed by the Author of nature not only to excite us to act vigorously in defending ourselves from evil, but to interest us in the defence or rescue of the injured and helpless, and to raise us above the fear of the proud and mighty oppressor. Butler's Sermons, Sermon viii.

Anger is of such a nature, that it quickly throws the whole nervous system into preternatural commotions, by a violent stricture of the nervous and muscular parts; and surprisingly augments not only the *systole* of the heart, and of its contiguous vessels, but also the tone of the fibrous parts in the whole body. It is also certain, that this passion, by the spasmodic stricture it produces in the parts, exerts its power principally on the stomach and intestines, which are highly nervous and membranous parts; whence the symptoms are more dangerous, in proportion to the greater consent of the stomach and intestines with the other nervous parts, and almost with the whole body.

The unhappy influence of *anger* likewise, on the biliary and hepatic ducts, is very surprising; since by an intense constriction of these, the liver is not only rendered schirrhous, but stones also are often generated in the gall-bladder, and biliary ducts; these accidents have scarcely any other origin, than an obstruction of the free motion and efflux of the bile, by means of this violent stricture. From such a stricture of these ducts likewise proceeds the jaundice, which in process of time lays a foundation for calculous concretions in the gall-bladder. Lastly, by increasing the motion of the fluid, or the spasms of the fibrous parts, by means of *anger*, a larger quantity of blood is propelled with an *impetus*, to certain parts; whence it happens, that they are too much distended, and the orifices of the veins distributed there, opened. It is evident from experience that *anger* has a great tendency to excite enormous hæmorrhages, either from the nose, the aperture of the pulmonary artery, the veins of the anus; or in women, from the uterus; especially in those previously accustomed and disposed to such evacuations.

For the influence of this passion on the perspiration and urine of human bodies, see PERSPIRATION, &c.

ANGERONALIA, in *Antiquity*, solemn feasts held by the Romans, the 21st of December, in honour of Angerona, or Angerona, the goddess of patience and silence.

Festus and Julius Modestus, quoted by Macrobius, Saturn. lib. i. cap. 10. derive the name from *angina*, *quinancy*; and suppose the goddess to have been thus denominated, because she presided over that disease.

Others suppose it formed from *anger*, *grief*, *pain*; to intimate that she gave relief to those afflicted therewith. Others deduce it from *angeo*, *I press*, *I close*; as being reputed the goddess of silence, &c.

ANGETENAR, in the *Arabian Astronomy*, denotes a fixed star of the fourth magnitude, in the body of CETUS, or the WHALE.

ANGIGLOSSII, from *αγγλω*, *constringo*, and *γλωσσα*, *lingua*, denotes those who speak with difficulty; hesitation, or even stammering.

ANGILDUM, in our *Old Writers*, denotes a simple gild; that is, the simple value of the man, or other thing.

The word is compounded of the Saxon, *an*, *one*, and *gild*, *payment*, *price*, or *compensation*.

In this sense, *angildum* stands contradistinguished from *twigildum*, a *double compensation*; *trigildum*, a *triple compensation*.

ANGINA, in *Medicine*, an inflammation about the muscles of the larynx or pharynx, attended with an acute fever, difficulty of swallowing, and danger of suffocation.

The word is derived immediately from the Latin *ango*, *I vex*, formed of *αγγω*, *suffoco*, *strangulo*.

The *angina* is the same with what we popularly call QUINZY, or *quinancy*. It is an inflammation in the parts of the throat subservient to respiration, speech, and deglutition. When the disorder is epidemic, it is usually between spring and summer, after a long continuance of cold and rainy weather. The true *quinzy* is an acute inflammatory disorder; the bastard *quinzy* is a lymphatic; catarrhal disorder; and the fever that accompanies it is not acute, but rather chronic.

ANGINA gangrena, or *aquosa*, the ulcerated; malignant, putrid, sore THROAT; on which there are various treatises by Fothergill, Huxham, Northcote, &c.

ANGINA lini, in *Botany*, a name used by some of the later Greek writers to express what the more ancient writers of this nation called *linosyrtis*, and the Latins *epilinum*; this was the *cuscuta* or *dodder* growing on the flax, as that on the thyme was called *epithymum*. It was called *angina lini*, the *quinzy* of flax, from its choking that plant.

ANGINA pectoris, in *Medicine*, a name given to a disease; dangerous, and not extremely rare, first described by Dr. W. Heberden, and so called from the seat of the disorder, and the sense of strangling and anxiety with which it is attended. The doctor's account of it is in the second volume of the London Medic. Transf. p. 59. &c. See also Medic. and Phil. Comment. vol. ii. p. 95. The patient while walking, especially if soon after eating, is affected with a painful sensation in his breast; at first, it is removed by his standing still, but afterwards it does not go off so suddenly; it comes on in bed, obliges the patient to get up, and continues for an hour or more; sometimes, though rarely, it attacks the patient standing or sitting still. It is brought on by trivial accidents, coughing, &c. or any slight disturbance. In some it is worst in winter, in others in summer. The pulse, sometimes at least, is not disturbed, consequently the heart is not affected by the pain. People affected with it often die suddenly, but some continue subject to it for twenty and odd years. The seat of it seems to be in or about the *os sternum*, towards the left side, and a pain in the middle of the left arm sometimes accompanies it. The cause is probably a spasm, or cramp, or an ulcer, or both. Wine, or other cordials, taken at bed-time, prevent or weaken night-fits, but opium is the most effectual relief; ten, fifteen, or twenty drops of the thebaic tincture, taken at bed-time, may be safely continued as long as requisite.

This disease has been since accurately described, and suitable preventives or remedies proposed, by Dr. Fothergill. Med. Obs. and Inq. vol. v. p. 233. 252.

ANGIOSPERMIA, in *Botany*, a term used by Linnæus, to express a certain series of the DIDYNAMIÆ or plants of the verticillate kind, which have their seeds not lodged naked within the cup. They are by this distinguished from the *gymnospermia*, which have them so; whereas the *angiospermia* have them inclosed in a capsule, and adhering to a *placenta* placed in the middle of that capsule. The class of DIDYNAMIA contains the labiated and perfonated plants. The *angiospermia* are the perfonated, the others the labiated kinds. This order, or series, contains sixty-three genera, comprehending those that have a simple stigma, and perfonate corollæ; those with a simple stigma, and spreading corollæ; those with a double stigma, and such as have many petals.

ANGLE, ANGULUS, in *Geometry*, the aperture or mutual inclination of two lines, which meet, and form an *angle* in their point of intersection.

Such is the *angle* BAC (Tab. IV. Geometry, fig. 91.) formed by the lines AB and AC, meeting in the point A.—The lines AB and AC, are called the *legs* of the *angle*; and the point of intersection, the VERTEX.

Angles are sometimes denoted by a single letter affixed to the *vertex*, or angular point, as A; and sometimes by three letters, that of the vertex being in the middle, as BAC.

The measure of an *angle*, whereby its quantity is expressed, is an ARCH, DE, described from its vertex A, with any radius at pleasure, between its legs, AC and AB. See MEASURE.

Hence *angles* are distinguished by the ratio of the arches which they thus subtend, to the CIRCUMFERENCE of the whole CIRCLE.—And thus an *angle* is said to be of so many degrees, as are the degrees of the arch DE. Hence also, since similar arches, AB and DE, *fig. 87.* have the same ratio to their respective circumferences; and the circumferences contain each the same number of degrees; the arches AB and DE, which are the measures of the two *angles* ACB, and DCE, are equal; and therefore the *angles* themselves must be so too.—Hence, again, as the quantity of an *angle* is estimated by the ratio of the arch, subtended by it to the periphery, it does not matter what radius that arch is described withal: but the measures of equal *angles* are always either equal arches, or similar ones; and contrarily.

It follows, therefore, that the quantity of the *angles* remains still the same, though the legs be either produced or diminished.—And thus in similar triangles, and in similar figures, the homologous or corresponding *angles* are also equal.

The taking of *angles* is an operation of great use and extent in surveying, navigation, geography, astronomy, &c. The instruments chiefly used for this purpose are quadrants, theodolites, circumferentors, &c.

Mr. Hadley has invented a new and excellent instrument for taking *angles*, useful where the motion of the object, or any circumstance causing the unsteadiness in the common instruments, renders the making observations difficult or uncertain. Phil. Trans. N° 420, and N° 425.

M. Dollond has likewise contrived an instrument for measuring small *angles*. Phil. Trans. vol. xviii. N° 74. See MICROMETER.

In the practice of surveying, no *angles* of less than thirty degrees should be taken: nor should any be assumed but such as are actually measured. See Hist. Acad. Scienc. 1740.

ANGLE, to measure the quantity of an.—1. On paper. Apply the centre of a protractor on the vertex of the *angle* O, (*Tab. III. Surveying, fig. 49.*) so that the radius OB lie on one of the legs: the degree shewn in the arch, by the other leg of the *angle*, will give the *angle* required.—To do the same with a line of chords, See SECTOR.

2. On the ground.—Place a surveying instrument, e. gr. a semicircle (*fig. 50.*) in such a manner as that a radius thereof CG may lie over one leg of the *angle*, and the centre C over the vertex.—The first is obtained by looking through the sights F and G, towards a mark fixed at the end of the leg; and the latter, by letting fall a plummet from the centre of the instrument.—Then, the moveable index HI being turned this way and that, till through its sights you discover a mark placed at the extreme of the other leg of the *angle*; the degree it cuts in the limb of the instrument shews the quantity of the *angle*.

To take the *angle* with a QUADRANT, THEODOLITE, PLAIN TABLE, CIRCUMFERENTOR, COMPASS, &c. see the several articles.

To plot or lay down any given *angle*, i. e. the quantity of the *angle* being given, to describe it on paper. See PLOTTING and PROTRACTOR.

To bisect a given *angle*, as HIK, (*Tab. IV. Geometry, fig. 92.*) from the centre I, with any radius at pleasure, describe an arch LM. From L and M, with an aperture greater than half LM, strike two arches, mutually intersecting each other in N. Then drawing the right line IN, we have HIN=NIK.

To trisect an *angle*, see TRISECTION.

ANGLES are of various kinds and denominations.

With regard to the form of their legs, they are divided into *rectilinear*, *curvilinear*, and *mixed*.

ANGLE, *rectilinear*, or *right lined*, is that whose legs are both right lines: as BAC. (*Tab. IV. Geometry, fig. 91.*)

ANGLE *curvilinear*, is that whose legs are both of them curves.

ANGLE *mixt*, or *mixtilinear*, is that, one of whose sides is a right line, and the other a curve.

With regard to their quantity, *angles* are again divided into *right*, *acute*, *obtuse*, and *oblique*.

ANGLE *right*, is that formed by a line falling perpendicularly on another; or that which subtends an arch of 90 degrees.—Such is the *angle* KLM (*fig. 93.*)

The measure of a *right angle*, therefore, is a quadrant of a circle; and consequently all *right angles* are equal to each other.

ANGLE, *acute*, is that which is less than a *right angle*, or than 90°—as AEC (*fig. 86.*)

ANGLE, *obtuse*, is that greater than a *right angle*, or whose measure exceeds 90°—as AED.

ANGLE, *oblique*, is a common name both for *acute* and *obtuse angles*.

With regard to their situation in respect of each other,

angles are divided into *contiguous*, *adjacent*, *vertical*, *alternate*, and *opposite*.

ANGLES *contiguous*, are such as have the same vertex, and one leg common to both.—Such are FGH and HGI (*fig. 94.*)

ANGLE *adjacent*, is that made by producing one of the legs of another *angle*. Such is the *angle* AEC (*fig. 86.*) made by producing a leg, ED, of the *angle* AED, to C.

Two *adjacent angles*, *x* and *y*, or any other number of *angles* made on the same point E, over the same right line CD, are together equal to two right ones; and consequently to 180°. And hence one of two *adjacent angles* being given, the other is likewise given; as being the complement of the former to 180°.

Hence also, to measure an inaccessible *angle* in a field, taking an adjacent accessible *angle*, and subtracting the quantity thereof from 180°, the remainder is the *angle* required.

Again, all the *angles*, *x*, *y*, *o*, E, &c. made around a given point E, are equal to four right ones; and therefore all make 360°.

ANGLES, *vertical*, or *opposite*, are those whose legs are continuations of each other. Such are the *angles* *o* and *x*, (*fig. 86.*)

If a right line AB, cut another, CD, in E, the *vertical angles* *x* and *o*, as also *y* and E, are equal. And hence, if it be required to measure, in a field, or any other place, an inaccessible *angle*, *x*; and the other *vertical angle*, *o*, be accessible; this latter may be taken in lieu of the former.

ANGLE, *alternate*. See ALTERNATE. Such are the *angles* *x* and *y*, (*fig. 36.*)

The alternate *angles* *y* and *x* are equal.

ANGLES, *external*, are the *angles* of any right-lined figure made without it, by producing all the sides severally.

All the *external angles* of any figure, taken together, are equal to four right *angles*; and the *external angle* of a triangle is equal to both the internal and opposite ones, as is demonstrated by Euclid, lib. i. prop. 32.

ANGLES, *internal*, are the *angles* made by the sides of any right lined figure within.

The sum of all the *internal angles* of any right-lined figure is equal to twice as many right *angles* as the figure hath sides, excepting four. This is easily demonstrated from Euclid, prop. 32. lib. i.

The *external angle* is demonstrated to be equal to the internal opposite one; and the two internal opposite ones are equal to two right ones.

ANGLES, *homologous*, are such *angles* in two figures, as retain the same order from the first, in both figures.

ANGLE at the periphery is an *angle* whose vertex and legs do all terminate in the periphery of a circle. Such is the *angle* EFG (*Tab. IV. Geom. fig. 95.*)

ANGLE in the SEGMENT, is the same with that at the periphery.

It is demonstrated by Euclid, that all the *angles* in the same segment are equal to one another; that is, any *angle* EHG, is equal to any *angle* EFG in the same segment EFG.

The *angle* at the periphery, or in the segment, is comprehended between two chords EF and FD, and stands on the arch ED. See CHORD, &c.

The measure of an *angle* without the periphery X (*fig. 96.*) is the difference between half the concave arch LM, whereon it stands, and half the convex arch NO intercepted between its legs.

ANGLE in a semicircle, is an *angle* in a segment of a circle, whose base is a diameter thereof.

It is demonstrated by Euclid, that the *angle* in a semicircle is a right one; in a segment greater than a semicircle, it is less than a right one; and in a segment less than a semicircle, is greater than a right one.

Since an *angle* in a semicircle stands on a semicircle, its measure is a quadrant of a circle; and therefore is a right *angle*.

ANGLE of a semicircle, in Geometry, the *angle* which the diameter of a circle makes with the circumference. The chief property of this *angle* is, that it is less than a right *angle*, and greater than an acute right-lined *angle*.

ANGLE at the centre is an *angle* whose vertex is in the centre of a circle, and its legs terminated in the periphery thereof. Such is the *angle* CAB (*fig. 95.*)

The *angle* at the centre is comprehended between two radii, and its measure is the arch BC.

Euclid demonstrates, that the *angle* at the centre BAC is double of the *angle* BDC, standing on the same arch BC. And hence, half of the arch BC is the measure of the *angle* at the periphery.

Hence, also, two or more *angles* HLI, and HMI (*fig. 97.*) standing on the same, or equal arches, are always equal.

ANGLE without the centre, HKI, is that whose vertex K is

not in the centre, but its legs HK and IK are terminated in the periphery.

The measure of an *angle* without the centre is half of the arches HI and LM, whereon it and its vertical O do stand.

ANGLE of contact is that made by the arch of a circle and a tangent in the point of CONTACT.—Such is the *angle* HLM, (fig. 10.)

The *angle* of contact, in a circle, is proved by Euclid to be less than any right-lined *angle*; but from hence it does not follow, that the *angle* of contact is of no quantity, as Peletarius, Wallis, and some others, have imagined. V. Wall. Algeb. p. 71, &c. Sir Isaac Newton shews, that if the curve HAE (fig. 97.) be a cubic parabola, where the ordinate DF is in the subtriple ratio of the abscissa AD, the *angle* BAF, contained under the tangent AB in its vertex, and the curve, is infinitely greater than the circular *angle* of contact BAC; and that, if other parabolas of higher kinds be described to the same axis and vertex, whose abscissas AD are as the ordinates DF^4 , DF^5 , DF^6 , &c. you will have a series of *angles* of contact going on infinitely, of which any one is infinitely greater than that next before it.

ANGLE of a segment is that made by a chord with a tangent, in the point of contact. Such is the *angle* MLH (fig. 10.)

It is demonstrated by Euclid, that the *angle* MLH is equal to any *angle* M a L in the alternate segment M a L.

ANGLES, for the effects, properties, relations, &c. of, when combined into triangles, quadrangles, and polygonous figures, see TRIANGLE, QUADRANGLE, SQUARE, PARALLELOGRAM, POLYGON, FIGURE, &c.

ANGLES are again divided into PLANE, SPHERICAL, and SOLID.

ANGLES, plane, are those we have hitherto been speaking of; which are defined by the inclination of two lines in a plane, meeting in a point.

ANGLE, spherical, is the inclination of the planes of two great circles of the sphere.

For the properties of spherical *angles*, see SPHERICAL *Angle*.

ANGLE, solid, is the mutual inclination of more than two planes, or plane *angles*, meeting in a point, and not contained in the same plane. For the measure, properties, &c. of solid *angles*, see SOLID *Angle*.

We also meet with other less usual sorts of *angles* among some geometers; as,

ANGLE, horned, angulus cornutus, that made by a right line, whether a tangent or secant, with the periphery of a circle.

ANGLE, lunular, angulus lunularis, is that formed by the intersection of two curve lines; the one concave, and the other convex.

ANGLE, cissoid, angulus cissoïdes, is the inner *angle* made by two spherical convex lines intersecting each other. See CISSOID.

ANGLE, fistroid, angulus fistroides, is that in figure of a SISTRUM.

ANGLE, pelecoid, angulus PELECOIDES, is that in figure of a hatchet.

ANGLE, in Trigonometry. See TRIANGLE and TRIGONOMETRY.

For the sines, tangents, and secants of *angles*, see SINE, TANGENT and SECANT.

ANGLE, in Mechanics. *Angle* of DIRECTION, is that comprehended between the lines of direction of two conspiring forces.

ANGLE of ELEVATION is that comprehended between the line of direction of a projectile, and a horizontal line. Such is the *angle* RAB (Tab. IV. Mechanics, fig. 47.) which is comprehended between the line of direction of the projectile AR, and the horizontal line AB.

ANGLE of incidence is that made by the line of direction of an impinging body, in the point of contact. Such is the *angle* DCA (fig. 66.)

ANGLE of reflexion, is that made by the line of direction of the reflected body, in the point of contact from which it rebounds. Such is the *angle* ECF.

ANGLE, in Optics. *Visual, or optic angle,* is the *angle* included between the two rays drawn from the two extreme points of an object to the centre of the pupil.—Such is the *angle* ABC (Tab. IV. Optics, fig. 69.) comprehended between the rays AB and BC.

Objects seen under the same, or an equal *angle*, must always appear equal.

The least *visible angle*, according to Dr. Hook, is one minute; though Dr. Jurin shews, that at the time of his debate with Hevelius on this subject, the latter could probably discover a single star under so small an *angle* as 20". Dr. Jurin states the grounds of this controversy, and discusses the question at large in his Essay upon dis-

tinct and indistinct vision, published in Smith's Opticks, p. 148, &c.

ANGLE of the interval, of two places, is the *angle* subtended by two lines directed from the eye to those places.

ANGLE of incidence, in Catoptrics, is the lesser *angle*, made by an incident ray of light, with the plane of a speculum; or, if the speculum be concave or convex, with a tangent in the point of incidence. Such is the *angle* ABD (fig. 26.) Or, as some define it, it is the *angle* which a ray of light makes with a perpendicular to that point of the surface of any medium on which it falls.

Every incident ray, AB, makes two *angles*, the one acute, ABD, the other obtuse, ABE; though sometimes both right. The lesser of such *angles* is the *angle* of incidence. See INCIDENCE.

ANGLE of incidence, in Dioptrics, is the *angle* ABI (fig. 56.) made by an incident ray, AB, with a lens, or other refracting surface, HI.

ANGLE of inclination is the *angle* ABD, contained between an incident ray, AB, and the axis of incidence, DB. See AXIS, &c.

ANGLE of reflexion, } in Catoptrics. See REFLECTION:
ANGLE, reflected, }

ANGLE, of refraction, } in Dioptrics. See REFRACTION.
ANGLE, refracted, }

ANGLE, in Astronomy. *ANGLE of commutation.* See COMMUTATION.

ANGLE of elongation, or ANGLE at the earth. See ELONGATION.

ANGLE, parallactic. See PARALLACTIC *angle*.

ANGLE at the Sun, is the *angle* RSP (Tab. Astronomy, fig. 25.) under which the distance of a planet P, from the ecliptic PC, is seen from the sun.

ANGLE of the East. See NONAGESIMAL.

ANGLE of obliquity, of the ecliptic, or the *angle* of inclination of the axis of the earth, to the axis of the ecliptic, is 23° 28'; and remains the same in all points of the earth's annual orbit. By means of this inclination, such inhabitants of the earth as live beyond 45° of latitude have more of the sun's heat, taking all the year round; and those who live within 45° have less of his heat, than if the earth always moved in the equinoctial. See OBLIQUITY and ECLIPTIC.

ANGLE of longitude is the *angle* which the circle of a star's longitude makes with the meridian, at the pole of the ecliptic.

ANGLE of right ascension, is the *angle* which the circle of a star's right ascension makes with the meridian at the pole of the world. See RIGHT ASCENSION.

ANGLE, in Navigation.—*ANGLE of the rhumb, or loxodromic ANGLE.* See RHUMB, and LOXODROMY.

ANGLES, in Fortification, are understood of those formed by the several lines used in fortifying, or making a place defensible.

These are of two sorts; *real*, and *imaginary*.—*Real angles* are those which actually subsist and appear in the works. Such are the *flanked angle*, the *angle of the epaule*, *angle of the flank*, and the *re-entering angle of the counterscarp*. *Imaginary, or occult angles*, are those which are only subservient to the construction, and which subsist no more after the fortification is drawn. Such are the *angle of the centre*, *angle of the polygon*, *flanking angle*, *saliant angle of the counterscarp*, &c.

ANGLE of, or at, the centre, is the *angle* formed at the centre of the polygon, by two semidiameters drawn thither from the two nearest extremities of the polygon. Such is the *angle* CKF (Tab. Fortification, fig. 1.)

ANGLE of the circumference is the next *angle* made by the arch drawn from one gorge to the other.

ANGLE of the counterscarp is that made by the two sides of the counterscarp, meeting before the middle of the CURTIN.

ANGLE of the curtain, or of the flank, is that made by, or contained between, the curtain and the flank; such is the *angle* BAE.

ANGLE of the complement of the line of defence, is the *angle* arising from the intersection of the two complements one with another.

ANGLE, diminished, is the *angle* which is made by the meeting of the exterior side of the polygon with the face of the BASTION. Such is the *angle* BCF.

ANGLE of the polygon is the *angle* GHM, intercepted either between the two internal sides GH and HM, or the two external sides.

ANGLE of the epaule, or shoulder, is that formed by the flank and the face of the bastion. Such is the *angle* ABC.

ANGLE of the interior figure is the *angle* GHM, made in H, the centre of the bastion, by the meeting in the innermost sides of the figure GH, and HM.

ANGLE of the tenaille, or flanking ANGLE outward, is that made by the two rasant lines of defence, i. e. the two faces of the bastion when prolonged.

ANGLE *flanking inward*, is the angle *CIH*, made by the flanking line with the curtain.

ANGLE, *flanked*, by some called the **ANGLE of the bastion**, is the angle *BCS*, made by the two faces of the bastion, *BC*, *CS*; being the outermost part of the bastion, and that most exposed to the enemy's batteries, and therefore by some called the *point of the bastion*.

ANGLE of the flank is that formed by the *flank* and the *curtin*.

ANGLE forming the flank is that consisting of one flank, and one *DEMI-gorge*.

ANGLE forming the face, is that composed of one flank and one face.

ANGLE of the triangle, in *Fortification*, is half the angle of the polygon.

ANGLE of the moat is that made before the *curtin*, where it is intersected.

ANGLE, *re-entering*, or *re-entrant*, is that whose vertex is turned inwards, towards the place.

ANGLE, *saliant*, is that which advances its point towards the field.

ANGLE of the tenaille, or the *outward flanking angle*, called also the *angle of the moat*, or the *dead angle*, is made by the two lines *flankant* in the faces of the two bastions, extended till they meet in an angle towards the *curtin*.—This always turns its point in towards the work.

ANGLE of a wall, in *Architecture*, is the point or corner where the two sides or faces of a wall meet.

ANGLES of a battalion, in the *Military Art*, are those soldiers placed where the ranks and files terminate. See **BATTALION**.

The angles of a battalion are said to be *blunted*, when the soldiers at the four corners are removed, so that the square battalion becomes octagonal; this was an evolution very common among the ancients, though now disused.

ANGLES, in *Anatomy*, are understood of the *canthi*, or corners of the eye, where the upper eye-lid meets with the under.

That next the nose is called the *great* or *internal*, and that towards the temples, the *less*, or *external angle*, or *CANTHUS*.

ANGLES, in *Astrology*, denote certain houses of a figure, or scheme of the heavens. Thus the *horoscope* of the first house is termed the *angle of the east*.

ANGLER, a fisherman, or other person, who practises **ANGLING**.

Angler are to be distinguished from poachers. Some make the same difference between them, that is between the fair trader and smuggler. Accordingly the legislature has made the latter penal, but laid no restraint on the former. *Angling* can do no prejudice to the fish of a river. *Anglers* fish for their recreation, not for lucre; whereas poachers make it their livelihood.

The tackle necessary for an *angler* is various, according to the branch of the art he applies himself to. He must be equipt with variety of hooks, and a competent quantity of every sort; he must not be without wax, silk, a pair of scissors or pen-knife, a basket or bag, and landing-net, plummets, shot, and floats of every kind, needles and thread, lines, hair, Indian-grass, variety of feathers, more particularly those taken from the neck of a mallard, the wing of a partridge, a capon's neck, the top of a plover, or the hackle of a red cock. He must likewise be furnished with twist, and bedding for dubbing his artificial flies; he must have a landing hook, reels for his silk lines, a pouch or book for his hair-lines, a convenient place wherein to reposit his small craft, *viz.* flies, hooks, wax, shot, silk, &c. a bag for his worms, a tin-box for his gentles.

When he takes his stand, he is to shelter himself under some bush, or tree, or stand so far from the brink of the river that he can only discern his float; because fish are timorous, and easily frightened. The best way of *angling* with the fly is down the river, and not up; neither need the *angler* ever make above half a dozen of trials in one place, either with fly or ground-bait, when he angles for trout: by that time the fish will either offer to take, or refuse the bait and not stir at all.

ANGLICANÆ guttæ. See **GUTTÆ**.

ANGLICANUS sudor. See **SWEATING sickness**.

ANGLICISM, a word, or phrase, in the English **IDIOM**; or manner of speech peculiar to the English tongue.

ANGLING, the art of catching fish, by means of a rod, with a line, hook, and bait, fitted thereto.

There are several prudential rules observed by thorough anglers; such as, not to wear any white or shining apparel, but be clothed in a dark sky colour: to invite the fish to the place intended for *angling*, by casting in, from time to time, proper foods, as boiled corn, worms, and garbage: to keep them together in the time of *angling* by throwing in grains of ground malt: or sinking a box

of worms with small holes for them to creep slowly out at, &c. To draw salmon or trout together, *anglers* use a composition of fine clay incorporated with blood, and ground malt.

To learn what bait is best for any fish at any time; after having caught one, they slit his gills, and take out the stomach; and thus find what he last fed on.

The several methods of *angling* for salmon, trout, carp, tench, perch, pike, dace, gudgeons, roach, flounder, &c. see under *Salmon-FISHING*, *Trout-FISHING*, &c.

The angler's first business is to prepare for catching the fish by inviting them about him; the method of doing this in standing waters, by throwing in grains, chopped worms and the like, is well known; but the chief difficulty is in running rivers and brooks. The method in this case is to prepare a tin-box capable of holding some hundred of worms, bored on all sides, and full of holes of such a size as they may be just able to crawl out at: there must be a plummet fastened to this box to sink it, and a line to draw it back at pleasure; in this case it is to be thrown into the water at a proper place, above which the angler may stand under cover. The worms will slowly and gradually crawl out of this box, and the fish will be gathered about to feed on them; the baited hook is to be thrown in higher up, and carried down by the stream. If this method does not bring the fish about the place in a little time, there is reason to suspect that some pike lies lurking thereabout, and deters them; in this case, it is proper to throw out a baited hook, and he will generally be taken: after this the attempt will succeed.

The *angling* rod must be kept in a moderate state neither too dry nor too moist; in the first case it will be brittle, in the other rotten. When pastes are used, it is proper to mix a little tow with them, and rub them over with honey; finally, a small anointing them with butter is of great use to keep them from being washed off the hook. The eyes of any fish that is taken are an excellent bait, for almost any other kind of fish.

In a pond, the best place for the *angler* to take his stand is usually that where the cattle go into the water; in rivers, if breams are fished for, it should be in the deepest and most quiet places; if eels, under the banks of rivers that hang over; perch are to be expected in clean places, where the stream is swift; and chub in deep-shaded holes: roach are mostly found where the perch are, and trout only in swift and clear streams. Places where there are many weeds, or old stumps of trees, harbour fish in great numbers, and they usually bite freely there, but there is danger of entangling the line, or fastening the hook to the weeds.

In case of this accident, recourse is to be had to a ring of lead, of about six inches round, fastened to a small pack-thread; this ring is to be thrust over the rod, and let to fall into the water. It will descend to the place where the hook is entangled, and then by pulling the pack-thread gently, the hook will be soon disengaged, or at the worst it can only be broke off near the end of the line; whereas when this is not employed, the rod itself is sometimes broken, or the line nearer its upper end.

Deep waters are best for *angling* in, for the fish do not love to be disturbed by wind and weather.

The best season is from April to October, for in very cold stormy weather the fish will not bite; the best times of the day are from three till nine in the morning, and from three in the afternoon till sun-set.

In an easterly wind there is never much sport for the angler; the southerly winds are the best for his purpose, and a warm but lowering day is most of all to be chosen; a gentle wind after a sudden shower to disturb the water makes a very good opportunity for the angler; the cooler the weather in the hottest months, the better, but in winter on the contrary the warmer the day the better. A cloudy day after a bright moon-light night is always a good day for sport, for the fish do not care to go after prey in the bright moon-shine, and are therefore hungry the next morning.

The openings of sluices and mill-dams always bring fish up the current to seek for the food which is brought with the stream, and *angling* in these places is usually successful.

Those who are fond of *angling* might save themselves some fruitless trouble, by observing when small fish in a jar take or refuse food.

It is very good *angling* a little before the fish spawn, for then their bellies being full, they frequent sandy fords, to rub and loosen their bellies; at which time they will bite freely. In waters which ebb and flow, it is best *angling* at the ebb; but if the tide be not strong, the flood is to be preferred.

ANGLING, *ground*, the art of catching fish under water without a float, only with a plumb of lead, or a bullet.

This method is most expedient in cold weather, when the fish swim low. The bullet is to be placed nine inches from the baited hook; the top of the rod is to be very gentle, that the fish may more easily run away with the bait, and not be scared with the stiffness of it. The angler in this way is not to strike as soon as he feels the fish bite, but slacken his line a little, to give the fish an opportunity to swallow the hook.

The tackle here is to be fine and slender, strong and big lines being apt to fright the fish. Morning and evening are the chief seasons for the ground-line for trout, but in a cloudy day, or a muddy water, you may fish at ground from morn to night.

ANGLING, night, a method of catching large and shy fish in the night. Trout, and many other of the best sorts of fish, are naturally shy and fearful; they therefore prey in the night, as the securest time.

The method of taking them on this plan is thus: the tackle must be strong, and need not be so fine as for day-fishing, when every thing is seen; the hook must be baited with a large earthworm, or a black snail, and thrown out into the river; there must be no lead to the line, so that the bait may not sink, but be kept drawling along, upon, or near, the surface.

Whatever trout is near the place will be brought hither by the noise, and motion of the water, and will seize the worm or snail. The angler will be alarmed by the noise which the fish makes in rising, and is to give him line, and time to swallow the hook; when a slight twitch secures him. The best and largest trouts are found to bite thus in the night, and they rise mostly in the still and clear deeps, not in the shallow swift currents. Sometimes though there are fish about the place, they will not rise at the bait; in this case, the angler must put on some lead to his line, and sink it to the bottom.

ANGLING fly. See **FISHING fly**.

ANGLING hook. See **FISHING hook**.

ANGLING line is either made of hair twisted, or of silk, or of the Indian weed. The best colours are the sorrel, white, and grey; the two last for clear waters, the first for muddy ones. Nor is the pale watery green despicable: this colour is given artificially, by steeping the hair in a liquor made of alum, foot, and the juice of walnut-leaves boiled together. See **angling LINE**.

ANGLING rod. See **FISHING rod**.

In *angling*, they observe, after having struck a large fish, to keep the rod bent; which will hinder him from running to the utmost length of the rod-line, by which he would be enabled to break his hold, or the hook.

ANGLO-CALVINISTS, a name given by some *Ecclesiastical Historians* to the members of the church of England, because their doctrinal articles are built on the system of Calvin; though some modern writers, without sufficient reason, pretend that the doctrinal system of the English church is Arminian.

The *Anglo-Calvinists* make one of the four branches or divisions of Calvinism; and as such stand distinguished from the pure **CALVINISTS**, the **PISCATORIANS**, and the **ARMINIANS**.

ANGLO-SAXON language, that spoke by the ancient Angli or Saxons, who settled in England.

It was thus called from the people, who were partly Angli, partly Saxon.

It is otherwise denominated simply *Saxon*.

The *Anglo-Saxon*, or *English-Saxon*, is properly the original English; being the language which our Saxon ancestors first established in this island.—It is now called *Anglo-Saxon*, to distinguish it from the modern or present English.

ANGON, in the *Ancient Writers on Mechanics*, denotes a military engine of the bow-kind. Others again speak of it as a kind of javelin used by the French, the iron head of which resembled a *fleur de lys*. It is the opinion of some writers, that the arms of France are not *fleurs de lys*, but the iron points of the *angon*, or *javelin* of the ancient French.

ANGONÆUS, in *Anatomy*, a name given by Riolanus, and others, to a muscle called by the generality of other writers *anconæus*, and *cubitalis minor*.

ANGOR is used by some physicians to denote a shrinking inwards of the native heat of the body, or its retiring to the centre; upon which ensues a pain, and palpitation of the heart, attended with sadness and melancholy.

In this sense, *angor* amounts to much the same with what the Greeks call *angonia*.

The *angor* is reputed a bad symptom, when it happens in the beginning of an acute fever.

ANGSANA, or **ANGSAVA**, in *Botany*, names by which some authors have described the *DRACO arbor*, or *dragon-tree*; one of the trees said to afford the *sanguis draconis*, or *dragon's blood* of the shops.

It is esteemed an astringent, and an excellent remedy in the *aphthæ*.

ANGUELLA, in *Ichthyology*, a name given by some authors to the fish more usually called **HESPERUS**, and **ATHERINA**, a small fish caught about the shores of the Mediterranean, and some other places, and esteemed a delicate tasted one.

ANGUILLA, in *Ichthyology*. See **EEL**.

ANGUILLIFORM, *anguilliformis*, in *Zoology*, the term for a very large class of fishes, which are soft and lubricous like the eel, and have no scales.

The word is derived from *anguilla*, an eel, and *forma*, shape, or appearance. Most of the fish comprised in this class are long-bodied also like the eel. Some of them have neither fins at their gills nor belly, as the *murus* and *lampetra*; others have fins at their gills, but none on their bellies, as the *sea-serpent*, *eel*, *conger*, *ophidion*, and *ammodytes*. And others have both, as the *tæniæ*, *mustelæ*, *alaudæ*, and the like.

ANGUILLIFORM is sometimes also applied to land animals, which bear a resemblance to eels, but do not properly belong to that class.

In this sense, we read of *anguilliform* worms. G. E. L. ferus maintains that eels are viviparous; having found in some of them certain membranes full of *anguilliform* worms.

ANGUINA, in *Botany*, the name of a genus of plants described by Micheli, and mentioned by Plumier, and in the Malabar Garden. It is the same genus with the **TRICHOSANTHES** of Linnæus, described in his *Genera Plantarum*, p. 466.

ANGUINEAL hyperbola. See **HYPERBOLA** and **CURVE**.

ANGUINEI versus, in *Poetry*, those which may be read backwards.

Those are otherwise called recurrent verses. Such, e. g. are

Optimum jus, lex amica, vox diserta.

Diserta vox, amica lex, jus optimum.

ANGUINUM ovum, among *Ancient Writers*, denotes an extraordinary sort of an egg, said to be produced by the joint *saliva* of a cluster of snakes; being tossed up on high by the hiss, and thus caught in the air by the druids. It was endued, they said, with many marvellous virtues.

ANGUIS, the **SNAKE**, in the Linnæan system of *Zoology*, makes a distinct and large genus of the order of serpents, and class of amphibious animals; the character of which is, their having no feet, and a scaly body of a cylindric figure. See **SNAKE**.

ANGUIS Æsculapii. See **COLUBER**.

ANGUIUM lapis, a name given to a supposed stone in Germany, which is of a cylindric figure, and has a cavity capable of admitting a finger, and of a yellow colour, with a great many variegations. The vulgar call it *duchanek*, and have an idle opinion of its having its origin in some manner from a serpent-ant. De Boot, who had seen many of them, declares them to be fictitious, and made of glass tinged with two or three colours.

ANGULAR, something that relates to, or hath, *angles*.

Angular objects at a distance appear round; the little inequalities disappearing at a much less distance than the bulk of the body.

ANGULAR motion is a compound kind of motion, wherein the moveable both slides and revolves at the same time. Such is the motion of the wheel of a coach, or other vehicle.

The phenomena, &c. of such motion, see accounted for under the article **ROTA Aristotelica**.

ANGULAR, acute, section, see **ACUTE**.

ANGULAR, capital, see **CAPITAL**.

ANGULAR column, see **COLUMN**.

ANGULAR niche, see **NICHE**.

ANGULAR motion, in *Astronomy*, is the increase of the distance between any two planets, revolving round any body as the common centre of their motion.

The quantity of this motion is expressed by two right lines, drawn from the said centre to the revolving bodies, which will open wider, and consequently the angle will grow greater, as the revolving bodies part farther and farther from one another.

ANGULARIS scapula, in *Anatomy*, a name given by Winslow, and some others, to the muscle of the shoulder generally called the **LEVATOR scapula**.

ANGURIA, in *Botany*, see **Water-MELON**.

ANGUSTICLAVIA, or **ANGUSTUS CLAVUS**, in *Antiquity*, a *tunica*, embroidered with little purple studs, worn by the knights.

The word is compounded of *angustus*, small, and *clavus*, stud; because those ornaments were smaller in this garment than in the *lati-clavia*, which was worn by the senators.

ANHALDIN, *anhaldinum*, an epithet given to various medicines, formerly kept as secrets in the family of Anhalt. Three of the most celebrated medicines under this denomination are a corrosive, a water, and a spirit.

The corrosive, as described by Burggrave, is compounded of calcined antimony, sublimate mercury, sal ammoniac, and calcined tartar, distilled and rectified. The description of the *Anhaltin* water is given in the common dispensatories, and that of the spirit may be found in De Spina.

ANHELITUS signifies a shortness and thickness of breath; as in an **ASTHMA**. See **RESPIRATION**.

The word is Latin, formed of the verb *anhele*, *I breathe with difficulty*.

ANHIMA, in *Ornithology*, the name of a Brazilian bird, somewhat resembling the crane-family, but not regularly of it. It is distinguished in a very singular manner from all other birds, having a long single horn on its head, inserted a little above the origin of the beak, and standing forwards, and a little bent downwards. This is of two or three fingers breadth long, and is slender and round, as if nicely turned, and is of a bony substance, and fine white colour; and on the front of each wing it has two other such horns growing from the substance of the bone. It is found about waters, and is a very voracious bird, but feeds only on vegetables. It is longer than a swan; and is of a mixed colour of black, grey, and white, with a very little yellow in some places. It is always seen male and female together; and the male is twice as large as the female, which is here described, and is larger than our swan. It makes a very loud noise, often repeating the notes, *vyhu, vyhu*. Marcgrave's Hist. Brasil. This, in the Linnæan system, is a species of *palamadea*. See **SCREAMER**.

ANHINGA, in *Ornithology*, the name of a very elegant Brazilian water fowl. It is about the size of our common duck; its beak is straight, very sharp, not thick, and about three fingers breadth long, and has all along the middle, as well above as below, a long series of hooked prickles all bending backwards; its head is small, and its neck slender and long, not less than a foot in length; its legs are short, and its toes connected by a membrane, as in the cormorant and duck-kind; its tail is ten fingers breadth long; its wings, when folded, reach not more than half the length of the tail; its head and neck are yellowish, and covered with extremely soft velvet-like feathers; its breast, belly, and thighs, are of a silvery white; the upper part of its back is brown spotted with yellow, and the rest all black; it is common on the Brazilian shores, and feeds on fish. Marcgrave's Hist. Brasil.

ANHLOTE, in *Law*, a single tribute or tax. The words *anblote*, and *anfcot*, are mentioned in the laws of William the Conqueror; and their sense is, that every one should pay, according to the custom of the country, his part and share, as scot and lot, &c. Leg. W. I. cap. 64.

ANHUIBA, in *Botany*, a name by which some authors call the *SASSAPRILLA* tree, the wood of which is so much used in medicine.

ANHYDROS, in *Botany*, a name given by the ancient Greeks, and from them copied by the Romans in the time of Pliny, to express one of those kinds of the *STRYCHNA*, or night-shades, which, when taken internally, caused madness.

ANI, in *Ornithology*, the name of a Brazilian bird, somewhat allied to the *PARROQUET* kind. It is about the size of a thrush, and is all over black. It is very common in the woods, but is not eaten. Marcgrave's Hist. Brasil.

ANIL, in *Natural History*, the shrub from whose leaves and stalks *INDIGO* is prepared. It is also called *NIL*. For the method of preparing *indigo* from it, see *INDIGO*.

ANIMA, a SOUL; whether rational, sensitive, or vegetative.

The word is pure Latin, formed of *anemos*, *breath*.

ANIMA is sometimes used by physicians to denote the principle of life in the body.

In which sense Willis calls the blood *anima brutalis*.

ANIMA is also figuratively used by chemists for the volatile principles in bodies, whereby they are capable of being raised by the fire.

In which sense, we meet with *anima jaspidis*, the soul of *JASPER*, &c. Phil. Trans. N° 74. p. 2233.

ANIMA is more peculiarly applied to simple medicines, artfully exalted by solution and extraction to a high degree of power.

In which sense, we meet with *anima aloes*, *anima rhubarbari*, *anima veneris*, &c.

Sometimes also it denotes medicines which are peculiarly salutary to particular parts of the body. Thus we meet with

ANIMA articularum, which is a denomination sometimes given to *HERMODACTYLS*; on account of their efficacy in disorders of the joints.

ANIMA hepatis, soul of the liver; a term applied by the chemists to the *sal martis*, salt of iron or steel; on account of its use in distempers of that part.

It is more usually prescribed under the name of *vitriolum martis*.

ANIMA pulmonum, used for *crocus*, or saffron; by reason of its supposed great use in diseases of the lungs.

ANIMA mundi, q. d. soul of the world, or of the universe, denotes a certain pure ethereal substance or spirit, diffused, according to many of the ancient philosophers, through the mass of the world, informing, actuating, and uniting the divers parts thereof into one great, perfect, organical, and vital body or animal.

Plato treats at large of the *ψυχη τε κοσμου*, in his *Timæus*; and is even supposed to be the author of the *dogma*; yet are interpreters much at a loss about his meaning. Aristotle, however, taking it in the common and obvious sense, strenuously opposes it.

The modern Platonists explain their master's *anima mundi* by a certain universal ethereal spirit, which in the heavens exists perfectly pure, as retaining its proper nature; but on earth, pervading elementary bodies, and intimately mixing with all the minute atoms thereof, it assumes somewhat of their nature, and becomes of a peculiar kind. So the poet:

*Spiritus intus alit, totosque infusa per artus
Mens agitat molem, & magno se corpore miscet.*

They add, that this *anima mundi*, which more immediately resides in the celestial regions as its proper seat, moves and governs the heavens in such manner, as that the heavens themselves first received their existence from the fecundity of the same spirit: for that this *anima*, being the primary source of life, every where breathed a spirit like itself, by virtue whereof various kinds of things were framed conformable to the divine ideas.

The notion of an *anima mundi* is rejected by most of the modern philosophers; though M. du Hamel thinks, without any great reason, since the generality of them admit something very much like it. Thus the Peripatetics have recourse to celestial influxes, in order to account for the origin of forms, and the secret powers of bodies.

The Cartesians have their subtle matter, which answers to most of the uses and intentions of Plato's *anima mundi*; being supposed to flow from the sun, and the other heavenly bodies, and to be diffused through all the parts of the world, to be the source or principle of all motion, &c. Some later philosophers in the place of these substitute fire; and others a subtle elastic spirit, or *medium*, diffused through all parts of space.

The principal thing objected, on the Christian scheme, against Plato's doctrine of the *anima mundi*, is, that it mingles the Deity too much with the creatures; confounds, in some measure, the workman with his work, making this, as it were, a part of that, and the several portions of the universe so many parts of the godhead. Yet is the same principle asserted by Seneca, Epist. 92. *Totum hoc quo continemur, & unum est, & Deus. Et socii ejus sumus, & membra*—

ANIMA gemmarum, a term used by Beccher, and some others, to express that principle, to which the gems, and other beautiful stones, owe their colours:

This *anima lapidum* is no more than the metalline sulphur to which these stones and gems, naturally colourless, owe their tinges; and, like other metalline sulphurs, it may be raised and evaporated by fire. Beccher, Phys. Scot.

ANIMA saturni, the soul of lead, a preparation of lead, serving to many purposes in the enamel work. The method of making it is this: put litharge, powdered fine, into a glazed earthen vessel, and pour distilled vinegar upon it to the height of four fingers; let it stand till the vinegar is of a white or milky hue: pour off this coloured vinegar, and put on fresh, and so do till the vinegar will no longer be coloured by the litharge; then set these liquors together in open glazed earthen vessels, that the white powder may subside, and the vinegar be poured off clear. This white substance is the *anima saturni*. Sometimes this white matter will not precipitate without the addition of water; and sometimes it is necessary to evaporate the liquors; but by that means, it is always prepared. Neri's Art of Glafs, p. 184.

ANIMADVERSION sometimes signifies *correction*; and sometimes remarks or observations made on a book, &c. and sometimes, a serious consideration and reflection on any subject, by the rules of criticism.

The word is formed of *animus*, the mind; and *adverto*, *I turn to*.

ANIMAL, a being, which, besides the power of growing, increasing, and producing its like, which vegetables likewise have, is farther endowed with sensation, and spontaneous loco-motion.

The word is derived from *anima*, soul; and literally denotes something endued with a soul.

An animal, respect being only had to the body not the soul, may be defined with Boerhaave to be an organical body,

body consisting of vessels and juices, and taking in the matter of its nutriment by a part called the *mouth*; whence it is conveyed into another called the *intestines*, into which it has roots implanted, whereby it draws in its nourishment, after the manner of plants.

Some have defined *animals* from their loco-motion, as being capable of shifting from place to place; and plants, from their sticking fast to the same subject: but on this principle, oysters, muscles, cockles, &c. would be almost excluded from the class of *animals*, inasmuch as they usually adhere, or grow to rocks, &c. yet it is certain that those creatures are real *animals*, as they have mouths and stomachs to take in their food, and lacteals and mesenteric veins to receive it, and sometimes can even move from place to place on occasion. Indeed, muscles seem an exception from the former definition: if, as it is said, that anomalous creature breathes, and receives its nourishment, not at the mouth, but by the *anus*; the part which we account its head, though without either eyes, ears, or tongue, or any other *apparatus*, save a hole, which we may call its mouth, is an immoveable part; being fastened to one of the shells, so that it cannot seek for food, but the food must come to seek it. This food is water, which, as the shell opens, enters in at the *anus* of the muscle, which opens at the same time; and passing thence into certain canals, between the inner surface of the shell, and the outer surface of the *animal*, is said to be conveyed thence into its mouth, by a certain motion, which the *animal* can produce at pleasure.

We may, therefore, with Dr. Tyson, fix the *criterion* of an *animal* in a *ductus alimentalis*, i. e. a *gula*, stomach, and intestines; all which make but one continued canal. All *animals*, according to the most probable and received opinion, come from eggs, and are there inclosed, as it were, in *epitome*, till the seed of the male penetrate their covering, and stretch them so that they become ready for hatching.

There then enters, into their vessels, a chylous juice; which being pushed forwards by the spirits, circulates through the whole habit of the little body, nourishes and dilates it by little and little, and thus produces what we call *growth*.

This circulation repeated several times, refines and attenuates the juices, till at length they become of a red colour, and are converted into what we call *blood*. This natural operation bears a great resemblance to several chemical processes, by which, in attenuating and dissolving oily or sulphureous substances, they assume a red colour.

The philosophers comprehend man under the species of *animals*: and define him a reasonable *animal*; though among naturalists, &c. the term *animal* is usually restrained to irrationals.

Man, says Lister, is as very an *animal* as any quadruped of them all; and most of his actions are resolvable into instinct, notwithstanding the principles which custom and education have superinduced.

ANIMALS are ordinarily divided into *terrestrial*, *aquatic*, *volatile*, *amphibious*, *insects*, &c.

Terrestrial animals are either *quadrupeds* or *reptiles*.—Quadrupeds have either the feet cloven, as the bullock; or entire, as the horse; or divided into several toes or claws, as the dog, lion, &c. The other divisions will be found under the words *FISH*, *BIRD*, &c.

For a general account of the various kinds of *animals*, we shall here subjoin Mr. Ray's scheme.

Animals are either,

Sanguineous, that is, such as have blood, which breathe either by

Lungs, have either

Two ventricles in the heart, and those either

Viviparous.

{ Aquatic, as the whale kind. See *WHALE*.

{ Terrestrial, as quadrupeds.

Oviparous, as birds.

But one ventricle in the heart, as frogs, tortoises, and serpents.

Gills, as all sanguineous fishes, except the whale-kind.

Exsanguineous, or without blood, which may be divided into

Greater; and those either

Naked,

{ Terrestrial, as naked snails.

{ Aquatic, as the poulp, cuttle-fish, &c.

Covered with a tegument, either

{ Crustaceous, as lobsters, and cray-fish.

{ Testaceous, either

{ Univalve, as limpets.

{ Bivalve, as oysters, muscles, cockles, &c.

{ Turbinate, as periwinkles, snails, &c.

Lesser as insects of all sorts.

Viviparous hairy animals, or quadrupeds, are either

Hoofed, which are either

{ Whole-footed, or hoofed, as the horse and ass:

{ Cloven-footed, having the hoof divided into

Two principal parts, called *bisulca*, either

{ Such as chew not the cud, as swine.

{ Ruminant, or such as chew the cud, divided into

{ Such as have perpetual and hollow horns:

{ Beef-kind;

{ Sheep-kind;

{ Goat-kind,

{ Such as have solid, branched, and deciduous horns, as the deer kind.

Four parts, or *quadrisulca*, as the rhinoceros and hippopotamus.

Clawed or digitate, having the foot divided into

{ Two parts or toes, having no nails, as the camel kind.

{ Many toes or claws, either

{ Undivided, as the elephant.

{ Divided, which have either

{ Broad nails, and an human shape, as apes.

{ Narrower and more pointed nails, which, in respect of their teeth, are divided into such as have

Many fore-teeth or cutters in each jaw:

{ The greater, which have

{ A shorter snout, and rounder head, as the cat-kind.

{ A longer snout and head, as the dog-kind.

{ The lesser, the vermin or weazel kind.

Only two large and remarkable fore-teeth, all which are phytivorous, and are called the hare-kind.

Some have objected to Ray's division of *animals*, that all *animals* are sanguineous, since all have a vital fluid circulating through veins and arteries, though it be not of a red colour in all, the essential character of the blood lying not in its crimson colour, but in its office: in which view every fluid, by whose motion through vessels the life of an *animal* is sustained, may be denominated *BLOOD*.

But this is rather a dispute about words than things.

The celebrated Linnæus has distributed *animals* into six classes, viz. *mammalia*, *aves*, *amphibia*, *pisces*, *insecta*, *vermes*. Each class is divided into a certain number of orders, and each order is again subdivided into *genera*, or kinds, each of which contains a variety of species. The system of this ingenious naturalist includes 354 kinds, and near 6000 known species. *Systema Naturæ*.

For particulars relating to *animals*, their numbers, analogous structure, sagacity, instinct, &c. see *CREATION*, *ARK*, *HEAD*, *NECK*, *TAIL*, *FOOT*, *HORN*, *HOOF*, *STORGE*, *INSTINCT*, &c.

ANIMALS consist of *solids*, or firm parts, as flesh, bones, membranes, &c. and *fluids*, as blood, &c. Of an intermediate kind may perhaps be reckoned fat, &c.

The solids are mere earth, bound together by some oily humour; and accordingly they are reducible by fire into such earth again.

Thus a bone, being perfectly purged of all its moisture by calcination, is found a mere earth, which the least force will crumble into dust, for want of the natural gluten: yet the same bone, by immersing it in water or oil, becomes firm and strong again; and more so in oil than in water. And thus cupels are made of animal earth, which will sustain the utmost effect of fire.

The fluid parts of *animals* are the cruder as they are less distant from the lacteals, and absorbent vessels. Thus chyle is little else but a vegetable juice: but in its farther progress, it gradually lays aside its vegetable characters, till after a number of circulations it becomes a perfect animal juice under the denomination of blood, from whence the humours are all derived.

Animal substances have been distinguished from those of vegetables by two circumstances: the first, that when burnt they are found perfectly insipid; all animal salts being volatile, and flying off with heat: the contrary of which is found in vegetables, which constantly retain some fixed salt in all their ashes.

The second, that no pure acid is contained in any animal juice; nor can any acid salt be extracted from the same: the contrary of which is found in all vegetables. See *ACID*.

Yet are *animals* converted into their vegetable nature, by putrefaction.

ANIMALS, *oviparous*. See *OVIPAROUS*.

ANIMALS, *rapacious*. See *RAPACIOUS*.

ANIMALS, *generation of*. See *GENERATION*.

ANIMALS make the subject of that branch of natural history called *Zoology*.

The structure of *animals*, with their disorders, remedies, &c. make the subject of anatomy, medicine, &c.

ANIMALS make the principal figures in heraldry; both as bearings, and as supporters, &c.

ANIMAL is also used adjectively, to denote something that belongs to, or partakes of, the nature of an *animal* body. Thus we say *animal* food, *animal* oeconomy, &c. Moralists frequently oppose the *animal* part, which is the sensible, fleshy part of a man, to the rational part, which is the understanding.

ANIMAL actions are those peculiar to *animals*; or which belong to *animals*, as such.

Such are **SENSATION**, and **MUSCULAR MOTION**.

ANIMAL flower, in *Zoology*, a name given by Mr. Griffith Hughes, to an *animal*, or *zoophyton*, somewhat resembling the flower of the marygold, but of a paler yellow.

This name seems well adapted to the *animal*; for its *claws*, or *tentacles*, being disposed in regular circles, and tinged with a variety of bright lively colours, very nearly represent the beautiful petals of some of our most elegantly fringed and radiated flowers: such as the carnation, marygold, and anemone. Phil. Trans. abr. vol. ix. p. 110.

ANIMAL functions, among *Physicians*. See **FUNCTION**.

ANIMAL glue, see **GLUE**.

ANIMAL gods, *dii animales*, in *Mythology*, those into which human souls are converted by means of certain religious ceremonies.

Labeo has written expressly on the *animal gods*.

ANIMAL heat. See **HEAT**.

ANIMAL hunger. See **HUNGER**.

ANIMAL liquors.—The common opinion is, that all the *animal liquors*, excepting chyle and milk, are of an alkaline nature; but M. Quesnay, in his book *Sur l'Oeconomie Animale*, affirms, that our gelatinous liquors contain a very aciescent salt, capable of resisting a heat of two hundred degrees. The proof of which, says he, offers itself daily to every one. Who is it that has not remarked, that broth made with flesh well freed from fat, when corrupted, becomes as sour as verjuice? The foundation on which M. Quesnay builds his doctrine concerning *animal liquors*, is the separation of milk into its oily, cheesy, and watery substances. Med. Ess. Edinb.

ANIMAL motion is the same with what we call *muscular motion*.

It is divided into two branches; natural or involuntary, and spontaneous.

ANIMAL oeconomy, see **OECONOMY**.

ANIMAL oil, see **OIL**.

ANIMAL secretion is the act whereby the divers juices of the body are secreted or separated from the common mass of blood, by means of the glands. See **SECRETION**.

ANIMAL spirits are a fine subtle juice or humour in *animal* bodies; supposed by many to be the great instrument of muscular motion, sensation, &c.

The ancients distinguished spirits into three kinds, viz. *animal*, *vital*, and *vegetative*: but the moderns have reduced them to one sort, viz. *animal*; about the nature of which, and the matter whence they are formed, great disputes have arisen among anatomists, though their very existence has never been fairly proved.

In the History of the Royal Academy of Sciences at Paris, an. 1759, there is an ingenious memoir on this subject by M. Bertin. He undertakes to prove that the nervous fluid, or *animal spirits*, circulate; that if they depart from the brain they return to it by the nerves. In short, he proposes to form the course of this fluid into a system of circulation, less demonstrable, indeed, to the senses than that of the circulation of the blood, but in other respects, grounded on equally solid reasons.

As it is hard to define what could never yet be brought under the judgment of our senses, all that we shall here offer concerning them, is, that they must needs be extremely subtle bodies, which escape all manner of examination by the senses, though ever so well assisted; and pervade the tracts of the nerves, which yet have no discovery of cavity or perforation; nor could ever by any experiment be collected; yet are constantly moving in vast quantities, as they must of necessity be, to perform all those mighty operations which are ascribed to them. However, the antiquity of the opinion claims some reverence.

By the help of these spirits we are furnished with a vast number of precarious solutions of great *phenomena*; and without them we must leave a great chasm in the philosophical history of *animal* bodies; but after all, the *phenomena* that would in this case be unexplained, are, it may be, to us inexplicable.

They are supposed to be separated in the brain, from the subtlest parts of the blood; and thence carried, by the nerves, to all the parts of the body, for the performance of all *animal* and vital functions.

ANIMAL substances comprehend all the component parts of *animals*, of what use or intention soever they may be.

ANIMAL fessile substances, those found buried in the earth at various depths, and embodied among various *strata*.

These are principally of four kinds: 1. Sea-shells. 2. The teeth, bony palate, and bones of fishes. 3. The bones of land *animals*. And, 4. Complete fish. See **Fossile BONES**, **Fossile SHELLS**, **MARINE remains**, and **Fossile IVORY**.

ANIMAL substances, fermentative quality of. See **FERMENT**, and **FERMENTATION**.

ANIMAL system imports the whole class of beings endowed with *animal* life.

In which sense *animal system* amounts to the same with what chemists and others call the *animal kingdom*.

ANIMAL is also sometimes applied, in a figurative sense, to artificial or moral things.

Hobbes considers government as a huge complex *animal*, under the denomination of *Leviathan*.

The reason of the appellation is founded on the analogy between an *animal* and a political body. The sovereign or legislative power answers to the soul; the magistrates to the limbs or members; rewards and punishments are the nerves; riches, the strength; counsellors, the faculty of memory; equity, reason; sedition, sickness; civil war, death.

ANIMALCULE, **ANIMALCULUM**, a diminutive of *animal*; expressing such a minute creature as is either scarce, or not at all discernible by the naked eye.

Such are those numerous insects which crowd the water in the summer months; changing it sometimes of a deep or pale-red colour, sometimes of a yellow, &c. These often seem to be of the shrimp-kind, and the most common one is called by Swammerdam, *pulex aquaticus arborefcens*. The cause of their concourse, at this time, Dr. Derham observes, is to perform their coit. He adds, that they afford a comfortable food to many water animals. The green scum, on the top of stagnant waters, is often nothing else but prodigious numbers of another smaller order of *animalcules*; which, in all probability, serve for food to the *pulices aquaticæ*.

The **MICROSCOPE** discovers legions of *animalcules* in most liquors, as water, wine, vinegar, beer, dew, &c. In the Philosophical Transactions, we have observations of the *animalcules* in rain water, in several chalybeate waters, infusions of pepper, bay berries, oats, barley, wheat, &c. The human feed has been observed by divers authors to contain great numbers of *animalcules*.

Those who have made the most minute researches, and the most accurate inquiries, into the natures of the several objects subjected to their senses, have found that the substances upon which they employed their curiosity, were often quite different from what at first view they appeared to be. Thus for instance, the whole earth has been found replenished with an inexhaustible store of what we should least of all suspect: that is, an infinite number of *animalcules* floating in the air we breathe, sporting in the fluids we drink, or adhering to the several objects we see and handle. The conjectures and hypotheses relating to the production, generation, structure and uses of these *animalcules*, have been as various as were ever contrived by caprice, or embraced by credulity. Not to bewilder ourselves, however, in these labyrinths, but to confine our assertions to actual discoveries; by the assistance of the **MICROSCOPE** we not only perceive that such *animalcules* exist, but are also enabled, in some degree, to determine their shapes, and the various peculiarities of their motion.

The contemplation of *animalcules*, has made the ideas of infinitely small bodies extremely familiar to us. A mite was anciently thought the limit of littleness; but we are now surprised to be told of animals twenty-seven millions of times smaller than a mite.

Minute animals are found proportionably much stronger, more active and vivacious than large ones. The spring of a flea in its leap, how vastly does it out-strip any thing greater animals are capable of? A mite, how vastly faster does it run than a race horse? M. de l'Isle has given the computation of the velocity of a little creature scarce visible by its smallness, which he found to run three inches in half a second; supposing now its feet to be the fifteenth part of a line, it must make 500 steps in the space of three inches; that is, it must shift its legs 500 times in a second, or in the ordinary pulsation of an artery. Hist. Acad. Scienc. 1711. p. 23.

Dr. Hill, in his History of Animals, has arranged *animalcules* under three classes: 1. Such as have no tails, nor any visible limbs. 2. Those which have tails, but no visible limbs. And, 3. Those which have visible limbs: and each class is subdivided into several distinct genera. Hist. Anim. p. 1, &c.

ANIMALCULES, *visible*, those which may be discerned by the naked eye.

Such, e. gr. are mites, divers species of insects, reptiles, and other vermin.

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ANIMALCULES, invisible. Naturalists suppose another species or order of invisible *animalcules*, viz. such as escape the cognizance even of the best microscopes, and give many probable conjectures in relation to them. Reason and analogy give some support to the existence of infinite imperceptible *animalcules*.

The naked eye, some say, takes in from the elephant to the mite; but there commences a new order reserved only for the microscope, which comprehends all these from the mite, to those twenty-seven millions of times smaller; and this order cannot be yet said to be exhausted, if the microscope be not arrived at its last perfection.

ANIMALCULES, *microscopical*, those only discoverable by the help of a large magnifier. These, according to some, come under the denomination of *invisible animalcules*.

The excessive minuteness of these *animalcules* conceals them from the human eye unarm'd. One of the wonders of the modern philosophy is, to have invented means for bringing creatures, to us so imperceptible, under our cognizance and inspection. An object a thousand times too little to be able to affect our sense, should seem to have been very safe. Yet we have extended our views over animals, to whom these would be mountains: In reality, most of our microscopical *animalcules* are of so small a magnitude, that through a lens, whose focal distance is the tenth part of an inch, they only appear as so many points; that is, their parts cannot be distinguished, so that they appear from the vertex of that lens under an angle not exceeding a minute. If we investigate the magnitude of such an object, it will be found nearly equal to $\frac{1}{100^3}$ of an inch long. Supposing therefore these *animalcules* of a cubic figure, that is, of the same length, breadth, and thickness, their magnitude would be expressed by the cube of the fraction $\frac{1}{100000}$, that is, by the number $\frac{1}{100000000000}$, that is, so many parts of a square inch is each *animalcule* equal to. It is strictly true of these *animalcules*, that many thousands of them may dance on the point of a small needle.

There are in some liquors *animalcules* so small, that upon calculation the whole magnitude of the earth is not found large enough to be a third proportional to these minute floating animals, and the whales in the ocean.

With regard to their structure and æconomy, *animalcules* are found of divers sorts; some formed like fish, others reptile, others hexapedal, some horned, &c. In several kinds however small, it is easy to discover the form of their mouths, their proboscides, horns, &c. the motions of their hearts, lungs, and other parts.

Every *animalcule* being an organized body, how delicate and subtle must the parts be, that are necessary to constitute it, and to preserve its vital actions! It is hard to conceive, how, in so narrow a compass, there should be contained a heart to be the fountain of life, muscles necessary to its motions, glands for the secretion of its fluids, stomach and bowels to digest its food, and other innumerable members, without which an *animalcule* cannot subsist. But since every one of these members is also an organical body, they must likewise have parts necessary to their actions. For they consist of fibres, membranes, coats, veins, arteries, nerves, and an almost infinite number of fine tubes like those, whose smallness seems to exceed all efforts of imagination. But there are some parts that ought always to be infinitely less than these, as the fluids that flow along these fine tubes, the blood, lymph, and animal spirits, whose subtilty, even in large animals, is incredible.

Leewenhoeck calculates that a thousand millions of *animalcula*, which are discovered in common water, are not altogether so large as a common grain of sand. This author, upon examining the male sperm of various animals, discovered in many infinite numbers of *animalcula*, not larger than those above mentioned. In the milt of a single cod-fish, there are more animals than there are men upon the whole earth; and yet a grain of sand is bigger than four millions of them. The white matter also, which sticks to the teeth, abounds with *animalcules* of various figures, to which vinegar is fatal; and it is known that vinegar contains *animalcules* in the shape of eels. In short, according to this author, there is scarce any thing which corrupts, without producing *animalcules*. *Animalcula* are said to be the cause of various disorders. The itch, from several experiments, is affirmed to be a disorder arising from the irritation of a species of *animalcula* found in the pustules of that ailment; whence the communication of it by contact from one to another is easily conceived, as also the reason of the cure being effected by cutaneous applications. On this foundation some have attributed the small-pox and measles, and infectious diseases: others the epilepsy, &c. to *animalcules*. Langius goes farther, and pretends to reduce all diseases in general to the same principle. A late writer at Pa-

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ris, who assumed the title of an English physician; has done more. He not only accounts for all diseases, but for the operations of all medicines; from the hypothesis of *animalcules*. He has peculiar animals for every disease: scorbutic *animalcules*, podagrical *animalcules*, various *animalcules*, &c. all at his service. Journ. des Sçav. tom. lxxxii. p 535. &c.

But as most discoveries in natural philosophy, have laid a foundation for the warm imaginations of some men to form visionary theories, to the great prejudice of real knowledge: so those relating to *animalcula* have been drawn in, however improperly, to support the most whimsical and chimerical systems.

See a variety of microscopical objects, *animal, vegetable, and mineral*, delineated in table, *Microscopical Objects and Discoveries*.

ANIMATE, ANIMATED, something endued with life, or a living soul.

In mechanics, *animate power* is used to denote a man, or brute; in contradistinction to *inanimate power*, as springs, weights, &c.

Naturalists and philosophers vary extremely in affixing the characters, subjects, and species of *animate* bodies. Some include stocks and stones in this rank; others exclude brutes themselves.

Some of the philosophers have held all nature to be *animated*; that the sun, the earth, the planets, rivers, trees, stones, &c. are so many animals; others, that the whole system is only one huge animal, informed with a soul, or *anima mundi*. Plato, in *Timæo*. Morhoff. Polyh. Phil. lib. ii. p. i. cap. III.

ANIMATED *horse hairs*: See HORSE *hairs*.

ANIMATED is also used to denote a thing impregnated with vermin or ANIMALCULES.

In this sense the whole earth may seem to be *animated*; since in every part of it we meet with an infinite number of animals, either visible or invisible; they are found in air, water, earth, plants, and even in the hardest stones; and there is perhaps no animal known, which does not breed numbers of others in the different parts of its body.

ANIMATED *mercury*, among *Chemists*, signifies quicksilver, impregnated with some subtile and spirituous particles, so as to render it capable of growing hot when mingled with gold.

ANIMATED *needle*, a needle touched with the load-stone, or
MAGNET.

ANIMATION, signifies the informing of an animal body with a soul.

Thus the *fœtus* of the womb is said to come to its *animation*, when it begins to act as a true animal : or after the female that bears it is *quick*, as the common way of expression is.

The learned are not agreed about the time when the female becomes quick ; some compute it at forty days after conception ; others fix it about the middle of the term of GESTATION.

T. Fienus Gardinius, Verde, Fort. Licetus, F. de Bononia, have written expressly on the *animation* of the FOETUS; Fr. Zanellis on the *animation* of the SEED.

ANIMATION is also used by some *mechanical philosophers*, for the act of soliciting the descent of a body so as to give it continually new degrees of ACCELERATION.

ANIMATION is also used by *Alchemists* for the operation of fermenting a white foliated earth, with a kind of philosophical or celestial water or sulphur.

ANIMATION is also used in a moral or figurative sense, for the act of giving life and force to a discourse, or the like.

ANIMATION is also used by *hermetic philosophers*, to denote a certain state of perfection to which a body is brought by some appropriate process, in virtue whereof it becomes capable of producing some extraordinary *phenomena*.

ANISE, ANISE & *cancamum*, in *Pharmacy*, a kind of resin, whereof there are two kinds, the *western*, and *eastern*. This resin is the produce of an American tree, of which we have no certain account.

The *western* flows from an incision of a tree in New Spain, called *courbaril*; it is transparent, and of a colour like that of frankincense; its smell is very agreeable, and it easily consumes in the fire.

The eastern gum *anime* is distinguished into three kinds; the first is white; the second blackish, in smell like myrrh; the third pale, resinous, and dry.

Anime, according to Neumann, is a resin totally soluble in spirit of wine. It is called improperly *gum anime*. Other authors mention two substances, to which this name is given, one of which is brought from India, and is resinous; the other is brought from Brasil, and is similar in appearance and insolubility in spirit of wine, or in water, to the substance called *gum copal*. All the *anime* which is to be found in shops of druggists is of this latter kind; and if it does not proceed from the same tree as *gum copal*, is scarcely distinguishable from it.

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The small tears are the purest ; it has little taste ; but an agreeable smell ; it easily breaks between the teeth ; but if chewed for some time it softens, and becomes adhesive. Laid on red-hot iron, it melts immediately, catches flame, and burns quickly away, leaving a little white ashes. In our shops, we have only the American sorts of this resin.

The best *gum anime* ought to be white, dry, friable, clean, of a good smell, that soon consumes when thrown into the fire ; and that contains a great deal of oil and essential salt.

It is proper to discuss, to soften and dissipate cold humours, and is therefore good for the head-ach ; to strengthen the brain they apply it to the top of the head, and perfume night-caps with it : it is also used for cleansing and cicatrising wounds.

Its principal use in medicine is external ; in cold, painful, rheumatic, flatulent affections of the head, nerves, and joints : palfies, contractions, relaxations, contusions, &c. It is an ingredient in plasters and cerates, for these purposes.

ANIME, in *Heraldry*, is where the eyes, &c. of a rapacious creature are borne of a different colour from the rest of the creature.

The French say *anime*, the English *incensed*, the Latins *insensus*, of such or such a colour.

ANIMELLÆ, the glands under the ears, &c. called also *lactinea*.

ANIMETTA, in *Ecclesiastical Writers*, denotes the pall or cloth wherewith the cup is covered in the eucharist.

ANIMI deliquium. See LIPOTHYMIA and SWOONING.

ANINGA, in *Commerce*, a root growing in the Caribbee islands, of use in the refinement of sugar.

The decoction of this root is found a more certain, as well as more innocent means of clarifying sugar, than the sublimate and arsenic used for this purpose, before the discovery of the *aninga*.

ANISATUM, a name given to ANISE-SEED water.

ANJOU cabbage, in *Botany*. See CABBAGE.

ANISCALPTOR, in *Anatomy*, a muscle, otherwise called *LATISSIMUS dorsi*.

ANISE-SEED, a medicinal seed, produced by an umbelliferous plant of the same name, common in some gardens, of the *pentandria digynia* class.

The outer thin skin of the seeds of this plant contains an essential oil ; and the kernel itself contains an inodorous expressible oil. It can only operate as a mere resinous substance, and may therefore be, not improperly, supplied by cheaper resins. Neumann, p. 397.

The plant which produces it, is a species of *pimpinella*, or *Burnet SAXIFRAGE*. It is a small tender plant, producing one stalk, seldom arising above two feet high. It flowers and seeds in July, the root dying every year after it has yielded seed. It is cultivated in Germany ; but the best seed, which is a smaller sort, comes from Spain. The seed only is used, being one of the four greater hot seeds.

Anise-seed is carminative, expelling wind out of the stomach and bowels, both given at the mouth, and in clysters.

It is frequently put into children's victuals for the gripes and wind. It is very useful against cold affections of the lungs, difficulty of breathing, and asthma. Some commend it much to be taken frequently by nurses to increase their milk. It is often used as a corrector of the stronger purgative medicines. The oil distilled from the seed is used for the same purposes ; and is often applied outwardly in carminative and anodyne liniments ; particularly for the pleurisy, and other pains in the side.

ANISE-SEED, *starry*, *anifum stellatum*, is a seed brought chiefly from Tartary ; thus called from the affinity it bears in smell to the common *anise-seed*, and the star-like figure of its *capsula seminalis*.

It was first brought into Europe from the Philippine islands by an English mariner, named Thomas Candy, in his return from a voyage round the world in the year 1601.—The natives call it *damor* and *zingi* ; the Europeans sometimes *FOENICULUM Sinense*, or Chinese FENNEL ; botanists, *ANISUM Indicum*, *ANISUM peregrinum*, *ANISUM exoticum Philippinarum insularum*, *CARDAMOMUM Siberiense*, *BADIANUM*, &c.

Its virtues are of the same kind with those of the common *anise-seed*, only that it is sweeter, more grateful, penetrating, and aromatic. It is reputed a general cordial and strengthener.

The Chinese use it in the preparation of their tea ; and after their example the Dutch also use it in this liquor, pretending it makes it more pleasant.

The wood is also imported into Europe, where it is employed in works of marquetry and mosaic. It is also called ANIL.

In distilling the anise-seed for the oil, there is procured a

limpid water, called *anise-seed* water ; which has much the same virtues with the oil.

See Neumann's chemical history of these plants, and his account of their chemical differences from each other, and of the peculiarities of the essential oil of *anise-seeds*, in his Works, p. 393, & seq.

ANKER, ANCHOR, a liquid measure chiefly used at Amsterdam, &c.

The *anker* is the fourth part of the *awn*, and contains two *stekans* ; each *stekan* consists of sixteen *mengles* ; the *mengle* being equal to two Paris pints.

ANNALE, in some *Middle Age writers*, denotes a day held every year in commemoration of the dead.

In which sense *annale* amounts to the same with what is otherwise called *anniversary*.

ANNALE is more particularly applied to the masses celebrated during the space of a year for the dead.

ANNALIS *actio*, in the *Civil Law*, denotes an action which may be put in practice any time within the year.

In the like sense we meet with *annale decretum*, or *negatum*, *annalis rescissio*, &c.

ANNALIS *clavus*, in *Roman Antiquity*, the nail which the prætor, consul, or dictator, fixed every year in the wall of Jupiter's temple, on the ides of September, to shew the æra or number of years from the building of Rome. This custom was afterwards changed, and the years were reckoned by the CONSULS.

ANNALIS *exceptio*, a kind of privilege anciently granted the people of Italy, that whoever had made a contract could not be compelled to the performance, or payment of what had been agreed on within the year. Some extend this privilege so as to render it still more grievous, by computing the year exclusive of all holidays.

ANNALES *libri*, in the *Civil Law*, denote books wherein the acts, and proceedings of a whole year, were contained.

In which sense *annales* stand opposed to *semestres libri*, wherein the acts and constitutions of six months were contained.

ANNALES *baculi*, denote a kind of wooden almanacs used among our ancestors, called also *runstocks* or *clogs*.

ANNALES, in *Middle Age Writers*, denote yearlings, or young cattle of a year old, or under two.

ANNALES also denote a kind of rent, or annual revenue.

ANNALS, an historical account of the affairs of a state, digested in the order of years.

The difference between *annals* and *history* is variously assigned by various authors. Some say that *history* is properly a recital of things which the author has seen, or been a by-stander to. What they build upon is, the etymology of the word ; *history*, in the Greek, signifying the knowledge of things present, and, in effect, *isopsis* properly signifies *to see*. On the contrary, *annals*, say they, relate to the transactions of others, and such as the writer never saw.

Of this opinion the great *annalist*, Tacitus himself, seems to have been ; because the first part of his work, which treats of former times, he calls *annals* ; but when he comes down to his own times, he changes his title, and calls it *history*.

According to Sempromius Afellio, *annals* are a bare relation of what passes each year ; whereas *history* relates not only to the transactions themselves, but also the causes, motives, and springs of them. The *annalists* merely states his facts, but the historian reasons and descants on them.

Of this last opinion seems Cicero to be, when speaking of *annalists*, he says, *Unam dicendi laudem putant esse brevitatem, non exornatores rerum, sed tantum narratores*. He adds, that *history*, in its original, was the composition of *annals*.

Cicero relates the origin of *annals* : to preserve the memory of transactions, the *pontifex maximus*, says he, wrote what passed each year ; and exposed it on a table, in his own house, where every one was at liberty to read it.—This they called *annales maximi* ; and this custom was kept up till the year of Rome 620.

Annales maximi consisted of eighty books. They were most of them destroyed in the burning of the city by the Gauls.

The like *annals* were kept from the earliest ages by the Egyptians, Babylonians, Persians, Chaldeans, &c.

Several other writers, in imitation of these, adopted this simple and naked way of relating facts : and were hence denominated *annalists*—Such were Cato, Pictor, Piso, Antipater, &c.

The *Annals* of Grotius is a book finely written, and contains excellent materials. He is not so particular as Strada, but more profound, and comes much nearer to Tacitus.

ANNATES, ANNATA, in *Ecclesiastical Writers*, denotes a year's income, due anciently to the pope upon the death of

of any bishop, abbot, or parish-priest; and to be paid by his successor.

Annates are also called from the Latin *annus*, year, because their rate is after the value of one year's purchase. *Annates* are the same with what of later days are called *primitiæ*, or *first-fruits*: with this only difference, that first fruits with us are paid to the king.

The invention of *annates* is ascribed, by a late writer, to Anthonin, bishop of Ephesus, who exacted from all bishops consecrated by him, a sum proportionate to the annual revenues of their fees. The council of Ephesus, held in 400, condemned this exaction, but not till Anthonin was dead. It was long after that *annates* got footing in the western church. The time when they were first introduced is very obscure; some refer it to the pontificate of Alexander IV. others to that of John XXII. who, in the first year of his papacy, obtained a year's revenue of all the cathedral benefices. Clement V. is said to have been the first pope who imposed *annates* on England. In 1399, during the schism of the antipopes, Benedict IX. exacted a year's revenue of all the archbishopricks, bishopricks, and abbies. But in the time of these popes, the *annates* were not fixed; and the clergy often refused to pay them. There were even popes who condemned *annates*; and the secular princes frequently objected to the payment of them, forbidding any money to be carried out of their dominions on this account.

Nic. de Clemangis, A. Massa, Galleus, Campegius, and Fernandus Cordubensis, have written expressly concerning *annates*.

Matthew Paris, in his History of England, for the year 746, relates, that the archbishop of Canterbury, in virtue of a grant or concession of the pope, received *annates* of all the benefices that became vacant in England. Before this time, among the laws of king Ina, who began his reign in the year 712, there is an order for the payment of them. But, in after-times, the holy see thought fit to take these away from the bishops and archbishops, and appropriate them to themselves. And from the popes the parliament under Henry VIII. took them, and gave them to the crown. 25 H. VIII. cap. 20. Finally queen Anne restored them to the church, by appropriating them to the augmentation of poor livings.

ANNEALING, or, as it is popularly called, *nealing*, see **NEALING**.

ANNEXATION, in a legal sense, the act of joining or uniting some less considerable thing to a greater.

ANNEXED, something joined to, or dependent on another. —Thus we say, such a farm, such an advowson, is *annexed* to such a fee, such a manor, &c. Charles VIII. in the year 1486, *annexed* Provence to the crown of France.

ANNIENTED, or rather **ANIENTED**, a term sometimes used in law-books, in the sense of frustrated, or annulled.

It is formed of the verb *aneantir*, to bring to nothing, or to annihilate.

ANNIHILATION, the act of reducing a substance into nothing; or of totally destroying and taking away its existence. The word is compounded of *ad*, to, and *nihil*, nothing.

Annihilation stands opposed to creation: the one supposes something made out of nothing, the other something reduced to nothing.

All *annihilation* must be metaphysical or supernatural: bodies naturally admit of changes and alterations in their form, but not of *annihilation*.

The ancient philosophers in effect denied all *annihilation* as well as creation, resolving all the changes in the world into new modifications, without supposing the production of any thing new, or destruction of the old.

By daily experience they saw compounds dissolved, and in their dissolution nothing perished, but their union or connection of parts; when in death the body and soul were separated, the man they held was gone, but the spirit remained in its original, the great soul of the world, and the body in its earth from whence it came; these were again wrought by nature into new compositions; and entered new states of being, which had no relation to the former. According to some, nothing is so difficult as *annihilation*; it requires the infinite power of the Creator to effect it; some go farther, and seem to put it out of the power of God himself. According to others, nothing is so easy; existence is a state of violence: all things are continually endeavouring to return to their primitive nothing; it requires no power at all: nay, what is more, it requires an infinite power to prevent it.

The Talapains hold it the supreme degree of happiness to have the soul totally *annihilated*, and freed from the burden and slavery of transmigration.

Some Christians maintain, that God will *annihilate* the souls of the damned, after a certain time of punishment; and this *annihilation*, they say, is the second death. Irenæus, according to M. du Pin, was of this opinion.

ANNIHILATION is also used, in *Political Arithmetic*: thus,

when the capital stock of any public fund is reduced, so much as is reduced is said to be *annihilated*.

ANNI nubile, among *Law Writers*, the legal age at which a maid becomes fit for marriage; which is at twelve years.

ANNIS communibus. See **COMMUNIBUS**.

ANNISEED. See **ANISE-SEED**.

ANNIVERSARY, is properly the yearly return of any remarkable day; anciently also called a *year-day*, or *mind-day*, that is, a memorial day.

The word is formed from *annus* and *verto*, on account of its returning every year.

ANNIVERSARY days, *dies anniversarii*, among our ancestors, more particularly denote those days wherein the martyrdoms of the saints were yearly celebrated in the church; as also days whereon, at every year's end, men were wont to pray for the souls of their deceased friends. — *Anniversaria dies ideo repetitur defunctis, quoniam nescimus qualiter eorum causa habeatur in alia vita* — This was the reason given by Alcuinus in his divine offices.

ANNIVERSARY winds, are those which blow constantly at certain seasons of the year.

These are otherwise called *Etesian winds*: such are the **TRADE winds** and **MONSOONS**.

ANNIVERSARY is more particularly used for the *annale*, or *mass*, rehearsed daily for the space of a year after a person's death.

ANNO Domini, q. d. in the year of our Lord; the computation of time from the **EPOCH**A of the incarnation of Jesus Christ.

ANNOISANCE, in *Law*. See **NUSANCE**.

ANNOMINATION, *annominatio*, in *Rhetoric*, the same with what is otherwise called **PARONOMASIA**.

ANNONA, in *Botany*. See **Custard APPLE**.

ANNONA, in *Ancient Writers*, denotes victuals or provisions of corn for a year.

ANNONA civilis, the corn with which the granaries of cities were filled every year, for the subsistence of the citizens.

ANNONA militaris, the corn and other provision laid up in the magazines for the subsistence of an army during the campaign.

In ancient writers, we also meet with the phrases *singula annonæ*, *binæ annonæ*, *ternæ annonæ*; with regard to which Salmasius lays down this rule, that when *annona* occurs in the singular number, it includes not only corn, but flesh, wine, oil, and other necessities; whereas, when it is used in the plural number, it imports bread alone. Aquinas is not contented with this rule, but instead of it advances another, viz. that *annona* in the singular number includes all kinds of provision; and, in the plural, imports so many rations or pittances of bread, flesh, and the like, distributed to so many men.

In this sense, soldiers are sometimes said to have risen to the benefit of five or more *annonæ*, that is, were entitled to so many rations. The emperors Arcadius and Honorius took great pains to reduce this profusion. Hence we read of *annonæ præfectus*, or *curator*, who superintended the sale of corn; *annonæ structor*, who managed the military provisions; *annonarius*, an officer appointed to distribute provisions to the soldiers; and *annonarii*, denoting monopolists.

ANNONAGE, *annonagium*, a tax on corn.

ANNONAGE is much the same with *frumentage*.

ANNOTATION, a succinct commentary, or remark on a book, or writing; in order to clear up some passages, or to draw some induction, or consequence from it.

The word is formed of *ad*, and *nota*, note.

ANNOTATION, in *Medicine*, denotes the very beginning of a febrile paroxysm, when the patient grows chill, shudders, yawns, is drowsy, and the like.

It is also used for a symptom peculiar to hectic fevers, when the patient, an hour or two after eating, finds himself hot, his pulse quickened, &c. without any shuddering.

ANNOTATION, in the *Civil Law*, denotes a kind of rescript or grant of the emperor, signed with his own hand. But this *annotation* differed from a mere rescript, and a pragmatic sanction.

It took its name from the note or subscription at the bottom, which was in red letters.

ANNOTTO, in *Commerce*, a kind of red dye, brought from the West Indies. This is otherwise denominated *anate* and *attole*.

It is procured from a red flower, produced by a shrub, which grows seven or eight feet high. This flower being thrown into tubs and cisterns, for the purpose, is treated much after the manner of **INDIGO**; and the red mass is extracted by this infusion and fermentation from the pellicles of the tree.

The *annotto*, is now only prepared by the Spaniards. The English had formerly a manufacture at St. Angelo, now ruined. The drug is preferred by the dyers to indigo, and sold one fourth dearer. The double Gloucester cheese is coloured with this dye, not with *marygolds*.

To water it gives only a pale brownish yellow colour, and is very little soluble in that liquid. It readily dissolves in spirit of wine, and gives a bright orange colour; hence it is useful as an ingredient in varnishes and lacquers. Wool and silk boiled in a solution of it, by alkaline salts in water, acquire a deep, but not a durable orange dye; for though it is not changed by alum or acids, it is discharged by soaps, and destroyed by exposure to the air. It is said to be an antidote to the poisonous juice of *manihot*, or *cassada*.

See more of this artificial preparation, and the manner of making it, in Dr. Lewis's *Commercium Phil. Tech.* p. 224, &c. or Neumann's Works, p. 433, &c.

ANNUAL, something which returns every year, or closes at the end of the year.

Thus we say, an *annual*, or yearly feast, office, commission, rent, revenue, income, &c.

The *annual* motion of the earth, see proved under **EARTH**.

ANNUAL is sometimes used for the yearly rent, or income of a prebendary, &c.

In which sense *annuale* amounts to the same with what we otherwise call *annate*.

ANNUAL is also used, in *Ecclesiastical Writers*, to denote a yearly office, said for the soul of a person deceased on the day of his obit, or anniversary.

ANNUAL, in the Scottish *Law*, denotes any yearly revenue, or due, paid at certain times, either legal, as Martinmas and Whitsuntide, or conventional, as the parties agree.

In the acts of parliament, made by queen Mary, mention is made of *ground-annuel*, *fue-annuel*, and *top-annuel*; the meaning whereof is somewhat uncertain.

ANNUEL, *ground*, according to Skene, is, when the property of any land, whether built or unbuilt, is let or sold for a yearly rent, to be paid either to the proprietor, or to some chaplain, or priest.

ANNUEL, *fue*, is either when the mail or due is disposed of as a yearly revenue; or, when the land or tenement is let in fee-farm hereditary, for a certain yearly sum to be paid under the denomination of *feuda firma*.

ANNUEL, *top*, is a due given or assigned out of houses or buildings, where the property remains with the former owner, only with the condition of his paying the said *annuel*.

ANNUEL of Norway, of which mention is made in the acts of parliament of king James the Third, was an *annuel* payment of a hundred marks sterling, which the kings of Scotland were obliged to pay to the kings of Norway, in satisfaction for some pretensions which the latter had to the Scottish kingdom, by virtue of a conveyance made thereof by Malcolm Kanmoir, who usurped the crown after his brother's decease.

This *annuel* was first established in 1266; in consideration whereof the Norwegians renounced all title to the succession of the isles of Scotland. It was paid till the year 1468, when the *annuel*, with all its arrears, was renounced in the contract of marriage between king James the Third, and Margaret daughter of Christian the First, king of Norway, Denmark, and Sweden. See Skene de Verb. Signif.

ANNUAL argument of longitude. See **ARGUMENT**.

ANNUAL epacts. See **EPACTS**.

ANNUAL equation of the mean motion of the sun and moon, and of the moon's apogee and nodes. See **EQUATION**.

ANNUAL leaves, are such leaves of plants, as come up afresh in the spring, and perish in winter. These stand opposed to *ever-greens*.

ANNUAL plants, called also simply *annuals*, are such as only live their year, i. e. come up in the spring and die again in autumn; and accordingly are to be recruited every year.

ANNUAL meadow-grass, called in some parts of England Suffolk grass, is a species of grass, which makes the finest turfs, and seems well adapted to dairy-farms.

ANNUALIA, yearly oblations anciently made by the relations of deceased persons on the day of their death.

This day they called *year-day*, &c. and on it mass was celebrated with great solemnity.

ANNUENTES *musculi*, in *Anatomy*, a pair of transverse muscles, at the root of the *vertebræ* of the back, called also by Mr. Cowper *RECTI interni minores*, because they lie under the *RECTI majores*.

They are called *annuentes*, from *annuere*, to nod towards, because they help to nod the head, or draw it directly downwards and forwards.

ANNUITIES signify any interest of money, rents, or pensions, payable from time to time, at particular periods.

The most general division of *annuities* is into *annuities certain*; and *annuities*, the payment of which depends on a contingency; such, in particular, as the continuance of a life.

Annuities have been also divided into *annuities in possession*

and *annuities in reversion*; the former meaning such as either have commenced, or are to commence immediately: and the latter such as will not commence till some particular future event has happened, or till some given period of time has expired.

Annuities may be farther considered, as payable yearly, half-yearly, or quarterly.

The present value of an *annuity* is that sum which, being improved at interest, will be sufficient to pay the *annuity*.

The present value of an *annuity certain*, payable yearly, and the first payment of which is to be made at the end of a year, is calculated in the following manner.

Let the *annuity* be supposed to be 100*l.* the present value of the first payment of it, or of a hundred pounds to be received a year hence, is that sum in hand, which being put out to interest, will increase to 100*l.* in a year. In like manner, the present value of the second payment, or of 100*l.* to be received two years hence, is that sum in hand, which being put out to interest, will increase to 100*l.* in two years. The like is true of the value of the 3d, 4th, 5th, &c. payments; and the sum of the values of all the payments is the value of the *annuity*.

Let the interest be supposed to be 4 per cent. The sum which improved at 4 per cent. interest for a year will produce 100*l.* at the end of the year, is the sum which bears the same proportion to 100*l.* that 100*l.* bears to 104*l.* with 4 added to it, that is, to 104*l.* Say then as 104*l.* is to 100*l.* so is 100*l.* to a fourth proportional, which will be 96.15, or 96*l.* 3*s.* which is the value of the first payment.

Again, the sum which improved at 4 per cent. for two years will produce 100*l.* at the end of two years, is the sum which being now put out to interest, will produce in a year that sum which in one year more will produce 100*l.* that is, it is the sum that will produce in a year 96*l.* 3*s.*; for it has been just shewn, that 96*l.* 3*s.* will in a year produce 100*l.* Say then as 104*l.* is to 100*l.* so is 96*l.* 3*s.* or 96.15, to a fourth proportional, which will be 92.45, or 92*l.* 9*s.* The value therefore of the second payment is 92*l.* 9*s.*

By proceeding in this method it will be found, that the values of the 3d, 4th, 5th, &c. payments, are £88.89, £85.48, £82.19, &c. The sum of 10, 20, or 100 of these values, is £811, £1359, £2450, respectively, or the present value of an *annuity* of 100*l.* payable for 10, 20, or 100 years. The sum of an infinite number of these values is 2500*l.* or the value of a perpetual *annuity* of 100*l.* at 4 per cent.

In general: suppose *r* to denote 1*l.* increased by its interest for a year, or the amount of 1*l.* in a year. Then

$\frac{1}{r}$ will be the present value of 1*l.* to be received a year

hence: for *r* is to 1 as 1 is to $\frac{1}{r}$. Also $\frac{1}{r^2}$ will be

the value of 1*l.* to be received at the end of two years; for *r* is to 1, as $\frac{1}{r}$ is to $\frac{1}{r^2}$. In like manner, $\frac{1}{r^3}$,

$\frac{1}{r^4}$, $\frac{1}{r^5}$, &c. will be the values of 1*l.* to be received at

the end of 3, 4, 5, &c. years respectively; and $\frac{1}{r^n}$

will be the value of 1*l.* to be received at the end of *n* years. The value, therefore, of an *annuity* of 1*l.* for *n*

year is $\frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3} + \frac{1}{r^4}$, &c. continued to *n* terms.

And the value of the perpetuity is the series continued in

infinitum.

In order to find the sum of *n* terms of this series, put

S equal to it, or $S = \frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3}$, &c. + $\frac{1}{r^n}$.

Then,

$Sr = 1 + \frac{1}{r} + \frac{1}{r^2}$, &c. + $\frac{1}{r^{n-1}}$. And

$Sr - 1 = \frac{1}{r} + \frac{1}{r^2}$, &c. + $\frac{1}{r^{n-1}} = S - \frac{1}{r^n}$. There-

fore

$Sr - 1 = S - \frac{1}{r^n}$. And consequently

$Sr - S = 1 - \frac{1}{r^n}$, and $S = \frac{1}{r-1} - \frac{1}{r-1} \times \frac{1}{r^n}$.

This is the general theorem for finding the sum of any

given number of the first terms of the series $\frac{1}{r} + \frac{1}{r^2}$

+ $\frac{1}{r^3}$, &c. that is, for finding from the rate of interest

given, the value of an *annuity certain*, payable yearly for any number of years. If the *annuity* is a perpetuity, it

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is plain, that $\frac{1}{r^n}$, or the last term vanishing, $\frac{1}{r-1}$
 $\times \frac{1}{r^n}$, also vanishes; and, consequently, that the ex-

pression becomes $S = \frac{1}{r-1}$: from whence it results that

the value of a perpetuity is always unity divided by the interest of 1% for a year, or 100% divided by the rate of interest.

The value of the *reversion* of a perpetual annuity, to be entered upon after a particular term, is "the value of the annuity for the given term subtracted from the perpetuity." For example: the value of an annuity to be entered upon ten years hence is (reckoning interest at 4 per cent.) 8.11, i. e. the value of an annuity certain for ten years, subtracted from 25 the perpetuity, or 16.89; that is, 16 $\frac{1}{2}$ years purchase nearly. If the annuity is to be entered upon at the end of 18 years, the value will be 12.34.

If the reversion is not a perpetuity, but an annuity certain for a given term, to be entered upon after another given term, the value will be the value of the perpetuity after both terms subtracted from the value of the perpetuity after the first term; that is, supposing the reversion an annuity for 8 years, to be entered upon after 10 years, the value is (reckoning interest at 4 per cent.) the difference between 16.89, and 12.34, or 4.55; that is, 4 $\frac{1}{2}$ years purchase nearly.

Annuities certain differ in value, as they are made payable yearly, half-yearly, or quarterly. The following theorems, founded on the general theorem just given, will sufficiently explain this subject. Let r denote, as before, 1% increased by its interest for a year, and n the term or number of years during which any annuity is to be paid. Let P denote the perpetuity, or $\frac{1}{r-1}$: let y denote the value of an annuity for n years, supposing it

paid yearly, or $\frac{1}{r-1} - \frac{1}{r-1} \times \frac{1}{r^n}$; b its value payable half-yearly; and q its value payable quarterly.

THEOREM I.

$$y = P - P \times \frac{1}{r^n}$$

THEOREM II.

$$b = P - P \times \frac{1}{1 + \frac{r-1}{4}}^{2n}$$

THEOREM III.

$$q = P - P \times \frac{1}{1 + \frac{r-1}{4}}^{4n}$$

Example I.

Let the rate of interest be 4 per cent. and the term five years; and consequently $r=1.04$, $n=5$, $P=25$, and $\frac{1}{r^n}$, or the value of 1% payable at the end of five years, .8219.

Then, $y = 25 - 25 \times .8219 = 4.4518$
 $b = 25 - 25 \times .82034 = 4.4913$
 $q = 25 - 25 \times .8196 = 4.5120$

Example II.

Let the rate of interest be the same, and the term for which the annuity is payable 25 years.

Then, $y = 15.6220$.
 $b = 15.7118$.
 $q = 15.7694$

Example III.

Interest being the same, let the term be 50 years.

Then, $y = 21.4822$
 $b = 21.5491$
 $q = 21.5820$

Example IV.

Interest being the same, let the term be 100 years.

Then, $y = 24.505$
 $b = 24.523$
 $q = 24.532$

TABLES for finding the values and amounts of fums and annuities for any number of years not exceeding a hundred, at any rates of compound interest from 3 to 6 per cent.

A N N

T A B L E I.

Shewing the amount of 1% principal.

Years.	At 3 per Cent.	3 $\frac{1}{2}$ per Cent.	4 per Cent.	4 $\frac{1}{2}$ per Cent.	5 per Cent.	6 per Cent.
1	1.030000	1.035000	1.040000	1.045000	1.050000	1.060000
2	1.060900	1.071225	1.081600	1.092025	1.102500	1.123600
3	1.092727	1.108718	1.124864	1.141166	1.157625	1.191016
4	1.125509	1.147523	1.169859	1.192519	1.215506	1.262477
5	1.159274	1.187689	1.216653	1.246182	1.276282	1.338226
6	1.194052	1.229255	1.265319	1.302260	1.340096	1.418519
7	1.229874	1.272279	1.315932	1.360862	1.407100	1.503630
8	1.266770	1.316809	1.368569	1.422101	1.477456	1.593848
9	1.304773	1.362897	1.423312	1.486095	1.551328	1.689479
10	1.343916	1.410599	1.480244	1.552969	1.628895	1.790548
11	1.384234	1.459970	1.539454	1.622853	1.710339	1.898299
12	1.425761	1.511069	1.601032	1.695881	1.795856	2.012196
13	1.468534	1.563956	1.665074	1.772196	1.885649	2.132928
14	1.512590	1.618895	1.731676	1.851945	1.979932	2.260904
15	1.557967	1.675349	1.800944	1.935282	2.078928	2.396559
16	1.604706	1.733986	1.872981	2.022370	2.182875	2.540352
17	1.652848	1.794676	1.947900	2.113377	2.292018	2.692773
18	1.702433	1.857489	2.025817	2.208479	2.406619	2.854339
19	1.753506	1.922501	2.107849	2.307860	2.526950	3.025600
20	1.806111	1.989789	2.191123	2.411714	2.653298	3.207135
21	1.860295	2.059431	2.278768	2.520241	2.785963	3.399564
22	1.916103	2.131511	2.369919	2.633652	2.925261	3.603537
23	1.973584	2.206114	2.464716	2.752166	3.071524	3.819750
24	2.032797	2.283328	2.563304	2.876014	3.225100	4.048935
25	2.093778	2.363245	2.665836	3.005434	3.386355	4.291871
26	2.156591	2.445959	2.772470	3.140679	3.555673	4.549383
27	2.221289	2.531567	2.883369	3.282096	3.733456	4.822346
28	2.287929	2.620172	2.998703	3.429700	3.920129	5.111687
29	2.356566	2.711878	3.118651	3.584036	4.116136	5.418388
30	2.427262	2.806794	3.243398	3.745318	4.321942	5.743491
31	2.500080	2.905031	3.373133	3.913857	4.538039	6.088101
32	2.575083	3.006708	3.508059	4.089981	4.764941	6.453387
33	2.652339	3.111942	3.648381	4.274030	5.003189	6.840590
34	2.731905	3.220860	3.794316	4.466362	5.253348	7.251025
35	2.813862	3.333590	3.946089	4.667348	5.516015	7.686087
36	2.898278	3.450266	4.103933	4.877378	5.791816	8.147252
37	2.985227	3.571029	4.268090	5.096860	6.081407	8.635687
38	3.074783	3.696011	4.438813	5.326260	6.385478	9.154452
39	3.167027	3.825372	4.616366	5.565899	6.704751	9.703507
40	3.262038	3.959260	4.801021	5.816365	7.039989	10.285716
41	3.359899	4.097834	4.993061	6.078101	7.391988	10.902801
42	3.460696	4.241258	5.192784	6.351615	7.761588	11.557033
43	3.564517	4.389702	5.400495	6.637438	8.149667	12.250455
44	3.671452	4.543342	5.616515	6.936123	8.557150	12.985482
45	3.781596	4.702359	5.841176	7.248248	8.985008	13.764611
46	3.895044	4.856941	6.074523	7.574420	9.434258	14.590487
47	4.011896	5.017284	6.317816	7.915268	9.905971	15.465917
48	4.132252	5.183589	6.570528	8.271456	10.401270	16.393872
49	4.256219	5.356065	6.833349	8.643671	10.921333	17.377504
50	4.3838906	5.534927	7.106683	9.032636	11.467400	18.420154
51	4.515423	5.720399	7.390951	9.439105	12.040770	19.525364
52	4.650886	5.912713	7.686589	9.863865	12.642808	20.696885
53	4.790412	6.112108	7.994052	10.307739	13.274949	21.938698
54	4.934125	6.320832	8.313814	10.771587	13.938696	23.255020
55	5.082149	6.533141	8.646267	11.256308	14.633631	24.650322
56	5.234613	6.750301	8.992222	11.762842	15.367412	26.129341
57	5.391651	6.972587	9.351910	12.292170	16.135783	27.697101
58	5.553401	7.200482	9.725987	12.845318	16.942572	29.358927
59	5.720003	7.434162	10.115026	13.423357	17.789701	31.120463
60	5.891603	7.678091	10.519627	14.027408	18.679186	32.987691
61	6.068351	7.932824	10.940412	14.658641	19.613145	34.966952
62	6.250402	8.198908	11.378029	15.318280	20.593802	37.064969
63	6.437914	8.476450	11.833150	16.007603	21.623493	39.288868
64	6.631051	8.765429	12.306476	16.727945	22.704667	41.646200
65	6.829983	9.066010	12.798735	17.480702	23.839900	44.144972
66	7.034882	9.378415	13.310684	18.267334	25.031896	46.793670
67	7.245929	9.702312	13.843112	19.089364	26.283490	49.601200
68	7.463307	10.037941	14.396836	19.948385	27.597665	52.577368
69	7.687206	10.385702	14.972710	20.846063	28.977548	55.732010
70	7.917822	11.12825	15.571618	21.784136	30.426426	59.075930
71	8.155357	11.501774	16.194483	22.764421	31.947747	62.620486
72	8.400017	11.904336	16.842262	23.788821	33.545134	66.377715
73	8.651018	12.320988	17.525953	24.859318	35.222391	70.360378
74	8.908578	12.752223	18.241659	25.977987	36.983510	74.582001
75	9.172926	13.198550	18.994525	27.146996	38.832686	79.056921
76	9.444293	13.660500	19.783065	28.368611	40.774320	83.800336
77	9.722792	14.138617	20.609187	29.645199	42.813036	88.828356
78	10.008306	14.633469	21.473083	30.979233	44.953688	94.158058
79	10.300962	15.145640	22.376208	32.373298	47.201372	99.807541
80	10.600891	15.675738	23.304979	33.830096	49.561447	105.795992
81	10.908117	16.224388	23.971791	35.352451	52.039513	112.143753
82	11.228892	16.792242	24.930663	36.943311	54.641489	118.872378
83	11.627588	17.379970	25.927889	38.605760	57.373563	126.004721
84	11.976418	17.988269	26.965005	40.343019	60.242241	133.565004
85	12.335709	18.617859	28.043605	42.158455	63.254353	141.578904
86	12.705780	19.269484	29.165349	44.055586	66.417071	150.073639
87	13.086953	19.943916	30.331963	46.038087	69.737925	159.078057
88	13.479562	20.641953	31.545242	48.109801	73.224822	168.622741
89	13.883949	21.364421	32.807051	50.274741	76.886061	178.740104
90	14.300467	22.112176	34.119333	52.537105	80.730365	189.464511
91	14.729481	22.886102	35.484107	54.901275	84.766883	200.832382
92	15.171366	23.687116	36.903471	57.371832	89.005227	212.882325
93	15.626507	24.516165	38.379610	59.953565	93.455489	225.655264
94	16.095302	25.374230	39.914794	62.651475	98.128263	239.194580
95	16.578161	26.262329	41.511386	65.470792	103.034676	253.546255
96	17.075506	27.181510	43.171841	68.416977	108.186410	269.759030
97	17.587771	28.132863	44.898715	71.493741	113.595731	286.884572
98	18.115404	29.117513	46.694664	74.713050	119.275517	304.977647
99	18.658866	30.136626	48.562450	78.075137	125.239293	324.09630
100	19.218632	31.191408	50.504948	81.588518	131.501258	339.30208

Construction of Table I.

The numbers in this table are the powers of 1% increased by its interest for a year: that is, they are the powers of the amount of 1% in a year, at the several rates of interest: supposing r to be that amount, they are r , r^2 , r^3 , r^4 , &c.

Use.

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Use. To find the amount of any sum in any number of years, not exceeding 100. Ans. Opposite to the given number of years, and under the rate of interest, is the amount of 1*l.* in that time, which, multiplied by the given sum, produces the required amount.

Examples.

1. What will 10*l.* amount to in 100 years at 4 per cent. per ann. compound interest? Ans. 50.504948, multiplied by 10, is 505*l.* 1*s.*
2. What will 250*l.* amount to in 50 years, at 5 per cent. per ann. compound interest? Ans. 11.467400, multiplied by 250, is 2886*l.* 17*s.*

T A B L E II.

Shewing the principal that will amount to 1*l.* in any number of years not exceeding 100; or the present value of 1*l.* to be received at the end of any number of years not exceeding 100; discounting at any rate of compound interest from 3 to 6 per cent.

Years.	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
1	,970874	,966184	,961538	,956938	,952381	,943336
2	,942596	,933511	,924556	,915730	,907029	,839966
3	,915141	,901943	,888496	,876297	,863838	,839619
4	,888487	,871442	,854004	,838561	,822702	,792094
5	,862609	,841973	,821927	,802451	,783526	,747258
6	,837484	,813501	,790315	,767896	,746215	,704961
7	,813092	,785991	,759918	,734828	,710681	,665057
8	,789409	,759411	,730690	,703185	,676839	,627412
9	,766417	,733731	,702587	,672904	,644609	,591898
10	,744094	,708919	,675564	,643928	,613913	,558395
11	,722421	,684946	,649581	,616199	,584679	,526788
12	,701380	,661783	,624597	,589664	,556837	,496969
13	,680951	,639404	,600574	,564272	,530321	,468839
14	,661118	,617782	,577475	,539973	,505068	,442301
15	,641862	,596891	,555264	,516720	,481017	,417265
16	,623167	,576706	,533908	,494469	,458112	,393646
17	,605016	,557204	,513373	,473176	,436297	,371364
18	,587395	,538361	,493628	,452800	,415521	,350344
19	,570286	,520156	,474462	,433302	,395734	,330513
20	,553676	,502566	,456387	,414643	,376889	,311805
21	,537549	,485571	,438834	,396787	,358942	,294155
22	,521892	,469151	,421955	,379701	,341850	,277505
23	,506692	,453286	,405726	,363350	,325571	,261797
24	,491934	,437957	,390121	,347703	,310068	,246979
25	,477606	,423147	,375117	,332731	,295303	,232999
26	,463695	,408838	,360689	,318402	,281241	,219810
27	,450189	,395012	,346817	,304691	,267848	,207368
28	,437077	,381654	,333477	,291571	,255094	,195630
29	,424346	,368748	,320651	,279015	,242946	,184557
30	,411987	,356278	,308319	,267000	,231377	,174110
31	,399987	,344230	,296460	,255502	,220359	,164255
32	,388337	,332590	,285058	,244600	,209866	,154957
33	,377026	,321343	,274094	,233971	,199873	,146186
34	,366045	,310476	,263552	,223396	,190355	,137912
35	,355383	,299977	,253415	,214254	,181290	,131015
36	,345032	,289833	,243669	,205028	,172657	,122741
37	,334983	,280031	,234297	,196199	,164436	,115793
38	,325226	,270562	,225285	,187750	,156605	,109239
39	,315754	,261412	,216621	,179665	,149148	,103056
40	,306557	,252572	,208289	,171929	,142046	,97222
41	,297628	,244031	,200278	,164525	,135282	,91719
42	,288959	,235779	,192575	,157440	,128840	,86527
43	,280543	,227806	,185168	,150661	,122704	,81629
44	,272372	,220102	,178046	,144173	,116861	,77009
45	,264439	,212659	,171198	,137064	,111297	,72650
46	,256731	,205468	,164614	,130203	,105997	,68538
47	,249259	,198520	,158283	,123638	,100949	,64658
48	,242099	,191806	,152195	,116898	,96142	,60998
49	,235235	,185320	,146341	,110592	,91564	,57546
50	,228107	,179053	,140713	,104710	,87204	,54288
51	,221463	,172998	,135301	,105942	,83051	,51215
52	,215013	,167148	,130097	,101380	,79096	,48316
53	,208750	,161496	,125093	,97014	,75380	,45582
54	,202670	,156035	,120282	,92837	,71743	,43001
55	,196767	,150758	,115656	,88839	,68326	,40567
56	,191030	,145660	,111207	,85013	,65073	,38271
57	,185472	,140734	,106930	,81353	,61974	,36105
58	,180070	,135975	,102817	,77849	,59023	,34061
59	,174825	,131377	,98863	,74497	,56212	,32133
60	,169733	,126934	,95060	,71289	,53536	,30314
61	,164789	,122642	,91404	,68219	,50986	,28598
62	,159999	,118495	,87889	,65281	,48558	,26980
63	,155330	,114487	,84508	,62470	,46246	,25452
64	,150806	,110616	,81258	,59780	,44044	,24012
65	,146413	,106875	,78133	,57206	,41946	,22653
66	,142149	,103261	,75128	,54743	,39949	,21370
67	,138009	,99769	,72238	,52385	,38047	,20161
68	,133989	,96395	,69460	,50129	,36235	,19020
69	,130086	,93136	,66788	,47971	,34509	,17943
70	,126297	,90986	,64219	,45905	,32866	,16927
71	,122619	,88943	,61749	,43928	,31310	,15969
72	,119047	,86903	,59374	,42037	,29811	,15065
73	,115580	,84862	,57091	,40226	,28391	,14213
74	,112214	,82818	,54895	,38494	,27039	,13408
75	,108945	,80756	,52784	,36836	,25751	,12649
76	,105772	,78704	,50754	,35250	,24525	,11933
77	,102691	,76728	,48801	,33732	,23357	,11258
78	,99700	,74836	,46924	,32280	,22245	,10620
79	,96796	,73026	,45120	,30890	,21186	,10019
80	,93977	,71293	,43384	,29559	,20177	,94452
81	,91240	,69636	,41716	,28287	,19216	,88917
82	,88582	,68051	,40111	,27068	,18301	,83412
83	,86002	,66537	,38569	,25930	,17430	,77936
84	,83497	,65092	,37085	,24870	,16600	,72487
85	,81065	,63712	,35659	,23870	,15809	,67063

A N N

Years	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
86	,078704	,051896	,034287	,022699	,015056	,006663
87	,076412	,050141	,032969	,021721	,014339	,006286
88	,074186	,048445	,031700	,020786	,013657	,005930
89	,072026	,046807	,030481	,019891	,013006	,005595
90	,069928	,045224	,029309	,019034	,012387	,005278
91	,067891	,043695	,028182	,018215	,011797	,004979
92	,065914	,042217	,027098	,017430	,011235	,004697
93	,063994	,040789	,026055	,016680	,010700	,004432
94	,062130	,039410	,025053	,015961	,010191	,004181
95	,060320	,038077	,024090	,015274	,009705	,003944
96	,058563	,036790	,023163	,014616	,009243	,003721
97	,056858	,035546	,022272	,013987	,008802	,003510
98	,055202	,034344	,021416	,013385	,008384	,003311
99	,053594	,033182	,020592	,012808	,007985	,003124
100	,052033	,03206	,019800	,012257	,007604	,002947

Construction of Table II.

The numbers in this table are the reciprocals of the corresponding numbers in the last, or the quotients of unity divided by those numbers; that is $\frac{1}{r}, \frac{1}{r^2}, \frac{1}{r^3}, \frac{1}{r^4}$,

&c. Supposing *r* to denote 1*l.* with its interest for a year. Use. To find what the present value is of any sum payable in any future time: and also what principal will amount to a given sum in any number of years. Ans. Opposite to the given number of years, and under the rate of interest, is the present value of 1*l.* to be received at the end of the given time, or the sum that will amount to 1*l.* in that time, which, multiplied by the given sum, produces the required value or principal.

1. What is the present value of 1000*l.* to be received 10 years hence, reckoning compound interest at 5 per cent.? Ans. 613913, multiplied by 1000, is 613*l.* 18*s.* 3*d.* nearly.
2. What principal will amount to 1000*l.* in 10 years at 5 per cent. per ann. compound interest? Ans. 613913, multiplied by 1000*l.* is 613*l.* 18*s.* 3*d.*
3. What sum put out for 25 years at 4½ per cent. interest, will clear a debt of 4000*l.*? Ans. 332731, multiplied by 4000, is 1320*l.* 18*s.* 6*d.*

T A B L E III.

The present value of an annuity of 1*l.* for any number of years not exceeding 100, at any rate of compound interest from 3 to 6 per cent.

Years	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
1	,970874	,966184	,961538	,956938	,952381	,943336
2	,9433470	1,899694	1,886605	1,872668	1,859410	1,833393
3	2,828611	2,801637	2,775091	2,748964	2,723248	2,673012
4	3,717098	3,673079	3,629895	3,587596	3,545950	3,465106
5	4,579707	4,515052	4,451823	4,389977	4,329477	4,212364
6	5,417191	5,328553	5,242137	5,157872	5,075692	4,917324
7	6,230283	6,114544	6,002055	5,892701	5,786373	5,582388
8	7,019692	6,873956	6,732745	6,595886	6,463213	6,209794
9	7,786109	7,607687	7,435332	7,268790	7,107822	6,801692
10	8,530203	8,316605	8,110896	7,912718	7,721735	7,160087
11	9,252624	9,001551	8,760477	8,528917	8,306414	7,886875
12	9,954004	9,663334	9,385074	9,118581	8,863252	8,383844
13	10,634955	10,302738	9,985648	9,682852	9,393573	8,852683
14	11,296073	10,920520	10,563123	10,222825	9,898641	9,249482
15	11,937935	11,517411	11,118387	10,739546	10,379658	9,712249
16	12,561102	12,094117	11,652296	11,234015	10,837770	10,105895
17	13,166118	12,651321	12,165669	11,707191	11,240066	10,477260
18	13,753513	13,189682	12,659297	12,159902	11,689587	10,827603
19	14,323799	13,709837	13,139399	12,593294	12,085321	11,158116
20	14,877475	14,212403	13,590326	13,007936	12,462210	11,469921
21	15,415024	14,697974	14,029160	13,404724	12,821153	11,764077
22	15,936917	15,167125	14,541115	13,774425	13,163003	12,041582
23	16,443608	15,620410	14,958422	14,147775	13,488574	12,303379
24	16,935542	16,058368	15,246963	14,495478	13,798642	12,550358
25	17,413148	16,481515	15,622080	14,828206	14,093045	12,783356
26	17,876842	16,890352	15,988769	15,146611	14,375185	13,003166
27	18,327031	17,285364	16,329586	15,451303	14,643034	13,210534
28	18,764108	17,667019	16,663063	15,742874	14,898127	13,406164
29	19,188455	18,035767	16,983715	16,021889	15,141074	13,590721
30	19,600431	18,392045	17,293303	16,288496	15,372451	13,764831
31	20,000428	18,736276	17,588494	16,544391	15,592810	13,929006
32	20,388765	19,068865	17,873551	16,788891	15,802677	14,084043
33	20,765992	19,390208	18,147646	17,022862	16,002549	14,230230
34	21,131837	19,700684	18,411198	17,246758	16,192904	14,366141
35	21,487220	20,000661	18,664613	17,461012	16,374194	14,498246
36	21,832252	20,290494	18,908282	17,666041	16,546852	14,620987
37	22,167233	20,570525	19,142579	17,862240	16,711287	14,736780
38	22,492462	20,841087	19,367864	18,049900	16,867893	14,846019
39	22,808215	21,102500	19,584485	18,229656	17,017041	14,949075
40	23,114772	21,355072	19,792774	18,401584	17,159086	15,046297
41	23,412400	21,599104	19,993052	18,566109	17,294368	15,138016
42	23,701359	21,834883	20,185627	18,723550	17,423208	15,224543
43	23,981902	22,062689	20,370795	18,874210	17,545912	15,306173
44	24,254274	22,282791	20,548841	19,018383	17,662773	15,383182
45	24,518713	22,495450	20,720040	19,156347	17,774070	15,455832
46	24,775449	22,700918	20,884654	19,288371	17,880066	15,524370
47	25,024708	22,899433	21,042936	19,414709	17,981016	15,589028
48	25,266707	23,091244	21,195131	19,535607	18,077158	15,650072
49	25,501657	23,276564	21,341472	19,651298	18,168722	15,707572
50	25,729764	23,455618	21,482185	19,762008	18,255925	15,761861
51	25,951227	23,628616	21,617485	19,867950	18,338977	15,813076
52	26,166240	23,795756	21,747582	19,969330	18,418073	15,861393
53	26,374990	23,957260	21,872675	20,066345	18,493493	15,906974
54	26,577660	24,113295	21,992957	20,159181	18,565146	15,949976
55	26,774428	24,264053	22,108612	20,248021	18,633472	15,990543

Years.	At 3 per Cent.	$3\frac{1}{2}$ per Cent.	4 per Cent.	$4\frac{1}{2}$ per Cent.	5 per Cent.	6 per Cent.
56	26.965494	24.409713	22.219819	20.333034	18.698545	16.028814
57	27.150936	24.550448	22.326749	20.414387	18.760519	16.064919
58	27.331005	24.686423	22.429567	20.492236	18.819542	16.098980
59	27.505831	24.817800	22.528430	20.566733	18.875754	16.131113
60	27.675564	24.944734	22.623490	20.638022	18.929200	16.161428
61	27.840353	25.067376	22.714894	20.706241	18.980276	16.190026
62	28.000343	25.185870	22.802783	20.771523	19.028834	16.217006
63	28.155673	25.300358	22.887291	20.833993	19.075080	16.242458
64	28.306478	25.410974	22.968549	20.893773	19.119124	16.266470
65	28.452891	25.517840	23.046682	20.950979	19.161070	16.289123
66	28.595040	25.621110	23.121810	21.005722	19.201019	16.310493
67	28.733049	25.720879	23.194048	21.058107	19.239066	16.330654
68	28.867038	25.817275	23.263507	21.108236	19.275301	16.349673
69	28.997124	25.910411	23.330296	21.156207	19.309810	16.367616
70	29.123421	26.000397	23.394515	21.202112	19.342677	16.384544
71	29.246040	26.087340	23.456264	21.246040	19.373978	16.400513
72	29.365087	26.171343	23.515639	21.288077	19.405788	16.415578
73	29.480667	26.252505	23.572730	21.328303	19.432179	16.429791
74	29.592881	26.330923	23.627625	21.366797	19.459218	16.443199
75	29.701826	26.406689	23.680408	21.403634	19.484970	16.455848
76	29.807598	26.479892	23.731162	21.438884	19.509495	16.467781
77	29.910290	26.550621	23.779963	21.472616	19.532853	16.479039
78	30.009990	26.618957	23.826888	21.504806	19.555098	16.489659
79	30.106786	26.684983	23.872007	21.535785	19.576284	16.499679
80	30.200763	26.748776	23.915392	21.565345	19.596460	16.509131
81	30.292003	26.810411	23.957108	21.593632	19.615677	16.518048
82	30.380586	26.869963	23.997219	21.620700	19.633978	16.526460
83	30.466588	26.927500	24.035787	21.646603	19.651407	16.534396
84	30.550086	26.983092	24.072872	21.671390	19.668007	16.541883
85	30.631151	27.036804	24.108331	21.695110	19.683816	16.548947
86	30.709855	27.088699	24.142818	21.717809	19.698873	16.555510
87	30.786267	27.138840	24.175787	21.739530	19.713212	16.561896
88	30.860454	27.187285	24.207487	21.760316	19.726869	16.567827
89	30.932479	27.234092	24.237969	21.780207	19.739875	16.573421
90	31.002407	27.279316	24.267278	21.799241	19.752262	16.578699
91	31.070298	27.323010	24.295459	21.817455	19.764059	16.583679
92	31.136212	27.365227	24.322557	21.834885	19.775294	16.588376
93	31.200206	27.406012	24.348612	21.851565	19.785994	16.592808
94	31.262336	27.445427	24.373666	21.867526	19.796185	16.596988
95	31.322656	27.483504	24.397755	21.882800	19.805891	16.600932
96	31.381219	27.520294	24.420319	21.897417	19.815134	16.604653
97	31.438077	27.555839	24.441433	21.911403	19.823937	16.608163
98	31.493279	27.590183	24.461007	21.924788	19.832321	16.611475
99	31.546872	27.623365	24.479199	21.937596	19.840306	16.614599
100	31.598905	27.655425	24.504999	21.949853	19.847910	16.617546
Fee Simple	33.333333	28.571429	25.000000	22.222222	20.000000	16.666666

Construction of Table III.

The 2d, 3d, 4th, &c. numbers in this table are the sums of the first 2, 3, 4, &c. numbers in the second; that is, the sums of $\frac{1}{r} + \frac{1}{r^2}$, of $\frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3}$, of $\frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3} + \frac{1}{r^4}$, &c.

Use. To find the present worth of any annuity. Multiply the present value opposite to the given number of years, and under the rate of interest, by the given annuity, and the product will be the answer. If the annuity is in reversion, multiply the number opposite to the time of reversion in the 2d table, the number opposite to the time of continuance in this table, and the annuity together: or, when the sum of both these times does not exceed 100, from the number in this table opposite to that sum take the number opposite to the reversionary time, and multiply the remainder by the annuity.

Examples.

1. What is the present value of an annuity of 40l. to continue 20 years at 4 per cent.? Ans. 13.590326, multiplied by 40, is 543l. 12s. nearly.
2. What is the present value of an annuity of 40l. to continue 20 years, but not to commence till the end of 5 years, at 4 per cent.? Ans. .821927, multiplied by 13.590326, multiplied by 40, is 446l. 16s. Or 4.451822, subtracted from 15.62208, and the remainder multiplied by 40, is 446l. 16s. as before.

TABLE IV.

The amount of an annuity of 1l. at compound interest.

Years.	At 3 per Cent.	$3\frac{1}{2}$ per Cent.	4 per Cent.	$4\frac{1}{2}$ per Cent.	5 per Cent.	6 per Cent.
1	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
2	2.030000	2.035000	2.040000	2.045000	2.050000	2.060000
3	3.090900	3.106225	3.121600	3.137025	3.152500	3.183600
4	4.183627	4.214943	4.246464	4.278191	4.310125	4.374616
5	5.309136	5.362406	5.416323	5.470710	5.525631	5.637093
6	6.468410	6.550152	6.632975	6.716892	6.801913	6.975319
7	7.662462	7.779408	7.898294	8.019152	8.142008	8.393838
8	8.892336	9.051687	9.214226	9.380014	9.549109	9.897468
9	10.159106	10.368496	10.582795	10.802114	10.926564	11.491316
10	11.463879	11.731393	12.006107	12.288209	12.577893	13.180795
11	12.807796	13.141992	13.486351	13.841179	14.206787	14.971643
12	14.192030	14.601962	15.025805	15.464032	15.917127	16.869941
13	15.617790	16.113030	16.526838	17.159913	17.712983	18.882138
14	16.086324	17.676986	18.291911	18.932109	19.598632	21.015066
15	17.598914	19.295681	20.023588	20.784054	21.578564	23.275070

Years.	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
16	20.156881	20.971030	21.824531	22.719337	23.657492	25.672528
17	21.761588	22.705016	23.697512	24.741707	25.840366	28.212880
18	23.414435	24.499691	25.645413	26.855084	28.132385	30.905653
19	25.116868	26.357180	27.671229	29.063562	30.539004	33.759992
20	26.870374	28.279682	29.778079	31.371423	33.065954	36.785591
21	28.676486	30.269471	31.969202	33.783137	35.719252	39.994727
22	30.536780	32.328902	34.247970	36.303378	38.505214	43.392290
23	32.452884	34.460414	36.617889	38.937030	41.430475	46.995828
24	34.426470	36.666526	39.082604	41.689196	44.501999	50.815577
25	36.459264	38.940857	41.645908	44.565210	47.727099	54.864512
26	38.553042	41.313102	44.311745	47.570645	51.113454	59.156383
27	40.709634	43.759066	47.084214	50.711324	54.669126	63.705766
28	42.930923	46.290627	49.967583	53.993333	58.402583	68.528112
29	45.218850	48.910799	52.966286	57.423033	62.322712	73.639798
30	47.575416	51.622677	56.084938	61.007070	66.438847	79.058186
31	50.002678	54.429471	59.328335	64.752388	70.760790	84.801677
32	52.502759	57.334502	62.701469	68.666245	75.298829	90.889778
33	55.077841	60.341210	66.209527	72.756226	80.063771	97.343165
34	57.730177	63.453152	69.857909	77.030256	85.066959	104.183755
35	60.462082	66.674013	73.652225	81.496618	90.320307	111.424780
36	63.275944	70.007603	77.598314	86.163966	95.836323	119.120867
37	66.174223	73.457869	81.702246	91.041344	101.628139	127.268119
38	69.159449	77.028895	85.970336	96.138205	107.709546	135.904206
39	72.234233	80.724906	90.409150	101.464424	114.095023	145.058458
40	75.401260	84.550278	95.025516	107.030323	120.799774	154.761966
41	78.663298	88.509537	99.826536	112.846088	127.839763	165.045084
42	82.023196	92.607371	104.819598	118.924789	135.231751	175.950545
43	85.483892	96.848629	110.012382	125.276404	142.993371	187.507577
44	89.043409	101.238331	115.412877	131.913842	151.143006	199.758032
45	92.719861	105.781673	121.029392	138.841965	159.700156	212.743514
46	96.501457	110.484031	126.870568	146.098214	168.685164	226.508125
47	100.396501	115.350973	132.945390	153.672633	178.119422	241.08612
48	104.408396	120.388257	139.263206	161.587902	188.025393	256.564529
49	108.540648	125.601846	145.833734	169.859357	198.426663	272.958401
50	112.796867	130.997910	152.667408	178.503028	209.347996	290.335905
51	117.180773	136.582837	159.773767	187.535665	220.815395	308.756059
52	121.696197	142.363236	167.104718	196.974769	232.856165	328.281422
53	126.347032	148.345950	174.851306	206.838634	245.498704	348.978308
54	131.137495	154.538058	182.845359	217.146373	258.773922	370.917006
55	136.071620	160.946890	191.159173	227.917959	272.712618	394.172027
56	141.153768	167.580031	199.805540	239.174268	287.348249	418.823348
57	146.383381	174.445332	208.797762	250.937110	302.715662	444.951689
58	151.780033	181.550919	218.149672	263.229280	318.851445	472.648790
59	157.333434	188.905201	227.875659	276.074597	335.794017	502.007718
60	163.053437	196.516883	237.990685	289.497954	353.583718	533.128181
61	168.945040	204.394974	248.510313	303.525362	372.262904	566.115872
62	175.013391	212.548798	259.450725	318.184003	391.876409	601.028824
63	181.263793	220.988006	270.828754	333.502283	412.469851	638.147793
64	187.701707	229.722586	282.661904	349.509886	434.093344	677.436661
65	194.332758	238.762876	294.968380	366.237831	456.798011	719.028861
66	201.162741	248.119577	307.767116	383.718533	480.637912	763.227832
67	208.197623	257.803762	321.077800	401.985867	505.669807	810.021502
68	215.443551	267.826894	334.920912	421.075232	531.953298	859.622792
69	222.906858	278.200835	349.317749	441.023617	559.350963	912.200160
70	230.594064	288.937865	364.290459	461.869680	588.328511	967.932170
71	238.511886	300.050690	379.862077	483.653815	618.954937	1027.008190
72	246.667242	311.552464	396.055660	506.418237	650.902683	1089.628586
73	255.067529	323.456800	412.898823	530.207057	684.447817	1156.06301
74	263.719277	335.777788	430.417776	555.066375	719.670208	1226.366679
75	272.630856	348.530011	448.631367	581.044362	756.653719	1300.948680
76	281.809781	361.728561	467.516621	608.191358	795.486404	1380.065601
77	291.264075	375.389061	487.279686	636.559969	836.260725	1463.805937
78	301.001997	389.527678	507.770874	666.205168	870.073761	1552.634923
79	311.032057	404.161147	529.081708	697.184401	924.027449	1646.792350
80	321.363019	419.360787	551.244777	729.557699	971.228821	1746.599893
81	332.003909	434.982524	574.294776	763.387795	1020.790262	1852.395885
82	342.964026	451.206913	598.266567	798.740246	1072.829775	1964.536938
83	354.252947	467.999155	623.197230	835.683557	1127.471264	2083.412016
84	366.880536	485.379125	649.125119	874.289317	1184.844827	2209.416737
85	379.856952	503.367394	676.090124	914.632336	1245.087069	2342.981741
86	393.192669	521.985253	704.133728	956.790791	1308.341422	2484.506044
87	402.898440	541.254737	733.299078	1000.846377	1374.758493	2634.63428
88	415.985393	561.198653	763.631041	1046.884664	1444.496418	2793.71234
89	429.464955	581.840608	795.176282	1094.994265	1517.721239	2962.33508
90	443.368904	603.205027	827.983334	1145.260007	1594.607301	3141.07518
91	457.649371	625.317203	862.102667	1197.806112	1675.337666	3330.53969
92	472.378852	648.203305	897.586774	1252.707387	1760.104549	3531.37208
93	487.550217	671.890421	934.490245	1310.079219	1849.109777	3744.25440
94	503.176724	696.306586	972.869854	1370.032784	1942.565265	3969.90966
95	519.272026	721.780810	1012.784649	1432.684259	2040.693529	4209.10425
96	535.850186	748.043145	1054.296035	1498.155051	2143.728205	4462.65050
97	552.925692	775.224655	1097.467876	1566.572023	2251.914615	4731.40953
98	570.511463	803.357517	1142.366591	1638.067770	2365.150346	5016.29470
99	588.628867	832.475031	1189.061255	1712.780810	2484.785864	5318.27175
100	607.287733	862.611657	1237.623705	1790.855956	2610.025157	5638.36800

3. A person is possessed of a 1000*l.* principal, bearing 4 per cent. interest, and in order to increase his income, resolves to take out of his principal 20*l.* the first year, and afterwards as much more as will be necessary to make a constant income of 60*l.* per ann. in what time will he reduce his principal to nothing? *Ans.* In the same time that an annuity of 20*l.* would increase at 4 per cent. compound interest to 1000*l.* that is, in 28 years, by the preceding question.

The preceding observations, rules, and tables, contain all that is most important in the doctrine of annuities certain. He that would gain farther information should consult Malcolm's Arithmetic, from page 395 to the end; Simpson's Algebra, sect. 16; Mr. Dodson's Mathematical Repository, p. 298, &c. Jones's Synopsis, chap. x. Phil. Trans. vol. lxvi. p. 109, &c.

For an explanation of the doctrine of annuities on lives, see ASSURANCE, COMPLEMENT, EXPECTATION, LIFE ANNUITIES, REVERSIONS.

ANNULAR, ANNULARIS, something that relates to, or resembles a ring, by the Latins called *annulus*.

ANNULAR cartilage, or ANNULARIS, is the second cartilage of the larynx, being round, and investing the whole larynx; called also *cricoides*.

ANNULAR ligament, *ligamentum ANNULARE*, is a strong ligament, encompassing the CARPUS or WRIST; after the manner of a bracelet.

Its use is to connect or bind the two bones of the arm together; and also to restrain the tendons of the several muscles of the hand and fingers, and prevent their flying out of their places, when in action.

The ligament of the TARSUS is also denominated *annular* ligament.

Add, that the sphincter muscle of the anus is also called *annularis*, or *annular* muscle, from its figure.

ANNULAR process, or *protuberance*, is a process of the MEDULLA oblongata; thus called by Dr. Willis, because it surrounds the same, much like a ring.

ANNULAR is also an epithet given the fourth finger, popularly called the *ring* FINGER.

ANNULATA, in Zoology. See COLUBER.

ANNULET, *little ring*, in Heraldry, is a DIFFERENCE or mark of distinction, which the fifth brother of any family ought to bear in his coat of arms.

Annulets are also part of the coat armour of several families. They were anciently reputed a mark of nobility and jurisdiction; it being the custom of prelates to receive their investiture *per baculum & annulum*.

ANNULETS, in Architecture, are small square members, in the Doric capital, placed under the quarter round. See *Tab. Architect. fig. 25. n. 17*. They are also called *fillets*, *listels*, &c.

ANNULET is also used for a narrow flat moulding, common to other parts of a column; viz. the bases, &c. as well as the capital; so called, because it encompasses the column around. In which sense *annulet* is frequently used for *baguette*, or *little asiragal*.

ANNULUS, a species of the VOLUTA.

ANNULLING, the abolishing of an act, procedure, sentence, or the like.

The word is compounded of *ad* and *nullus*, none; q. d. *undoing*.

ANNUNTIATE, ANNUNTIADA, or ANNUNTIATA, a denomination common to several orders, both religious and military; instituted with a view to the Annunciation. The first religious order of this kind was instituted in 1232, by seven Florentine merchants. These are also called *Servites*, q. d. *Servants*.

The second was a nunnery at Bourges, founded by Joan, queen of France, after her divorce from Lewis XII.

The third was also a nunnery, founded by a Genoese lady in 1600. The fourth was a friery, founded by cardinal Torrecremata, at Rome, in 1460; which last are grown so very rich, that they give fortunes of sixty Roman crowns to above four hundred girls, on the anniversary of the Annunciation.

ANNUNCIATA, or *knights of the ANNUNTIADA*, was a military order, instituted in 1362, by Amadeus VI. duke of Savoy; in memory of Amadeus I. who defended the isle of Rhodes against the Turks.

It was at first called the order of the True Lovers Knots; in memory of a bracelet of hair presented to the founder by a lady; but, upon the election of Amadeus VIII. to the pontificate, it changed its name for that of the *Annunciate*, in 1434. The great collar of the order, which the knights wear on public occasions, weighs 250 crowns of gold, and the following letters are engraven on it: *F. E. R. T.* signifying *Fortitudo ejus Rhodum tenuit*.

ANNUNCIATION, the tidings which the angel Gabriel brought to the Holy Virgin, of the mystery of the incarnation.

The word is compounded of *ad* and *nuncio*, I declare.

The Greeks call it *ευαγγελισμος*, *good tidings*; and *χαρῆ-τισμος*, *salutation*.

ANNUNCIATION is also the name of a feast, celebrated annually on the 25th of March, popularly called *Lady-day*, in commemoration of that wonderful event.

Some authors are of opinion, that the feast was originally solemnized in honour of our Saviour; and that the holding it in the name and honour of the Virgin is of a much later standing.

Several of the eastern churches celebrate the *Annunciation* at a different season from those of the West. The Syrians call it *Bascharach*, q. d. *search, enquiry*; and mark it in the calendar for the first day of December. The Armenians hold it on the fifth of January: thus anticipating the time, to prevent its falling in Lent; but the Greeks make no scruple of celebrating the festival even in Lent.

The Jews also give the title *Annunciation* to part of the ceremony of their passover; viz. that, wherein they explain the origin and occasion of that solemnity. This explanation they call *הגדה*, *Haggada*, q. d. the *Annunciation*.

ANNUNCIATOR, in the Greek Church, an officer whose business is to give notice of the feasts, and holy days to be observed.

ANOCHEUS, an imaginary name of a medicine, concerning which many fruitless conjectures have been made. The word occurs only in Gaza's translation of the account which Theophrastus has left us of the *euonymus* of those times. The author says, that the goats which eat the leaves and fruits of the *euonymus* were killed by it, and that they died of a stoppage of the bowels, which he has expressed by the word *ανοχη*, derived from the verb *ανοχειν*, which signifies a retention of the stools.

It is to be observed by the way, that the *euonymus* of the Greeks could not be the same plant known at this time by that name, since the cattle eat our *euonymus* or *FUSANUS* whenever they can get it, and that without any danger; but the descriptions of these plants in the ancient and modern authors shew also that they were very different.

ANOCTORON, in Ecclesiastical Antiquity, a name used by some writers for a church.

Anoctora properly import Roman halls, divers of which were converted into churches.

In which sense *anocctora* amount to much the same with *BASILICÆ*.

ANOCYSTI, in Natural History, the name of a class of the *ECHINI marini*, which have an aperture of the anus at the top of the shell.

Some of these approach to a hemispheric or spheroidal figure, others flatter, and in shape somewhat resembling a shield.

ANODUS is used by some Chemical Writers to denote a nutritious matter separated by the kidneys.

In this sense *anodus* stands contradistinguished from the superfluous part, that is the urine.

ANODYNE, in Physic, is understood of such remedies, as calm and alluage pain.

The word is derived from the privative *α*, and *αδυνω*, *doleo*, to be in pain.

Anodynes are of two kinds; the first proper, called also *paregorics*.

The second *spurious*, or improper, which rather stupefy than alleviate; acting only by inducing a stupor, drowsiness, or sleep.

These are more properly called *narcotics*, *hypnotics*, or *opiates*.

The true *anodynes* are applied externally to the part affected. Such, among the class of simples, are, the onion, lily, root of mallows, leaves of violets, elder, &c. Camphor is the best *anodyne* in nervous cases, and at the decline of fevers.

Anodynes should not be given without great caution, nor on a full stomach, nor in dropsies. Hemlock procures ease and sleep, without causing that head-ach next morning, usually complained of after taking opium. If the pulse be strong a larger dose is safe; if weak, a less dose must be given.

We have also certain compound medicines in the shops, prepared with this intention, and called by this name. Such is the *anodyne balsam*, made of Castile soap, camphor, saffron, and spirit of wine, digested in a sand-heat. It is recommended not only for procuring ease in the most racking extremities of pain, but also for assisting in discharging the peccant matters that occasioned it. This balsam is much the same with the modern *opodeldoc*.

A ready way of preparing an useful, safe, and efficacious *anodyne*, is as follows: take half an ounce of opium, dissolve it in a gentle heat in three ounces of water, strain the solution, and evaporate it to a dry substance. Grind this to powder in a glass mortar with twice the quantity of

of loaf-sugar, and you have an excellent preparation of opium, to be given three or four grains for a dose. Shaw's Lect. p. 233.

By dissolving the opium thus in water, we get rid, not only of its gross and foul parts, but also of its resinous, which are found much more pernicious than the rest; and by dividing its parts afterwards with sugar, the medicine is rendered more uniform, resoluble, and miscible with animal fluids.

But however opium is prepared, it still must be acknowledged that it retains qualities that make it little less than a poison in a very large dose; whence it were much to be wished something could be found that would be more innocent, and yet answer the same purpose. And this camphor and nitre will do on many, though not on all occasions.

ANOINTED. See **CHRIST** and **MESSIAH**.

ANOINTERS, a religious sect in some parts of England, so called from the ceremony they used in anointing all persons before they admitted them into their church. They founded their opinion of anointing upon the fifth of James, verses 14 and 15. See Plott's Oxfordsh. 208.

ANOLE, in *Zoology*, the name of a species of lizard common in the West Indies, about houses and plantations. It is the size of the common lizard of Europe, but its head is longer, its skin of a yellowish colour, and its back variegated with green, blue, and grey lines running from the neck to the tail. They creep into holes for the night, and there make a continual and very disagreeable noise; in the day time they are always in motion.

ANOLYMPIADES, in *Antiquity*, a name given by the Eleans to those Olympic games, which had been celebrated under the direction of the Pisæans and Arcadians. The Eleans claimed the sole right of managing the Olympic games, in which they sometimes met with competitors. The hundred and fourth Olympiad was celebrated by order of the Arcadians, by whom the Eleans were at that time reduced very low; this, as well as those managed by the inhabitants of Pisa, they called unlawful Olympiads, and left them out of their annals, wherein the names of the victors, and other occurrences, were registered. Potter, Arch. Græc.

ANOMALISTICAL year, in *Astronomy*, called also *periodical year*, is the space of time wherein the earth passes through her orbit.

The *anomalistical*, or common year, is somewhat greater than the tropical year; by reason of the **PRECESSION** of the equinox.

ANOMALOUS, *irregular*, something that deviates from the ordinary rule and method of other things of the same kind.

The word is not compounded of the privative α and $\nu\omicron\mu\omicron\varsigma$, *law*, as is usually imagined: for whence, on such supposition, should the last syllable *al*, arise? But it comes from the Greek $\alpha\nu\omicron\mu\alpha\lambda\omicron\varsigma$, *uneven, rough, irregular*, formed of the privative α and $\omicron\mu\alpha\lambda\omicron\varsigma$, *plain, even*.

ANOMALOUS verbs, in *Grammar*, are such as are irregular in their conjugations; deviating from the rules or formulas observed by others.

There are *anomalous verbs*, or irregular inflexions of verbs, in all languages. In the English, all the irregularity in our *anomalous verbs* lies in the formation of the preter tense, and passive participle; though this only holds of the native Teutonic or Saxon words, and not of the foreign words, borrowed from the Latin, French, &c.

The principal irregularity arises from the quickness of our pronunciation, whereby we change the consonant *d* into *t*, cutting off the regular ending *ed*.

Thus for *mixed*, we write *mixt* or *mix'd*; for *dwelled*, *dwelt*, or *dwelt'd*; for *snatched*, *snatcht*, &c. But this properly is rather of the nature of a contraction than an irregularity; and is complained of by some of our politer writers as an abuse, to the disadvantage of our language, tending to disfigure it, and turn a tenth part of our smoothest words into clusters of consonants; which is the more inexcusable, because our want of vowels has been the general complaint of the best writers.

Another irregularity relates to the preter tense, and passive participle. Thus *give*, if it were regular, or formed according to the rule, would make *gived*, in the preter tense, and the passive participle; whereas it makes *gave* in the preter tense, and *given* in the passive participle.

ANOMALY, in *Grammar*, denotes an irregularity in the accidents of a word, whereby it deviates from the common rules of paradigms whereby other words of the like kind are governed.

ANOMALY, in *Astronomy*, is the distance of a planet from the **APHELION** or **APOGEE**; or it is an irregularity in the motion of a planet, whereby it deviates from the *aphelion* or *apogee*.

Kepler distinguishes three kinds of these *anomalies*; *mean*, *excentric*, and *true*.

ANOMALY, *mean* or *simple*, in the *Ancient Astronomy*, is the distance of a planet's mean place from the apogee.

In the modern astronomy, it is the time wherein the planet moves from its aphelion A, to the mean place or point of its orbit I (*Tab. Astronomy, fig. 1.*)

Hence, as the arch, or the angle, or the elliptic area ASI, is proportional to the time wherein the planet describes the arch AI; that area may represent the mean *anomaly*. Or thus, the area SKA, found by drawing a line LK, through the planet's place, perpendicular to the line of the apsides PA, till it cuts the circle DA, and drawing the line SK, may represent the mean *anomaly*; for this area is every where proportional to the former area SIA, as is demonstrated by Dr. Gregory. Phil. Trans. N° 447.

ANOMALY of the excentric, or *of the centre*, in the *New Astronomy*, is an arch of the excentric circle AK (*fig. 1.*) included between the aphelium A, and a right line KL, drawn through the centre of the planet I, perpendicularly to the line of the apsides AP. See **EXCENTRIC**. In the ancient *Astronomy*, it is an arch of the zodiac, terminated by the line of the apsides, and the line of the mean motion of the centre. See the methods of finding the *anomaly of the excentric*, in Phil. Trans. N° 447.

ANOMALY, *true* or *equated*, is the angle at the sun ASI, which a planet's distance from the aphelium AI, appears under; or it is the angle or area, taken proportional to the time in which the planet moves from the mean place I, to its aphelion A.

And hence, in the sun's motion, it will be the distance of his true place from the apogee.

The true *anomaly* being given, the mean one is easily found; but it is difficult to find the true *anomaly* from the mean one given.

The geometrical methods of Wallis and Newton, by the protracted cycloid, are not fit for calculation; nor yet the method of series, as being too laborious. Hence astronomers are forced to have recourse to approximation. Ward, in his *Astronomia Geometrica*, takes the angle ASI, at the focus where the sun is not, for the mean *anomaly*; which will nearly represent it, if the orbit of the planet be not very excentric: and thus easily solves the problem. But this method does not hold of the orbit of Mars, as being more excentric than those of the other planets.

Sir Isaac Newton shews how to effect even this; and when his correction is made, and the problem solved according to Ward's hypothesis, sir Isaac affirms, that, even in the orbit of Mars, there will scarce ever be an error of above a second.

ANOMOEANS, **ANOMOEI**, in *Church History*, a sect of Christians who denied any similitude between the essence of the Father and that of the Son. See **TRINITY**.

The word is composed of the privative α , and $\omicron\mu\omicron\varsigma$, *similar, resembling*; q. d. *different, dissimilar*.

Anomœans was the name whereby the pure Arians were distinguished in the fourth century, because they not only denied the consubstantiality of the Word, but even asserted, that he was of a nature different from that of the Father; in contradistinction to the Semi-Arians, who indeed denied the consubstantiality of the Word, but who owned, at the same time, that he was like the Father.

ANOMIA, a genus of worms, ranged by Linnæus under the order of *testacea*; including twenty-seven species.

ANOMORHOMBOIDIA, in *Natural History*, the name of a genus of spars.

The word is derived from $\alpha\nu\omicron\mu\alpha\lambda\omicron\varsigma$, *irregular*, and $\rho\omicron\mu\beta\omicron\iota\delta\omicron\varsigma$, a *rhomboidal figure*.

The bodies of this genus are pellucid crystalline spars of no determinate regular external form, but always breaking into regularly rhomboidal masses; easily fissile, and composed of plates running both horizontally and perpendicularly through the masses, but cleaving more readily and evenly in an horizontal than in a perpendicular direction; the plates being ever composed of irregular arrangements or rhomboidal concretions.

Of this genus there are five known species, which have all, in some degree, the double refraction of the Iceland crystal.

ANONIS, in *Botany*, see **REST-harrow**.

ANONYMOS, see **CHELONE**.

ANONYMOUS, something that is nameless, or to which no name is affixed.

It is formed of the privative α , and $\omicron\nu\omicron\mu\alpha$, *name*.

The term is chiefly applied to books which do not express their author's name, and to authors whose names are unknown. Decker, advocate of the imperial chamber of Spires, and Placcius of Hamburgh, have given treatises of *anonymous books*. Burc. Gotth. Struvius treats of learned men who have endeavoured to investigate the authors of *anonymous books*.

ANONYMOUS, in *Anatomy*, a name sometimes given to parts newly discovered, or first taken notice of.

ANONYMOUS is also an appellation anciently given to the second

second cartilage of the throat, by later writers called *cri-coides*, or *annuliformis*.

ANONYMOUS, in *Commerce*. Partnerships in trade in France are styled *anonymous*, when they are not carried on under any particular name, but wherein each of the partners trades visibly on his own account; and in his own name; after which all the partners give one another an account of their profit or loss in trade. These sorts of partnerships are concealed, and known only to the parties themselves.

ANONYMOUS partnerships in trade, are also in France such, wherein persons of fortune and quality deposit sums of money, in order to share of the profits and loss. To this end those who furnish the capital have no trouble in carrying on the trade, nor do their names appear to be any way interested therein.

ANONYMOUS, in *Law*, the sending *anonymous* letters demanding money, &c. is felony by the *BLACK ACT*, 9 Geo. I. cap. 22.

ANOREXY, **ANOREXIA**, in *Medicine*, an inappetency, or loss of appetite.

The word is compounded of the privative *α*, and *ορεσω*, *appeto*, *I desire*.

Anorexia is properly a longer continuance than is natural without a desire to eat.

If the thought, or the sight, of proper food create a sickness in the stomach, or a tendency to vomit, the case is more properly called a *nausea*.

Anorexia is chiefly considered as a symptom of some other disorder, from which the curative indications are to be taken, and afterwards stomachics used.

ANOTTA, in *Botany*. See *BIXA*.

ANPITS, in the *Military Art*, in some *Middle Age Writers*, denotes a breast-work, answering to what is otherwise called *barbacan*.

ANSÆ, **ANSES**, in *Astronomy*, those apparently prominent parts of the planet Saturn's ring, discovered in its opening, and appearing like handles to the body of that planet. The Latin word literally signifies *handles*, or *ears*, of divers utensils.

ANSARIUM, in the *Civil Law*, a duty imposed on all provisions carried in vessels with *ansæ*. This was otherwise called *ansurium*, and the collectors of it *ansurii*.

ANSATUM telum, according to some, denotes a dart or javelin, with an *amentum* fastened to it.

Others rather take the *ansæ* of a javelin to be those two eminences about the middle of the *cuspidis*, or point, which hinders the weapon from passing through the whole body.

ANSCOTE, in our *Ancient Law-Books*, the same with *anblote*. See *SCOT*.

ANSEL weight. See *AUNCEL Weight*.

ANSELM's art. See *ART*.

ANSER, in *Astronomy*, a small star, of the fifth or sixth magnitude, in the Milky Way, between the Swan and Eagle, first brought into order by Hevelius.

ANSER Americanus. See *TOUCAN*.

ANSERES comprehends one of the six orders of birds in the Linnæan system, distinguished by a smooth beak, covered with a skin, gibbous at the base, and enlarged towards the apex; the jaw is denticulated, and the tongue fleshy; the feet are formed for swimming, having thin toes connected by a membrane; the legs are thick and short; the body is bulky, and covered with a thin skin and feathers. This order of birds is analogous to the *belluæ*, in the class of *mammalia*. See *GOOSE*.

ANSES. See *ANSÆ*.

ANSPESSADES, or **LANSPESSADES**, a kind of inferior officers in the foot, below the corporals, and yet above the common centinels.

The word is formed of the Italian *lancia spezzata*, q. d. *broken lance*; which was occasioned hence, that they were originally disbanded *gendarmes*, who, for want of other subsistence, sued for a place of some distinction in the infantry.

There are usually four or five in each company.

ANSWER, in a law-sense, &c. See *REJOINDER*.

ANT, *formica*, a genus of insects belonging to the order of *hymenoptera*, famous in *Natural History*. It is distinguished from the other genera of this order, by having an erect *squama*, or scaly body, placed between the thorax and abdomen. The male and female *ants* have wings, but the neutral have none. The sting of the female and neutral is concealed. There are five species common in England. 1. The hill *ant*, called also the great *hippomyrmex*, or horse *ant*. 2. The jet *ant*. 3. The red *ant*. 4. The common yellow *ant*. 5. The small black *ant*. These several species possess, in common, a double saw, a mouth, a pair of articulated *antennæ*, or horns, two eyes, and a neck, which connects the head with the breast. They are visibly distinguished with respect to both their colour and size. The hill *ants* take their name from their usual

habitations, which are the sunny banks of hills, for the advantage of bringing their young to maturity. They are also fond of the decayed roots of trees, where they may with greater ease form their apartments. These are considerably larger than any of the rest; their head and body are fine brown, and their breast a faint red. The jet and red *ants* are of equal size, and they derive their name from their respective colours. The former usually nest at the bottom of old trees, and the latter under broad stones, and other rubbish. The common yellow and small black *ants* are about half as big as the jet or red *ants*; and most frequently chuse their habitation in those eminences cast up by moles; which, on account of the use they make of them, are called *ant-hills*. Nevertheless, *ants* of different species may take up their residence in any of the situations above mentioned, but they never associate with each other. *Ants* of a particular species never go into any nest but their own; the consequence of an attempt of this kind would be instant death; even when pursued, they will never fly into another hole for shelter, except in the last extremity, and will sometimes rather suffer themselves to be taken. They do not seem to know what hospitality is. Sir Edmund King assures us, that if a red *ant* be put into a black *ant's* bank, war immediately arises; the black seize their guest, and never leave pinching him on the head with their forceps, or claws, till they have destroyed him; after which they drag the dead body out of the verge of the bank. If a black *ant* be put into a red *ant's* bank, he immediately seeks his safety by flight. Phil. Trans. N^o 23. or Abr. vol. ii. p. 789.

Ants of each species form separate colonies; and they adapt the situation and structure of their cells to the seasons of the year. In winter they dig deep, and in summer rise nearer to the surface of the ground. Their subterraneous habitation is divided into a number of different cells of an oval figure, all communicating with one another by circular and smooth passages, for the convenience of draining off the water, and furnishing entries into their different apartments. The hill and jet *ants*, being protected by the trees under which they lodge, are not at the trouble of digging these channels for carrying off the water. They take great care in keeping their apartments clean, and remove any of their colony that dies out of their settlement. Pliny relates, that the *ants* of his country buried their dead; but that circumstance has not been observed among us.

Each colony is usually composed of a large female, which Mr. Gould, for distinction sake, calls the queen, and various companies of workers. Beside these, they are joined by a number of winged *ants*, which are commonly known by the name of *ant-flies*. The common *ants* are of neither sex, but seem entirely destined to take care of the young which are committed by the queen to their protection. The queen is the mother of the whole brood, and is distinguished from them by her superior size and particular colour, as well as by the respect that is shewn her by her subjects. The colour of the queen is different in the several colonies. Her head is furnished like those of the common *ants*. She has likewise three lucid specks on her front, placed in a triangular form, which seem to be eyes of the same structure with those of the spider. The queen of the red colony is provided with a sting, in which she differs from those of the other species. The queen, as soon as she has deposited a parcel of her eggs, leaves them to the affection and care of the workers, and withdraws to a separate apartment. Two or three yellow queens have been sometimes found in the same colony; and in the red colony there are seldom fewer than two; and in this respect they differ from the hill and small black *ants*, which have only one.

Mr. Gould made a great number of experiments and observations in order to evince this fact, that the queen alone supplies every particular colony with its inhabitants; and he adds, that she lays three different sorts of eggs, the male, female, and neutral. The two first are deposited in the spring, and the last in July and August. When the queen has furnished an apartment with eggs, the common *ants* discover the greatest tenderness and care in brooding over them, and preserving them from moisture. After the eggs have continued for some time in this state, cherished and protected by the workers, they begin to lose their transparency; they are covered over with a number of small hairs; they are extended with several rings, and appear in the shape of vermicles, or little worms. In process of time a black speck is observable in them, which Mr. Leewenhoeck, and Mr. Gould, take to be their digested food. These *ant-vermicles* grow very slowly in the first summer; and in the succeeding winter they seem not to increase at all: but from April to June in the second year they grow very fast,

fast, and are prepared for another change into the nymph, or aurelia state. They are previously transferred by the workers to a proper situation near the surface of the colony, where they weave in the manner of silkworms, and infold themselves in a kind of silken tissue; and in this state they are vulgarly denominated *ant-eggs*. The process from this state to that of *ants* is gradual and slow, and not usually completed in less than a month. But the manner of their transformation cannot be accurately observed, because they will not arrive, like most other aureliæ, to maturity under glasses. The female aureliæ are generally the first which transform, and are those that make their appearance in the shape of large flies. These give birth to new colonies, and intitle themselves to the dignity of queens. The male, or small *ant-flies*, appear next, and early enough to be contemporary with the others. Last of all, the neutral aureliæ change into common *ants*, or workers, without wings, but not till most or all the flies have forsook the settlement. The male *ants* are furnished with two or more small hooks near their extremities, like those of other insects of the fly-kind, which are the external parts of generation, whereby they fasten to the females; they have likewise a triangle of eyes in the same position with those of the large flies. These *ant-flies*, both large and small, are of very short duration; they seldom continue above three weeks. Those of the female kind, which are not necessary for the propagation of new colonies, together with the male, are destroyed either by a worm, which is generated in their bodies, or by furnishing a repast for other creatures.

The labouring *ants* are incessantly employed by night as well as by day, in preparing and carrying materials for their respective cells. The horse *ants* make their nests of large quantities of sticks, straws, and fragments of leaves, which they place together in heaps, for the convenience of suddenly secreting themselves on the approach of an enemy, as well as for promoting the maturity of the young nymphs. The common *ants* build only with small pieces of dry earth, which, after it is cut by their double saw, they incrust with blades of grass, and form into conical mounts about half a foot high, for the purpose of favouring the growth of the vermicles, and the transformation of the nymphs. Another part of the employment of the labouring *ants* respects the young; in every stage of their progression from eggs to perfect *ants*, the workers remove them every day into different parts of the colony; in the morning they transfer them to cells nearer the surface, for the benefit of the sun's influence, and in the evening to such as are more remote and guarded. They are likewise employed in collecting the juices of various fruits and insects for the nutriment of the vermicles; which they convey first into their own alvus, and then into the bodies of the vermicles, or maggots. Another part of their employment is that of dismantling the nymphs at the time of their transformation.

It has been mentioned by many naturalists, ancient and modern, from the time of Solomon to our own, that *ants* provide for winter; that accordingly they lay up magazines or granaries of corn, and other provisions; and that, to prevent the sprouting of corn, they cut off all the buds before they lay it up; and, in order to preserve it from rotting, it has been said, that they bring it out of their hoards in the middle of the day, and spread it on dry earth at the entrance of their nests, for the benefit of the air and sun. But this theory has been contradicted by later experiments and observations. Leeuwenhoeck is of opinion, that they do not eat at all in the winter, but spend that season, like dormice, and many other sorts of animals, in a state of sleep; and that the provision they collect together seems intended for present use; and not so much for themselves as for their young. Mr. Gould confirms this opinion by a great variety of observations. He never could discover any reservoirs of corn, or of other aliment; and for farther satisfaction, he placed in several flower-pots, and other convenient receptacles, different colonies of yellow, small black, red, and hill *ants*, with their respective queens, attendants, and vermicles. They continued in this situation through the whole summer, autumn, and winter; they carried on their operations as in other settlements; formed their apartments, nourished their young, and brought them to perfection. Had it been their usual custom, he presumes that they should have laid up their provisions; but upon gradually removing the earth, and searching the lodgments, there was no appearance of magazines, corn, or any sort of collected food; and he concludes from a number of trials, that English *ants* have no storehouse for their corn, nor require any other food in the winter than water. In excess of cold, he says, they are half benumbed; and at other times they are contented to regale themselves with

the common moisture of the earth. However, he intimates, that the customs of foreign *ants* may, in this and various instances, deviate from ours; though the contrary opinion has never been clearly and demonstratively ascertained.

In 1749 M. Carre published a Dissertation on the Policy of *Ants*, the result of above thirty years observation; in which he concurs with Mr. Gould in rejecting the whole theory of their forecast and storehouses as fabulous; and M. Soriniere likewise, after having paid particular attention to the oeconomy of *ants* for twenty years, adopts the same opinion.

It has been a vulgar notion, that *ants* bite; but they have not strength enough in their jaws and teeth to penetrate the cuticula. However the red *ants* have a sting in the posterior part of their bodies, which they thrust out, and plunge into any thing that offends them, by a kind of vibratory motion, which injects an acrid, corrosive sort of liquor, that occasions a smart but momentary pain, and raises an inflammation. The other *ants* have no sting.

Ants furnish sustenance for many species of animals; and particularly for young pheasants and partridges; if the latter be bred under a hen, and supplied with *ant-hills* and fresh water, and at proper intervals a mixture of millepedes and ear-wigs, they will not fail to come to maturity. *Ants* also supply a resin, an oil and an acid, which have been deemed of considerable service in the art of physic.

These small animals are very injurious to gardens and pasture lands; as well by feeding on the fruit as by making hills for their habitation. In the hotter countries, as Italy, Spain, and the West-Indies, *ants* are the great pest of the fields and plantations: and no method has yet been discovered for effectually destroying them. Trees may be preserved from them by incompassing the stem for four fingers breadth, with a roll of wool newly pulled from the sheeps belly; or by laying saw dust all around the stump of it. Some anoint the tree with tar, which has the same effect, but then tar is prejudicial to the tree. In Dr. Hawkesworth's Account of the Voyages for making Discoveries in the Southern Hemisphere, mention is frequently made of black, white, and green *ants*; their stings were sharper than those of the common biting *ant*. The white *ants* resembled those of the East Indies, which are the most pernicious of all animals; and their nests were of a pyramidal form, from a few inches to six feet high. See TERMES. Professor Kalm, in his North-American Travels, speaks of a small *ant* in Pennsylvania, whose length is one geometrical line, and colour either black or dark-red. These live in swarms under ground and in walls: and as Mr. Franklin apprehends, have a peculiar method of communicating their thoughts and desires to one another. Neumann observes, that *ants* may be made use of for obtaining skeletons of small animals, such as mice, frogs, &c. exquisitely beautiful and perfect; far surpassing any thing that can be executed by artificial anatomy. The subject is for this purpose to be inclosed in a wooden box, and properly distended, to prevent the parts from collapsing, or being crushed together by the earth. The box is to be penetrated with a number of holes, through which the *ants* will presently find their way.

See more on this subject in Swammerdam's Bib. Nat. vol. i. Ray's Hist. of Insects, p. 70. Bibl. Univ. t. ix. Melange's D'Hist. Nat. t. i. Gould's Account of English *Ants*, 12mo. 1747, *passim*.

ANT-bear. See ANT-eaters.

ANT-eater, *Myrmecophaga*, the name given by Linnæus to the creature called by others, the *tamandua-guacu*, or ant-bear.

The name is derived from the Greek *μυρμις*, an *ant*, and *φαγω*, to eat. The creature is so called because his food is *ants*, which he eats by thrusting his long tongue into nests, and drawing it back into his mouth when covered with them.

This, in the Linnæan system of Zoology, is a distinct genus of animals, the characters of which are that they have no teeth; have feet formed not for climbing, but walking, and have eight abdominal paps, six on the belly, and two on the breast.

There are two species, one of them covered with hair, the other with scales. The first is called by Linnæus *Myrmecophaga*, and the other *Manis*; of this latter species there are two sorts; the first, having five toes on both hind and fore feet, is called *Manis pentadactyla*; the other with four toes, is called *Manis tetradactyla*.

ANT-eggs is a name popularly given to a kind of little white balls found in the banks or nests of *ants*, ordinarily supposed to be the ova of this insect.

Sir Ed. King opened several of those vulgarly reputed eggs, in some of which he found only a maggot in the circumstances as above described; while in another the maggot had begun to put on the shape of an *ant* about

the head, having two little yellow specks, where the eyes were to be. And in others, a farther progress was observed, the included maggot being furnished with every thing to complete the shape of an *ant*, but wholly transparent, the eyes only excepted, which were as black as bugles. Lastly, in others, he took out every way perfect and complete *ants*, which immediately crept about among the rest.

The true *ants-eggs* are the white substance which upon opening their banks, appears to the eye like the scatterings of fine white sugar, or salt, but very soft, and tender. Examined by a microscope, it is found to consist of several pure, white appearances in distinct membranes, all figured like the lesser sort of bird eggs, and as clear as a fishes bladder.

The same substance is found in the bodies of the *ants* themselves.—This spawn, when emitted, they lye in multitudes on, to brood; till in some time it is turned into little vermicles, as small as mites, commonly called *ant-eggs*.

ANT-hills are little hillocks of earth, which the *ants* throw up for their habitation and the breeding of their young. They are a very great mischief to dry pastures, not only by wasting so much land as they cover, but by hindering the scythe in mowing the grass, and yielding a poor hungry food, pernicious to cattle.

The manner of destroying them is to cut them into four parts from the top, and then dig into them so deep as to take out the core below, so deep that when the turf is laid down again it may lay somewhat lower than the level of the rest of the land; by this means it will be wetter then the rest of the land; and this will prevent the *ants* from returning to the same place, which otherwise they would certainly do. The earth that is taken out must be scattered to as great a distance every way as may be, otherwise they will collect it together, and make another hill just by. Some collect the hills together in heaps, and burn them for manure.

The proper time for doing this is winter; and if the places be left open, the frost and rains of that time of the year will destroy the rest; but in this case care must be taken, that they are covered up early enough in the spring, otherwise they will be less fertile in grass than the other places. Human dung has been found a more effectual remedy than any other.

Ants are likewise destroyed by scattering a good quantity of unslaked lime about their hills. Some make use of quicksilver, as a general poison to insects.

ANT-lion. See **FORMICA-Leo**.

ANT, musk, the name given, by Lister and Ray, to a peculiar species of *ant*, which is of the number of the perfumed insects. It is found on dry banks, and is so much smaller than the common *ant*, that it needs no other distinction. Those of this species which are without wings are of a yellowish colour, and when bruised or crushed emit a sharp and acid smell, as the common *ant* does; but those which have wings are coal-black, and these, instead of the four smell of the others, emit a perfume not to be endured for its strength. The smell of all the perfumed insects goes off in keeping; and these little creatures, after they have been dead and dry some time, are found to smell less strongly, but much more agreeably. Phil. Trans. N^o 77. or Abr. vol. ii. p. 79.

ANT, visiting. At Paramaribo, a Dutch colony in the province of Surinam, there are *ants*, which the Portuguese call *visiting-ants*; they march in troops; and as soon as they appear, all the coffers and chests of drawers are laid open, which they clear of rats, mice, and a peculiar sort of insect in that country called *cackerlacs*, and of other noxious animals. If any one chance to molest them, they fall upon him, and tear in pieces his stockings and shoes. Their visits are rare: and they do not sometimes appear for three years. Templeman's Obs. vol. i. p. 36.

ANTA, in the *Ancient Architecture*, a square column, or pilaster, placed at the corners of the walls of temples, and other edifices.

These took their name, according to M. Perrault, from the preposition *ante*, before; because placed before the walls and coins of buildings, to secure or strengthen them. The *antæ* stood out of the wall, with a projecture equal to one eighth of their face, provided there were no ornament that had a greater projecture; but it was a rule, that the projecture of the *antæ* should always equal that of the ornaments.

There are also *antæ* at doors and gates. Festus confines their use to this last place.

Vitruvius calls those that have but two faces out of the wall angular *antæ*, to distinguish them from others which have three faces disengaged, and which are placed at the ends of the walls of porticos.

ANTÆ. See **ANTICUM**.

ANTACÆUS, in *Ichthyology*, a name first given by the

Greek writers *Ælian* and *Strabo* to the *ichthyocolla piscis*, the isinglass-fish, or *HUSO*; and afterwards, by *Jonston* and others, not only to this fish, but to the common **STURGEON**.

ANTACHATES is used by some naturalists, for a kind of bituminous stone, of the nature of amber, though of a different colour, which in burning yields a smell like myrrh.

ANTACIDS, is used by some writers to denote medicines proper to qualify and resist acid humours.

Antacids are chiefly of the alcalious kind.

Under the class of *antacids* come, 1. *Absorbents*, as chalk, coral, sea-shells, hæmatites and steel-filings. 2. *Obtundents*, as oils, and fats. 3. *Immutants*, as lixivious salts and soaps.

ANTAGONIST, ANTAGONISTA, among the *Ancients*, denotes an adversary in battle.

The word is formed from *αντι*, *contra*, against; and *αγωνίζω*, *I contend*.

In this sense the word is rather used in speaking of sportive combats, or games, than of serious fighting.

ANTAGONIST also denotes one of the parties in literary disputes.

ANTAGONIST muscles, in *Anatomy*, are those which have opposite functions.

Such are the *flexor* and *extensor* of any limb, the one of which contracts it, and the other stretches it out.

Solitary muscles are those without any *antagonists*; as the heart, &c.

ANTALGIC, from *αντι*, and *αλγος*, *pain*, an epithet given by some writers to medicines proper to abate pain.

In this sense *antalgics*, *antalgica*, amount to the same with **ANODYNES**.

ANTALIUM, in *Natural History*, a small sea-shell of a tubular form, whence it is also denominated **TUBULUS marinus**.

The *antaliu*m, otherwise written *antale*, and *antalus*, is about an inch and half long; the thickness of a large quill at one end, and of a small one at the other; fluted from end to end, of a white or greenish-white colour, and is found on rocks, and at the bottom of the sea. *Du-Cange*.

It is an *alkali*, and said to be of some medicinal use as a solvent and dryer; at least by the ancients.

The *antaliu*m bears a near affinity both in origin, structure, and use, with the **DENTALIUM**.

ANTANACLASIS, a figure in *Rhetoric*; whereby the same word is repeated but in a different, and sometimes double signification—As, *Let the dead bury the dead*.

The word comes from, *αντι*, and *ανακλω*, *repercutio*, *I strike again*.

ANTANAGOGÉ, from *αντι*, and *αναγωγη*, *retortion*, a figure in *Rhetoric*; when, not being able to answer the accusation of the adversary, we return the charge, by loading him with the same or other crimes; which is usually called **RECRIMINATION**.

ANTANISOPHYLLUM, in *Botany*. See **HOG-WEED**.

ANTAPHRODISIAC, from *αντι*, and *Αφροδιτη*, *Venus*, an epithet given to medicines, which diminish the seed, and extinguish the stimula or incitements to venery.

ANTAPOCHA, in the *Civil Law*, denotes one's acknowledgment in writing of money paid, in the way of rent, pension, interest, or the like incumbrance. Such instrument, or *antapocha*, the debtor gives upon making payment to the creditor, to serve as a proof of the charge or incumbrance for futurity, and exclude any claim of prescription against the payment of it. The *antapocha* differs from the *apocha*, in that this latter is given by the creditor to the debtor, the former *vice versa*.

ANTARCTIC pole, denotes the southern **POLE**, or end of the earth's axis.

The word is composed of *αντι*, *contra*; and *αρκτος*, *ursa*, *bear*; as being opposite to the arctic pole.

The stars near the *antarctic* pole never appear above our horizon.

ANTARCTIC circle is one of the lesser circles of the sphere, parallel to the equator, at the distance of 23 deg. 30 min. from the south pole.

It takes its name from its being opposite to another circle, parallel likewise to the equator, and at the same distance from the north pole, called the **ARCTIC circle**.

ANTARES, in *Astronomy*, the scorpion's heart; a fixed star of the first magnitude, in the constellation **SCORPIO**.

ANASTROPHE, from *αντι*, and *στροφω*, *I turn*, in *Rhetoric*, a species of **ANTEPOSITION**.

ANTEAMBULONES, from *ante*, before, and *ambulo*, *I walk*, in *Antiquity*, a kind of state-servants, who walked before their masters to clear the way, and keep off the crowd.

The formula used by these was *Date locum domine meo*.

ANTECANIS is used, by some *Astronomers*, to denote the constellation otherwise called **CANIS minor**, or the star **PROCYON**. It is thus denominated as preceding, or being

ing the forerunner of the *CANIS major*, and rising a little before it.

ANTECEDENT, in the schools, something that precedes, or goes before, another, in respect of time.

The word is compounded of *ante*, *before*, and *cedere*, to go. In which sense it stands opposed to *subsequent*.

ANTECEDENT, in *Grammar*, the word which a relative refers to.

ANTECEDENT, in *Logic*, denotes the first proposition of an *enthymeme*, or of an argument which only consists of two members.

In opposition to this, the latter is called the *consequent*.

Thus, in the argument, *cogito, ergo sum, I think, and therefore I exist*; *cogito* is the *antecedent*: being thus called, because it precedes the *ergo*, or the *copula* of the argument.

ANTECEDENT of a *RATIO*, in *Mathematics*, denotes the first TERM, or that which is compared with the other.

Thus, if the *ratio* be *a:b*, or of *a* to *b*; *a* is said to be the *antecedent*.

ANTECEDENT signs, in *Medicine*, are such symptoms of disorder as appear before a distemper is so formed as to be reducible to any particular class, or proper denomination.

ANTECEDENTS, in *Rhetoric*, are such things as being once allowed, others necessarily or very probably follow.

This is one of the sixteen topics or common places enumerated by Cicero and Quintilian.

ANTECEDENT decree, in *Theology*, is a decree preceding some other decree or some action of the Creator, or the provision of action. It is a point much controverted, whether predestination be a decree *antecedent* to faith, or subsequent to it.

ANTECEDENT will, or *desire*, is that which precedes some other will or desire, or some knowledge or provision. Thus some divines say, God by a sincere, but *antecedent* desire, wills all men to be saved; that is, this sincere desire of God precedes, and does not suppose, the knowledge of their faith and repentance.

ANTECEDENT necessity. See **NECESSITY**.

ANTECEDENCY, **ANTECEDENCE**. See **ANTECEDENT**, and **ANTECEDENTIA**.

ANTECEDENTIA, among *Astronomers*. When a planet appears to move westward, contrary to the order or course of the signs; as from Taurus towards Aries; it is said to move in *antecedentia*.

On the contrary, when it goes eastward, or forward, from Aries towards Taurus; it is said to move in *consequentia*.

ANTECESSOR, one that goes before, or that leads another. See **PERCURSOR**, **PREDECESSOR**, &c.

The term is particularly used in some universities for a public professor, who teaches or lectures the civil law.

ANTECESSORS, in the ancient art of *War*, is an appellation given to a party of horse, dispatched before the *agmen* or body of an army, partly by way of intelligence, and partly to choose out a proper place for encamping on, as well as the most convenient roads for the soldiery to travel in.

These are also denominated *antecursores*.

They amount to the same with what the Greeks call *prodromi*.

ANTECHAMBER, or **ANTICHAMBER**, an outer chamber, before the principal chamber of an apartment; where the servants wait, and where strangers stay, till the person to be spoken with is at leisure, &c.

The word is formed of *ante*, *before*, and *camera*, a CHAMBER.

ANTECHRIST. See **ANTICHRIST**.

ANTECURSORES. See **ANTECESSORS**.

ANTEDATE, a spurious date, prior to the true date of a writing, instrument, act, deed, or the like.

Antedates, in *Commerce*, are of very dangerous consequence in matters of trade. To *antedate* is to set down a false date; to date from a day prior to that on which the business is transacted, the note or bill drawn, or letters written, &c.

In France it was formerly the ill custom to have blank orders on the backs of bills of exchange, that is, to indorse them merely with a name, so that they could easily be antedated; which in case of failures was liable to cause very great abuses. But by the regulations for commerce of 1683, it is ordered that the signatures on the backs of bills of exchange shall not serve for orders, unless dated: and *antedates* are punished as forgery.

ANTEDILUVIAN, or **ANTIDILUVIAN**, something that existed or happened before the **DELUGE**.

In this sense, those generations from Adam till Noah's flood, are called *Antediluvians*; and those since descended from Noah to the present time, are called *Postdiluvians*.

Dr. Burnet, and Dr. Woodward, differ very widely about the *Antediluvian* world; the former imagines its face and appearance to have been smooth, equable, and

in all respects different from what we now find it to be. The latter, on the contrary, endeavours to prove, that the face of the terraqueous globe before the deluge was the same as it is now, viz. unequal, distinguished into mountains, and dales, and having likewise a sea, lakes, and rivers; that this sea was salt, as ours is; was subject to tides; and possessed nearly the same space and extent that it now does; and that the *Antediluvian* world was stocked with animals, vegetables, minerals, &c. that it had the same position, in respect of the sun, which ours now hath, its axis not being perpendicular, but inclined, as at present, to the plane of the ecliptic; consequently, that there were then the same succession of weather, and the same vicissitudes of seasons, as now.

ANTEJURAMENTUM, from *ante*, *before*, and *juramentum*, oath, or **PRÆJURAMENTUM**, by our ancestors also called *juramentum calumniæ*; an oath which both the accuser and accused were anciently obliged to make before any trial or purgation.

The accuser was to swear, that he would prosecute the criminal; and the accused was to make oath on the very day that he was to undergo the ordeal, &c. that he was innocent of the fact with which he was charged.

If the accuser failed, the criminal was discharged; if the accused, he was understood to be guilty, and was not to be admitted to purge himself by the ordeal.

ANTEJUSTINIANEAN, an appellation sometimes given to the ancient Roman law, as it stood before the time of the emperor Justinian.

Tribonian has been often condemned for suppressing the writings of the *Antejustinianean* lawyers. Schulting, a celebrated professor at Leyden, has a dissertation on the equity of this censure. Fabricius gives a catalogue of the ancient *Antejustinianean* lawyers. Schulting has published a collection of the *Antejustinianean* writers.

ANTELIUS, or **ANTHELIUS**, in *Ancient Writers*, denotes an idol placed over the doors of houses, supposed to have the guardianship, or protection of them.

The word is originally *αἰνλιος*, q. d. *against the sun*, as being exposed thereto.

ANTELOPE, *gazella*, in *Zoology*, the name of an animal of the goat kind, of which there are three known species.

1. The *gazella Africana strepsicheros Plinii*. This is the species we usually see under the name of the *antelope*; it is called the *addax* in Africa, and is the *dortas Lybica* of *Ælian*. Its horns are slender and erect, black, transversely radiated, and twisted into the appearance of spiral lines; though these are in reality so many annular circles, they are toward the middle bent a little outwards, and thence they turn in again, so that they in some measure represent the ancient lyre.

2. The *gazella Indica*, or *Indian antelope*, with very long straight horns, which are annulated only in that part near the head. The horns of this creature are sometimes three feet long, and are perfectly smooth and glossy, except near the head, and black. The creature is of the size of our common deer, and is of a greyish colour; its tail is a foot long, and has longer hairs on it than those on the rest of the body. The horns of this species are very common in the museums of the curious. This creature seems to be the animal which produces the bezoar stone so much valued in medicine.

3. The African kind, which has flat horns annulated to the very top, and crooked near the middle; this has been seen alive sometimes in England. It was much smaller than our deer, and of a sandy colour; its belly is white, and its sides where the white and sandy colour met, of a dusky appearance. Its tail is blacker and longer than that of the deer, is covered with a smaller number of hairs than those of our deer, and is white on that part next the body. Its horns grow out of the middle of the forehead near the eyes, and are very long, sharpening at the ends, and all the way marked with transverse *striæ* or furrows, and a little bent upwards. Its ears are large, and its legs very slender.

The hoofs and horns are used in medicine, being esteemed good against the epilepsy and hysterics.

ANTELUCAN, from *ante*, and *lux*, *light*, in *Ecclesiastical Writers*, is applied to things done in the night or before day.

We find frequent mention of the *antelucan* assemblies, *cœtus antelucani*, of the ancient Christians in times of persecution for religious worship.

ANTELUDIA, from *ante*, and *ludus*, *game*, in *Antiquity*, a day of show or parade preceding the circenses, wherein the preparations made for those solemnities were exposed in great form and pomp.

ANTEMURALE, from *ante*, and *murus*, *wall*, in *Middle Age Writers*, denotes a kind of outer wall environing the other walls and works of a place, and preventing the too near access of the enemy to them.

This is also called by *Isidore*, *promurale*, as being *pro munitione muri*, for the defence of the wall.

A N T

In some writers we find it denominated *antepectoralis muris*, in others *anpits*.

ANTEMURALE is also used to denote any work without side the rampart or wall of the place.

In this sense, *antemurale* amounts to the same with what we otherwise call **OUTWORK**.

ANTEMURALE is also used in *Ecclesiastical Writers* for the vestibule or entrance of the *presbyterium*, or **BEMA**.

ANTENATUS is used in some *Law Writers* for the first-born, or eldest son, answering to what we call *aîné*.

ANTENATUS, from *ante* and *natus*, *born*, is also sometimes used for a son, the issue of a former marriage.

In which sense, *antenatus* amounts to the same with *privignus*.

ANTENATI, in the modern *English History*, is chiefly understood of the subjects of Scotland, born before king James the First's accession to the English crown, and alive after it.

In relation to these, those who were born after the accession were denominated **POSTNATI**.

The *antenati* were considered as aliens in England, whereas the *postnati* claimed the privilege of natural subjects.

ANTENCLEMA, *αντενκλημα*, in *Oratory*, is where the whole defence of the person accused turns on criminating the accuser.

Such is the defence of Orestes, or the oration for Milo, *Occisus est sed latro. Exsecutus sed raptor*.

See **RECRIMINATION**.

ANTENICENE, in *Ecclesiastical Writers*, denotes a thing or person prior to the first council of Nice.

We say the *Antenicene* faith, *Antenicene* creeds, *Antenicene* fathers.

ANTENNÆ, in *Natural History*. See **FEELERS**.

ANTENUPTIAL, something that precedes marriage.

In this sense, we say *antenuptial* promises, *antenuptial* presents, *antenuptial* covenants, *antenuptial* fornication, &c.

Neostadius has a treatise *De Pactis Antenuptialibus*.

ANTEPAGMENTA, or **ANTIPAGMENTA**, in the *Ancient Architecture*, the jambs of a door, or lintels of a window.

The word is also used for the intire *chambranle*, i. e. the door-case, or window-frame.

ANTEPENULTIMA, or **ATEPENULTIMATE**, in *Grammar*, the third syllable of a word, reckoning from the latter end; or the last syllable except two.

The word is compounded of the preposition *ante*, *before*; and *penultimate*, *last but one*, or *pene ultimam*.

It was upon this syllable, that the Greeks placed their acute accents, and also on the last and last but one; but they never placed the accent before the *antepenultima*.—

The *antepenultima* of a dactyle is always long.

ANTEPILANI, among the ancient Romans, denote the *hastati* or *principes* of a legion.

They are supposed to have been thus called because ranged before the *triarii*, who were also called *pilani*.

Some will have the word to be a corruption for *ante-signani*.

ANTEPILEPTIC, in *Medicine*, denotes a quality in bodies, whereby they resist or oppose the epilepsy and convulsive motions.

The chief *antepileptics* from the vegetable kingdom are, the roots of pæony, valerian, the flowers of the lime tree, mistletoe of the oak, hazel, and lime.

The animal kingdom affords a great number of *antepileptics* either real or imaginary. Such are elks claws, *castoreum*, divers parts of the deer, swallows-hearts, the human cranium, blood, secundines, &c. the *hippomanes*, lizards, frogs and moles liver and spine, lions and peacocks dung, earth worms, &c.

The mineral kingdom affords hyacinths and smaragds prepared, also tincture of luna.

ANTEPOSITION, from *ante*, and *pono*, *I place*, a grammatical figure, whereby a word which by the ordinary rules of syntax ought to follow another, comes before it. As when in Latin the adjective is put before the substantive, the verb before the nominative case, &c.

Anteposition stands opposed to *postposition*. One case or species of this figure is called by a particular name, *anastrophe*.

ANTEPREDICAMENTS, **ANTEPRÆDICAMENTA**, in *Logic*, certain previous matters, requisite to a more easy and clear apprehension of the doctrine of **PREDICAMENTS** or **CATEGORIES**.

Such are definitions of common terms; as equivocals, univocals, &c. See **DEFINITION**, **DIVISION**, &c.

They are thus called, because treated by Aristotle, before the predicaments: that the thread of the discourse might not afterwards be interrupted.

ANTERIDES, in the *Ancient Architecture*, denote buttresses erected to support a wall.

These are sometimes called *antes*, sometimes *crismæ*, and by the Greeks *επιστοιματα*.

Anterides answer to what the modern builders call *counterforts*, *archbutants*; the Italians *barbicanes*, and *speroni*, or *spurs*.

A N T

ANTERIOR, or **ANTERIOUR**, something before another, chiefly in respect of place.

The word is formed of the preposition *ante*, *before*.

In which sense the term amounts to the same with *prior*, and stands opposed to *posterior*.

ANTERIOR Ramus. See the article **RAMUS**.

ANTEROS, in *Mythology*, one of the two Cupids who were the chief of the number. They are placed at the foot of the Venus of Medici; this is represented with a heavy fullen look, agreeably to the poetical description of him, as the cause of love's ceasing. The other was called *Eros*. Ovid. Rem. Amor. V. verse 549 to 576.

ANTEROTES, a name given by some of the ancient writers on gems to a species of the amethyst. Some have imagined they meant by it a sort of opal; but Pliny expressly contradicts this, making the *anterotes* the fifth kind of **AMETHYST** in value.

ANTES, in *Architecture*, see **ANTRA**.

ANTESIGNANI, in the Roman armies, a kind of soldiery posted before the eagles, and other ensigns of the legions, whence their appellation.

The *antesignani* stand contradistinguished from the *subsignani*, who were ranged in the same line with the ensign; and from the *postsignani*, who were placed behind them.

ANTESTATURE, in *Fortification*, a small retrenchment, made of pallisadoes, or sacks of earth, set up in haste, to dispute with the enemy the remainder of a piece of ground, part whereof hath been already gained.

ANTHALIUM, among the *Ancients*, a root growing in dry places, and about the bigness of the fruit of the medlar; it was dug up for food, and esteemed very pleasant and wholesome.

ANTHELION, from *αντι* and *ήλιος*, *sun*, in *Physics*, signifies a mock or spurious sun, and denotes a meteor, not very common, of a luminous appearance, somewhat resembling the sun, seen through clouds, bigger, sometimes four or five times, than the solar disk. In its most resplendent state, it is as yellow as the sun; but the lucid tract surrounding it is of a paler yellow, or whitish cast, interspersed sometimes with a few reddish or subfuscous spots. The most received opinion relative to the formation of this kind of meteor, attributes the *phenomenon* to a multitude of minute icy or snowy particles suspended in the air, and either refracting or reflecting the solar rays in such a manner, as to multiply the image of the sun. But the theory of *anthelia*, for want of a proper number of observations, seems not yet to be brought to such a degree of satisfaction, as by every lover of physiology could be desired. The instances of them are but rare. See Phil. Trans. vol. lii. Part i. N^o 16. An. 1761. See **HALO** and **PARHELION**.

ANTHELIX, in *Anatomy*, the inner circuit of the auricle; thus called from its opposition to the outer circuit, called the **HELIX**.

ANTHELMIA, Indian **PINK**.

ANTHELMINTICS, medicines good to destroy worms.

The word is compounded of *αντι*, *contra*, *against*, and *ελμινς*, *worm*.

Purgatives seem to be the only proper *anthelmintics*.

ANTHEM, from *αντι* and *υμνος*, *a hymn*, a church-song, performed in cathedral and other service, by the choristers, divided for that purpose into choruses, who sing alternately. The word was originally used both for psalms and hymns, when thus performed.

Socrates represents St. Ignatius as the author of this way of singing among the Greeks; and St. Ambrose among the Latins.—Theodoret attributes it to Diodorus and Flavian.

Amalarius Fortunatus has written expressly of the order of *Anthems*, "*De antiphonarum ordine*."

At present the term is used in a somewhat narrower sense; being applied to certain passages taken out of the psalms, &c. and often accommodated to the particular solemnity in hand.

Anthems were first introduced into the reformed service of the English church in the beginning of the reign of queen Elizabeth.

ANTHEMIS, see **CHAMOMILE**.

ANTHERÆ, in *Botany, a term used by some authors for the yellow, or ruddy globules in the middle of certain flowers, as of lilies, saffron, &c.*

Some confine the *antheræ* to the yellowish globules in the middle of roses.—These are held more astringent than the rest of the plant.

Others apply the name **ANTHERÆ** to those little tufts or knobs which grow on the tops of the *stamina* of all other flowers; more usually called **APICES**.

The *anthera* or apex of the stamen, in the Linnæan system, is a principal part of the male organ of generation in plants, and contains within it a fine powder called *pollen* or *farina fecundans*, destined for the impregnation

of the *germen*, and which, when come to maturity, it discharges.

ANTHERICUM, in *Botany*. See SPIDERWORT.

ANTHESPHORIA, in *Antiquity*, a feast celebrated in Sicily, in honour of Proserpine.

The word is derived from *ανθος*, flower, and *φερω*, I carry; in relation to Pluto's having forced away that goddess, when she was gathering flowers in the fields. Yet Festus does not ascribe the feast to Proserpine; but says it was thus called, because ears of corn were carried on this day to the temples.

Anthesphoria seems to be the same thing with the *floriferum* of the Latins; and answers to the *harvest-home* among us.

ANTHETERIA, in *Antiquity*, was a feast celebrated by the Athenians, in honour of Bacchus.

The most natural derivation of the word is from *ανθος*, flos, a flower; it being the custom of this feast to offer garlands of flowers to Bacchus.

Some are of opinion it took its name from the month *Anthesterion*, in which it was celebrated. Others pretend, that this was not the name of any particular feast, but that all the feasts of Bacchus were called *anthesteria*.

The *anthesteria* lasted three days, the eleventh, twelfth, and thirteenth days of the month; each of which days had a name suited to the proper office of the day. The first day of the feast was called *πιθουγία*, i. e. opening the vessels, because on this day they tapped the vessels, and tasted the wine. The second they called *χοος*, *congi*, the name of a measure, containing the weight of about ten pounds: on this day they drank the wine prepared the day before. The third day they called *χυστος*, *kettles*: on this day they boiled all sorts of pulse in kettles; which, however, they were not allowed to taste, as being all to be offered to Mercury.

ANTHETERION, in *Ancient Chronology*, the sixth month of the Athenian year. It contained twenty-nine days, and answered to the latter part of our November and beginning of December. The Macedonians called it *Desion* or *Desion*.

It had its name from the festival ANTHETERIA kept in it.

ANTHIA, in *Ichthyology*, a name by which some improperly call the *falx Venetorum*, or sickle fish, a long anguilliform fish of the *TÆNIA* kind.

ANTHIAS, in *Ichthyology*, the name of a fish seeming to approach to the *TURDUS* or wrasse kind, of which Rondeletius and some other authors have described four species. Linnæus makes it a species of the *LABRUS*. See SACER.

ANTHINE, among *Ancient Naturalists*, is an appellation given to certain species of wine and oil.

In this sense the word is also written *anthinos*.

Vinum anthines, *οινος Ανθινος*, was that prepared with certain fragrant flowers to give it the more agreeable odour.

Oleum anthinum is also denominated *liliaceum*, sometimes *susinum*.

Some also give the appellation *anthine* to the composition otherwise called *CYCEON*.

ANTHOCEROS, in *Botany*, the name of a genus of mosses, of the *cryptogamia algæ*, in the Linnæan system.

The name was given by Micheli; and Linnæus characterises it, as having male and female flowers: the calyx of the male is sessile, cylindric, and entire: the anthera is subulated, very long, and furnished with two valves: the calyx of the female is divided into six segments, and contains three seeds. He reckons three species.

ANTHOLOGION, a church-book in use among the Greeks.

Is was called *ανθολογιον*, q. d. *florilegium*, or a collection of flowers.

The *anthologion* is a sort of breviary or mass-book, containing the daily offices addressed to our Saviour, the Virgin, and the principal saints; with other common offices of prophets, apostles, martyrs, pontiffs, and confessors, according to the Greek rite. See BREVIARY, MASS, and OFFICE.

ANTHOLOGY, ANTHOLOGIA, a discourse or treatise of flowers; or of beautiful passages from any authors.

Thus called from *ανθος*, flos, a flower, and *λογος*, sermo, discourse. Though others choose rather to derive it from *ανθος*, flos, a flower, and *λεγω*, I gather; and use it to signify a collection of flowers.

ANTHOLOGY is frequently used for a collection of epigrams of divers Greek poets.

ANTHOLYZA, in *Botany*, a genus of the *triandria monogynia* class; we have no English name for this plant.

The characters are, that it hath an imbricated sheath, which is permanent; the flower is of one leaf, and opens above with compressed jaws. The under lip is trifid and

short; the middle segment turns downward. Under the flower is situated the *germen*, which afterward becomes a roundish three-cornered vessel having three cells, in which are lodged many triangular seeds. Mr. Miller enumerates two, and Linnæus four species.

They are a great ornament to the green-house when they are in flower; and as they require but little culture, they deserve a place in every good garden.

ANTHONY.—Knights of St. *Anthony*, an order of knighthood, established in 1382, by Albert of Bavaria, &c. who had then taken a resolution to make war against the Turks.

The knights of this order wore a collar of gold, with a hermit's girdle, to which hung a crutch, and a little bell. Some authors mention another order of St. *Anthony* in Ethiopia, instituted in 370, by Prester John.

St. *Anthony* also gives the denomination to an order of religious founded in France about the year 1095, under the pontificate of Urban II. to take care of those afflicted with St. *Anthony's fire*.

The *Anthonins*, or monks of St. *Anthony*, are by some said to be of the begging kind. Their founder was Gaston Frank, who erected a monastery for them at La Motte, near Vienne, where the general still lives; they follow the rule of St. Augustine. Others give a different account of their origin, and suppose them thus called, not on account of St. *Anthony's fire*, but because instituted by a St. *Anthony*, prior of a monastery in that neighbourhood. The friars of this order came into England in the reign of king Henry III. and had one house in London, and another at Hereford.

It is said in some places, these monks assume to themselves a power of giving, as well as removing the *ignis sacer*, or ERYSIPELAS, a power which is usefully employed for keeping the poor people in subjection and extorting alms.

ST. ANTHONY'S FIRE. See ERYSIPELAS.

ANTHOPHYLLI, a denomination given to the larger species of cloves.

The word is otherwise written *antophali*.

ANTHORA, a medicinal plant, of the ACONITE kind, having yellow flowers, resembling helmets; growing chiefly on the mountains of Switzerland and Savoy.

This is otherwise called *antithora*, as being reputed an antidote against the *thora*: sometimes ACONITUM *salutiferum*, in English the HELMET-flower.

The root, *anthoræ radix*, has been chiefly in use. It holds a place in the catalogues of the *Materia Medica*, but is not kept at this time in the shops. It is of a dusky brown without and whitish within, of a warm bitterish taste, and is reputed a cardine and alexipharmic, much of the same qualities with CONTRAYERVA root; on which account some also denominate it the German *contrayerva*, though it now only obtains in a few official compositions.

ANTHORISMUS, in *Rhetoric*, denotes a counter definition or description of a thing.

Thus, if the plaintiff urge, that to take any thing away from another, without his knowledge or consent, is a theft; this is called *επος*, or definition. If the defendant reply, that to take a thing away from another, without his knowledge or consent, provided it be done with design to return it to him again, is not theft, this is an *ανθορισμος*.

ANTHOS, in its original Greek, signifies flower; but by way of excellency is appropriated to rosemary, so as to express only that plant.

ANTHOS, in *Chemistry*, is used to denote the quintessence or elixir of gold; and sometimes for a medicine extracted from pearls.

ANTHOS *philosophorum* is more particularly used, to denote a method of transmuting metals by means of vitriol.

ANTHOSMIAS, in some *Ancient Naturalists*, denotes a rich odoriferous kind of wine.

In this sense *anthosmias* differs from *anthinos*, as the latter imports a medicated wine scented with odoriferous herbs, whereas the former derived its fragrant from the native grapes.

ANTHOSPERMUM, in *Botany*. See AMBER-tree.

ANTHOXANTHUM, in the Linnæan system of *Botany*, the name of a sort of grass which makes a distinct genus of plants, of the *diandria digynia* class. The characters of this are, that the calyx, or flower-cup, is composed of two glumes, the exterior containing one flower composed of two valves of an oval figure, pointed, hollow, and the one larger than the other; the interior glume is composed of two valves of the same length with the exterior large valve, and each sending out a fine beard or acorn from its hinder part: this also contains one flower, which is composed of two unequal-sized valves, and is extremely thin in its whole structure, and quickly falls off.

off. The *stamina* are three capillary filaments; the *antheræ* are long, and split at their ends; the *germen* of the *pistillum* is oblong; the styles are capillary, two in number, and hoary; the *stigmata* are simple; the interior glume grows firmly to the seed, which is single, oblong, and pointed at each end.

ANTHRACIS, in *Natural History*, a word used for a gem by the ancients, but in several different senses: all which seem evidently to refer to the cat's eye, or *asteria* kind.

Many of the ancients also have called the **HÆMATITES**, or blood-stone, by this name, *anthracitis*, because of its being of the colour of a burning coal.

ANTHRACOSIS, a disease of the eyes, occasioned by a corrosive ulcer, either in the bulb of the eye, or the eyelids, covered with skin, and attended with a general swelling of the parts adjoining.

The word denotes an inflammation resembling a coal; *ανθραξ* signifying a coal.

ANTHRAX, in the *Natural History* of the *Ancients*, was a word used by the most early writers for the substance we now call pit-coal and *lithanthrax*. Theophrastus plainly tells us, that the substance strictly and properly called *anthrax* (for they also knew a gem by the same name, used in a metaphorical sense) was an earthy fossil substance, which was broken in pieces to be used, and kindled well, and burnt almost like wood-coals, and was used by the smiths.

ANTHRAX, *Ανθραξ*, in *Medicine*, means figuratively, a scab or blotch, made by a corrosive humour, which, as it were, burns the skin, and occasions sharp pricking pains.

The *anthrax* is the same with what is otherwise denominated *carbo* and *carbunculus*.

Some pretend to make a distinction between the *anthrax* and *CARBUNCLE*, limiting this latter to the glandular parts, and the former to all the others. But the distinction is scarce worth the making.

Rivettus, Tosius, Gemma, and Meurerus, have discoursed expressly on the *anthrax*.

ANTHROMETRICA machina. See **ANTHROPOMETRICA**.

ANTHROPODÆMON, in *Ancient Writers*, a demon concealed under the figure or appearance of a man.

ANTHROPOGLOTTUS, in *Natural History*, something that has a tongue, or speech resembling that of man.

The parrot kind are denominated *anthropoglotti*, on account of their broad, thick and muscular tongues, by which they are enabled to speak, and to roll their meat from side to side under the edges of their bills.

ANTHROPOGRAPHIA, a description of man; more particularly, of the structure of his body and the parts thereof.

ANTHROPOLATRÆ, a title given to the Nestorians, on account of their believing Christ to be a mere man, yet paying him the honour of a God.

ANTHROPOLATRIA, the paying divine worship or honours to a man. *Anthropolatria* is supposed by some to have been the most ancient species of **IDOLATRY**.

ANTHROPOLOGY, a discourse, or treatise, upon man, or human nature; considered as in a sound, or healthy state.

It is compounded of *ανθρωπος*, *man*, and *λογος*, *discourse*.

Anthropology includes the consideration both of the human body and soul, with the laws and effects of their union; as sensation, motion, &c.

It is particularly used in *Theology*, for a way of speaking of God, after the manner of men; by attributing human parts and passions to him; as eyes, hands, ears, anger, joy, &c.

We have frequent instances of *anthropology* in Holy Scripture; by which we are only to understand the effect, or the thing which God does, as if he had hands, &c.

ANTHROPOMANCY, a method of divination, performed by inspecting the *viscera* of a person deceased.

The word is compounded of *ανθρωπος*, *man*, and *μανησια*, *divination*.

ANTHROPOMETRIA, a description of the human body, with its several parts and members according to the three dimensions, length, breadth, and thickness, both considered in themselves, and comparatively to each other.

ANTHROPOMETRICA machina, a name which Sanctorius gave to his weighing chair, contrived for measuring the quantity of *insensible PERSPIRATION*.

ANTHROPOMORPHA, in the Linnæan system of nature, a class of animals in some degree resembling the human form.

The word is derived from *ανθρωπος*, *a man*, and *μορφη*, *form*.

This author makes it comprehend the monkey, the *ignavus* or sloth, and the *tamandua guacu* or ant-bear, as it is usually called.

ANTHROPOMORPHITE, in a general sense, one who attributes to God the figure of a man.

The word comess from the Greek *ανθρωπος*, *man*, and *μορφη*, *shape*.

ANTHROPOMORPHITES were a sect of ancient heretics, who, taking every thing spoken of God in the scriptures in a literal sense, imagined he had real hands, feet, &c. The passage they chiefly insisted on was that in Genesis, where it is said, that God made man after his own image.

Even philosophers, for want of a better acquaintance with metaphysics, seem to have fallen into *anthropomorphism*, representing God much after the manner of a human soul, without considering the difference between a finite and an infinite being, limited and absolute perfections. Wolfius has laboured hard to avoid this rock, by having the difference still present on his mind, and proceeding according to the ancient rule, *Quæ de Deo dicuntur ανθρωποπαθως*, *ea intellige Θεοπεπεως*.

The whole sect of Stoics held God to be corporeal; and, not to mention Tertullian and others among the fathers, Hobbes and his followers assert the same among ourselves. Leibnitz charges Sir Isaac Newton and his followers with representing God under the conditions of a man. But with what justice it would be hard to say.

Those who held the contrary, viz. that God is incorporeal, and without any bodily form, the *Anthropomorphites* branded by the name of *Origenists*, because Origen taught how to allegorize those expressions.

Epiphanius calls the *Anthropomorphites*, *Audiani*, or *Odi-ani*, from *Audius*, the supposed founder of the sect; who lived, about the time of Arius, in Mesopotamia. St. Augustine calls them *Vadiani*.

This system was revived in 939.

ANTHROPOMORPHOUS, something that bears the figure or resemblance of a man. Naturalists give instances of *anthropomorphous* plants, *anthropomorphous* minerals, &c. These generally come under the class of what they call *lusus naturæ*, or monsters.

Anthropomorphous stones make a species of those called figured stones.

ANTHROPOMORPHOUS is an appellation more peculiarly given to **MANDRAGORA**, or *mandrake*.

ANTHROPOPATHY, a figure, expression, or discourse, whereby some passion is attributed to God, which properly belongs only to man.

It is compounded of *ανθρωπος*, *man*, and *παθος*, *passion*.

Anthropopathy is frequently used promiscuously with *anthropology*; yet, in strictness, they ought to be distinguished, as the genus from the species. *Anthropology* may be understood of any thing human attributed to God; but *anthropopathy*, only of human affections, passions, sensations, &c.

ANTHROPOPHAGI, people who feed on human flesh. Compounded of the Greek *ανθρωπος*, *man*, and *φαγειν*, *edere*, *to eat*.

The Cyclops, the Lestrygons, and Scylla, are all represented in Homer as *anthropophagi*, or man-eaters; and the female phantoms, Circe, and the Syrens, first bewitched with a shew of pleasure, and then destroyed.— This, like the other parts of Homer's poetry, had a foundation in the manners of the times preceding his own. It was still in many places the age spoken of by Orpheus,

When men devoured each other like the beasts,
Gorging on human flesh.—

Some remains of the usage subsisted much longer, even among the most civilized nations, in the practice of offering human sacrifices.

History gives us divers instances of persons driven by excess of hunger to eat their own relations. Others commence *anthropophagi* out of revenge and hatred; there are many instances of soldiers who in the heat of battle have been carried to such excess of rage, as to tear their enemies with their teeth.

The violence of love has sometimes produced the same effect as the excess of hatred. The *Tapuii* eat the bodies of their friends and nearest relations to preserve them from worms and putrefaction, thinking they do not only hereby afford them an honourable grave, but even a new life, a kind of revivification in themselves. Artemisia did something like this, when she swallowed the ashes of her dead husband, Mausolus. Among the Eistedonian Scythians, when a man's father died, his neighbours brought him several beasts, which they killed, minced, and mixed up with the flesh of the deceased, and made a feast.

Among the *Massageti*, when any person grew old, they killed him and eat his flesh; but if the party died of sickness, they buried him, esteeming him unhappy.

Idolatry

Idolatry and superstition have occasioned the eating more men, than both love and hatred put together. There are few nations but have offered human victims to their deities; and it was an established custom to eat part of the sacrifices they offered.

The Jagos and the subjects of the great Macoco, are said to be *anthropophagi*. This prince is very powerful, having ten kings for his vassals; his court is so numerous, that there are two hundred men butchered every day to supply the table; part of this number are criminals, the rest slaves furnished in the nature of tribute.

It appears pretty certain from Dr. Hawkesworth's Account of the Voyages to the South Seas, that the inhabitants of the island of New Zealand, a country unfurnished with the necessaries of life, eat the bodies of their enemies. It appears also to be very probable, that both the wars and *anthropophagi* of these savages take their rise, and owe their continuance to irresistible necessity, and the dreadful alternative of destroying each other by violence, or of perishing by hunger. See Vol. III. p. 447, & seq. and Vol. II. p. 389, &c.

M. Petit has a learned dissertation on the nature and manners of the *anthropophagi*. Among other things, he disputes whether or no the *anthropophagi* act contrary to nature? The philosophers, Diogenes, Chrysippus, and Zeno, followed by the whole body of Stoics, held it a very reasonable thing for men to eat each other.

According to Sextus Empiricus, the first laws were those made to prevent men from eating each other, as had been done till that time. The Greek writers represent *anthropophagy* as universal before Orpheus. To shew farther, that *anthropophagy* is not contrary to nature, a modern author urges, that cats, dogs, rabbits, and other animals, feed on each other. Pliny, after Aristotle, affirms, that swans eat each other; and the bees also eat their *nymphæ*, which are their young. The Dutch in Nova Zembla saw bears devour each other, and the like has been observed in the fish kind: the *tiburones*, according to Ovid, are caught with a hook baited with their own flesh. Leonardus Florentinus having fed a hog with hog's flesh, and a dog with dog's flesh, found a repugnancy in nature to such food; the former lost all his bristles; the latter its hair, and the whole body broke out in blotches. The origin of the venereal disease is by some attributed to the eating of human flesh.

It may be said, that whether the dead body of an enemy be eaten or buried, is a matter perfectly indifferent; but whatever the practice of eating human flesh may be in itself, it certainly is, relatively and in its consequences, most pernicious. It manifestly tends to eradicate a principle, which is the chief security of human life, and more frequently restrains the hand of the murderer, than the sense of duty, or the dread of punishment. If even this horrid practice originates from hunger, still it must be perpetuated from revenge. Death must lose much of its horror among those who are accustomed to eat the dead; and where there is little horror at the sight of death, there must be less repugnance to murder. See some farther observations on this subject, equally just and ingenious, by Dr. Hawkesworth, *ut supra*.

It may be asked, whether the use which is made of certain parts of the human body in physic, come under the denomination of *anthropophagy*? How often have tombs been violated on this occasion? To say nothing of mummies and the like. Pliny assures us, that in his time the physicians ordered their epileptic patients to apply their lips to the wounds of gladiators, and swallow the blood as it streamed from them.

Some carry their respect for dead bodies a great length. M. Petit does not think it lawful for anatomists to dissect human bodies, in order to learn their structure, except those of condemned criminals, and such as are denied the rites of burial. The Arabs went farther; notwithstanding all their curiosity and desire to be acquainted with the human structure, they could never be induced to make one dissection; they were contented to borrow all their knowledge of this kind from the Greek physicians.

Some maintain it impossible, whatever precaution is used, to prevent the ingress of the parts of dead bodies with our food and drink. Add, that if we do not feed on our own species, we feed on plants and animals, which derive a great part of their nutriment from us. Whence the impossibility of the RESURRECTION of the same body has been inferred.

ANTHROPOPHAGIA, the act or habit of eating human flesh.

This is pretended by some to be the effect of a disease, which leads people affected with it to eat every thing alike. Some choose only to consider it as a species of **PICA**.

The annals of Milan furnish an extraordinary instance of *anthropophagy*. A Milanese woman, named Elizabeth, from a depraved appetite, like what women with child, and those whose *menfes* are obstructed, frequently experience, had an invincible inclination to human flesh, of which she made provision by enticing children into her house, where she killed and salted them; a discovery of which having been made, she was broken on the wheel and burnt in 1519.

Some physicians vainly think they have discovered the principle of *anthropophagy*; and that it consists in an acrid atrabiliary humour, which being lodged in the coats of the ventricle, produces this voracity. And they give several instances of this inhuman hunger, even among their own patients.

ANTHROPOSCOPIA, the art of judging or discovering a man's character, disposition, passions, and inclinations, from the lineaments of his body.

In which sense, *anthroposopia* seems of somewhat greater extent than **PHYSIOGNOMY**, or **METOPOSCOPY**.

Otto has published an **ANTHROPOSCOPIA**, *sive judicium homines de homine ex lineamentis externis*.

ANTHROPOSOPHIA, the science of the nature of man, and his structure and composition, both internal and external.

In this sense, *anthroposopia* amounts to much the same with the medical *physiology* or *anatomy*.

The word is used by Charleton, but with no great propriety; since *sophia*, or wisdom, imports the science of using means to obtain an end, which is foreign to Charleton's intention.

ANTHROPOTHYSIA, in *Ancient Writers*, denotes the offering of human victims.

The *anthropothyfia* was a frequent practice among the ancients. Some have imagined that the sacrifice of Abraham was the first instance. Many reasonings and disquisitions have been founded on this supposition; by which the severity of Abraham's trial is thought by some to have been somewhat exaggerated. Human sacrifices were in use among the Gentiles before that time; practised by kings as well as by private persons; nay by entire nations, as the Egyptians, Phœnicians, Canaanites, &c.

ANTHUMON, in the *Materia Medica* of the *Ancients*, a name given to the **EPITHYUM**, or *dodder*, growing upon **THYME**.

ANTHUS, in *Ornithology*, a name by which Aldrovand and some other authors have called that species of the **OENANTHE** known in England by the name of the **WHIN-CHAT**.

ANTHYLLIS, in *Botany*. See **LADY'S finger**.

ANTHYPOMOSIA, in *Ancient Writers*, an oath taken by a prosecutor or accuser, declaring that the absence of the party accused is not for any just cause, and therefore demanding that judgment may no longer be delayed on that account.

ANTHYPOPHORA, in *Rhetoric*, a figure whereby we covertly obviate a reason or objection.

In this sense *anthypophora* stands opposed to *hypophora*, e. gr. If the **HYPOPHORA** be, grammar is very difficult to obtain; the *anthypophora* may be, grammar is indeed a little difficult to obtain, but then its use is infinite.

ANTI, *Anti*, is a preposition used in composition with several words, both in Greek, Latin, English, &c. in different senses. In English, it sometimes happens before; as in *antichamber*, a place before the chamber.—In which case it has the same meaning with the Latin, *ante*, *before*.

Sometimes, again, it signifies *contrary*, or *opposite*; and is then derived from *αντι*, *contra*, *against*.

In this latter sense, the word makes part of the name of various medicines, to denote some peculiar or specific virtue in them against certain diseases: such. e. gr. are antivenereals, antiscorbutics, antinephritics, &c.

The preposition is frequently, however, omitted on these occasions, without any alteration of the sense; as in nephritics, arthritics, asthmatics, &c.

ANTI, in matters of *Literature*, is a title given to divers pieces written by way of answer to others, whose names are usually annexed to the *anti*.

See the *Anti* of M. Baillet; and the *Anti-Baillet* of M. Menage: there are also *Anti-Menagiani*, &c. Cæsar the dictator wrote two books by way of answer to what had been objected to him by Cato, which he called *Anti-Catones*; these are mentioned by Juvenal, Cicero, &c. Vives assures us, he had seen Cæsar's *Anti-Catones* in an ancient library.

ANTIADDES, a term used by some writers for the glandules, and kernels, more commonly called **TONSILS**, and **ALMONDS** of the ears.

ANTIADIAPHORISTS, **ANTIADIAPHORISTÆ**, opposite to the **ADIAPHORISTS**.

The word is compounded of *αντι*, *contra*, *against*, and *αδιαφορος*, *indifferent*.

This name was given, in the fourteenth century, to the rigid Lutherans, who disavowed the episcopal jurisdiction, and many of the church-ceremonies, retained by the moderate LUTHERANS.

ANTIBACCHIUS, in the *Ancient Poetry*, a foot, consisting of three syllables; the two first whereof are long; and the third short.

Such are the words *cāntārē*, *vīrtūtē*, *Ἑλλήνεις*.

Is is so called as being contrary to the **BACCHIUS**, the first syllable whereof is short, and the two last long.

Among the ancients, this foot is also denominated *Palim-bacchius*, and *Saturnius*; and, by some, *Proponticus*, and *Theffalius*. Diom. III. p. 475.

ANTIBARBAROUS, a title given to several works levelled against the use of barbarous terms and phrases, chiefly in the Latin tongue.

Erasmus, Nizolius, and Cellarius, have published *Antibarbara*. Noltenius has given us a *Lexicon Anti-barbarum*, consisting of observations made by the grammarians of late ages in relation to the purity and corruption of Latin words.

Sixt. Amama has given an *Antibarbarus Biblicus*, wherein he pretends to have discovered seven sources of the barbarisms which have got footing of late ages in the BIBLE.

Peter du Moulin used the title *Antibarbarus* for a book against the use of an unknown tongue in divine service.

ANTIBIBLOS, in the *Civil Law*, an instrument or signature whereby the defendant owns he has received the libel, or a copy of it, and notes the day whereon he received it. This is usually done on the back of the **LIBEL**.

ANTICADMIA denotes a species of mineral **CADMIA**, sometimes also called *pseudo-CADMIA*.

It takes the denomination *anticadmia*, not as being opposite in quality to the *cadmia*, but because it is used as a substitute for it.

ANTICARDIUM, in *Anatomy*, &c. that hollow part under the breast, just against the heart, commonly called the *pit of the stomach*: called also *scrobiculus cordis*.

The word is compounded of *αντι*, *contra*, *against*; and *καρδια*, *cor*, *heart*.

ANTICATARRHAL, an epithet given to medicines prescribed for catarrhs.

ANTICATEGORIA, in *Oratory*, denotes a recrimination or mutual accusation; where the two parties charge each other with the same crime.

Apollodorus considers the *anticategoria* as two several causes or actions.

ANTICAUSOTICS, among *Physicians*, denote medicines against burning fevers.

In this sense Juncker has given the description of *anti-causotic* syrup.

ANTICHAMBER, see **ANTECHAMBER**.

ANTICHORUS, in *Botany*, a genus of the *oëlandria monogynia* class, which has a four-leaved calyx, four petals, an awl-shaped, four-celled capsule, with four valves, and many seeds. There is only one species.

ANTICHRESIS, in the *Civil Law*, a covenant, or convention, whereby a person borrowing money of another engages, or makes over his lands or goods to the creditor, with the use and occupation thereof, for the interest of the money lent. This covenant was allowed of by the Romans; among whom usury was prohibited: it was afterwards called **MORTGAGE**, to distinguish it from a simple engagement, where the fruits of the ground were not alienated, which was called *VIF-gage*.

ANTICHRIST, in a general sense, denotes an adversary of Christ, or one who denies that the Messiah is come.

The word is compounded of *αντι*, *contra*, *against*; and *Χριστος*, *Christ*.

In this sense, Jews, infidels, &c. may be said to be *Antichrists*.

ANTICHRIST is more particularly used for a tyrant who is to reign on earth, toward the end of the world; to make the ultimate proof of the elect; and to give a shining instance of the Divine vengeance, before the last judgment.

The Bible and the fathers all speak of *Antichrist* as a single man; though they assure, withal, that he is to have divers precursors, or fore-runners. Yet many Protestant writers apply to the Romish church, and the pope, who is at the head of it, the several marks and signatures of *Antichrist* enumerated in the Apocalypse, which would rather imply *Antichrist* to be a corrupt society, or a long series of persecuting pontiffs, than a

single person. Or rather, a certain power or government, that may be held for many generations, by a number of individuals succeeding one another. The *Antichrist* mentioned by the apostle John, 1 Ep. ii. 18. and more particularly described in the book of Revelation, seems evidently to be the same with the *Man of Sin*, &c. characterised by St. Paul in his second Epistle to the Thessalonians, ch. ii. And the whole description literally applies to the excesses of papal power. Had the right of private judgment, says an excellent writer, been always adopted and maintained, *Antichrist* could never have been; and when that sacred right comes to be universally asserted, and men follow the voice of their own reason and consciences, *Antichrist* can be no more.

However, the point having been maturely debated at the council of Gap, held in 1603, a resolution was taken thereupon, to insert an article in the confession of faith, whereby the pope is formally declared to be *Antichrist*. Pope Clement VIII. was stung to the life with this decision; and even king Henry IV. of France was not a little mortified, to be thus declared, as he said, an imp of *Antichrist*.

The learned Grotius maintains, that Caligula was *Antichrist*; others have affirmed the same of Nero; but these do not agree with his appearance at the end of the world.

F. Malvenda, a Spanish Jesuit, has published a large and learned work, *De Antichristo*, in thirteen books. In the first, he relates all the opinions of the fathers with regard to *Antichrist*. In the second, he speaks of the time when he shall appear; and shews, that all the fathers, who supposed *Antichrist* to be near at hand, judged the world, also, was near its period. In the third he discourses of his origin and nation; and shews, that he is to be a Jew, of the tribe of Dan: this he founds on the authority of the fathers; on that passage in Genesis xlix. *Dan shall be a serpent by the way*, &c. on that of Jeremy viii. 16. where it is said, *The armies of Dan shall devour the earth*; and on the Apocalypse, chap. vii. where St. John, enumerating all the tribes of Israel, makes no mention of that of Dan. In the fourth and fifth books, he treats of the signs of *Antichrist*. In the sixth, of his reign and wars. In the seventh, of his vices. In the eighth, of his doctrine and miracles. In the ninth, of his persecutions; and, in the rest, of the coming of Enoch and Elias, the conversion of the Jews, the reign of Jesus Christ, and the death of *Antichrist*, after his having reigned three years and a half.

Hippolitus, and others, held that the devil himself was the true *Antichrist*, that he was to be incarnate, and make his appearance in human shape before the consummation of things.

How endless are conjectures? Some of the Jews we are told actually took Cromwell for Christ, while some others have laboured to prove him *Antichrist* himself. Pfaffius assures us he saw a folio book in the Bodleian library, written on purpose to demonstrate this latter position.

ANTICHRISTIANISM, a state or quality in persons or principles, which denominates them antichristian, or opposite to the kingdom of Christ, and the genius and spirit of his religion.

ANTICHRISTIANS properly denote the followers or worshippers of *Antichrist*.

ANTICHRISTIANS are more particularly understood of those who set up, or believe in a false Christ, or Messiah.

ANTICHTHON, in its primitive astronomic sense, denotes a kind of globe or earth resembling ours, and like it supposed to be moving round the sun, but invisible to us, because on the opposite side of the sun, that luminary being still exactly interposed between this other earth and ours.

In this sense it is, that Pythagoras and his disciples asserted an *antichthon*; for which we have the testimonies of Aristotle, Plutarch, &c.

By reason of the perfection of the number ten, they concluded there must be just so many spheres; and as our senses only discover nine, viz. the seven planets, the sphere of the fixed stars, and our earth, they imagined a tenth opposite to ours.

Some of the fathers, who endeavoured to accommodate the doctrine of the heathen philosophers to those of Christianity, assert that this Pythagorean earth is no other than the heaven of the righteous.

Thomasius has a dissertation on the Pythagorean *antichthon*.

ANTICHTHONES, in *Geography*, are those people who inhabit countries diametrically opposite to each other.

The word is compounded of *αντι*, *contra*; and *χθων*, *terra*, *earth*. They are sometimes also called, by Latin writers, *antigenæ*.

In which sense, *antichthones* amount to much the same with what we more usually call *antipodes*.

ANTICHTHONES is also used in *Ancient Writers*, to denote the inhabitants of contrary hemispheres.

In which sense *antichthones* differs from *antoci*, and *antipodes*.

The ancients considered the earth as divided by the equator into two hemispheres, the northern and southern; and all those who inhabited one of these hemispheres, were reputed *antichthones* to those of the other.

ANTICIPATION, from *ante*, *before*, and *cipio*, *I take*, the act of preventing, or being before hand with a person, or thing; or of doing a thing before the time.

Anticipating a payment denotes the discharging it before it falls due. Such a debt was not yet become due; he *anticipated* the time of payment.

ANTICIPATION is also used, in a *logical* sense, for a presumption, prejudice, or preconceived opinion.

This is also denominated *preconception*, *presensation*, or *instinct*.

ANTICIPATION, in a medicinal sense, is applied to diseases, wherein some of the symptoms which regularly belong to some future period, appear in the beginning; or the word may be understood of those diseases, which having their accesses and remissions at stated hours, gain in point of time, and finish their period sooner than ordinary.

In this sense *anticipation*, or *anticipated* diseases, by the Greeks called *προληπτικοί*, stands opposed to *hysteretic*, *υστερητικοί*, which come after the time.

ANTICIPATION, in the *Epicurean Philosophy*, denotes the first idea, or definition of a thing, without which we can neither name, think, doubt, or even inquire, concerning it.

This is otherwise denominated *PRENOTION*.

Anticipation, in this sense, makes the second of Epicurus's criterions of truth.

ANTICIPATION is also used by Shaftesbury, in speaking of painting, to denote the expression of some future action, resolution, or the like.

ANTICIPATION, in *Rhetoric*, a figure otherwise called *PROLEPSIS*.

ANTICK, in *Sculpture* and *Painting*, denotes a fantastical composition of figures of different natures, sexes, &c. As men, beasts, birds, flowers, fishes, and even things merely imaginary, or which have no existence in the nature of things.

Antick amounts to much the same thing with what the Italians call *grotesca*, and the French *grotesque*.

ANTICLIMAX, from *αντι*, and *κλιμαξ*, *gradation*, in *Rhetoric*, is a figure, whereby the progress of a discourse descends from great to little; and this is sometimes rendered peculiarly agreeable by such a concord between the sense and sound as may contribute to make diminutions appear still more diminutive. Horace affords a striking example.

Parturiunt montes, nascetur ridiculus mus.

ANTICNEMION, from *αντι*, and *κνημιν*, *tibia*, the *shin-bone*, in *Anatomy*, denotes the shin; or the fore prominent part of the *tibia*.

This is otherwise called *ακνυθα*, by the Latins *prima tibia*, or *anterior tibia*, and stands opposed to the *fura*, or calf of the leg, sometimes called *ocrea*.

ANTICOR, from *αντι*, and *cor*, the *heart*, **ANTICŒUR**, or *avant cœur*, among *Farriers*, is usually described as a preternatural swelling, of the size and figure of an apple, occasioned by a sanguine and bilious humour, and appearing in a horse's breast, opposite to his heart. A late writer affirms, that the generality of authors on that subject have been mistaken as to this disease, attributing it to the heart; whence it is by Solleysel called the *swelling of the pericardium*: whereas it is really an inflammation in the gullet and throat; and is the same that, in human bodies, is called the *angina*, or *squinancy*.

The cure of this disease should be attempted by copious bleedings, in order to reduce the inflammation. Emollient clysters should also be injected twice or thrice a day, with an ounce of sal prunella in each. The swelling should be bathed with marshmallow ointment; and an opening poultice, with onions boiled in it, should be daily applied to it. If the inflammation be hereby removed, the swelling should be brought, if possible, to maturation; for this purpose the poultice must be continued, and two ounces of Venice treacle, dissolved in a pint of beer, must be given to the horse every night. When the swelling is softened, it must be opened with a knife, and dressed with turpentine digestive. But if the swelling cannot be brought to matter, and should endanger suffocation, Solleysel, and others, advise opening the skin, in order to introduce a piece of black hellebore-root steeped in vinegar, and to confine it there for twenty-four hours. In order to stimulate and promote a discharge, the adjacent parts should be fomented, and bathed with ointment of marshmallows.

ANTICUM, in *Architecture*, a porch before a door; also that part of a temple, which is called the outer temple; and lies between the body of the temple and the portico. It is sometimes called *antæ*.

ANTICUS, *ferratus minor*. See **SERRATUS**.

ANTICUS, *peronæus*. See **PERONÆUS**.

ANTICUS, *tibialis*. See **TIBIALIS**.

ANTIDACTYLUS, from *αντι*, and *δακτυλος*, *dactyle*, a name given by some to a kind of poetical foot, which is the reverse of a dactyl, as consisting of three syllables, whereof the first two are short, and the last long.

ANTIDÆMONICI, from *αντι*, and *δαίμων*, *dæmon*, in *Ecclesiastical History*, a sect who denied the existence of devils, or evil spirits; also all spectres, incantations; witchcrafts, &c.

ANTIDICOMARIANITES, from *αντιδικος*, *adversary*, and *Μαρια*, *Mary*, a sect of ancient Christians, who thought that the Holy Virgin did not preserve a perpetual virginity, but that she had several children by Joseph after our Saviour's birth.

These are otherwise called *antidicomarita*; and *antidicomarites*, and *antidicomarianists*; sometimes also *antimariani*.

The opinion was grounded on some expressions of our Saviour, wherein he mentions his brothers, and his sisters; and on that text of St. Matthew, wherein he says, that Joseph knew not Mary till she brought forth her first-born son.

The *antidicomarianites* were the disciples of Helvidius and Jovinian, who appeared in Rome towards the close of the fourth century.

ANTIDISMA, in *Botany*, a genus of the *dioecia pentandria* class, without an English name.

ANTIDORON, in *Ecclesiastical Writers*, a name given by the Greeks to the consecrated bread, out of which the middle part, marked with the cross, wherein the consecration resides, being taken away by the priest, the remainder is distributed, after mass, to the poor.

On the sides of the *antidoron* are impressed the words *Iesus Christus vincit*.

The word is formed from *δωρεν*, *donum*, a gift, as being given away *loco muneris*, or in charity.

The *antidoron* is also called *panis præsanctificatus*.

Some suppose the *antidoron* to be distributed in lieu of the sacrament, to such as were prevented from attending in person at the celebration; and thence derive the origin of the word, the eucharist being denominated *doron*, gift, by way of eminence.

ANTIDOSIS, from *αντι*, and *δίδωμι*, *I give*, in *Antiquity*, denotes an exchange of estates, practised by the Greeks on certain occasions with peculiar ceremonies, and first instituted by Solon.

When a person was nominated to an office, the expence of which he was not able to support, he had recourse to the *antidosis*, that is, he was to seek some other citizen of better substance than himself, who was free from this, and other offices; in which case, the former was excused. In case the person thus substituted denied himself to be the richest, they were to exchange estates, after this manner; the doors of their houses were close shut up and sealed, that nothing might be conveyed away; then both took an oath to make a faithful discovery of all their effects, except what lay in the silver mines; which by the law was excused from all imposts; accordingly, within three days, a full discovery and exchange of estates was made. Potter, *Archæol. lib. i. cap. 15*.

ANTIDOTARY is used by some writers for what we more usually call a **DISPENSATORY**.

We have *antidotaries* extant of several authors, as those of Nicolaus, Meuse, Myrepsus, Rhafis, &c.

ANTIDOTE, a remedy taken either to prevent, or cure, some contagious, malignant, or other dangerous disease. The word is borrowed from *αντι*, *against*, and *δίδωμι*, *I give*; as being something given against poison, either by way of cure or preservative.

ANTIDOTE, is also used to signify a medicine taken to prevent the ill effects of some other; for instance, poison.

In which sense the word has the same signification with alexipharmic, alexiterial, and counterpoison.

The Indian physic consists much in the use of *antidotes*; viz. the root *mungo*, and the viper-stone; both held sovereign against the bite of the *cobras de capello*, and other venomous creatures.

ANTIDOTE is also used, in a more general sense, for any compounded medicine.

In which sense, Peter Damian speaks of a person who in his whole life never took an *antidote*.

ANTIDOTE is also used in a less proper sense for any remedy against any disease, chiefly if it be inveterate, and arise from some ulcer or abscess.

ANTIDOTE is also used for a perpetual form of medicines, otherwise called *opiates*, or more properly **CONFECTIONS**.

ANTIDOTE is also *mystically* applied to the philosopher's stone.

ANTIEN. See **ANCIENT**.

A N T

ANTI-GRAPHE, from *αντι*, and *γραφω*, *I write*, in *Antiquity*, denotes a law-suit about kindred, whereby a person claimed relation to such or such a family.

The *antigrapha* appears to have been the same with the *παρακαταβολη*.

ANTI-GRAPHUS, in *Antiquity*, an officer of Athens, who kept a counterpart of the *apodeicti*, or chief treasurer's accounts, to prevent mistakes, and keep them from being falsified. Potter Arch. lib. i. cap. 14.

ANTI-GRAPHUS is also used, in *Middle Age Writers*, for a secretary or chancellor. He is thus called, according to the old glossarists, on account of his writing answers to the letters sent to his master. The *antigraphus* is sometimes also called *archigraphus*; and his dignity *antigraphia*, or *archigraphia*. Du-Cange.

ANTI-GRAPHUS is also used in Isidorus for one of the notes of sentences, which is placed with a dot to denote a diversity of sense in translations.

ANTI-GRAPHUS is also applied in *Ecclesiastical Writers* to an **ABBREVIATOR** of the papal letters.

In which sense the word is used by pope Gregory the Great in his register.

Of late days the office of *antigraphus* consists in making minutes of bulls from the petitions agreed to by his holiness, and renewing the **BULLS** after engrossing.

ANTI-GUGLER, is a crooked tube of metal, so bent, as easily to be introduced into the necks of bottles, and used in decanting liquors, without disturbing them. For this purpose the bottle should be a little inclined, and about half a spoonful of the liquor poured out, so as to admit an equal quantity of air; let one end of the bent tube be stopped with the finger, whilst the other is thrust into the body of the liquor near to the bubble of air already admitted. When the finger is taken off, the bottle will have vent, and the liquor will run out steadily and undisturbed. See **SIPHON**.

ANTI-HECTICS, remedies against hectic disorders.

ANTI-HECTICUM Poterii, in *Pharmacy*, a celebrated chemical preparation, made of equal quantities of tin and chalybeated regulus of antimony, by melting them in a large crucible, and putting to them, by little and little, three times the quantity of nitre: the **DETONATION** being over, the whole is to be washed with warm water till no saltiness remains.

This has been formerly esteemed as a very penetrating medicine, making way into the minutest passages, and searching even the nervous cells; whence its use in hectic disorders, from which it derives its name. It has been accordingly recommended in heavinesses of the head, giddiness and dimness of sight, from whence proceed apoplexies and epilepsies; and in all affections and foulnesses of the viscera of the lower belly; and also in the jaundice, dropsies, and all kinds of cachexies. Quincy adds, that there is scarce a preparation in the chemical pharmacy of greater efficacy in most obstinate chronic distempers. But Neumann observes, that it has no claim to antihectic virtues, nor indeed to any salutary operation; and it is now generally disregarded. See Neumann's Chem. Works, p. 89, and 138.

It is also called *antimonium diaphoreticum joviale*.

There are divers methods of preparing it, given by Wedelius, Etmuller, &c.

A learned author speaks of it as fatal to consumptive persons.

ANTI-LEXIS, from *αντιλεγω*, *I contradict*, in *Antiquity*, denotes a new trial granted in the Athenian judicatories, where judgment had before passed against a party for non-appearance.

ANTI-LOGARITHM, the **COMPLEMENT** of the **LOGARITHM** of a sine, tangent, or secant.

ANTI-LOGY, a contradiction between two expressions, or passages, in an author.

The word is *αντιλογια*, q. d. *contrary saying*.

Tirinus has published a large index of the seeming *antilogies* in the **BIBLE**, i. e. of texts which apparently contradict each other, but which are all explained and reconciled by him, in his comments on the Bible. Dom. Magri, a Maltese of the *Oratory* in Italy, has attempted the like; but he has done little more than rehearse what occurs of that kind in the principal commentators.

ANTI-LUTHERANS, a sect or party among the ancient reformers, who maintained opinions, chiefly in relation to the eucharist, different from those of Luther.

Such were Carolostadius and his followers, called also *Sacramentarians*, and those of Zuinglius denominated *Zuinglians*.

The sect of *Antilutherans*, at first confined within narrow bounds, in a few years time subdivided into six or seven inferior sects, and ere long into an infinite number more variously denominated.

ANTI-LYSSUS pulvis, in *Medicine*, is composed of equal parts of the **LICHEN cinereus terrestris** & *piper niger*. It is

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reckoned useful in preventing the **RABIES canina**. Phil. Transf. N^o 448.

ANTI-MENSIVM, a kind of consecrated table-cloth, occasionally used in the Greek church, in places where there is no proper altar.

F. Goar observes, that in regard the Greeks had but few consecrated churches, and that consecrated altars are not things easy to be removed; that church has, for many ages, made use of certain consecrated stuffs, or linens, called *antimensia*, to serve the purposes thereof.

ANTI-MENSIVM, in the Greek Church, answers to the *altare portabile*, or portable altar, in the Latin church. They are both only of late invention, though Habertus would have them as old as St. Basil. But Durant and Bona do not pretend to find them in any author before the time of Gregory and Charlemagne.

ANTI-MENSIA is also applied to other tables, used in offices of religion, besides those whereon the eucharist is administered: such, e. gr. are those whereon the host is exposed, &c. The origin of the *antimensia* is described by Meursius; when the bishop had consecrated a church, the cloth which had been spread on the ground, and over the communion table, was torn in pieces, and distributed among the priests, who carried each a fragment away, to serve to cover their tables in their churches and chapels. Not that it was necessary that such cloths should be laid on all tables: but only on those which either were not consecrated, or at least whose consecration was doubted of.

ANTI-MENSIUS, an ancient officer in the Greek church, whose business was to introduce and place the communicants at the eucharist.

Some have imagined that he had the care of the *antimensia*. But this rather belonged to the office of great *scenophylax*. He is otherwise called chief of the *antimensii*.

ANTI-MERIA, from *αντι*, and *μερος*, *a part*, in *Grammar*, a figure whereby one part of speech is used for another; e. gr. *velle suum cuique est*, for *voluntas sui cuique est*; also *populus late rex*, for *populus late regnans*.

ANTI-MERIA, in a more restrained sense, is a figure whereby the noun is repeated instead of the pronoun.

The *antimeria* is frequent in the Hebrew, and is sometimes retained in our version of the Old Testament accordingly: e. gr. *Hear my voice, ye wives of Lamech, for my wives*. Gen. ch. iv. ver. 23.

ANTI-METABOLE, in *Rhetoric*, a figure which sets two things in opposition to each other.

The word is compounded of *αντι*, *against*, and *μεταβολη*, from *μεταβαλλω*, *I shift*, or *transfer*; i. e. a shifting, or setting two things over-against each other.

This figure is twice exemplified in an apophthegm of Musonius; which, on account of its excellence, is called *aureum monitum*, the golden maxim or precept.

"Αν τὶ πρόξῃς καλὸν μετὰ πόνη, ὃ μὲν πόνος ὀίχεται, τὸ δὲ καλὸν μένει.
"Αν τὶ ποιήσῃς αἰσχρὸν μετὰ ἡδονῆς, τὸ μὲν ἡδὺ ὀίχεται, τὸ δὲ αἰσχρὸν μένει.

In English thus:

Allowing the performance of an honourable action to be attended with labour; the labour is soon over, but the honour immortal: whereas, should even pleasure wait on the commission of what is dishonourable, the pleasure is soon gone, and the dishonour eternal.

ANTI-METATHESIS, from *αντι*, and *μετατιθημι*, *I transfer*, in *Rhetoric*, is the inversion of the parts or members of an **ANTITHESIS**. Such is that of Cicero, in Verrem, lib. iv. cap. 52. 'Compare this peace with that war; the arrival of this governor with the victory of that general; his profligate troops with the invincible army of the other; the luxury of the former with the temperance of the latter: you will say, that Syracuse was founded by him who took it; and taken by him, who held it when founded.'

ANTI-MISIUM, in *Antiquity*, a table placed before the Roman tribunal, or judgment-seat.

What relation this has to the *antimensia* in the Greek church does not appear. Some writers confound them together as the same thing.

ANTI-MONARCHICAL, from *αντι*, and *μοναρχικος*, of *μονος*, *alone*, and *αρχη*, *dominion*, something that opposes, or stands against, monarchy, or kingly government. *Antimonarchical* is frequently used in the sense of *republican*.

ANTI-MONARCHIST, a person who maintains *antimonarchical* principles.

Buchanan, Milton, Hottoman, Languet, Ludlow, Sydney, and others, are celebrated *antimonarchists*.

ANTI-MONARCHOMACHI, from *αντινομαρχος*, and *μαχη*, *contest*, *antimonarchomachists*, is used by some political writers to denote maintainers of monarchical or absolute power vested by divine right in the persons of princes. In which sense, *antimonarchomachi* stand opposed to *monarchomachi*.

King James the first, Salmafius, Peter du Moulin, bishop Bramhall, Albericus Gentilis, Ziegler, William and George Barclay, Bochart, &c. have distinguished themselves in the class of *antimonarchomachists*. Acker has treated professedly of the *monarchomachists* and *antimonarchomachists*.

ANTIMONIALS, in *Medicine*, denote preparations of antimony; or remedies whereof *antimony* is the basis, or principal ingredient.

Antimonials are chiefly of an emetic tendency; though they may be so qualified, as to become either cathartic, or diaphoretic, or even only alterative. See **WARD'S Pill**.

Quincy assures us, that there are no medicines in pharmacy to be compared with these in *maniacal* affections; for that there are no emetics, or cathartics, of any other tribe, that are strong enough for such patients, unless in an over-dose; which might be dangerous.

An *antimonial* cup, made either of glass of *antimony*, or of *antimony* prepared of salt-petre, though a substance indissoluble by the stomach, will give a strong cathartic, or emetic quality to any liquor poured into it, without any diminution of its own weight.

Besides those numerous preparations which take their denominations from *antimony*, the chief of which are enumerated under that article, there are several other *antimonial* medicines. Such are the *crocus metallorum*, Poterius's cordial, the *TINCTURA metallorum*, *mercurius vitæ*, or powder of **ALGAROT**, *bezoardicum minerale*, *sulphur metallorum*, the Carthusian powder, or **KERMES** mineral, &c.

Lemery describes several other preparations of this mineral.

ANTIMONIATED, something tinged with the qualities, or resembling the appearances, of *antimony*.

Dr. Woodward speaks of a kind of striated, or *antimoniated*, lead-ore.

ANTIMONY, in *Natural History*, a mineral substance of a metalline nature; having all the seeming characters of a real metal, excepting only *malleability*. It is of a shining lead colour, and its masses have no determinate figure, but are composed of long brittle parallel needles. It is made up of a semi-metallic substance, called its *regulus*, united with sulphur, as most metallic substances are in their mineral state.

There are two kinds of *antimony*; 1. *Antimony native* or *mineral*, which is in the same state as when dug out of the earth. 2. *Antimony fused*, so called, because it has been actually *fused*, to separate it from adhering to stones and earth. This operation which ought rather to be called *liqutation* than *fusion*, considering these words in their metallurgic sense, is made in great perfection upon the grounds whence *antimony* is dug. The process is very simple and easy. It consists in placing the minerals in earthen pots, pierced in their bottoms with small holes, and put into a furnace, where they receive the necessary heat for the *fusion* of the *antimony*. As it is very *fusible*, for it melts before it is red, this heat is much less than is necessary for the fusion of the earthy and stony matters mixed with it; when it is thus melted, it runs through the holes above-mentioned, into other pots below, defended from the heat as much as possible. In these receivers the *antimony* is allowed to cool and fix, and from them it takes the form of cakes, in which it is sold.

Hungary and Auvergne furnish most *antimony*, though it is also found in other countries and in different forms.

Antimony is the *stibium* of the ancients; by the Greeks called, *στίβιον*.—The reason of its modern denomination, *antimony*, is usually referred to Basil Valentine, a German monk, who, as the tradition relates, having thrown some of it to the hogs, observed, that, after purging them violently, they immediately grew fat upon it. This made him think, that, by giving his fellow-monks a like dose, they would be the better for it. The experiment, however, succeeded so ill, that they all died of it; and the medicine, thenceforward, was called *antimony*, q. b. *anti-monk*.

Its singular properties and effects have occasioned it various other denominations; as *Proteus*, by reason of its various forms and appearances, *lupus devorator*, **SATURN** of the philosophers, *balneum solis*, *lavacrum leproforum*, *radix metallorum*, *magnesia Saturni*, &c. all chiefly respecting its faculty of destroying and dissipating whatever metals are fused along with it, except gold; whence its great use in refining and purifying.

Antimony is found in mines of all metals; but chiefly in those of silver and lead: that in gold mines is usually held the best.—It has also its own peculiar mines.

Antimony is found in clods of several sizes, bearing a near resemblance to black lead; only that it is lighter

and harder; whence also it is called *marcasite of lead*; and its metalline part has been by some supposed to be of the species.

Its texture is somewhat particular, being full of little shining veins or threads like needles, brittle as glass.—Sometimes there are veins of a red, or golden colour intermixed, from which it is called *male antimony*; that without them being denominated *female*.

Antimony ores are found in fissures and veins at different depths, and often near the very surface, and variously accompanied with spars, crystals, sulphurs, and other substances. Sometimes the veins of it are every way surrounded by a tolerably pure yellow native sulphur; sometimes with a more debased matter, made of a mixture of sulphur, earth, and spar, differing according to the different disposition and admixture of these bodies.

Antimony is found in great abundance in England and Germany; we have several mines of it in Cornwall; and many other parts of the world afford it in very great abundance.

ANTIMONY, *ore of*. The way of running down *antimony* out of its ore by the *assayers*, is as follows. Take a crucible that will hold some pounds of *antimony* ore broken into pieces of the size of a hazel-nut, and bore at the bottom of it a few small holes with a common gimblet; place this bottom in the mouth of another smaller crucible, put in the ore, and cover the orifice with a tile; then lute all the junctures, and place this on the pavement of the hearth, making a circle of stones all round it, at six inches distance; fill this intermediate space with ashes so high, that the lower pot may be covered up to its rim, then put fresh burning coals upon the whole, and blow the fire strongly with a pair of hand-bellows, to make the upper vessel red-hot: when it has been so a quarter of an hour, take away the fire, and when the vessels are cold, open them, and the *antimony* will be found in form of a *regulus* in the under vessel. Cramer's Art of Assaying, p. 356.

The most ready method of fusing *antimony*, yet known, is by means of that mineral substance called **CAWK**. A lump of this, of the bigness of a walnut, thrown red-hot into a pound of *antimony* in fusion, converts almost the whole substance of it into glass, fifteen ounces of clear and fine glass being thus produced; and what is very remarkable, the *cawk* itself never melts in the metal.

ANTIMONY, *texture of*. M. de Reaumur gives the following account of the contexture of *antimony*, or *stibium*.

Nothing is more common, than to observe on the surface of broken *antimony* long and shining needles, as it were; and that *antimony*, on which these are most distinct and visible, is esteemed the best. Sometimes these streaks are ranged with so much order, and branch out so regularly in certain directions, that those who are ever so conversant with it, cannot but admire its beauty. The figures of the constituent molecules of this mineral may possibly contribute something to the formation of these needles, but the texture, and configuration of the constituent parts, will not alone account for the disposition of these streaks, and their arrangements, in regard to one another; since upon breaking different lumps of the same *antimony*, and those of the same shape, we frequently observe quite different configurations of the needles. Let us take, for instance, equal masses of *antimony* of a regular conic figure, these being most frequent, from the shape of the vessel they cool in, which resembles a funnel, or inverted cone; let several of these conical masses be broken into different parts, and we shall see the needles in very different directions in these several parts. Notwithstanding, however, all these varieties in form, the cause of all the appearances is wholly the same, and is no other than that refrigeration, by which the mass is changed from a fluid into a solid state; and to the progress of this the needles plainly owe their different directions.

All melted metals cool first at the tops and sides, and thence by degrees through the whole body of the mass: the particles at the sides and top, which first cool, becoming fixed to those which are nearest them, affix those, and they are the next that cool, and so on, in successive order; now *molecules*, of whatever shape, thus affixed successively to each other, form a kind of threads or needles, the several directions of which shew the order in which the refrigeration has been carried on.

If the crucible, or other vessel, in which the melted *antimony* is suffered to cool, were in the shape of a hollow bowl; if its sides were every where equally thick, and equally warm, and acted equally upon by an air equally cold; and if the melted substance were of the same uniform nature, also, in all its parts, all the needles or fibres would be then so many rays, terminating in the center of the bowl; and if the substance were such, that

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its fixed particles were naturally all of a length, we should find so many concentrical beds of needles, formed by parcels of each ray, and lying at equal distances from the center.

But so many regular circumstances do not concur in the cooling of melted *antimony*; and hence the before mentioned irregularities must necessarily arise. In melting *antimony* in conical crucibles, and suffering it to cool in them, the needles may be determined several ways, to any directions one may choose.

Lead, when heated to a certain degree, ceases to be ductile, and is brittle, and broken at this juncture is found to be granulated, appearing like broken steel; there is no reason to doubt, but that this is also the case, when that metal is perfectly cold, but that the force required to separate, or break it, destroys its proper structure.

M. Reaumur melted lead in a conical crucible, and suffering it to cool to a certain degree only, he broke the mass into several large lumps by a smart blow of a hammer, and in these found the same needles as in *antimony*, the granules having cohered in long trains, just as the *molecules* of the *antimony*; and the dispositions of the several groups of needles in the lead, in regard to the sides and bottom of the crucible, were the very same with those of *antimony*. But there is this manifest difference between the needles of lead, and those of *antimony*, that whereas the latter are flat and extremely glossy, the former are visibly round, and much less bright. Mem. Acad. Scienc. Par. 1724.

Antimony is supposed, by many of the *Chemists*, to contain the seminal principles of all kind of metals; and accordingly the character whereby it is denoted in their writings, is the same with the character of the earth; to denote that *antimony* is a kind of microcosm.

There have not been wanting persons, who have pretended to extract a mere running *mercury* from *antimony*, and Mr. Boyle believed it might be done; but this is one of the many great things pretended to by chemistry, of which we have yet no sufficient proof.

The uses of *antimony* are very numerous, and important. It is a common ingredient in *specula*, or burning CONCAVES, serving to give the composition a finer texture. It makes a part in *BELL metal*; and renders the sound more clear. It is mingled with *TIN* to make it more hard, white, and sounding; and with *LEAD*, in the casting of printers letters, to render them more smooth and firm. It is also a general help in the melting of metals, and especially in the casting of cannon balls.

The purification of gold, by means of *antimony*, is performed in this manner. Before you enter on the process, it is necessary to guess, as nearly as may be, at the alloy of the gold, by the *TOUCH needles*, or otherwise. If the quantity of gold in the mass is not less than three quarters, that is, eighteen carats, the mass must be melted in a wind-furnace, and the crucible must be covered, to prevent coals falling in; this done, put into it, at several times, double the quantity of crude *antimony* in fine powder, as soon as one portion of the *antimony* is melted, putting in another: let the whole continue in fusion a few minutes, then pour it into a melting cone, warmed, and rubbed with tallow, and strike with a hammer on the floor, near where the cone stands, that the heavier part may sink to the bottom. When all is cold, invert the cone, and strike it, and a mass will fall out, having at bottom a *regulus*, more or less yellow, according to the quantity of the gold in the mixture; this may with a few blows be separated from the sulphureous crust, which is at top. Melt in a smaller fire this *regulus*, and when in fusion add to it a double quantity of crude *antimony* in powder, and pour it out into the cone again a little after; separate the *regulus* from the *antimony* at top, and then repeat this operation once more. When this is done, put the separated *regulus* into a thick good test, place this in the furnace immediately before the bellows, put coals round it, and one or two pieces of wood upon them, and make a middling fire, such as is sufficient to melt the *regulus*, the reguline part of the *antimony* will vanish in a thick smoke; then increase the fire, and keep it so, till the fumes are over, and the surface of the gold is of a fine green; and afterwards give the gold another fusion with borax and nitre, and it will be perfectly pure. But gold cannot be separated from *platina* in this way; and sometimes a little silver will remain, which has been defended by the gold from the action of the *antimony*.

When the gold to be purified by this process is impure to an alloy of eight carats, it is not proper to perform the precipitation by *antimony* alone, but there should be added as many times two carats of common sulphur, as the alloy of the gold is so many carats less than eighteen. Cramer's Art of Assaying, p. 276.

Mr. Homberg being well assured, that water was a *menstruum* capable of dissolving all the metals, if properly applied, used it, in several different ways, in his analysis of *antimony*. He made an infusion of *antimony* in water, putting into several glass vessels crude *antimony*, coarsely powdered, five pounds into each vessel, and to each of these quantities he added two pints of rain-water; after the *antimony* had stood thus for six months, the several parcels were used on different occasions, one only excepted, which had been forgotten, and had at length stood two winters and a summer; having at length found this vessel, he observed, that its inside was every where coated over with configurations of leaves; he at first supposed this to be owing to some salts of the *antimony*, which had been dissolved in the water, and had afterwards crystallized themselves in this manner, as the *butter of antimony* is sometimes known to do in sublimation; but on rubbing the sides of the vessel with a finger, and afterwards scraping them with a knife, he found that they were covered with a yellowish pellicle, without the least appearance of salt, and that the configurations of the leaves were not raised upon this pellicle, but sunk, as if graved by a tool. The water tasted somewhat acid, and being tried on *turnsol*, and on different metallic solutions, it turned the *turnsol* to a light red, and turned a solution of silver white; whence it appeared to be an acid, and of the nature of that of sea-salt. The sunshine had turned this water sour, had made it act upon the *antimony*, and take up a part of its salt. This salt, in the winter, was probably afterwards concreted into figures of leaves, formed upon the mud deposited by the water on the sides of the vessel; and these salts being afterwards dissolved again in some hotter weather, had eaten their way into this sediment of mud, in the form of the leaves, &c. in which they had concreted. Mem. Acad. Par. 1693.

Antimony, at first, was of service only in the composition of paint. Scripture describes it to us as a sort of paint, with which the women blacken their eye-brows. Jezebel understanding that Jehu was to enter Samaria, painted her eyes with *antimony*, or, according to the Hebrew, "put her eyes in *antimony*."

As large black eyes were thought the finest, they of both sexes, who were careful of their beauty, rubbed their eyes, eye-lids, and round the eyes, with a needle dipped in a box of paint made of *antimony*, with a design of blackening them.

At this day the women of Syria, Arabia, and Babylonia, anoint and blacken themselves about the eyes; and both men and women put black upon their eyes in the desert, to preserve them from the heat of the sun, and the piercing of its rays. M. Darvieux tells us, that the Arabian women border their eyes with a black colour made of *tutty*, which the Arabians call *rebel*. They draw a line of this kind of blacking without the corner of their eyes, to make them appear larger. Isaiah, in his enumeration of the several ornaments belonging to the daughters of Sion, has not forgot the needles which they made use of in painting their eyes and eye-lids: nor has this practice escaped the lash of Juvenal.

*Ille supercilium madida fuligine tinctum
Obliqua producit acu, pingitque tremantes
Attollens oculos.*

Ezekiel, describing the irregularities of the Jewish nation under the idea of a debauched woman, says, that she bathed, and perfumed herself, and that she anointed her eyes with *antimony*. Job shews sufficiently how much *antimony* was in esteem, by calling one of his daughters a vessel of *antimony*, or a box to put paint in, *cornu sibi*. Tertullian and St. Cyprian have declaimed very warmly against this custom of painting the eyes and eye-brows.

ANTIMONY, medicinal history of. Before the fourteenth century, *antimony* had no place in *Medicine*. But, about that time, Basil Valentine, having found a method of preparing and correcting the dangerous qualities of its sulphur, published a book, intitled *Currus triumphalis Antimonii*, wherein he maintained it a sure remedy for all diseases.—But, in spite of all he could say in its behalf, though confirmed by experience, *antimony* remained in a general neglect upwards of an hundred years: till about the beginning of the sixteenth century, when it was brought into vogue by Paracelsus.—The parliament of Paris, immediately upon this restoration, condemned the use of it in form; and a physician, named Besnier, having been found delinquent herein, was expelled the faculty. It seems, a great deal of mischief had been done by it, for want of knowing the proper ways of giving it; so that the *arret* of parliament represents it as a mere

mere poison, incapable of being corrected by any method of preparation, and not to be taken inwardly, without the utmost damage.

Several learned men complained of so severe and unjust a prohibition; and, by a course of happy experiments, at length brought it into esteem again: whence, in spite of all the invectives made against *antimony* by divers authors, it was at length replaced, in the year 1637, by public authority, among the number of purgative drugs; and was inserted, accordingly, in the *Pharmacopoeia*, published by the faculty that same year.

Patin did all he could to decry *antimony*: in his letters we find an unusual vehemence expressed against it.—He had even compiled a large register of persons whom the physicians had killed by it; which he called the *Martyrology of Antimony*.

Antimony, in *Medicine*, &c. is not only given in substance, but many preparations of it are used; which are either emetic, cathartic, diaphoretic, or sudorific. *Crude antimony* in powder is found good in dissolving viscidities, in cutaneous diseases, and, as some very confidently assert, in convulsions and epilepsies.

Crude Antimony is recommended in palsies, pains and numbness, which come on after a salivation, and is said to have cured several who were paralytic from other causes. The method of giving it, is to begin with three grains, increasing the dose with three grains every day, to half a drachm; after which the dose is diminished three grains every day, till it comes down to the quantity of the first dose. Externally, in ointments, it is commended for drying up ulcers, curing the itch, and in plasters for resolving of tumors.

There appears no reason for people's being afraid of giving crude *antimony* internally; experience shews it to be a safe medicine, unless by accident the acid of the stomach should be sufficient to act as a *menstruum* to it.

The preparations of *antimony* are, 1. *Sulphur præcipitatum antimonii*. 2. *Crocus antimonii*, called also *crocus metallorum*. 3. *Crocus antimonii lotus*. 4. *Calx antimonii*, called *antimonium diaphoreticum*. 5. *Tartarum emeticum*. 6. *Cauticum antimoniale*. 7. *Cinnabaris antimonii*. 8. *Regulus antimonii martialis*. 9. *Tinctura antimonii*. 10. The *Kermes mineral*, or *Carthusian powder*. See these articles separately.

The virtues of *antimony*, in the diseases of animals, are very great and very evident on any trial. Pigs that have the measles are at all times recovered by it, which proves it a great purifier of the blood. Horses who have running heels that cannot be cured by the common methods used by the farriers, will generally be cured by this medicine in a little time. The manner of using it is this: mix one drachm with every feeding of oats which the horse has in a morning; it is best put together in one place, buried under a few oats, and the horse's head being withheld a little, and then let go just against that place, he will take it all in at a mouthful. Some horses do not dislike it, others obstinately refuse it, but to these it may easily be given in balls. The virtues of this drug, in fattening of cattle, has by many been thought imaginary, but experiment proves it to be a real truth. A horse that is lean and scabby, and not to be fatted by any other means, will become fat on taking a dose of *antimony* every morning, for two months together. A boar fed for brawn, and having an ounce of *antimony* given him every morning, will become fat a fortnight sooner than others put into the sty at the same time and fed in the same manner, but without the *antimony*. Phil. Trans. N^o 39.

It is generally supposed, that the vapours of *antimony* are poisonous when raised by fire, but it appears otherwise from the operations Mr. Geoffroy made on it; he having once gone through sixty calcinations of twelve ounces of *antimony*, without receiving any harm from it: whence it is very evident, that the common opinion of the fumes of *antimony* containing an arsenical sulphur, is an erroneous one; and it may be added, that one great mark of *antimony's* being good is, that it loses a great deal of its weight in calcination. It has more sulphur in this case, which the fire raises in a vapour, and less of the terrestrial matter or spar, which are usually very abundant in it. Mr. Geoffroy, by these nice observations and experiments, discovered that *antimony* contained much less common sulphur than had been generally supposed, since it can be made to lose, at the utmost, only three ounces and five drachms in the pound in calcination. The emetic quality of the *regulus* proves, however, that it yet contains a very large share of sulphur, though of another kind: this Mr. Geoffroy distinguishes from the common sulphur, by the name of the *metallic sulphur*. Mem. Acad. Scienc. Par. 1736.

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It is evident, that whatever acid *antimony* contains, must be of the nature of spirit of sulphur, since sulphur so greatly abounds in the composition of that mineral, and its sulphur is wholly the same with the common brimstone. Whatever acid, therefore, of this kind could be produced, would be wholly the produce of the common sulphur in that mineral, and not of the *reguline* part, which alone is properly *antimony*. Experiment proves the truth of this opinion; the acid of *antimony*, truly separated from it, being no way different in any particular, from that of crude sulphur.

There are several ways by which it may be made, but it is but little that can be obtained, and then it is assuredly the pure acid of the sulphur of *antimony*. The operation, however perfect, is of little value. Mem. Acad. Par. 1700.

ANTIMONY, butter of, is a white and thick liquor; otherwise called *icy oil of antimony*; composed of marine acid united to the reguline part of *antimony*, whence its property of attracting moisture from the air, and its causticity. It is usually prepared of *crude* (though sometimes of *regulus* of) *antimony*, and corrosive sublimate, by pulverizing, mixing, and distilling them by a gentle heat: upon which the butter rises into the neck of the retort; from which, when full, it is to be melted down into a receiver, by the application of live coals.

It is a very fiery, corrosive metallic salt, and a poison when used internally. Externally it is applied as a caustic to stop gangrenes, and cure carieses, cancers, &c.

This *butter* may be converted into an oil, called also *rectified butter of antimony*; by gently distilling it a second time, which renders it more fluid, subtle, volatile, and efficacious.

This, digested with thrice its weight of *alobol*, makes the purple tincture of *antimony*; a secret highly valued by Mr. Boyle, as an excellent vomit.

Of *butter of antimony* are also prepared the *BEZOAR mineral*, and *powder of ALCAROT*.

The operation of making *butter of antimony* furnishes an instance of the power of the Newtonian principle of attraction. When *mercury sublimate* is sublimed from *antimony*, or from *regulus of antimony*, the spirit of salt lets go the *mercury*, and unites with the *antimonial* metal, which attracts it more strongly, and stays with it till the heat be great enough to make them both ascend together, and then carries the metal with it into the form of a *butter of antimony*; though the spirit of salt alone be almost as volatile as water, and *antimony* alone as fixed as lead.

ANTIMONY, calx of, is obtained by exposing *crude antimony*, grossly powdered, in a flat and shallow earthen vessel, to the action of a moderate fire, taking care to stir it constantly. During this *calcination* the sulphur, being less fixed than the metalline part, is gradually evaporated, and the *calcination* is continued, till no more sulphureous vapour arise. What remains is the metallic part, separated from the mineral sulphur, and even deprived of part of its own inflammable principle. This substance is more fixed, and less fusible than *antimony*, as in general all metallic earths are, because deprived of more of their inflammable principle. It is called *CALX of antimony*, and is of a grey ash colour. This is violently emetic, and purgative.

ANTIMONY, ceruse of, is the *regulus* distilled with spirit of nitre, in a sand-furnace; what remains after the fumes are all spent, is a white powder; which, being washed sweet, is the *ceruse* required.—It is diaphoretic; and, by many, is set on a footing with the *mineral bezoar*.

ANTIMONY, cinnabar of, is prepared of mercury, sulphur, and *antimony*, mixed and sublimed in a luted bolt-head, and a naked fire.—It is a good diaphoretic and alterative.

There is also a *cinnabar of antimony* procured after the *butter of antimony* has done rising, by increasing the degree of fire.—This, sublimed a second time, makes yet a better *cinnabar*.

ANTIMONY, clyffus of. See *CLYSSUS*.

ANTIMONY, crocus of, is the same with what we otherwise call *crocus metallorum*; excepting that this latter is more mild, and less emetic; being made by repeated lotions of the former, in warm water, and then drying it again to a powder. See *CROCUS metallorum*.

It is also called *opaline magnesie*, *terra sancta Rulandi*, *terra aurea*, *terra rubra*, &c.

ANTIMONY, crude, or *antimony in substance*, is the native mineral *antimony*, melted down and cast in cones as above mentioned.—It is much used in diet-drinks, and decoctions of the woods, and in compositions against the scurvy, as a diaphoretic, and deobstruent.

ANTIMONY, diaphoretic, is prepared of *antimony*, powdered and mixed with three times the quantity of nitre;

and the mixture thrown, at several times, into an ignited crucible: upon which, a detonation ensues. What remains, being kept in fusion a quarter of an hour, turns into a white mass, called *antimonium diaphoreticum nitratum*, or *diaphoretic antimony with nitre*; the antimony being hereby bereaved of its emetic and purgative virtue, and rendered only diaphoretic.

If the air have access to it, it will again become emetic. There is also a kind of sweet diaphoretic antimony, made of the former, by pulverizing, boiling it in water, and filtrating the decoction: upon which a white powder will be left in the filtre; which being washed by repeated affusions of warm water, and dried, is the *dulcified diaphoretic antimony*. This is given as an alexipharmic in malignant fevers, small-pox, &c. particularly in case of deliriums. It is also applied in scorbutic and venereal disorders: but the learned Boerhaave absolutely decries it, as a mere metallic calx, destitute of all medicinal virtue, and only fit to load and choak up the body, by its inactivity and weight.

ANTIMONY, diaphoretic nitre of, is made by exhaling the solution of the preceding preparation over a gentle fire to a dryness; upon which, there remains a salt composed of nitre, and the sulphur of the antimony, called *nitrum antimoniatum*. It is no other than a sort of *SAL prunella*, or *SAL polychrestum*; and accordingly is found aperitive, cooling, diuretic; and good in inflammatory fevers, &c.

ANTIMONY, essence of. An emetic wine made with *glass of antimony*; to which is sometimes added a spicy stomachic.

Dr. Huxham says, he never found any antimonial preparation better, safer, and more efficacious than this simple infusion of the *glass of antimony* in a generous white wine, with a little spice to render it more grateful to the stomach. This medicine, given to twenty or thirty drops, operates by gentle sweats, and purges in larger doses very mildly. The judicious physician here mentioned recommends it in obstinate rheumatisms.

ANTIMONY, flower of, is antimony pulverized, and sublimed in an aludel; the volatile parts whereof then stick to the subliming pot.

This is also a powerful vomitive; and is of a singular efficacy in maniac cases; being the Herculean remedy, by which some have gained so much reputation.

Another sort of flowers is made of the *regulus of antimony*, with *SAL armoniac*, sublimed as before; which make a remedy somewhat gentler than the former.—Helmont also gives us a preparation of purging flowers of antimony.

ANTIMONY, glass of, vitrum antimonii, is crude antimony, ground and calcined by a vehement fire, in an earthen crucible till it cease to fume; which is a proof, that its sulphur is evaporated. The calx is then vitrified in a wind-furnace; upon which it becomes transparent, ruddy, and shining, and of a more or less deep hyacinthine colour.

This is the strongest emetic of any preparation of antimony. Yet, if dissolved in spirit of urine, it ceases to be either emetic or cathartic; even though the *menstruum* be afterwards drawn from it. See *VITRUM antimonii ceratum*.

ANTIMONY, liver of. The calx, when fused and cooled, sometimes becomes an opaque brown mass, which is called by this name. This is strongly emetic.

ANTIMONY, magistery of, is crude antimony digested with *aqua regia* eight or ten days; to which water is then put, but poured off again ere it settle; this to be repeated till there remain nothing behind but a yellowish powder; which, being suffered to settle, and the water decanted off, becomes, by repeated ablutions, an insipid magistery.

Its operation is rather cathartic than emetic, though sometimes only sudorific.

ANTIMONY, Ward's pill of. See *WARD'S pill*.

ANTIMONY, powder of, is a mixture of two grains of emetic tartar, finely pulverized, with half a dram of any of the testaceous powders.

This is a substitute for Dr. James's febrifuge powder; and has the same virtues with the antimonial wine above described, and *EMETIC tartar*.

ANTIMONY, regulus of. See *REGULUS*.

Antimony, purified by simple fusion, is called *regulus of antimony*; or *regulus antimonii philosophorum*.—But the more common way of reducing it into a *regulus*, is with the addition of *FLUX powders*, as tartar and nitre.

The curious may see in the *Arts & Metiers*, an account of the fabrication of the *regulus* and of the *glass of antimony*, under the *Art du Distillateur des Eaux fortes*, p. 141, seq. See *ibid.* a further account of antimony, and of the utensils proper for its fabrication, p. 136.

The *scoria* found at the top of this *regulus* is violently emetic, as well as the *regulus* itself, whereof if cups or drinking-vessels be cast, the wine put into them will become strongly vomitive.

Of this *regulus*, cast in moulds, are made those commonly called the *antimonial pills*, weighing about eight or ten grains each, one of which being swallowed, will operate considerably both by vomit and stool.

These pills having thus performed their office, and having been discharged from the body, will serve the same purpose again and again; whence they have obtained the name of *perpetual pills*.—The virtue of this *regulus* is not, however, inexhaustible, as has been imagined; for by repeated infusions in wine, though the liquor be made violently emetic at first, yet by degrees it loses its force, and at length ceases to be vomitive.

ANTIMONY, martial regulus of, is made by a mixture of little bits of iron, as the nails of horses shoes melted with the *regulus*.

In this operation, the iron dissolving and absorbing the sulphureous parts of the antimony, more strongly than the fluxes in the former case, and turning it into a *CROCUS*, the antimony is hereby brought to a greater degree of purity, and rendered more efficacious than in the common *regulus*.

This *regulus* is sometimes farther purified by repeated fusions and detonations, with the addition of fresh antimony, and more nitre, alternately: in which case it becomes *regulus antimonii stellatus*, or the *starry regulus of antimony*.

Mr. Geoffroy has been the inventor of a new method of treating this mineral, by which it yields much more *regulus* than according to those prescribed by Kunkel and Stahl, and is purified without the addition of salts, and with very little loss.

ANTIMONY, golden sulphur of, is made of the *scoria* which arises in preparing the *REGULUS*; by boiling it, filtrating the hot decoction, and adding distilled vinegar: upon which the whole coagulates, changes into a brown colour, emits a stercoraceous odour, and precipitates a red powder. The whole mass being washed by repeated affusions of water, till the liquor come away scentless and insipid, and then dried, it becomes a red powder, called the *golden sulphur*, or *precipitate of antimony*, either on account of its own colour, or the yellow one it gives to glasses, metals, &c.

This is also called the *panacea of antimony*, and is said to be the basis of Lockyer's pills.—It either proves emetic, cathartic, diuretic, or sudorific, as its force happens to be determined.

ANTIMONY, prepared, is either crude antimony levigated, or that which has undergone some chemical process, whereby its nature and powers are altered or abated; and this differently, according to the circumstances of the preparation.

Antimony, says Mr. Boyle, alone, or associated with one or two other ingredients, by a variety of operations and compositions, might be brought to furnish a whole apothecary's shop: it will answer the physician's intention, whether he wants to employ a cathartic, or an emetic, a diuretic, diaphoretic, deobstruent, bezoardic, or cordial.

ANTIMONY revived, antimonium resuscitatum, is prepared of flowers of antimony and *SAL ammoniac*, digested in distilled vinegar; then exhaled, and the remainder sweetened by ablution.—It is emetic, and sometimes also sudorific, and is good in maniacal cases, &c.

ANTIMONY, tincture of; see *TINCTURE*.

All these preparations of antimony, how severe soever alone, may yet be so managed, as to operate little or nothing at all in the *primæ viæ*, nor be perceived till they are got into the smallest vessels.—And then it is they are qualified to combat the gout, pox, evil, &c. See Neumann's Chemical Works, p. 128, &c. and Macquer's Chemical Dictionary, under *Antimony*.

ANTINOËIA, in *Antiquity*, annual sacrifices, and quinquennial games, in memory of Antinous the Bithynian.

They were instituted at the command of Adrian the Roman emperor, at Mantinea, in Arcadia, where Antinous was honoured with a temple and divine worship.

ANTINOMIANS, in *Church History*, denote those who maintain the law of no use or obligation under the gospel dispensation, or who hold doctrines that clearly supersede the necessity of good works and a virtuous life. The *Antinomians* took their origin from John Agricola about the year 1538, who taught that the law is no ways necessary under the gospel; that good works do not promote our salvation, nor ill ones hinder it; that repentance is not to be preached from the decalogue, but only from the gospel.

This

This sect sprung up in England during the protectorate of Oliver Cromwell; and extended their system of libertinism much farther than Agricola, the disciple of Luther. Some of their teachers expressly maintained, that as the elect cannot fall from grace, nor forfeit the divine favour, the wicked actions they commit are not really sinful, nor are to be considered as instances of their violation of the divine law; and that consequently they have no occasion either to confess their sins, or to break them off by repentance. According to them, it is one of the essential and distinctive characters of the elect, that they cannot do any thing which is either displeasing to God, or prohibited by the law.

Luther, Rutherford, Schluffelburg, Sedgwick, Gataker, Witfius, Bull, Williams, &c. have written refutations; Crisp, Richardson, Saltmarsh, &c. defences of the *Antinomians*; Wigandus, a comparison between ancient and modern *Antinomians*.

The doctrine of Agricola was in itself obscure, and perhaps represented worse than it really was, by Luther, who wrote with acrimony against him, and first stiled him and his followers *Antinomians*. Agricola stood on his own defence, and complained, that opinions were imputed to him, which he did not hold. Nicolas Amstdorf fell under the same odious name and imputation, and seems to have been treated more unfairly than even Agricola himself. It is rather hard to charge upon a man all the opinions that may be inferred from things that have hastily dropped from him, when he himself disavows such inferences.

ANTINOMY, **ANTINOMIA**, a contradiction between two laws, or between two articles of the same LAW.

The word is derived from *avti*, *contra*, and *νομος*, *lex*.

ANTINOMY, sometimes also signifies an opposition to all law. Whence a sect of enthusiasts, who are for carrying gospel liberty above all moral regards, and who slight the motives of virtue as insufficient to salvation, are called *antinomians*, and sometimes *anomians*.

ANTINOUS, in *Astronomy*, a part of the constellation **AQUILA**, or the eagle.

ANTIOCHIAN sect, or *academy*, a name given to the fifth academy, or branch of academies.

It took the denomination from its being founded by Antiochus, a philosopher contemporary with Cicero.

The *Antiochian* academy succeeded the Philonian.—As to point of doctrine, the philosophers of this sect appear to have restored that of the ancient academy, except that in the article of the *criterion* of truth. Antiochus was really a Stoic, and only nominally an academic.

ANTIOCHIAN epocha, a method of computing time from the proclamation of liberty granted the city of Antioch, about the time of the battle of Pharsalia.

ANTI-PÆDO-BAPTISTS, derived from *avti*, *against*, *παις*, *παιδος*, *child*, and *βαπτίζω*, *baptize*, whence *βαπτισμός*, is a distinguishing denomination given to those who object to the baptism of infants; because, they say, infants are incapable of being instructed, and of making that profession of faith, which intitles them to this ordinance, and an admission into church communion. See **ANABAPTISTS** and **BAPTISTS**.

ANTIPAGMENTS, *Antipagmenta*. See **ANTEPAGMENTS**.

ANTIPAPINIANUS, *avtiπαπινιανος*, a title given by the Greek lawyers to the fourth part of the Digest, including four books, beginning with the title *De pignoribus*.

This is otherwise called *antipapianus*.

The *Antipapinian* was thus denominated, not as being intended in opposition to Papinian, but because it was to serve in the schools of the civil law in lieu of the books of that lawyer, pursuant to an edict of the emperor Justinian; so that the *Antipapinian* was so far from being a refutation of Papinian, that it was only a substitute for his writings, which were not so proper for the use of the younger sort of students.

ANTIPARALLELS, in *Geometry*, are those lines joining the two legs of an angle, which make the same angles like parallel lines, but in opposite directions. M. Leibnitz, however, calls those lines *antiparallels*, which cut two parallels so, that the outward angle being added to the inward one, the sum may be equal to a right angle.

ANTIPARASTASIS, in *Rhetoric*, a reply made to an opponent, by allowing part of his argument, and denying the rest; e. gr. you may paint whatever you please, provided the public suffer no prejudice from it; but you must not, if it does.

ANTIPASCHA, in *Ecclesiastical Writers*, denotes the first Sunday after Easter.

This is otherwise called **DOMINICA in albis**.

ANTIPATHES, among the *Ancient Naturalists*, was used to express any stone or gem, which, according to their

superstitious ideas of the virtues of gems at that time, was supposed to have a power of resisting the force of enchantments. Pliny mentions a very valuable gem, called by the ancients *antipathes* for this very reason; and the black coral had the same name, on the same account.

Antipathes, is a species of the **GORGONIA**, in the order of *zoophytes*.

ANTIPATHY, a natural enmity or aversion of one body to another.—In which sense the word stands opposed to **SYMPATHY**.

The word is compounded of *avti*, *contra*, *against*, and *πάθος*, *passion*.

Such an aversion is commonly said to be between the salamander and the tortoise, the vine and the elm, the toad and the weasel, the sheep and the wolf, the olive and the oak, &c. Phil. Trans. N° 339.

The Peripatetics account for *antipathies*, from certain occult qualities inherent in the bodies.

Some think that the term *antipathy* can only be applied to any certain purpose, when used with the restriction of modern philosophers; among whom it signifies no more than a *vis centrifuga*, or repelling power.

A large part of the instances of *antipathies* is, perhaps, no better than fables, and a severe examination would leave them on no other footing than vulgar errors.

ANTIPATHY is sometimes also used in a *moral* sense, to denote a contest between the mind and the body, or between reason and inclination.

ANTIPATHY is used in *Painting*, for an opposition between the qualities of colours.

This *antipathy* is chiefly observed between colours, which endeavour, as it were, to predominate over each other, and which by their mixture destroy each other, e. gr. *ultramarine* and *vermillion*. This does not obtain in the *claro obscuro*; for, though there be nothing more opposite to each other than black and white, as the one represents light, and the other darkness; yet they each preserve themselves in the mixture, and form together a grey which partakes of both.

ANTIPELARGIA, among the *Ancients*, a law, whereby children are obliged to furnish necessaries to their aged parents.

The *ciconia*, or stork, is a bird famous for the care it takes of its parents when grown old.

Hence, in some Latin writers, this is rendered *lex ciconiaria*, or the storks law. Passavant has published a dissertation *de Antipelargia*. Basil, 1672, 4°.

ANTIPERISTALTIC, in *Anatomy*, a motion of the intestines contrary to the **PERISTALTIC** motion.

The word is derived from *avti*, *against*, *περι*, *about*, and *σάπτω*, *that which hath the power of compressing*.

As the *peristaltic* motion is a contraction of the fibres of two intestines from above, downwards; the *antiperistaltic* motion is their contraction from below, upwards.

Physicians, ancient as well as modern, have usually had recourse to the notion of an *antiperistaltic* motion to account for the action of vomiting, and the *phenomena* of the *misereri mei*, or *iliac passion*. In behalf of the former, M. Littré alleges, that as the *œsophagus*, the stomach, and intestines, are but one and the same continued canal, every where lined with the same fleshy fibres, and as it is allowed, that the intestines, besides their natural or **PERISTALTIC** motion (whereby, being successively contracted from above downwards, they expel their contents in its direction) have also an *antiperistaltic* or preternatural motion, whereby they contract from below upwards, and thus reject their contents; it is highly probable, that the other members of the same canal, viz. the stomach, and *œsophagus*, are also sometimes subject to the like *antiperistaltic* motion; and return their contents to the mouth. Hist. Acad. Scienc. ann. 1700.

The cause of the *antiperistaltic* motion is usually assigned to be a stoppage of some of the intestines, but chiefly of the *ilium*.

Some late ingenious authors seem to have overturned the whole *antiperistaltic* system, and shewn this motion imaginary, as well as unnecessary for accounting for these disorders. Mess. Chirac and Du Verney have endeavoured to prove this in respect of vomiting; and M. Haguénot, and after him M. St. Andre, in the *iliac passion*. Mem. Acad. Scienc. an. 1713. Phil. Trans. N° 351.

ANTIPERISTASIS, in *Philosophy*, the action of two contrary qualities; one whereof is supposed, by its opposition, to excite and heighten the force of the other.

The word is formed of *avti*, *contra*, *against*, and *πιστάω*, *to stand round*, or *to restrain*; q. d. *circumobstantia*, or the renitency against any thing that surrounds or besets another.

Antiperistasis is usually defined, “the opposition of a
“contrary

“contrary quality, whereby the quality it opposes becomes heightened, or intended: or the action whereby a body, attacked by another, collects itself, and becomes stronger by such opposition: or it is an intention of the activity of one quality, caused by the opposition of another.”

Thus cold, say the school-philosophers, on many occasions, exalts the degree of heat, and dryness that of moisture.

Thus it is, that quick-lime is set on fire by the affusion of cold water: and so water becomes warmer in winter than in summer, by *antiperistasis*: and to the same cause it is owing, that thunder and lightning are excited in the middle region of the air, which is continually cold.

This *antiperistasis* was a principle of great use and extent in the Peripatetic philosophy.

Mr. Boyle has canvassed this doctrine thoroughly, in his History of Cold.—It is certain, that *a priori*, or considering the reason of the thing abstracted from the experiments alledged to prove an *antiperistasis*, it appears highly absurd; since, according to the course of nature, one contrary ought to destroy, not to strengthen another.

It is commonly, indeed, alledged, as a proof of a power nature has given bodies of flying their contraries, that drops of water, falling on a table, collect into little globules, to avoid the contrary quality in the table, and keep themselves from being swallowed up by the dry wood; but this we can account for on more intelligible principles, viz. the power of ATTRACTION, and REPULSION.

In effect, not only reason, but experiment also, concludes against the notion of an *antiperistasis*: the leading argument urged in behalf of it is, the heating of quick-lime in cold water: now, how astonishing the laziness and credulity of mankind, who have so long and generally acquiesced in what they might so easily have found to be false! for if, instead of cold water, the lime be quenched with hot water, the ebullition will always be far greater than if the liquor were cold.

Again; in freezing a basin to a joint-stool, with a mixture of snow and salt, by the fire-side, it is pretended, that the fire so intends the cold, as to enable it to congeal the water that stagnated upon the surface of the stool, betwixt that and the bottom of the vessel. But how little need there is of an *antiperistasis* in this experiment, appears hence, that Mr. Boyle has purposely made it with good success, in a place where there neither was, nor ever, probably, had been, a fire.

As to the refreshing coldness which subterraneous places afford in summer, it may be denied, that they are then really colder than in winter; though, if the contrary were allowed, it would not necessarily infer an *antiperistasis*. The smoking of waters, drawn from deep places in frosty weather, does not necessarily infer such water to be warmer than at other times when it does not smoke; since that effect may proceed, not from the greater warmth of the water, but from the greater coldness of the air. For a man's breath in a cold summer, or in mild winter weather, becomes very visible; the cold ambient air suddenly condensing the fuliginous steams discharged by the lungs; which in warm weather are readily diffused in imperceptible particles through the air. See COLD and EFFLUVIA.

ANTIPHERNA, among the ancient Greeks, denoted a kind of settlement made on a wife in case of surviving her husband, as an equivalent for her dowry.

This word seems to answer what in our law is called a JOINTURE.

ANTIPHONALLY, in respect of church music, imports as much as alternately, or anthem-wise.

The Greeks have a method of singing antiphonally, *antiphonatum*, called by them *ωσανοσανιον*, wherein two persons sing together, and then are silent, and succeeded by two others, who sing a while and then are silent, and so on.

ANTIPHONARY, *antiphonarium*, a service book which contained all the invitatories, responsories, collects, and whatever else was sung or said in the choir, except the lessons.

This is otherwise called *responsarium*, from the responses therein contained.

The author of the Roman antiphonary was pope Gregory the Great.

We also find mention of nocturnal and diurnal antiphonaries, for the use of the daily and nightly offices; summer and winter antiphonaries; also antiphonaries for country churches, &c. By the provincial constitutions of archbishop Winchelsey, made at Merton, A. D. 1305, it is required that one of these should be found in every church within the province of Canterbury.

The use of these, and many other popish books, was forbid by the 3d and 4th of Edward VI. c. 10.

ANTIPHONY, ANTIPHONA, the answer made by one choir to another, when the psalm or anthem is sung between two.

ANTIPHONY, sometimes denotes a species of psalmody wherein the congregation, being divided into two parts, repeat the psalms, verse for verse, alternately.

In this sense, *antiphony* stands contradistinguished from SYMPHONY, where the whole congregation sings together.

Antiphony differs from *responsorium*, because in this latter the verse is only spoke by one person, whereas in the former, the verses are sung by the two choirs alternately.

The original of *antiphonal* singing in the western churches is referred to the time of St. Ambrose, about the year 374. That father is said to have first introduced it into the church of Milan, in imitation of the custom of the eastern church, where it appears to be of greater antiquity, though as to the time of its institution, authors are not agreed. It was most probably introduced at Antioch, between the years of Christ 347 and 356. See Choral SERVICE.

ANTIPHONY is also used to denote the words given out at the beginning of the psalm, to which both the choirs are to accommodate their singing.

ANTIPHONY, in a more modern sense, denotes a kind of composition made of several verses extracted out of different psalms, adapted to express the mystery solemnized on the occasion.

ANTIPHONA *ad introitum*, that anciently sung in the introit of the mass.

ANTIPHONA *invitatoria*, that repeated at the psalm *Venite exultemus*.

ANTIPHONÆ *majores*, those seven used to be sung in the time of advent, at the Magnificat, and during the seven days before Christmas.

ANTIPHONÆ *processionales*, those sung at processions.

ANTIPHONÆ *rogationes*, those rehearsed at rogations.

ANTIPIHRASIS, a sort of figurative expression, which has a contrary meaning to what it carries in appearance. Or, a kind of irony, wherein we say one thing, and mean the contrary.

The word is derived from *αντι*, and *φρασις*, of *φραζω*, I speak.

Sanctius defines *antiphrasis* to be a form of irony, whereby we say a thing, by denying what we ought rather to affirm it to be: as when we say, *it did not displease me*; or, *he is no fool*; meaning, *I was pleased with it*; or, *he is a man of sense*.—On this principle, the *antiphrases* ought to be ranked among the figures of sentences, and not among those of words.

It is a common error, to make *antiphrases* consist in single words; as when we say, that the Parcae are thus called by *antiphrasis*, because they spare nobody, *PARCÆ, quia nemini parcunt*.—S. Jerom, in his epistle to Riparius against Vigilantius, says, he ought rather to be called *Dormitantius per antiphrasin*, than Vigilantius, because he opposed the Christians holding wakes at the tombs of the martyrs.

Sanctius holds it improper to call these *antiphrases*; because *phrasis* is not applicable to a single word, but signifies *orationem, aut loquendi modum*.

ANTIPODES, in Geography, a relative term, denoting such inhabitants of the earth as live diametrically opposite to one another.

The word comes from *αντι*, against, and *πους*, *ποδος*, a foot.

The *Antipodes* are those who live in parallels of latitude equally distant from the equator, the one toward the north, the other to the south; and under the same meridian, though 180°, or just half of that meridian, distant from one another.

The *Antipodes* have nearly the same degree of heat and cold; and the same length of night and day; but at contrary times; it being midnight with one, when it is noon with the other; and the longest day with one, when it is the shortest with the other.

Again, as the horizon of any place is 90° distant from its zenith, the *Antipodes* have the same HORIZON. And hence, when the sun rises to one, he sets to the other.

Plato is said to have first started the notion of *Antipodes*; and likewise to have given them the name: as he conceived the earth to be of a spherical figure, it was easy for him to infer, that there must be *Antipodes*.

Many, and particularly Lactantius and Augustine, laughed at the notion.—The latter of those fathers is strangely perplexed to think how men and trees should hang pendulous in the air, their feet uppermost, as he thought they must do in the other hemisphere.

And if we may believe Aventine, Boniface, archbishop of Mentz, and legate of pope Zachary, in the eighth century, declared a bishop of that time, called Virgilius, heretic, for maintaining that there was such a thing as *Antipodes*.

But

But this piece of history is controverted by the authors of the Mem. de Trevoux; as having been made use of, it seems, by some persons, to shew, that the church has been mistaken in its decisions.

As to the sentiments of the primitive Christians with regard to *Antipodes*, some, rather than admit the conclusions of the philosophers, absolutely denied the whole, even the demonstrations of the geometricians relating to the sphericity of the earth: which is Lactantius's way, Instit. lib. iii. cap. 24. Others only called in question the conjectures of the philosophers; which is St. Augustine's method, De Civit. Dei, lib. xvi. cap. 9.—After putting the question, whether there ever were nations of cyclopes, or pigmies, or of people whose feet stood outward, &c. he comes to the point of *Antipodes*, and asks, "whether the lower part of our earth be inhabited by *Antipodes*?" He made no doubt of the earth's being round, nor of there being a part diametrically opposite to ours; but only disputes its being really inhabited. And the considerations he suggests for that purpose are just enough; as that they who asserted *Antipodes* had no history for it; that the lower part of the earth may be covered with water; and that to place *Antipodes* there, of a different origin from us (as must have been the opinion of the ancients, since they thought it impossible to go from our world to theirs), is to contradict scripture, which teaches, that the whole race descended from one man. Such are the sentiments of that father. It may be added, that the Christian fathers were not the only persons who disputed the truth of the *Antipodes*. Lucretius had done it before them, at the end of his first book, v. 1063, &c. See also Plutarch, lib. De facie in orbe lunæ; and Pliny, who refutes the opinion, lib. ii. cap. 5.

ANTIPOPE, a false or pretended pope; or, one that is, or is pretended to be, irregularly elected in opposition to another.

Geddes gives the history of no less than twenty-four schisms in the Romish church, caused by *antipopes*; some took their rise from a diversity of doctrine of belief, which led different parties to elect each their several pope; but the greater part from dubious controverted rights of election, the fruits of chicane and ambition.

ANTI-PORTICO is used by some for a vestibule, or porch, at the entrance of an edifice.

ANTIPRAXIA, from *anti* and *πραξια*, *I perform*, in the *Ancient Physic*, denotes a contrariety of functions, temperaments, &c. in different parts of the body; invented to account for that contrariety of symptoms which frequently concur in hypochondriac cases, when, e. gr. the liver is charged with being immoderately hot, and the stomach excessively cold.

The moderns, particularly Etmuller, refute the notion of an *antipraxia*, on this principle, that the blood circulating duly through the whole body, warms all the parts, as well the stomach as liver proportionably. To which some advocates for the ancient system object, that this is confounding the preternatural state with the natural.

ANTIPREDICAMENTS, in *Logic*. See **ANTEPREDICAMENT**.

ANTIPROBABILISM, the doctrine or system of those who hold it unlawful to follow the less probable opinion, in opposition to the more probable one.

There have been vigorous advocates for *antiprobabilism*; for even among its greatest enemies, the Jesuits, F. Gilbert has a treatise expressly in favour of *antiprobabilism*, viz.

ANTIPROBABILISMUS, seu tractatus theologicus fidelem totius probabilismi stateram continens, &c. Par. 1703. 4to.

ANTIPROBOLE, in *Rhetoric*; a figure whereby the defendant adopts or admits the charge brought against him by the prosecutor.

E. gr. Supposing the prosecutor's *ποροβον* to be, *Titus has killed Caius*; the defendant's *antiprobole* may be, *I have killed him, but undesignedly*.

ANTIPROEMPTICON, in *Poetry*, a poem wherein a person going a journey addresses himself to his friends. Such is that of Ovid, lib. i. Trist.

Cum subit illius tristissima noctis imago, &c.

It is opposed to **PROEMPTICON**.

ANTIPROTASIS, in *Rhetoric*, a solution of the **PROTASIS**.

ANTIPSORA, from *anti* and *σπορα*, *itch*, in *Pharmacy*, remedies proper against the itch.

ANTIPTOSIS, a figure in *Grammar*, whereby one case is put for another.

The word comes from *anti*, *pro*, and *πτωσις*, *casus*.

ANTIIPPYRETON, from *anti* and *πυρ*, *fire*, among *Physicians*, an appellation given to the medicines against fevers.

ANTIQUARE, among Roman lawyers, properly denotes the rejecting of a new law, or refusing to pass it.

In which sense, *antiquating* differs from *abrogating*; as the latter imports the annulling an old law, the former the rejecting a new one. See **A**.

ANTIQUARE is also used for a law's growing obsolete, or into disuse, either by age or non-observance.

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ANTIQUARIUM, among the *Ancients*, denoted a place or apartment, wherein their *antique* monuments were preserved.

ANTIQUARTIUM is used by some modern practitioners, for a specific against the quartan ague.

Hence some call the Jesuits bark *antiquarium Peruvianum*.

Wedelius also speaks of an *essentia antiquaria*.

The *antiquarian* of Riverius is a preparation of *mercurius dulcis*, *aurum fulminans*, sulphur of antimony, and scammony.

ANTIQUARY, **ANTIQUARIUS**, a person who studies and searches after monuments and remains of the ancients; as, old medals, books, statues, sculptures, and inscriptions: and, in general, all curious pieces that may afford any light into antiquity.

Formerly there were several other kinds of *antiquaries*.

The **LIBRARI**, or copists, i. e. those who transcribed in fair legible characters, what had been before written in notes, were called by this name. They were also denominated *calligraphi*. They were also employed in repairing books injured by age.

In the chief cities of Greece and Italy, there were other persons of distinction, called *antiquaries*, whose business it was to shew strangers the antiquities of the place, to explain the ancient inscriptions, and to give them all the assistance they could in this way of learning.

This was, doubtless, a very curious and useful institution; and might well deserve to be re-established.—Pausanias calls these *antiquaries*, *Εἰρηνογῶνται*. The Sicilians call them *mythologi*.

There was an ancient college of *antiquaries* erected in Ireland by Ollamh Fodhla, 700 years before Christ, for composing a history of that country. And to this, say the Irish historians, it is owing, that the history and antiquities of that kingdom may be traced back beyond those of most other nations.

Foundations of this kind have often been wished for, and sometimes also attempted in England.

Sir H. Spelman speaks of a society of *antiquaries* in his time, to whom his treatise of the terms, written in the year 1614, was communicated, he himself being one of the number.

The society was formed by archbishop Parker, Camden, Sir Robert Cotton, Stowe, and others; in 1598, R. Carew was admitted into it. Application was made to queen Elizabeth for a charter and house, wherein they might hold their meetings, erect a library, and the like. But by the death of that princess, their application proved abortive. Her successor, king James I. was far from favouring their design.

In the year 1717, this society was revived again, since which time no interruptions having happened, it is at present in a very flourishing condition; consisting of many learned and ingenious men, of the nobility, gentry, clergy, &c. whose business, as members, is to discover the antiquities of their own, as well as those of other nations.

This society was incorporated by the king's charter in the year 1751, by the name of the President, Council, and Fellows of the Society of *Antiquaries* of London; their council consists of twenty-one persons, ten of whom are annually changed: the election of members is by ballot, a certificate signed by three or more fellows being previously exhibited for six ordinary successive meetings, except in the case of peers, members of the privy council, and judges, who may be proposed by a single member and balloted for the same day; and the choice is determined by a majority of two thirds. Every member pays an admission-fee of five guineas, and two guineas a year, or an additional sum of twenty-one guineas. They have weekly meetings on Thursday, from seven of the clock in the evening till nine. This society began to publish its discoveries, &c. in 1770, under the title of *Archæologia*.

ANTIQUARY is also used, by *Ancient Writers*, for the keeper of the *antiquarium*, or cabinet of antiquities.

This officer is otherwise called *archæota*, or *antiquary* of a king, a prince, a state, or the like.

Henry VIII. gave John Leland the title of his *antiquary*, a title which, says the author of his life, no body ever enjoyed besides himself. But the restriction, we suppose, was only intended to be understood in respect of the kings of England; M. Schott, we find, had the title of *antiquary* to the king of Prussia; P. Pedruzzi, that of *antiquary* of the duke of Parma; M. Galland resided some time in Turkey, under the title of *antiquary* of the king of France.

The university of Oxford have still their *antiquary*, under the denomination of *custos archivorum*.

The kings of Sweden have been at great expences in order to illustrate the *antiquity* of their country, having established an academy of *antiquaries* with this single view.

The office of the ancient Irish *antiquaries* was to preserve the genealogies of the kings of Ireland, to correct the

regal tables of succession, and deliver down the pedigree of every collateral branch of the royal family.

P. Labbe and Petavius have published pieces expressly concerning the apparatus of *antiquaries*.

ANTIQUATED, ANTIQUATUS, something obsolete, or grown out of date, or use.

ANTIQUE, ANTIQUUS, in a general sense, something that is ancient.

ANTIQUE is chiefly used among architects, sculptors, and painters; who apply it to such pieces of buildings, sculpture, painting &c. as were made at the time when the arts were in their greatest perfection, among the ancient Greeks and Romans; viz. from the age of Alexander to the time of the emperor Phocas, about the year of Christ 600, when Italy became over-run by the Goths and Vandals.

In this sense the word stands opposed to *modern*. Thus we say, an *antique* building, or a building after the *antique*; an *antique* bust, or bas-relievo; the *antique* manner, taste, &c.

The science of *antiques* is also called by Spon ARCHÆO-GRAPHIA.

Under this is included the knowledge of ancient coins, medals, inscriptions, buildings, statues, sculptures, MSS. vessels, weights, measures, &c.

ANTIQUE is sometimes also contradistinguished from *ancient*, which denotes the lesser degree of antiquity, when the art was not in its utmost purity.

Thus, *antique architecture* is frequently distinguished from *ancient architecture*.

Some writers also use the compound, ANTIQUO-MODERN, in respect of the old Gothic churches, and other buildings; to distinguish them from those of the Greeks and Romans.

ANTIQUITY, ANTIQUITAS, is used to denote the times or ages past long ago.

Thus we say, the heroes of *antiquity*, the marks or footsteps of *antiquity*, monuments of *antiquity*, &c.

ANTIQUITY is also used to denote the works or remains of ancient times. See MONUMENT, REMAINS, RUINS, &c.

Thus we say, a fine, curious piece of *antiquity*; Italy, France, and England, abound in *antiquities*.

ANTIQUITY is also used to denote the great age of a thing, or its duration from times of old.

In this sense we say, the *antiquity* of a kingdom, a custom, or the like: most nations lay claim to an *antiquity* much greater than they can truly warrant. The present age may be said to be the *antiquity* of the world; which was but new in what are commonly called the ancient days, according to the received *chronology*.

There are great disputes concerning the *antiquity*, or age of the world.

Aristotle carried it even to eternity; and Parmenides, Pythagoras, and the Chaldeans, were of the same opinion: but the generality of philosophers, as well as divines and historians, have always held an origin of it; though where to fix that origin, is the difficulty. The different systems of the chronology of the Greeks, the Egyptians, the Jews, the Hebrew text, and the Septuagint version; of Scaliger, of Pezron, of Sir Isaac Newton, &c. to say nothing of the Chinese annals, leave the point infinitely embarrassed.

Dom. Pezron thinks he has merited well of the public by adding 2000 years to the age of the world, which had been taken from it by Scaliger and others; but this did not hinder F. Martianay from entering a prosecution against him in the archbishop's court of Paris, for heresy. —His crime was following the heathen rather than the Hebrew chronology, in which however he was preceded by the generality of the fathers and primitive writers of the church; among whom it appears to have been a common practice, to make 5500 years between the creation and the incarnation. In reality, the Jews are charged with having corrupted their chronology; by which the moderns have been misled.

Some have proposed to trace out the *antiquity* of the earth, by an observation of the saltness of the sea; others by observing the elevation of the bottom of the sea, or the growth of its strata.—One mark or proof of *antiquity* has been started by Rudbeck, which he pretends to have carried to a demonstration; it is taken from the thickness of a certain black crust, called in the Swedish tongue, *mat-iorden*, and *swart-myllan*, which covers the surface of the earth, being formed of a mixture of rotten grass, and other herbs, with dust and a kind of mud, which the melted snow leaves behind it. According to this antiquary, there are at least 500 years requisite to form an inch thick of this crust, which in many places of Sweden is found to be upwards of seven inches thick, where urns have been dug up full of bones and ashes. From whence it follows, according to this author, that

it is upwards of 3500 years since burning the dead was practised in Scandinavia.

Recupero, the historiographer of Ætna, suggests an argument in favour of the *antiquity* of the earth from the several strata of lava, that have issued at different times from this mountain. A stream of lava, which Diodorus Siculus relates to have burst out in the time of the second Punic war, is covered at this day only with a very scanty soil; and in digging pits and wells, several strata of lava have been discovered with earth to a considerable thickness over the surface of each stratum; in one instance seven distinct surfaces of this kind were pierced; and allowing 2000 years for the interval between two eruptions, the lava that composed the first or lowest stratum, must have flowed from the mountain above 14000 years ago. Brydone's Tour, &c. vol. i. p. 131.

But this argument is very fallacious, because we learn from Sir William Hamilton's remarks on the soil of Naples, that, since the first eruption of Vesuvius, which destroyed the ancient town of Herculaneum in the year 79, there have been six eruptions of *lava*, forming as many different strata, with veins of good soil between them. Phil. Trans. vol. lxi. N° 1.

There is scarce a nation under heaven but lays claim to a greater degree of *antiquity* than the rest of its neighbours; the Scythians, the Phrygians, the Chaldeans, Egyptians, Greeks, Chinese, &c. pretend each to the honour of being first inhabitants of the earth; several of these nations, lest they should be outstripped in their pretensions by any of the rest, have traced up their origin to ages long before the received account of the creation. Hence the appellation *aborigines*, *indigenæ*, *terriginæ*, *antelunares*, &c. The Athenians were not ashamed to pretend to be *autochthones*; and what is most remarkable, Socrates himself gives them this ridiculous appellation, which, as some others of the philosophers have wisely observed, only put them on a level with ants and grasshoppers. Mem. Acad. Infer. tom. vii. p. 498.

The Chaldeans pretend to astronomical observations of 470,000, or 473,000 years; they mention the precise king who reigned over them at the time of the deluge, whose name was Xisuthrus, and attribute to him several things which we ascribe to Noah.

The Chaldaic *antiquities* of Berofus are lost, except a few fragments which have been collected by Jos. Scaliger, and since more fully by Fabricius. Annus of Viterbo, a Dominican monk, towards the close of the fifteenth century, would not suffer us to want such a treasure, but officiously went to work, and forged a Berofus out of his own brain, which he published at Rome in 1498. The monk went farther; and from the same mint soon after produced Manetho's supplement to Berofus, from the time of Ægyptus king of Egypt, to the origin of the Roman state. The mischief is, Manetho lived before Berofus; this anachronism alone had sufficed to betray the cheat.

St. Augustine laughs at the folly of the Egyptians, who pretend to observations of the stars above 100,000 years old; in effect, no people appear to have been warmer in the contest for *antiquity* than those of Egypt. They pretend two periods of time; one shorter, during which the throne of Egypt had been filled by men, the other almost infinite, wherein gods and demi-gods had wore the crown. From Isis and Osiris to Alexander they reckoned a space of 23000 years, the time before that, while the gods reigned, made 42984 years more; the whole duration from the beginning of their monarchy amounting to 65984. De Civ. Dei, lib. xviii. c. 40.

The computation of their dynasties as given by Manetho, a writer of their own (of whom we have extracts in Syncellus, taken from Julius Africanus and Eusebius), extends to 5550 years before Alexander's time; and the Egyptian chronicle, cited by the same Syncellus, goes farther, reckoning 36525 years. Diogenes Laertius makes no less than 48863 years from the reign of Vulcan. Yet the Scythians, the Phrygians, the Ethiopians, and some others, still insisted on their priority to the Egyptians; and in the judgment of many seem to have carried their point. Justin, after Trogus, gives the precedence to the Scythians; and affirms, that they were always allowed to have been before the Egyptians.

It is no wonder that their catalogues should be ridiculously incredible, when the Egyptians made their first kings reign 1200 years a-piece; and the Assyrians theirs about 4000.

But the Chinese is esteemed the most ancient monarchy in the universe; having cultivated the sciences from the earliest ages, and subsisted at least these 4000 years with the same laws, manners, and usages.

Some indeed have called in question the truth and authenticity of the Chinese annals; yet we find them confirmed, at least as high as 660 years before Christ, by

the annals of Japan. At worst the Chinese *antiquities* stand on as good a footing as those either of Greece or Rome. Their annalists both for order and chronology are not inferior to any of those ancients so much admired among us; but far surpass them in point of *antiquity*, and have a better title to be credited, as having written by public authority, which can be said of few Greek or Roman pieces, except perhaps the Capitoline Marbles, which are not properly a history.

We have no inconsiderable confirmation of the truth of the Chinese account, from an ancient observation of a grand conjunction of the planets under Chuen-Hio, emperor of China, related by Martinus. That prince lived 2513 years before Christ. M. Kirchius has defended the observation against Cassini, and shewn a conjunction must really have happened at the time mentioned by the Chinese annals.

But the authenticity of this observation, and the whole of the *Chinese Chronology*, has been lately attacked by an ingenious author, Mr. Costar.

Dionysius Halicarnassensis has traced the Roman *antiquities*, Josephus the Jewish *antiquities*, Berosus the Chaldaic *antiquities*, Sanconiathon the Phœnician *antiquities*, Manetho and Marsham the Egyptian *antiquities*.

The Phœnician *antiquities* of Sanconiathon are preserved in part by Eusebius. We have an English translation of Sanconiathon, with notes, by bishop Cumberland, and a continuation from the canon of Eratosthenes. Lond. 1720, 8vo.

Dionysius gave his book the title of *Roman antiquities*, on account of the curious inquiries he had made concerning the origin of the Romans, by tracing them back to the remotest ages. For fidelity as well as instruction he is generally preferred to Livy; his accounts are more ample, and his facts described with more particulars; he gives a full idea of the Roman ceremonies, the worship of their gods, sacrifices, manners, customs, discipline, policy, courts, laws, &c.

To the class of supposititious *antiquities* belong the *Hetrurian antiquities*, pretended to have been found by Scornelli near Volaterra, and published in 1636 by Curtius Inghiramus, who is generally supposed to have been the forger of them. A great number of fictitious names of ancient authors are cited in this book to give the better face to the cheat; but the style betrayed it. Allatius and Ernstius early detected the imposture. Fabr. Bibl. Lat. lib. iv. cap. 13.

The British *antiquities* before Cæsar's invasion are utterly dubious, not to say fabulous. Old chronicles speak of Samoths, the son of Japhet, as the founder of the British monarchy; Albion, a descendant of Cham, invaded it three hundred years after; and about 600 years after this, Brute, grandson of Æneas, came and took possession of the island in the year of the world 2880, giving it the name which it still retained when Cæsar made his attempt. This is Geoffroy of Monmouth's system of the *antiquities* of the British nation, which the generality of our historians admit, for want of a better. It has been defended by A. Thomson of Queen's College, in the preface to his English translation of that writer.

It must not be forgot that the Irish also pretend to be the most ancient of all nations; they trace their origin without interruption up to Japhet. But the Scots still dispute their priority with them, holding themselves to be an elder branch of the Scythians, the first of men.

The *antiquity* of religion has been often urged as a proof of the truth of it. Jews, Gentiles, Christians, Protestants, Papists, have all in their turns made use of the argument from *antiquity*. It is indeed of the inartificial kind; and comes rather under the denomination of a presumption than a proof; on the whole it seems to have served the cause of error as much, if not more, than that of truth.

ANTIQUITY is more peculiarly used to denote the ceremonies, customs, and usages, which obtained in ancient times, either with regard to persons, places, or things.

Antiquities, in this sense, are usually divided into sacred, political, military, literary, and domestic; sometimes only into civil and ecclesiastical.

ANTIQUITIES, sacred, those relating to the religious worship, discipline, and belief of ancient times and people. These may be subdivided into heathen, Christian, and Mahometan, &c.

Reland has a treatise expressly on the sacred *antiquities* of the Jews; Struvius on those of the Romans; Lakemacher on those of the Greeks; and Stillingfleet on those of the British churches.

Fabricius has given two plans of a thesaurus or body of *antiquities*; the one of Hebrew *antiquities*, after the manner of Grævius and Gronovius; the other of ecclesiastical *antiquities*, divided into twelve books. He gives the names and titles of 156 authors to be included in the first, and 101 authors for the second.

ANTIQUITIES, Christian, those which relate to the ancient state of the Christian church.

These are the same with what we otherwise call *ecclesiastical antiquities*.

The Magdeburg centuries are looked upon by protestants as a library of Christian *antiquities*.

Mr. Bingham has published a learned system of Christian *antiquities*.

As a principal branch of Christian *antiquities*, we may reckon, **ANTIQUITIES, Biblical**, the notices of ancient laws, ceremonies, events, &c. occurring in the Scriptures.

These make a branch of *ecclesiastical antiquities*, and bear a near relation to the Jewish, &c. *antiquities*.

Some pretend to deduce most of the heathen *antiquities* from the Bible; others, as Spencer, &c. take the contrary course, and deduce the *antiquities* of the Bible from those of *heathenism*.

To interpret Scripture it is absolutely necessary regard be had to the heathen *antiquities* alluded to in them, and these not only such as are directly aimed at, or approved, but also such as are purposely opposed.

Dr. Cave has published a treatise of apostolical *antiquities*, *Antiquitates Apostolicæ*; or the Lives, Acts; &c. of the Apostles, Evangelists, &c. Lond. 1674, fol. 1684, and 1686.

ANTIQUITIES, civil, all that belong not to the head of *ecclesiastical*.

ANTIQUITIES, political, those relating to the origins of states, governments, magistrates, and laws.

ANTIQUITIES, national, those employed in tracing the origin, ancient actions, usages, monuments, remains, &c. of some nation or people.

Gronovius has given a collection of the chief writers on the Greek *antiquities*; Rouse, Pfeiffer, Bos, and bishop Potter, have given shorter systems; the last is the best esteemed, though found too short by some in what relates to the religion, the gods, vows, and temples of Greece.

The best system of Roman *antiquities* yet extant is that of Rosinus, with Dempster's notes.

We have compendiums and introductions to the Roman *antiquities* by Hoepfner, Nieuport, Godwin, Cantelius, Basil Kennet, &c.

Heineccius has given a collection of Roman *antiquities*, for illustration of civil law; and Briffonius another, drawn from the books of the civil law. Gravina's *Origines Juris Civilis* is excellent on this subject.

A body of the writers on the Roman *antiquities* hath been published by Grævius, and another of those on the Greek *antiquities* by Gronovius, both under the titles of Thesauri.

A supplement to the former has been published by Salengre, and Polenus. Danet and Pitiscus have also published lexicons of the Roman *antiquities*. Varro's books of Roman *antiquities* are entirely lost, excepting some fragments, preserved by St. Augustine.

ANTIQUITIES, parochial, those confined to the limits of one or more parishes, and conversant chiefly in what relates to the tithes, revenues, &c. of the churches.

Dr. Kennet has published a learned and curious work under the title of *Parochial Antiquities*, attempted in the history of Ambrosden and Burchester, and other adjacent parts in the counties of Oxford and Bucks. Oxf. 1695, 4to. See Phil. Transf. N° 220.

ANTIQUITIES, literary, those relating to matters of learning and study; a principal branch of these, are

ANTIQUITIES, academical, the origins, usages, &c. of the ancient academies, schools, colleges, and other literary societies. These bear a near relation to scholastic *antiquities*, and make a branch or division of literary *antiquities*. Herm. Conringius has given a body of *academical antiquities*, Ursinus a treatise of the *scholastical antiquities* of the Hebrews.

ANTI-RATIONALISTS, a name sometimes given to divines, who in matters of religion are for humbling reason, and making it bend to faith; asserting that the absurdity of a thing is no reason for rejecting it.

In this sense, the rigid Calvinists and adherents to the synod of Dort are denominated *antirationalists*, on account of the doctrine of absolute predestination, &c. The Roman catholics are also entitled to the same appellation, on account of the doctrine of transubstantiation. —M. Bayle took shelter in the system of the *anti-rationalists*, the better to combat the Christian doctrines of the origin of evil, providence, &c.

ANTIRRHETICUM, from *avrt* and *ῥῆω*, *I speak*, in *Literary History*, denotes a refutation of some book, author, or opinion.

In this sense, we also meet with the word *antirrhetis*.

ANTIRRHINUM, in *Botany*. See SNAP-DRAGON.

ANTI-SABBATARIANS, a modern religious sect, who oppose the observance of the Christian Sabbath.

The great principle of the *anti-sabbatarians* is, that the Jewish

Jewish sabbath was only of ceremonial not moral obligation: and consequently is abolished by the coming of Christ.

ANTISAGOGE, in *Rhetoric*, a figure differing little from that called **CONCESSION**. The following passage from Cicero is an instance of it: *Difficilis ratio belli gerendi; at plena fidei, plena pietatis; et si dicas, magnus labor, multa pericula proponuntur; at gloria ex his immortalis est consecutura.*

ANTI-SCEPTIC, something opposed to the reasonings and system of Pyrrhonists, or sceptics.

ANTISCIL, in *Geography*, denominates people who dwell in the opposite hemispheres of the earth, and whose shadows at noon fall in contrary directions.

The word is compounded of *anti*, against, and *scila*, a shadow.

Thus the people of the north are *antiscii* to those of the south. The one project their shadows at mid-day towards the arctic pole; and the others towards the antarctic pole.

The *antiscii* are very often confounded with the **ANTÆCI**, though the former term is more general than the latter.

The *antiscii* stand contradistinguished from *periscii*, &c.

ANTISCII is sometimes also used, among *Astrologers*, for two points of the heavens, equally distant from the tropics.—Thus the signs Leo and Taurus are held *antiscii* to each other.

ANTISCORBUTICS, medicines proper for the cure of the scurvy.

ANTISEPTIC, from *anti*, and *σηπτος*, putrid, of *σηπω*, to putrify, an appellation given to such substances as resist **PUTREFACTION**.

We have some curious experiments in relation to *antiseptic* substances by Sir John Pringle, who has ascertained their several virtues. Thus, in order to settle the *antiseptic* virtue of salts, he compared it with that of common sea-salt; which being one of the weakest, he supposes equal to unity, and expresses the proportional strength of the rest by higher numbers, as in the following table.

Salts, their antiseptic virtue.	Salts, their antiseptic virtue.
Sea-salt - - - 1	Saline mixture - 3
Sal gemmæ - - 1 +	Nitre - - - 4 +
Tartar vitriolated 2	Salt of hartshorn - 4 +
Spiritus Mindereri 2	Salt of wormwood 4 +
Tartaris solubilis 2	Borax - - - 12 +
Sal diureticus - - 2 +	Salt of amber - 20 +
Crude sal ammoniac 3	Alum - - - 30 +

In this table the proportions are marked in integral numbers; only to some there is added the sign +, to shew, that those salts are possessed of a stronger *antiseptic* virtue than the number in the table expresses, by some fractions; unless in the three last, where the same sign imports, that the salt may be stronger by some units.

Some resinous and other substances even exceed the *antiseptic* virtues of the neutral salts; thus myrrh, *assa-fœtida*, *terra japonica*, and aloes, are at least twelve times more *antiseptic* than sea salt. Two grains of camphor are equivalent to sixty grains of that salt. An infusion of a few grains of Virginia snake-root, in powder, exceeds twelve times its weight of sea-salt. Chamomile flowers have nearly the same extraordinary quality. The Jesuits bark has it also. Besides these, pepper, ginger, saffron, contrayerva-root, are twelve times more *antiseptic* than sea-salt. Dried sage, rhubarb, the root of the wild valerian, mint, angelica, ground-ivy, fena, green-tea, red roses, wormwood, mustard, and horse-radish, were likewise found more *antiseptic* than the standard.

To the class of *antiseptic* medicines may likewise be added fermented liquors, acids, spirits, and even those plants called anti-acids, and erroneously supposed hasteners of putrefaction, particularly horse-radish. Now, vegetables, possessing this virtue, are the more valuable, in that, being usually free of acrimony, they may be taken in much greater quantities than either spirits, acids, resins, or even the neutral salts.

Antiseptics are prescribed in all putrid, malignant, and pestilential cases. It is to be remarked, however, that different kinds of them are to be given in different diseases, and even in different stages of the same disease. Thus, the bark is a specific in a gangrene, when the vessels are relaxed, and the blood resolved or disposed to putrefaction; but will fail, if the vessels are too full, or the blood be too thick. With the same caution is the bark to be used in wounds, viz. chiefly in cases of absorbed matter, when it infects the humours, and brings on a hectic fever.

By the great *antiseptic* virtue of alum, the bark, and other astringents, it should seem, that astringent had no small share in the cure of putrid disorders; and, indeed, the very nature of putrefaction consists in a separation or disunion of the parts. But as astringents are improper to be administered in many cases, contrayerva-root, snake-root, camphor, &c. may supply their place; which,

though highly *antiseptic*, have very little, or any, of an astringent quality. Pringle's Obs. on the Diseases of the Army. See Dr. Macbride's Essay on the respective Powers, &c. of *Antiseptics*.

ANTISIGMA, among the *Ancient Grammarians*, signifies one of the notes of sentences affixed to those verses whose order was to be changed.

ANTISPASMODICS, or medicines proper for the cure of spasms and convulsions. Opium, balsam of Peru, and the essential oils of many vegetables, are the principal in this class of medicines. Opium excels, for its immediate effects. Peruvian balsam, in many instances, produces more lasting benefit than opium, and sometimes succeeds where opium fails. As *antispasmodics*, the essential oils differ in this from opium, that they act more on a particular part than on the system in general, and have no soporific effect. Some medicines remove spasms by immediate contact, as asses milk, cream, oil of almonds; others by repelling heat, as gas, sulphur, nitre, sal ammoniac, &c. And where the strictures are produced by inanition, and a defect of vital heat, spasms are removed by those medicines that restore the *vis vitæ*, such as valerian, castor, musk, &c.

ANTISPASTUS, a poetical foot, consisting of four syllables, whereof the first is short, the second and third long, and the fourth short.

ANTISPODIUM. See **SPIDIUM**.

ANTI-STANCARIANS, a sect of German protestants, who oppose the doctrine of Stancarius, who asserted that justification was the sole effect of Christ's human nature, exclusive of his divinity.

ANTISTASIS, in *Oratory*, a defence of an action from the consideration, that had it been omitted worse would have ensued.

This is called by Latin writers *comparativum argumentum*; such, e. gr. would be the general's defence, who had made an inglorious capitulation, that without it the whole army must have perished.

ANTISTASIS, in *Antiquity*, denotes the gibbous part of the liver in the Grecian victims.

ANTISTES, from *ante*, before, and *sto*, I stand, in *Ecclesiastical Writers*, a title usually given to bishops, though sometimes also to priests or presbyters. Among the ancient Romans, *antistes* was an appellation given to the chief or first orders of the priests in the provinces.

In which sense, *antistes* stands distinguished from *patries* and *magistri*.—In the more usual sense, notwithstanding, *antistes* denotes the same with *sacerdos*.

There were also females of this quality under the title of *antista*.

ANTISTITIUM, is a term used in ancient chronicles for an abbey or monastery.

ANTISTOECHON, from *anti*, and *στοιχειον*, letter, a grammatical figure whereby one letter is used instead of another. This is otherwise called *antistichon*, by some writers.

ANTISTROPHE, a kind of dance in use among the ancients; wherein they stepped sometimes to the right and sometimes to the left, still doubling their turns or conversions.

The motion towards the left they called *antistrophe*; from *anti*, against; and *στροφη*, of *στροφα*, I turn.

It was customary among the Greeks, on some occasions, to dance round the altars, whilst they sung the sacred hymns, which consisted of three stanzas, or parts; the first of which, called *strophe*, was sung in turning from east or west; the other, named *antistrophe*, in returning from west to east. Then they stood before the altar, and sung the epode, which was the last part of the song.—Hence

ANTISTROPHE is also used, in *Lyric Poetry*, in speaking of the ODE, which is usually divided into the *strophe*, *antistrophe*, and *epode*.

The *antistrophe* is a kind of echo, or replication to the *strophe*; and the *epode* is a launching out from them both.

ANTISTROPHE is also a figure in *Grammar*, whereby two terms or things, mutually dependent one on another, are reciprocally converted.

As if one should say, the master of the servant, and the servant of the master.

ANTISTROPHE, in *Rhetoric*, the same with what is more commonly called **EPISTROPHE**.

ANTISYLLLOGISM, in *Logic*, a syllogism, which infers a contrary conclusion to that of another **SYLLOGISM**.

ANTITACTÆ, or **ANTITACTICI**, in *Antiquity*, a kind of Gnostics, who owned that God, the Creator of the universe, was good and just; but asserted, also, that one of his creatures had created evil, and had engaged us to follow it, in order to set us in opposition to God the Creator; and that it becomes our duty to oppose this author of evil, in order to avenge God of his enemy.

Hence the name; which is derived from *αντιτατω*, I oppose.

ANTITHENAR, in *Anatomy*, a name given to divers muscles, otherwise called **ADDUCTORS**, or *adducent muscles*. The word is compounded of *αντι*, *against*; and *θεναρ*; because these muscles act as antagonists to the *thenars*, or *abductors*.

ANTITHENAR is likewise a muscle called also the *semi-interosseus pollicis*. It is small, flat, and fleshy, and is situated obliquely between the first phalanx of the thumb, and first bone of the *metacarpus*; it is fixed by one end toward the basis of the first metacarpal bone, near the first bone of the second row of the *carpus*; from thence it runs obliquely toward the head of the first phalanx of the thumb, and is inserted in the lateral external part of that bone, or on that side which is turned to the first metacarpal bone. It crosses over the *semi-interosseus indicis*; this muscle lying toward the back of the hand, the *antithenar* here described toward the palm.

ANTITHENAR pedis, a small compound muscle lying obliquely under the metatarsal bones, fixed posteriorly in the lower parts of the second, third, and fourth of these bones, near their bases; in the ligaments of these bones, and those of the *tarsus*, and in a lateral *aponeurosis* of the *hypothenar*, all these portions contracting into a small compass, are inserted in the outside of the external sesamoid bone of the first phalanx of the great toe.

ANTITHESIS, from *αντιτιθημι*, *I oppose*, in *Rhetoric*, a setting two things together by way of opposition to each other, that the different qualities of each may appear the more strongly.

Such is that of Cicero, in the second *Catalinarian*: 'On the one side stands modesty, on the other impudence; on the one fidelity, on the other deceit; here piety, there sacrilege; here continency, there lust,' &c.—Such also is that of Augustus to some seditious young men;—*audite, juvenes, senem, quem juvenem, senes audire*—Such again is that of Seneca: *Curæ læves loquuntur, ingentes stupent*. And that of Virgil.

Electere si nequeo superos, Acheronta movebo.

St Augustine, Seneca, Salvia, and many other ancient writers, seem greatly to affect *antitheses*; but among the moderns they are generally despised. Desmaretes represents them as the favourites of young writers.

ANTITHESIS is sometimes used for controversy.

In this sense we meet with *antithetic method*, *antithetic discourses*, &c.

ANTITHESIS is also a figure in *Grammar*, whereby one letter is substituted in the room of another; as *olli* for *illi*.

ANTITHETARIUS, a term occurring in the title of a chapter in the laws of Canutus, but not in the chapter itself.

The meaning of the word is, a man who endeavours to discharge himself of the fact of which he is accused; by recriminating, i. e. by charging the accuser with the same fact.

ANTITHETON, in *Rhetoric*, a figure wherein contraries are set in opposition to each other.

Some distinguish between the *antithesis* and *antitheton*. Vossius thinks that in the *antitheton* nouns and verbs are opposed, but in the *antithesis* epithets only. Others comprehend the *antithesis* under *antitheton*.

ANTITHORA. See **ANTHORA**.

ANTITRAGICUS, in *Anatomy*, a name given by Albinus to one of the muscles of the eye, called by Santorini and others *musculus antitrangi*.

ANTITRAGUS, in *Anatomy*, is the thicker part of the *anthelex*, or that ridge just above the **TRAGUS**.

A ramification of the hard portion of the auditory nerve, running on the back of the *antitragus*, is sometimes successfully cauterised in the tooth-ach. Phil. Trans. N^o 299. p. 1981.

ANTITRINITARIANS, those who deny the Trinity, and teach, that there are not three persons in the God-head.

Thus the Samosatrenians, who do not believe the distinction of persons in God; the Arians, who deny the divinity of the Word; and the Macedonians, who deny that of the Holy Spirit, are all properly *Antitrinitarians*. Among the moderns, *Antitrinitarians* are particularly understood of Socinians, called also Unitarians.

The *Bibliotheca Antitrinitariorum*, or *Antitrinitarian Library*, is a posthumous work of Christopher Sandius, an eminent *antitrinitarian*; wherein he gives a list, digested in order of time, of all the Socinian or modern *Antitrinitarian* authors, with a brief account of their lives, and a catalogue of their works. See **UNITARIAN**.

ANTITYPE, a Greek word, properly signifying a type or figure correspondent to some other type.

The word *antitype* occurs twice in the New Testament; viz. in the Epistle to the Hebrews, ix. 24. and in St. Peter, 1 Ep. iii. 21. where its genuine import has been much controverted.—The former says, that 'Christ is not entered into the holy places made with hands, which are *αντιτυπα*, the figures or *antitypes* of the

'true—now to appear in the presence of God for us.'—Now *τυπος*, as is elsewhere observed, signifies the pattern by which another thing is made; and as Moses was obliged to make the tabernacle, and all things in it, according to the pattern shewed him in the Mount; the tabernacle so formed was the *antitype* of what was shewn to Moses: any thing, therefore, formed according to a model, or pattern, is an *antitype*.

In the latter passage, the Apostle, speaking of Noah's flood, and the deliverance only of eight persons in the ark from it, says, 'Ω και ημες *αντιτυπον* του σωζει βαπτισμα, baptism, being an *antitype* to that, now saves us; not putting away the filth of the flesh, but the answer of a good conscience towards God, &c. The meaning is, that righteousness, or the answer of a good conscience towards God, now saves us by means of the resurrection of Christ, as formerly righteousness saved those eight persons by means of the ark, during the flood. The word *antitype*, therefore, here signifies a general similitude of circumstances; and the particle *ω*, *whereunto*, refers, not to the immediate antecedent, *υδατος*, *water*, but to all that precedes.

ANTITYPE, among the *Ancient Greek Fathers*, and in the *Greek Liturgy*, is also applied to the symbols of bread and wine in the Sacrament.

Hence it hath been argued, by many protestants, that the Greeks do not really believe the doctrine of transubstantiation; because they call the bread and wine *antitypes*, *αντιτυπα*, q. d. figures, similitudes; and this even after the consecration.

ANTLER, among *Hunters*, the first of the pearls that grow about the bur of a deer's horn.

There are also *sur-antlers*, *brow-antlers*, &c.

ANTLIA, an ancient machine, supposed to be the same with our pump.

Hence the phrase, in *antliam condemnari*, according to the critics, denotes a kind of punishment, whereby criminals were condemned to drain ponds, ditches, or the like.

ANTŒCI, in *Geography*, those inhabitants of the earth who live under the same meridian, and at the same distance from the equator; the one toward the north, and the other towards the south.

The word is formed of *αντι*, *contra*, and *οικω*, *I inhabit*.—The *Antœci* are contradistinguished from the *Periœci*.

Hence the *Antœci* have the same longitude, and equal latitudes, only of a different denomination.

The inhabitants of Peloponnesus are nearly *Antœci* to the Hottentots of the Cape of Good Hope.—*Antœci* are frequently confounded with **ANTISCII**.

The *Antœci* have precisely the same hour of the day and night, but opposite seasons: when it is 12 o'clock in the longest summer's day with one, it is 12 o'clock of the shortest winter's day with the other; and hence the night of the one is always equal to the day of the other.

ANTOMOSIA, from *αντι* and *ομω*, *I swear*, in *Ancient Writers*, an oath taken by both the parties in a criminal accusation; whereby the accuser charges the other with the fact, and the accused in his turn denies the same.

In which sense *antomosia* amounts to the same with *diomosia*, though some distinguish between the two, restraining *antomosia* to the oath of the person accused, whereby he engages to make no other than a fair defence; and *diomosia* to the prosecutor's oath, whereby he swears that his accusation is justly founded.

Others will have *antomosia* properly to denote a law-suit about things to which there are no witnesses, and which can only be decided by the oaths of the parties. Others again will have it to be, where the accused party alleging sickness for his non-appearance, the prosecutor takes an oath, that the sickness is only feigned, upon which the judges proceed to sentence.

ANTONIAN water, in the *Materia Medica*, the name of a medicinal water of Germany, remarkably pleasant to the taste, and of service in many cases as a medicine.

This water, if mixed with any acid liquor, raises a considerable effervescence, and, when mixed with Rhenish wine and sugar, which is a common way of drinking it, makes a great hissing and bubbling, and becomes turbid and milky. If powder of galls be added to it, it suffers no change, but remains limpid and colourless; whence it is plain that it contains no iron, nor vitriol. Syrup of vitriol mixed with it, turns the whole green, whence it is plain that it contains an alkali; and if oil of tartar be added to it, it becomes turbid and milky, and precipitates a white sediment, whence it appears that there is either common salt, or a calcareous earth in it. If it be exposed some time to the air in an open vessel, it, like all the other mineral waters, loses its pungent taste and pellucidity, becoming turbid and vapid. A quart of it evaporated with a very gentle heat, leaves two scruples of a very dry sediment, which being separated by another

another solution, is found to be one half of an alkaline salt, and the other a calcareous earth. Oil of vitriol mixed with the salt, produces a great effervescence, and a penetrating scent arises like that produced by the mixing oil of vitriol and common salt. Hence it appears, that these waters contain a small portion of an alkaline salt, a larger portion of sea-salt, and a yet larger of a calcareous earth, and with these a very considerable quantity of a subtle and penetrating mineral spirit.

It is a very temperate water, not too strongly operating either by stool or urine; and hence it is a very proper drink for persons in chronic and in many acute cases, either alone, or mixed with wine, to supply the place of malt liquor, which is proper but in very few illnesses. A long use of it alone may also prove of considerable service in hypochondriac cases.

ANTONINE *column*. See COLUMN.

ANTONOMASIA, a figure in rhetoric, whereby a noun appellative is used instead of a proper name, or *vice versa*.

The word is compounded of *αντι*, for, and *ονομα*, name. Thus we say, the philosopher, instead of Aristotle; the orator, for Cicero; the apostle, for St. Paul; the prophet, for Moses, &c.—Thus also we call a voluptuous person, a Sardanapalus, &c. And thus the French say, Henry the Great, meaning Henry IV. of France.

ANTOPHYLLUS, in *Botany*, signifies the fruit of the CLOVE-tree.

ANTOSIANDRIANS, a sect of rigid Lutherans, who oppose the doctrine of Osiander relating to justification. These are otherwise denominated *Osiandro-mastiges*.

The *Antosiandrians* deny that man is made just, with that justice wherewith God himself is just; that is, they assert, that he is not made essentially, but only imputatively just; or, that he is not really made just, but only pronounced so.

ANTRUM *buccinosum* is used by some anatomists for the COCHLEA of the ear.

ANTRUM *genæ*, a large cavity in the fourth bone of the upper jaw, communicating with the *foramina narium*. It was thus called by Casserius, but by Dr. Highmore *antrum maxillæ superioris*.

The *antrum genæ* is near two inches long, and above an inch in depth, seated between the lower margin of the orbit of the eye, and the *dentes molares* of the same side. Backwards the thin bony parts of this cavity, with the *os sphenoides*, make the *foramen lacerum externum*; its lower surface makes a thin covering to all the roots of the *dentes molares*, as well as *dens caninus* of the same side. It is very thin, and, on drawing any teeth to which it sticks, is frequently taken along with them, whereby this cavity is opened into the *alveolus*, and consequently into the mouth, to the great terror and surprise of the patient.

The *antrum genæ* appears to be the chief seat of the *ozæna*. Dr. Drake mentions an operation which he put in practice for the cure of that disease; taking out the foremost *dens molaris*, and not finding any aperture from its *alveolus*, as is frequently observed, he bored a hole through the *alveolus* into the *antrum genæ*, whereby the pus, which before lay in the *antrum*, run out, and the medicines daily injected by this aperture passed into the nostrils, whereby the patient was cured.

ANTRUM *Highmorianum* is a cavity discovered within the sinus of each maxillary bone.

Surgeons sometimes mistake this for a *caries* of the bone; finding they can penetrate so deep into it with a probe.

ANTRUM *pylori*, a large cavity at the bottom of the PYLORUS.

Antrum pylori was thus denominated by Willis, who assigned it the office of keeping the first digested chyle, till that which was later taken into the stomach be digested; though, if what Dr. Wharton suggests, that there are lacteals at the bottom of the stomach, be true, such a provision seems unnecessary.

ANTYLION, in the *Ancient Pharmacy*, a kind of astringent MALAGMA, described by Ægineta.

ANTYX, from *αντι*, in *Antiquity*, the outermost round, or circumference of a shield.

ANVIL, a smith's utensil, serving to place the work on, to be hammered or forged.

The face, or uppermost surface of the *anvil*, must be very flat and smooth, without flaws; and so hard, that a file will not touch it. At one end there is sometimes a pike, bickern, or beak-iron, for the rounding of hollow-work. The whole is usually mounted on a firm wooden block.

Forged *anvils* are better than those of cast work; and the best have the upper part made of steel. Locksmiths have a smaller kind of *anvil*, called the STAKE, which is moveable, and placed ordinarily on their work-bench. Its use is for setting small cold work straight, or to cut or punch on with the cold chisel, or cold punch.

ANUBIS, one of the deities of the Egyptians, painted with a dog's head, holding in one hand a branch of palm, and a caduceum, or Mercury's wand, in the other.

ANUS, in *Anatomy*, the lower extremity of the *intestinum rectum*; or the orifice of the fundament. See *Tab. Anat. (Splanchn.) fig. 9. litt. u.*

The Philistines sent golden *emerods* back with the ark, to be cured of a disease which afflicted them in the *anus*. 1 Sam. ch. vi.

ANUS, *muscles of the*, are the *sphincter*, *levator*, and *scalptor*, or *latissimus dorsi*.

The *anus* is found to have various uses in different animals. In the pond muscle the same aperture serves indifferently for *mouth* and *anus*. In fowl the *anus* has apparently some concern in the action of respiration; there are found many vesicles extended from the *bronchiæ* through the abdomen to the *anus* of fowls; which may be the cause of its constant motion, the air having both ingress and egress there. Whence it is that they are also found to have an attractive power, and such as are used by some to draw out the poison and malignity in certain diseases. It may be added, that a kind of alternate *systole* and *diastole* is perceived, at least on many occasions, in the *anus* of divers quadrupeds, as cows, mares, &c. Hist. Acad. Scienc. 1710.

The *ani* of fowls, applied in malignant distempers to draw the infection out of the body, act like cupping-glasses; inasmuch that the fowl has often stuck by its *anus* to the part till it died. Mr. Temple asserts he has seen seven chickens thus applied to the groin of one person seized with the plague, which all stuck till they died. The eighth went quickly off and lived. Phil. Trans. N° 86. p. 5031. and Ephem. Acad. N. C. Dec. 2. An. 9. Obs. 138.

The *anus* of birds and quadrupeds is generally constant and regular as to the place it occupies in the body; in fish it considerably differs in the various kinds, and makes one of their marks of distinction.

Some authors speak of attempts made not without success, for conveying nourishment to the human body by nutritive clysters conveyed up the *anus*, where the common canal by the *gula* has been rendered impassable. Mem. Acad. Scienc. 1716. p. 237.

It may be added, that we have instances of births or deliveries by the *anus*; dead *fœtuses* long detained *in utero*, finding no other out-let, have been frequently voided piece-meal at the *anus*. Dr. Wallis's and Halley's case is much more extraordinary, who speak of a male greyhound delivered of an entire whelp the same way. For *calculi* or stones, instances of their being voided by the *anus* are frequent. Phil. Trans. N° 385 and 380. Mem. Acad. Scienc. an. 1702.

ANUS, *diseases of the*, are a fistula, and the *proccidentia*, or *prolapsus ani*; to which may be added the hæmorrhoids, or piles.

ANUS, *imperforate*.—When children are born without an *anus*, it is very difficult to hit on the right part for making a perforation into the *rectum*, because the extremity of the gut is generally formed into a knot. For performing such a perforation, Mr. Petit recommends a trocar, the *cannula* and circular plate of which are so slit open, as to serve as a groove for a bistoury to be run in, to enlarge the aperture after the trocar has been pushed into the gut. See Mem. de l'Acad. de Chirurg. tom. i. Affections about the *anus* are difficult to be cured for many reasons. The part is endued with a very tender sense, and therefore is easily irritated by acrimonious and austere medicines. Besides, the superfluities of the aliment in their passage, are not only acrid in themselves, but much more so on account of the bilious, and sometimes serous humours, which pass along with them. Moreover, the physician can fix no certain times for attending his patients, who sometimes ease nature this way at very inconvenient seasons. The humidity and heat of the place also, which require drying as well as cooling remedies, are no small obstacles to the cure of ulcers in those parts; for astringents are acrid, which the place, by reason of its exquisite sense, is not able to bear. Wherefore such remedies agree with them as are astringent without asperity; of this quality are principally metals, which are neither acrimonious nor extremely rough; these, washed, answer the intention effectually, without mordacity. Vegetables, and drastic purges, such as the oil of castor, &c. are best; and aloes exceedingly hurtful to those who are subject to the piles, and the *proccidentia ani*.

ANI *speculum*. See SPECULUM.

ANUS is also used for a small hole in the third ventricle of the brain, which leads into the fourth ventricle of the *cerebellum*.

It is properly the posterior orifice of the canal called *aquæductus Sylvii*.

ANUS, in *Botany*, denotes the posterior opening of a monopetalous flower.

ANUS, a species of *murex* in the class of *worms*.

AONIDES, in *Mythology*. See **MUSE**.

AORISTIA, in the *Sceptic Philosophy*, denotes that state of the mind, where we neither assert nor deny any thing positively, but only speak of things as seeming or appearing to us in such a manner.

The *aoristia* is one of the great points or terms of *scepticism*, to which the philosophers of that denomination had continual recourse by way of explication, or subterfuge. Their adversaries, the *dogmatists*, charged them with dogmatizing, and asserting the principles and positions of their sect to be true and certain.

AORISTUS, in the *Greek Grammar*, an indefinite and indeterminate kind of tense, which sometimes expresses the present, sometimes the future, but most frequently the past time.

The word is compounded of *a* privative, and *επιζω*, to limit.

The Greeks have two *aoristi*; the Latins have none.

AORTA, in *Anatomy*, the great **ARTERY** proceeding from the left ventricle of the heart; from which all the other arteries either mediately or immediately proceed, and by which the whole mass of blood is conveyed to all parts of the body. V. *Tab. Anat. (Angeiol.) fig. 1. n. 1.* and *fig. 3. (Splanchn.) fig. 12. lit. r. and o.* and *fig. 1. lit. n.* and *Angeiol. fig. 1. n. 28.*

The word is formed of *aορν*, which signifies a bag, chest, &c.

Anatomists treat of the structure of the *aorta*, compression of the *aorta*, valves, coats, ramifications, &c. of the *aorta*. Vieussens also speaks of a kind of vesicular glands in the *parietes* of the *aorta*. Dr. Keil gives a computation of the velocity of the blood in the *aorta*.

The *aorta* issuing from the heart by only one trunk, is furnished with the three semi-lunar valves, to prevent the blood's regurgitating: immediately above these it sends out to the heart two arteries called *coronariæ*; and afterwards bending down in form of a bow, divides itself into what they call its ascending and descending parts. Phil. Transf. N° 280.

AORTA, *ascending*, or rather trunks of the *aorta*, are those which take their course towards the upper and lateral parts of the body. Such are the two carotids, the subclavian, cervical, scapular, upper intercostal, mediastinal, upper diaphragmatic, mammary, axillary, and brachial arteries.

AORTA, *descending*, or trunk of the *aorta*, sometimes also called simply *aorta*, is that which takes its course downwards, through the thorax and *abdomen* to the *os sacrum*. From this arise Ruysch's bronchial artery, the lower intercostals, œsophageous, lower diaphragmatic, celiac, epiploic, emulgent, spermatic, mesenteric, and hypogastric arteries.

The division of the *aorta* into ascending and descending trunks, though generally received by anatomists, is excepted to by Heister as less natural; and suited rather to the structure of quadrupeds, as dogs, calves, and the like, from which it seems to have been originally taken, than to that of the human body. In reality the ascending *aorta* is not one single trunk, as the name should import, but consists of three large branches or trunks: in some instances there have even been four observed, scarce ever only two, and never one; which, however, is usually the case in quadrupeds.

The flexure of the *aorta*, after its quitting the heart, and before its division into ascending branches, is noted by Dr. Lower as an instance of the wisdom of the Creator, to effect a more equable and gentle distribution of the blood to the several parts of the body. For whereas the orifice of the heart opens right upwards, if the *aorta*, which receives the first impulse, were continued in a straight line up to the region of the head, the blood would be poured too swiftly and plentifully on the brain, and the inferior parts be defrauded of their vital liquor. To obviate this, the *aorta* is so disposed, that the blood does not run directly into the ascending branches, the axillaries and carotids, but fetches as it were a compass by means of the flexure, which sustains the first effort of the ejected blood, and directs the greatest torrent towards the descending trunk.

The disposition of the *aorta* is varied according to the kinds of animals, their different postures, and other occasions: in man, by reason of his erect situation, the blood tends to flow faster and more plentifully by the descending, than by the ascending trunks; in brutes, which bend downwards, the contrary; in both, proper provisions are made for an equable distribution. In the male sex of our species, Dr. Pitcairn assures us, the descending *aorta* has fewer ramifications, and consequently the blood will flow slower proportionably, than in that of the female sex, where there are more ramifications,

and consequently the blood finding less resistance will flow more largely to the lower parts of women than men, from which cause arise the menses.

The *descending aorta* is liable to compressions from the stomach and intestinal tube, and that either ordinarily or extraordinarily. The first happens, whenever the stomach, &c. is full; the second, when it is dilated beyond measure, by the *plethora* and ebullition excited in fevers. The effect in either case will be an interruption or diminution of the flux of blood to the lower parts of the body; and an increase of that to the head, and higher parts. The ordinary, according to Dr. Woodward, is necessary to supply the business of cogitation, furnish matter for animal spirits, &c. The extraordinary serves M. Silva to account for the violent head-achs, deliriums, and other symptoms of fevers.

The *aorta* is found in divers states, natural, morbid, ossified, cartilaginous, aneurismatical, polypose, calculese, &c.

Ossifications or petrifications of the coats of the *aorta*, as it rises from the heart, are so frequent, that some think it a constant case.—Mr. Cowper, however, has an express discourse to shew, that whenever such ossifications happen in man, they are a disease, and incommode the part in the due execution of its office.

Of this he gives us several instances: one, in which an intermission of pulse was produced; in another, a coldness of the extremes, with a gangrene, &c. Phil. Transf. N° 299.

Some will have ossifications of the *aorta* one of the great causes of sudden deaths. Hist. Acad. Scienc. an. 1701. In an old man who died at the age of 130, Dr. Keil found the *aorta* in the abdomen and iliacs to be for the greatest part cartilaginous, which apparently was one cause of his death. Phil. Transf. N° 306.

The academists *Naturæ Curiosæ* give an instance of six nail-like stones, or *calculi*, found in a prominence of the *aorta*, under the kidneys of a person who had died of a most acute pain in the region of the loins. At each pulsation of the artery, these would be driven against the membranous *fibrillæ* of the coat of the vessel, and hence those shooting pains; the cause of concretion is attributed to the too frequent use of the viperine powder, taken for an ulcerated breast. Ephem. Acad. N. C. Cent. 9.

For disorders of the *aorta*, see **ANEURISM** and **SINUS**.

AOUTA, the name of the paper mulberry tree at Otahite, in the South Sea, from which a cloth is manufactured, that is worn by the principal inhabitants. The bark of the trees is stripped off and deposited to soak in running water; when it is sufficiently softened, the fibres of the inner coat are carefully separated from the rest of the bark; they are then placed in lengths of about eleven or twelve yards, one by the side of another, till they are about a foot broad; and two or three layers are laid one upon the other. This is done in the evening; and by the next morning the water is drained off, and the several fibres adhere together in one piece. It is afterwards beaten on a smooth piece of wood with instruments marked lengthways, with small grooves of different degrees of fineness; and by means of this operation, becomes as thin as muslin; and after bleaching it in the air, in order to whiten it, it is fit for use. If the cloth breaks in the beating, it is easily repaired by pasting on a patch with a gluten that is prepared from the root of the *pea*, which is done so nicely that it cannot be discovered. This cloth is cool and soft, but as liable to be rent as paper. The colours with which it is dyed are principally red and yellow. The red is a beautiful scarlet, and produced by mixing the juices of two vegetables, viz. the fruit of the fig called *matte*, and the leaves of the *cordia sebestina*, or *etou*. The yellow is made of the bark of the root of the *marinda citrifolia*, called *nono*, by scraping and infusing it in water. The inhabitants of the island also dye yellow with the fruit of the *tamanu*. Hawkesworth's Voyages, &c. vol. ii. p. 210, &c.

APÆDEUSIA, from *a* and *παῖς*, *infant*, denotes ignorance or unskilfulness in what relates to learning and the sciences.

Hence also persons uninstructed and illiterate are called *apædeutæ*.

The term *apædeutæ* was particularly used among the French in the time of Huet; when the men of wit at Paris were divided into two factions, one called by way of reproach, *apædeutæ*, and the other *eruditi*.

The *apædeutæ* are represented by Huet, as persons who, finding themselves either incapable or unwilling to undergo a severe course of study, in order to become truly learned, conspired to decry learning, and turn the knowledge of antiquity into ridicule, thus making a merit of their own incapacity.

The *apædeutæ*, in effect, were the men of pleasure; the *eruditi* the men of study.

APAGMA,

APAGMA, a term used, by some writers in *Chirurgery*, for the thrusting of a bone, or other part, out of its proper place. But it is more properly used for a fracture of a bone, at or near the part whereby it is articulated with another.

APAGOGE, from *απο*, and *αγω*, *I draw or bear*, in the *Athenian Law*, the carrying a criminal taken in the fact, to the magistrate. If the accuser was not able to bring him to the magistrate, it was usual to take the magistrate along with him to the house where the criminal lay concealed, or defended himself.

APAGOGE, in *Logic*; see **ABDUCTION**.

APAGOGE, in *Mathematics*, is sometimes used to denote a progress or passage from one proposition to another; when the first having been once demonstrated, is afterwards employed in the proving of others.

APAGOGICAL demonstration, is such as does not prove the thing directly, but shews the impossibility and absurdity which arises from denying it.

Hence it is also called, *reductio ad impossibile*, or *ad absurdum*.

APALACHINE, in *Botany*, a name given by some authors to the shrub *caffine vera floridanorum* of other writers. This plant is used as tea, and celebrated for many virtues.

APANAGE, **APENAGE**, **APPANAGE**, **APANNAGE**, or **APENNAGE**, in the *French Laws*, the fortune of a king's younger son; or a settled portion of lands, &c. assigned for the subsistence of the cadets, or younger sons of a sovereign prince.

Nicod and Menage derive the word from *panis*, *bread*; which frequently includes all other sorts of provision necessary for subsistence.

Some will have the *apanages*, at the first institution, to have been only pensions, or annual payments, of a certain sum of money.—The younger sons of England have no certain *apanages*, as in France; but only what the good pleasure of the king bestows upon them.

Even in France, during the first and second races of kings, the right of primogeniture and *apanages* were unknown; but the domains were divided pretty equally among all the children.

Great inconveniences arising hence, it was at length found proper to put off the younger-born with counties, duchies, or other districts; on condition of their paying homage and fealty for the same, and of their reverting, in defect of heirs male, to the crown.

This has happened, accordingly, to the first and second branch of the dukes of Burgundy.—The duchy of Orleans is the *apanage* of the second son of France.

The *apanage* is unalienable; collateral branches do not inherit it. The eldest son alone is heir to the whole *apanage*; but is to allow the younger an honourable maintenance.

In France, *apanages* are of two kinds, *royal* and *customary*; the first only granted to males the king's brothers, exclusive of the females. These are not so properly alienations of the king's demesnes, as dismembering of them.

Customary apanages are those granted to women, the king's sisters.

Joach. Meierus has published a body of all the writers on *apanage* and *parage*, in one volume in folio.

APARINE, in *Botany*; see **CLEAVERS**.

APARITHMESIS, from *απαριθμεω*, *I number*, or *enumeration*, in *Rhetoric*, is a figure, whereby that which might be expressed in few words is branched out into several particulars, to enlarge the idea, and render it the more affecting; and sometimes it denotes the answer to the *protasis* or proposition itself. Thus if the *protasis* be *appellandi tempus non erat*, the *aparithmesis* is *at tecum anno plus vixi*.

APARTISMENUS, in the *Ancient Poetry*, an appellation given to a verse, which comprehended an entire sense or sentence in itself.

This is sometimes also written *apartemenus*, i. e. suspended, as not needing any following verse.

APARTMENT, a portion of a large house, wherein a person may lodge separately; having all the conveniences requisite to make a complete habitation.

The word comes from *apartmentum*, of the verb *partiri*, *to divide*; or, as some imagine, *a parte mansionis*, *making part of a dwelling*.

A complete *apartment* must consist of a hall, a chamber, an antechamber, a closet, and a cabinet or wardrobe.

APATHY, in a moral sense, denotes an insensibility; or a privation of all passion, all emotion, or perturbation of mind.

The word is formed of the privative *α*, and *παθος*, *passion*.

The Stoics affected an entire *apathy*: their wisdom was to enjoy a perfect calmness or tranquillity of mind, incapable of being ruffled, and above the reach of any sense either of pleasure or pain.

In the first ages of the church, the Christians adopted the

term *apathy* to express a contempt of all earthly concerns; a state of mortification, such as the gospel prescribes. Clemens Alexandrinus, in particular, brought it exceedingly in vogue; thinking, hereby, to draw the philosophers to Christianity, who aspired after such a sublime pitch of virtue.

Quietism is only *apathy* disguised under the appearance of devotion.

APATURIA, in *Antiquity*, a solemn feast celebrated by the Athenians in honour of Bacchus.

The word is usually derived from *απατη*, *fraud*.

It is said to have been instituted in memory of a fraudulent victory obtained by Melanthus, king of Athens, over Xanthus, king of Bceotia, in a single combat, which they agreed upon, to put an end to a debate between them relating to the frontiers of their countries.—Hence Budeus calls it *festum deceptionis*, *the feast of deceit*.

Other authors give a different etymology of this feast, from what we have now related: they tell us, that the young Athenians were not admitted into the tribes on the third day of the *Apaturia*, till their fathers had first sworn, that they were their own children; and that, till that time, they were supposed, in some measure, to be without fathers, *απατορες*; whence the feast, they say, took its name.

Xenophon, on the other hand, informs us, that the relations and friends met on this occasion, and joined with the fathers of the young people who were to be received into the tribes; and that from this assembly the feast took its name: that in *απατυρια*, the *α*, far from being a privative, being here a conjunctive, signifies the same thing with *ομν*, *together*.

This feast lasted four days: the first day, those of the same tribe made merry together; and this they called *δορυτια*. The second day, which they called *αναρρυσια*, they sacrificed to Jupiter and Minerva. The third day, which they called *κρεωτια*, such of their young men and maids as were of age were admitted into their tribes. The fourth day they called *επιθδης*.

APAULIA, in *Antiquity, the third day of a marriage solemnity.*

It was thus called, because the bride, returning to her father's house, did *απαυλιζεσθαι το νυμφια*, lodge apart from the bridegroom. Some will have the *apaulia* to have been the second day of the marriage, viz. that whereon the chief ceremony was performed; thus called by way of contradistinction from the first day, which was called *προαυλια*. On the day called *απαυλια*, (whenever that was) the bride presented her bridegroom with a garment called *απαυλισηγια*.

APE; see **SIMIA**.

APECHEMA, *Απηχημα*, in *Medicine*, the same with **CONTRAFISSURE**.

APEDIA, a species of ape.

APEIBA of the Brasilians. See **SLOANEA**.

APELLA, among *Physicians*; a name given to those, whose prepuce is either wanting or shrunk, so that it can no longer cover the glans.

APELLA, a species of ape found in America.

APELLITÆ, in the *Primitive Church*, denote those who taught in the second century, that Christ left his body dissolved in the air; and so ascended into heaven without it.

APENE, *απηνν*, *chariot*, in *Antiquity*, a kind of chariot wherein the images of the gods were carried in procession on certain days, attended with a solemn pomp, songs, hymns, dancings, &c.

The *apene*, or sacred chariot of the Greeks, is called *tenfa*.

It was very rich, made sometimes of ivory, ~~or of silver~~ itself, and variously decorated.

APENNAGE, see **APANAGE**.

APENNIS, in *Ancient Laws*, a deed or instrument made in favour of a person, who has lost the title-deeds to his house or land by fire. Du-Cange.

In such case, an assembly of the people of the neighbourhood being called, and an exact enquiry made before the judge, another instrument was framed to confirm and secure the unhappy person's right.

APEPSY, in *Medicine*, denotes crudity, or a want of digestion.

The word is formed from the privative particle *α*, and *πεψω*, *I concoct*.

Apepsia may be defined a defect in the stomach, which prevents the aliment taken in from affording a proper chyle for supplying the blood, and nourishing the body. Abstemiousness and excess are alike causes of indigestion. The method of treatment in the *apepsy*, is the same as in the *anorexy*. The **COLUMBO** root is particularly useful, when the stomach is languid, and digestion difficult, &c. It may be given in substance with any grateful aromatic, or in Madeira wine, now and then interposing gentle doses of rhubarb in tincture. A mixture of mustard seed with the *columbo* root, is of great utility in cases of this nature,

nature, where acidity and flatulence prevail much in the *primæ viæ*. See Percival's Essays, &c.

APER, *boar*, in Zoology. See BOAR and HOG.

APER is also used for the name of a sea-fish, called by some *firivale* and *riondo*. It approaches very much in shape to the *faber* or DOREE, but is much smaller. See Tab. II. of Fish, N° 19.

APER *moschiferus*, a name by which many authors have called the TAJACU of America.

APER *piscis*, a name by which some authors have called the sea-fish more usually called the CAPRISCUS.

APEREA, in Zoology, the name of a small American animal, of the rabbit kind, and seeming to be of a mixt nature between the rabbit and the mouse, having exactly the short roundish ears of the mouse kind, and all the other particulars of the rabbit. It grows, at its full size, to ten or twelve inches long, and its hair is just the colour of our hares on the back and sides, and whitish on the belly.

APERIENS *Os*, in Anatomy, a name given by some writers to a muscle of the mouth, called by Albinus *biventer maxillæ inferioris*, and by others DIGASTRICUS.

APERIENS *palpebræ rectus*, in Anatomy, is a muscle, which, rising in the orbit of the eye, near the entrance of the optic nerve, passes over the attollent muscle of the eye, and is at last inserted into the whole superior part of the upper eye-lid, which it serves to open.

APERIENTS, or APERITIVE medicines, from *aperio*, I open, are such as open the obstructed passages of the small vessels, glands, and pores; and, by that means, promote a due circulation of the contained juices.

Aperients, then, coincide with what we otherwise call openers, ANASTOMATICS, and DEOBSTRUENTS.

The five lesser *aperient*, or opening roots, are grass, madder, eryngo, capers, and chammeoc.

The greater *aperient*, or opening roots, are smallage, fennel, asparagus, parsley, and butchers-broom.

APERIENS, *crocus maris*, opening saffron of iron, is a preparation of iron plates or filings, made by exposing them to the rain or dew, till they contract a rust; which is the medicine required. It is a good *aperient*. See CROCUS.

APERISTATON, from *a*, without, and, *περιστοις*, unfavourable circumstance, in the Ancient Physic, denotes an ulcer of a mild or benign kind, and not attended with any severe symptom.

APERITIONS, in Architecture, are the openings in a building; as doors, windows, stair-cases, chimneys, out-lets and inlets for light, smoke, &c.

The *aperitions* should be as few as may be; it being a rule, that all openings are weakenings: and they should not approach too near the angles of the walls.

APERTOR *oculi*, in Anatomy, a name given by Spigelius and others to the muscle called the APERIENS *palpebræ*, and LEVATOR *palpebræ superioris* by others.

APERTURE, the opening of any thing; or a hole, cleft, or vacant place, in some otherwise solid or continuous subject. It comes from *aperire*, to open.

In Geometry, *aperture* is used for the space left between two lines, which mutually incline towards each other to form an angle.

In Optics, *aperture* is the hole next the object-glass of a telescope, or microscope: through which the light and image of the object come into the tube, and are thence carried to the eye.

APERTURE is also understood of that part of the object-glass itself which covers the former, and which is left pervious to the rays. See TELESCOPE.

A great deal depends on having a just *aperture*.—To find it experimentally; apply several circles of black smutted paper, each bigger than the other, upon the face of the glass, from the breadth of a straw to such as leave only a small hole in the glass; and with each of these, separately view several distinct objects; as the moon, stars, &c. that through which they appear the most distinctly is to be pitched upon.

M. Auzout affirms, that he found, that the *apertures* of telescopes ought to be nearly in the subduplicate ratio of their lengths: but Huygens, who first introduced the use of *apertures*, assures us, he found by experience, that the *aperture* of an object-glass, e. gr. of 30 feet, is to be determined by this proportion; as 30 to 3, that is, as 10 to 1, so is the root of the distance of the focus of any glass multiplied by 30, to its *aperture*: and the focal distances of the eye-glasses are to be proportional to the *apertures*.—A table of *apertures* for telescopes of various lengths, &c. see under the article TELESCOPE.

The greater or less *aperture* of an object-glass, it is to be noted, does not increase or diminish the visible area of the object; all that is effected by this is, the admittance of more or fewer rays, and, consequently, the more bright or obscure appearance of the object; but the largeness of the *aperture* or focal distance, causes the irregularity of its refractions. See ABERRATION.

Hence in viewing Venus through a telescope, a much less *aperture* is to be used than for the Moon, Jupiter,

or Saturn, because her light is so vivid and glaring.—Which consideration does a little invalidate and disturb M. Auzout's proportion, as is shewn by Dr. Hook. Phil. Trans. N° 4.

APERTURA *tabularum*, in Ancient Law Books, signifies the breaking open a last WILL and TESTAMENT.

APERTURA *feudi* denotes the loss of a feudal tenure, by default of issue to him to whom the feud or FEE was first granted.

APETALOUS, or APETALOSE plants, are such as are without, or have an imperfect or staminate flower. They are so called because not composed of those tender fugacious coloured leaves, called PETALA; but only of a calyx or cup, and of stamina, or capillaments or styles. Phil. Trans. N° 186.

The word comes from the privative particle *a*, and *πεταλον*, *seilum*, a leaf.

The *apetalous* kind is subdivided by Ray, 1. Into such whose fruits are not contiguous to their flowers; as in hops, hemp, nettles, spinach, mercury, *palma Christi*, the American physic-nut, &c. 2. Such as have a triquetrous or triangular seed, as the docks, sorrels, arsmarts, knot-grass, snake-weeds. 3. Those which have round, compressed, and otherwise figured seeds, as the pond-weeds, oraches, sea purslane, the blites, the amaranthi, the beets, some kalies, &c. See Tab. X. of Botany, Class 15 and 18. See LEAF.

APEUCTIC, from *απευχουμαι*, I deprecate, in the Ancient Poetry, denotes a kind of poem or prayer preferred to God for the averting some evil.

In which sense *apeucticum* stands contradistinguished from *proseucticum carmen*, which begs for some good, e. gr. *dii prohibete minas, dii talem avertite casum, et placidi servate pios*.

APEX, the vertex or summit of any thing.

APEX is peculiarly used in Antiquity, for a kind of cap or covering of the head, wore by the flamens, or priests of Jupiter. This was otherwise denominated *pileus epiroticus*, or *albanus*.

The *apex* is described as a stitched cap in form of a helmet, with the addition of a little stick fixed on the top, and wound about with white wool.

The other flamens only wore the *apex* in the time of performing divine service; the flamen dialis always wore it out of doors; for within it was allowed him to be bare-headed. See APICULUM.

APEX was also used among the Romans for the crest of a helmet.

APEX is also used by Grammarians, for a long accent or mark, to denote that a syllable is to be pronounced long.

Quintilian condemns the practice of putting the *apex* on all long syllables; yet in some cases he allows the *apex* necessary, e. gr. where the different lengths of a syllable distinguish the different senses of a word, as in *malus*, which, as long or short, denotes an ill man, or an apple-tree. See ACCENT.

APHÆRESIS, from *αφαιρω*, I take away, in Grammar, a figure whereby something is taken away from the beginning of a word.

Thus *ciconia*, by *aphæresis*, is written *conia*; *contemnerc*, *temnerc*; *omittere*, *mittere*, &c.

A like retrenchment at the end of a word is called APOCOPE.

APHÆRESIS, in Medicine, denotes a necessary taking away or removing of something that is noxious.

In Surgery, it signifies an operation whereby something superfluous is taken away.

APHANES, *Parsley-piert*, in the Linnæan system of Botany, the name of a genus of plants, of the *tetrandria digynia* class: the characters of which are these; the cup is a tubular *perianthium*, remaining till the seeds are ripe; it consists of one leaf divided at the extremity into eight segments, which are extremely small, and alternately different in size; there are no petals; the *stamina* are four erect, pointed, and very small filaments, inserted on the rim of the cup; the *antheræ* are roundish; the pistillum has two germina of an oval figure, and two styles of the same length with the *stamina* inserted on the basis of these germina; the stigmata are headed; the cup supplies the place of a fruit, shutting together at its mouth, and containing two oval, pointed, compressed seeds, of the length of the styles. There is one species.

APHASIA, from *a*, and *φημι*, I speak, in the Sceptic Philosophy, denotes a state of doubt, wherein a person not knowing what to determine on, it is best for him to be silent.

In this sense, *aphasia* stands opposed to *phasis*, under which are included both assertion and negation.

APHELIA, from *αφελης*, simple, in Rhetoric, is used to denote simplicity of Diction.

APHELION, in Astronomy, that point of the earth's or a planet's orbit, in which it is at the greatest distance from the sun.

The word comes from *απο*, from, and *ήλιος*, sun.

A P H

Thus a planet being in A (*Tab. Astron. fig. 1.*) its utmost distance from the sun S, is said to be in its *aphelion*. In the system or supposition of the sun's moving round the earth, the point in which he appears when the planet is in its *aphelion*, is called *apogee*. The *aphelion* stands opposed to the *perihelion*.

The *aphelia* of all the primary planets are at rest; excepting that those planets nearest the sun, viz. Mercury, Venus, the Earth, and Mars, being acted upon by Jupiter and Saturn, their *aphelia* move a small matter in consequentia with respect to the fixed stars, and this in the sesquiplicate ratio of the distances of those planets from the sun.

Hence, if the *aphelion* of Mars move 35 minutes in consequentia in respect of the fixed stars in 100 years; the *aphelia* of the Earth, Venus, and Mercury, will move, in 100 years, 18 min. 36 sec. 11 min. 27 sec. and 4 min. 27 sec.

The method of finding the place of the *aphelion* is, by observing several of the greater digressions of the planet from the sun; till by two or three repeated observations it be found to remain at a stand.—In the Phil. Transf. N° 128. we have a geometrical method of finding the *aphelia* of the planets, given by Dr. Halley.

Kepler places the *aphelion* of Saturn for the year 1700, in 28° 3' 44" of Sagittarius: De la Hire, in 29° 14' 41".—The *aphelion* of Jupiter in 8° 10' 40" of Libra: De la Hire, in 10° 17' 14".—The *aphelion* of Mars in 0° 51' 29" of Virgo; De la Hire in 0° 35' 25".—The *aphelion* of the earth in 80° 25' 30" of Cancer.—The *aphelion* of Venus in 30° 24' 27" of Aquarius: De la Hire, in 6° 56' 10". And the *aphelion* of Mercury in 15° 44' 29" of Sagittarius: De la Hire, in 13° 3' 40".

The annual motion, according to Kepler, of the *aphelion* of Saturn is 1' 10", of Jupiter 47', Mars 1' 7", of Venus 1' 18", and of Mercury 1' 45". According to de la Hire, that of Saturn is 1' 22", of Jupiter, 1' 34", of Mars 1' 7", of Venus 1' 26", and of Mercury 1' 39".

APHERNOUSLI, a species of pine growing wild on the Alps. The timber is large, and the planks made of it are of a finer grain, and more beautifully variegated than deal; and may therefore be applied to many uses. It grows in bleak and barren ground, and most resembles that which is called in England the Weymouth PINE.

APHESIS, from ἀφίμι, I remit, in the Athenian Laws, was applied to the case of a person deeply indebted, who desired the people to remit part of the debt, on account of his disability to make payment.

Voetius has a dissertation express on the words *aphesis* and *parensis*, and their difference.

APHETERIA, in the Ancient Military Art, a kind of engines used in the besieging of towns.

Suidas does not mention their particular form or structure. Aquinas takes them to have been of the projectile kind.

APHILANTHOPY, from α, φίλος, friend, and ἀνθρωπος, man, among Physicians, denotes the state of disorder, wherein a person has an unnatural dislike for mirth and society, and indulges solitude and melancholy.

APHIOCEM, a composition made principally of the buds of hemp before they flower. It is much in use among the Arabs, and has the intoxicating quality of OPIUM.

APHIS, in the history of insects, the name of a genus of animals, otherwise called *pediculus arboreus*, and in English the *tree-louse*. The *aphis* belongs to the *hemiptera insecta* of Linnaeus.

The trunk of the *aphis* is reflex; the body terminates in two horns behind; the wings are four, and erect, or altogether wanting; and the legs are formed for walking, not leaping.

Of this genus there are a great many species, denominated from the trees and bushes on which they are found. According to Dr. Richardson's observations, the *aphides* are at one time of the year viviparous, and at another time oviparous. Those of the rose-tree came immediately under his notice; and of ten generations of them, which he observed regularly to succeed each other in the course of one spring, summer, and autumn, the first proceeds from eggs laid during the preceding autumn; the eight following are all produced viviparous, and consist entirely of females, as does likewise the first. In the tenth generation, which usually comes forth before the middle of September, a few male insects appear. These arrive at their full growth in about three weeks, and have an intercourse with the females, who soon afterwards lay those eggs which are hatched in the spring. Phil. Transf. vol. lxi. N° 22.

APHLASTUM, from α and φλας, frangible, in the Ancient Navigation, a wooden instrument, shaped like a plume of feathers, fastened on the goose's or swan's neck used by the ancient Greeks in the heads of their ships.

A P H

The *aphlastum* had much the same office and effect in a ship that the crest had on a helmet. It seems also to have had this farther use, viz. by the waving of a party-coloured ribband fastened to it, to indicate from what quarter the wind blew.

The *aphlastum* was the proper ornament of the head, as the *acrofolium* was of the stern.

The Greek *aphlastum* answered to, and was probably the origin of the Latin *aplustere*.

APHONIA, in Medicine, the state of a person who is deprived of voice.

The word is compounded of the privative α, and φωνη, voice, q. d. a loss of speech or voice.

Hippocrates, Lib. de Rat. Vi& in Morb. Acut. says, "a stop put to the circulation of the blood and spirits, causes a sudden loss of voice." Here Galen observes, that by this one symptom *aphonia*, are denoted the epilepsy, apoplexy, and cardial *syncope*. He adds, that an *aphonia* in sick persons is sometimes caused by a disorder affecting the organs of voice or respiration, with a resolution, or by some other deprivation of the faculty. An *aphonia* sometimes proceeds from a disorder of the brain, a refrigeration of the natural heat, and total cessation of the loco-motive powers; when the organs of voice are in such a state of resolution, that the patient can neither cry, groan, nor utter any sound. It is more accurate therefore, to render ἀφωνος, deprived of voice (*voce defectus ac privatus*), rather than dumb (*mutus*;) since Hippocrates, Πηρι Σαπων, and Aristotle, lib. iv. Hist Anim. attribute voice to the dumb. Foetus.

Among other causes which contribute to an *aphonia*, are the wanton abuse of spirituous liquors, and frequent surfeits. The prognostics vary, according to the respective causes from which they proceed. The species which owes its origin to worms, hysteric disorders, or a different eruption of the *menfes*, is easily cured; whereas that kind of it which proceeds from a palsy of the tongue, either entirely frustrates the use of all means, or being cured, easily returns, and proves the direful harbinger of a more terrible disorder of the brain.

The method of cure must be varied, according to the particular species of the disorder.

Menjotius has a dissertation express *De Aphonia*.

APHORISM, a maxim, general rule, or principle, of a science; or a brief sentence, comprehending a great deal of matter in a few words.

The word come from ἀφορίζω, I separate, q. d. a choice or select sentence.

The term is chiefly used in Medicine and Law. We say, the *aphorisms* of Hippocrates, of Sanctorious, of Boerhaave. &c. *aphorisms* of the civil law, &c.

APHORISM is used in Ecclesiastical Writers for the lesser excommunication, by which the delinquent was cut off from the benefit of the sacrament and the prayers of the faithful; but allowed to bear a part in the rest of the service.

APHORISM is also used for a kind of figure in Rhetoric, whereby something that has been said is limited and corrected. This is otherwise called *diorismus*.

APHORISTIC, something relating to, or partaking of the nature of *aphorisms*.

The *aphoristic* method stands contradistinguished from the systematic, or methodical, as also from the *diexodic*, or discursive way.

The *aphoristic* method had great advantages, as containing much matter in a small compass; sentiments are here almost as numerous as expressions; and doctrines may be counted by phrases. Every thing is close and pertinent, no room for useless discussions, or for languishing connections, and transitions; there is hardly a word to be lost.

APHRACTI, from α, and φρακτος, enclosed, in the Ancient Military Art, denotes open vessels, without decks or hatches, furnished only at head and stern with cross planks, whereon the men stood to fight.

The *aphracti*, or open vessels, stood contradistinguished from *cataphracti*, or covered ones.

APHRODISIA, in Antiquity, festivals in honour of the goddesses Αφροδιτη, or Venus. There were several of these *Aphrodisia* observed in divers parts of Greece; the most remarkable was that at Cyprus, first instituted by Cinyras, out of whose family certain priests of Venus were elected, and for that reason named Κινυραδαί. At this solemnity several mysterious rites were practised: all who were initiated to them offered a piece of money to Venus as an harlot, and received as a token of the goddess's favour, a measure of salt, and a φελλος; the former, because salt is a concretion of sea-water, to which Venus was thought to owe her birth; the latter, because she was the goddess of wantonness.

APHRODISIA, or APHRODISIASMUS, in Medicine, denotes the use of venery, or the act of copulation between male and female.

APHRODISIA is also used for the age of venery, more frequently denominated *puberty*.

APHRODISIACS, in *Pharmacy*, denote medicines proper to increase the seed, and promote lust, or an inclination to venery.

In which sense *aphrodisiaks* stand contradistinguished from *antaphrodisiaks*.

Some authors give the appellation *aphrodisiaca* to the EPILEPSY.

APHRODISIACE, in the writings of the ancients, a name given to a gem, supposed, according to the idle traditions of those times, to have a power of procuring love to the person who wore it about him; all the description we have of it is, that it was of a pale flesh-colour: but the stone, as well as its virtues, are wholly unknown to the world at present.

APHRODISIUS, in *Chronology*, denotes the eleventh month in the Bithynian year, commencing on the 25th of July in our's.

APHRODITA, in the *History of Insects*, a genus of sea-insects about two inches in length and one in breadth, of an oval figure, and aculeated; it has also a perforation in the middle of the back, and is called in English the *sea-mouse*. It is one of the *gymnarthrodia*, or insects with naked bodies, and may be met with in great abundance on the Kentish coast, among rocks. There are several species of it. It belongs to the order of *mollusca*, in the Linnæan arrangement of *worms*.

Columna calls it *pudendum regale*; Bartholine, *vermis aureus*; others, *eruca marina griseo-fusca*; and some *mus marinus*, or the *sea-mouse*.

APHRODITARIUM, in the *Ancient Pharmacy*, denotes a kind of dry medicine, compounded of frankincense, the scales of copper, cerufs, starch, and pomegranates, mixed in equal quantities.

The name is also given to a kind of *collyrium*, mentioned by Galen.

APHRODITE, in *Mythology*, a name of Venus, derived from *αφρο*, *froth*, because, according to the poets, Venus is supposed to be produced from the froth or foam of the sea.

APHRODITES, in *Natural History*, a name given by some authors to the finest species of amethyst. See GEMMA Veneris.

APHROGALA, from *αφρος*, *froth*, and *γαλα*, *milk*, in the *Ancient Physic*, denotes a kind of whipt cream, or milk, agitated till it be converted wholly into froth.

The *aphrogala* is directed by Galen, as proper against hot disorders of the stomach.

APHROLITRUM, in the *Ancient Physic*, denotes the spume, or froth of *litrum*.

In which sense, *aphrolitrum* seems to amount to the same with *aphronitrum*. Hoffman affirms, that the *nitron* and *litron* only differ in dialect. It appears, however, there was a great difference between the two medicines, *aphrolitrum* resembling meal, or farina, and being of a kind of intermediate virtue between *aphronitrum* and salt.

APHRONITRE, a kind of nitre, mentioned by the ancients; supposed to be the spume, or the lightest and subtilest part thereof, emerged to the top.

The word is compounded of *αφρος*, *froth*, and *νιτρον*, *nitre*. Some modern naturalists rather take the ancient *aphronitre* to have been a native salt-petre, gathering like an efflorescence on old walls, &c. now called *salt-petre of the rock*. Greek authors expressed two different substances by the word *aphronitrum*: the one only a particular appearance of the NATRUM, or native nitre of those ages; and the other a factitious substance, the froth or spume of the vessels in which they boiled and purified their nitre. The earliest authors, however, distinguished these two, calling the factitious substance *aphros nitron*, and the native *aphronitron*; and Galen plainly tells us, that these were two different substances.

APHROSELENOS, among *Ancient Naturalists*, a denomination given to the SELENITES, or *lapis specularis*.

APHTHÆ, in *Medicine*, little ulcers or pimples rising in the mouth, the palate, gums, and at the root of the tongue; attended with inflammation, and a difficulty of swallowing. The word seems derived from *αφθω*, *I corrupt*; or from *απτε*, *I kindle*.

Hippocrates applied the word to ulcers in the *pudenda* of women, also to those in the *aspera arteria*; and Galen speaks of the testicles as subject to the same disease.

Sucking children are particularly subject to *aphthæ*, when either the nurse's milk is corrupted, or the child's stomach becomes unfit for digestion: for, in these cases, the sharp acrimonious parts of the milk rising up, easily exulcerate those tender and delicate parts.

There are some *aphthæ* white, others red, others livid and blackish; the white and red sorts are the least dangerous, and the most easily cured; the livid and black often prove mortal. The black THRUSH very rarely occurs; but when it does, it is always a putrid symptom, and not an original disease. Dr. Hunter thinks

these white specks are inflammatory exudations, and not ulcers, which appears probable from their dropping off in succession to each other.

When they happen in grown persons, they are owing to thin, serous, and sharp humours, turned from the several parts of the body to the mouth.

External causes also frequently concur to the production of *aphthæ*; and especially a neglect of keeping the tongue and fauces clean; the pernicious and preposterous method of curing fevers, and other inflammatory diseases, by hot medicines; and exposing the bodies of children, when over-heated, to a cold air, which by checking perspiration, has an almost unavoidable tendency to accumulate and hoard up saline and sulphureous *jordes* in the mass of humours. Nor ought we on this occasion to exclude other causes, which have an immediate and direct influence on the lax compages of the *fauces*; such as crumbs of bread or sugar wrapt up in a piece of linen cloth in form of a tent; as also a piece of bread dipped in ale, and given to children to be sucked.

A liniment of *mel rosatum* and oil of vitriol is esteemed a good remedy for the *aphthæ*: plantane-water is also in use on the same occasion. Dr. Canvance recommends the *oleum ricini* as a purge in this disorder, for infants, and the *ipecacuanha* in the interval of purging, as a perspirative.

APHTHARTODOCETÆ, a sect, sworn enemies to the council of Chalcedon.

The word is derived from *αφθαρτος*, *incorruptible*, and *δουσα*, *I imagine*, and was given them, because they imagined the body of Jesus Christ was incorruptible and impassible, and not capable of death.

They arose among the Eutychians, and made their first appearance in 535.

APHUA *cobites*, in *Ichthyology*, the name of a small fish common in the Mediterranean and some other seas, and called by us the sea-loach. It never exceeds three or four inches in length, its body is round, and flattened a little on the back; its colour is white, variegated with black spots. Rondeletius.

APHYLLANTHES, in *Botany*, the name of a genus of plants, of the *hexandria monogynia* class; the characters of which are these: the flower is of the liliaceous kind, and is composed of six petals, which arise from the centre of a squamose, and in some degree tubular cup; the pistil arises also from the cup, and finally becomes a trigonal turbinated fruit, which when ripe bursts into three parts or cells, which contain roundish seeds.

There is only one known species of this plant, which is the Montpellier *aphyllanthès*, called by some the blue Montpellier pink.

APHYLLON, in *Botany*. See Broom RAPE.

APIARIA, in *Natural History*, the name given by authors to a fly found only in autumn, and frequently met with on parsley; it is a two-winged fly, of a deep and shining black, and gathers wax on its legs in the manner of the bee. It is a species of the ATTELABUS.

APIARY, *bee-house*; a place where bees are kept; and furnished with all the apparatus necessary for that purpose. The word comes from *apis*, a bee.

The *apiary* should be screened from high winds on every side, either naturally or artificially; and well defended from poultry, &c. whose dung is offensive to bees. Columella gives several directions respecting the situation of an *apiary*. He recommends a south aspect, and a proper medium between extreme heat and extreme cold: he prefers a low situation to an eminence, that the loaded bees may more easily descend to their habitation. The *apiary* should likewise be near the dwelling-house, that the bees may be more conveniently watched; and they should be provided with water, if they are not situated near a running stream; and the garden, in which the *apiary* stands, should be well furnished with such plants as afford a proper supply of food. Of these he specifies thyme, the oak, the pine, the sweet-smelling cedar, and all fruit-trees. Furze, broom, mustard, clover, heath, buck wheat, &c. are excellent for this purpose.

Celsus advised that bees should be removed, as occasion required, to places abounding with autumnal flowers: and this method was practised by conveying the bees from Achaia to Attica, from Eubœa and the Cyclad islands to Scyru, and also in Sicily, where they were brought to Hybla from other parts of the island. The ancient inhabitants of Lower Egypt, likewise, observing that plants blossomed, and fruits ripened, about six weeks sooner in Upper Egypt than with them, availed themselves of this circumstance, and removed their bees thither, that they might reap the benefit of the more forward vegetation: and the same practice is continued in that country to the present day. About the end of October, hives of bees are embarked upon the Nile, and conveyed into Upper Egypt, where they arrive just as the inundation subsides, and the flowers begin to bud. When they have remained for some time at their farthest station,

station, they are brought two or three leagues lower down; and thus they are successively removed, as the vegetation advances, from one station to another, collecting, as they journey, the rich produce of the banks of the Nile, and return home about the beginning of February. This method of transporting bees from place to place, for the convenience of pasture, is practised in France, and might be adopted with great advantage in this kingdom. See BEE and HIVE.

APIASTELLUM, in *Botany*, the name of two different species of plants with different authors; Dodonæus expressing by it the common baum, and Apuleius the black bryony.

APIASTER, in *Zoology*, a name given by some authors to the bee-eater, called by the generality of authors **MEROPS**.

APIASTRUM, in *Botany*, a name given by the ancients to two different plants of such contrary form and qualities, that it is unlucky they should have given occasion of confounding them together, as mistakes about them might be of fatal consequence. The one of these plants was the poisonous *water-crowfoot*; which they called *apiastrum*, because of its having leaves that somewhat resembled snallage. The other *apiastrum* is the common garden baum, so called by these writers, from their having observed that the bees were very fond of it. Besides this, they have in some places called the **SELINUM** by this name, from its resembling parsley; which they also called *apium*; and some of them have extended the name even to the animal world, and given it to a sort of bird that feeds on bees.

APICES, *summits*, in *Botany*, little knobs growing on the tops of the *stamina* or chives in the middle of flowers.

The word is the nominative plural of *apex*, the top or summit of any thing.

They are commonly of a roundish figure. — By the microscope they have been discovered to be, as it were, a sort of *capsulae seminales* or seed-vessels, containing in them small globular, and often oval particles of various colours, and exquisitely formed; called the **FARINA fecundans**.

These particles are a kind of male sperm, which, falling down into the flower, fecundates and ripens the seed. See *Generation of PLANTS*.

APICULUM, in *Antiquity*, a kind of thread or fillet which the *flamens* wore, in the heat of summer, in lieu of the **APEX**.

Festus speaks of the *apiculum*, as a cover for the *apex*; but the passage seems to be corrupt.

APINEL, the name of a gentleman given to an American root called by the natives *Tabaccani*. See *Hist. de l'Acad. Roy. an. 1724. Hist. 19.*

APIOS, in *Botany*, a name given by many authors, to those species of the **TITHYMAL**, or spurge, which have tuberosc or knobby roots.

APIOS is also the name given by Boerhaave to some of the leguminous plants, comprised by Linnæus under the name **GLYCINE**.

APIS, *musca*, the bee, or fly, in *Astronomy*, a southern constellation, containing the following stars:

Situation of the stars.	Sign.	Long.	Lat.	Magn.
In the head, - -	m	16 20 41	55 11 10	4
In the right wing,		16 36 29	56 29 50	4
In the left ditto,	.	22 22 15	56 43 27	5
In the tail,		20 14 18	58 47 43	5

APIS, or **APES**, in *Zoology*, a genus of four winged insects with wings entirely membranaceous, and their tails furnished with a sting; comprehending the BEE, HORNET, WASP, and HUMBLE-BEE.

This genus is ranged under the *hymenoptera* of Linnæus, and includes a great variety of species.

APIS, in *Mythology*, a divinity worshipped by the ancient Egyptians at Memphis. It was an ox, having certain exterior marks; in which animal the soul of the great Osiris was supposed to subsist. This animal had the preference to all others, as being the symbol of agriculture, the improvement of which that prince had so much at heart.

The Egyptians consulted him as an oracle. If he accepted what was presented him to eat, it was a good presage; his refusal was a bad omen. Dr. Bryant apprehends that the name of *apis* was an Egyptian term for a father; that it referred to the patriarch Noah: and that the crescent which was usually marked on the side of the animal, was a representation of the ark. *Ancient Myth. vol. ii. p. 420.*

APITES, **APITES VINUM**, from *apios*, the pear-tree; *perry*, wine of pears. It is thus prepared by some: Cut and pound the pears, and having pressed out the juice, to every twelve pints thereof add one pint of honey, and let it ferment. — After the same manner are prepared wines of *carobs*, *medlars*, and *services*. All these

kinds are astringents, have a grateful sourness, are good for the stomach, and restrain inward fluxes. Dioscorides, lib. v. cap. 32.

APIUM, **PARSLEY**, in *Botany*, a genus of the *pentandria digynia* class. The characters are, that it is a plant with an umbelliferous flower; each flower has five stamina; under the flower is situated the germen, which afterwards becomes an oval channelled fruit, dividing into two parts, having two oval seeds channelled on one side, and plain on the other.

There are seven species; 1. *Common parsley*. 2. *Curled parsley*. 3. *Large rooted parsley*. 4. *Small-age*, or *water-parsley*. 5. *Upright celery*. 6. *Cleriac*, or *turnep-rooted celery*. 7. *Greatest Portugal parsley*, with a leaf having three lobes and a yellowish flower. See **CELERY**, **PARSLEY**, &c.

APIUM antarticum. See **CELERY**, *wild*.

APIUM Macedonicum. See **BUBON**.

APIUM anisum dictum. See **ANISE**.

APIVOROUS BUREO, in *Ornithology*, the name by which authors call the bird known in England by the name of the *honey-buzzard*. It is somewhat larger than the common buzzard; its beak is black, very much hooked, and protuberant in the middle, and covered to the nostrils with a black wrinkled skin; its mouth opens very wide, and is yellow within. It builds its nest with sticks covered with wool, and sometimes uses the deserted nest of a kite to lay and breed its young in, which it feeds principally with the nymphs or maggot-worms of bees and wasps; and it is common to find pieces of honey-combs in the nests. It feeds on newts, frogs, and other small animals, and is remarkable for running very swiftly on the ground: the female is larger than the male, as in most other birds of prey. Ray.

APLUDA, in *Botany*, a genus of the *polygamia monoecia* class of plants.

The calyx is a common bivalve glume with a female flosculus, and male peduncles.

APLUSTRE, or **AMPLUSTRE**, in the *Ancient Naval Architecture*, a carved tablet, somewhat after the manner of a shield, fixed by way of decoration to the extremity of a ship's head.

The *rostra* or beaks of ships were sometimes also called *aplustria*.

But some think that the *aplustre* answered to what we call the flag, or ensign.

APNOEA, from *α* and *πνέω*, *I breathe*, in *Medicine*, denotes a want of breath, or loss of respiration.

In this sense is the word used among the ancients, not as importing a total privation of breath, which would only be another name for death; but to denote the respiration very small, and slow, so as to seem quite gone, as is the case in suffocation of the *uterus*, apoplexies, syncope, lethargies, &c.

APOBAMINA, is used by some physicians for a liquor wherein pieces of gold, or chains heated red-hot, have been extinguished, in order to fortify the spirits and principal members.

APOBATERION, from *αποβαίνω*, *I depart*, among the Ancients, a farewell speech, or poem, made by a person on his departure out of his own country, or some other place where he had been kindly received, and entertained. Such is that of *Aeneas* to *Helenus* and *Andromache*, *Æn. lib. iii.* — The *apobaterion* stands opposed to the **EPIBATERION**.

APOBATHRÆ, in *Antiquity*, a kind of little bridges, or stairs, joining the land to ships, or one ship to another.

APOBEE, in *Botany*, a name given by the natives of Guinea to a species of corn-marygold, called by Petiver **CHRYSANTHEMUM acaulon Guineense foliis longis angustis**, from its having long and narrow leaves, and no stalk to support the flower. The people of the place use this in the small-pox, and other eruptive fevers, boiled in water, and the liquor drank warm. *Phil. Trans. N° 232.*

APOBOMIOI, from *απο*, below, and *βωμος*, altar, in *Antiquity*, sacrifices offered on the bare earth, without altars.

APOCALYPSE, *Revelation*: the name of the last book in the canon of Scripture.

The word is formed of *αποκαλύπτω*, *I reveal*.

The *Apocalypse* contains discoveries or revelations made to the apostle St. John, in the isle of Patmos, during his banishment there, under the persecution of Domitian.

This, of all the books of the New Testament, is that about which the ancient fathers, and the practice of the church, were the most, and the longest, divided. —

When it was first universally received as canonical, it is not easy to decide. St. Jerom relates, that the Greek church doubted of its authenticity, even in his days: St. Basil and Gregory Nazianzen absolutely reject it; and the council of Laodicea never mention it in their canon of the sacred writings.

Some attribute it to Cerinthus; and others, to another John, disciple of St. John. Dionysius Alexandrinus censures it as written in bad Greek, though he allows it

is to contain a mystic sense, which he says, he admires, even where he does not understand it.

On the other hand, St. Justin, Irenæus, Theophilus Antiochenus, Melito, Apollonius, Clemens Alexandrinus, and Tertullian, make no doubt of its being canonical. The third council of Carthage, held in 397, placed it in the canon of the New Testament; and the churches both of the East and West have acknowledged it ever since.

The Alogians are represented, by ecclesiastical writers, as great declaimers against the *Apocalypse*; many of the flights whereof they turned into ridicule; particularly the visions of the seven trumpets, the four angels bound on the river Euphrates, &c. St. Epiphanius defends it against them: the book, he observes, is not a mere history, but a prophecy: so that it is no wonder the author should express himself after the manner of the prophets, whose style is usually figurative.

Of all their objections against the authority of this book, that seems the best grounded which is drawn from those words in chap. ii. ver. 18. *Write to the angel of the church of Thyatira*: there was not, say they, any Christian church at Thyatira at that time. St. Epiphanius, who grants them this point, is forced to have recourse to the prophetic spirit; as if St. John had foreseen there would be a church there in course of time.

Some late authors have made a good amendment to St. Epiphanius's answer: it is probable, in the time of that father, the catalogue of the bishops, with other acts, which shew that there had been a church established there from the time of the apostles, might not be known. Grotius adds, that though there was not, indeed, any church of Gentile converts at Thyatira when St. John wrote; yet there was one of Jews, as there had been another at Thessalonica before St. Paul preached there. Several orthodox writers have rejected the *Apocalypse*, as a book which countenanced the reveries of Cerinthus, touching the carnal reign of Christ on earth.

Though Dionysius Alexandrinus (ap. Euseb. Hist. Eccl. vii. 25.) allowed the *Apocalypse* for an inspired writing; yet he took it for the work of another John, different from St. John the Evangelist; which he endeavours to make appear from the diversity of style. But we all know how precarious the arguments are which are drawn from the mere consideration of style. It is true, in most of the ancient Greek copies, both printed and manuscript, we find the name *John the Divine*: but they who put this title, meant no more thereby than to denote the apostle St. John, whom the Greek fathers call *the Divine*, by way of eminence, to distinguish him from the other Evangelists. There have been several other works published under the title of *Apocalypses*. Sozomen mentions a book used in the churches of Palestine, called the *Apocalypse*, or *Revelation of St. Peter*. He also mentions an *Apocalypse* of St. Paul; which the Coptæ retain to this day. Eusebius also speaks of both these *Apocalypses*. St. Epiphanius mentions an *Apocalypse* of Adam; Nicephorus, an *Apocalypse* of Esdras; Gratian and Cedrenus, an *Apocalypse* of Moses, another of St. Thomas, and another of St. Stephen; St. Jerom, an *Apocalypse* of Elias.

Porphyry, in his life of Plotin, makes mention of the *Apocalypses* or revelations of Zoroaster, Zostrian, Nicethæus, Allogenes, &c.

APOCARITES, from ἀποκαίρω, *I cut off*, in Ecclesiastical History, denote those who asserted that the human soul is part of, or derived from the substance of God.

The *Apocaritæ* are ranked as a branch of the Manicheans.

APOCARPASUM, in Natural History, a name given by the ancient Greeks to a poisonous drug, called also sometimes simply, *carpasum*; it was the exudation of a tree growing in the country of the Abyssines, and was so like the finest myrrh, that it was often mixed with it, and many lives were lost by administering it as myrrh. The wood of the tree which produced it was also poisonous, though in a less degree, and was called by the same writers *apocarpasum*, as the wood of the balm of Gilead tree is *apobalsamum*.

APOCATASTASIS, from ἀποκαθίστημι, *I restore*, denotes the entire restitution, or redintegration of a thing.

In this sense, we read of the *apocatastasis* of the world, or of all things.

APOCATASTASIS, among Astronomers, denotes the period of a planet, or the time wherein it returns to the same point of the zodiac from which it set out.

APOCATASTASIS is also used in Medicine, to denote the subsiding, or sinking of a thing.

In this sense, we read of the *apocatastasis* of urine, the *apocatastasis* of tumors; and other diseases.

APOCATHARSIS, in a general sense, denotes the same with *catharsis*, or expurgation.

In this sense we read of *apocatharses* of bile, a symptom mentioned by Thucydides in the plague of Athens.

Quincy defines *apocatharsis* a purging upwards and downwards, but without sufficient authority. Hence also apo-

cathartica, a denomination sometimes given to what we otherwise call simply **CATHARTICS**.

APOCHA, from ἀπο and έχω, *I have*, in Civil Law, denotes an acquittance; or receipt given by the creditor to his debtor for money paid: in which sense, the word stands contradistinguished from *antapocha*, which is given by the debtor to the creditor. Reusner and Zieglerus have dissertations *de apochis*.

APOCHALISMA, from πο and χυμίζω, *I extract the juice*, in Pharmacy, denotes an inspissated vegetable juice; answering to what is called in the shops a **ROB**.

APOCOPE, a figure in Grammar; wherein part of the end of a word is cut off; as in *die*, for *dice*; *fac* for *face*, *nil* for *nihil*, *hypo* for *hypo* for *hypochondriacal*.

The word is compounded of the preposition ἀπο, and the verb κοπῶ, *I cut*.

A like retrenchment at the beginning of a word is called *aphæresis*.

When the *apocopation* is marked with a superior comma (called an *apostrophus*), the word is said to be *apostrophated*: as *thro'* for *through*.

APOCRISIARIUS, in Antiquity, an officer appointed to carry or deliver the messages, orders; and answers; of a prince or emperor.

The word is formed from ἀποκρισις, *responsum*; *answer*. Hence he is usually called *responsalis*, q. d. *answerer*.

The *Apocrisarius* afterwards became the emperor's chancellor, and kept the seal. In the barbarous Latin we sometimes meet with *assecrata*, *secretarij*, for *apocrisary*. Zosimus defines *apocrisarius*, secretary for foreign affairs; being the same with what Vopiscus; in the life of Aurelian, calls *notarius secretorum*.

The title of *apocrisary* became at length appropriated, as it were to the pope's deputy, or agent, who resided at Constantinople to receive the pope's orders; and the emperor's answer.

St. Gregory was *apocrisary* of pope Pelagius, at the time when he composed his morals on Job. The *apocrisary* did the office of the modern **NUNCIO**. Sometimes, however, he held the rank and quality of the pope's **LEGATE**.

The institution of *apocrisarii* seems to have been in the time of Constantine, or not long after, when, the emperors being become Christians, foreign churches had more occasion to promote their suits at court than formerly; at least we find the office established by law in the time of Justinian. In one of the Novels, it is ordered; that as no bishop was to be long absent from his church without special command from the emperor, if any one had occasion to negotiate any ecclesiastical cause at court, he should prefer his petition either by the *apocrisarius* of his church, appointed for such purpose, or by the *economus*, or some of his clergy sent express. In imitation of the *apocrisarii* of churches, almost every monastery had their *apocrisarius* likewise, whose business was not to reside in the royal city, as the former did, but to act as proctors for their monastery, or any member of it, when they had occasion to enter any appearance at law, before the bishop, under whose jurisdiction they were. This appears from another of Justinian's Novels, which requires the *Ascetics* in such cases to answer by their *apocrisarii* or *responsales*. Du-Cange. Bingham. Orig. Eccl. lib. iii. cap. 13. sect. 6.

The heresy of the Monothelites, and afterwards that of the Iconoclasts, broke off the custom of having a papal *apocrisary* at Constantinople.

APOCRISIS, α ἀκρισις, literally denotes an *answer*. Under this denomination were anciently included, not only the rescripts of the emperors to the petitions of parties; but all kinds of decrees and mandates.

We have several books extant under the title of *Apocrises*, and some in opposition to these under the title of *Antapocrises*.

APOCRUSTICS, in Medicine, remedies endued with a repelling and astringent power, whereby they prevent the too great afflux of humours to a part diseased.

The word is derived from ἀπικρῶς, *pulso*, *pello*, *I drive*. *Apocrustics* are usually cold and astringent, and consist of large particles, wherein they differ from drawing medicines, which are hot, and consist of more subtile parts.

APOCRYPHAL, something dubious; or that comes from an uncertain author, on which much credit cannot be reposed. We say, an *apocryphal* book, passage, history, &c. meaning, such as are of suspected authority.

Vossius observes, that, with regard to the sacred books, none are to be accounted *apocryphal*, except such as have neither been admitted into the synagogue, nor the church; so as to be added to the canon, and read in public.

For this reason, also the books of Sibyls were anciently called *apocryphal*, as being committed to the trust of the *decemviri* alone; and for the like reason the annals of the Egyptians and Tyrians were called by the same name.

Before the Septuagint version, the books of the Old Testament were all *apocryphal* in this sense. But in process of time, the sense of the word was changed, and those books

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alone were called *apocryphal*, which were of doubtful or suspected authority.

In the original meaning of the word, all the writings deposited in the temple were called *apocryphal*: because they were kept secret from the people.

When the Jews published their sacred books, they only gave the appellation of *canonical* and *divine* to such as they thus made public; and such as were still retained in their archives they called *apocryphal*, for no other reason, but because they were not public; so that they might be really sacred and divine, though not promulgated as such. Thus, in respect of the bibles, all works were called *apocrypha*, which were not inserted in the Jewish canon of Scripture; and it is in this sense that St. Epiphanius is to be understood, when he says, that the *apocryphal* books are not put in the ark among the other inspired writings. There has been a great dispute between the Romanists and the Reformed, about the authority of those books, now called by the latter, *apocryphal*; and by the former, *deutero-canonical*; as Judith, Tobit, Esdras, Maccabees, &c. the one having the opinions of many of the primitive fathers for their vouchers, and the others, the tradition of their church.

The word is derived from *αποκρυπτειν*, to *hide*; because the origin of such books was unknown, or because they contain some mysteries not fit to be known.

M. Simon contends, that they must have been read in Greek, even by the apostles themselves; which he infers from divers passages in their writings. He adds, that the church received them, with the other books of Scripture, from the Hellenist Jews; and that if the churches of Palestine never admitted them, it was not for their accounting them *apocryphal* in the sense the word is now used, but because they read none but what was written in Hebrew.

To this may be opposed the authority of the greatest part of writers in all ages, till the council of Trent; which makes a precise distinction between the books now called *apocryphal*, and those contained in the Jewish canon. This council, sess. 4. declared six of them to be canonical, viz. Tobit, Judith, Wisdom, Ecclesiasticus, and the 1st and 2d of Maccabees; but joined Baruch with Jeremiah, which makes in all seven.

The *apocryphal* books are also called *acanonical*, and by some writers, *ecclesiastical books*, because though not held of divine authority, they were allowed to be read in churches, as containing many things tending to edification, and godly instruction; on which account they continue still in use in the church of England, though forbidden in the other reformed churches.

Wolfius gives the literary history of the *apocryphal* books, their various editions, translations, commentaries, &c. We meet with numerous *apocryphal*, or supposititious books, published under the names of patriarchs, prophets, evangelists, apostles, primitive fathers, saints, martyrs, &c. *Apocryphal* prophecies, *apocryphal* gospels, *apocryphal* epistles, *apocryphal* acts, *apocryphal* apocalypses, &c. The writing of books under spurious names, and obtruding them for the works of inspired authors, though once reputed laudable, and consecrated under the name of pious fraud, was condemned very early by an apostolical canon, in the instance of a priest, who was deposed for forging the acts of Paul and Thecla. Bing. Orig. Ecclef. lib. xvii. cap. 5.

Fabricius has published the fragments and remains of the *apocryphal* books both of the Old and New Testament. Fabric. Codex Pseudepigraphus Veteris Testamenti Hamb. 1722 & 1723. 8vo. 2 vol. Codex Apocryphus Novi Testamenti, 2 vol. Hamb. 1719. &c. 8vo.

APOCYMA, from *απε*, and *κυμα*, wave, in the *Materia Medica* of the Ancients, a name given by the Greek authors to a sort of cement, used to daub over the bottoms of their ships, to preserve them from injuries by the water; they called this also by the name of *ZOPISSA*, and Avicenna and Serapion call it *ketran*, *kitran*, or *alkitran*. It was a mixture of bees-wax and pitch melted together, and after it had been soaked some time in the sea-water, it was supposed to have peculiar virtues, and was used in many compositions.

APOCYNUM, in *Botany*. See *DOGS-BANE*.

APODACRYTICA, from *απε* and *δαρυν*, a *tear*, in *Pharmacy*, medicines proper to excite tears.

Some also use the term *apodacrytica*, for remedies proper to suppress tears.

APODECTÆ, from *αποδεχομαι*, I *receive*, in *Antiquity*, a denomination given to ten general receivers, appointed by the Athenians, to receive the public revenues, taxes, debts, and the like.

The *apodectæ* had also a power to decide controversies arising in relation to money and taxes, all but those of the most difficult nature and highest concern, which were referred to the courts of judicature.

APODECTÆI, in the Athenian government, officers appointed to see that the measures of corn were just.

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The *apodectæi* were nearly related to the *agoranomi*.

APODEMICA, from *αποδημειν*, I *travel*, the doctrine or science of travelling, whether for knowledge or devotion's sake.

Jo. Meraker has published an *Apodemica*. Ranzovius a *Methodus apodemica*.

APODES, in a general sense from *α* and *ποδες*, denotes things without feet. Zoologists apply the name to a fabulous sort of birds said to be found in some of the islands of the new world, which being entirely without feet, support themselves on the branches of trees by their crooked bills.

The Germans and Dutch have also their *apodes*, a sort of birds somewhat like swallows, whose legs and feet are so very small, that they seem rather formed for creeping than running.

APODES, is one of the four orders of fishes in the Linnaean distribution of animals, comprehending eight genera, and 20 species. Their character is that they have no belly fins.

APODICTICAL argument, or **SYLLOGISM**, signifies a clear convincing proof, or demonstration, of a thing.

The word is formed of *αποδεικνυμι*, I *demonstrate*.

APODICTICAL method is used by some writers, to denote the systematical or scientific method of teaching or writing.

APODIOXIS, from *αποδιωκω*, I *exclude*, in *Rhetoric*, a figure whereby we either pass over a thing slightly, or refer treating of it to some other time or place.

This is also called by Latin writers, *rejection*, e. gr. *Quid ego senatum defendam, judices? Equidem debeo, &c.* Again, *Quid ego senatum hoc loco defendam, judices? Fiat id rectius, tum quum, &c.*

APODIOXIS, in *Logic*, the rejection of such things as do not necessarily belong to the question to be considered.

APODIXIS, from *αποδεικνυμι*, in *Rhetoric*, denotes an evident proof, or demonstration of a point.

We have several books extant under the names of *apodixes*, and some by way of answer to these, under that of *antapodixes*.

APODIXES, in *Middle-Age Writers*, denotes a receipt for money paid.

In which sense it amounts to the same with *apocha*.

APODIXIS is also sometimes used for a specimen or proof of a thing.

APODOSIS, from *αποδιδωμι*, I *apply*, in *Rhetoric*, makes the third part of a complete *exordium*, being properly the application, or restriction of the *protasis*.

The *apodosis* is the same with what is otherwise called *axisis*, and stands opposed to *protasis*, e. gr. *protasis*, all branches of history are necessary for a student; *catastasis*, so that without these he can never make any considerable figure; *apodosis*, but literary history is of a more special use, which recommends it, &c.

APODOSIS is also used in speaking of similes, for that part which makes the application of them.

APODOSIS is also used, in a rhetorical period, for the consequent to a *protasis*, or antecedent preceding.

APODOSIS is also used for a return to something antecedent, or that went before.

This is otherwise called *antistrophe*.

APODYTERIUM, in *Antiquity*, a stripping-room, or apartment at the entrance of baths, wherein persons dressed and undressed.

This was otherwise denominated *coriceum*, *gymnasterium*, and *spoliarium*.

Some will have the *apodyterium* to have been the same with the *conisterium*; but Vossius shews they were two different places.

The word is formed of *αποδυειν*, to *undress*.

APOGEE, **APOGÆUM**, in *Astronomy*, that point in the orbit of the sun, or a planet, which is farthest distant from the earth.

The word is formed of *απο*, from, and *γη*, earth.

In the corrupt Latin, *apogee* sometimes signifies a grotto, or subterraneous vault.

The *apogee* is a point in the heavens at the extreme of the line of the apides; in which the sun, or a planet, is at the greatest distance that it can be at, from the earth, in its whole revolution.

The opposite point to this is called the **PERIGEE**.

The ancient astronomers, regarding the earth as the centre of the system, chiefly considered the *apogee* and *perigee*; the moderns, making the sun the centre, change the *apogee* and *perigee* for **APHELION** and **PERIHELION**. See **SYSTEM**.

The quantity of the motion of the *apogee* may be found by comparing two observations thereof made at a great distance of time; converting the difference into minutes, and dividing it by the number of years elapsed between the two observations: the quotient gives the annual motion of the *apogee*. Thus, from an observation made by Hipparchus in the year before Christ 140, whereby the sun's *apogee* was found 5° 30' of π ; and another made by Ricciolus, in the year of Christ 1646, wherein it

it was found $7^{\circ} 26'$ of ϖ ; the annual motion of the apogee is found to be $1' 2''$.

APOGEE of the moon. See MOON.

APOGEE of the equant, is its farthest distance from the earth; or that point where the circumference of the EQUANT is intersected by the line of the apsidæ, in the remotest part of the diameter.

So the perigee of the equant is the opposite point, or the nearest part of the diameter.

The mean apogee of the epicycle is a point where the epicycle is cut above, by a right line drawn from its centre to the centre of the equant, or the point of the epicycle most remote from the earth.

APOGRAPH, a copy or transcript of some book or writing. The word is formed of *απο*, *ab*, from, and *γραφω*, *I write*. In this sense, *apograph* stands opposed to *autograph*; as a copy to an original.

APOGRAPHE, in the *Ancient Law*, was, when a person being sued for money supposed due to the public, pleaded that the charge was unjust, and withal produced all the money he was possessed of, and declared by what means it came to his hands.

Suidas adds, that it is sometimes taken for an action against such as neither paid the fines laid upon them before the ninth *prytanea* following their sentence, nor were able to give sufficient security to the city. Potter Arch. Græc. lib. i. cap. 23.

APOGRAPHE, in the *Roman Law*, denotes a catalogue, or inventory of goods.

APOLEPSIS, from *απολειπω*, *I leave*, in the *Athenian Law*, an action of divorce; brought when a woman had fled from her husband.

APOLEPSIS, from *απολαυω*, *I retain*, in the *Ancient Physics*, denotes a retention of the urine, or any other matter which ought to be evacuated.

APOLEPSIS is also understood of an interception of the blood or spirits, or an extinction of the native heat of the veins.

APOLEPSIS is also a denomination of a species of apoplexy, wherein the speech, sense, motion, &c. suddenly fail.

This seems to coincide with what is otherwise called a CATALEPSIS.

APOLIDES, from *α* and *πολις*, *city*, in *Antiquity*, those condemned for life to the public works, or exiled into some island, and thus divested of the privileges of Roman citizens.

APOLLINARIANS, APOLLINARISTS, called also by Epiphanius *Dimarita*, ancient heretics, who denied the proper humanity of Christ, and maintained that the body which he assumed, was endowed with a sensitive, and not a rational soul, but that the Divine Nature supplied the place of the intellectual principle in man.

This sect derived its name from Apollinaris, bishop of Laodicea, in the fourth century.

The *Apollinarians* have been charged with other opinions, such as the *Millenarian* and *Sabellian*, the pre-existence of the body of Christ, and the passion of his Deity; but ecclesiastical writers are not agreed with respect to these and other particulars. Their doctrine was first condemned by a council of Alexandria, in the year 362, and afterwards in a more formal manner by a council at Rome in 375; and by another council in 378, which deposed Apollinaris from his bishoprick. Notwithstanding these censures, his doctrine spread through most of the churches of the East; and his followers were subdivided into various sects. In 388, the emperor Theodosius enacted a law, forbidding them to hold assemblies, to have any ecclesiastics or bishops, or to dwell in cities. The rigorous execution of this law, in concurrence with the decrees of different councils, reduced them to a very small number, and their doctrine had no long duration.

APOLLINARIAN games, *Apollinares ludi*, in *Antiquity*, games at Rome, celebrated yearly in honour of Apollo, on the fifth day of July, under the direction of the prætor, in the *Circus maximus*.

The occasion was a kind of oracle delivered by the prophet Marcus, after the fatal battle at Cannæ, declaring that, to expel the enemy, and cure the people of an infectious disease, which then prevailed, sacred games were to be annually performed in honour of Apollo. And that the prætor was to have the direction of them; and the *decemviri* were to offer sacrifices after the Grecian rite.

The senate ordered that this oracle should be observed, because another of the same Marcus, wherein he had foretold the overthrow at Cannæ, had been verified; for this reason they gave the prætor twelve thousand *asses* out of the public cash to defray the solemnity. There were sacrificed an ox to Apollo, as also two white goats, and a cow to Latona; all with their horns gilt. Apollo had also a collection made for him, besides what the people, who were spectators, gave voluntarily. The first prætor by whom they were held was P. Cornelius Sylla. For some time they were moveable and indistinct, but at length were fixed, under P. Licinius Varus, to the fifth of July, and made perpetual.

The men, who were spectators at these games, wore garlands on their heads; the women performed their devotions in the temples at the same time, and at last they caroused together in the vestibules of their houses, the doors standing open.

The tradition reports, that, at the first celebration hereof, the people were suddenly invaded by the enemy, and obliged to take to their arms: upon which occasion a cloud of darts and arrows falling upon their enemies, the Romans soon returned victors to their sports.

The *Apollinarian* games were only scenical; and at first only observed with singing, piping, and other sorts of music; but afterwards there were also introduced all kinds of mountebank tricks, dances, and the like, yet so as that they still remained scenical, no chariot races, wrestlings, or the like laborious exercises of the body, being ever practised at them. Danet, and others, confound the *ludi Apollinares* with the *ACTIACI*.

APOLLINARES *ludi* was also a general name given to all SCENICAL games.

These were also called *ludi liberales*, and *scenici*.

They differed from the *ludi theatrales*, in that the former were celebrated with all sorts of plays, farces, poems, recitations, &c. the latter only by dancing and music.

This kind of *Apollinarians* had their share in almost all the solemn games.

APOLLINARIS, in *Botany*, a name given by some authors to henbane.

APOLLO, in *Mythology*, a pagan deity worshipped by the Greeks and Romans. He was the God of light and poetry; and was regarded as the inventor and patron of the fine arts. He had a famous temple at Delphos, where his oracles were in great estimation.

Apollo is principally distinguished in ancient statues by the beauty of his face, and the gracefulness of his figure. Accordingly Virgil calls him, the beautiful; and Tibullus, the well-shaped god. *Æn.* iii. ver. 119. Tibullus lib. ii. El. iii. ver. 11.

APOLLO *Belvidere*, one in the first class of the ancient statues.

The excellence of this statue consists in the expression of something divine, whereas the rest excel only in things that are common to men. This statue may, perhaps justly enough, claim the preference, even in the superior and distinguished class of the best remains of all antiquity. There are about twenty ancient statues, which the moderns have discovered, that are referred to the first class; and considered each as the chief beauty in its kind.

APOLLONIA, in *Antiquity*, feasts sacred to Apollo at Egialea.

APOLLONIAN *hyperbola* and *parabola*. See HYPERBOLA, &c.

APOLOGETIC, APOLOGETICAL, something said or written, by way of excuse or apology for any action or person.

The *Apologetic* of Tertullian is a work full of strength and spirit. He there vindicates the Christians from all that had been objected to them; particularly from the abominable crimes said to be perpetrated at their meetings, and their want of love and fidelity to their country. The ground of this last accusation was, their refusing to take the accustomed oaths, and swear by the tutelary gods of the empire. Tertullian addresses his *Apologetic* to the magistrates of Rome; the emperor Severus being then absent.

APOLOGUE, APOLOGUS, a moral FABLE; or a feigned relation intended to inform and amend the manners. Jul. Scaliger derives the name *απολογος*, inasmuch as the *apologue* means something more than what at first sight it expresses.

Such are the fables of Æsop: whence, moral fables are usually denominated *Æsopic Fables*.

F. De Colonia makes it essential to the *apologue*, that it contain what passes among brutes; and distinguishes it from the *parable* by this, that the latter, though feigned, consists of possible circumstances, which the former does not, since beasts cannot speak. There is this farther difference between them, that the latter is a similitude drawn from natural, moral, or any other branches of knowledge; the former only from moral topics.

Apologue, according to some, differs from FABLE, as the former is used in speeches and harangues, to persuade; the latter in tragedies, comedies, and other pieces of poetry, to instruct and correct the manners. *Apologue* also differs from *ænus*, as the latter is only calculated for the use of men, and carries a graver and weightier admonition; whereas *apologues* are proposed to children. We find many things in authors concerning the origin of *apologues*, the distinguishing characters of *apologues*, the use and advantage of the way of teaching by *apologues*. See Bayle, Dict. Crit. in voc. & Shaftesb. Character, tom. iii.

APOLOGY, APOLOGIA, defence; a discourse or writing in vindication of a person.

The

The word is formed of *ἀποκρίναι*, to refute.

The principal ancient *apologies* in favour of the Christians are those of Quadratus, written about the year 124, and addressed to the emperor Adrian; of Aristides, written soon after the former; two of Justin Martyr, one of which was written in the year 150, and addressed to Antonine, and the other in 166, addressed to the Roman senate; one of Athenagoras, in 166, to the emperors M. Aurelius, and Lucius Verus; the APOLOGETIC of Tertullian; and the dialogue of Minutius Felix, called *Octavius*, written in the third century.

APOLYSIS, from *ἀπολύνω*, I release, in a general sense the solution, or resolution of any thing. Thus we read of the *apolysis* of a disease, the *apolysis* of a bandage, or the like.

APOLYSIS, in a more particular sense, denotes the exclusion of any thing. Thus we read of the *apolysis* of the *fœtus*, the *secundines*, and the like.

APOMELI, in *Medicine*, a kind of decoction prepared of honey, or a honey-comb mixed with vinegar, and boiled a short time, till the qualities of both be united, and the acrimony of the vinegar allayed.

The *opomeli* is represented as a kind of medium between mulse and oxymel. it was anciently of great use among the Greeks, as a detergent, promoter of stool, urine, &c.

APOMYOS *Deus*, from *ἀπώ*, and *μύα*, fly, in the *Heathen Mythology*, a name under which Jupiter was worshipped at Elis, and Hercules as well as Jupiter at the Olympic games. These deities were supplicated under this name, to destroy or drive away the vast number of flies which always attended at the great sacrifices; and in those which accompanied the Olympic games, the first was always to the *Apomyos*, or *Myiagrus Deus*, that he might drive away the flies from the rest. The usual sacrifice was the bull.

APONEUROSIS, among *Anatomists*, the spreading or expansion of a nerve, or tendon, breadth-wise; in manner of a membrane.

The word is compounded of *ἀπώ*, from, and *νεῦρον*, a nerve.

APONEUROSIS sometimes also signifies the cutting off a nerve, or tendon. — And in some writers we find it used for a TENDON itself.

APONEUROTICUS *musculus*, in *Anatomy*, a name given by Spigelius, and some others, to a muscle of the thigh, called by Cowper and Winflow the *musculus latitendinis*, and *musculus fasciæ latæ*. Winflow has called it, with more propriety, the *musculus vaginæ femoris*.

APONIA, from *ἀ*, and *πονέω*, labour, among *Physicians*, a state of indolence, or the absence of pain. In which sense, the word amounts to the same with *anodynia*. Hence also *apona* is used by some for medicines which do not excite pain.

APONOGETON, in *Botany*, a name given by Pontedera to a genus of plants, called by Micheli and Linnæus ZANNICHELLIA.

APOPEMATIC, from *ἀποπέμπω*, I dismiss, in the *Ancient Poets*, a hymn addressed to a stranger on his departure from a place to his own country.

The ancients had certain holy days, wherein they took leave of the gods with *apopemtic* songs, as supposing them returning each to his own country.

APOPHASIS, from *ἀποφηναι*, I declare, and I deny, in the *Civil Law*, an answer or rescript of the prince.

Among *Logicians*, the word is also used for a negation or denial.

APOPHASIS was also used for the account given of estates, at the exchange of them for the avoiding public employments. When any man would excuse himself from any troublesome and chargeable trust, by calling it on another richer than himself, the person produced had power to challenge him to make an exchange of estates, and thereby compel him to undergo the office he had before refused.

APOPHASIS, in *Rhetoric*, a figure whereby we really say or advise a thing, under a feigned shew of passing over, or dissuading it.

Quintilian makes the *apophasis* a species of irony. Scaliger holds it the same with what is otherwise called *occupatio*.

APOPHLEGMATISM, in *Medicine*, the operation of purging phlegm or *pituïta* of the head.

APOPHLEGMATIZANTS, denote medicines proper to purge the head and brain of superfluous phlegm; or ferous humours.

These are also, by many writers, denominating *apophlegmatisms*. The word is compounded of *ἀπώ*, from, and *φλεγμα*, phlegm.

Apophlegmatizants are of two kinds, one administered by the way of them outh, and intended to operate by spitting; the other given by the nostrils, to operate by sneezing, &c.

APOPHORETA, from *ἀποφύγω*, I carry away, in *Antiquity*, presents made to the guests at a feast, or other entertainments, which they carry away with them.

APOPHRADES, from *ἀποφραγή*, unfortunate, derived again from *φράω*, and *φράω*, I speak, in *Physic*, denote a sort of unhappy days, wherein either no crisis, or an ill one is to be expected.

APOPTHHEGM, from *ἀπώ*, and *φθέγγωμαι* I speak, a short, wise, and pithy saying.

Such is that of Cyrus: *He is unworthy to be a magistrate, who is not better than his subjects*. Or this: *He that will not take care of his own business, will be forced to take care of that of others*. Or that of Artaxerxes Mnemon, when reduced to hunger by the loss of his baggage: *How much pleasure have I hitherto lived a stranger to?* Or that of Cato, *Hominis nihil agendo discunt male agere*. Or, finally, that of Augustus, *festina lente*. The *apophthegms* of Plutarch are well known.

APOPHYGE, in *Architecture*, that part of a column where it begins to spring out of its base, and shoot upwards.

The word in its original Greek signifies flight; whence the French also call it *escape*, *congé*, &c. and we, sometimes, the *spring* of the column.

The *apophyge*, in its original, was no more than the ring or ferril heretofore fastened at the extremities of wooden pillars, to keep them from splitting; which afterwards was imitated in stone-work.

It is properly a large concave or arched member, serving either to connect two flat members together, or to join a flat member to another not flat.

In this sense we may distinguish two *apophyges*, the upper and lower.

APOPHYGE, upper, is that part, or sweep, whereby a large flat member of the upper part of an order is connected to the lower.

This is also called by the French *le congé d' en haut*, and by the Italians *il cavo di sopra*.

APOPHYGE, lower, *apophygis inferior*, is a concave member, which connects two flat parts in the lower part of an order.

This the French call *le congé d' en bas*, and the Italians, *il cavo di basso*, sometimes also *il vivo di basso*.

APOPHYSIS, in *Anatomy*, a protuberance of a bone; or a part eminent, and jutting out beyond the rest.

The word literally denotes a production outwards; formed from *ἀπὸ τῆς ἀποφύεσθαι*, to arise from.

It is the same with what we otherwise call process, eminence, proboscis, projection, protuberance, cephalis, head, and the like.

Apophyses differ from *epiphyses*, as these latter are only appendages adhering or contiguous to a bone; whereas the former are productions or continuations of the bone itself, shooting out from it like branches from the trunk of a tree.

Apophyses, with regard to figure, may be reduced to two kinds, round and long.

The former are called by the general name of *heads*.

These may be subdivided into two sorts: if the head be large, oblong, and very prominent, it is called simply *caput*: if flat and low, *condylus*.

The long kind are also subdivided into *acute* and *obtuse*; the *acute*, terminating in a point, is called *corona*. There are divers species of this, distinguished according to their figure, by different names. The *obtuse* kind, terminating in a head, is called *cervix*, *collum*, or neck.

The general use of *apophysis* is, 1. For the greater convenience of articulation, whether it be with or without motion. 2. To afford a more commodious origination and insertion to the muscles; and 3. To defend other parts. Heister. Their particular uses will be indicated under the proper articles of each bone, &c.

APOPHYSIS *mammillares* are the beginnings of the olfactory nerves, as far as the *os cribrosum*, where they divide into little fibres, which pass through those bones, and spread themselves through the upper part of the nose.

APOPHYSIS *mammillaris*, or *mastioidea*, also denotes one of the external eminences of the *os petrosum*.

APOPHYSIS *raviana* denotes the larger process of the MALLEUS of the ear, into which the muscles of the bone are inserted.

APOPHYSES is also applied by Hippocrates to certain fleshy excrescences found in moles, and female *fœtuses* of seven months, as appearing rather processes, and origins of members than distinct members, such as he says may be found in male *fœtuses*.

APOPHYSES, in *Botany*, an excrescence from the receptacle of the *musci*.

APOPLANESIS, from *ἀποπλαναίνω*, I deceive, in *Oratory*, a kind of fallacious defence, and slurring over, darkening, and concealing things, in order to blind the judges, or the audience.

APOPLANESIS, in a more particular sense, denotes a sort of confutation, wherein the speaker promises to answer what the adversary objects in another place, but which being too difficult to answer, is afterwards forgot and left to pass unanswered.

APOPLECTIC, relating to an apoplexy. Thus we say, an *apoplectic* fit, an *apoplectic* water, &c.

APOPLECTIC *veins*, a name sometimes given to the *jugulars*. These are sometimes also denominated among ancient writers, *soporales*.

Some writers restrain *apoplectic* to the internal jugular ascending by the side of the *trachea*.

APOPLECTICA, *apoplectical medicines*, a name used by some for what we more properly call *antapoplectics*.

APOPLECTICAL *balms* is a name given by some writers to a sort of sweet-scented balms, prepared of distilled oils, and used by way of perfume.

APOPLEXY, in *Medicine*, a sudden privation of all the senses, and all the sensible motions of the body, excepting those of the heart and lungs; attended with a great depravation, or suspension of the principal faculties of the soul.

The word comes from *αποτλεσσειν*, to *strike*, or *astonish*; this distemper striking suddenly; and, as it were, like a thunder-bolt.

Hippocrates distinguishes two kinds of *apoplexies*; the one *strong*, the other *weak*; only differing in the greater or less difficulty of respiration, and pulsation: in the former the pulse and breath seem almost entirely stopped; in the latter there are considerable remains of them.

The more modern authors distinguish *apoplexies* from their cause, into *sanguineous* and *serous*, to which may be added the *spasmodic*, *symptomatic*, &c.

The fit of an *apoplexy* is usually preceded by a violent pain in the head, a dimness and loss of sight or memory: sometimes by an universal indolence; and sometimes by a flux of pituitous matter by the nose and mouth. — It is attended with a snorting and difficulty of breathing; sometimes with a fever, rarely with a foaming at the mouth, frequently with a sweat, hæmorrhoids, or diarrhoea.

A multitude of the most accurate observations have made it appear, that this disorder arises from any cause that is capable of preventing either totally, or in part, the influx of the nervous fluid, secreted in the *cerebrum*, to the organs of sense and voluntary motion; and the reflux of the same fluid from the above mentioned organs to the common sensory in the brain: whilst the progress, and perhaps the return of the fluid, supplied by the *cerebellum* to and from the heart and organs of respiration, is preserved in a degree sufficient to support in some measure their functions.

All these causes, as observed and delivered by authors, may for the greater perspicuity be reduced to classes; in the first of which may be reckoned.

1. The natural make of the body: thus, when the head is naturally large, the neck short, and as it sometimes happens, consisting only of six *vertebrae*, whereas there ought to be seven: this structure disposes to an *apoplexy*, as it favours the congestion of blood and humours in the head. Thus also, if the body is corpulent, the capillary arteries will in general be subject to compressions; and in consequence thereof a great quantity of blood and humours will flow into the vessels which convey them to the brain. Thus also a plethoric habit, and a redundancy of pituitous humours in the blood, lay a foundation for a stagnation of the juices, and a subsequent rupture of the vessels of the brain.

2. To the second class belong all those causes which induce such a change in the blood, lymph, and nervous fluid, as to render them incapable of circulating freely through their respective vessels in the brain: among which are — polypous concretions in the carotid or vertebral arteries, whether formed originally about the heart, or within the *cranium*; these are discovered by a palpitation of the heart, an unequal pulse, a vertigo, and temporary loss of sight often recurring, and which are increased by motion or heat: an inflammatory siziness of the blood, which may be known by an acute continual fever, an inflammatory pain in the head, eyes, &c. — a thick, glutinous, pituitous, and sluggish disposition of the whole mass of blood; whence old people, those who are much subject to catarrhs, whose constitutions are cold and moist, and who are pale and leucophlegmatic, are very subject to *apoplexies*. It is not difficult to presage an *apoplexy* from this cause, as it is generally preceded by an universal listlessness, and dulness of the senses, unusual slowness of speech, tremors, stertors, *incubi* (night mares) frequent discharges of pituitous humours by vomit, vertigoes, shortness of breath on the least motion, with a compression of the cartilages of the nose.

3. To the third class belongs whatever compresses the arteries themselves, or the nervous vessels of the brain, so as to prevent a free circulation of the fluids through them. People who are plethoric and bloated are much subject to this species of *apoplexy*; especially if extraordinary motion or heat increase the velocity of the circulation. To such, therefore, high feeding, spirituous liquors, acrid medicines, intense and long-continued thought, are pernicious. All humours arising within the *cranium* properly belong to this class; as also a too great velocity of the blood in the vessels of the head.

determined by some impediment to the circulation in the arteries of the inferior parts, which may arise from an infinite number of causes. Hither also may be referred all compressions from whatever cause, of the veins without the head, which convey the reflux blood from the contents of the *cranium* toward the heart; as also effusions of blood, *pur*, *ichor*, or lymph, which press externally on the *dura* or *pia mater*.

4. To the fourth class belong all those causes, which by any means so dissolve the texture of the arteries, veins, or lympheducts, belonging to the internal parts of the *cerebrum*, as to cause an extravasation of their respective fluids, which then press upon and injure the medullary origin of the nerves of the *cerebrum*.

5. Some sorts of poisons, which are suddenly deleterious, may be ranked in the fifth class: but these may either be reduced to the second, third, or fourth, or may be more properly said to act on the lungs than the brain. Among these are the fumes of mineral sulphurs, of charcoal, or that *gas sylvestris*, or incoercible spirit which exhales from vegetable juices during fermentation.

The anatomical inspection of bodies which have died of *apoplexies*, and the historical observation of such circumstances as occur in the treatment of these cases, furnish us with a knowledge of their causes; and a due reflection upon these naturally leads us to a distribution of them into the preceding classes, which are admirably adapted to the investigation of the best methods of cure.

The part affected in a perfect *apoplexy* is the entire common sensory of the brain; but in a *parapoplexia* those parts only of the common sensory which are more compressed than the rest; whilst the *cerebellum*, and its dependencies, remain in the beginning of the disorder unaffected. Boerhaave.

As to the prevention and cure of an *apoplexy*, no invariable rules can be laid down; for as the predisposing and exciting causes, together with the parts principally affected, are various, the method of relief must also vary; and must be attempted before the disorder grows inveterate; otherwise success will be very precarious.

In general, however, to prevent an *apoplexy*, wine, hard labour, excess of eating, and sleeping after dinner, are to be avoided: exercise is to be kept up, and care and chagrin to be restrained. To cure an *apoplexy*, medicines must be used that occasion large evacuations, and nothing of the opiate or astringent kind should be taken. — During the fit, if the *apoplexy* be of the sanguineous kind, copious bleeding in the jugulars is to be used, and the patient laid on his back; applying strong volatiles to the nose; also blow up strong sternutatories, and rub the temples with cephalic mixtures. A mixture of common salt dissolved in a pint of water, has been sometimes administered as the means of recovery. A hot iron may also be applied near the *vertex* or *occiput*; and an epispastic to the neck; to which are to be added powerful purgatives, clysters, &c. Cupping and scarification on the head are recommended by some, in lieu of venesection. In the *serous* kind of *apoplexy*, bleeding should rarely be admitted.

Dr. Flemmyng recommends trepanning for the cure of *apoplexies*. Med. Mus. vol. II. p. 300, &c.

The disease sometimes degenerates into a *paralysis*. And sometimes only half the head is affected; in which case the disease is called simply a *hemiplegia*.

Apoplexy differs from *carus*, *lethargy*, and *coma*, as in those three distempers the stupor is not so profound, nor is all sensation quite destroyed.

It differs from *syncope*, in that there are no sensible pulse in this last; whereas in an *apoplexy*, the pulse is perceptible almost till death.

It differs from an *epilepsy*, because all motion is not abolished in that, as in this; and it differs from the *palsy*, inasmuch as the palsy is not attended with any *stupor*, nor does it deprive the patient of sense and perception.

APOPLEXY is also reckoned among the diseases of hawks, being a distemper which seizes their heads, occasioned by too much grease and blood, or their having stood too long exposed to the heat of the sun, or having taken too long flights in the heat of the day.

Horses are also said to be subject to *apoplexies* occasioned by want of exercise, or too plentiful feeding.

The distemper shews itself by a giddiness, reeling, trembling, and sometimes falling suddenly down, without sense or motion. The cure is by taking a large quantity of blood from the neck, and applying volatile spirits to the nostrils.

APOLISTÆ, from *απο*, and *πλον*, *arms*, in *Ancient Laws*, a sort of officers in the country, appointed to disarm all private persons, or those not entitled to have arms; for the prevention of mischief and violence.

APOPOMPÆ, in *Antiquity*, certain days in which sacrifices

fices were offered to the gods called *pompæi*. Who these deities were, is doubtful.

APOPSYCHIA, from *ἀποψυχή*, *I expire*, is sometimes understood of effluvia, emitted from the sun, moon, and other heavenly bodies; to which their influence on sub-lunary things was ascribed by astrologers.

APORIA, from *ἀπορεω*, *I doubt*, in *Rhetoric*, denotes a state of doubt or wavering, wherein the orator appears undetermined whether to say any thing or not: e. gr. *Eloquar an fileam?* Shall I speak out, or hold my tongue.

APORON, or **APORIME**, a problem difficult to resolve, and which has never been resolved, though it be not, in itself, impossible.

The word is derived from *ἀπορος*, which signifies something very difficult and impracticable; being formed from the privative *α* and *πορος*, *passage*.

Such we conceive the quadrature of the circle; the duplication of the cube; the trisection of an angle, &c.

When a question was proposed to any of the Greek philosophers, especially of the sect of academists; if he could not give a solution, his answer was, *ἀπιστα*, q. d. *I cannot see through it*.

This word is also used by some law-writers for an inexplicable speech or discourse.

APORRHOEA, **APORRHOES**, in *Philosophy*, sulphureous effluvia, or exhalations, emitted from the earth, and subterraneous bodies.

The word is formed from *ἀπορρῶω*, *deflue*, to flow from.

APORRHOEA, in *Physic*, is sometimes particularly used for morbid or contagious miasmata, or effluvia from unwholesome bodies. The word is also used to denote a shedding or falling of the hair. See **ALOPECIA**.

APOS, in *Ornithology*. See **SEA SWALLOW**.

APOSCEPARNISMUS, a species of fracture of the skull or other bone, wherein a piece is taken clearly off, as if cut out with a hatchet; from *σκηπαρον*, an *ax*, or hatchet.

APOSIOPESIS, in *Rhetoric*, otherwise called *recitency*, and *suppression*; a figure, by which a person really speaks of a thing, at the same time that he makes a shew as if he would say nothing of it. See **PRETERITION**.

The word comes from *ἀπιοπω*, *I am silent*.

It is commonly used to denote the same with **ELLIPSIS**.

Jul. Scaliger distinguishes them. The latter according to him, being only the suppression of a word; as *me*, *me*: *adsum qui feci*; the former the omitting to relate some part of the action; as

Dixerat, atque illam media inter talia ferro

Collapsam adspiciunt —

Where the poet does not mention how Dido killed herself. This figure is of use to keep up the grandeur and sublimity of a discourse.

APOSITION, from *ἀπο*, and *σιτος*, *food*, in *Medicine*, an aversion to food. It amounts to much the same with *anorexia*; though some make a difference; alledging that the latter imports, no other than an inappetency, or want of desire to eat; the former an aversion or loathing of it.

AOSPASMA, from *ἀποσπασω*, *I tear off*, in *Medicine*, denotes a solution of continuity in some organical part, as a membrane, ligament, or the like.

AOSPASMA is also applied to metalline recrements, as *tutia*, *melanteria*, misty, fery, or the like.

AOSPHACELISIS, from *ἀποσφρακελιζω*, *ἀσφρακελος*, *mortification*, &c. in the *Ancient Physic*, denotes a mortification of a fleshy part, happening in cases of wounds, and fractures, from too tight a ligature.

AOSPHRAGISMA, from *ἀπο* and *σφραγιζω*, *I seal*, in *Antiquity*, the figure or impression of a seal.

It was forbid among the ancients to have the figure or image of God on their rings and seals. To this purpose the precepts of Pythagoras, *Εν δακτυλίῳ εἰκόνα Θεοῦ μὴ περιφέρειν*! But in process of time, this was little regarded; it was usual enough to have the figures of Egyptian and other deities, as well as of heroes, monsters, friends, ancestors, and even brutes, on their *dactyli*, or ring-seal. Thus Cæsar had the image of Venus, Pollio of Alexander, Augustus of the *sphinx*, Pompey of a frog, Lentulus of his grandfather, &c.

AOSPONGISMUS, among *Ancient Physicians*, the application of a sponge, whether dry or soaked with water, either to cleanse the filth from a part, or to ease pains, allay itching, or refresh the spirits.

APOSTAGMA, from *ἀποσταζω*, *I distil*, in *Natural History*, the must or juice which runs from the grapes before they are trodden or pressed.

This is otherwise called *apostalagma*.

APOSTASIS, from *ἀποστημι*, *I depart*, &c. in *Physic*, usually signifies the same with abscess. See **IMPOSTHUMATION**.

In which sense, the word is used by Hippocrates and others, promiscuously with *ἀποσσημα*, *aposthem*.

APOSTASIS in a more particular sense, denotes a departure or removal of the morbid matter, in the crisis or solution of a disease.

APOSTASIS is also used by Hippocrates for a fracture of a bone, wherein some part is entirely separated or broken off.

APOSTACY, a deserting or abandoning of the true religion.

The word is borrowed from the Latin *apostatare*, or *apostare*, to *despise*, or *violate*, any thing. Hence *apostature leges* anciently signified to transgress the laws. *Qui leges apostabit terræ suæ reus sit apud regem*. LL. Edw. Confess. The Latin *apostatare*, again, comes from *απο*, *from*, and *ιστοι*, *I stand*.

Among the Romanists *apostacy* also signifies the forsaking of a religious order, whereof a man had made profession; without a lawful dispensation.

The ancients distinguished three kind of *apostacy*: the first, *à supererogatione*, is committed by a priest, or religious, who abandons his profession, and returns to his lay state; the second, *à mandatis Dei*, by a person of any condition, who abandons the commands of God, though he retains his faith; the third *à fide*, by him who not only abandons his good works, but also the faith.

There is this difference betwixt an *apostate* and a *heretic*; that the latter only abandons a part of the faith, whereas the former renounces the whole.

Apostacy is said to have been anciently punishable, in England, by burning and tearing to pieces by horses. Thus Fleta, lib. i. cap. 37. § 2. *Apostati & sacrilegi, & hujusmodi, detractari debent & comburi*. And, § 4. *Si inde c. neincantur, detractentur, & suspendantur*. Where Du-Cange interprets, *detractari*, by *tirer a quatre chevaux*.

APOSTATA *capiendo*, a writ which anciently lay against one, who, having entered and professed some order of religion, broke out again, and wandered the country, contrary to the rules of the order.

APOSTATE, in a general sense, signifies a deserter from the true religion.

In which sense *apostate* amounts to much the same with *lapsed*, *perverted*, &c.

APOSTERIGMA, from *απο* and *στηριζω*, *I support*, in the *Ancient Physic*, denotes a rest or support for a diseased part, without binding.

Such are pillows, cushions, and the like.

The word seems also to have been used by Hippocrates for a stoppage, or obstruction of some vascular part.

APOSTERIORI. *Demonstration à posteriori*. See **DEMONSTRATION**.

APOSTHUME, or **APOSTEM**, **APOSTEMA**, in *Medicine*, a preternatural tumor; called also **ABSCCESS**, and **IMPOSTHUME**.

The word comes from *ἀπιστημι*, *abscedo*, *I depart from one place and fix in another*, alluding to the manner wherein the tumor is usually formed of a translated humour.

APOSTHUME is particularly used for a disease of hawks, which occasions swellings in the head, arising from a redundancy of humours, and a preternatural heat of that part.

The *aposthume* discovers itself by a swelling of the eyes, a moisture issuing from the ears, and their wings extremely stothful.

APOSTIL, *apostilla*, in *Matters of Literature*, a marginal addition, or note to a book, passage, or the like.

APOSTLE, *ἀποστολος*, one of the twelve disciples of Jesus Christ, commissioned by him to preach his gospel, and propagate it to all the parts of the earth. They were limited to the number twelve, in allusion to the twelve tribes of Israel.

The word originally signifies a person *delegated*, or *sent*; from *ἀποστέλλω*, *mitto*; in which sense it occurs in Herodotus, and other profane authors. Hence, in the New Testament, the term is applied to divers sorts of delegates; and to the twelve disciples by way of eminence.

St. Paul is frequently called the *apostle*, by way of eminence; and the *apostle of the Gentiles*, because his ministry was chiefly made use of for the conversion of the Gentile world, as that of St. Peter was for the Jews, who is therefore styled the *Apostle of the Circumcision*.

The several *apostles* are usually represented with their respective badges or attributes: St. Peter with the keys; St. Paul, with a sword; St. Andrew, with a cross or saltier; St. James minor, with a fuller's pole; St. John, with a cup, and a winged serpent flying from it; St. Bartholomew, with a knife; St. Philip, with a long staff, whose upper end is formed into a cross; St. Thomas, with a lance; St. Matthew, with a hatchet; St. Matthias, with a battle-ax; St. James major, with a pilgrim's staff, and a gourd bottle; St. Simon with a saw; and St. Jude, with a club.

This appellation was also given to the ordinary travelling ministers of the church. Thus St. Paul, in the epistle to the Romans, xvi. 7. says, *Salute Andronicus and Junia my kinsmen and fellow-prisoners, who are of note among the APOSTLES*.

It was likewise a title given to those sent by the churches to carry their alms to the poor of other churches. This usage they borrowed from the synagogues, who called those whom they sent on this message, by the same name; and the function or office itself *αποστολή*, *apostle*, q. d. *mission*. Thus St. Paul, writing to the Philippians, tells them, that Epaphroditus, their *apostle*, had ministered to his wants, ch. ii. 25. It is applied in like manner to those persons who first planted the Christian faith in any place.

Thus Dionysius of Corinth is called the *apostle of France*; Xavier the *apostle of the Indies*, &c. In the East Indies the Jesuit missionaries are also called *apostles*.

In some ages of the church, the pope was peculiarly denominated the *apostle*.

APOSTLE is also used among the Jews, for a kind of officer anciently sent into the several parts and provinces in their jurisdiction, by way of visitor, or commissary; to see that the laws were duly observed, and to receive the monies collected for the reparation of the temple, and the tribute payable to the Romans.

The Theodosian code, lib. xiv. *De Judæis*, calls those *apostoli*, *qui ad exigendum aurum atque argentum a patriarcha certo tempore diriguntur*. Julian, the Apostate, remitted the Jews the *apostle*, *αποστολή*; that is, as he himself explains it, the tribute they had been accustomed to send him.

These *apostles* were a degree below the officers of the synagogues, called *patriarchs*, and received their commissions from them. Some authors observe, that St. Paul had borne this office; and that it is this he alludes to in the beginning of the Epistle to the Galatians: as if he had said, Paul, no longer an *apostle* of the synagogue, nor sent thereby to maintain the law of Moses, but now an *apostle* and envoy of Jesus Christ, &c. St. Jerom, though he does not believe that St. Paul had been an *apostle* of this kind; yet imagines, that he alludes to it, in the passage just cited.

APOSTLE, in the Greek *Liturgy*, is particularly used for a book containing the Epistles of St. Paul printed in the order wherein they are to be read in churches, through the course of the year. Another book of the like kind, containing the Gospels, is called *Ευαγγελιστήριον*, *Gospel*.

The *apostle*, of late days, has also contained the other canonical Epistles, the Acts of the *Apostles*, and the Revelations. Hence it is also called, *Acts of the Apostles*, *ἑκατά-αποστολος*; that being the first book in it.

APOSTLE is also thought by many to have been the original name for bishops, before the denomination *bishop* was appropriated to their order. Thus Theodoret says expressly, the same persons were anciently called promiscuously both bishops and presbyters, whilst those who are now called bishops were called *apostles*.

In the arsenal of Bremen, there are twelve pieces of cannon, called the *Twelve Apostles*, on a supposition, that the whole world must be convinced, and acquiesce in the preaching of such *apostles*.

APOSTLES's Creed. See CREED.

APOSTOLÆUM, or APOSTOLIUM, in *Ecclesiastical Writers*, denotes a church dedicated to, and called by, the name of an *apostle*.

Sozomen speaks of the *apostolæum* of St. Peter at Rome, and the *apostolæum* of St. Peter and St. Paul at Quercus, near Chalcedon.

In this sense *apostolæum* stands distinguished from *prophetæum*, *martyrium*, &c.

APOSTOLARE, APOSTOLICARE, *apostolizing*, in some *Middle Age Writers*, denotes the being preferred to the dignity of POPE.

APOSTOLATE, in a general sense, is used for mission.

In this sense, Orlearius has a discourse concerning the *apostolate* of Christ. Lip. 1681. 4to.

APOSTOLATE more properly denotes the dignity or office of an *apostle* of Christ: but it is also used, in ancient writers, for the office of a bishop.

In this sense, we meet with several letters, petitions, requests, &c. directed to bishops under the title of your *apostolate*, or *apostolatus vester*.

But as the title *apostolicus* had been appropriated to the pope, so that of *apostolate* became at length restrained to the sole dignity of the popedom.

Every bishop's see was anciently dignified with the title of *sedes apostolica*, an *apostolical* see, which is now the peculiar denomination of the see of Rome.

APOSTOLI, in *Law*, denotes those letters missive, which are demanded in cases of appeal.

APOSTOLIC, APOSTOLICAL, something that relates to the *apostles* or descends from them.

Thus we say, the *apostolical* age, *apostolical* doctrine, *apostolical* character, constitutions, traditions, &c.

APOSTOLIC, in the *Primitive Church*, was an appellation given to all such churches as were founded by the *apostles*; and even to the bishops of those churches, as being the reputed successors of the *apostles*.—These were con-

fined to four, viz. Rome, Alexandria, Antioch, and Jerusalem.

In after-times, other churches assumed the same quality, on account, principally, of the conformity of their doctrine with that of the churches which were *apostolical* by foundation, and because all bishops held themselves successors of the *apostles*, or acted in their dioceses with the authority of *apostles*.

The first time the term *apostolical* is attributed to bishops, as such, is in the letter of Clovis to the council of Orleans, held in 511, though that king does not there expressly denominate them *apostolical*, but (*apostolica sede dignissimi*) highly worthy of the *apostolical* see. In 581, Guntram calls the bishops, met at the council of Mafon, *apostolical* pontiffs, *apostolici pontifices*.

In progress of time, the bishop of Rome growing in power above the rest; and the three patriarchates of Alexandria, Antioch, and Jerusalem, falling into the hands of the Saracens, the title *apostolical* was restrained to the pope, and his church alone. Though some of the popes, and St. Gregory the Great, not contented to hold the title by this tenure, began, at length, to insist, that it belonged to them by another and peculiar right, as being the successors of St. Peter. The council of Rheims in 1049 declared that the pope was the sole *apostolical* primate of the universal church.

And hence a great number of *apostolicals*; *apostolical* see, *apostolical* nuncio, *apostolical* notary, *apostolical* brief, *apostolical* chamber, *apostolical* vicar, &c.

APOSTOLIC clerks, see JESUITES.

APOSTOLICAL constitutions, see CONSTITUTION.

APOSTOLICAL traditions, see TRADITION.

APOSTOLICAL fathers is an appellation usually given to the writers of the first century who employed their pens in the cause of Christianity. Of these writers, Cotelierius, and after him Le Clerc, have published a collection in two volumes, accompanied with both their own annotations, and the remarks of other learned men.

APOSTOOLIANS, a sect of the Mennonites, which first sprung up in the year 1664, and derived its name from Apostool, one of the Mennonite ministers at Amsterdam. They concurred with them in doctrine, and admitted to their communion those only who professed to believe all their sentiments which are contained in their public confession of faith.

APOSTOLICI, APOSTOLI, or APOSTLES, was a name assumed by three different sects, on account of their pretending to imitate the manner and practice of the *apostles*. The first *Apostolici*, otherwise called *Apotactita*, and *Apotactica*, rose out of the Encratites, and Cathari, in the third century. They made profession of abstaining from marriage, and the use of wine, flesh, money, &c.

Gerhard Sagarelli was the founder of the second sect; he obliged his followers to go from place to place as the *apostles* did, to wander about clothed in white, with long beards, dishevelled hair, and bare heads, accompanied with women, whom they called their spiritual sisters. They likewise renounced all kinds of property and possessions, inveighed against the growing corruption of the church of Rome, predicted its overthrow, and the establishment of a purer church on its ruins. Sagarelli was burnt alive at Parma in the year 1300, and was afterwards succeeded by Dulcinus, who added to the character of an *apostle* those of a prophet and a general, and carried on a bloody and dreadful war for the space of more than two years against Raynerius, bishop of Vercelli; he was at length defeated, and put to death in a barbarous manner, in the year 1307. Nevertheless, this sect subsisted in France, Germany, and in other countries, till the beginning of the fifteenth century, when it was totally extirpated under the pontificate of Boniface IX.

The other branch of *Apostolici* were of the twelfth century. These also condemned marriage, preferring celibacy, and calling themselves the chaste brethren and sisters; though each was allowed a spiritual sister, with whom he lived in a domestic relation; and on this account they have been charged with concubinage: they held it unlawful to take an oath; they set aside the use of baptism; and in many things imitated the Manichees. Bernard wrote against this sect of *Apostolici*.

APOSTOLICUM is a peculiar name given to a kind of song or hymn, anciently used in churches.

The *Apostolicum* is mentioned by Greg. Thaumaturgus as used in his time. Vossius understands it as spoken of the *apostles* creed. Suicer thinks this impossible, because this creed was then unknown in the churches of the East.

APOSTOLORUM unguentum, the *apostles* ointment, in Pharmacy, is a kind of detergent, or cleansing unguent, composed of twelve drugs, the number of the *apostles*; whence its name.

It was invented by Avicenna, and is otherwise called *unguentum veneris*. The principal ingredients are turpentine,

tine, resin, wax, gum ammoniac, birth-wort roots, olibanum, bdellium, myrrh, and galbanum, opopanax, verdgris, litharge, oil of olives, and vinegar.

APOSTROPHE, in *Rhetoric*, a figure, whereby the orator, in an extraordinary commotion, turns his discourse from the audience, and directs it to some other person, present or absent, living or dead, or to inanimate nature. The word is formed of *απο*, *ab*, from; and *στροφή*, *verto*, to turn.

Thus Cicero, in his oration for Milo, addresses himself to the great patriots who had shed their blood for the public; and calls them to the defence of his client. So the same orator in his first *Catalinarian* directs himself to Jupiter the protector of the city and empire, and beseeches him to repel the parricide, &c.

The *apostrophe* is also frequently addressed to inanimates, as tombs, monuments, defuncts, &c. Cicero's *apostrophe* to Tullio, in his oration for Ligarius, is judged one of the finest passages in his works.

That *apostrophe* of Demosthenes, wherein he addresses himself to the Greeks slain at the battle of Marathon, is also famous; Cardinal Perron says, it has procured the orator as much glory as if he had raised them from the dead.

APOSTROPHE, or **APOSTROPHUS**, in *Grammar*, also denotes a note or character placed over a letter, in lieu of a vowel, to denote that the vowel is cut off, and not to be pronounced.

As *ev'n* for *even*; *th'angelic host*, for *the angelic*, &c. The affectation of frequent *apostrophes*, so usual among some late English writers, is a great abuse.

In prose, *apostrophes* are indefensible, and tend to vitiate the language; their use in poetry is to reduce a line to the proper measure.

APOSTROPHE, in *Medicine*, denotes a loathing or aversion for food.

In which sense the word amounts to the same with **APOSITION**.

APOSYRMA, from *ἀποσύρω*, *I take off*, in *Medicine*, denotes a disquamation or scaling of the skin.

In which sense the word amounts to much the same with **ABRASION**.

Greek writers use the word *apofyrmata*, for what the Latins call *abrasa*, viz. a superficial kind of exulcerations, which raise the skin.

APOTACTICÆ, or **ΑΠΟΤΑΚΤΙΚΙ**, an ancient sect, who, affecting to follow the evangelical counsels of poverty, and the examples of the apostles, and primitive Christians, renounced all their effects and possessions.

The word is formed from *ἀποτάσσω*, or *ἀποτάσθω*, to renounce.

It does not appear, that they gave into any errors during their first state; some ecclesiastical writers assure us, they had divers holy virgins, and martyrs, under the persecution of Dioclesian, in the fourth century; but they afterwards fell into the opinions of the Encratitæ, and taught, that the renouncing of all riches was not only a matter of counsel and advice, but of precept and necessity. And hence the sixth law in the Theodosian Code joins the *Apotactitæ* with the Eunomians and Arians.

APOTEICHISMUS, from *ἀποτείχω*, derived from *απο*, and *τείχω*, *I raise a wall*, or *τειχίζω*, in the *Ancient Military Art*, a kind of line of circumvallation drawn round a place, in order to besiege it.

This was also called *periteichismus*.

The first thing the ancients went about when they designed to lay close siege to a place, was the *apoteichismus*; which sometimes consisted of a double wall, or rampart, raised of earth; the innermost to prevent sudden sallies from the town; the outermost to keep off foreign enemies from coming to the relief of the besieged. This answered to what we call lines of contravallation and circumvallation, among the moderns.

APOTELESMA, from *ἀποτελεω*, *I perform*, in a general sense, denotes an effect of some cause. It is also used for a prognostic, or natural prediction of an event.

In which sense, Scaliger speaks of the *apotelesmata* of Hippocrates. The answers of astrologers deduced from the considerations of the stars are particularly called *apotelesms*, or *apotelesmata*; which were the expressions they used, to denote the effects of the stars and planets on sub-lunary bodies.

In which sense *apotelesmata* amount to the same with influences.

APOTELESMATICA, the science of *apotelesms*, or the art of foretelling future events, from the aspects and configuration of the heavenly bodies.

In this sense the word amounts to the same with what we otherwise call *judicial astrology*.

Sozomen denominates this *apotelesmatical astronomy*.

Hence also astrologers are called *apotelesmatici*, as synonymous with *mathematici*, *genethliaci*, *Chaldæi*, &c.

APOTHECARY, a person who professes the practice of

pharmacy, or that part of physic which consists in the preparation and composition of medicines.

The word is derived from *αποθήκη*, *shop*, the place where he makes up and exposes his medicines to sale.

The *apothecaries* in England are obliged to make up their medicines according to the formulas prescribed in the College Dispensatory.

Their shops are subject to the visitation of the censors of the College; who are empowered to destroy such medicines as they think not good.

The company of *apothecaries* were incorporated by charter from James I. procured at the solicitation of Dr. Mayerne and Dr. Atkins; till that time they only made a part of the grocers company; plums, sugar, spice, Venice-treacle, mithridate, &c. were sold in the same shop, and by the same person. The reason of separating them was, that medicines might be better prepared, and in opposition to divers persons who imposed unwholesome remedies on the people. Observ. on Case of Will. Rose, sect. 2.

In the year 1712, the 10th of queen Anne, an act passed for reviving and continuing several acts therein mentioned, one whereof was for exempting the apothecaries from serving the offices of constable and scavengers, and other parish and ward offices, and from serving upon juries; which act was made perpetual in the ninth year of George I.

They have a hall in Black-Friars, where there are two fine laboratories, out of which all the surgeons chests are supplied with medicines for the royal British navy.

To his majesty belong two *apothecaries*: the salary to the first, 320*l.* to the second, 275*l.* To the household belong also two.

Bartholin complains of the too great numbers of *apothecaries* in Denmark; though there are but two allowed in all Copenhagen; and one in every other considerable town.

In Muscovy, we are told, there are no *apothecaries* at all; but then there are no physicians, except two or three retained by the court, and those rather for state than service.

Travellers speak of a famous *apothecary's* shop at Dresden, furnished with four thousand silver pots, all filled with the choicest drugs.

It is strange to what an height *apothecaries* have found means to carry their favourite polypharmacy, considering what a few simple easy medicines will answer all the purposes of their vast shops. The physicians of Paris, toward the beginning of the seventeenth century, began to oppose the growing evil. Patin was one of the warmest. They went so far, as at length to exclude the ministry of the *apothecaries* in almost all cases. A valet, or chambermaid, prepared and administered the purges, clysters, &c. The bookfeller of the *Medicin Charitable* (which they had procured to be written for the purpose) made up and sold most of the medicines directed in it; and even the physicians, when they wanted, sent to him for them. Patin, Lett. 17. à Berlin.

The charitable dispensation of medicines by the Chinese is well deserving notice. They have a stone, which is ten cubits high, erected in the public squares of their cities; and on this stone are engraven the name of all sorts of medicines, with the price of each; and when the poor stand in need of any relief from physic, they go to the treasury, where they receive the price each medicine is rated at.

APOTHECARY, *apothecarius*, in *Writers of the Middle Age*, denotes a shop-keeper, or ware-house-keeper.

APOTHECARIUS is also used to denote a store-keeper, or officer appointed to have the direction of a magazine, GRANARY, &c.

In which sense *apothecarii* is sometimes rendered by *horarii* and *rationalarii*.

APOTHEOSIS, in *Antiquity*, a heathen ceremony, whereby their emperors and great men were placed among the gods.

The word is derived from *θεο* and *θεος*, *God*.

After the *apotheosis*, which they also called *deification* and *consecration*, temples, altars, and images, were erected to the new deity; sacrifices, &c. were offered, and colleges of priests instituted. Dio 47, 56, 59. Suet. Aug. 5. Tib. 40. Paterc. 1. Ovid, Pont. 4.

Images were erected to them, with the attributes of divinity (Lucan 7. Dio 53. Capitolin. Antonin). And to demolish them was deemed treason (Venul. lib. vi. D. ad Leg. Jul. Mal.) And even the senate decreed that oaths should be taken in their names (Dio 44, 59, 60. Tac. Ann. 1). Vide Kirchn. de Fun. Rom. 4. 14.

It was one of the doctrines of Pythagoras, which he had borrowed from the Chaldees, that virtuous persons, after their death, were raised into the order of gods.

And hence the ancients deified all the inventors of things useful

useful to mankind; and those who had done any important service to the commonwealth. Tiberius proposed to the Roman senate the *apotheosis* of Jesus Christ, as is related by Eusebius, Tertullian, and Chrysostom. Juvenal, rallying the frequent *apotheoses*, introduces poor Atlas, complaining that he was ready to sink under the burden of so many new gods as were every day added to the heavens. Seneca ridicules the *apotheosis* of Claudius with admirable humour. Herodian, lib. iv. in speaking of the *apotheosis* of Servius, gives us a very curious description of the ceremonies used in the *apotheoses* of the Roman emperors. After the body of the deceased emperor, said he, had been burnt, with the usual solemnities, they placed an image of wax, perfectly like him, but of a sickly aspect, on a large bed of ivory, covered with cloth of gold, in the vestibule of the palace. The greatest part of the day, the senate sat ranged on the left side of the bed, dressed in robes of mourning; the ladies of the first rank sitting on the right side, in plain and white robes, without any ornaments. This lasted for seven days successively, during which, the physicians came from time to time to visit the sick, always making their report, that he grew worse; till at length they published it, that he was dead.

This done, the young senators and Roman knights took the bed of state upon their shoulders, carrying it through the Via Sacra to the Old Forum, where the magistrates were used to divest themselves of their offices. There they set it down between two kinds of amphitheatres, in the one whereof were the young men, and in the other the maidens of the first families of Rome, singing hymns set to solemn airs, in praise of the deceased. The hymns ended, the bed was carried out of the city into the Campus Martius, in the middle of which place was erected a kind of square pavilion, the inside whereof was full of combustible matters, and the outside hung with cloth of gold, and adorned with figures of ivory, and various paintings.

Over this edifice were several others, like the first in form and decoration, but less; always diminishing and growing slenderer towards the top. On the second of these was placed the bed of state; and a great quantity of aromatic perfumes, and odoriferous fruits and herbs, were thrown all around; after which, the knights made a procession or cavalcade in solemn measures around the pile; several chariots also ran round it, those who conducted them being clad in purple robes, and bearing the images of the greatest Roman emperors and generals. This ceremony ended, the new emperor came to the *catafalca*, or pile, with a torch in his hand; and, at the same time, fire was set to it on all sides; the spices and other combustibles kindling all at once.

While this was doing, they let fly from the top of the building, an eagle, which, mounting into the air with a fire-brand, carried the soul of the dead emperor along with it into heaven, as the Romans believed; and thenceforward he was ranked among the gods. It is for this reason, that the medals, wherein *apotheoses* are represented, have usually an altar with fire upon it; or else an eagle taking its flight into the air, and sometimes two eagles.

APOTHERAPIA, from *αποθεραπεω*, *I cure*, in *Physic*, properly denotes a complete or finished cure.

APOTHERAPIA is also used, in the *Gymnastic Art*, for the last part of all regular exercise, viz. friction or unction with oil, before, as well as after bathing.

The design of this was partly to cleanse the skin from any filth or dust it might have contracted during the exercise, and partly to remove weariness.

APOTHERMUM, from *απο*, and *θερμος*, *hot*, in *Ancient Writers*, a sharp kind of sauce, like that prepared of mustard, oil, and vinegar, or of vinegar alone.

APOTOME, in *Mathematics*, the remainder or difference of two incommensurable quantities.

The word is derived from *αποτεμνω*, *I cut off*.

—A An *apotome*, in *Geometry*, is an irrational residue, as CB, arising, when from a rational line AC, called *a*, you cut off a rational part AB, called *b*, only com-

—B mensurable in power to the whole line AC. It may be expressed thus, $a - \sqrt{b}$. Such is the difference between the side of an equilateral triangle, and perpen-

—C dicular, from the vortex to the base.

Euclid makes six sorts of *apotomes*.

APOTOME prima, is when the greater number is a rational number, and the difference of the squares of both numbers is a square number, e. g. $3 - \sqrt{5}$.

APOTOME secunda, is where the lesser number is a rational number, and the square root of the difference of the squares of both numbers has a ratio expressible in numbers to the greater number; such is $\sqrt{18} - 4$, since the difference of the squares 18 and 16 is 2, and $\sqrt{2}$ is to $\sqrt{18}$ as one to 3, because $\sqrt{18} = 3\sqrt{2}$.

APOTOME tertia, is when both the numbers which are subtracted from each other are irrational numbers, and the square root of the difference of their squares has a

ratio in numbers to the greater. This holds in $\sqrt{24} - \sqrt{18}$, for the difference of their squares 24 and 18 is 6, and $\sqrt{6}$ is to $\sqrt{24}$ as 1 is to 2, for $\sqrt{24} = 2\sqrt{6}$.

APOTOME quarta, is when the greater number is a rational number, and the square root of the difference of the squares of both numbers has no ratio to it in numbers. Such is $4 - \sqrt{3}$, for the difference of the squares 16 and 3, is 13, but the square root of 13, viz. $\sqrt{13}$ has no numerical ratio to 4.

APOTOME quinta, is when the lesser number is a rational number, and the square root of the difference of the squares of both numbers has no ratio in numbers to the greater number. Such is $\sqrt{6} - 2$, for the difference of the squares 6 and 4, is 2, and $\sqrt{2}$ has to $\sqrt{6}$ no ratio in numbers.

APOTOME sexta, is where both numbers are irrational, and the square root of the difference of their squares has no ratio in numbers to the greater. Such is the case in $\sqrt{6} - \sqrt{2}$, for the difference of the squares 6 and 2 is 4, and the root thereof 2 has to the $\sqrt{6}$ no ratio in numbers. Peter Ramus censures Euclid's doctrine of *apotomes*, and even all the rest delivered in the tenth book concerning irrational lines.

APOTOME, in *Music*, is the difference of the tone *major* and *LIMMA*, expressed by $\frac{2}{3} \frac{2}{5} \frac{2}{7}$.

The Greeks thought, that the greater tone could not be divided into two equal parts; for which reason they called the first part *αποτομη*, and the other *λιμμα*; in this imitating Pythagoras and Plato.

The *apotome* is by some authors, as Boethius, called *hemitonium majus*; and the *limma*, *hemitonium minus*. He also calls the difference of these two, *comma*. The interval of two sounds expressed by $\frac{1}{12}$, was called by the ancients *apotome major*, and that expressed by $\frac{2}{24}$, *apotome minor*.

APOTRAGOPOGON, in the *Materia Medica*, a name given by some of the old authors to the *LADANUM*.

APOTROPÆA, from *αποτροπω*, *I avert*, in the *Ancient Poetry*, verses composed for averting the wrath of incensed deities; and the deities invoked for averting any threatened misfortune were called *Apotrepeans*: they were also called *Alexiaci*, from *αλεξω*, *I drive away*; and *averrunci*, from *averrunco*, which denotes the same.

APOZEM, in *Medicine*, a form of remedy, otherwise called a *DECOCTION*.

The word is derived from *αποζωω*, *fervescacio*, *I make hot*. *Apozems* are a class of liquid medicines, composed of the juices of divers plants, roots, woods, flowers, leaves, fruits, and seeds, drawn out by boiling in water and sweetened and clarified. An *apozem* differs from a *syrup*, in thickness and consistence; the *syrup* being more dense and viscous than the *apozem*, from the quantity of sugar. It differs from a *julap*, in that it is thicker, and more viscous; and is not made with distilled water, as *julaps* are, but only with common water.

There are purging *apozems*, cephalic *apozems*, hepatic *apozems*, antarthritic, diuretic, styptic, &c. *apozems*.

Apozem differs from *infusion*, on account of the greater degree of heat made use of in preparing the former, whereby the *apozem* becomes more fitly impregnated with those parts of the subject which are readily soluble in boiling water.

Apozems are medicines of the extemporaneous kind, and therefore the less used, because that which it once made up will not keep. What is directed in this form, is generally sent to the patient in the quantity of a quart at a time, to be drank off plentifully as common drink.

APPANAGE, or **APPENAGE**. See **APANAGE**.

APPARATOR. See **APPARRITOR**.

APPARATUS, from *apparo*, *I prepare*, properly signifies a formal preparation for some public and solemn action.

We say, the *apparatus* of a feast, coronation, &c. The prince made his entry with great *apparatus* and magnificence.

APPARATUS is also used for the utensils and appendages belonging to some more considerable machine. As the furniture or *apparatus* of an air-pump, microscope, &c.

APPARATUS is sometimes also used in *Chirurgery*, for the bandages, medicaments, and dressings of a part; or the several matters applied for the cure of a wound, ulcer, or the like.

There is no judging of the quality of a hurt, till after taking off the first *apparatus*.

APPARATUS is frequently used for the operation of cutting for the stone.

For this there are three sorts of *apparatus*, viz. the *small* (1), *great* (2), and *high apparatus* (3): which see described under the article **LITHOTOMY**.

APPARATUS is also used as a title of several books composed in form of catalogues, bibliothecas, dictionaries, &c. for the ease and conveniency of study.

The *apparatus* to Cicero, is a kind of concordance, or collection

collection of Ciceronian phrases, &c. The *apparatus* *sacer* of Possevin, is a collection of all kinds of ecclesiastical authors printed in 1611, in three volumes.—Glossaries, comments, &c. are also frequently called *apparatuses*.

APPARENT, from *appareo*, *I appear*, that which is visible, or evident to the eye, or the understanding.

APPARENT conjunction of the planets is, when a right line, supposed to be drawn through the centre of two planets, does not pass through the centre of the earth, but through the eye of the spectator.

APPARENT *Altitude, Diameter, Distance, Hair, Horizon, Magnitude, Motion, Place, Time, &c.* See the several substantives.

APPARITION, in *Astronomy*, denotes a star's or other luminary's becoming visible, which before was hid.

In which sense the word stands opposed to **OCCULTATION**.

The **HELIACAL** rising is rather an *apparition* than a proper rising.

APPARITION, *circle of perpetual*. See **CIRCLE** of perpetual *apparition*.

APPARITION, in a general sense, is the appearance or semblance of a thing.

APPARITION is also used to denote a spectre, or præternatural appearance of some spirit, or the like.

We read of *apparitions* of angels, genii, dæmons, fairies, witches, departed souls, &c. *apparitions* of God, of Christ, the Virgin, saints, prophets, and of the devil himself.

Many of the *apparitions*, we are told of by writers, are doubtless mere delusions of the sense; many others were seen but in dreams or deliquiums; many others are fictions contrived merely to amuse, or answer some purpose. *Apparitions*, it is certain, are machines that on occasion have been of good service to generals, to ministers of state, to priests, and others. It has been controverted whether an *apparition* be any proof of a future state.

The abbé de St. Pierre has a discourse expressly on the physical method of solving or accounting for *apparitions*; he makes them the effect of feverish dreams, disturbed imaginations, &c.

APPARITOR, or **APPARITOUR**, or **APPARATOR**, a BEADLE in an UNIVERSITY, who carries the mace before the masters, and the faculties.

APPARITOR is also used in some ancient English laws, for a judge or justice.

APPARITOR comitatus. There was formerly an officer called by this name, for which the sheriffs of Buckinghamshire had a considerable yearly allowance; and in the reign of queen Elizabeth, there was an order of court for making that allowance. But the custom and reason of it are now altered.

APPARITORS also denote messengers, who cite men to appear in the ecclesiastical courts.

Among the Romans, *apparitors* were the same with sergeants or tipstaffs among us; or rather *apparitor* was a general term, and comprised under it all the ministers and attendants of the judges and magistrates, appointed to receive and execute their orders. And hence, they say, the name was derived, viz. from *apparere*, *to be present*, *to be in waiting*.

Under the name *apparitores* were comprehended the *scribæ*, *accensæ*, *interpretes*, *præcores*, *viatores*, *lictores*, *statores*, and even the *carnifices* or hangmen.

They were usually chosen out of the freedmen of the magistrates, and their condition was held in so much contempt, that, as a mark of ignominy, the senate appointed a city that had revolted from them to furnish them with *apparitors*.

There were also a kind of *apparitors* of cohorts, called *cohortales*, or *conditionales*, as being attached to a cohort, and doomed to that condition. The *apparitors* of the prætors, *prætoriani*, were those who attended the prætors, or governors of provinces; and who, on their master's birth-day, were always changed, and preferred to better posts. Add, that the pontifices had also their *apparitors*, as appears from an inscription of an ancient marble in the *Via Appia*:

APPARATORI
PONTIFICVM
PARMVLRARIO.

APPAUMEE, from the French *paume*, *palm of the hand*, in *Heraldry*, denotes one hand extended with the palm appearing, and the thumb and fingers at full length.

APPEAL, in *Law*, signifies the removal of a cause from an inferior judge to a superior; or the having recourse to a superior judge to rectify what is amiss in a sentence passed by an inferior.

Appeals to Rome were first introduced into England in the reign of king Stephen; and though they were not strictly regarded in the succeeding reigns, they continued

till the time of king Henry the Eighth, when they were finally abolished by the 24th H. VIII. c. 12, and 25 H. VIII. c. 19.

Appeals lie from the archdeacon or his official to the bishop, and again from the bishop or his commissary to the archbishop; and by the 25th H. VIII. c. 29. for lack of justice in the archbishop's courts, the party may *appeal* to the king in chancery, where commissioners are named, and by reason of this appointment they are called *delegates*; and after the decision of this court, a commission of review has been sometimes appointed.

Appeals lie from all the ordinary courts of justice to the house of lords, who judge *en dernier ressort*; i. e. no *appeal* lies from them.

There are *appeals* from ecclesiastical justice to secular. The first instance of this is that of Paulus Samosatenus; who being condemned and deposed by the second council of Antioch, refused to surrender the episcopal house to Domnus, who had been elected his successor; and *appealed* to the emperor.

APPEAL is also used in *Common Law*, in the same sense with *accusatio* among the *Civilians*. For as, in the *Civil Law*, cognizance of criminal cases is taken either upon *inquisition*, *accusation*, or *denunciation*; so, in ours, it is taken either upon *indictment*, or *appeal*.

Indictment comprehends both *inquisition* and *denunciation*.

Appeal or *accusation* is a lawful declaration of another man's crime (which, by Bracton, must be felony at the least) before a competent judge, by one that setteth his name to the declaration, and undertakes to make it good on the penalty that may otherwise ensue.

An *appeal* is commenced two ways; either by **WRIT**, or by **BILL**.

APPEAL by *writ* is, when a writ is purchased out of chancery by one to another; to this end, that he *appeal* a third of some felony committed by him, finding pledges that he shall do it, and deliver this writ to the sheriff to be recorded.

APPEAL by *bill* is, when a man of himself gives up his accusation in writing to the sheriff or coroner; offering to undergo the burden of *appealing* the person therein named.

This practice is drawn from the Normans, as appears from the Grand Customary, wherein is a solemn discourse both of the effects of this *appeal*, viz. the order of the combat, or the trial by inquest; which, by our law, was in the choice of the defendant.

APPEAL of *mayhem* is an accusing one that hath maimed another. But this being heretofore no felony, the *appeal* thereof was but in manner of an action of trespass; so that there was nothing recovered but the damages.

Bracton calls this, *appellum de plagis mahemio*, and has a whole chapter of it. In king John's time, there is recorded an *appeal* against a Jew, *qui fecit ementulari quendam nepotem suum*.

APPEAL of *rape* lies where a rape is committed on the body of a woman.

APPEAL of *robbery* is a remedy given by the common law, whereby a person robbed of his goods may obtain restitution of them. But the three last kinds of *appeal* are now much out of use, because of the intricacy of the pleadings, and the charge of prosecution: and the method of indictment is generally adopted.

APPEAL of *wrong imprisonment* is used by Bracton for an action of wrong or false imprisonment.

APPEAL is more particularly used for a private accusation of a murderer, by one who had interest in the murdered party; or of any felon by one of his accomplices in the fact.

An *appeal* of death, which is now chiefly in use, is a vindictive action, which the law gives to a wife during widowhood, against the murderer of her husband, or to the male heir at law, against one who kills his ancestor. The *appeal* must be lodged in a year and a day after the death of the person murdered. If the person *appealed* be acquitted, the appellant shall be imprisoned for a year, restore damages to the party, and pay a fine to the king. 13 Ed. I. st. 1. c. 13.

If an *appeal* of murder or felony be used by any common person against a peer, he shall be tried by commoners, and not by his peers.

The person who brings an *appeal* is called the *appellant*; and the person *appealed*, the *appellee*.

In an *appeal*, the king cannot pardon.

APPEARANCE, the exterior surface of a thing; or that which first strikes the sense, or the imagination.

The Academics maintain, that the sensible qualities of bodies are only *appearances*; and the like doctrine is held by some later philosophers.

Our errors arise chiefly from a too hasty and precipitate assent of the will, which acquiesces too easily in the *appearances* of truth.

APPEARANCE, in *Law*, is the defendant's engaging to answer

answer a cause or action entered against him in some court of judicature.

Appearance, in the King's Bench, is the defendant's filing either of common or special bail, if the action be by bill. If it be by original, the *appearance* must be with the *PHILAZER* of the county where the arrest was. *Appearance*, in the Common Pleas, must be entered with the *PHILAZER* there; but if it be by bill, with the *PROTHONOTARY*.

APPEARANCE, in *Perspective*, is the representation or projection of a figure, body, or like object, upon the perspective plane.

The appearance of an objective right line is always a right line. See *PERSPECTIVE*. The *appearance* of an opaque body and a luminary being given, to find the *appearance* of the shadow, see *SHADOW*.

APPEARANCE of a star or planet. See *APPARITION*.

APPEARANCES, in *Astronomy*, &c. are more usually called *phenomena* and *phases*.

In *Optics* we use the term *direct appearance* for the view or sight of any object by direct rays; without either refraction or reflection.

APPEARANCES, to *save*, is to discharge one's duty seemingly, or acquit himself of the formalities and externals thereof; so as to save his character, and avoid giving scandal or offence.

APPEARANCES, in *Physiology*. See *PHASMATA*.

APPEASING remedies, in *Medicine*, are those which assuage the pain in a disease, and give the patient some rest, or respite: and at the same time contribute to the cure. These amount to the same with what we otherwise call *PAREGORICS*, *ANODYNES*, &c.

APPELLANT. See *APPEAL*.

APPELLANTS is particularly used in our time, for those among the French clergy, who refused to subscribe the constitution or bull *unigenitus*, issued by Clement XI. in 1713, and appeal from it, either to the pope better informed, or a general council.

The French bishops, priests, monks, and even nuns, are divided into *appellants*, and *non-appellants*. The *Janseists* and their followers are generally *appellants*.

APPELLATIVE, or *Noun APPELLATIVE*, in *Grammar*, a common name; or a name which belongs or is applicable to things of a certain kind.

The word is formed of *appellare*, to name a thing.

Such are the names, *man*, *angel*, *horse*, *plant*, *tree*, &c. *Appellatives* stand opposed to *PROPER* names, which belong only to individuals; as *Peter*, *Gabriel*, *Bucephalus*, &c.

APPELLEE, in the *Common Law*. See *APPEAL*.

In the *Civil Law*, *appellee*, *appellatus*; properly belongs only to the judge before whom an appeal is brought.

APPENAGE. See *APANAGE*.

APPENDANT, from *appendo*, *I hang by*, in *Law*, is understood of such things as by time of prescription have belonged, appertained, and been joined, to some other principal thing:

Thus an hospital may be *appendant* to a manor; a common of fishing, to a freehold; a seat in a church, to a house; or the like.

APPENDANT, *advowson*. See *ADVOWSON*.

APPENDANT, *common*. See *COMMON*.

APPENDICULA denotes a little or diminutive *APPENDIX*.

The word is seldom used, except by anatomists, in the following phrase:

APPENDICULA vermiformis, in *Anatomy*, a name given by some to the intestine *cæcum*, which they consider only as an appendage of the *colon*, and not as the true *cæcum* of the ancients.

APPENDICULÆ asteriarum, *wires of asteriæ*, a name given by the writers on *Natural History*, to certain small branches which are placed in a circular order at different distances upon the column of the *asteriæ*.

APPENDIX, or *APPENDAGE*, a thing necessary to, or dependent on another.

The term is chiefly used in matters of literature, for an additional discourse, placed at the end of any piece, or writing; to explain or prosecute something there left deficient, or to draw conclusions therefrom. In which sense the word coincides with *SUPPLEMENT*.

APPENDIX, in *Anatomy*, is a part, in some measure, detached from another part, to which however it adheres, or is contiguous.

There are membranous *appendices*, of various figures, in most of the inner parts of the body.

The *cæcum* is by some writers called *appendix*, or *appendicula vermiformis*.

Mr. Monro assures us, he never saw the *appendix vermiformis* of any of the human foetuses which he dissected, distended with *meconium*, and therefore he cannot allow it as a reservoir of the *fæces* during gestation. From the numerous mucous *lacunæ* in the human *appendix*, and

the like structure in the *cæca* of brutes, its use seems to be to furnish *mucus* to lubricate the internal surface of the great sac of the *colon*, and to moisten the *fæces* in it, that they may be more easily pushed forward out of this part of the gut, where there is the greatest difficulty in their progress, and where by stagnating too long, they may bring on troublesome symptoms. Witness the disease called *PLACENTA intestinalis*. Med. Ed. Edinb. vol. iv. art. 12.

APPENDIX is more particularly used in the same sense with *EPIPHYSIS*.

APPENSA, or *APPENDED remedies*, such as are outwardly applied, by hanging about the neck.

The word comes from *ad*, and *pendo*, *I hang to*.

Such are divers amulets, necklaces, phylacteries, &c.

APPERCEPTION, or *ADPERCEPTION*, is used by Leibnitz and his followers, for an attribute of the mind, considered as conscious of, or reflecting on its own perceptions.

In which sense the word amounts to the same with what Des Cartes and others call *CONSCIENCE* or *CONSCIOUSNESS*.

APPERTINANCES. See *APPURTENANCES*.

APPEITE, *APPETITUS*, *APPETENCY*, in *Philosophy*, a desire of enjoying something wanted; or a complacency in the fruition of a thing present.

The word is formed of *ad*, *to*, and *peto*, *I crave*.

Some philosophers define *appetite*, more generally, an inclination of the soul towards some object considered as good; or a propensity to an object, in respect of the good that is apprehended in it.

The schoolmen distinguish *appetite* into *voluntary* and *natural*.

The first is the will itself, acting under a competent knowledge or information of the thing in hand: such is the *appetite* or desire of being happy. The second is a kind of instinct, whereby we are mechanically driven to consult our own preservation.

Natural *appetite* is subdivided into *concupiscible*, and *irascible*.

Others again divide it into *sensitive* and *rational*.

APPETITE, *sensitive*, is that which arises from a notion of goodness in the object, as impressed by the impulse of the *senses*.

APPETITE, *rational*, is that which arises from an apprehension of good in the object, as conceived by the understanding.

APPETITE is restrained, by Hutcheson, to such of our desires as have a previous painful and uneasy sensation, antecedently to any opinion of good in the object; nay, so as that the object is often chiefly esteemed good only for its allaying this pain or uneasiness, or if it give also positive pleasure, yet the uneasy sensation is previous to, and independent of this opinion of good in it.

APPETITES are passions directed to general objects, in contradistinction to passions directed to particular objects, which retain their proper name. Thus we say, an *appetite* for fame, for glory, for conquest, for riches; but we say the *passion* of love, of gratitude, of envy, &c.

Appetite may be also distinguished from *passion*, since the latter has no existence till a proper object be presented; whereas the former exists first, and then is directed to an object. Elem. Crit. vol. i. p. 44.

APPETITE, in *Medicine*, is more particularly used to denote a natural periodical call or desire to eat and drink, in order to repair what had been wasted by the several excretions of the body.

A loss or prostration of *appetite* is called *ANOREXIA*. A preposterous *appetency* of things not proper for food is called *PICA*.

An immoderate *appetite* is called *BULIMIA*, or *fames canina*. Some, however, distinguish between the *βουλμία*, and canine *appetite*; making it the distinguishing character of the latter, that it is attended with a lenter, or other coeliacal flux.

APPETITE, *excessive*. See *OREXIS*.

APPETITE, *defective*. The defect of *appetite* is of two kinds, and is usually divided, by medical writers, under two names, the *anorexia* and *nausea*.

The *anorexia* is a too great abstinence from foods, which sometimes has its origin from depravation of the stomach sometimes from other causes more remote.

The *nausea* is defined to be a plenary abstinence from foods, being a complaint of the same nature and origin with the *anorexia*, but differing in degree.

The signs are very obvious so far as a distaste to food, which is common to both; but there is this difference, that in an *anorexia* the patients usually eat something, though without *appetite*, and are troubled always with a pain and uneasiness in the stomach after it; but in the *nausea* there is a greater disrelish of food of all kinds, and frequent straining to vomit. Men of idle lives, and such as drink too freely of strong liquors, are subject to *idiopathic*

idiopathic defects of appetite, from actual injuries in the stomach; others labouring under the different diseases before mentioned, are as often subject to the *symptomatic*. People of a sanguine habit, when afflicted with a loss of appetite, always find great relief in acids of the milder kind; and those of a leucophlegmatic habit are often cured by taking small doses of *elixir proprietatis* every day before dinner. Some persons are very fond of external applications to the stomach in those cases, but these are rarely found to be of any great service. The best of them is a plaster of *tacamahaca*, with oil of mastic.

APPIADES, in *Mythology*, five divinities so called because their temples were at Rome near the fountains of Appius, viz. Venus, Pallas, Vesta, Concord, and Peace.

APPIAN Way, a great Roman highway, paved by Appius Claudius, censor of Rome, in the 444th year of that city. It commenced at the gate Capenna, now called St. Sebastian's, and passing over the mountain called St. Angeli, crosses the plain of Valdranus, the *Palus Pontina*, and ends at Capua.

Caius Gracchus placed the small columns called *termini*, which marked the miles.

APPLAUSE, properly signifies an approbation of something, witnessed by clapping of hands.

The word comes from the verb *plaudere*, to clap the hands. The ancient way of *applauding* by clapping the hands, is scarce retained any where but in colleges and theatres. Such a tragedy was acted with great *applause*; such a student maintained a thesis with *applause*, &c.

There were three species of *applause*, denominated from the different noises made in them, viz. *bombus*, *imbrices*, and *testæ*; the first a confused din, made either by the hands or the mouth; the second and third by beating on a sort of founding vessels placed in the theatres for this purpose.

Persons were instructed to give applause with skill; and there were even masters who professed to teach the art. The proficient in this way let themselves out for hire to the vain-glorious among the poets, actors, &c. and were properly disposed to support a loud *applause*. These they called *laudicoeni*.

At the end of the play, a loud peal of *applause* was expected, and even asked of the audience, either by the chorus, or the person who spoke last. The formula was *spectatores plaudite*, or *valet & plaudite*.

The *plausores*, or applauders, were divided into *chori*, and disposed in theatres opposite to each other, like the choristers in cathedrals; so that there was a kind of concert of *applauses*.

APPLE-tree, *malus*, in *Botany*. In the Linnæan system, this is a species of *pyrus*, and belongs to the genus of *icosandria pentagynia*. The characters of it are, that the branches spread, and are more depressed than those of the pear-tree. The flower consists of five leaves, which expand in form of a rose. The fruit is hollowed about the foot-stalk, and is for the most part roundish, and umbilicated at the top; is fleshy, and divided into five cells or partitions, in each of which is lodged one oblong seed. There are three species: the *wild apple*, with a very sour fruit, commonly called *crab*: the *wild crab* of Virginia, with a sweet-scented flower: and the *dwarf apple*, commonly called *Paradise apple*.

Apples are no natural fruit, but the mere creatures of art. The way of propagating them, is by sowing kernels in the ground which would produce crabs or wildings, different in figure and taste from the parent fruit. To turn these to apples of any particular kind, is the business of engrafting. A cyon of an apple-tree inserted into a crab-stock, occasions the crab-tree from that time to produce apples of the same quality with those from whence the cyon was taken. Mr. Ray lays it down as a rule, that the fruit always follows the cyon.

In the nurseries, there are three sorts of stocks generally used to graft apples upon; the first are called *free-stocks*, which are raised from the kernels of all sorts of apples indifferently, and by some these are also termed crab-stocks; for all those trees which are produced from the seeds before they are grafted, are termed crabs without any distinction. But such stocks should always be preferred, as are raised from the kernels of crabs, where they are pressed for verjuice; and several old writers on this subject are of the same opinion. Austen, who wrote a hundred years ago, says, "The stock which he accounts best for apple grafts is the crab, which is better than sweeter apples to graft on, because they are usually free from canker, and will become very large trees, and I conceive will last longer than stocks of sweeter apples, and will make fruits more strong and hardy to endure frosts."—It is very certain, that by frequent grafting some sorts of apples upon free-stocks, the fruits have been rendered larger, but less firm, poignant, and of shorter duration. The second sort of stocks is the *Dutch creeper*; these are designed to stint the growth of trees,

and keep them within compass for dwarfs or espaliers. The third sort is the *Paradise apple*, which is a very low shrub; so only proper for trees which are kept in pots by way of curiosity, for these do not continue long. For the method of *grafting*, see ENGRAFTING.

For the method of planting orchards to the greatest profit, the soil and situation are of great importance. The best situation is the ascent of gentle hills, facing the south or south-east; but this ascent must not be too steep, lest the earth should be washed down by heavy rains.

The ground intended to be planted should be well prepared the year before, by thorough ploughing: when, if some dung be laid on, it will be of great service to the trees. If, in the preceding spring, a crop of pease or beans is planted on the ground, so as that the ground between the rows may be horse-hoed; it will destroy the weeds, loosen the ground, and prove a good preparation for the trees; for the earth cannot be too much wrought or pulverized for this purpose. These crops will be off the ground before the season for planting the trees, which is to be performed when they begin to shed their leaves.

In chusing the trees, such as are but of two years growth from the graft are to be preferred; old trees, or such as are grafted upon old stocks, ought never to be planted. The distance they should be planted at, where the soil is good, must be fifty or sixty feet; though forty feet may be sufficient where the land is not so good: nothing can be of worse consequence, than the crowding trees too close together.

When the trees are planted, they should be staked, to prevent their being shaken or blown out of the ground by strong winds. But in doing this, particular care should be taken to put straw, hay-bands, or woollen cloth between the trees and the stakes, to prevent them from being rubbed or bruised by the stakes; for if their bark should be rubbed off, it will occasion wounds which will not heal in several years, if they ever recover from them. If the winter should prove very severe, it will be proper to cover the ground about their roots with some muck, to prevent the young fibres from being injured.

It is common practice in many parts of England, to lay the ground down for pasture, after the trees are grown pretty large in the orchards; but this is by no means adviseable, for trees of above twenty years growth have frequently been almost destroyed by horses in the compass of one week: and if sheep are put into the orchards, they will constantly rub themselves against the trees, and their grease sticking to the bark, will stint their growth, and finally spoil them. Therefore, wherever orchards are planted, it will be much better to keep the ground in tillage; but whatever crops are sown, should not be too near the trees, lest the nourishment should be drawn away from them: nor should the plough come too near the stems, lest the roots and bark should be injured. But it will be of great service to dig the ground about the trees, where the plough does not come, every spring and autumn, for five or six years after planting, by which time the roots will have extended themselves to a greater distance.

In pruning orchard trees, nothing more should be done but to cut out all those branches which cross each other, and which if left would rub and tear off the bark from each other; as also decayed branches: but never to shorten any of their shoots. Branches broken by the wind, should be cut off, either down to the division of the branch, or close to the stem from which it proceeds; all suckers or shoots from their stems should be entirely taken off: the best time for this work is in November, for it should not be done in frosty weather, nor when the sap begins to be in motion.

In the planting espaliers, if there is an extent of ground in the kitchen-garden, it will be proper to plant in this manner not only such sorts as are for the use of the table, but also a quantity of trees to supply the kitchen. Where the kitchen-garden is but small, the latter must be supplied from the standard-trees; but as many of these kitchen apples are large and hang late in the autumn, they are much more exposed to strong winds on standards than in espaliers; for which reason, where the ground will admit of it, espaliers are to be preferred. The proper distance for these trees are not less than twenty-five or thirty feet, for such sorts as are of a moderate growth (if upon crab or free stocks); but the larger growing sorts should not be allowed less room than thirty-five feet; which will be found near enough, if the ground is good, and the trees properly trained: for, as their branches should not be shortened, but trained at their full length, in a few years they will be found to meet.

The next thing to be observed, is the making proper choice of such sorts of fruit as grow nearly alike, to plant

plant in the same espalier. This is of great consequence in the distance to be allowed them; otherwise the espalier will make an irregular appearance.

The choice of trees is the next article, which should be but one, or at most but two years old from the graft. The stocks should be young, sound, and smooth, free from canker, which have not been cut down in the nursery: when taken up, all the small fibres should be entirely cut off from their roots, which, if left on, would turn mouldy, decay, and obstruct the new fibres in their growth; the extremities of the roots should be shortened, and all bruised and misplaced roots should also be cut away. As to pruning the heads of these trees, nothing more need be done, than to cut off those branches which cannot be trained to the line of the espalier. In planting, the roots should not be placed too deep in the ground, especially if the soil be moist, but rather elevated on a little hill, which it will not be necessary to allow for the raising of the borders afterward. These trees should be staked like those in the orchard, until the espalier is put to them.

In pruning these trees, the chief point is, never to shorten any of the branches, unless there is an absolute want of shoots to fill the espalier; for where the knife is much used, it only multiplies useless shoots, and prevents their fruiting: so that the best method to manage these trees, is to go over them three or four times in the growing season, and rub off all such buds and shoots as are irregularly produced, training the others down to the stakes where they are to remain. If this is carefully minded in the summer, there will be little left to be done in the winter. The distances at which these branches should be trained from each other, are, for the larger sorts of fruit seven or eight inches, and for the smaller, five or six. If, contrary to these plain instructions, the trees are suffered to grow rude in summer, there will be much difficulty to bring down the stubborn shoots afterward, without breaking. All the sorts of *apples* produce their fruit upon cursons or spurs, so that these should never be cut off, as they will continue fruitful for several years. The method of making *ESPALIER*s is exhibited under that article; it need only therefore be observed, that it will be best to defer making the espalier, till the trees have had three or four years growth: for before that time, the branches may be supported by a few upright stakes, until there is a sufficiency of them to furnish the lower part.

The best method of preserving *apples* for winter use, is to let them hang upon the trees until there is danger of frost, to gather them in dry weather, and then to lay them in large heaps to sweat for a month or six weeks. They ought then to be carefully looked over, all which have the least appearance of decay taken out, the sound fruit wiped dry, and packed up in large oil jars, which have been thoroughly scalded and dry, and then stopp'd close, to exclude the air. If this plan is duly observed, the fruit will keep a long time sound, and their flesh remain plump; whereas when exposed to the air, their skins will shrivel, and their pulp soften. See *CYDER*, and *ORCHARD*.

Among the various kinds of *apples*, some are used for the desert, some for the kitchen, and some for cyder-making. Those used for the desert, are the following, placed as they successively ripen after one another: the white juncating, the margaret *apple*, the summer pearmain, the summer queening, the embroidered *apple*, the golden rennet, the summer white calville, the summer red calville, the silver pippen, the aromatic pippen, *la reinette grise*, *la haute bonte*, the royal ruffeting, Wheeler's ruffet, Sharp's ruffet, the spine *apple*, the golden pippen, the nonpareil, the *papi*, or *pomme d'api*.

Those for the kitchen use, in the order of their ripening, are these: the codling, the summer marygold, the summer red pearmain, the Holland pippen, the Kentish pippen, the courpendu, Loaz's pearmain, the French rennet, the French pippen, the royal ruffet, the monstrous rennet, the winter pearmain, the *pomme violette*, Spencer's pippen, the stone pippen, and the oaken pippen.

Those most esteemed for cyder are, the Devonshire royal wilding, the redstreak *apple*, the whitfour, the Herefordshire under-leaf, and the John *apple*, or *deux annes*, everlasting hanger, and gennet moyle. Miller.

The *apple* is composed of four distinct parts, viz. the pill, the *parenchyma*, the branchery, and the core. The pill or skin, is only a dilatation of the outermost skin or rind of the bark of the branch on which it grew. The *parenchyma* or pulp, as tender and delicious as it is found, is only a dilatation, or, as Dr. Grew calls it, a swellth or superbiency of the inner part of the bark of the branch. This appears not only from the visible continuation of the bark from the one through the pedicle or stalk to the other, but also from the structure common to both.

The branchery or vessels, are only ramifications of the woody part of the branch, set throughout all the parts of the *parenchyma*, the greater branches being made to communicate with each other by inosculation of the less. Grew's Anat. of Veget. lib. i. cap. 6. lib. iv. cap. 1.

The *apple* core is originally from the pith of the branch; the sap of which finding room enough in the *parenchyma*, through which to diffuse itself, quits the pith, which by this means hardens into core.

The juice of *apples* is a *menstruum* for iron. A solution of iron in the juice of the *apples* called *golden rennets*, evaporated to a thick consistence, proves an elegant chalybeate, which keeps well.

Dr. Lewis observes, that the young shoots of monk's rhubarb in the spring, approach in taste to some sorts of *apples*, and that of late they have been employed in that early season, as a *succedaneum* to *apples* for culinary purposes. Neumann's Works, p. 361, w.

Mr. Boyle has given several experiments on *apples* in the air-pump, and the production of air, &c. thereby. Vide Phil. Works abridg. tom. ii. p. 567, seq. 609. 630, seq. 645, seq.

APPLE is also a name given to divers fruits, bearing some resemblance in figure, rotundity, and the like, to the orchard *apple*.

APPLE, *Adam's*. See *CITRON*, and *Pomum ADAMI*.

APPLE, *bitter*, a name sometimes given to the fruit of the *COLOCYNTHIS*.

APPLE, *blod*, *cactus*. See *Melon THISTLE*.

APPLE, *custard*, *annona*, in *Botany*; a genus of the *polyandria polygynia* class. Its characters are these: the flower hath in some species three, in others six petals, three large, and three alternately smaller. The germen becomes an oval or oblong fruit, having a scaly rind and one cell, in which are lodged many oval smooth seeds. There are eight species.

These plants, which are natives of the warm parts of America, are too tender to produce fruit in this country, where they are only preserved for the beauty of their leaves.

APPLE, *dwarf*. See *DWARF-trees*.

APPLE-fly, in *Natural History*, the name given by authors to a small green fly found sometimes within an *apple*, and hatched of a worm or maggot, very frequently found infesting that fruit.

APPLE, *love*. See *LYCOPERSICON*.

APPLE, *mad*. See *MAD apple*.

APPLE, *male balsam*, *momordica*. See *Male BALSAM apple*.

APPLE, *marchasite*, so called by Dr. Grew, on account of its figure, as being round except on one side, where it falls in, and has a stalk like a young *apple*. Mus. Reg. Soc. P. 3. § 2. cap. 3.

Among the ancient ornaments of churches, we read of *golden apples*, *poma aurea*; by which it should seem, we are to understand the globular parts of candlesticks. Dugange.

Some ancient customaries also speak of *apples* of wax, *POMA de cera*.

APPLE, *May*. See *DUCK's foot*.

APPLES, *oak*, are a kind of excrescences or exudations of the nutritious juice of that tree, joined with some degree of putrefaction.

The like are sometimes also found on willows.

APPLE, *of the eye*. See *PUPIL*.

APPLE, *pine*. See *PINE apple*.

APPLE, *prickle*, is remarkable for the several tufts or bunches of thorns, with which it is armed all around; each bunch consisting of six or eight thorns, some erect, others couched a little, and crooked outwards, of several lengths, from one inch to above two.

APPLE, *soap*, *sapindus*. See *SOAP berry tree*.

APPLE, *star*, *chrysophyllum*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: it hath a bell shaped flower, cut at the brim into ten segments, which are alternately spread open; and five short stamina, with a roundish germen, which becomes a pulpy fruit with ten cells, in four or five of which is lodged a single seed. There are two species, natives of the West Indies.

APPLE, *thorn*. See *THORN apple*.

APPLICATE, *APPLICATA*, *Ordinate* *APPLICATE*, in *Geometry*, is a right line drawn across a curve, so as to be bisected by the diameter thereof.

Applicate is the same with what we otherwise call *Ordinate*.

APPLICATE number. See *CONCRETE*.

APPLICATION, the act of *applying* one thing to another by approaching or bringing them nearer together. Motion is defined by a successive *application* of any thing to different parts of space.

The *application* of a vesicatory to the neck, or other part, produces an irritation of the bladder.

The true and great secret in physic is, how to *apply* a medicine, not how to make it.

APPLICATION is also used for the adjusting, accommodating, or making a thing quadrate to another.

Thus we say, the *application* of a fable, &c.

APPLICATION, in *Theology*, is particularly used, by some divines, for the act whereby our Saviour transfers, or makes over to us, what he had earned or purchased by his holy life, and death.

Accordingly it is by this *application* of the merits of Christ, that we are to be justified, and intitled to grace and glory.

The sacraments are the ordinary means, or instruments, whereby this *application* is effected.

APPLICATION is sometimes also used in *Geometry*, for what in *Arithmetic* we call DIVISION.

APPLICATION also signifies the fitting or applying of one quantity to another, whose areas, but not figures are the same.

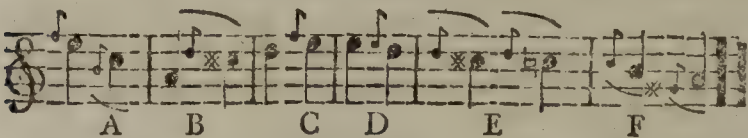
Thus Euclid shews how, on a right line given, to *apply* a parallelogram that shall be equal to a right-lined figure given.

APPLY, among *Mathematicians*, sometimes signifies to transfer a line given into a circle, most commonly, or into any other figure; so that its ends may be in the perimeter of the figure.

APPLY denotes also as much as *divide*, especially among Latin writers; who, as they say, *duc. AB in CB*, draw AB into CB, when they would have AB multiplied by CB; or rather when they would have a right-angled parallelogram made of those lines: so they say, *appla AB ad CB*, *ap- ply AB to CB*, when they would have CB divided by AB;

which is thus expressed, $\frac{CB}{AB}$.

APPOGGIATURA, in *Musick*, according to Grassineau, is when in any part of a song, there are two notes at some distance from one another, as a third, or fifth, and in singing such a passage, the musicians put in small intermediate notes, ascending, or descending; as in the example A.



But the *appoggiatura* is not always intermediate, unless it be in the order of time (see the examples B and C); nor is it confined to distant notes. It may be used in passing from a note to the nearest sound either above or below it. See the examples D, E, and F.

The *appoggiatura* is commonly marked by a smaller kind of note, as in the examples before given, and is essential to musical taste and expression.

The word is derived from *appoggiare*, to lean on.

APPOINTEE, a foot soldier in the French army, &c. who for his long service, and bravery, receives pay above private sentinels.

These have been suppressed in France, except in the regiment of French guards, where forty *appointees* are still retained to each company of 150 men.

Till the year 1670, they had also captains and lieutenants under the appellation of *appointees*, who without residing in the regiment, received their pay. See ANSPESADES.

APPOINTEE, in *Heraldry*, is when two or more things are placed touching each other at the points or ends.

APPOINTMENT, a pension or salary given by great lords and princes to persons of worth and parts, in order to retain them in their service.

The term is chiefly used among the French.—The king of France gives large *appointments* to several of the officers in his service.

Appointments differ from wages, in that the latter are fixed and ordinary, being paid by the ordinary treasurers; whereas *appointments* are annual gratifications granted by *brevet* for a time uncertain, and are paid out of the privy purse.

APPORCIONMENT, or APPORTIONMENT, APPORTIONAMENTUM, in *Law*, a dividing of a rent into two or more parts, or portions, according as the land whence it issues is divided among two, or more proprietors.

Thus if a man, having a rent-service issuing out of land, purchase a part of the land; the rent shall be *apportioned*, according to the value of the land.—So if a man let lands for years, reserving rent, and a stranger afterward recover part of the land; the rent shall be *apportioned*.

But a rent charge cannot be *apportioned*, nor things that are entire; as if one hold land by service, to pay to his lord yearly at such a feast a horse, or a rose; there, if the lord purchase a part of the land, this service is totally extinct; because such things cannot be divided without hurt to the whole.—But if part of the land, out

of which a rent-charge issues, descends to the grantee of the rent, this shall be *apportioned*.—A man purchases part of the land where he hath common appurtenant, the common shall be *apportioned*: of common appurtenant it is otherwise; and if by the act of the party, the common is extinct. Common appurtenant and appurtenant may be *apportioned* on alienation of part of the land to which it is appurtenant or appurtenant.—Conditions generally are entire, and cannot be *apportioned* by the act of the party; a contract may not be divided or *apportioned*, so as to subject a man to two actions. Danv. Abr. 505. 1 Inst. 149.

APPOSAL of *sheriffs*, is the charging them with money received on their account in the exchequer, 22 & 23 Car. II.

APPOSER signifies an examiner. In the court of exchequer, there is an officer called the foreign *apposer*.

In the office of confirmation, in the first liturgy of Edward VI. the rubric directs the bishop, or such as he shall appoint, to *appose* a child; and a bishops examining chaplain was anciently called his *poser*.

APPOSITION, from *ad*, *to*, and *pono*, *I put*, the act of putting or applying one thing to another.

APPOSITION is used in *Physics*, in speaking of bodies which derive their growth from the adjunction or union of neighbouring bodies.

Most bodies of the fossile or mineral kingdom are formed by *juxta-position*, or the *appositions* of parts, brought to join and adhere to each other.

APPOSITION, in *Grammar*, denotes the putting two or more substantives together in the same case, and without any copulative conjunction between them.

Thus, Flanders, bloody theatre, horrible scene of war; love, enemy of human quiet; peace, parent of riches, source of faction, &c.

APPOSITORIUM, in *Chemistry*, denotes a vessel made of earthen-ware or glass, of a conical figure, whose bigger end receives the neck of a retort, while the narrower is inserted into the receiver.

Its use is, where a strong open fire is required, to prevent the red-hot retort, by the immediate contact of its neck, from bursting the receiver.

APPRAISER, from *ad*, *to*, and *pretium*, *value*, one who rates, or sets a value upon goods, &c. He must be a skilful and honest person. It is not a business of itself, but is practised by brokers of household furniture, to which set of men the word is chiefly applied. Yet upholsterers and other brokers are employed, or even any person or persons who are supposed to be skilled in the commodities to be appraised or valued. They are employed in cases of death, executions brought in upon goods, or of stock to be turned over from one person to another, or divided between copartners; and are called *sworn appraisers*, from their taking an oath to do justice between party and party.

They sometimes appraise on behalf of both sides, each party agreeing to have the same *appraiser* or *appraisers*; sometimes in opposition, each party chusing one or more of a side; and sometimes by commission or deputation of trustees, masters in chancery, &c.

APPREHENSION, in *Logic*, denotes the simple attention of the mind to an object presented either to our sense, or our imagination, without passing a judgment, or making any inference.

The word literally denotes the action of the hand, whereby it takes hold of, and grasps any thing; being formed of *ad*, and *prehendo*, *I catch*.

In this sense, *apprehension* differs from *notion*, as the act of the mind, whereby a *notion* is formed, differs from an act of the mind, whereby we attend to a *notion* already formed.

APPREHENSION is likewise used to express an inadequate and imperfect idea; and thus it is applied to our knowledge of God, in contradistinction to *comprehension*.

APPREHENSION, in *Law*, signifies the seizing a criminal, in order to bring him to justice. See ARREST.

APPRENDRE, in our *Ancient Law-Books*, a fee or profit to be taken or received.

APPRENTICE, from *apprendre*, to learn, one, who is bound by covenant to serve a tradesman or artificer a certain time, usually seven years, upon condition of the master's instructing him in his art or mystery.

Apprentices may likewise be bound to husbandmen, or even to gentlemen; and they, as well as tradesmen, are compellable to take the children of the poor, whom the overseers, with the consent of two justices, may bind till the age of twenty-four years. *Apprentices* may be discharged on reasonable cause; but if any, whose premium has been less than ten pounds, run away from their masters, they are compellable to serve out the time of absence, or give satisfaction for it, at any period within seven years after expiration of the original contract. *Apprentices* gain a settlement in that parish where they last served forty days; and by the 5th of Elizabeth,

c. 4. they have an exclusive right to exercise the trade in which they have been instructed, in any part of England. However, the resolutions of the courts have in general rather confined than extended the restriction of this statute. See Blackstone's Com. vol. i. p. 426, &c.

In France, the sons of tradesmen, living in their father's house till seventeen years of age; are reputed to have served an *apprenticeship*. In that country, the times of serving are different in the different professions, from three years to eight.—After serving out an *apprenticeship*, the person becomes what they call an *aspirant*, or candidate for master-ship, and is to be examined by proper officers as to his skill and proficiency, and also to exhibit a *chef d'œuvre* or master-piece in the art he has been bred to, before he be suffered to set up to practise for himself. And the custom of France in regard to *apprentices* is not unworthy the imitation of other nations.

Anciently, benchers in the inns of court were called *apprentices of the law*, in Latin *apprenticii juris nobiliores*; as appears by Mr. Selden's note on Fortescue; and so the learned Plowden styles himself. See BENCHER.

Sir Henry Finch, in his *Nomotechnia*, writes himself, *apprentice de ley*: Sir Edward Coke, in his *Inst.* says *apprenticii legis*, in pleading, are called, *homines consilarii*, & *in lege periti*; and in another place, *apprentices*, and other counsellors of law.

APPROACH. See ACCESS and APPROXIMATION.

The curve of equable approach, *accessus æquabilis*, first proposed by M. Leibnitz, has given the annalists some trouble.—The business is to find a curve, wherein a body descending by the sole power of gravity shall approach the horizon equally in equal times.—This curve has been found by Bernouilli, Varignon, Maupertuis, and others, to be the second cubical parabola so placed as that its point of regression is uppermost. Vide Hist. Acad. R. Sciences, an. 1699. p. 82. Idem, an. 1730. p. 129. Mem. p. 333.

APPROACH, in Gardening, is used in speaking of the method of inarching or INOCULATING, which is called GRAFTING by approach.

Some physicians also speak of a method of curing diseases by touching or approach. See APPROXIMATION.

APPROACHES, in Fortification, the several works made by the besiegers for advancing or getting nearer to a fortress, or place besieged. See Tab. Fortif. fig. 21.

Such are trenches, mines, saps, lodgments, batteries, galleries, epaulments, &c.

APPROACHES, or Lines of APPROACH, are particularly used for trenches dug in the ground, and their earth thrown up on the side next the place besieged; under shelter or defence whereof the besiegers may approach, without loss, to the parapet of the covered way; and plant guns, &c. wherewith to cannonade the place.

The lines of approach are to be connected by PARALLELS, or lines of communication.

The besieged frequently make COUNTER-approaches, to interrupt and defeat the enemies approaches.

The ancients made their approaches towards the place besieged, much after the same manner as the moderns. M. de Folard shews, that they had their trenches, their saps, parallels, &c. which, though usually held of modern invention, appear to have been practised long before, by the Greeks, Romans, Asiatics, &c. In Poylb. t. ii. p. 161.

APPROACHING, in Fowling, a term used to express such devices as are contrived for the getting within shot of shy birds. It is principally used in marshy low places. The best method of approaching is by means of three hoops, tied together at proper distances, according to the height of the man that is to use it, and having boughs of trees tied all round it, with cords to hang it over his shoulders; a man getting into this, conceals himself, and approaches by degrees towards his game in the form of a moving bush.

Geese, ducks, and teal, quit the waters in the evening, and pass the night in the fields, but at the approach of morning they return to the water again, and even when on the water they will retire to great distances, on the approach even of a horse or cow, so that the business of the stalking horse is of little use; but this device of approaching by the moving bush, succeeds tolerably well with them.

APPROBATION, a state or disposition of the mind wherein we put a value upon, or become pleased with, some person or thing. Moralists are divided on the principle of approbation, or the motive which determines us to approve and disapprove. The Epicureans will have it to be only SELF-interest; according to them, that which determines any agent to approve his own action, is its apparent tendency to his private happiness; and even the approbation of another's action flows from no other cause but an opinion of its tendency to the happiness of the approver, either immediately or remotely. Others resolve approbation into a moral sense, or a prin-

ciple of benevolence, by which we are determined to approve every kind affection either in ourselves or others; and all publicly useful actions, which we imagine to flow from such affection, without any view to our own private happiness.

Dr. Adam Smith thinks it needless to introduce any new power of perception, in order to account for the principle of approbation; and apprehends, that sympathy is sufficient to account for all the effects ascribed to this peculiar faculty. This system places virtue in utility, and accounts for the pleasure with which the spectator surveys the utility of any quality from sympathy with the happiness of those who are affected by it. This sympathy, he observes, is different both from that by which we enter into the motives of the agent, and from that by which we go along with the gratitude of the persons who are benefited by his actions: and he says, it is the same principle with that by which we approve of a well-contrived machine.

According to others, reason or the understanding, the same faculty by which we distinguish between truth and falsehood, enables us to distinguish between what is fit and unfit, amiable and odious, both in actions and affections: and they argue, that such are the natures of certain actions, that when perceived, as they are, by a reasonable being, there must result in him certain emotions and affections. An excellent writer adds, that in contemplating the actions and affections of moral agents, we have both a perception of the understanding and a feeling of the heart; and the latter, or the effects in us accompanying our moral perceptions, are deducible from two springs. They partly depend on the positive constitution of our natures; but the most steady and universal ground of them is the essential congruity between the object and the faculty.

Hutcheson's Inquiry, &c. tract. 2. sect. 4. and Ess. on Pass. p. 207. Smith's Theory of Mor. Sent. Parts 4, and 6. Cudworth's Immut. Mor. B. I. Price's Review, &c. ch. 2.

APPROBATION, in Civil Law. It is a maxim among civilians, *Approbare dicitur qui non improbat*. He is judged to approve who does not disapprove.

By the civil law, a mere approbation of a crime after commission, does not make a person guilty, but an approbation attended with fact, is equivalent to a command.

APPROBATION is more particularly used, in speaking of recommendations of books, given by persons qualified or authorized to judge of them.

Those appointed to grant licenses, and imprimaturs, frequently express their approbation of books.

Books were formerly subjected to a licenser in England, see 13th Car. II. c. 33. which act is long since expired; and being incompatible with the noble principles of the REVOLUTION, has never since, and we hope never will be, revived.

APPROPRIARE *ad honorem*, in Law, signifies to bring a MANOR within the extent and liberty of such an HONOUR.

APPROPRIARE *communam*, in Law, signifies to discommon; i. e. to separate and inclose any parcel of land, which before was open common.

APPROPRIATE, APPROPRIATED, in Philosophy, is understood of something which is indeed common to several; yet, in some respects, is peculiarly attributed to one.

APPROPRIATE, in Law, is understood of a church or benefice, the patronage whereof is annexed to some church-dignitary, who appoints a vicar to serve the cure; the patron receiving the chief produce of it.

There are computed to be in England 3845 churches appropriate and inappropriate.

APPROPRIATION, the act of appropriating; i. e. of applying a church-benefice, which of its own nature is *juris divini*, and no person's patrimony, to the proper and perpetual use of some religious community, to enjoy for ever.

This contrivance seems to have sprung from the interested policy of the monastic orders, who begged and bought, for masses and obits, and sometimes even for money, all the advowsons within their reach, and then appropriated the benefices to their own corporation. By a clause in the statutes of the 27th of Hen. VIII. c. 28; and the 31st of Hen. VIII. c. 13. which dissolved the monasteries, the appropriations of the several parsonages were given to the king, in as ample a manner as they were before held by the abbots, &c. The Alien PRIORIES had in former reigns been dissolved, and assigned to the crown; and from these two sources have arisen all the lay appropriations or secular parsonages now in the kingdom; these having been afterwards granted from time to time by the crown.

Appropriation is where the advowson of a parsonage is given

given or belongs to any bishoprick, religious house, college, &c. and to their successors; so that the house or body is both patron and parson, and some one of the members officiates as vicar.

It is called *appropriation*, because the profits of the living are appropriated to the use of the patrons; so that parsons, though they are not ordinarily accounted *domini usufructuarii*, having no right of fee-simple; yet, by reason of the perpetuity of their succession, are here reputed owners of the fee-simple, and are therefore called *propriarii*.

To make an *appropriation*, after license obtained of the king in chancery, the consent of the diocesan, patron, and incumbent, is necessary, if the church be full; if it be void, the diocesan and the patron, upon the king's license, may conclude it.

To dissolve an *appropriation*, it is enough to present a clerk to the bishop, and for him to institute and induct him: for, that once done, the benefice returns to its former nature. This is called *DISAPPROPRIATION*. See Blackstone's Com. vol. i. p. 385. &c. ed. 4.

APPROVEMENT, **APPROVEAMENTUM**, or **APPROVIAMENTUM**, is sometimes used in ancient writers for an improvement, or rise of the **VALUE** and worth of a thing.

Thus to *approve*, *approbare*, is to make the best benefit of a thing, by increasing the rent, &c. *Cum omnibus approviamentis, & aliis pertinentiis suis, &c.*

Hence, in some ancient statutes, bailiffs of lords in their franchises are called their *approvers*.

A bailiff is not to think it below him to *approve*, *approbare*, his master's goods; but of his barley to make malt, of his wool to make cloth, &c.

APPROVEMENT is more particularly used where a man hath common in the lord's waste, and the lord incloseth part of the waste for himself; leaving sufficient common, with egress and regress for the commoner. Reg. Jud. 8, 9.

APPROVER, in our *Laws*, one who, confessing felony in himself, appealeth or impeacheth another or more of his accomplices.

He is so called from the French *approuver*, *comprobare*, because he must prove what he hath alledged in his appeal. This proof was anciently either by battle, or by the country, at the choice of the appellee: and the form of this accusation may be found in Crompt. Just. 250. See also Bracton, lib. iii. Staundf. Pl. Cor. 52.

APPROVERS of the king, are those who have the letting of the king's **DEMESNES** in small manors, &c.

In the statute of the 1st of Ed. III. c. 8. sheriffs are called the king's *approvers*.

It being in the discretion of the court to suffer one to be an *approver*, this method of late hath seldom been practised. But we have in cases of burglary and robbery on the highway, what seems to amount to the same by statute; it being ordained, that where persons charged with such crimes out of prison, discover two others concerned in the crime, they shall have a pardon, &c. Stat. 5th Anne, c. 31.

APPROVER is particularly used in *Ancient Law Writers*, for a bailiff or land steward, appointed to have the care of a manor, franchise, or the like, and improve and make the most of it for the benefit of his master.

In this sense, the word is also written *appruare*.

APPROVERS are called, in *Middle Age Writers*, *probatores* and *approbatores*.

APPROXIMATION, from *ad*, and *proximus*, near to, in *Arithmetic* and *Algebra*, a continual approach still nearer and nearer to a root or quantity sought, without a possibility of ever arriving at it exactly.

We have divers methods of *approximation* delivered by Wallis, Raphson, Halley, &c. all of them being no other than serieses infinitely converging, or approaching still nearer to the quantity required, according to the nature of the series.

It is evident, that if a number proposed be not a true square, it is in vain to hope for a just quadratic root thereof, explicable by rational numbers, integers, or fractions; whence, in such cases, we must content ourselves with *approximations*, somewhat near the truth, without pretending to accuracy: and so for the cubic root, of what is not a perfect cube; and the like for superior powers.

This the ancients were aware of, and accordingly they had their methods of *approximation*; which, though scarce applied by them beyond the quadratic; or perhaps the cubic root, are yet equally applicable, by due adjustments, to the superior powers also, as is shewn in the Philosoph. Transact. N° 215. or Ph. Tr. ab. vol. i. p. 98. ib. vol. iv. p. 80.

If there be a non-quadratic or non-cubic number; the former being expressed by $aa + b$, and the latter by $aaa + b$, where aa and aaa are the greatest square and

cube in the proposed numbers; then $\sqrt{aa + b} = a +$

$$\frac{ab}{2aa + \frac{1}{2}b} = a + \frac{b}{2a} - \frac{bb}{8a^3}, \text{ \&c. and } \sqrt{a^3 + b} = a +$$

$$\frac{ab}{3aaa + b} = \frac{1}{2}a + \sqrt{\frac{1}{4}aa + \frac{b}{3a}} = a + \frac{b}{3a^2} - \frac{b^2}{9a^5}, \text{ \&c. will be easy and expeditious approximations to the square and cube root.}$$

To extract the root of an equation by **APPROXIMATION**.—1°

For a quadratic equation suppose the equation $x^2 - 5x - 31 = 0$; let the root be $8 + y$, so that y may denote the fraction, whereby the assumed number either exceeds or comes short of the root: then

$$\begin{aligned} x^2 &= 64 + 16y + y^2 \\ -5x &= -40 - 5y \\ -31 &= -31 \end{aligned}$$

$$-7 + 11y + y^2 = 0$$

Since the powers of fractions are continually decreasing; and we only here want a root nearly true; y^2 is cast away; upon which,

$$-7 + 11y = 0$$

$$y = \frac{7}{11} = \frac{1}{1.57} \text{ nearly } = 0.6$$

Wherefore $x = 8 + 0.6 = 8.6$

Suppose $x = 8.6 + y$. Then

$$\begin{aligned} x^2 &= 73.96 + 17.2y + y^2 \\ -5x &= -43 - 5y \\ -31 &= -31 \end{aligned}$$

$$\begin{aligned} 73.96 - 43 - 31 + 17.2y - 5y &= 0 \\ -0.04 + 12.2y &= 0 \end{aligned}$$

$$12.2y = 0.04$$

$$y = 0.04 \div 12.2 = 0.0032$$

Therefore $x = 8.6 + 0.0032 = 8.6032$

Suppose $x = 8.6032 + y$; then will

$$\begin{aligned} x^2 &= 74.01505024 + 17.2064y + y^2 \\ -5x &= -43.0160 - 5y \\ -31 &= -31.00000000 \end{aligned}$$

$$-0.00094976 - 12.2064y = 0$$

$$\begin{aligned} y &= 0.00094976 \div 12.20640000 \\ &= 0.000077808 \end{aligned}$$

Therefore $x = 8.6032 + 0.000077808 = 8.603277808$.

Suppose, again, the root of a cubic equation $x^3 + 2x^2 - 23x - 70 = 0$ be required by *approximation*; here let the root be $5 + y$, since the terms are omitted wherein y^2 and y^3 are found; there is no necessity for expressing them in the transformation of the equation. Wherefore, we find

$$\begin{aligned} x^3 &= 125 + 75y + \dots \\ +2x^2 &= 50 + 20y + \dots \\ -23x &= -115 - 23y \\ -70 &= -70 \\ -10 + 72y &= 0 \end{aligned}$$

$$y = \frac{10}{72} = 0.1 \text{ nearly.}$$

Therefore $x = 5 + 0.1 = 5.1$

Suppose $x = 5.1 + y$. Then will

$$\begin{aligned} x^3 &= 132.651 + 78.03y + \dots \\ +2x^2 &= 52.02 + 20.4y \\ -23x &= -117.3 - 23y \\ -70 &= -70 \end{aligned}$$

$$-2.629 + 75.43y = 0$$

$$75.43y = 2.629$$

$$y = 2.629 \div 75.43 = 0.0348$$

Wherefore $x = 5.1 + 0.0348 = 5.1348$.

And after the same manner might one proceed to infinity, *approximating* by every successive operation nearer to the exact value of the root of the proposed equation.

The *rectification* and *quadrature* of the circle, together with many other problems both in geometry and algebra, afford instances of *approximation*. See **EQUATION**.

APPROXIMATION, in *Medicine*, denotes a magnetical kind of cure, or method of transplanting a disease into some other subject, whether animate or vegetable, by bringing it in immediate contact with the patient.

APPUI, in the *Manege*, q. d. rest or stay upon the hand, is the reciprocal effort between the horse's mouth and the bridle-hand; or the sense of the action of the bridle on the hand of the horseman.

A just *appui* of the hand is the nice bearing up or stay of the bridle; so that the horse, being awed by the sensibility and tenderness of his mouth, dares not rest too much upon the bit-mouth, nor check or beat upon the hand to withstand it.

A dull *appui*, is when a horse has a good mouth, but his tongue is so thick, that the bit cannot work, or bear upon the bars; the tongue not being so sensible as the bars

bars: though the like effect is sometimes owing to the thickness of his lips. A horse is said to have no *appui*, when he dreads the bit-mouth, is too apprehensive of the hand, and cannot bear the bit. He is said to have too much *appui*, when he rests, or throws himself too too much, or too hardily, upon the bit. Horses designed for the army ought to have a full *appui* upon the hand.

APPULSE, from *ad*, and *pulso*, *I act on*, in a general sense, a thing's being brought to, or in contact with another. Articulation is either by *appulse*, i. e. when one of the moveable organs, touches and rests on some of those which are immoveable; or without *appulse*, only by inclination of the moveable organ to the immoveable.

APPULSE of cattle, *appulsus pecoris*, in the *Civil Law*, the right of driving them to water.

APPULSE, in *Astronomy*, the approach of any planet to a conjunction with the sun, or a star.

It is a step towards a transit, occultation, conjunction, eclipse, &c.

Mr. Flamstead, M. de la Hire, and others, have given observations of the moon's *appulses* to the Pleiades. *Phil. Transf.* N^o 76. p. 361. *M. Acad. Scienc.* an. 1708.

The *appulses* of the planets to the fixed stars have always been of great use to astronomers, in order to fix the places of the former. The ancients wanting an easy method of comparing the planets with the ecliptic, which is not visible, had scarce any other way of fixing their situations, but by observing their tract among the fixed stars, and remarking their *appulses* to some of those visible points. *Hist. Acad. Scienc.* an. 1710. p. 417.

Dr. Halley has published a method of determining the places of the planets, by observing their near *appulses* to the fixed stars. *Phil. Transf.* N^o 369.

The best method of discovering the longitude at sea, is by observations of the *appulses* of the moon to the fixed stars. See **LONGITUDE**.

Of all the celestial observations hitherto made, none are capable of so perfect an exactness, as the near *appulses* of the moon and planets to the fixed stars; for though the places of the stars have not as yet attained their ultimate precision, yet such observations are ever good, the places of the planets being thereby ascertained in proportion to the correctness of any catalogues that may be made hereafter. But the ordinary number of stars, with which the planets may be thus compared, being small, the opportunities of observing are consequently rare; whence appears the great use of a full catalogue of all the telescopic stars within the zodiac, viz. that thereby opportunities of observing *appulses* may be more frequent. Since the royal observatory at Greenwich was put under Dr. Halley's care, he endeavoured to put himself in a condition to supply the many and great vacancies to be met with in the present zodiac; and for the service of astronomy, published a map, or planisphere of the starry zodiac; wherein are accurately laid down all the stars to which the moon's *appulse* has ever been observed in any part of the world. *Phil. Transf. abr.* vol. vi. p. 170.

APPURTENANCES, or **APPERTINANCES**, in *Common Law*, signify things belonging to some other as their principal.

The word is formed of *ad*, *to*, and *pertinere*, *to belong*.

Appurtenances may either be things corporeal; as hamlets belonging to a chief manor; or incorporeal, as liberties and services of tenants. See **APPENDANT**.

APRICOT, *Armeniaca*, or *Præcotia mala*, in *Botany*, a well-known fruit. The characters of this tree are, that the flower is composed of five large roundish petals, which spread open, whose base is inserted in the empalement. In the centre is placed a round *germen*, attended by upwards of twenty awl-shaped *stamina*. The *germen* afterwards becomes a roundish pulpy fruit, having a longitudinal furrow, enclosing a roundish nut, which is a little compressed on the sides. The specific title given by Linnæus to the *apricot* is *prunus floribus subseffilibus foliis subcordatis*; and he ranges it in the class of plants, intitled *icosandria monogynia*.

There are seven varieties; the Masculine, Orange, Alger, Roman, Turkey, Breda, and Brussels, *apricots*: and they ripen in the order here enumerated.

The method of cultivating and propagating the several sorts of this fruit, is this: they are all to be propagated by **GRAFTING** them on plum stocks, and will readily take with almost any species of plum, provided that the stock be in a thriving condition.

The Breda and Brussels *apricots*, are best to be made standard trees; all the rest are to be propagated against walls, and should have an east or west aspect. The borders under these walls should be six feet wide at least,

and should be two feet deep in earth. If the place where they are planted be a loamy soil, the beds are to be raised pretty high above the level of the ground, and if chalk or gravel, it must be removed to a considerable width; to make room for fresh soil to be put in, but it need not be dug more than two feet deep. The best soil for them is fresh earth from a pasture ground, taken to ten inches deep, and laid with the turf among it to rot together, for a twelvemonth before it is used.

Such trees should be chosen for planting as are but of one year's growth from the budding; and where the soil is dry, or moderately so, October is the best season for planting. For the manner of planting, see **PLANTING**.

No part of the head should be cut off at this time, unless there are some foreright shoots which will not come near the wall. In a good strong soil, or against a low wall, these trees should be planted at eighteen feet asunder; the stem is to be placed four inches from the wall, and the head inclined toward the wall; the branches should be then nailed up toward the wall, and the surface of the earth must be covered with rotten dung, to keep out the frosts. In February the dung is to be removed, and the tree being held very steady, the top is to be cut off to about three eyes above the bud, leaving the sloping side towards the wall. If the weather proves dry after this, they must be gently watered, and some turf or mulch laid round the root to keep off the sun's heat, and what branches are produced must be nailed up, except such as are produced foreright, which must be cut off.

At Michaelmas, when the trees have done growing, the branches must be again unnailed, and cut off to a proper length, the stronger shoots being left of nine or ten inches long, the weaker five or six inches. After they are thus shortened, they must be again nailed up, and that as much in an horizontal direction as possible. The second and third summer the same rules must be observed, all the foreright shoots must be displaced as they are produced, nailing in the others horizontally to the wall; so that the middle of the tree may be kept open; and never shorten any of the shoots in summer, unless to furnish branches for some vacant spaces on the wall; and this should never be done later than April. The *apricot* produces its blossom buds not only on the last year's wood, but also on the cusions or spurs from the two years old wood; great care must therefore be taken not to injure or displace these.

The Brussels and Breda *apricots* being planted for standards, require very little management, only in autumn or spring cut away all the dead wood, and such branches as cross one another. The Brussels *apricot* is the finest of all the kinds: it is ripe in the middle of August. Miller.

APRICOT water. To a quart of water, put six or eight *apricots* sliced, and the kernels bruised; boil the whole, to extract the taste; and when cold, add four or five ounces of sugar. When that is dissolved, strain it.

APRIL, the fourth month of the **YEAR**, according to the common computation; but the second, according to that of the astronomers.

The word is derived from *Aprilis*, of *aperio*, *I open*; because the earth, in this month, begins to open her bosom for the production of vegetables.

In this month the sun travels through the sign Taurus.

A PRIORI, *Demonstration*. See **DEMONSTRATION**.

APRON, in *Naval Architecture*, is a piece of curved timber fixed behind the lower part of the stern, immediately above the foremost end of the keel.

APRON is also a name given to a platform or flooring of plank, raised at the entrance of a dock, against which the dock gates are shut.

APRON, in *Gunnery*, a piece of lead which caps or covers the vent or touch-hole of a great gun.

APSINTHATUM, in *Physic*, a kind of potion to strengthen the stomach. See **ABSINTHITES**.

AP SIS, or **ABSIS**, signifies the bowed or arched roof of a house, room, or oven, &c. as also the ring or compass of a wheel.

AP SIS, in *Ecclesiastical Writers*, denotes an inner part in the ancient churches, wherein the clergy sat, and where the altar was placed.

It is supposed to have been thus called, because covered with an arch or vault of its own, by the Greeks called *αψις*, and by the Latins *absis*. Isidore, with less probability, imagines it so called, as being the most luminous part; from *απτείν*, *to give light*.

Ap sis, in this sense, amounts to the same with what is otherwise called *choir*, *concha*, *camera*, and *presbyterium*; and stands opposite to the *nave* or body of the church.

A P T

APsis is more particularly used for the bishop's seat, or throne, in ancient churches.

This was more peculiarly called *apsis gradata*, because raised on steps above the ordinary stalls. It was also denominated *exedra*, and in later times *tribune*.

APsis is also used for the reliquary, or case, wherein the relics of saints were anciently kept.

It took the name *apsis*, from its being round; or arched at the top; or perhaps from the place where it was kept.

The *apsis* was commonly placed on the altar: it was usually of wood, sometimes also of gold and silver, with sculptures, &c.

APsis, in *Astronomy*, is applied to two points in the orbits of planets, wherein they are at the greatest, and the least, distance from the sun, or earth.

The *apsis* at the greatest distance is called the *higher* or *summa apsis*; that at the least distance, the *lower*, *ima apsis*, or *infima*.

The two *apsides* are also called *ages*.

The higher *apsis* is more particularly denominated the *aphelion*, or *apogee*; the lower, the *perihelion*, or *perigee*. The diameter which joins these two points is called the *line of the apsides*, and this passes through the centre of the orbit of the planet, and the centre of the earth or sun. In the modern astronomy this line makes the longer axis of the elliptical orbit.—Such is the line AP (*Tab. Astron. fig. 1.*) drawn from the aphelion A to the perihelion P. The eccentricity is reckoned in the line of the *apsides*; being the distance between the centre of the orbit of the planet C, and the centre of the sun or earth, S, according as the Copernican, or the Ptolemaic system is followed. For the motion of the line of the *apsides*, see APOGEE.

The motion of a planet from one *apsis* to another, e. gr. of the moon, from apogee to perigee, and back again from perigee to apogee, is considered by mechanical philosophers as oscillations, and accounted for from the laws of the pendulum; consequently they must one day cease, when the equilibrium is restored. Vide Horreb. *Clav. Astronom. cap. 20.*

Others apprehend something immechanical in the motion; and propose, as insoluble questions, How the equilibrium was first destroyed; why not restored again; and whence the breach is continually renewed? Vide *Mem. de Trev. Avril, 1730. p. 709, seq.* But these are persons unacquainted with the secrets of the Newtonian Philosophy. Vide *Newt. Prin. lib. i. seq. 9.* Herman. *Phoron. lib. i. cap. 4.* See also DISTANCE, GRAVITATION, ORBIT, PERIOD, and PLANET.

APSYCHIA, from *α* privative, and *ψυχη*, soul, in *Medicine*, a swooning or fainting away, called also *hypopsychia* and *apopsychia*.

APSYTOS, from *α*, and *ψυχος*, I cool, a word used by the ancients, as the name of a stone found in Arcadia, and of the colour of iron, the quality of which they say was, that when once heated red-hot, it would never grow cold again. It is easy to see that this is an impossibility; and that some errors among the ancients, and misunderstandings of their works by later writers, have given the occasion for propagating so idle an opinion.

We have some stones indeed in England, that when once heated, will retain a warmth a long time, but all the other accounts seem groundless; our warming stone, used in Cornwall and Yorkshire to lay at the feet of people's beds, will retain warmth eight or ten hours; and there is a sort of red stone cut out of the salt mountains near Cordova, and formed into broad tiles called *ruggiols* by the Italians, which being once well heated, will retain a sensible warmth twenty-four hours; but these do not all come up to the qualities of this imaginary stone of the ancients. See ASBESTOS.

APSYRTUS, in the *Materia Medica* of the ancients, a name given to the common *marrubium*, or horehound, a plant at that time as well as now esteemed very good, in coughs, and other complaints of the breast.

APTERA, from *α*, and *πτερον*, wing, in the *History of Insects*, a classical name, comprehending all those INSECTS which have no wings.

They are of the seventh order in the class of insects in the Linnæan system, comprehending fourteen genera and two hundred and ninety-seven species.

This series is divided by Hill into two classes: 1. Such as have neither wings nor limbs, called APTERA ANARTHRA. And, 2. Such as have limbs, but no wings, called, APTERA PODARIA.

AP-THANES, an ancient term for the higher nobility in Scotland. See THANE.

APTITUDE, from *aptus*, fit, the natural disposition any thing hath to serve for such or such a purpose. Thus oil hath an *aptitude* to burn, and water to extinguish fire.

APTITUDE, or APTNESS, is often used in speaking of the

A Q U

talents of the mind, for a promptitude, or disposition to learn things with ease and expedition.

In which sense *aptness* amounts to the same with what the Greeks call *ευρηθια*, and the Latins *bona indoles*, and we sometimes *docility*.

Charlton divides *aptness* into these parts, viz. *acuteness*, *sagacity*, and *memory*.

APTOTE, in *Grammar*, a noun indeclinable, or which is without any variation or case.

The word is derived from the privative *α*, and *πτωσις*, *casus*.

Such are the words *fas*, *nefas*, &c.

APUA, in *Ichthyology*, the name of a small sea-fish, supposed by many to be produced by the slime and mud of the shores. But all such opinions are groundless. There are two species of this fish, 1. the *apua vera*, 2. the *apua phalerica*.

APUA membras, in *Ichthyology*, a name by which some have called the PILCHARD.

APUS, *Avis Indica*, in *Astronomy*, a constellation of the southern hemisphere placed near the pole, between the *triangulum australe* and the chameleon, supposed to represent the bird of paradise.

The *apus* is supposed one of those birds called APODES, as having no feet.

The stars contained in this constellation, according to Sharp's catalogue, annexed to the British, are the following eleven.

Situation of the Stars.	Signs.	Longitud.	Latitude	Magnitude.
In the head	♏	21 6 38	44 32 55	5
In the neck	♏	21 24 49	46 52 22	6
In the root of the tail, northern	♏	19 2 3	54 31 7	4
Middle	♏	17 31 2	55 59 9	5
Southern	♏	18 43 32	56 0 22	4
5.				
In the northern part of the tail, 1st.	♏	9 45 0	52 2 56	6
2d.	♏	10 44 10	51 51 53	6
In the middle of the tail, northern	♏	10 26 44	58 13 8	4
Middle	♏	9 53 26	59 45 2	6
Southern	♏	10 48 29	60 32 10	5
10.				
Nearer the pole.	♏	14 28 24	62 4 45	4

ARUS, in *Ornithology*, a species of the swallow.

ARUS likewise denotes a species of the *monoculus* genus of insects.

APUTTASY, in *Botany*, a name given by the people of Guinea to a tree, a decoction of which is in great use among them for washing the mouth to cure the scurvy in the gums, and preserve the teeth. *Phil. Trans. N° 237.*

APYCNI, in the *Ancient Music*, was used for such chords or sounds of the scale, as could never enter the SPISUM. They were fixed, or STABILES.

APYCNON, from *α*, and *πυκνος*, non *spissimum*, *rarum*, in the *Ancient Music*, was applied to those two conjunct intervals of a tetrachord, which taken together were greater than the third.

This happened only in the two diatonic genera.

APYRENOS, properly signifies without kernels. The Greek writers, however, did not always keep up rigidly to the sense of this word, but sometimes applied it to such fruits as had fewer and softer kernels than others of the same kind.

APYREXY, in *Medicine*, the intermission of a fever, or ague.

The word is formed of the privative *α*, and *πυρ*, *ignis*, *heat*.

APYROI, in *Antiquity*, a denomination given to ALTARS whereon sacrifice was offered without fire.

In which sense, the word stands contradistinguished from *empyroi*.

APYROMETALLUM, in *Metallurgy*, a name by which some authors have called gold, from its resisting the force of fire.

APYRON, something that has not undergone the fire. In this sense, *fulphur vivum*, or native sulphur, is particularly denominated *apyron*.

Some authors also give the denomination *apyron* to a modern process for making *athiops* mineral without fire, by trituration alone.

APYROUS, in *Chemistry*, is a word applied to denote that property in some bodies, by which they resist the most violent fire, without any sensible alteration.

Apyrous bodies ought to be distinguished from those which are *refractory*.

Refractory substances, are those which cannot by violent heat be fused, whatever other alteration they may sustain.

AQUA, in *Natural History*, *Physics*, *Chemistry*, *Medicine*, WATER, &c. which see.

The

The word is Latin, and supposed to be compounded of *a* and *qua*, *q. d. from which*; alluding to the opinion that water is the basis, or matter of all bodies.

AQUA alexiteria simplex, the name now given in the London Dispensatory to the simple water commonly called milk water. It is ordered to be made in the following manner: take mint, a pound and a half; tops of sea-wormwood, and leaves of angelica, all fresh and green, of each a pound; add as much water as is necessary to preventing burning, and distil off three gallons.

AQUA alexiteria spirituosaf, the name of a compound or cordial water, brought into use by the London Dispensatory. It is ordered to be made of half a pound of green mint, and four ounces of angelica leaves, with the same quantity of tops of sea-wormwood, and a gallon of proof spirit; adding water enough to prevent burning, and distilling off a gallon.

This, with a double portion of the angelica, and the addition of a pint of vinegar after the distillation, makes what is called the **AQUA alexiteria spirituosaf cum aceto**, which is intended to supply the place of the treacle-water, of the former dispensaries.

AQUA aluminosa bateana, a form of medicine in the London Pharmacopœia, composed in the following manner: take alum and white vitriol, of each half an ounce; water, a quart; boil the whole together, that the salts may be dissolved; and then letting it settle, filtre it through paper.

Quincy gives another process for making alum water; as also its use in medicine; for which see **ALLUMINOUS**.

AQUA chrysulca, a subtle kind of *aqua regia*, called also *aqua pugilum*. Three parts of *sal ammoniac*, and two of nitre, injected into a tubulated retort made red-hot; yield this acid compound spirit. Neumann, p. 225.

AQUA fortis is a corrosive liquor prepared from nitre and vitriol; and serving as a menstruum wherewith to dissolve silver, and all other metals, except gold; whence its name. See **ACID, nitrous**.

Aqua fortis is made by distilling purified nitre with calcined vitriol, or rectified oil of vitriol, in a strong heat: the liquor, which arises in blood-red fumes, being collected, is the *aqua fortis*.

In preparing compound *aqua fortis*, some mix either sand, or clay, or ashes, with the calcined vitriol and nitre, in order to hinder their melting too readily; and thus prevent the too hasty evaporation: when the fusion is thus prevented, the parts of the salts receive more violent impressions from the fire, and are better converted into a volatile spirit, which is the *aqua fortis*.

If to the spirit of nitre, &c. thus distilled, sea-salt, or *sal ammoniac*, be added, it commences *aqua regia*; and will no longer dissolve silver, but will now dissolve gold. Hence, to try whether or no *aqua fortis* be pure: put a grain of a solution of silver in *aqua fortis*, into a like quantity of the water in question: and, if the solution remains without either the water's turning milky, or the silver precipitating, the *aqua fortis* is pure. If these consequences happen, the *aqua fortis* is bad.

The fault of such *aqua fortis* happens either from the use of too violent and strong continued fire, or because the mixture of the vitriol and the nitre have been carelessly made, or too large a proportion of the former used; in this case, when the distillation draws toward the end, there appear white milky fumes in the recipient; these are vitriolic; and this phenomenon plainly shews the fault of the menstruum, and might serve to prognosticate the before mentioned precipitation. This calx of silver seldom proves fluid in the fire, but runs into a kind of *luna cornea*, and shews that the nitre has been impure, and has contained some portion of sea-salt. Cramer.

It is a liquor of various and extensive use. It is very serviceable to refiners for parting or separating of silver from gold. To the workers in mosaic, for staining and colouring their woods. See **MARQUETRY**. To dyers, in their colours, and particularly in scarlet. To other artists, for the colouring of bone and ivory; which is done by steeping the matter therein, after first tinging it with copper and verdigrise, &c.

Aqua fortis converted into *aqua regia*, by dissolving in it a fourth of its weight of *sal ammoniac*, is used for staining ivory hafts, and bones, of a fine purple colour. Bookbinders throw it on leather, and thereby make marbled covers for books. Diamond-cutters use it to separate diamonds from metalline powders. It is, farther, of service in etching copper, or brass plates. See **ETCHING**.

Silver is very nicely and finely purified by means of this menstruum in the following manner: dissolve silver that has been copelled in a clean glass body, with a sufficient quantity of *aqua fortis*; if the solution is at all

turbid, filtre it through paper into another clean glass; pour into this solution by little and little spirit of salt, or a solution of common salt, or *sal ammoniac*, enough to produce a perfect *aqua regia*. The limpid solution will now immediately become milky; let it rest for some hours, and all the silver will subside to the bottom in form of a white powder, which may be sooner effected, by pouring a large quantity of pure water on the solution if highly charged. Wash the powder with many fresh waters, or with the phlegm of spirit of salt or *aqua fortis*, till the calx and water are both perfectly insipid; then separate the remaining water by a filtering paper, and dry the calx. Put this into a crucible well rubbed over the inside with soap, and cover it with about one half of any fixed alkaline salt, very dry and beaten to a fine powder; squeeze the whole well down with a finger; cover the crucible with a tile, and set it in a wind-furnace; make at first a middling fire, only to make the vessels grow red-hot, and then increase it to a higher degree; when the fusion is completed take out the crucible, and let the silver either cool in it, or else pour it into an ingot. Cramer.

The best *aqua fortis* is often tinged with a greenish colour, which happens, if to *aqua fortis*, having been exposed some days to the air, and having lost its red fuming spirit, there be poured some fresh strong *aqua fortis* still emitting its fumes, or if *aqua fortis* be diluted with water. As this colour may however proceed from copper dissolved in it, to be certain that it does not, a little is to be poured into a cucurbit, and as much of some alkaline liquor to be added to it as will saturate the acid. Then if there be ever so little copper in it, the colour becomes a deep blue, and there is a cloudy precipitation made, because the nitre has been regenerated by this process, and does not dissolve copper so much as *aqua fortis* does; but if there be no copper in the *aqua fortis*, the colour disappears.

The nice assayer, after having carefully proved his *aqua fortis*, must concentrate it to a certain degree: for, if too weak, it often retards the solution, and sometimes does not even affect the silver: but this concentration is only to be in a certain degree: for, if it be carried too far, and the *aqua fortis* be made too strong by it, it vanishes into fumes, which rush violently out of the receiver, or vessel, in which the solutions are made, though sufficiently high, and carries away a part of the silver with it in vapours; and if there is any thing of gold in the silver, it will be corroded into a fine dust, which is very difficult afterwards to collect together.

When *aqua fortis* is too weak, it is to be put into a deep cucurbit, and the watery part is to be drawn from it, by a gentle fire, till yellow fumes begin to rise. To find out whether it be too strong, the following method is to be used; melt together one part of gold, and four parts of silver; of this make a flat plate, which cut into three or more parts: roll up each part, that it may be conveniently put into the neck of a crucible; when rolled up, and gently heated at a fire, put it into a cucurbit, and pour upon it three times its weight of *aqua fortis*, setting it in a gentle heat: if the silver is eroded from the gold, and the gold retain the same figure of a piece of plate rolled up, and there appear no reddish dust at the bottom of the vessel, then the *aqua fortis* has its proper degree of strength: but if the dissolution has been made with so much violence, that the gold was eroded, or the plate almost broken, then the *aqua fortis* was too strong. It must then be diluted with a tenth, or an eighth part, of *aqua fortis* phlegm, or, if that is not at hand, with the same quantity of common water. This done, the trial is to be repeated by the dissolution of a like plate rolled up; and this several times over, till the silver be dissolved, without the least diminution of the gold. By this the assayer is assured of a due degree of strength in his menstruum, for all the purposes he requires.

Aqua fortis is better than in the common state, when it is recovered by fire from a metal which had been dissolved by it. It may be almost entirely recovered by fire from such solutions. Lemery, in his curious account of the *arbor martis*, observes, that the experiment succeeds much better with *aqua fortis*, drawn once from a dissolution of iron, than with the common kind; and Cramer gives a very accurate and ready way of obtaining such a revived *aqua fortis*, in any quantity, in this manner: put into a glass alembic, a pound or more of any metalline solution in *aqua fortis*; distil it into a large recipient, over a gentle fire, so that the drops may follow one another, at the interval of some seconds. When the liquor of this quantity is thus drawn off, let such another quantity be put warm into the same cucurbit, to the residuum of the former; let this be distilled in the same manner, till all its liquor is drawn off, and then more added,

added, till the whole quantity intended to be distilled is thus divested of its liquor. After all this, when the yellowish vapours begin to appear from the remainder, a dram of suet must be put into the vessel, lest the dissolved metal should, when dried up, adhere so fast to the sides of the vessel, as to give great trouble in separating it; and when, at last, the calx shall be quite dry, let it be separated and fused with pot-ashes; thus will the metal be recovered, and the receiver will contain the *aqua fortis* revived from it.

AQUA marina, AQUE marine, in *Natural History*, a gem, or precious stone, of a sea-green colour; whence its name.

It is of the same hardness with the amethyst.

Some of the critics contend for its being the sixth stone in the rationale of the Jewish high-priest. Others will have this stone a *turquoise*; and Leo de Juda, and Huterus, translate it *hyacinthus*.

Several of the lapidaries take it, however, to be the **BERYL**; which coincides with the first opinion; the *beryl* being only another name for the *aqua marina*.—Pliny represents this as related to the *smaragdus*, but of a colour less brisk, and imitating a pure sea-water green. This gem may be imitated, by adding at several different times to twenty pounds of crystal glass, made without magnesia, and well purified from gall-glass, six ounces of calcined brass or copper, and a quarter of an ounce of prepared zaffre.

AQUA mercurialis, a preparation of *aqua regia*, and sublimate of mercury, with a little mercury, placed in a sand-heat, till the solution of the mercury be made.

It is a mark of perfection of the *aqua mercurialis*, if it turn a piece of copper cast into it, of a silver colour.

It is by this water that the alchemists pretend, all metalline bodies may be reduced to their first matter, or mercury.

AQUA napha, is a name given to the distilled water of orange-flowers.

AQUA omnium florum, in *Pharmacy*, signifies the distilled water of cows-dung, when they are at grass. Some also call cows urine by this name: and, in English, *all-flower-water*.

AQUA pugilum. See **AQUA chrysulca**.

AQUA regia, or **AQUA regalis**, an acid corrosive spirit, or water, serving as a menstruum to dissolve gold.

It is thus called, because it dissolves gold, which is vulgarly esteemed the king of metals. It is sometimes also called *aqua chrysulca*, and *stygia*. The basis, or essential ingredient of *aqua regia* is common, or sea-salt; which is the only salt in nature that will operate on gold.

By mixing nitrous and marine acids in various ways, *aqua regia* is made, and a menstruum is obtained, capable of acting upon certain bodies, which no pure acid can dissolve, or but imperfectly.

In making common *aqua regia*, the salt should be previously pulverised, in a glass or stone mortar, and a gentle warmth applied to promote its solution in the spirit. Neumann, p. 220.

GOLD and **PLATINA**, in their aggregated state, cannot be dissolved by any other acid; and **TIN** and **REGULUS** of *antimony* are better and more easily dissolved by it. The only difference between the several sorts of *aqua regia* prepared in different manners, is this, that when it is made by merely dissolving *sal ammoniac*, or common salt, in nitrous acid, it then contains *ammoniacal*, or cubic nitre; but these neutral salts do not exist in the *aqua regia* made by the mixture of the two acids, or by distillation.

The dissolving power of *aqua regia* is not injured by its containing these neutral salts; and as the *aqua regia* in which they remain is most easily and most cheaply prepared, it is more generally used than any of the other preparations of it.

It is necessary, however, to observe, that the *ammoniacal* nitre in the *aqua regia* may occasion considerable differences in the nature of the precipitates made from solutions of metals in this menstruum, by separating from these precipitates any of those metallic substances, which it is capable of dissolving, and also by a portion of it adhering to **PRECIPITATES**. For instance, gold precipitated by a fixt alkali from an *aqua regia* made by mixing the pure nitrous and marine acids, does not *fulminate*; but if it be precipitated from an *aqua regia* made by dissolving *sal ammoniac* in nitrous acid, it does *fulminate*. See **AURUM fulminans**.

As to the proportions of nitrous and marine acids, or of *sal ammoniac*, which ought to be employed in the preparation of *aqua regia*, there are no established rules. Common *aqua regia* is made by dissolving four ounces of *sal ammoniac* in sixteen ounces of nitrous acid; but these proportions ought to be varied, according to the nature

of the solutions intended. To dissolve, for example, the greatest quantity of regulus of antimony, the *aqua regia* ought to be composed of four parts of nitrous acid to one of marine. To dissolve the greatest possible quantity of **PLATINA**, the best proportion is equal parts of the two acids. In general, the greater proportion of marine acid, or of *sal ammoniac*, that there is in *aqua regia*, the imperfect metals, and **TIN** in particular, are the less calcined and precipitated by it.

An *aqua regia* composed of two parts of spirit of nitre, and one part of spirit of sal, or of *sal ammoniac*, makes a clear solution of nearly an equal weight of **TIN**, without forming any precipitate; but for this purpose, the operation must be performed slowly, and heat must be avoided as much as possible.

The mixture of the nitrous and marine acids, in order to make *aqua regia*, presents a very singular and remarkable phenomenon. For the vapours of this mixture are more expansive and more difficult to be confined than the vapours of either of the acids, before mixing them; which proves a reaction of these acids upon each other. This phenomenon is but very little sensible, when the acids employed contain much superabundant water, but is more manifest in proportion as these are more concentrated. M. Macquer observed, that upon mixing moderately smoking nitrous and marine acids, which had remained without occasioning any disturbance in their bottles, an *aqua regia* has been formed infinitely more smoking, and which has made the stopper fly out of the containing bottle, particularly in weather somewhat warm. Mr. Baumé, when distilling a pretty strong nitrous acid upon *sal ammoniac*, observed, that the vapours which passed were so elastic, that notwithstanding every precaution, it was impossible to continue the distillation.

Aqua regia does not dissolve silver; but when the quantity of marine acid contained in the *aqua regia* is very small, the acid of nitre does then dissolve silver, which is immediately afterwards attacked by the marine acid, without which it forms the metallic salt called **LUNA cornea**, and is precipitated. An exact separation of gold and silver is therefore better made by *aqua fortis* than by this acid; as the former can never dissolve gold, whereas the latter may, and very frequently does, more or less, corrode and dissolve silver. *Aqua regia* dissolves a greater quantity of lead than marine acid. All the other metals it perfectly dissolves.

According to Gellert's Table, the substances which *aqua regia* dissolves, are placed in the following order, beginning with those with which it most powerfully unites. *Phlogiston*, zinc, iron, regulus of cobalt, copper; tin, arsenic, bismuth, mercury, lead, regulus of antimony, gold.

In this Table copper is erroneously placed before tin, as the latter metal readily precipitates the former. Macquer's Dict.

Dr. Priestley has found, that an *aqua regia*, of much greater power in the solution of gold than the common sort, may be prepared by the impregnation of spirit of salt with the nitrous vapour. Exp. and Obs. on Air, vol. iii. p. 219.

AQUA secunda. This is nothing else but *aqua fortis* diluted with much pure water. It is employed in several arts, to clean the surface of metals, and of certain stones, and for various other purposes.

AQUA sicca philosophorum, a cant term, invented by some alchemists for the flowers of zinc, called by several other as unmeaning names, by these writers; as *sericum*, philosophic cotton, and **TALC**.

A preparation of these flowers, by means of vinegar, has also been called oil of talc, and many great properties ascribed to it; but it is truly no other than the oil of the grape, from which the vinegar was made, and has no title to any thing that has been said of it.

AQUA sulphurata, sulphur water, a new name for what was originally called *gas sulphuris* by Van Helmont.

It is water impregnated with the fumes of burning sulphur; and is conveniently prepared in the following manner: take a quart of water, and half a pound of brimstone; put the water into a large glass receiver; place it with its mouth sideways, and then let the sulphur be set on fire, in an iron ladle fixed to a wooden plug, made to go freely into the neck of the receiver, which should be pretty long. This plug will then keep the ladle up horizontally, that it shall not dip into the water, and a cloth is to be thrown slightly over the mouth of the receiver, to confine the fumes. Let the burning of the sulphur be repeated as often as the fumes from the last subside, till the whole is burnt away. See **GAS**.

AQUA vite is commonly understood of what we otherwise call brandy, or the distilled spirit of wine, either simple,

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simple, or prepared with aromatics, differently, according to the different intentions.

Some, however, distinguished between them; appropriating the term *brandy* to what is procured from wine, or the grape; and *aqua vitæ* to that drawn after the same manner from malt, &c.

The common *aqua vitæ* is made by distilling wine in large copper stills, fitted with worms, so that the liquor flows out of the beak of the still in a constant stream, and the distillation is continued till the liquor ceases to be inflammable. To make pure spirit, it should be again distilled and rectified.

AQUA vitriolica cærulea, a form of medicine in the London Pharmacopœia, made in the following manner: take blue vitriol, three ounces; alum and strong spirit of oil of vitriol, of each two ounces; water, a pint and a half; boil the salts in water till they are dissolved, and then add the oil of vitriol, and finally strain the whole through paper.

Neuman gives a different account of the *aqua cærulea*, or sapphirina of the shops. He says, that sal ammoniac, quick-lime, and water, kept for a night in a copper or brass vessel, or along with pieces of copper, dissolve a part of the metal, by which the liquor is tinged blue, and is called *aqua cærulea*. In this composition the copper is dissolved by the volatile alkali of the *sal ammoniac*, extricated by the quick-lime. Neuman's Works, p. 220.

AQUÆ & ignis interdictio. See INTERDICTION.

AQUÆ bajulus, an ancient name for the clerk officiating under the chief minister, whose business was to assist him in carrying the holy water. The office corresponding to it at present is that of the *PARISH clerk*.

AQUÆ haustus, in the *Civil Law*, a right of drawing water, and carrying it through another's ground.

AQUÆ pryor is used by some to denote the hydrophobia. Phil. Trans. N° 147.

AQUÆDUCT, **AQUÆDUCTUS**, q. d. *ductus aquæ*, a conduit of water, is a construction of stone or timber, built on an uneven ground, to preserve the level of water, and convey it, by a canal, from one place to another. There are *aquæducts* under ground, and others raised above it, supported by arches.—The Romans were very magnificent in their *aquæducts*; they had some that extended an hundred miles. Frontinus, a man of consular dignity, and who had the direction of the *aquæducts* under the emperor Nerva, tells us of nine that emptied themselves through 13,594 pipes, of an inch diameter. Vigenere has observed, that, in the space of twenty-four hours, Rome received from these *aquæducts* no less than five hundred thousand hogsheads of water.—The three chief *aquæducts* now in being are those of the Aqua Virginea, Aqua Felice, and Aqua Paulina. The first was repaired by pope Paul IV. The second was constructed by pope Sixtus V. and is called from the name which he assumed before he was exalted to the papal throne. The third was repaired by pope Paul V. in the year 1611.—The *aquæduct* built by Lewis XIV. near Maintenon, for carrying the river Eure to Versailles, is perhaps the greatest in the world. It is 7000 fathoms long, and its elevation 2560 fathoms; containing 242 arcades. Vide Phil. Trans. ap. Lowth. Abr. vol. i. p. 594.

AQUÆDUCT, **AQUÆDUCTUS**, in *Anatomy*, denotes a bony kind of canal, or passage, in the *os petrosum*, supposed to contribute to the purposes of hearing.—It is called *aquæduct* not only on account of its form, but, as some also imagine, from its serving to discharge any foreign matters collected in the inner cavities of the ear.—It is sometimes also called *aquæductus Fallopii*, from the name of its first discoverer.—Several authors confound it with the *tuba Eustachiana*.

The *aquæductus Fallopii* is sometimes also called *meatus cæcus*; by others *meatus cochlearis*, and *meatus capreolaris*; by others, *canalis particularis*, *meatus auditorius internus*, and *foramen auditorium internum*, called also *hydroparastates*.

AQUÆMANILIS, from *aqua*, water, and *manus*, hand, is particularly used, in *Ecclesiastical Writers*, for a kind of basin or laver, anciently placed in the vestibules of churches, serving to wash the hands in.

Aquæmanilis stood contradistinguished from *urceolus*, as the former was placed under the hands, the latter above them, from whence the water trickled down by a cock. The priest also, after celebrating mass, washed his fingers in an *aquæmanilis*.

In the inventories of church plate, we frequently find mention of *aquæmaniles*, *aquæmanilia*, *aquæmanalia*, of silver gilt, wrought, &c. Du-Cange.

AQUAGE, a water course.

AQUALICULUS, in *Anatomy*, a name given by some to the region of the body, wherein the trunk terminates, and the thighs commence, and in which also the privities are placed.

The *aqualiculus* is the same with what others call *PUBES*, others the *hypogastrium*, *sumen*, *imus ventris*, &c.

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AQUARIANS, **AQUARI**, a sect toward the close of the second century, who, instead of wine, used nothing but water in the sacrament.

It is said the occasion of the abuse was owing to the persecution which prevailed in those times: for the Christians, being then obliged to celebrate the sacrament in the night, found it necessary to make use of water, lest the smell of the wine should betray them to the heathens. But they afterwards went farther, and actually forbade the use of wine in the eucharist, even when it might be used with safety.

Epiphanius tells us, the *Aquarians* were the followers of Tatian; and were so called from the word *aqua*, water, because they abstained wholly from wine, and did not use it even in the eucharist.

AQUARIUS, in *Astronomy*, the eleventh sign in the zodiac, reckoning from Aries; from which also the eleventh part of the ecliptic takes its name.

The sun moves through *Aquarius* in the month of January; it is marked thus, ♒.

The poets feign, that *Aquarius* was Ganymede, whom Jupiter ravished under the shape of an eagle, and carried away into heaven, to serve as a cup-bearer, in the room of Hebe and Vulcan; whence the name.—Others hold, that the sign was thus called, because, when it appears in the horizon, the weather usually proves rainy.

The stars in the constellation *Aquarius*, in Ptolemy's catalogue, are 45; in Tycho's 41; in Hevelius's 47; in Flamsteed's Britannic Catalogue 108; the longitudes, latitudes, &c. whereof, according to the former, are given by Hevelius: according to the last, they are as follows; to which are added the *informes*.

Names and situations of the stars.	Signs.	Longitud.	Latitude.	Magnitude.
Preced. in the handkerchief } against the hand.	♒	7 24 06	8 06 41N.	5
		8 6 58	18 16 36	6
		8 38 46	12 24 42N.	5
		9 22 28	11 34 51N.	7
		9 34 34	11 38 54N.	6
Subseq. in handkerchief.	♒	8 44 13	8 16 10N.	4.5
		9 32 59	7 17 53N.	6
		9 19 20	3 51 52N.	6.7
		9 28 11	3 19 30N.	6
10.		11 37 44	11 05 06N.	6
		11 51 38	11 49 00N.	6
		12 23 54	10 30 14N.	6
In the preced hand.	♒	12 04 13	4 47 48N.	5
		14 18 30	6 21 43N.	6
		16 12 10	10 41 41N.	6
15.		16 53 23	10 25 12N.	6
		15 30 33	5 45 41N.	6
		15 01 16	2 17 03N.	6
		16 14 35	5 11 33N.	6
		18 10 21	11 14 10N.	6
20.		18 13 15	11 03 19N.	6
In the preced. shoulder.	♒	19 04 22	8 38 43N.	3
Under the shoulder as in armpit.	♒	19 47 16	5 59 14N.	6
		22 50 57	13 12 28N.	6
In the head.	♒	23 38 27	15 21 47N.	6
25.		23 56 30	14 13 55N.	6
		25 39 39	15 07 14N.	6
		28 15 21	11 58 21N.	6
		22 24 57	4 37 29S.	6
		26 16 22	5 04 48N.	6
30.		27 47 19	9 10 58N.	5
Low. in the hind shoulder.	♒	28 35 40	10 13 14N.	6
South in the fore hip.	♒	24 24 01	2 03 15S.	4
Right one in the hind shoulder.	♒	29 02 16	10 40 38N.	3
		23 19 51	6 37 47S.	6.5
35.		27 04 33	2 59 48N.	6
		26 24 14	0 26 43N.	6
North in the preced. hip.	♒	26 09 58	0 15 37S.	6
		25 38 49	2 52 39S.	6
		26 40 30	6 49 12S.	1.8
40.		23 34 22	9 27 45S.	6
		27 07 35	1 59 02S.	7
Preced. of two in the poster. side.	♒	28 55 44	2 43 47N.	4
		29 51 55	4 56 30N.	6
		27 27 46	2 36 5S.	6
45.		29 42 07	2 23 30N.	5.6
Subseq. of the same.	♒	24 59 38	10 33 45S.	5.6
That in the hind arm.	♒	2 23 11	8 14 49N.	3
	♒	14 11 54	13 39 11S.	5
	♒	28 57 05	3 17 42S.	6

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Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
North of three in the hind. hand. That upon the hips.	π	♋	0 41 48 4 16 51 27 53 23 29 58 16	0 49 11N. 10 29 08N. 6 28 36 S. 1 21 25 S.	6 5 6 6
Preced. of the rest in the hand. 55.	ζ	♋	4 34 31	8 51 30N.	4
That in the hind buttock.	σ	♋	29 32 41 1 03 54 1 13 10	4 48 32 S. 1 12 33 S. 1 30 40 S.	6 5 6
South of two in the fore leg. 60.	υ	♋	28 11 42 5 12 26	10 51 40 S. 6 55 47N.	5 6
Subseq. of 3 in the hand. Preced. in the pouring out of water.	η	♋	29 43 15 6 04 53 5 06 13 3 2 33 4 7 20	17 58 31 S. 8 09 42N. 4 07 47N. 1 18 10 S. 1 48 50 S.	6 4 5 6 6
North in the fore leg. 65.	g	♋	0 54 55 5 20 9	9 56 24 S. 1 05 6N.	6 6
Following that to the southward. Lower of the northern ones in the hind. leg.	g	♋	1 29 54	11 00 40 S.	6
Upper of north in the hind leg. 70.	τ	♋	3 40 24 5 10 46	5 55 41 S. 2 44 36 S.	5 7
South and subseq. in the pour- ing out of the water.	λ	♋	4 16 52 6 56 2	5 38 42 S. 0 3 28 S.	6.5 6
South in the hind leg.— <i>Scheat</i> . 75.	δ	♋	7 14 41 5 54 23 5 49 58	0 23 00 S. 4 10 18 S. 4 45 24 S.	4 6 7
Last in the water.— <i>Fomalhaut</i> . 80.	α	♋	4 33 49 4 25 11 7 50 34 29 28 59 9 42 30	8 11 17 S. 8 37 01 S. 0 12 44 S. 21 04 54 S. 1 41 29N.	3 6 6 2.1 7
First of the contig. in the flex- ure of the water.	b	♋	9 28 5 9 55 30	0 43 10 S. 0 23 0 S.	7 7
Second. 3d. and fourth of the contig. 85.	b	♋	10 04 10 10 04 59 10 08 41	1 40 14 S. 1 44 15 S. 1 57 45 S.	6 7 6
Preced. in the last flexure. 90.	c	♋	3 59 44 10 37 30 5 40 53	16 34 34 S. 1 52 34 S. 14 29 07 S.	6 6 4
North. Subseq. and south of three. In the second flexure of the water.	c	♋	5 14 53 12 48 57	15 41 5 S. 1 01 25 S.	5.6 5
North of 3 contig. in the water. First behind the second flexure. Middle of three. Single one more south than those. South of the contig. 95.	ψ	♋	11 57 28 13 43 56 12 24 17 10 58 04 12 28 16	3 58 03 S. 2 49 51 S. 4 15 45 S. 8 18 02 S. 4 45 39 S.	5 6 5 6 5
North } of the three following Middle } in the last flexure.	b	♋	14 22 28 11 08 02 9 08 42 9 35 12 10 30 55	0 33 14 S. 10 07 57 S. 14 46 26 S. 15 34 16 S. 16 45 48 S.	6.7 6 5 5 5
South of those three. Over the last flexure but one. Northern of the three in the last flexure.	b	♋	11 04 19 15 20 30	16 30 21 S. 11 01 46 S.	5 5
Second. Following it.	A	♋	14 09 42	14 40 56 S.	6
100.	A	♋	Unknown	Unknown S.	
Middle, in the same flexure. Contiguous to that. Subseq. in the last flexure but one. Middle } of informes behind North } the last flexure. South }	ω	♋	15 52 17 14 48 24 14 51 40 15 58 18 19 26 16 21 57 12 21 12 12	11 36 20 S. 15 10 17 S. 15 42 36 S. 16 26 59 S. 16 14 06 S. 15 16 03 S. 18 45 54 S.	5 6 6 6 5 5 5

AQUARTIA, in *Botany*, a genus of the *tetrandria monogynia* class; with a bell-shaped calyx, and a round corolla, with linear segments, and a many-seeded berry. There is one species.

AQUATIA, in *Middle Age Writers*; a right of fishing three days in the year. Du-Cange.

In ancient deeds we find divers grants of this privilege of *aquatia*, or *aquatura*, sometimes also called *aquaria*.

In some writings *aquatia* seems also to have signified a fee, or other service, paid for the privilege of fishing.

AQUATIC, something which lives, breeds, or grows, in or about the water.

Thus we have *aquatic* plants, and *aquatic* animals.

Trees which grow peculiarly on the banks of rivers, or in marshes, &c. are also called *aquatics*.

The ancient Romans had also their *aquatic*, or *aquatile*, gods, *dii aquatiles*, called by Catullus, *dii littorales*; con-

cerning whom we have an inscription in Reinesius, *NEPTUNNO ET DIS AQUATILIBVS*.

To this class belonged the Tritons, the ministers of Neptune.

AQUATIC insects. See **INSECTS**.

AQUATIC road. See **ROAD**.

AQUATIC spider, in *Zoology*. See **SPIDER**.

AQUATICUM, in *Middle Age Writers*, denotes a thing diluted with water. Hence *aquaticum in foresta*, &c. Du-Cange.

AQUATUM, in some *Physical Writers*, denotes a thing diluted with water.

AQUATUM ovorum is used, by some naturalists, for what is otherwise called **GRANDO**, but more usually **CHALAZA**.

AQUEOUS, **AQUOSUS**, something that partakes of the nature of **WATER**, or abounds therewith.

Thus milk is said to consist of an *aqueous* or *serous*, and a butyrous part.

The chemists separate the *aqueous* part or phlegm from all bodies by distillation.

AQUEOUS bath. See **BATH**.

AQUEOUS humour, is the first or outermost, and the rarest, of the three humours of the eye.

It lies immediately above the *tunica aranea* and ciliary ligament, and under the *cornea*, which it causes to protuberate a little; and is supposed to be furnished by certain ducts provided for the purpose.—It is found so spirituous, that it will not freeze in the severest frost.

Anatomists are divided about the origin and conveyance of this humour.—It is certain the source must be pretty plentiful, inasmuch as, if by any accident the coats it is contained in be wounded, so that the humour runs out, and the *cornea* collapses, the wound readily heals, by only closing the eye, and the humour recruits: of which we have numerous instances among physicians.

Dr. Nuck thinks he has discovered the ducts in the *sclerotica*, whereby this humour is furnished.

Others, denying the reality of those ducts, suppose it immediately derived from the arteries. Dr. Drake admits the ducts, and takes them to be only branches of the excretory ducts of the glandula innominata, and lachrymalis; which piercing the tunics of the eye, deliver their liquor by ways hitherto unknown.

Mr. Warner observes, that this humour is secreted by the extremities of the most minute lymphatic arteries of the iris; and that a proper quantity of it is received, and occasionally returned again, into the larger veins, and course of general circulation, by means of minute lymphatic, or absorbent veins, corresponding to those arteries.

AQUETTA, a name for a kind of poison made much use of by the Roman women, under the pontificate of Alexander VIII.

AQUIFOLIUM. See **HOLLY**, and **BIRD-Lime**.

AQUILA, in *Natural History*, &c. See **EAGLE**.

AQUILA, in *Astronomy*, a constellation of the northern hemisphere; usually joined with Antinous.

The stars in the constellation *Aquila* and Antinous, in Ptolemy's Catalogue, are 15; in Tycho's, 19; in Hevelius's 42; in the Britannic Catalogue, 71: the longitudes, latitudes, magnitudes, &c. whereof, according to the two first, are given by Hevelius; according to the last, they are as follow.

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude. North.	Magnitude.
Preced. } of three inform. to- South. } wards Sagittary. Subseq. }	m	♏	4 40 57 6 26 14 6 48 32 8 03 00 8 14 05	14 59 07 14 02 30 14 46 57 25 03 26 22 00 29	4 5 5 5 6
5: Preced. of three inform. be- fore Antinous's foot.	l	♏	8 04 40 9 14 07 9 17 24 10 30 35 13 30 29	18 13 27 19 37 16 19 33 22 16 54 11 36 28 51	4 6 6 5.4 6
10. Subseq. of the same. Preced. in the eagle's tail. Preced. in Antinous's heel. Subseq.	i	♏	13 33 35 11 44 42 13 56 58 12 17 25 12 46 59	36 11 45 16 53 33 37 36 43 18 52 40 18 29 26	6 4 3.4 6 6
15. Bright one in Antinous's foot. Subseq. in the eagle's tail.	λ	♏	13 02 15 15 28 34 15 27 48 15 14 46 14 16 37	17 39 36 36 13 48 33 24 32 28 23 48 14 22 17	3.4 3 3 6 5.

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Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude. North.	Magnitude.
			° ' "	° ' "	
			13 58 34	24 48 45	5
			17 08 30	26 54 11	5
			17 05 48	23 05 48	6
			17 03 34	22 21 55	7
			18 42 18	33 31 53	6
Preced. of 3 in the root of the tail	w				
25.					
In Antinous's thigh.	f		16 36 51	16 36 09	6
South in Antinous's leading side.	d		17 20 05	21 04 44	6
Mid. and North in root of the tail.	A		19 23 33	34 13 27	6
			Unknown	Unknown	
From right should. toward S. W.	d		19 17 21	24 50 54	3.4
30.					
From right should. towards South	v		20 48 04	33 32 05	6
			19 06 40	22 04 17	5
			18 53 27	17 57 38	6
			19 27 21	18 22 46	6
	c		20 03 35	23 34 00	6
35.					
In Antinous's belly.	e		19 39 55	18 49 10	6
That below Antinous's knee.	k		19 29 24	10 58 21	6
North in the preced. should.	μ		22 27 58	28 42 30	4
Against Antinous's hind knee.	x		20 31 47	14 23 03	3
			21 10 48	18 25 21	6.4
40.					
In the hind. side of Antinous.			21 30 47	20 02 59	3.4
			21 09 46	16 42 00	6
			21 52 21	19 46 29	6
South in the preceding shoulder.	σ		23 28 56	26 30 44	6
			22 41 20	20 31 04	6
45.					
South in begin. of the hind wing.	x		25 52 03	33 02 08	6
North.	↓		25 52 20	32 39 21	6
That immediately preced. Lucida	v		26 48 33	34 00 06	6
Preced. of two in the hind should.	γ		25 44 15	28 22 04	6
			26 37 08	31 16 52	3
50.					
Subseq. of the same.	π		23 18 26	10 05 20	5
Between the shoulders, called } Lucida Aquila.	α		27 36 29	32 19 49	6
That over the Lucida.	o		27 23 24	29 19 11	1.2
In Antinous's hind. shoulder.	n		27 53 01	50 51 20	6.5
55.			26 06 54	21 33 23	3.4
			24 33 02	12 05 11	5
			24 44 54	12 24 10	6
			26 32 00	20 43 43	6
Subseq. below the Lucida.	β		28 17 56	28 46 12	5
In the eagle's neck.	β		28 06 44	26 44 20	3.4
60.					
In the verge of the wing be- } hind the shoulder.	φ		29 36 57	31 32 17	6
			28 50 17	19 16 01	6
In the middle of the head.	τ		0 42 27	27 03 16	6
	μ		29 47 36	19 07 27	6
In Antinous's hind. hand.	θ		0 35 30	18 45 35	3
65.					
Last of the hind. wing.	S		1 02 33	18 28 07	5.6
			5 47 33	34 06 12	5
			4 17 48	15 16 50	6
			4 43 44	15 39 39	5
			6 35 14	15 31 49	5
70.					
			7 24 03	16 48 56	4

AQUILA, in *Chemistry*, has several significations, according to the epithets joined with it.

AQUILA alba is a name given to a combination of corrosive sublimate, with fresh mercury, called *mercurius dulcis*.

AQUILÆ arbor, in *Botany*, a name given, by some authors, to the tree whose wood is the *agallochum*, or lignum aloes of the shops.

AQUILEGIA, in *Botany*. See **COLUMBINE**.

AQUILICIUM, or **AQUELICIUM**, in *Antiquity*, a sacrifice, celebrated among the Romans, in time of excessive droughts, to obtain rain of the gods.

Danet calls this *aquiliciana*. The priests who officiated at it were denominated *aquilices*, *quia aquam eliciebant*, because they brought down water: but where he finds this new order of priests, he does not tell us.

AQUILIFER, from *aquila*, eagle, and *fero*, I bear, among the Romans, an ensign-bearer, who carried the standard on which the eagle was represented.

AQUILINE, **AQUILINUS**, something belonging to an eagle. Hence, *aquiline* nose denotes a hooked nose, or such as is like the beak of an eagle; called also a hawk's nose.

AQUILO, is used by Vitruvius for the north-east wind; or that which blows at 45° from the north towards the east POINT of the horizon.

The poets gave the name *aquilo* to all stormy winds dreaded by the mariners.

AQUILUS, among the *Ancients*, a dark, or dusky colour, approaching to black.

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Hence some of the heathen gods were called *dii aquili*, q. d. *nigri*.

AQUILUS, in *Ornithology*, a species of pelican.

AQUIMINARIUM, in *Antiquity*, a kind of lustral vessel, wherein the Romans carried their holy water for expiation, and other religious offices.

AQUIQUI, in *Natural History*, the name of a particular species of monkey, called by the people of Brasil, the king-monkey, as being much larger than all the other monkeys.

AQUO, in *Ichthyology*, a name by which some authors have called the **AGONUS**, a fish much approaching to the nature of the **ALAUSA**, or **SHAD**.

AQUOSE ducts, *ductus Aquosi Nuckii*. See **AQUEOUS Humour**.

AQUULA, the name of a disorder of the eyes, called also *hydatis*.

ARA thuribuli, the *Altar of incense*, in *Astronomy*, a southern constellation, not visible in our hemisphere, consisting, according to Ptolemy, of seven stars and according to Sharp's Catalogue, annexed to that of Mr. Flamsteed, of nine stars, as in the following table.

Situation of the stars.	Signs.	Longitud.	Latitude.	Magnitude.
		° ' "	° ' "	
In the base, the northern.	↑	21 35 52	23 5 26	5
The southern.		27 18 30	20 30 5	5
In the middle of the altar.		21 5 56	26 29 3	4
In the fire-place, northern.		15 47 21	30 13 34	3
Southern.		20 27 32	33 2 44	4
5.				
Middle.		20 22 43	32 11 43	4
In the middle of the flame.		16 2 21	31 1 46	4
In the top of ditto, 1st.		15 6 17	36 19 32	4
2d.		21 44 30	37 17 24	4

ARA parva, the little altar, a denomination, in the *Ancient Surgery*, given to an elegant kind of **BANDAGE**, said to have been invented by *Softratus*.

ARAB, or **ARABIAN horse**, is said to be nursed with camel's milk: there are many strange reports of this beast. The duke of Newcastle assures us, that the ordinary price of one is 1000, 2000, or 3000 pounds; and that the Arabs are as diligent in keeping the genealogies of their horses, as princes of their families. They strike medals on every occasion to keep up the pedigree. The fortune the Arabians give their sons, when arrived at manhood, is, two suits of arms, with two scimitars, and a horse; which always lies in the next room to them. Yet of those of the breed brought into England few have proved very extraordinary. See **HORSE**.

ARABANT, from *aro*, I plough, in *Law*, *ad curiam domini*, was intended of those who held by the tenure of ploughing and tilling the lord's lands within the manor.

ARABESQUE, or **ARABESK**, something done after the manner of the Arabians.

Arabesque, **GROTESQUE**, and **MORESQUE**, are terms applied to such paintings, ornaments of freezes, &c. wherein there are no human or animal figures, but which consist wholly of imaginary foliages, plants, stalks, &c.

The words take their rise from hence, that the Moors, Arabs, and others Mahometans, use these kinds of ornaments; their religion forbidding them to make any images or figures of men, or other animals.

Arabesque is used by Stephen Riou, esq. in his book on Architecture, to denote that style of building which is vulgarly called *Modern Gothic*, which he also terms *Saracenic* and *Moresque*; the introduction of which he ascribes to the Moors, or, which he says is the same thing, to the Aarbians or Saracens, who have expressed, he adds, in their architecture, the same taste as in their poesy, which are both falsely delicate, crowded with superfluous ornaments, and often very unnatural. This manner of building, he says, was introduced into Europe through Spain. The Crusades gave the Christians an idea of *Saracenic* architecture, which they afterwards imitated. Sir C. Wren distinguishes the heavy *Gothic* as *Anglo-Saxon*, the lighter as *Arabesque*.

ARABIC, or **ARABIAN**, something that relates to Arabia, or the Arabs.

ARABIC figures or *characters*, are the numeral characters commonly made use of in arithmetical computations.

The *Arabic* characters stand contradistinguished to the Roman.

The learned are generally of opinion, that the *Arabic* figures were first taught us by the Saracens, who borrowed them from the Indians.—Scaliger was so satisfied of their novelty, that he immediately pronounced a silver medallion he was consulted about, modern; upon his being told that the numeral figures 234, 235, were upon it. The common opinion is, that Planudes, who lived towards the close of the 13th century, was the first Christian who made use of them. Father Mabillon even assures,

affures us, in his work *de Re Diplomatica*, that he has not found them any where earlier than the fourteenth century. Yet Dr. Wallis insists of their being of a much older standing; and concludes they must have been used in England, at least as long ago as the time of Hermannus Contractus, who lived about the year 1050, if not in ordinary affairs, yet at least in mathematical ones, and particularly in the astronomical tables. Vide Wall. Algebr. c. 4.

The same author gives us an instance of their antiquity in England, from a mantle-tree of a chimney, in the parsonage-house of Helmdon in Northamptonshire, wherem is the following inscription in *basso relievo*. N^o 133, being the date of the year 1133. Philof. Transact. N^o 154.

Mr. Luffkin furnishes a yet earlier instance of their use, in the window of a house, part of which is a Roman wall, near the market-place in Colchester; where between two carved lions, stands an escutcheon, containing the figures 1090. Philof. Transact. N^o 255.

Mr. Huet is even of opinion, that these characters were not borrowed from the Arabs, but from the Greeks; and that they were originally no other than the Greek letters, which we all know that people made use of to express their NUMBERS by.

ARABIC, *gum*. See GUM.

ARABIC, or ARABIAN *learning*, is divided into two states, or periods, viz. Ante-Mahometan, and Mahometan.

The *Arab* learning in this first period, consisted, according to Abulpharagius, in the knowledge of their language, the propriety of discourse, the composition of verse, and the science of the stars: but their chief attention seems to have been directed to *oratory* and *poetry*. Hist. Dynast. Renaudot de Barbar. Arist. vers. Fabricii Bibl. Græca, lib. vi. cap. 5. § 6.

The second period is more distinguished, at least from the time of Al Mamon, the seventh caliph of the family of the Abbassides, who flourished about the year 820, and has the honour of being the founder of the modern *Arabian* learning. He sent for all the best books out of Chaldea, Greece, Egypt, and Persia, relating to physic, astronomy, cosmography, music, chronology, &c. and pensioned a number of learned men, skilled in the several languages and sciences, to translate them into *Arabic*. By this means, divers of the Greek authors, lost in their own country and language, have been preserved in *Arabic*. Elmac. Hist. Sar. lib. ii. cap. 8. Leo Africanus de Viris illust. ap. Arabes, cap. 1. Fabricii Bibl. Græc. lib. vi. cap. 9. Græv. in Præf. ad Tab. Geog. Voss. de Sect. Phil. cap. 3. § 17.

From that time *Arabia* became the chief seat of *learning*; and we find mention by Abulpharagius, Pococke, D'Herbelot, and Hottinger, of learned men, and books without number.

The revival of *learning* in the tenth century, by Gerbert, known after his elevation to the pontificate by the title of Silvester II. and afterwards among the Europeans in general, may be ascribed to the instructions and writings of the *Arabian* doctors and philosophers, and to the schools which they founded in several parts of Spain and Italy. And in the twelfth century, the inquisitive of different countries frequented the schools of the Saracens in Spain, and disseminated the knowledge which they obtained there after their return. At this time, many of the learned productions of the *Arabians* were translated into Latin, which facilitated the general progress of science.

ARABIC, or ARABIAN *logic*, was that of Aristotle, as explained by Avicenna and Averrhoes.

ARABIC *marble*, *Arabicum marmor*, a name given by the ancient Greeks to a species of marble brought from Egypt and Arabia, and remarkable for its beautiful whiteness.

ARABIC, or ARABIAN *oratory*, according to Renaudot, consisted in a luxuriancy of quaint, high-flown words, epithets, and descriptions.

ARABIC, or ARABIAN *philosophy*, before Mahomet, was Sabinian, and included the system and ceremonies of that sect of idolaters. This it was that Mahomet set himself to decry; and he is even said by some, to have carried his opposition so far as to prohibit, if not punish, all study of *philosophy*. But his followers, by degrees, got over this restraint; the love of learning increased; till, under the memorable caliphate of Al Mamon, Aristotle's *philosophy* was introduced and established among them; and from them propagated, with their conquests, through Egypt, Africa, Spain, and other parts.

As they chose Aristotle for their master, they chiefly applied themselves to that part of philosophy called *logic*, and thus became proficient in the knowledge of words, rather than things. Whence they have been sometimes

denominated, *Masters of the wisdom of words*; sometimes the *Talking sect*. Their *philosophy* was involved in quaint arbitrary terms and notions, and their demonstrations drawn from thence, as from certain principles, &c. Walch Hist. Logic. lib. ii. sec. 2 § 1.

ARABIC, or ARABIAN *physic* and *physicians*, succeeded the Grecian, and handed down the art to us, having made considerable improvements, chiefly in the pharmaceutical and chemical parts.

It is certain we owe to them most of our spices and aromatics, as nutmegs, cloves, mace, and other matters of the produce of India. We may add, that most of the gentler purgatives were unknown to the Greeks, and first introduced by the *Arabs*, as manna, senna, rhubarb, tamarinds, cassia, &c. They likewise brought sugar into use in *physic*, where, before, only honey was used. They also found the art of preparing waters and oils, of divers simples, by distillation and sublimation.

The first notice of the small-pox, and the measles, is likewise owing to them. Lastly, the restoration of *physic* in Europe took its rise from their writings.

M. Le Clerc has given a sketch, and Dr. Freind, an ample history of the *Arabian physio*. We have also a *notitia* of all the *Arabian physicians*, by Fabricius.

ARABIC, or ARABIAN *poetry*, may be divided into two ages.

The ancient, according to Vossius, was no other than rhyming; was a stranger to all measure, and rule; the verses loose and irregular, confined to no feet, number of syllables, or any thing else, so that they rhymed at the end; oftentimes all the verses in the poem ended with the same rhyme. It is in such verse that the ALCORAN is said to be written.

The modern *Arabian poetry* takes its date from the caliphate of Al Raschid, who lived toward the close of the eighth century. Under him *poetry* became an art, and laws of *prosody* were laid down. Clark, Profod. Arab. cap. 1.

Their comparisons, in which they abound, are taken, with little choice, from tents, camels, hunting, and the ancient manners of the *Arabs*.

ARABIC, or ARABIC *tongue*, is a branch or dialect of the Hebrew.

F. Angelo de St. Joseph speaks much of the beauty and copiousness of the *Arabic*. He assures us it has no less than a thousand names for a sword; five hundred for a lion; two hundred for a serpent; and eighty for honey.

ARABIC *versions*. See BIBLES.

ARABIC. See YEAR.

ARABICI, a sect who sprung up in Arabia, about the year 207, whose distinguishing tenet was, that the soul died with the body, and also rose again with it.

Eusebius, lib. vi. c. 38. relates that a council was called to stop the progress of this rising sect; and that Origen assisted at it; and convinced them so thoroughly of their error, that they abjured it.

ARABACUS *costus*. See COSTUS.

ARABIS, in *Botany*, a genus of the *tetradynamia siliquosa*, bastard tower MUSTARD.

ARABISM, ARABISMUS, an idiom, or manner of speaking peculiar to the Arabs, or the Arabic language.

R. Martin maintains, that the *ی* sometimes expresses an oath in the Hebrew as well as the Arabic.

ARABIST, a person curious of, and skilled in the learning and languages of the *Arabians*: such were Erpenius and Golius. The surgeons of the 13th century are called *Arabists* by Severinus. Freind. Hist. Phys. tom. ii. p. 301.

ARABLE *land*, anciently called ARALIA, is such as is fit for tillage, or ploughing; or which is actually ploughed up from time to time.

It is thus called from the Latin *arare*, of *aratrum*, a PLOUGH.

ARABUM *lepra*. See LEPROSY.

ARABUM *sandaracha*. See SANDARACHA.

ARAC, or ARRAC, a spirituous liquor, imported from the East Indies; chiefly used by way of dram, and in punch. The nature and composition of this celebrated liquor have been much controverted.—The name *arac*, Mr. Lockyer assures us, is an Indian word for strong waters of all kinds; for that they call our spirits and brandy, *English arac*.—But what we understand by the name *arac*, is really no other than a spirit procured by distillation, from a vegetable juice called *toddy*, which flows by incision out of the cocoa-nut tree, and some other trees, like the birch-juice procured among us.

The *toddy*, Mr. Lockyer adds, is a pleasant drink of itself, when new, but purges those not used to it; and, when stale, is heady; and finally makes good vinegar. The English at Madras used it as leaven to raise their bread with.

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Others are of opinion, that the *arac* or *arrac*, is a vinous spirit obtained by distillation, in the East Indies, from rice or sugar, fermented with the juice of cocoa nuts.

The *Goa arac* is made from the *toddy*, the *Batavia arac* from rice and sugar. There is likewise a kind of shrub from which *arac* is made.

Goa and Batavia are the chief places for *arac*.—At Goa there are divers kinds; single, double, and treble distilled. The double distilled, which is that commonly sent abroad, is but a weak spirit in comparison with *Batavia arac*; yet on account of its peculiar and agreeable flavour, is preferred to all the other *aracs* of India. This is attributed to the earthen vessels which they use at Goa to draw the spirit; whereas at Batavia they use copper stills.

The *Parier arac*, made at Madras, and the *Columbo*, and *Quilone arac*, at other places, being fiery hot spirits, are little valued by the Europeans, and therefore rarely imported; though highly prized among the natives. In the best *Goa arac*, the spirits of the cocoa juice do not make above a sixth or eight part.

The manner of making the *Goa arac* is this. The juice of the trees is not procured in the way of tapping, as we do; but the operator provides himself with a parcel of earthen pots, with bellies and necks like our ordinary bird-bottles: he makes fast a number of these to his girdle, and any way else that he commodiously can about him. Thus equipped, he climbs up the trunk of a cocoa tree; and when he comes to the boughs, he takes out his knife, and cutting off one of the small knots, or buttons, he applies the mouth of the bottle to the wound, fastening it to the bough with a bandage; in the same manner he cuts off other buttons, and fastens on his pots, till the whole number is used: this is done in the evening, and descending from the tree, he leaves them till the next morning; when he takes off the bottles which are mostly filled, and empties the juice into the proper receptacle. This is repeated every night, till a sufficient quantity is produced, and the whole being then put together, is left to ferment, which it soon does.

When the fermentation is over, and the liquor or wash is become a little tart, it is put into the still, and a fire being made, the still is suffered to work as long as that which comes over has any considerable taste of spirit.

The liquor thus procured is the low wine of *arac*, and this is so poor a liquor, that it will soon corrupt and spoil, if not distilled again, to separate some of its phlegm; they therefore immediately after pour back this low wine into the still, and rectify it to that very weak kind of proof spirit, in which state we find it. The *arac* we meet with, notwithstanding its being of a proof-test, according to the way of judging by the crown of bubbles, holds but a sixth, and sometimes but an eighth part of alcohol, or pure spirit: whereas our other spirits, when they shew that proof, are generally esteemed to hold one half pure spirit. Shaw's Essay on Distilling.

There is a paper of observations on *arac*, in the *Melanges d'Histoire Natur.* tome v. p. 302. By fermenting, distilling, and rectifying the juice of the American maple, which has much the same taste as that of the cocoa, the author says, he made *arac* not in the least inferior to any that comes from the East Indies; and he thinks the juice of the sycamore and of the birch trees would equally answer the end.

Beside the common sorts of *Goa* and *Batavia arac*, there are two others less generally known: these are the bitter *arac*, and the black *arac*.

By stat. 11 Geo. I. c. 30. *arac* on board a ship within the limits of any port of Great Britain, may be searched for and seized, together with the package; or if found unshipping or unshipped before entry, may be seized by the officers of excise, in like manner as by the officers of the customs.

Upon an excise officer's suspicion of the concealment of *arac*, and oath made of the grounds of such suspicion, before the commissioners, or a justice of peace; they may empower him to enter such suspected places, and seize the liquors, with the casks, &c. If the officers are obstructed, the penalty is 100*l*.

Arac is not to be sold but in warehouses, entered as directed in the 6th of Geo. I. c. 21. upon forfeiture, and the casks, &c. If permits are not returned which are granted for the removal of *arac*, or if the goods are not sent away within the time limited, the penalty is treble the value. If the permits are not returned, and the decrease is not found to be sufficient, the like quantity is forfeited. Permits are not to be taken out but by

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direction in writing to the proprietor of the stock, or his known servant, upon forfeiture of 50*l*. or three months imprisonment.

By statute 9 Geo. II. c. 35. if *arac* is offered to sale without a permit, or by any hawker, pedlar, &c. with a permit; the person to whom it is offered, may seize and carry it to the next warehouse belonging to the customs or excise, and bring the person offering the same before any justice of the peace, to be committed to prison, and prosecuted for the penalties incurred by such offence. The person seizing such goods may prosecute in his own name; and on recovery is intitled to one third part of the gross produce of the sale: and the commissioners are, if desired, upon a certificate from the justice of the offender's being committed to prison, to advance to the seizer 15*s*. per gallon for the *arac* so seized.

Arac (except for the use of seamen, two gallons each) found in any ship or vessel arrived from foreign parts, at anchor, or hovering within the limits of any port, or within two leagues of the shore; and not proceeding on her voyage (unless in case of unavoidable necessity and distress of weather, notice whereof must be given to the collector or chief officer of the port, upon the ship's arrival) is forfeited; with the boxes, casks, or other package, or the value thereof.

ARACARI, in *Ornithology*, the name of a Brazilian bird of the WOODPECKER kind. It is of the size of our common green woodpecker, and has a very large, sharp, and somewhat hooked beak. Marggrave. See PICUS, and Tab. II. Birds, N° 14.

ARACHIS, in *Botany*, *arachidna*, *arachinoides*, and *arachidnoides*. See EARTH-NUT.

ARACHNOIDES, in *Anatomy*, a fine, thin, transparent membrane, which lying between the *dura* and *pia mater*, is supposed to invest the whole substance of the brain, *medulla oblongata*, and the spinal marrow.

The word is borrowed from *araxyn*, a spider, or spider's web, and *eidōs*, form; in regard to the fineness of the part, which is supposed to resemble that of a spider's web.

Many anatomists deny the existence of such third *meninx*, or membrane; and contend that it ought rather to be regarded as the external *lamina* of the *pia mater*, which sends its internal *lamella* between the folds of the cortical part of the brain.

ARACHNOIDES, or ARANEA *tunica*, is likewise used for a fine slender tunic, wherewith, the crystalline humour is encompassed.

This, others call *crystalloides*, and *tunica crystallina*, or *capsula crystallina*.—Many have even doubted of its existence; which is the more extraordinary, since Galen speaks of it, and compares it to a pellicle of an onion: Vesalius represents it as resembling fine transparent horn.

—It is easily found in quadrupeds, especially the sheep, ox, and horse; and though it be a little more difficult to discover in man, yet after a person has once been shewn it, he will readily find it.

What is surprising, Briggs says not a word of it; and so able an anatomist as Ruysch, was long in suspense about it; it was only by means of his injections that he discovered it in man; though so easy to discern in a sheep.

The *arachnoides* adheres by its posterior part to the vitreous tunic.—In man it is about twice as thick as a spider's web, at least the fore-part of it; in an ox it is as thick again as in man; and in a horse it is thicker than in an ox.

It has three uses: first, to retain the crystalline in the collet of the vitreous humour, and prevent its changing situation: secondly, to separate the crystalline from the aqueous humour, and prevents its being continually moistened therewith: thirdly, the lymphatics furnish a liquor which they discharge into its cavity, wherewith the crystalline is continually refreshed, and kept in right order: inasmuch that when this liquor is wanting, the crystalline soon dries, grows hard, and opaque, and may even be reduced to powder. Vide Petit, in Mem. Acad. R. Scienc. an. 1730. p. 622, seq.

ARACHNOIDES, in *Natural History*, the name of one of the genera of the ECHINI *marini*; the distinguishing characters of which are, that it is of a circular circumference, but variously broken in at the edges. The mouth is round, and placed in the centre of the base, and the aperture for the anus is quadrangular, and situated in one of the sides, on the upper superficies, but near the edge. Klein. See Tab. of Testaceous and Crustaceous Animals, N° 8.

ARACUS, in *Botany*, *strangle TARE*, or wild VETCH: a plant which grows in hedges, on banks, and among

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corn. It is an herb in use, and has the same qualities with the other species of the VICIA.

ARACUS aromaticus, in the *Materia Medica*, a name given by some authors to the VANILLA used in chocolate making.

ARADOS, in *Hippocrates*, signifies that perturbation which is excited in the stomach by concocting meats of different qualities. *Arados* also signifies any internal perturbation caused by purging medicines, vehement exercises, or other causes.

ARÆOMETER, ARÆOMETRUM, an instrument wherewith to measure the density or gravity of fluids. The word is formed of *apalos*, *thin*, and *μετρον*, *measure*. The *aræometer*, or water-poise, is usually made of glass; consisting of a round hollow ball, which terminates in a long slender neck, hermetically sealed at top; there being first as much running mercury put into it, as will serve to balance or keep it swimming in an erect position. The stem is divided into degrees (as represented *Tab. Pneumaticæ*, fig. 18.); and by the depth of its descent into any liquor, the lightness of that liquor is concluded; for that fluid in which it sinks least, must be heaviest; and that in which it sinks lowest, lightest.

M. Homberg has invented a new *aræometer*, described in *Philos. Transact.* N° 262. thus: A (fig. 19.) is a glass bottle or matras, with so slender a neck, that a drop of water takes up in it about five or six lines, or half of an inch. Near that neck is a small capillary tube D, about six inches long, and parallel to the neck.—To fill the vessel, the liquor is poured in at the mouth B (which is widened to receive a funnel), till it run out at D; that is, till it rise in the neck to the mark C, by which means you have always the same bulk or quantity of liquor; and consequently, by means of the balance, can easily tell, when different liquors fill it, which weighs most, or is most intensely heavy.

Some regard, however, is to be had in these trials to the season of the year, and the degree of heat and cold in the weather: because some liquors rarefy with heat, and condense with cold, more than others; and accordingly take up more or less room.

By means of this instrument, the ingenious author has made a table, to shew the different weights of the same bulk of the most considerable chemical liquors, both in summer and winter, as follows:

	Weighed in summer.			In winter.		
The aræometer full of	oz.	dr.	gr.	oz.	dr.	gr.
Quick-silver,	-	-	11 00 06	-	-	11 00 32
Oil of tartar	-	-	01 03 08	-	-	01 03 31
Spirit of urine,	-	-	01 00 32	-	-	01 00 43
Oil of vitriol,	-	-	01 03 58	-	-	01 04 03
Spirit of nitre	-	-	01 01 40	-	-	01 01 70
—salt,	-	-	01 00 39	-	-	01 00 47
Aqua fortis,	-	-	01 01 38	-	-	01 01 55
Vinegar,	-	-	00 07 55	-	-	00 07 60
Spirit of wine,	-	-	00 06 47	-	-	00 06 61
River water,	-	-	00 07 53	-	-	00 07 57
Distilled water,	-	-	00 07 50	-	-	00 07 54

The instrument itself weighed, when empty, one drachm twenty-eight grains. See HYDROMETER.

ARÆOPAGUS. See AREOPAGUS.

ARÆOPAGITIC. See AREOPAGUS.

ARÆOSTYLE, ARÆOSTYLOS, in the *Ancient Architecture*, a sort of INTERCOLUMNIATION, wherein the columns were placed at the distance of eight, or, as some say, ten modules from one another. See *Tab. Archit.* E. fig. 40.

In the *aræostyle*, the columns were the widest and openest they were ever planted at; whence the name—from the Greek *apalos*, *rarus*, and *στυλος*, *column*.

The *aræostyle* is chiefly used in the Tuscan order; at the gates of great cities, and fortresses.

ARÆOTICS, in *Medicine*, such remedies as tend to open the pores of the skin, and render them large enough for the morbid matter's being carried off by sweat, or insensible perspiration.

To the class of *aræotics* belong diaphoretics, sudorifics, &c.

ARAF, or AL-ARAF, in the *Mahometan Theology*, a kind of separation or partition-wall between paradise and hell. Sale's Koran.

ARAHUM, or HARAHUM, in *Ancient Writers*, denotes a place consecrated or set apart for holy purposes. Du-Cange.

Hence the phrase, in *arabo jurare*, or *conjurare*, to make oath in the church; because, by the Ripuarian laws,

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all oaths were to be taken in the church, on the relics of the saints.

ARAIGNEE, in *Fortification*, sometimes denotes a branch, return or gallery of a mine.

ARAIRE, the name of a small plough used in Provence and Languedoc, in France.

ARALS ALNIL, in *Botany*, the name given by the people of Ægypt, to the *saba Ægyptia*, or heads of the NILUFAR. Prosper Alpin.

ARALIA, in *Botany*, berry-bearing *angelica*, a genus of the *pentandria digynia* class. The characters are, that it is an umbelliferous plant with a globular umbel, having a small involucre; the flower hath five oval petals, and five short styles; the *germin* afterwards turns to a roundish channelled berry, having five cells, each containing one oblong hard seed. There are three species; the Canada berry-bearing *angelica*; the berry-bearing *angelica* with a naked stalk; and the *angelica-tree*.

The inhabitants of Canada, and those of Virginia, call the first species of *aralia* by the name of *sarsaparilla*, because its roots have almost the same figure and virtues. M. Sarrazin writes from thence, that he had a patient who had been cured of an *anasarca*, about two years before, by a drink made of these roots: and assures us that the roots of the second species, well boiled and applied by way of cataplasm, are very excellent for curing old ulcers; as also the decoction of them, with which they bathe and syringe wounds: and he does not at all doubt but the virtues of the third species are the same with those of the second. *Phil. Trans. abr.* vol. v.

ARALIA, in *Ancient Law Writers*, denotes arable or ploughing lands.

This is otherwise denominated *aratoria*, *araturia*.

In *Domesday* for Essex, we meet with *decem acras prati, duos runcal quatuor aralia*.—Where *aralia* seems to denote land fit for ploughing or tillage, by way of contradistinction to *runcalia*, which was over-run with briars and thorns. Du-Cange.

ARALIASTRUM, in *Botany*, see GINSENG.

ARANEA, a genus of the *aptera* insects of Linnæus. See SPIDER.

ARANEA concha, in *Natural History*, the name of a kind of sea-shell, of which there are several species: we call them in English the spider-shells; they are of the family of the MUREX, and their peculiar character is the having digitated lips. The several species have different numbers of fingers, from the lip of the shell, as four, five, six, seven, or eight.

ARANEA tunica, see ARACHNOIDES.

ARANEUS marinus, the *sea-spider*, a name by which some authors have called the fish more usually known by the name of DRACO marinus, and supposed to have something venomous in the spines of its back-fin. Aldrovand.

ARANEA, a silver ore found only in the mines of Potosi, or in the single mine there of Catamito. It owes its name to some resemblance it bears to a cobweb, being composed of threads of pure silver, which to the sight appear like a silver lace when burned to separate the silk from it. It is the richest of all kinds of silver ore.

ARAPABACA, a name given by Plumier to the *spigelia* of Linnæus, or the *worm GRASS*.

ARARAUNA, in *Ornithology*, the name of a Brazilian bird, of the MACAW kind. Marggraave.

ARATEIA, in *Antiquity*, a yearly festival celebrated at Sicyon, on the birth-day of Aratus, wherein divers honours were paid by a priest consecrated to this service, who for distinction's sake wore a ribband bespangled with white and purple spots.

The *arateia* were solemnized with much pomp of music, the choiristers of Bacchus attending. Potter, *Archæol.* lib. ii. cap. 20.

ARATO-BAFABEN, a fixed star of the second magnitude in the head of the DRAGON.

ARATUM terræ, in our *Ancient Law Books*, as much land as can be yearly tilled with one plough.—*Hoc manerium est 30 aratrorum*.

ARAFURA terræ, an ancient service which the tenant was to do his lord, by ploughing his land.

ARBALET. See BOW, and BALLISTA.

ARBITER, in the *Civil Law*, a judge nominated by the magistrate, or chosen voluntarily by two contending parties, on whom they confer a power by compromise, of deciding their differences according to law.

The Romans sometimes submitted to a single *arbiter*; but ordinarily they chose several; and those always in an uneven number.

In matters wherein the public was concerned, as crimes marriages, affairs of state, &c. it was not allowed to have recourse to *arbiters*.—Nor was it permitted to appeal

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peal from an *arbitral* sentence; the effect of an appeal being to suspend the authority of a jurisdiction, not of a compact.

Among the moderns, there are properly divers kinds of *arbiters*; some obliged to go by the rigour of the law; and others are authorized by the contending parties to relax, or give way to natural equity; these are properly called *ARBITRATORS*.

ARBITRARY, in a general sense, that which is not defined, or limited by any certain, express law, or constitution, but is left solely to the judgment and discretion of another.—The punishment of such a crime is *arbitrary*.—*Arbitrary* fines or mulcts are usually called *amercements*.

The word is formed from *arbitrium*, *will*; whence also *arbitrator*, *arbitrator*.

ARBITRARY power. See *DESPOTISM*, *MONARCHY*, &c.

ARBITRATION, or *ARBITRAGE*, the referring of a cause or quarrel to the decision of one or more indifferent persons, under the quality and denomination of *arbiters* or *arbitrators*.

An *arbitration* is either general, that is, including all actions, quarrels, and demands; or special, which includes one or more matters, or facts specified.

By statute 9 and 10 W. III. cap. 15. sect. 1. after May 11th, 1698, all merchants and others desiring to end any controversy, for which there is no remedy but by personal action, or suit in equity, by *arbitration*, may agree that their submission of the suit to the award or umpirage of any persons, shall be made a rule of any of his majesty's courts of record, which the parties shall chuse; and may insert such their agreement in their submission, or the condition of the bond or promise: and upon producing an affidavit of such agreement, and upon reading and filing such affidavit in the court so chosen, the same may be entered of record in such court, and a rule of court shall be thereupon made, that the parties shall submit to, and finally be concluded by, such *arbitration* or umpirage; and in case of disobedience thereto, the party neglecting or refusing, shall be subject to all the penalties of contemning a rule of court, and process shall be issued accordingly; which shall not be stopped or delayed by any order, &c. of any other court, either of law or equity, unless it appear on oath, that the *arbitrators* or umpire misbehaved themselves, and that such award was corruptly or unduly procured.

Sec. 2. Any *arbitration* or umpirage procured by corruption or undue means shall be void, and set aside by any court of law or equity, so as such corruption or undue practice be complained of in the court where the rule is made for such *arbitration*, before the last day of the next term after such *arbitration* made and published to the parties.

The power of *arbitrators* is to be regulated by the compromise between the parties, as to what concerns the differences they are to determine; and whatever they decree beyond that, is of no effect.

ARBITRATOR, an extraordinary judge or commissioner, in one or more causes between party and party, chosen by their mutual consent.

Among us, two *arbitrators* are usually chosen by the contending parties: and in case these cannot agree, a third is added, and is called an *umpire*; in whose decision both sides are bound to acquiesce.

The civilians make a difference between *arbitrator* and *arbitrator*: though both ground their power on the compromise of the parties, yet their liberty is diverse: for an *arbitrator* is tied to proceed and judge according to the forms of law; whereas an *arbitrator* is permitted wholly to use his own discretion, without solemnity of process, or course of judgment, to hear and accommodate the controversy committed to him; so it be *juxta arbitrium boni viri*. See *EPITROPUS*.

ARBITREMENT. See *ARBITRATION*.

ARBOR, in *Natural History*, *Botany*, &c. See *TREE*.

ARBOR, in *Chemistry*.—*ARBOR philosophica* is a name common to several metalline crystallizations; thus called from their ramifications resembling a tree.

Of this kind, is the *ARBOR Dianæ*, sometimes also called *ARBOR Lunæ*, a kind of efflorescence or crystallization, in which *aqua fortis* incorporated with silver and mercury, being put in water, expands and shoots itself into an appearance of a tree, with branches, leaves, and flowers.

The *arbor DIANÆ* is properly a precipitation of silver with mercury: the operation of making it belongs to the head of *AMALGAMATION*. It has its name from the silver which chemists call *Diana*, or the *Moon*. The experiment is generally considered merely as curious and amusing.

Albertus Magnus is said to have produced a tree before the king of France, while he sat at dinner: this passed

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at that time for a palingenesis, or resuscitation; but it may more naturally be referred to the species of germinations we are speaking of.

The method of preparing the *arbor DIANÆ*, according to Lemery, is as follows. "Dissolve an ounce of fine silver in a sufficient quantity of spirit of nitre, very pure and moderately strong; mix the solution in a matrafs, with about twenty ounces of distilled water, add two ounces of mercury; and let the whole remain at rest. In about forty days, a kind of silver tree will be formed on the mercury, with branches resembling vegetable ramifications."

This process is very long; the following, by Mr. Homberg, is much shorter. "Make an *AMALGAM* without heat, of four drams of filings of silver, or rather of silver-leaf, and of two drams of mercury; dissolve this in four ounces, or a sufficient quantity of spirit of nitre, pure and moderately strong; dilute this solution in about a pound and a half of distilled water; shake the mixture, and preserve it in a bottle with a glass stopper. When the preparation is to be used, an ounce of it is to be put in a phial together with about the size of a pea of an *amalgam* of gold, or of silver, which ought to be as soft as butter, and the whole is to remain at rest. Some small filaments are to be seen issuing from the small *amalgam*, which quickly increase, branch out on both sides, and take the form of shrubs."

Another kind of artificial vegetation may be produced, says Dr. Lewis, by spreading a few drops of solution of silver upon a glass plate, and placing in the middle a small piece of any of the metals that precipitate silver, as particularly of iron. The silver quickly concretes into curious ramifications all over the surface of the plate. Neumann's Works, p. 47.

ARBOR Martis is a germination of iron, resembling a natural plant.

The *arbor Martis* is but of late invention; we owe it to the younger Lemery.

The manner of the discovery was this: on a dissolution of iron filings in spirit of nitre contained in a glass, he poured oil of tartar *per deliquium*: upon this the liquor soon swelled very considerably, though with very little fermentation; and was no sooner at rest than there arose a sort of branches adhering to the surface of the glass, which, continuing to grow, at length covered it all over.

The form of the branches was so perfect, that one might even discover a kind of leaves and flowers thereon; so that this vegetation has as good a title to the appellation of *arbor MARTIS*, as the former has to that of *arbor DIANÆ*. See *Histoir. Acad. Royal. an. 1706*.

ARBOR genealogica, *tree of consanguinity*, signifies a lineage drawn out under the figure or resemblance of root, stock, branches, &c.

ARBOR porphyriana, among the schoolmen, denotes a scale of beings; or a figure consisting of three rows or columns of words; the middlemost whereof contains the series of genera and species; and bears some analogy to the trunk; and the extremes, containing the differences; to the branches of a tree.

SUBSTANCE		
Thinking	BODY	Extended
Inanimate		Animate
Irrational	ANIMAL	Rational
This	MAN	That
PLATO.		

The *arbor porphyriana* is otherwise called *scala predicamentalis*.

ARBOR is also figuratively used in *Mechanics*, for the principal part of a machine, which serves to sustain the rest.—It is also used for a spindle, or axis, whereon a machine turns; thus, *arbor* of a *CRANE*, a *MILL*, a wind-mill, &c.

ARBOREOUS, *ARBOREUS*, is applied by some naturalists to such efflorescences, fungules, mosses, and other parasites, as grow on trees; in contradistinction to such as grow on the ground; such are the *lichenoides* and *agarics*.

ARBORESCENT, a term used to denote any thing that shoots or grows up in form of a tree.

Botanists speak of *arborescent* shrubs and plants; the *SEDUM arborescens*, &c. Mineralists treat of *arborescent* metals, *arborescent* silver, *arborescent* iron, *arborescent* stones, &c. The *fungus marinus* is ranked by some in the class of *arborescent* fluors; the chemists produce *arborescent*

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arborescent crystallizations, which they call philosophical trees. Phil. Trans. N^o 198. N^o 111. and N^o 129. Zoologists give instances of *arborescent* animals, particularly fishes.

The *arborescent* STAR-fish, *Stella arborescens*, is one of the curiosities of nature found in several cabinets of natural rarities.

ARBORIBONZES, in *Modern History*, priests of Japan, who live an erratic life, and subsist on alms. They dwell in caverns, and cover their heads with bonnets made of the bark of trees.

ARBORIS *pecten*. See PECTEN.

ARBORIST, ARBORISTA, a person skilled in trees, their kinds, forms, natures, &c.

Arborist is an appellation of less extent than *botanist*.

ARBOR *scientiæ*, a general distribution or scheme of science or knowledge.

ARBOR *vine*. See CONVOLVULUS.

ARBOR *vita*. See THUYA.

ARBOUR, among *Gardeners*, &c. a kind of shady bower or cabinet, contrived to take the air in; yet to keep out the sun and rain.

Arbours are now gone much into disuse; being apt to be damp and unwholesome.—They are distinguished into *natural* and *artificial*.

ARBOURS, *natural*, are formed only of the branches of trees, interwoven artfully, and borne up by strong lattice-work, poles, hoops, &c. which make galleries, halls, porticoes, and green vistas, naturally covered.

The trees wherewith these *arbours* are formed, are usually the female elm, or lime-tree; because they easily yield, and, by their great quantity of small boughs, form a thick brush wood; the lower parts are usually filled up with horn-beam, or the like.

ARBOURS, *artificial*, and cabinets, are made of lattice-work, borne up by standards, cross-rails, circles and arches of iron. For these *arbours*, they make use of small fillets of oak, which being planted, and made straight, are wrought in chequers, and fastened with wire.

ARBUSCULA is used by Bradley, to denote a little, or dwarf tree, above the rank of shrubs, but below that of trees, such, e. gr. as the elder.

ARBUSTIVA, in *Botany*, an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus.

ARBUSTUM implies a number or multitude of trees, planted for the fruit sake.

Such are *oliveta*, *avellaneta*, *vineta*, &c.

The word was more peculiarly applied to a place planted with trees for fastening vines to, which are hence called by Columella *arbutiva*.

ARBUSTUM is sometimes also used to denote an orchard, or field wherein trees are planted at such distance, that there is room for ploughing, and growing corn between.

ARBUTUS, in *Botany*, the STRAWBERRY-tree; a genus of the *decandria monogynia* class. The characters are, that the flower has a small obtuse empalement, which is cut into five parts, upon which the *germen* sits. The flower is of one leaf, shaped like a pitcher; at the bottom of the flower is situated the globular *germen*, which afterward becomes an oval or round berry, having five cells, which are filled with hard seeds. There are five species. The common strawberry-tree is one of the greatest ornaments in the months of October, November, and frequently great part of December; that being the season when the trees are in flower, and the fruit of the former year is ripe; for the fruit is a whole year growing to perfection.

The best method to propagate the *arbutus*, is from seeds: therefore when the fruit is perfectly ripe, they should be gathered and mixed with dry sand, to preserve them till the middle or latter end of March, which is the proper season for sowing them, in order to have strong plants before winter. They must be sown in pots, which should be plunged into a moderate hot-bed, which will greatly forward their vegetation; and if they are properly managed, they will grow eight or ten inches high before winter.

These trees are tolerably hardy, and are seldom hurt, except in extreme hard winters, which many times kill the young and tender branches, but rarely destroy the trees: therefore, however dead the trees may appear after a hard winter, yet they should be suffered to remain till the succeeding summer has sufficiently demonstrated what are living and what are dead.

The best season for transplanting the *arbutus* is in September, at which time the blossoms are beginning to appear; and at that season, if they should prove very dry, and they are kept moist, they will take root very soon: but toward the beginning of November their roots should be well covered with mulch, to keep out the frost. Miller.

ARC, see ARK.

The words are formed from *arcus*, a bow.

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ARCA, in *Zoology*, a genus of the *testacea* worms in the Linnæan system; comprehending seventeen species. Its animal is a tethys; the shell bivalve and equivalet: and the teeth of the hinge numerous, inserted between each other.

ARCA *cordis* is used by some anatomists, to denote the PERICARDIUM.

ARCADE, in *Architecture*, is used to denote any opening in the wall of a building formed by an ARCH. See Tab. *Archit.* fig. 40.

ARCADIANS, a literary society established at Rome in 1690. See ACADEMIES.

ARCÆ *custos*, a title anciently given to the archdeacon, on account of his having the custody of the church's chest, or treasure.

ARCANGIS, in the *Turkish Armies*, an inferior kind of infantry, which serve as *enfants perdus*, and to harrafs and pillage the enemies frontiers.

The *Arcangis* are an order inferior to the *Janizaries*; and when any of them distinguish themselves, are usually preferred in the *Janizaries* order.—They have no pay, but are to subsist on their plunder.

ARCANNA, a kind of red chalk, called by physiologists *rubrica fabrilis*, as being used by carpenters, to colour their lines, for marking timber, &c.

ARCANUM literally signifies a *secret*, and is therefore very pertinently applied by quacks and impostors in medicine, who conceal their ignorance and fraud under a pretence of secrecy.—Hence a multitude of *arcana*.

There are also standing officinal compositions, under the denomination of *arcana*.—Such are the

ARCANUM *corallinum*, a preparation of red precipitate; made by distilling it with the spirit of nitre, and repeating the distillation again and again, till a fine red powder be procured. This powder is boiled in water, and the water poured off, and tartarized spirit of wine put to the powder: two or three cohobations are made; which leave a powder, much like the prince's powder, and said to be of good use in the gout, dropsy, scurvy, &c. It operates chiefly by stool. It is therefore, in fact nothing else but red PRECIPITATE, on which spirit of wine has been two or three times burnt, with an intention of rendering it milder.

ARCANUM *duplicatum* is prepared of the *caput mortuum* of *aqua fortis*, by dissolving it in hot water, filtrating, and evaporating it to a cuticle; and then leaving it to shoot. It is entirely the same in composition and effect with vitriolated TARTAR: and is sometimes called *sal catholicum*, and *sal de duobus*.

The *arcantum duplicatum*, or *panacea duplicata*, is extolled as a diuretic, and sudorific.—The recipe was purchased at the expence of 500 dollars, by that great virtuoso the duke of Holstein. Schroder, that prince's physician, writes wonders of its great uses in hypochondriacal cases, and in continued and intermitting fevers, stone, scurvy, &c. Mixed with the paste employed in binding books, it secures them effectually against all injury from that mischievous insect, the BOOK-WORM.

ARCANUM *duplicatum catholicum*, in *Medicine*, a name given by Wedelius, to a compound medicine administered by him and others of the same time, with great success, in a pestilential fever, attended with dysentery, which raged for many years in Germany, and yielded so well to nothing as to this medicine. It was composed of bezoar, plantane-root, and the root of *colchicum*. This last root has generally been esteemed a poison of late times, though the authors of the greatest antiquity have shewn a much greater respect for it, and called it the sacred root, or *hierobulbus*.

ARCANUM *Joviale*, is made of an *amalgama* of mercury and tin, digested in spirit of nitre; the spirit being drawn off, the remaining matter is wetted with spirit of wine, and the spirit burnt away; and this for several times, till the pungent taste is wholly gone: what remains is used much with the same intentions as the *antibeticum Poterii*, and is recommended by some as a sudorific.

ARCANUM *tartari*, is a neutral salt soluble in water and spirit of wine, formed from the combination of vinegar with fixed alkalies.

ARC-BOUTANT, in *Building*, a kind of flat arch, or part of an arch, abutting against the feet of an arch, or reins of a vault, to support, and prevent their giving way.

The name is French; formed of *arc* and *bouter*, to abut. *Arc-boutants* are only arched BUTTRESSES.

ARCEUTUM is used in some *Ancient Law-Writers*, for a procuration due to a bishop, abbot, or archdeacon, from their clergy, in time of entertainment.

ARCH, ARC, ARCUS, a part of any curve line; e. gr. of a circle, an ellipsis, or the like.

ARCH of a circle is a part of the circumference thereof, less than a half, or semicircle.—Such is A E B (Tab. *Geometry*, fig. 6.).

The base or line A B, that joins the two extremes of the

arch, is called the **CHORD**; and AD half of the chord bisected by the diameter at right angles, is the **SINE** of half the said *arch*, viz. AE.

All angles are measured by *arches*.—To know their quantity, an *arch* is described, having its centre in the point of the **ANGLE**.

Every circle is supposed to be divided into 360 degrees; and an *arch* is estimated according to the number of those degrees it takes up. Thus an *arch* is said to be of 30, of 80, of 100 degrees. See **DEGREE**.

ARCHES, *concentric*. See **CONCENTRIC**.

ARCHES, *equal*, are such *arches* of the same or equal circle, as contain the same number of degrees. See **EQUAL**.—Hence,

In the same or equal circles, equal chords subtend equal *arches*.—And hence, again, *arches* intercepted between parallel chords are equal.

A radius, CE, fig. 6. which bisects the cord in D, does also bisect the *arch* in E; and is perpendicular to the chord; and on the contrary. And hence the problem, to bisect an *arch*, is solved, by drawing a line CE from the centre perpendicular to the chord in D.

ARCHES, *similar*, are those which contain the same number of degrees of unequal circles. See **SIMILAR**, and **LIKE**.—Such are the *arches* AB and DE, fig. 87.

Two radii being drawn from the centre of two concentric circles, the two *arches* intercepted between them bear the same ratio to their respective peripheries; and also the two sectors to the areas of their respective circles. See **ANGLE**.

To find the *center of gravity*, of an *arch* of a circle, see **CENTER of gravity**, &c.

For the sines, tangents, &c. of *arches*, see **SINE**, **TANGENT**, &c.

ARCH, in *Astronomy*.—**Diurnal ARCH** of the sun is part of a circle parallel to the equator, described by the sun in his course betwixt rising and setting. See **DAY**, **DIURNAL**, &c.

His *nocturnal arch* is of the same kind; excepting that it is described between his setting and rising. See **NIGHT**, **NOCTURNAL**, **RISING**, &c.

The latitude and elevation of the pole are measured by an *arch* of the meridian; and the longitude, by an *arch* of a parallel circle. See **ELEVATION**, **LATITUDE**, **LONGITUDE**, &c.

ARCH of progression, or *direction*, is an *arch* of the ecliptic, which a planet seems to pass over, when its motion is according to the order of the sign. See **DIRECTION**.

ARCH of retrogradation is an *arch* of the ecliptic, described while a planet is retrograde, and moves contrary to the order of the signs. See **RETROGRADATION**.

ARCH of station. See **STATION**, and **STATIONARY**.

ARCH between the centres, is an *arch*, as AI (Tab. *Astronomy*, fig. 35.) passing from the centre of the moon's shadow, A, perpendicular to her orbit, OB. See **ECLIPSE**.

If the aggregate of the *arch* between the centres AI, and the apparent semidiameter of the moon, be equal to the semidiameter of the shadow, the eclipse will be total without any duration; if less, total with some duration; and if greater, yet less than the sum of the semidiameters of the moon and the shadow, partial.

ARCH of vision is the sun's depth below the horizon, at which a star, before hid in his rays, begins to appear again.

TABLE exhibiting the *Arch of Vision* of the **PLANETS** and **FIXED STARS**.

Planets.		Fixed Stars.	
		Magnitude.	°
	• /	1	- 12
Mercury, -	10 0	2	- 13
Venus, -	5 0	3	- 14
Mars, -	11 30	4	- 15
Jupiter, -	10 0	5	- 16
Saturn, -	11 0	6	- 17

However, the quantity of this *arch* is not always the same; but varies with the latitude, declination, right ascension or descension, and distance of any planet or star. Ricciol. Alm. v. i. p. 42. See **POETICAL RISING**.

ARCH, in *Architecture*, is a concave structure, raised with a mould bent in form of the *arch* of a curve, and serving as the inward support of any superstructure.—See **Tab. Archit.** fig. 40. E.

An *arch*, says sir Henry Wotton, is nothing but a narrow or contracted *vault*; and a **VAULT** is a dilated *arch*. *Arches* are used in large intercolumnations of spacious buildings; in porticos, both within and without temples; in public halls, as ciplings, the courts of palaces, cloisters, theatres, and amphitheatres.

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They are also used as buttresses and counter-forts, to support large walls laid deep in the earth, for foundations of bridges and aqueducts, for triumphal arches, gates, windows, &c.

Arches are sustained by piers, imposts, &c.

Arches are either circular, elliptical, or straight.

ARCHES, *circular*, are of three kinds; viz.

ARCHES, *semicircular*, those which make an exact semicircle; and have their centre in the middle of the chord of the *arch*; called also by the French builders, *perfect arches* and *arches en plein centre*.

ARCHES, *sechme*, from the Italian *sumo*, *imperfect*; those which are less than a semicircle, and consequently are flatter *arches*; containing some 90 degrees, others 70, and others only 60; called also *imperfect* and *diminished arches*.

ARCHES of the third and fourth point, as some of our workmen call them, though the Italians call them *di terzo* and *quarto acuto*, because they always concur in an acute angle at top.—These consist of two *arches* of a circle meeting in an angle at the top, and are drawn from the division of the chord into three or four, or more parts, at pleasure. Of this kind are many of the *arches* in old Gothic buildings; but on account both of their weakness and unsightliness, they ought, according to sir Henry Wotton, to be for ever excluded out of all buildings.

ARCHES, *elliptical*, consist of a semi-ellipsis; and were formerly much used instead of mantle-trees in chimneys. These have commonly a key-stone, and chaprels or imposts.

ARCHES, *straight*, are those whose upper and under edges are straight; as in the others they are curved: and those two edges also parallel, and the heads and joints all pointing towards the centre.—These are principally used over windows, doors, &c.

The doctrine and use of **ARCHES** are well delivered by sir Henry Wotton, in the following theorems.—First: all matter, unless impeded, tends to the centre of the earth in a perpendicular line.

Secondly; All solid materials, as bricks, stones, &c. in their ordinary rectangular form, being laid in numbers, one by the side of another, in a level row, and their extreme one sustained between two supporters; those in the middle will necessarily sink, even by their own gravity, much more if pressed down by any superincumbent weight.—To make them stand, therefore, either their figure or their position must be altered.

Thirdly; Stones, or other materials, being figured *cuneatim*, i. e. wedge-wise, broader above than below, and laid in a level row, with their two extremes supported as in the preceding theorem, and pointing all to the same centre; none of them can sink, till the supporters or buttments give away, because they want room in that situation to descend perpendicularly. But this is a weak structure; because the supporters are subject to too much impulsion, especially where the line is long: for which reason the form of straight *arches* is seldom used, excepting over doors and windows, where the line is short.—In order to fortify the work, therefore, we must not only change the figure of the materials, but also their position.

Fourthly; If the materials be shaped wedge-wise, and be disposed in form of a circular *arch*, and pointing to some centre; in this case, neither the pieces of the said *arch* can sink downwards, for want of room to descend perpendicularly; nor can the supporters or buttments suffer much violence, as in the preceding platform: for the convexity will always make the incumbent weight rather rest upon the supporters, than heave them outwards: whence this corollary may be fairly deduced, that the securest of all the *arches* above mentioned is the semicircular; and of all vaults, the hemispherical.

Fifthly; As semicircular vaults, raised on the whole diameter, are the strongest; so those are the most beautiful, which, keeping to the same height, are yet distended one fourteenth part longer than the semidiameter: which addition of width will contribute greatly to their beauty, without diminishing any thing considerable of their strength.

It is, however, to be observed, that, according to geometrical strictness, to have the strongest *arches*, they must not be portions of circles, but of another curve, called the **CATENARIA**, whose nature is such, that a number of spheres disposed in this form will sustain each other, and form an *arch*.

Dr. Gregory even shews, that *arches*, constructed in other curves, only stand, or sustain themselves, by virtue of the *catenaria* contained in their thickness; so that were they made infinitely slender or thin, they must tumble of course; whereas the *catenaria*, though infinitely slender, must stand, because no one point thereof

tends downwards more than any other. See *Philosoph. Transact.* N° 231.—See farther of the theory of *arches*, under the article *VAULT*.

ARCH is particularly used for the space between the two piers of a bridge.

The chief or *master-arch* is that in the middle; which is widest, and usually highest, and the water under it deepest: being intended for the passage of boats, or other vessels. We read of bridges in the East, which consist of 300 *arches*.

ARCH-stone. See *KEY-stone*, and *VOUSSOIR*.

ARCH, triumphal, is a gate or passage into a city, built of stone or marble, and magnificently adorned with architecture, sculpture, inscriptions, &c. serving not only to adorn a triumph, at the return from a victorious expedition, but also to preserve the memory of the conqueror to posterity.

The most celebrated *triumphal arches*, now remaining of antiquity, are that of Titus, of Septimius Severus, and of Constantine, at Rome, of which we have figures given us by Des Godetz.—One of the gates of Orange is a *triumphal arch* of C. Marius.—The gates, Peyro at Montpellier, and of St. Denis, St. Martin, and St. Antoine, at Paris, may also be reckoned *triumphal arches* of the moderns.

ARCH, mural. See *MURAL*.

ARCH, in the scripture sense. See *ARK*.

ARCH, or ARCHI, is also a term without any meaning of itself, but which becomes very significant in composition with other words: as it heightens and exaggerates them; and has the force of a superlative, to shew the greatest degree, or eminence of any thing.

The word is formed of *αρχη*, beginning; whence *αρχες*, *princeps*, *chief*.

Thus we say, *arch-treasurer*, *arch-angel*, *arch-bishop*, *arch-heretic*, &c. to denote such as have a pre-eminence over others. So also *arch-fool*, *arch-rogue*, &c. to express folly, and knavery, in the utmost degree.

In English, we usually cut off the final *i*, from *archi*, though with very ill effect; as the words with which it is joined, sound much harsher on that account, than they would do, were it preserved entire, as it is in most other languages.

ARCHÆUS. See *ARCHEUS*.

ARCHANGEL, an intellectual substance or angel, placed in the second order among the blessed spirits which compose the celestial *HIERARCHY*.

The word is compounded of the Greek *αρχος*, prince, and *αγγελος*, angel.

ARCHANGEL, dead NETTLE, *lamium*, in Botany, a genus of the *didynamia gymnospermia* class. The characters are, that the flower hath a permanent empalement, which is cut into five equal segments at the top, which ends in beards; the flower is of the lip kind, with one petal, swollen at the chops, and compressed; the upper lip is arched, obtuse, and entire; the under is heart-shaped, and indented at the end; it hath four awl-shaped *stamina*, two of which are longer than the other; it hath a four-cornered *germen*, which afterwards becomes four three-cornered seeds, sitting in the open empalement. There are several species; but as many of them are weeds, there are few who care to admit them into their gardens.

The common sort grows naturally in most parts of England, under hedges by the sides of highways: it is also a troublesome weed in gardens; but as it stands in most dispensaries as a medicinal plant, it is therefore inserted. Its flowers are reputed soft and lubricating, and as such administered in some female weaknesses, as the whites, and difficulty of urine. A conserve of them is also made in the shops, but seldom prescribed.

ARCHANGEL, baum-leaved. See *MELITTIS*.

ARCHANGEL, yellow. See *GALEOPSIS*.

ARCHBISHOP, ARCHIEPISCOPUS, a metropolitan prelate, having several suffragan bishops under him.

Archbishops were not known in the East, till about the year 320; and though there were some soon after this, who had the title, yet that was only a personal honour, by which the bishops, of considerable cities were distinguished.—It was not till of late that *archbishops* became metropolitans, and had suffragans under them.

Athanasius appears to be the first who used the title *arch-bishop*, which he gave occasionally to his predecessor; Gregory Nazianzen, in like manner gave it to Athanasius; not that either of them were entitled to any jurisdiction, or any precedence, in virtue of it.

Among the Latins, Isidore Hispalensis is the first that speaks of *archbishops*. He distinguishes four orders or degrees in the ecclesiastical hierarchy, viz. *patriarchs*, *arch-bishops*, *metropolitans*, and *bishops*.

England is divided into two *archbishopricks*, or provinces.

ARCHBISHOPRICK, ARCHIEPISCOPATUS, the dignity of *archbishop*; or the province under his jurisdiction.

There are now two *archbishopricks* in England; viz. of Canterbury, and York; the prelates whereof are called *primates*, and *metropolitans*; with this only difference, that the former is called primate of all England, and the latter simply, primate of England.

The *archbishop*, beside the inspection of the bishops and inferior clergy in the province over which he presides, exercises episcopal jurisdiction in his own diocese. He is guardian of the spiritualities of any vacant see in his province, as the king is of the temporalities; and exercises ecclesiastical jurisdiction in it. He is entitled to present by lapse to all the ecclesiastical livings in the disposal of his diocesan bishop, if not filled within six months. He has likewise a customary prerogative upon consecrating a bishop, to name a clerk or chaplain to be provided for by such bishop; in lieu of which it is now usual to accept an *OPTION*. He is said to be *enthroned* when vested in the *archbishoprick*; whereas bishops are said to be *installed*.

The *archbishop* of Canterbury had anciently, viz. till the year 1152, jurisdiction over Ireland as well as England, and was styled a *patriarch*, and sometimes *alterius orbis papa*, and *orbis Britannica pontifex*. Matters were done and recorded in his name thus, *anno pontificatus nostri primo*, &c. The first *archbishop* of Canterbury was Austin, appointed by king Ethelbert, on his conversion to Christianity, about the year 598.

He was also *legatus natus*. See *LEGATE*.

He even enjoyed some special marks of royalty; as to be patron of a bishoprick, which he was of Rochester; and to make knights, coin moneys, &c.—He is still the first peer of England; and the next to the royal family; having precedence of all dukes, and all great officers of the crown. It is his privilege, by custom, to crown the kings and queens of this kingdom. He may retain and qualify eight chaplains; whereas a duke is by statute allowed only six.

He has, by common law, the power of probate of wills and testaments, and granting letters of administration.

He has also a power to grant licences and dispensations in all cases formerly sued for in the court of Rome, and not repugnant to the law of God. He accordingly issues special licences to marry, to hold two livings, &c. and he exercises the right of conferring degrees.

He is addressed with the title of *Grace*, and *Most Reverend Father in God*; and writes himself by *Divine Providence*; whereas bishops only use by *Divine Permission*.

He also holds several courts of judicature; as court of arches, court of audience, prerogative court, and court of peculiars.

The *archbishop* of York has the like rights in his province, as the *archbishop* of Canterbury. He has precedence, of all dukes not of the royal blood; and of all officers of state, except the lord high chancellor. He has also the right of a count palatine over Hexhamshire. The first *archbishop* of York was Paulinus, appointed by pope Gregory about the year 622. He had formerly jurisdiction over all the bishops of Scotland; but in the year 1470, pope Sixtus IV. created the bishop of St. Andrew's, *archbishop* and metropolitan of all Scotland.

ARCH-BUTLER, ARCHIPINCERNA, the great butler or skinker of the empire.

The king of Bohemia is *arch-butler*: and his business as such is to present the first cup at an imperial entertainment; but he is not obliged to officiate with his crown on. He has for vicar or deputy the hereditary prince of Limbourg.

ARCH-CHAMBERLAIN, ARCHICAMERARIUS, an officer of the empire; much the same with what in England we call *great-chamberlain*.

The elector of Brandenburg is *arch-chamberlain* of the empire, being so appointed by the golden bull; and, in that quality, he bears the sceptre before the emperor, walking on the left hand of the elector of Saxony. At some solemnities he also serves on horseback like other electors, carrying a bason with a towel in his hands; which, alighting, he sets for the emperor to wash.—He has his vicar, or sub-*arch-chamberlain*, who is prince of Hohenzollern, of the house of Brandenburg.

ARCH-CHANCELLOR, ARCHICANCELLARIUS, a great chancellor who anciently presided over the notaries, that is, the secretaries of a court.

This office chiefly obtained in France, under the two first races of their kings; and afterwards under the empire: as they have three several territories, Germany, Italy, and Arles; they had three *arch-chancellors*: and hence the three *arch-chancellors* still subsisting in Germany; the *archbishop* of Mentz being *arch-chancellor* of Germany, the *archbishop* of Cologne of Italy, and the *archbishop* of Treves of Arles.

Bern. de Mallincrot, in an express treatise de *Archicancellariis*

cancellarius Imperii Romani, shews that these three archbishops were *arch-chancellors* before they were electors.—We also read of *arch-chancellors* of Burgundy, &c.

ARCH-CHANTOR, **ARCHICANTOR**, the chief or president of the chantors of a church.

ARCHDEACON, **ARCHIDIACONUS**, a church-officer vested with the jurisdiction over the laity and clergy, next after the bishop, either through the whole diocese, or only a part of it.

The *archdeacon*, sometimes also called *arch-levite*, was originally the first and eldest of the deacons who attended on the bishop: whence his name.

But as the *archdeacons*, in their original institution, had no relation to the diocese, but only to the episcopal see, so it was by several steps and degrees that they attained to the power they now enjoy. At their first institution, their proper business was, to attend the bishop at the altar, to direct the deacons and other inferior officers in their several duties, for the orderly performance of divine service, to attend the bishop at ordinations, and to assist him in the management of the revenues of the church; but without any thing that could be called jurisdiction in the present sense of the word, either in the cathedral or out of it. Gibson.

An *archdeacon* was not known before the council of Nice; his function is since become a dignity; and even set above that of priest: though anciently it was quite otherwise. The *archdeacon* was the bishop's chief minister for all external concerns, and particularly the administration of the temporalities. He took care that order and decency were observed in divine service; looked to the ornaments and utensils of the church; had the direction of the poor, and inspection of the manners and behaviour of the people: for which reason he was called the *bishop's heart and eye*; *oculus episcopi*, & *cor episcopi*.

These advantages soon gained him superiority over priests, who had only spiritual functions. But he had no jurisdiction over them till the sixth century; though by that time he was become superior to the archimandrite, or rural dean.

In the tenth century, *archdeacons* were considered as having jurisdiction in their own right, or attached to their office; with a power of delegating it to others. But from that time measures were taken to lessen their power, by increasing their number.—He whose district lay in the capital city, took the quality of *great-archdeacon*.

We have sixty *archdeacons* in England: their office is to visit every two years in three, to inquire into the reparations and moveables belonging to the church, reform abuses in ecclesiastical matters, and bring the more weighty affairs before the bishop; besides which they have also a power to suspend, excommunicate, and in many places to prove wills, and in some to institute to benefices.

It is one part of the *archdeacon's* office to induct all clerks into their benefices within his jurisdiction; and by the act of uniformity, he is now obliged to be in priests' orders.

Many *archdeacons*, in old foundations, have, by prescription, their courts and officials, as bishops have.

Archdeaconries are commonly given by bishops, who do therefore prefer to the same by collation: but if an *archdeaconry* be in the gift of a layman, the patron doth present to the bishop, who institutes in like manner as to another benefice; and then the dean and chapter do induct him, that is, after some ceremonies, place him in a stall in the cathedral church to which he belongeth, whereby he is said to have a place in the choir.

ARCH-SUBDEACON, **ARCHISUBDIACONUS**, the first or chief among the subdeacons, as the archdeacon is among the deacons. In some copies of the Roman ordinal, he is called *sub-archidiaconus*.

ARCH-DRUID, **ARCHIDRUIDA**, the chief or pontiff of the ancient DRUIDS in a nation.

ARCHDUKE, **ARCHIDUX**, a duke vested with some quality, pre-eminence, and authority, above other dukes.

The *archduke* of Austria is a very ancient title. There have also formerly been *archdukes* of Lorraine and Brabant. Austria was erected into a marquisate by Otho, or Henry I. and into a duchy by Frederic I. in 1156; but we do not well know when, or why, the title *archduchy* was given it.—It is commonly held that duke Frederic IV. first assumed the quality: others say it was first given by the emperor Maximilian I. in 1459, and ample privileges annexed to it.

The principal privileges of this state are, that the *archduke* shall distribute justice in his own dominions, without appeal; that he shall be judged to have received the investiture of his states, after having demanded it three times; and that he cannot be deprived of his countries,

even by the emperor, and the states of the empire: that no affair of the empire can be concluded without this participation; and that he have a power of creating counts, barons, and gentlemen, throughout the whole empire; which are privileges to which the other dukes of the empire are entire strangers.

ARCH-count, *archicomes*, a title anciently given to the earl of Flanders, on account of his great power and riches.

ARCH-monastery, *archimonastrum*, an appellation sometimes given to the greater monasteries and abbies.

ARCH-notary, *archinotarius*, the *primicerius*, or chief of the notaries.

This office is supposed by some to have differed from the *arch-chancellor*, though wherein the difference consisted does not appear.

ARCHÆOGRAPHIA, the art of describing or explaining ANTIQUITIES. See ANTIQUE.

ARCHÆOTA, a keeper of ancient records.

ARCHAISM, properly denotes a phrase or diction now obsolete and out of use, though anciently deemed good, or passable.

ARCHAISM, *etymologic*, *archaismus etymologicus*, is when either an obsolete word, declension, or conjugation is used.

ARCHAISM, *syntactic*, *archaismus syntacticus*, is an unusual and obsolete construction in discourse.

ARCHARD, in *commerce*, a kind of green fruit, pickled in vinegar, much valued throughout the East Indies.

The best are those brought from Persia, in bottles, much like small cucumbers among us.

ARCHE, *αρχη*, is a Greek word, importing the *beginning*:

ARCHE, among *Physicians*, is the beginning or first period of a disease.

ARCHED fountain. See FOUNTAIN.

ARCHED skene, or *scheme*, in *Architecture*, is used to denote a flat arch, less than a semicircular one.

ARCHED legs, is an imperfection in a horse, when, being in his natural position, he as his legs bent forwards; so that his whole leg makes a kind of arch or bow.

This usually arises from excessive labour, whereby the back-sinews are made to shrink up, so that the legs remain *arched*, and naturally tremble after a little riding; though the disorder is natural to some horses.

ARCHEMY, *archemia*, is used by some to denote the art of transmuting less perfect metals into the more perfect. In which sense *archemy* differs from *alchemy*, as a part from the whole.

ARCHENDA, in the *Ancient Physic*, a kind of powder prepared of *alcanna* and leaves of the Egyptian *LIGUSTRUM*, wherewith the people smeared their feet after bathing, as a preservative against swearing and stench.

ARCHERS, a kind of militia or soldiery, armed with bows and arrows.

The word is formed of *arcus*, a bow; whence *arcuarius*, and even *arquis*, and *arquites*, as they are also denominated in the corrupt state of the Latin tongue.

Archers were much in use in former times; but they are now laid aside, excepting in Turkey, and some of the eastern countries; where there are companies of *archers* still subsisting in their armies; and with which they did terrible execution at the battle of Lepanto.

The name *archer*, however, is still retained even where the thing is lost: thus in France, the officers who attend the lieutenants de police, and provosts, to make captures, seizures, arrests, &c. are called *archers*; though their arms be only halberds or carabines.—In this sense they say, the *archers* of the *grand prevot de l'hôtel*; of the *prevot des marchands*; the city *archers*; the *archers du guet*, or of the watch, &c.—Small parties of *archers*, called also *gens de marsechauffee*, are continually patrolling on the great roads, to secure them against robbers.—The carriages of Lyons, &c. are always escorted by a party of *archers*.

To the diligence of these *archers*, or marshal's men, it is partly owing, that persons now travel in all parts of France in the utmost security; there being fewer robberies on the highway in that whole kingdom in a year, than about London in a week.

They have also their *archers des pauvres*, *archers of the poor*: whose office it is to seize such beggars as they find in the streets, and carry them to the hospitals.

ARCHERY, the art or exercise of shooting with bow and arrow.

Archery, was greatly encouraged among our ancestors, and many statutes were made for the regulation thereof: whence it was that the English *archers* became the best in Europe. See 3 H. VIII. c. 3. 6 H. VIII. c. 2. 33 H. VIII. c. 9. 8 Eliz. c. 10.

It was forbid, by statute, to shoot at a standing mark; unless it be for a rover, where the archer is to change his mark at every shot.—Any person above twenty-four years old is also forbid to shoot with any pricks shaft or flight, at a mark of eleven score yards or under.

under. 33 H. VIII. c. 9.—The former was a provision for making good marksmen at sight; the latter for giving strength and sinews.

ARCHERY, in our ancient customs, a service of keeping a bow for the use of the lord to defend his castle.

ARCHES, or *Court of ARCHES*. See *COURT of Arches*.

ARCHES, among *Navigators*, is particularly used for the Archipelago.

ARCHETYPE, ARCHETYPUS, the first pattern or model by which any work is formed, or which is copied after, to make another like it.

The word is compounded of *αρχη*, *beginning*, and *τυπος*, *type*.

In this sense the word coincides with *original*, or *prototype*; and stands opposed to *copy*.

Among minters, &c. *Archetype*, is peculiarly used for the standard or original weight, by which the other weights are to be adjusted and examined.

Philosophers, particularly the Platonists, talk of an *archetypal* world; meaning the world such as it existed in the Divine Mind, or in the idea of God, before the visible creation.

ARCHEUNUCH, ARCHIEUNUCHUS, the chief of the eunuchs.

The *archeunuch* was one of the principal officers in Constantinople, under the Greek emperors.

ARCHEUS, an obscure term, used chiefly among the *Ancient Chemists*, to express some occult principle of life and motion, the cause of all the effects which we observe in nature.

The word is derived from *αρχη*, *principle*.

As the chemists differ in their ideas of a vital cause; the term *archeus* becomes applied to very different things: though most of them conceive it of the nature of fire.

Some use *archeus*, to denote the fire lodged in the centre of the earth; to which they ascribe the generation of metals and minerals, and which they believe to be the principle of life in vegetables.

Others by the word *archeus*, mean a certain universal spirit, diffused throughout the whole creation, the active cause of all the phenomena in nature.

Others, instead of *archeus* choose to call this the *anima mundi*; and others, the *Vulcan* or *heat* of the earth.

They add, that all bodies have their share of this *archeus*; and that, when this is corrupted, it produces diseases, which they call *archeal diseases*.

They likewise attribute ideas to it; which for this reason they call *archeal ideas*.

Helmont in a great assenter of the dogma of an *archeus*. It is likewise used to signify that peculiar fluid among the vegetable classes, which determines every particular plant to its odour, taste, and other qualities.

The fruit of a plant is the part in which the seed is conceived and formed, the seed is the embryo of the plant, with a *placenta* or *cotyledon*, to which it is fastened by an umbilical string. The cotyledons usually contain a balsam, which appears to be the last and highest preparation of the moist kind, which nature here lays up for the use of the offspring. In this is an oily tenacious matter, which repels all other moist things, defends the embryo, and, by its tenacity, retains and fetters the thin pure spirit, which is the ultimate bounds and object of the action of nature in plants, and which would else easily fly away; this the chemists call the *archeus* and *spiritus rector*; the oil is too gross ever to enter the fine vessels of the embryo. But this spirit being invigorated by a vegetable power, breathes, it is said, a vital principle, and impresses the specific character on the food destined for the embryo, by which means every thing afterwards turns to the proper nature of the plant; in this spirit the fragrant odour, and peculiar taste of the plant is lodged, and even its colour has a near dependence on it. Boerhaave's Chem.

ARCHIACOLYTHUS, an ancient dignity in cathedral churches: the ministers whereof were divided into four orders, or degrees, viz. *priests*, *deacons*, *subdeacons*, and *acolythi*; each of which had their chiefs. The chief of the *acolythi* was called *archiacolythus*. Du-Cange.

ARCHIATER, ARCHIATRUS, properly denotes the chief physician of a prince who retains several.

The word is formed of *αρχη*, *principium*, *chief*; and *ιατρος*, *medicus*, a *physician*.

ARCHIDAPIFER, or chief sewer, is a great officer of the empire.

The elector of Bavaria is *archidapifer*.—The palatine of the Rhine at one time pretended this office was annexed to his palatinate; but he has since desisted.

ARCHIEROSYNES, in the Grecian *Antiquity*, a high-priest vested with authority over the rest of the priests, and appointed to execute the more sacred and mysterious rights of religion.

ARCHIGALLUS, in *Antiquity*, the high-priest of Cybele,

or the chief of the eunuch-priests of that goddess, called *Gall*.

ARCHIGERONTES, in *Antiquity*, the chiefs or masters of the several companies of artificers at Alexandria.

Some have mistaken the *archigerontes* for the arch priests, appointed to take the confessions of those who were condemned to the mines.

ARCHIGUBERNUS, ARCHIGUBERNETA, or ARCHIGUBERNITES; in *Antiquity*, the commander of the imperial ship, or that which the emperor was aboard of.

Some have confounded the office of *archigubernus*, with that of *praefectus classis*, or admiral, but the former was under the command of the latter.

Potter takes the proper office of the *archiguberneta* to have been, to manage the marine affairs, to provide commodious harbours, and order all things relating to the sailing of the fleet, except what related to war.

ARCHIL, *Archilla*, *Rocella*, or *Orseille*, is a white moss, which grows on the rocks in many parts of the Archipelago, and in the Canary and Cape de Verd islands; and, according to Linnæus's account, on the western coast of England. It belongs to the third of Dillenius's genus of *coralloides*, and to the *lichenes fruticulosi*, of Linnæus. This moss is imported as it is gathered, and the demand for it is so great, that, as M. Hellot informs us no less than 2600 quintals, or 130 ton weight of it, is annually collected in different places. Those who prepare it for the use of the dyer grind it betwixt stones, so as to bruise it thoroughly without reducing it to powder, and then moisten it occasionally with strong spirit of urine, or urine itself, mixed with quicklime. In a few days it acquires a purplish red, and at length a blue colour. The dyers seldom use this drug by itself, because of its dearth, and the perishableness of its beauty; but they chiefly employ it to give a bloom to other colours, as pinks, &c. and this is done by passing the dyed cloth, or silk, through hot water lightly impregnated with the *archil*. However, the bloom, thus communicated, soon decays upon being exposed to the air; though, M. Hellot says, that by adding a small quantity of the solution of tin, the colour obtained from this drug changes towards a scarlet, and gives a durable dye. Prepared *archil* will readily yield its colour to water, to volatile spirits, and to spirit of wine; and it is accordingly used to colour the spirits of thermometers; but being confined from the air, the spirits lose their colour, and, as M. l'Abbé Nollet observes, regain it, upon being again exposed to the air. He repeated the experiment several times with success. A solution of *archil* in water gives a durable stain of a beautiful violet, or purplish blue colour, to marble. M. du Fay informs us that he has seen pieces of marble stained with it, that preserved their colour for two years, without any sensible change. It sinks deep into the marble, and makes it more brittle. The dye yielded by this substance, it is supposed, was known as early as the days of Theophrastus. Linnæus apprehends, that there are several other common mosses, from which valuable colours might be extracted. The French dyers use a crustaceous moss growing upon rocks in Auvergne, and prepared with lime and urine, as a succedaneum to the Canary *archil*. Dr. Lewis's ed. of Neumann's Chem. Works, p. 438. Phil. Transf. vol. li. p. 652. Raii Hist. Plant. 1. p. 74. Micheli Nova Plant. p. 78. See LICHEN.

ARCHILOCHIAN, a term in *Poetry*, applied to a sort of verses, whereof *Archilocus* was the inventor.

These consist of seven feet; the four first whereof are ordinarily *dactyls*, though sometimes *spondees*; the three last *trachees*: for instance:

Solvitur acris hyems grata vice veris & Favoni. Hor.

It is usual to mix *iambic* verses of six feet, abating a syllable, with *Archilochian* verses; this Horace himself has done in the ODE now cited.

These verses are called *dactylic*, on account of the *dactyls* at the beginning.

ARCHILUTE. See *ARCILEUTO*.

ARCHIMAGUS, in the *Ancient Persian Religion*, the chief priest or head of the order of magi.

The *archimagus* answered to the high priest among the Jews, or the pope now amongst the Romanists, being the head of the whole religion.

The *archimagus* resided in the fire temple, a place held in the same veneration among them as the temple of Mecca among the Mahometans; every person of the sect being under a kind of obligation to make a pilgrimage to it once in their lives. Zoroaster is ranked as the first *archimagus*.

ARCHIMANDRITE, the superior of a monastery; amounting to what we now call ABBOT.

Covarruvias observes, that the word literally denotes the chief or leader of a flock; in which sense it may be applied to any ecclesiastical superior, and accordingly, we find

ARCHITECTURE.

TUSCAN.

DORIC.

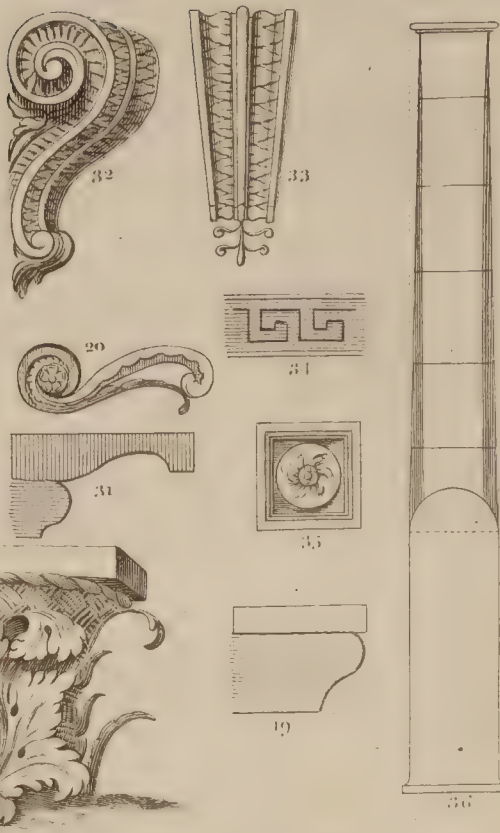
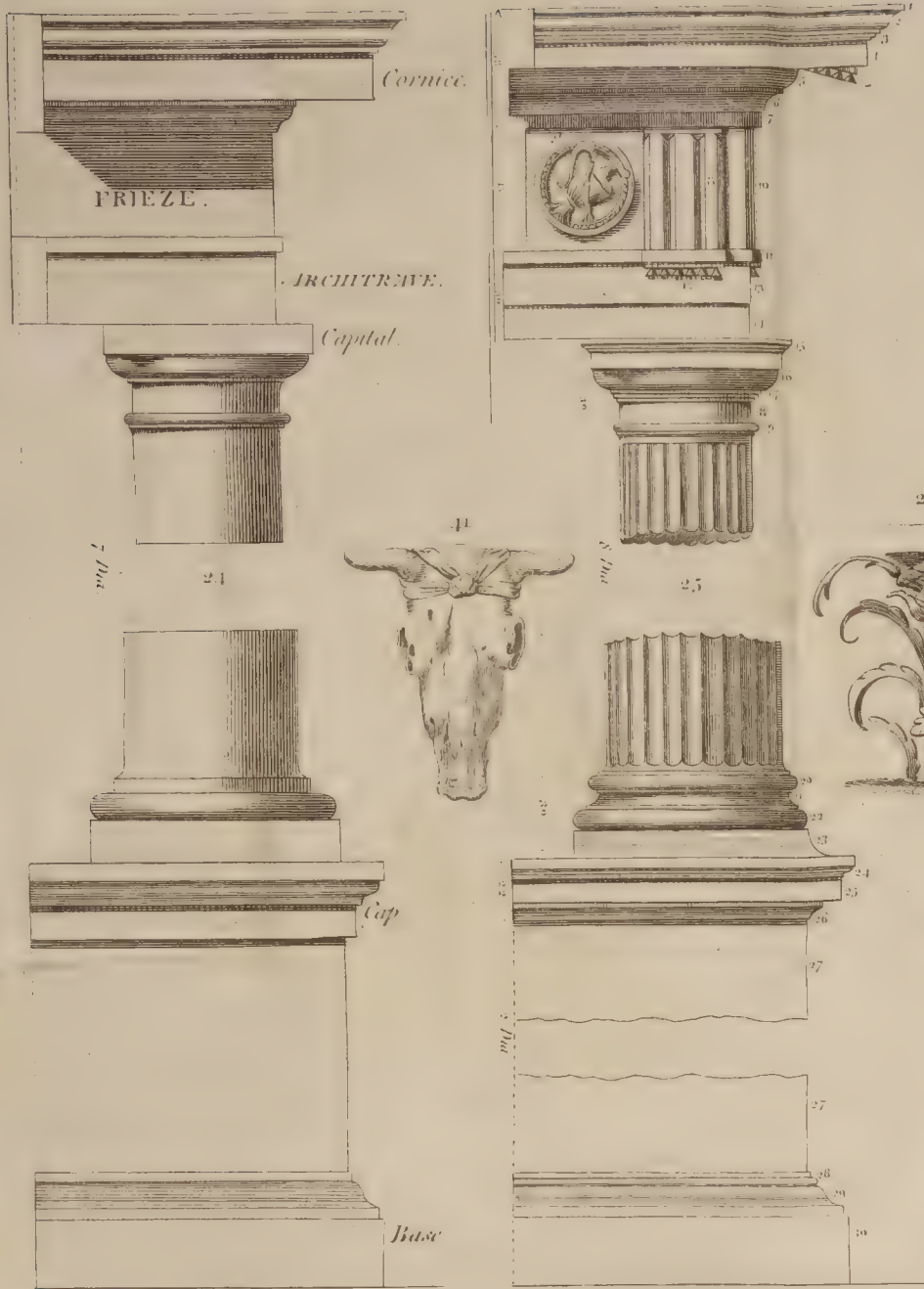
REFERENCE to the FIGURES.

ENTABLATURE.

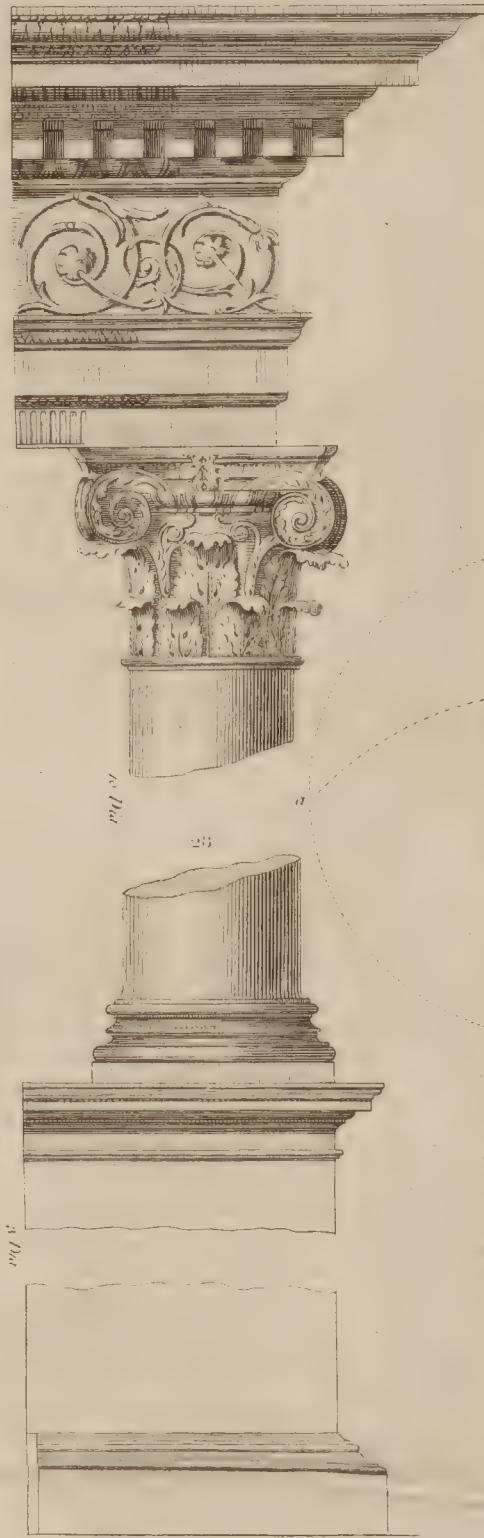
SHAFT.

BASE.

PEDESTAL.

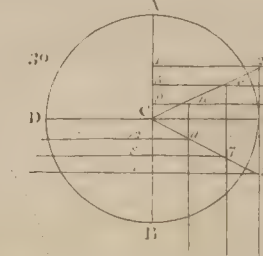
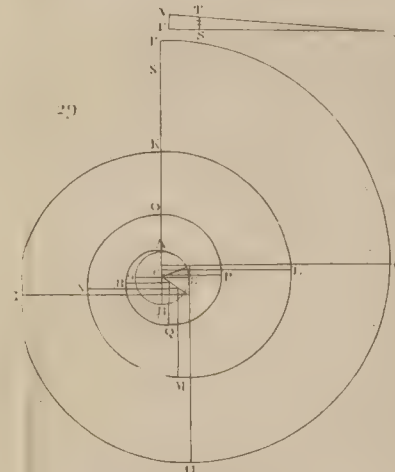
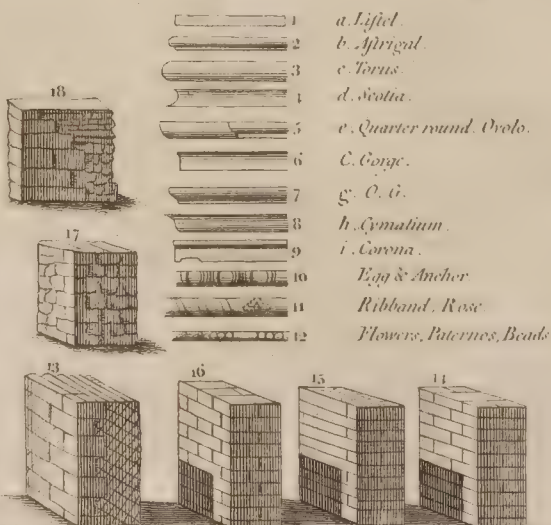


COMPOSITE



IONIC.

CORINTHIAN.



- Figure 1 Fillet, Lintel, Square or Band
2 Astragal, Bead, or Necking
3 Torus or Torus
4 Scotia Trochilus or Casemat
5 Echinus Ovolo, or Quarter round
6 Gorge
7 Inverted Cyma, Talon O.G.
8 Cyma recta, or Cymatium
9 Corona
10 Egg and Anchor
11 Ribbands and Roscs
12 Flowers, Beads, Pater Noster

MOULDING.

CARVING.

- 13 Net Masonry
14 Greek Masonry
15 Masonry bounded by unequal Courses
16 Bond Masonry
17 Terraced Courses filled In
18 Masonry filled in the middle with rubble

- 19 Corbel
20 Modillion

- 21 Origin of the Corinthian Capital
22, 23 Plan & Angular view of the Capital

- 24 Tuscan Order
25 Doric
26 Ionic
27 Corinthian
28 Composite

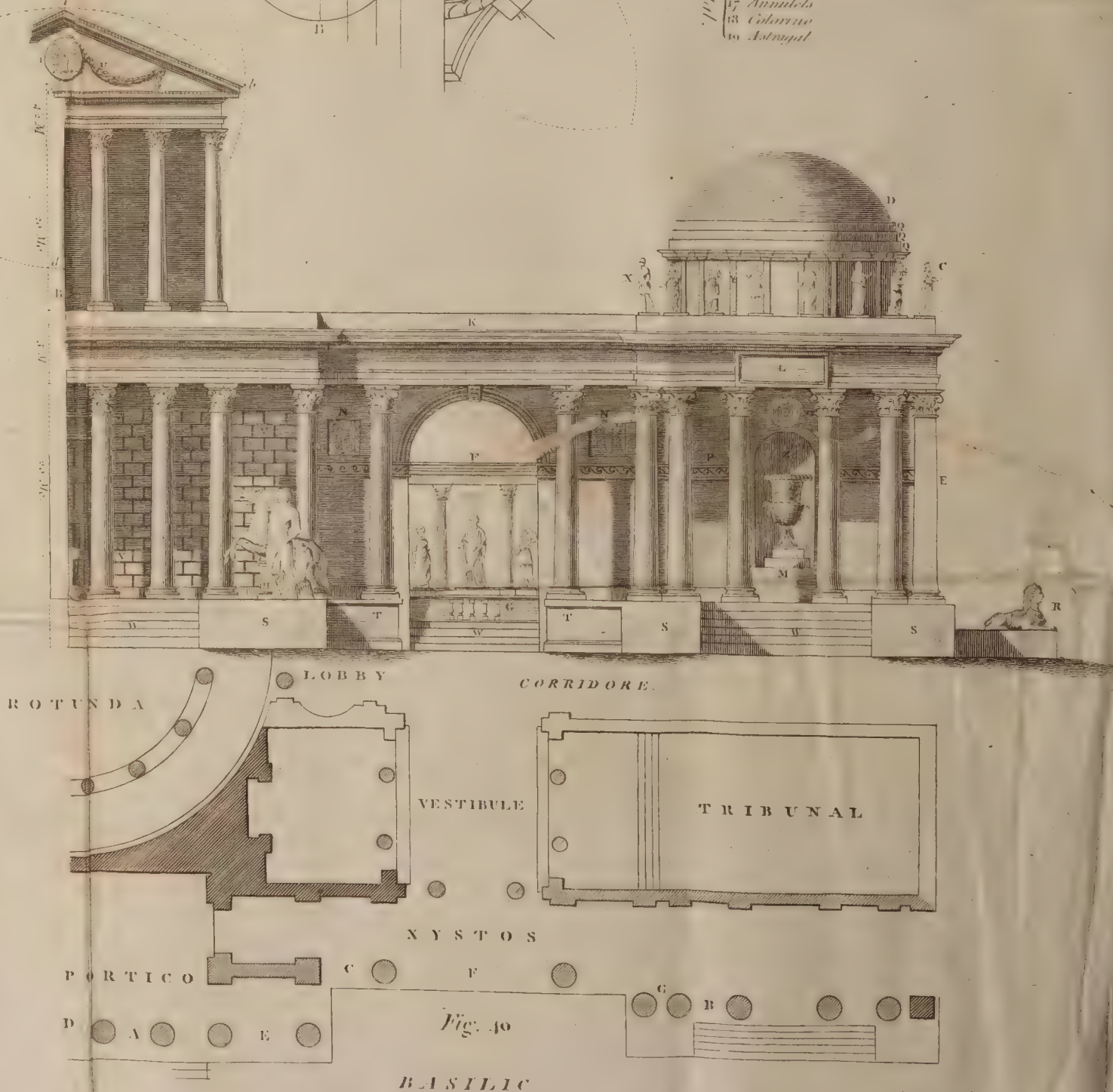
- 29 Volutes added to the Ionic Capital 30 The Egg
31 Candelabra
32 Triglyph
33 Antefix or Gutterhead
34 Frieze 35 Gutter & Rose
36 Diminution of a Column
37 Persian Order 38 Caryatids
39 Terminus

- 40 A Diagram wherein many members are introduced and each referred to under its proper Head
41 An Owl Skull used as an Ornament in the Doric Order

REFERENCE to the Doric Order.

- | | | |
|---------------------------|----------------|------------------|
| 1 Fillet | 20 Upper Torus | 24 Cyma Inverted |
| 2 Cymatium | 21 Scotia | 25 Corona |
| 3 Cyma reversa | 22 Lower Torus | 26 Bottom |
| 4 Corona or Drip | 23 Plinth | 27 Dado |
| 5 Ovolo | | |
| 6 Cyma | | |
| 7 Capital of the Triglyph | | |
| 8 Triglyph | | |
| 9 Metopie | | |
| 10 Frieze | | |
| 11 Base or Plinth | | |
| 12 Drip | | |
| 13 Architrave | | |
| 14 Dado first piece | | |
| 15 O.G. and Ribbands | | |
| 16 Ovolo | | |
| 17 Annulet | | |
| 18 Column | | |
| 19 Astragal | | |

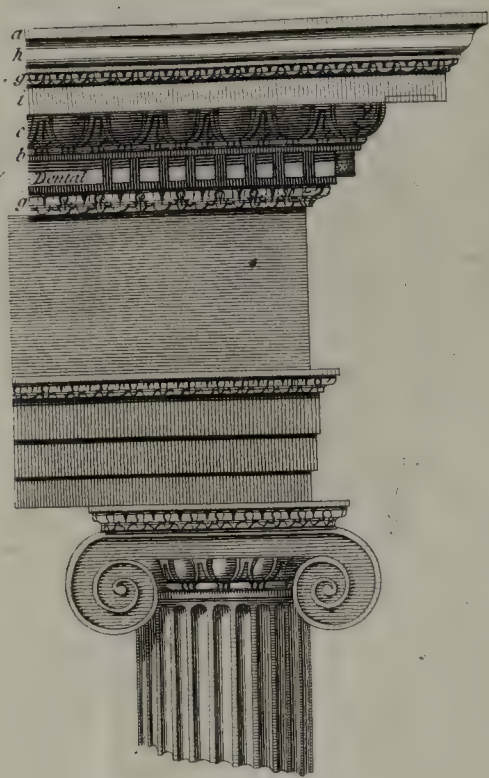
The Ancients used the Doric without either Pedestal or Base



Scale of Modules & Minutes for the several Orders.

ARCHITECTURE *Tab. II.*

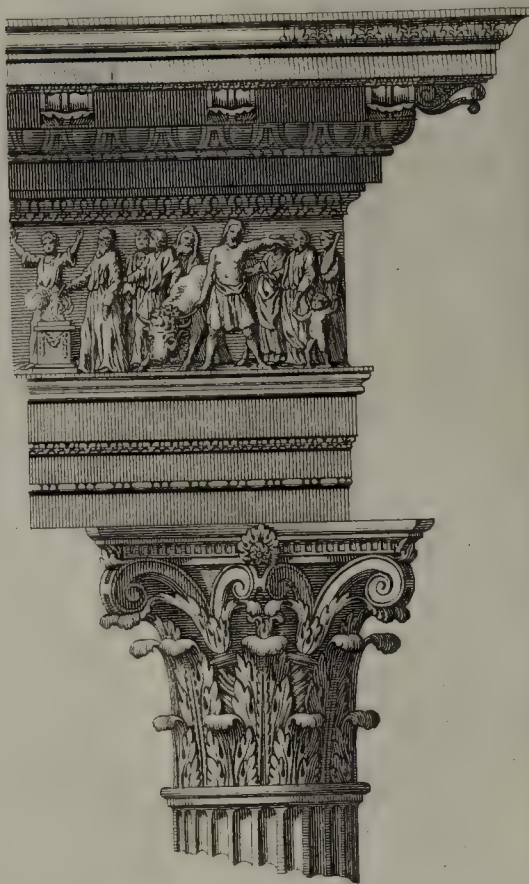
IONIC



9 Dia.

Fig. 26.

CORINTHIAN



10 Dia.

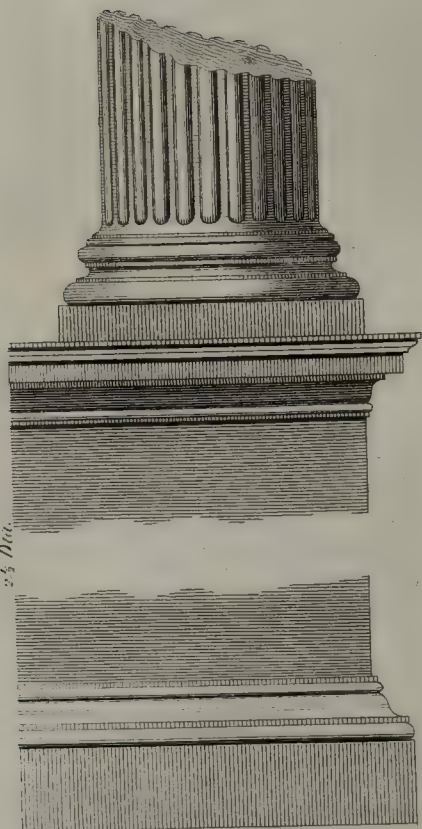
Fig. 27.

COMPOSITE

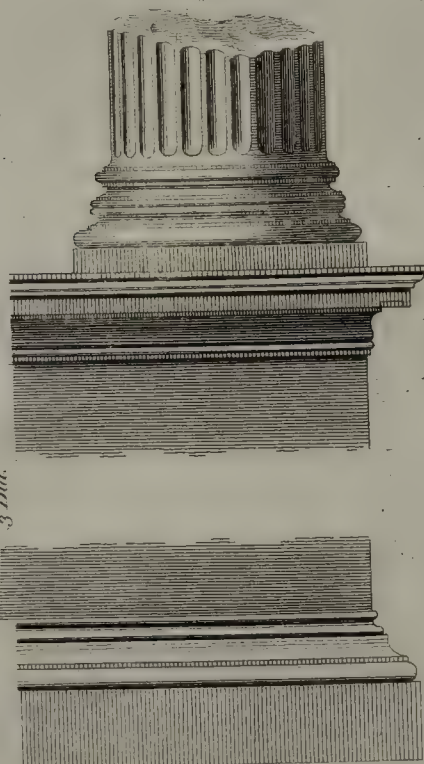


10 Dia.

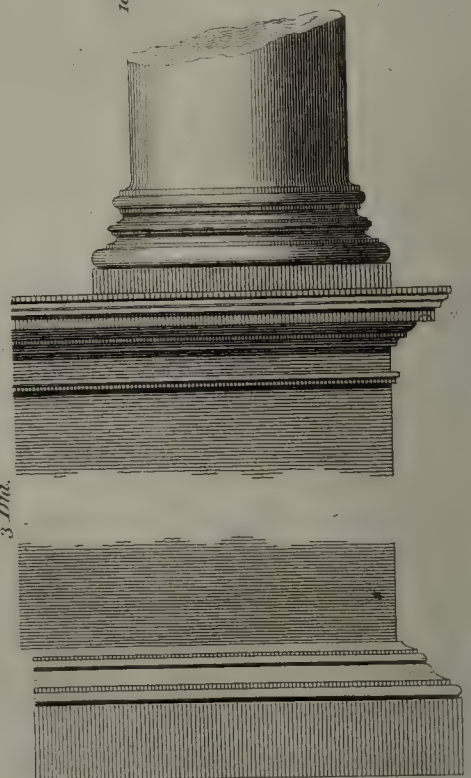
Fig. 28



2 1/2 Dia.



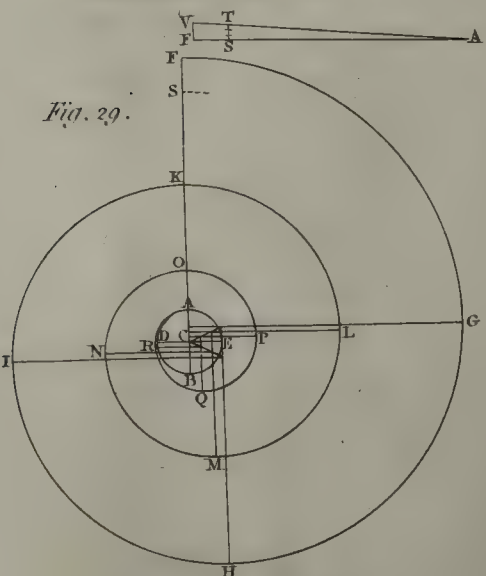
3 Dia.



3 Dia.

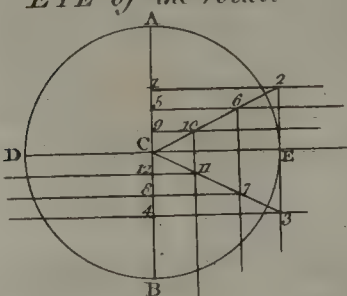
Goldman's VOLUTE

Fig. 29.



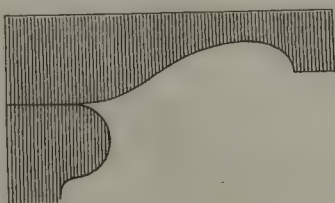
EYE of the Volute

Fig. 30.

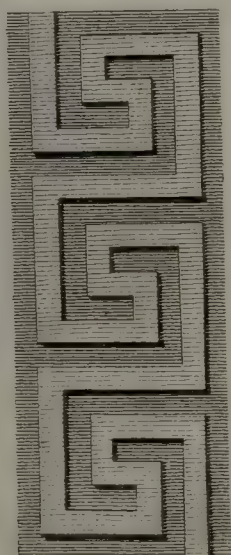


W. Blackburn del.

CANTALIVER Fig. 31.



FRET Fig. 34.



TRUSS Fig. 32.



CARTOON Fig. 33.



COFFER & ROSE

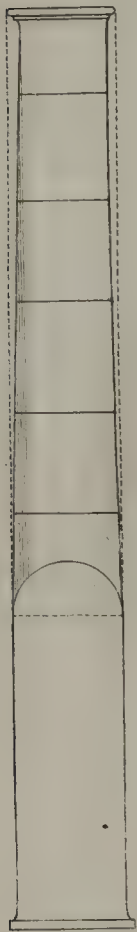
Fig. 35



J. Taylor sculp.

ARCHITECTURE *Tab. III.*

*Diminution of a
COLUMN. Fig. 36.*



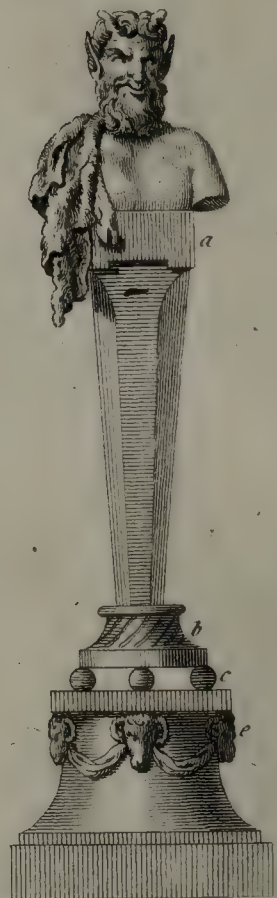
PERSIAN Fig. 37.



CARYATIDES Fig. 38.



TERMINI Fig. 39.

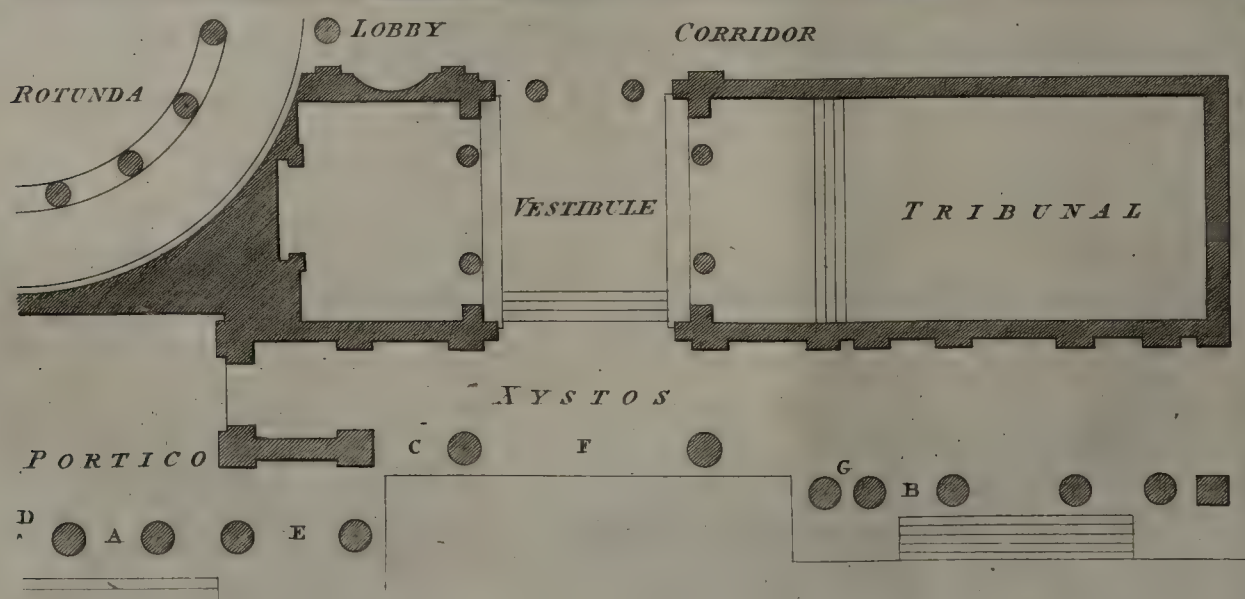


Ox's Skull, an Ornament in the Doric Order.



Fig. 41.

BASILIC Fig. 40.



find the name sometimes attributed to archbishops. But among the Greeks, by whom it is chiefly used, it is always restrained to the chief of an abbey.

ARCHIMEDES's screw. See **SCREW** of *Archimedes*.

ARCHIMEDES's burning-glass. See **BURNING-glass**.

ARCHIMIME, ARCHIMIMUS, from *αρχι*, and *μιμος*, *mimic*, is the same thing in effect, with *archbuffoon*, or *mimic*.

The *archimimes*, among the Romans, were persons who imitated the manners, gestures, and speech, both of people living, and those who were dead.

At first they were only employed on the theatre; but were afterward admitted to their feasts, and at last to their funerals; where they walked after the corpse, counterfeiting the gestures and behaviour of the person who was carried to the funeral pile; as if he were still alive.

ARCHIPELAGO, in *Geography*, a sea interrupted by a great number of islands.

The word is formed by corruption of *Ægeopelagus*, q. d. *Ægean sea*, which again is formed of *Αἰγαῖον Πέλαγος*, a name originally given it by the Greeks; but for what reason is not agreed on.

The most celebrated *Archipelago*, and that to which the name is in some measure appropriated, is that between Greece, Macedonia, and Asia; wherein are the islands of the *Ægean sea*; which is called the *White Sea*, in contradistinction to the *Euxine*, which they call the *Black Sea*.

All these islands lie between the 35th and 40th degrees of north latitude. Some of them are called *Cyclades*, because they form, as it were, a crown and circle round the isle of Delos; the others are called *Sporades*, as being dispersed, without any order, between Asia and the isle of Candia.

The modern geographers mention other *Archipelagos*; as that of Lazarus, near the coasts of Malabar and Malacca; the *Archipelago* of Mexico; and that of the Caribbees, wherein are many islands; that of the Philippines, called by some, the *great Archipelago*, containing several islands; and all those of the Moluccos, of Celebes, &c.

ARCHIPHERACITÆ, ministers in the Jewish synagogues, appointed to read and interpret the *Perakim*, or titles and heads of the law, and the prophets.

The *archipheracita* was not the same with the *archisynagogus*, as Grotius and others have mistakingly imagined; but rather the chief or principal of these appointed to read explain, and profess the law, in their schools.—

And hence the name which is formed of *αρχος*, *chief*, and the Hebrew or Chaldee, *פרק*, *division*, or *chapter*.

ARCHIPRESBYTER. See **ARCH-PRIEST**.

ARCHISTRATEGUS, the generalissimo, or captain-general of an army. See **STRATEGUS**.

ARCHISYNAGOGUS, in the *Jewish History*, the chief or ruler of the synagogue.

These are sometimes also called the angels or princes of the synagogues: the Jews called them *chachamin*, i. e. *wise*.

Archisynagogues were persons of authority in each synagogue, who presided in assemblies held therein, invited those to speak whom they judged capable of it, and decided all disputes relating to money, &c. They had a power to have those whipped who were convicted of acting contrary to the law; also a right of excommunicating, or casting out of the synagogue, those whom they found to merit this punishment. Their number was different according to the extent of the city, or the number of persons that came to the synagogue; in some there were seventy, in others eight or ten, and in others not above one. *Vitrunga de Synagog.*

ARCHITECT, a person skilled in architecture, or the art of **BUILDING**; who forms plans and designs for edifices, conducts the work, and directs the several artificers employed in it.

The word is derived from *αρχος*, *princeps*, and *τεκτων*, *faber*, *workman*; q. d. the principal workman.

The most celebrated *architects* are Vitruvius, Palladio, Scamozzi, Serlio, Vignola, Barbaro, Cataneo, Alberti, Viola, Inigo Jones, De Lorme, Perrault, S. Le Clerc, Sir Christopher Wren, and the earl of Burlington.

Vitruvius enumerates twelve qualities requisite to constitute a good *architect*; that he be docile and ingenious; well educated; skilled in designing, in geometry, optics, arithmetic, history, philosophy, music, medicine, law, and astronomy.

Close application to the study of ancient masters, and the remaining works of the ancients, together with judgment and taste to select, and properly to apply the hints which such examples afford, joined to a peculiar genius for the study of this art, are absolutely necessary to render an *architect* eminent in his profession.

ARCHITECTOGRAPHIA, the description of ancient buildings, temples, theatres, arches, pyramids, baths, gates, aqueducts, tombs, and the like.

ARCHITECTONIC, that which builds a thing up regularly, according to its nature and intentions.

ARCHITECTURE, ARCHITECTURA, the art of **BUILDING**, i. e. of erecting edifices, proper for habitation or

defence, as houses; for domestic concerns, as stabling, barns, and all out-offices; for devotion, as temples, churches, &c. for state, as public offices, halls, theatres, &c. for monuments and mausoleums, and for trade.

Architecture is scarce inferior to any of the arts in point of antiquity. Nature and necessity taught the first inhabitants of the earth to build themselves huts, tents, and cottages; from which, in course of time, they gradually advanced to more regular and stately habitations, with variety of ornaments, proportions, &c. See Vitruvius's account of the origin of *architecture*, under **ORDER**.

The ancient writers represent the Tyrians as the first among whom *architecture* was carried to any tolerable pitch; and hence it was that Solomon had recourse thither for workmen to build his temple.

To what a degree of magnificence the Tyrians and Egyptians carried *architecture*, before it came to the Greeks, may be learned from Isaiah xxiii. 8. and from Vitruvius's account of the Egyptian Oeci; their pyramids, obelisks, &c. Yet, in the common account, *architecture* should be almost wholly of Grecian original; three of the regular orders of manners of building are denominated from them, viz. Corinthian, Ionic, and Doric; and there is scarce a single member, or moulding, but comes to us with a Greek name.

Be this as it will, it is certain the Romans, from whom we derive it, borrowed what they had entirely from the Greeks; among whom it was in its greatest glory under Pericles.

Under Augustus, *architecture* arrived at its highest perfection. Tiberius neglected it, as well as the other polite arts. Nero, amongst a number of horrible vices, still retained an uncommon passion for building; but luxury and dissoluteness had a greater share in it than true magnificence.—Apollodorus excelled in *architecture* under the emperor Trajan; by which he merited the favour of that prince; and it was he who raised the famous Trajan column, subsisting to this day though robbed of its ornaments, in order to decorate the arch of Constantine.

After this, *architecture* began to decline again; and though the care and magnificence of Alexander Severus supported it for some time, yet it fell with the western empire, and sunk into a corruption, from whence it was not recovered for the space of twelve centuries.

The ravages of the Visigoths, in the fifth century, destroyed all the most beautiful monuments of antiquity; and *architecture* thenceforward became so coarse and artless, that their professed architects understood nothing at all of just designing, wherein its whole beauty consists; and hence a new manner of building took its rise, which is called the *Gothic*.

Charlemagne did his utmost to restore *architecture*; and the French applied themselves to it with success, under the encouragement of H. Capet: his son Robert succeeded him in his design; till by degrees the modern *architecture* was run into as great an excess of delicacy as the Gothic had before done into massiveness. To these may be added the Arabick and Morisk, or Moorish *architecture*, which were much of a piece with the Gothic, only brought in from the south by the Moors, and Saracens, as the former was from the north by the Goths and Vandals.

The church built by Helen over the supposed sepulchre of our Saviour, is in this style, ornamented with foliage and figures of angels in the capitals, and on the impostes. This seems to have been the first corruption of the ancient *architecture*; and it was succeeded by the Gothic, which style of building has a fine effect in places of devotion; such are many of our cathedrals and old churches.

The architects of the 13th, 14th, and 15th centuries, who had some knowledge of sculpture, seemed to make perfection consist altogether in the delicacy and multitude of ornaments, which they bestowed on their buildings, with excessive care and solicitude; though frequently without any conduct or taste.

In the two last centuries, the architects of Italy and France were wholly bent upon retrieving the primitive simplicity and beauty of ancient *architecture*; in which they did not fail of success: inasmuch that our churches, palaces, &c. are now wholly built after the antique.

The rules of *architecture* require, that in a fabric judiciously and elegantly erected, there should be solidity, conveniency, and beauty; to which, according to the taste of some of the most refined masters, are added order, disposition, proportion, decorum, and œconomy. These eight requisites are esteemed by the best judges, to constitute the necessary parts of *architecture*.

Solidity implies the choice of a good foundation, and good materials to work with, properly applied. Convenience consists in so disposing the various parts of a structure, that they may not crowd and embarrass each other, or appear disagreeable to the inspector. Beauty is that engaging form, and pleasing appearance, which captivate at one glance, as it were, the sight of the spectator. Order gives each part of the building a proportionate extent, adapted to the magnitude of the whole. Disposition is the due ranging, and agreeable union of

all the parts, in order to render the whole agreeable at all times, and, in general, means the proper convenient arrangement of the apartments. Proportion is the relation that the whole work has to its constituent parts; and which each part hath to the complex idea of the whole: for among buildings that are perfect in their kind, from any particular part we may form a judgment of the taste of the whole. For example, the diameter of a column, or the dimensions of a triglyph, give us a right idea of the whole with which they have connection. To express the relation which many things have to each other, as to their magnitude, and the variety of their parts, Vitruvius, the great architect, indifferently uses the words proportion, eurythmy, and symmetry; the two last whereof are nearly synonymous with the first. *Decorum*, or decency, consists in making the whole aspect of the fabric so correct, that nothing shall appear but what is founded on the principles of geometry, and delicacy of judgment. These have regard to design, custom, and nature. Design induces to chuse other dispositions for a church than a palace. The regard we pay to custom inclines us to decorate the elevations of such houses which are sumptuous and magnificent within. The regard we have to the nature of places, from an inherent taste, perhaps natural to mankind, makes us pitch upon different prospects, for different parts of an edifice. Thus we chuse to expose bed-chambers, and libraries, to the morning sun; winter apartments to the west; and galleries of paintings to the north; as they require an equal light. Oeconomy instructs the artist to have regard to the expence to be made of his design, the quality of the materials near the place where he builds; and to take his measures judiciously for the order and disposition.

Architecture is commonly divided into *civil*, *military*, and *naval* or *marine*.

ARCHITECTURE, *civil*, is the art of designing edifices of every kind for the uses of civil life in every capacity; as habitations for dwellings, churches, meetings, synagogues, colleges, halls, palaces, &c.

Civil architecture may be distinguished with regard to the, several periods, or states thereof, into the *antique*, *Gothic*, *modern*, &c.

Another division of *civil architecture* arises from the different proportions which the different kinds of buildings rendered necessary, that we might have some proper for every purpose, according to the bulk, strength, delicacy, richness, or simplicity required.

Hence arose five orders or manners of building, all invented by the ancients at different times, and on different occasions, viz. *Tuscan*, *Doric*, *Ionic*, *Corinthian*, and *Composite*; the history, characters, &c. of each whereof, see under their respective articles, **COMPOSITE**, **CORINTHIAN**, **DORIC**, **IONIC**, and **TUSCAN**.

What forms an order is, the column with its base and capital; surmounted by an entablature, consisting of architrave, frieze, and cornice; and sustained by a pedestal. For a general view of the elements of *architecture*, with the rules which obtain with respect to the manner, form, proportion, situation, foundation, distribution, covering, apertures, &c. see **BUILDING**.

For particulars, see **CEILING**, **DOOR**, **FOUNDATION**, **ROOF**, **WALL**, **WINDOW**, &c.

There are several arts subservient to *architecture*, as carpentry, masonry, paving, joinery, smithery, glazing, plumbing, plastering, gilding, painting, &c. See **CARPENTRY**, **GILDING**, **JOINERY**, **MASONRY**, **PAINTING**, **PAVING**, **PLUMBING**, **SCULPTURE**, &c. See also **BRICK**, **GLASS**, **LEAD**, **MORTAR**, **STONE**, **TILE**, **TIMBER**, &c.

We have no Greek authors at this time extant on *architecture*. The first who wrote of it was Agatharcus the Athenian, who was seconded by Democritus and Theophrastus. Among the Latins, Fuffitius, Terentius, Varro, Publius Septimius, Rufus, and Epaphroditus, all wrote *De Re Architectonica*.

But, of all these ancients, Vitruvius is the only entire author, whose works we have; though Vegetius relates, that there were 700 architects at Rome in his time.—He lived in the reigns of Julius Cæsar and of his successor Augustus, and composed a complete system of *architecture*, in ten books, which he dedicated to that prince.

M. Perrault has extracted all the rules out of Vitruvius's prolix work, and has methodized and published them in a little abridgment. Several authors have also endeavoured to explain the text of Vitruvius, particularly Philander, Barbaro, and Salmasius, in notes added to their several Latin editions; Rivius and Perrault, in the notes to their German and French versions; and Baldus, in his *Lexicon Vitruvianum*, enlarged by De Laet. The same M. Perrault has also composed an excellent treatise of the five orders, which may be esteemed a supplement to Vitruvius, who left the doctrine of the orders defective.

The authors upon *architecture*, since Vitruvius, are, Leon Baptista Alberti, who, in 1512, published ten books of the art of building, in Latin, designed to outvie Vitru-

vius; in which, however, he has not succeeded. His work has abundance of good things; but it is deficient in the doctrine of the orders. Seb. Serlio, who wrote seven books of *architecture*, five of which, concerning the five orders, were made public in 1502, throughout all which he strictly adheres to Vitruvius's rules: the seventh was since published in 1575; but the sixth, concerning private buildings, has not yet appeared. And, Palladio, who wrote four books of *architecture*, containing the fundamental rules of the art, with various instances of all the kinds of works, published in Italian in 1575: the two first books are rendered into High Dutch, and enlarged with annotations by Boeckler. Phil. de Lorme, who published nine books of *architecture* in French, in 1567; J. Barozzi de Vignola, who, in 1631, made public his rules of the five orders, in Italian; this work has been since translated with large additions, by Daviler, under the title of *Cours d'Architecture*, &c. and since also in High Dutch, with notes.

To these are to be added Vincent Scamozzi, in his *Idea of Universal Architecture*, published in 1615, in Italian; Car. Phil. Dieussart, in his *Theatre of Civil Architecture*, published in High Dutch in 1697, wherein he not only delivers the rules of *architecture*, but explains and compares the five orders, as laid down by Palladio, Vignola, Scamozzi, and others; which same design was also executed in French by R. Freart de Cambray, in a *Parallel of the ancient Architecture with the modern*, published in French in 1650, and since translated into English, with additions by Mr. Evelyn. Fr. Blondel, director of the Royal Academy of *Architecture*, 1698, gave a *Course of Architecture*, in French; being a collection from all the celebrated writers upon the subject of the orders, &c. Nic. Goldman, in a treatise *De Stylometris*, published in Latin and High Dutch, in the year 1661, has done good service, by reducing the rules and orders of *architecture* to a farther degree of perfection, and shewing how they may be easily delineated by means of certain instruments invented by him.

Lastly, the elements of *Architecture* are very ingeniously laid down by sir H. Wotton. The same are also reduced by Sturmius, and Wolfius, to certain rules and demonstrations: and thus is *architecture* brought into the form of a mathematical art; by the first, in his *Mathesis Juvenilis*, and by the second, in his *Elementa Matheseos*, tom. ii. an. 1715.

ARCHITECTURE, *counterfeit*, is that which has its projectures painted either in black or white, or coloured after the manner of marble; as is seen practised in the frontispieces and palaces in Italy, and in the pavilions of Marly.

This painting is done in fresco, upon plastered walls; and in oil, on walls of stone.

Under the name of *counterfeit architecture*, which we otherwise called *scene-work*, is likewise comprehended that painted on slight boards or planks of wood, whereon the columns, pilasters, and other parts of building, seem to stand out with a relieve: the whole being coloured in imitation of various marbles, metal, &c. and serving in the decorations of theatres, triumphal arches, public entries, funeral pomps, &c.

ARCHITECTURE, *military*, is the art of strengthening and fortifying places, to screen them from the insults of enemies, and the violence of arms.

This we more usually call **FORTIFICATION**.

The business of *military architecture* is to erect forts, castles, and other fortresses, with ramparts, bastions, &c. Those who have excelled in *military architecture*, are Coehorn, Pagan, Vauban, Scheiter, and Blondel; from whom all who have wrote since have chiefly derived what they have communicated to the world. See **FORTIFICATION**.

ARCHITECTURE, *naval*, or *Ship BUILDING*, is that which teaches the construction of ships, galleys, and other floating vessels for the water; with ports, moles, docks, &c. on the shore.

How it was esteemed in the days of Homer, may be seen in his *Odyss.* v. 244. See **SHIP**, and the articles there referred to.

ARCHITECTURE, in *perspective*, is a sort of building, wherein the members are of different measures and modules, and diminish in proportion to their distance; to make the work appear longer and larger to the view than really it is.

Such is the celebrated pontifical stair-case of the Vatican built under pope Alexander VII. by the cavalier Bernino.

ARCHITHALASSUS in *Conchyliology*, a name given by some authors to a very beautiful and precious shell of the *voluta* kind, called by us the admiral.

The curious in Holland have three species of this shell, which they call *archithalassus primus*, *secundus*, and *aurantius*, the admiral, the vice-admiral, and the orange admiral.

ARCHITRAVE, in *Building*, that part of a column, or order of column, which lies immediately upon the capital. See *Tab. Archit.* fig. 24, 25, 26, 27, 28.

A R C

The Greeks call it *epistyle*.

The *architrave* is the lowest member of the entablature. The *architrave* is supposed to represent the principal beam in timber buildings; whence the name, which is formed of *apxos*, chief, and *trabs*, beam.

The *architrave* is different in the different orders. In the Tuscan it only consists of a plain face, crowned with a fillet; and is half a module in height.

In the Doric and Composite, it has two faces or *fasciæ*; and three in the Ionic and Composite; in which last order it is $\frac{1}{2}$ of a module high, though but half a module in the rest. See a table of the measure of the several parts of the *architrave* in the different orders, under COLUMN.

Architects, however, allow themselves a great latitude in this part; some using more members than others; and many of them having two or three forms of *architraves*. The proportions here laid down are taken from Vignola. *Architraves* is sometimes also called the *reason piece*, or *master-beam* in timber-buildings, as porticos, cloisters, &c. In chimneys it is called the *mantle-piece*, and over the jaumbs of doors, or lintels of windows, the *HYPERTHYRON*.

ARCHITRAVE cornice. See CORNICHÉ.

ARCHITRAVE doors, are those which have an *architrave* on the jaumbs, and over the door upon the cap-piece, if straight; or on the arch, if the top be curved.

ARCHITRAVE windows, of timber, are commonly an OGEE raised out of the solid timber, with a list over it; though sometimes the mouldings are struck, and laid on; and sometimes they are cut in brick.

The upper *fascia* is called the *header*, or *beading architrave*; and the lower the *jack*.

ARCHITRICLINUS, in *Antiquity*, the master, or director of a feast, charged with the order and œconomy of it, the covering and uncovering of the tables, the command of the servants, and the like.

The word *architriclinus*, properly imports the chief or master of a *triclinium*, or dining-room. His office properly differed from that of *modimperator*, or *arbiter bibendi*, as the latter was appointed by the guests, the *architriclinus* by the person who gave the feast.

The *architriclinus* was sometimes also called *servus tricliniarcha*, and by the Greeks *πορϋωνης*, i. e. *prægustator*, or *fore-taster*. Potter also takes the *architriclinus* for the same with the *SYMPOSIARCHA*.

ARCHITYPE. See ARCHETYPE.

ARCHIVAULT, in *Architecture*, the inner contour of an ARCH; or a band or frame adorned with mouldings, running over the faces of the arch-stones, and bearing upon the impost. See this represented in the lines that bound the arch over E. See *Tab. Archit. fig. 40*.

The word is French, *archivolte*; where it signifies the same thing; formed of *arcus volutus*.

It is different in the different orders.—In the Tuscan, it has only a single face; it has two faces crowned, in the Doric and Ionic; and the same mouldings with the *ARCHITRAVE* in the Corinthian and Composite.

ARCHIVE, or **ARCHIVES,** a chamber or apartment wherein the records, charters, and other papers and evidences, of a state, house, or community, are preserved, to be consulted occasionally.

The word comes from *arca*, a chest; or the Greek *αρχαιον*, which Suidas uses in the same sense. In some Latin writers we meet with *archarium*.

We say the *archives* of a college, of a monastery, &c. The *archives* of ancient Rome were in the temple of Saturn; the *archives* of the court of chancery are in the roll's office. In the code we meet with *archivum publicum vel armarium publicum, ubi acta & libri exponebantur. Cod. de fid. instrum. auth. ad hæc. xxx. q. i.*

ARCHIVIST, *archivista*, a keeper of an ARCHIVE.

Under the emperors, the *archivist* was an officer of great dignity, held equal to the proconsuls, vested with the quality of a count, styled *clarissimus*, and exempted from all public offices and taxes. Among the ancient Greeks and Persians, the trust was committed to none but men of the first rank; among the Franks, the clergy, being the only men of letters, kept the office among themselves. Since the erection of the electoral college, the archbishop of Mentz has had the direction of the ARCHIVES of the empire.

ARCHIZUPANUS, a title given to the prince or despot of Servia.

The word is compounded of *αρχι* and *επανος*, governor. In an epistle of pope Innocent III. he is called *Magnus Zupanus*.

ARCH-MARSHAL, ARCHIMARISCALLUS, the grand marshal of the empire.

The elector of Saxony is *arch-marshal* of the empire; and in that quality he goes immediately before the emperor, bearing a naked sword.

ARCH-MINISTER, the prime minister of a prince, or state. Charles the Bald having declared Boson his viceroy

A R C

in Italy under the title of duke, made him also his first minister under that of *arch-minister*.

The word is derived from the Greek *αρχος*, and the Latin *minister*.

ARCHON, in *Antiquity*, the chief magistrate of the city and commonwealth of Athens.

The word is Greek, *αρχων*, which literally signifies a commander.

After the Athenians had abolished monarchy, they created *archons*, who were obliged to render an account of their administration to the people.

Some of these were annual, and others perpetual. Medon, the son of Codrus, was the first of the latter, and Cleon of the former, who entered upon his charge in the third year of the twenty-fourth Olympiad. The occasion of their institution was this: Codrus, king of Athens, having devoted himself for the good of his people, in the war with the Heraclidæ; his sons, Medon and Nileus, disputed the crown betwixt them: the Athenians took this occasion of dissolving their monarchy, and, in lieu of kings, created perpetual governors, under the name of *archons*. Medon, son of Codrus, was he who first had this charge; and his descendants (from him called *Medontidæ*) enjoyed it for 287 years. But a perpetual magistracy seemed to this free people too lively an image of royalty, the very shadow whereof they were resolved to abolish. Accordingly, the administration of an *archon*, which had before been perpetual, they reduced, in the first year of the seventh Olympiad, to ten years, and, about seventy years after, to one year; with a view of recovering, as oft as possible, the authority into their own hands, which they never transferred to the magistrates, but with regret. The chief magistrates of Athens, distinguished by this common appellation, were nine in number; though the name *archon* belonged, by way of eminence, to the chief of the nine, who was also called *eponymus*, *επωνυμος*, because the year was denominated from him. His jurisdiction comprehended both ecclesiastical and civil affairs. He determined all causes between men and their wives, parents and children, and disputes, relating to wills, dowries, and legacies: he had the charge and direction of orphans, minors, tutors, and guardians. He was punished with death if convicted of drunkenness, during the time of his office. The second *archon* was called *βασιλευς*, or *king*. To him pertained the superintendence of the religious ceremonies and feasts: he had also some concern in secular affairs. The third was the *polemarchos*, so called from *πολεμος*, war, and *αρχειν*, to command: to him belonged the care of strangers and sojourners, and the conduct of war. The other six were called *thesmothetæ*, from *θεσμος*, law, and *τιθημι*, I establish. They formed a tribunal for judging concerning seductions, calumnies, bribery, &c. and for settling disputes between the citizens and strangers, and all controversies in trade. They ratified all contracts and leagues, directed and guarded the establishment of laws, and formed a kind of barrier between the other magistrates and the people. The whole body had the power of life and death; and they were exempted from all taxes and contributions for building ships of war, in recompence of their service. They were elected by lots, and previous to induction into their office, they underwent a twofold trial, one in the forum, and the other in the senate-house. An oath was required of them, that they would administer justice without partiality, and never be corrupted by bribes. This custom was established by Solon. Potter's Arch. Græc. vol. i. p. 71.

Under the Roman emperors, several other Greek cities had two *archons*, for chief magistrates; which were the same with the *duumviri* in the colonies, and *municipia*.

ARCHON is also applied, by some authors to divers officers, both civil and religious, under the eastern or Greek empire.

Thus, bishops are sometimes called *archontes*; and the same may be said of the lords of the emperor's court. We also read of the *archon of the antimensæ*, *archon of archons*, *grand archon*, *archon of churches*, *archon of the gospel*, *archon of the walls*, &c.

ARCHONTICI, in *Church History*, a sect which arose towards the close of the second century; thus called from the Greek *αρχοντες*, q. d. *principalities* or *hierarchies of angels*; because they held the world to have been created not by the supreme God, but by certain subordinate powers, called *archontes*, or *angels*. The *Archontici* were a branch of VALENTINIANS.

ARCHONTIUM, *αρχοντιον*, denotes a dignity of the Greek church.

ARCHPRIEST, ARCHPRESBYTER, a priest, or presbyter, established in some diocese, with a pre-eminence over the rest.

Anciently, the *arch-priest* was the first person after the bishop: he was seated in the church next after the bishop; and even acted as his vicar, in his absence, as to all spiritual concerns.

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In the sixth century, there were found several *arch-priests* in the same diocese; from which time some will have them to have been called *deans*.

In the ninth century, they distinguished two kinds of cures or parishes: the smaller governed by simple priests; and the baptismal churches by *arch-priests*; who, beside the immediate concern of the cure, had the inspection of the other inferior priests, and gave an account of them to the bishop, who governed the chief, or cathedral church in person.

There are *archpresbyters* still subsisting in the Greek church, vested with most of the functions and privileges of *chorepiscopi*, or rural deans.

ARCH-PRIOR, was a name sometimes given to the master of the order of **TEMPLARS**.

ARCH-TREASURER, *archthesaurarius*, the great treasurer of the German empire.

This office was created with the eighth electorate, in favour of the elector of Palatine, who had lost his former electorate, which was given to the duke of Bavaria, by the emperor Ferdinand II. who took it away from Frederick V. elector Palatine, after the battle of Prague, where he was defeated in maintaining his election to the crown of Bohemia.

The dignity of *arch-treasurer* was contested between the elector of Brunswic, now king of Great-Britain, who claimed it in virtue of his descent from the elector Frederick, and the elector Palatine.

ARCILEUTO, **ARCHILUTE**, a long and large lute, having its bass strings lengthened after the manner of the theorbo, and each row doubled either with a little octave or an unison.—It is used by the Italians for playing a thorough bass.

ARCION, in *Botany*, a name given by some of the ancient writers on medicine, to the plant we call **TUSSILAGO**, or **COLT'S FOOT**.

ARCIVÆ *aves*, in *Antiquity*, birds which gave bad omens, either by their flight, noise, or manner of eating.

They were called *arcivæ*, sometimes also *arcule*, *quia arcabant ne quid fieret*, prevented or forbad things being done.

ARCTAPELIOTES, in *Cosmography*, the wind which blows at the 45° from the north toward the east.

In this sense, *arctapeliotes* amounts to the same with what we call the north-east wind.

ARCTATIO, a straightness; in particular, it is applied to the intestines constricted from an inflammation; and to a preternatural straightness of the *muliebri pudendum*, or *uterus*. It is also called *arctitudo*.

ARCTIC, in *Astronomy*, an epithet given to the north pole, or the pole raised above our horizon.

It is called the *arctic* pole, on occasion of the constellation of the *Little Bear*, in Greek called *αρκτος*, the last star of the tail whereof nearly points out the north pole.

ARCTIC circle is a lesser circle of the sphere, parallel to the equator, and 23° 30' distant from the north pole, from whence its name.

This, and its opposite, the *antarctic*, are called the two *polar circles*; and may be conceived to be described by the motion of the poles of the ecliptic, round the poles of the equator, or of the world.

ARCTIUM, in *Botany*. See **BURDOCK**.

ARCTOMYS *Palæstinorum*, in *Zoology*, the name of an animal of the rat kind, but very large, being of a middle size between the rat and the rabbit: it lives in caves, and feeds on vegetables, and is a fierce and bold creature. It uses its fore-feet as hands, and has a custom of sitting on the buttocks, and in this posture looks very like a bear. Ray.

ARCTOPHYLAX, from *αρκτος*, *bear*, and *φυλαξ*, *I guard*, in *Astronomy*, a constellation, otherwise called **BOOTES**.

ARCIOPUS, in *Botany*, a genus of the *polygamia dioecia* class.

ARCTOTIS, or **ARCTOTHECA ANEMONOSPERMOS**, in *Botany*, belongs to the *syngenesia polygamia necessaria* class. The characters are, that the common empalement is scaly and silvery; the flower is composed of many female florets, which are ranged round the border; the germen afterwards becomes a single roundish seed, covered with a soft down. The middle or disk of the flower is composed of hermaphrodite florets; in the centre is placed a small germen, supporting a cylindrical style with a single stigma. These flowers are abortive. Linnæus enumerates twelve, and Miller eight species.

These plants are natives of the country about the Cape of Good Hope, from whence they had been brought to some curious gardens in Holland and England. They should be frequently renewed by cuttings, because the old plants are subject to decay in winter; therefore, if young plants are not annually raised, the species may soon be lost.

ARCTURUM *infra*, a small star of the seventh or eighth magnitude, to the south of *arcturus*, observed by Mr. Flamsteed, and so named by him, whose place is not determined in the *British Catalogue*.

ARCTURUS, in *Astronomy*, a fixed star of the first magnitude, in the constellation of **ARCTOPHYLAX**, or **BOOTES**.

A R D

The word is formed of *αρκτος*, and *ἑρᾶ*, *tail*, q. d. *bear's tail*; as being very near it.

This star was known to the ancients, as in the following verse of Virgil:

Arcturum, pluviasque Hyades, geminosque Triones.

See also Job ix. 9. xxxviii. 32.

Mr. Hornsby concludes, that *arcturus* is the nearest star to our system visible in the northern hemisphere, because the variation of its place, in consequence of a proper motion of its own, is more remarkable than that of any other of the stars; and by comparing a variety of observations respecting both the quantity and direction of the motion of this star, he infers that the obliquity of the ecliptic decreases at the rate of 58" in one hundred years; a quantity which nearly corresponds to the mean of the computation framed by Mr. Euler and M. de la Lande, upon the principles of attraction. Phil. Transf. vol. lxiii. p. i. N° 14.

ARCIUS, *αρκτος*, in *Astronomy*, a name given by the Greeks to two constellations of the northern hemisphere; by the Latins called **URSA major** and **minor**, and by us the **Greater** and **Lesser BEAR**.

ARCUALIA *ossa*, in *Anatomy*, a name used by some for the *ossa synipitis*, by others for the *ossa temporum*.

ARCUALIS *futura*, among *Surgeons*, denotes the coronal suture.

ARCUATION, from *arcus*, *a bow*, is used by some writers in *Surgery*, for an incurvation of the bones; such as we see in the case of rickets, &c.

ARCUATION, in *Gardening*, denotes a method of raising trees by layers..

This, Switzer, observes, is now the general method of raising such trees as cannot be raised from seeds; as the *platanus*, *elm*, *abele*, *lime*, *alder*, *willow*, &c.

The first thing here done is, to procure large and strong mother-plants, called stools. These, being planted in a trench, will throw out twenty, thirty, forty, or fifty plants a-piece; which may be begun to be laid about the Michaelmas following; at which time if the stools have been carefully managed, they will have shot five, six, or more, main branches out of the root; and on every one of these, as many side or collateral branches.

These main branches are to be bent down to the ground; and, when thus laid quite round the stool, and pegged fast down, the small ones may be served in the same manner: thus the main branches are to be covered over, all except the top; and the small, or side branches, to be covered over two or three inches thick upon the joints. This done, they may be treaded, to make them take root the better. About the middle of September they may be opened: when, it is probable, they will have taken root: otherwise they may lie till next spring; and then, taking them up they are to be planted in the nursery. Miller.

ARCUBALISTA, in the *Military Art*, a kind of *balista*, probably made after the fashion of a bow.

It is mentioned by Vegetius; but the description of it omitted by him, as too well known then, though now hard to be guessed at.

Those who fought with this weapon were called *arcubalistarii*, sometimes *manubalistarii*.

ARCUCCIO, **ARCUTIO**, a machine made of a board, covered with pieces of hoops like the tilt of a waggon: used in Italy to prevent children from being overlaid and smothered by nurses, or others.

Every nurse in Florence is obliged to lay her child in an *arcutio*, under pain of excommunication.—See a figure and description of the *arcutio*, given by Mr. St. John, in Phil. Transf. N° 442. Abridg. vol. vii. part iv. p. 46.

ARDAMON, or **ARDAMA**, from *αρδα*, *I water*, in *Antiquity*, a vessel of water placed at the door of a person deceased till the time of burial, as a token that the family was in mourning, and to serve to sprinkle and purify persons as they came out of the house.

ARDASSES, in *Commerce*, the coarsest of all the silks of Persia; and, as it were the refuse of each kind. In this sense, they say, the *legis*, the *houfets*, the *choufs*, and the *payas ardasses*, to signify the worst of those four sorts of Persian silk.

ARDASSINES, in *Commerce*, called in France *ablaques*; a very fine sort of Persian silks, little inferior in fineness to the *sourbassis*, or rather *cherbassis*, and yet it is little used in the silk manufactures of Lyons and Tours, because that kind of silk will bear hot water in the winding.

ARDEA, in *Ornithology*, a genus of the order of *grallæ*, belonging to the class of *aves*, in the Linnæan system; its characters are, that the beak is strait, acute, long, and compressed; and that a furrow passes from the nostrils, which are linear, to the apex. The feet have four toes. Linnæus enumerates 26 species. See **CRANE**, **HERON**, and **STORK**.

ARDENT, **ARDENS**, from *ardere*, *to burn*, something hot, and as it were burning.

ARDENT fever, is a violent burning **FEVER**, otherwise called **CAUSUS**.

ARDENT spirits are those distilled from fermented vegetables; thus called, because they will take fire, and burn.

Such are brandy, spirit of wine, rum, arrack, &c.

ARDENTES, in *Middle Age Writers*, an appellation given to those afflicted with the *ignis sacer*, or ERYSIPELAS. They are thus called, as seeming to be scorched or burnt with the disease.

Hence also the abbey of St. Genevieve at Paris is called *domus ardentium*, because, as it is said, great numbers were cured of that distemper at the shrine of this saint, in the reign of Louis VI.

ARDEOLA, in *Ornithology*, the name of a very beautiful bird, of the *Brasils*, of the heron kind, but no larger than a pigeon.

ARDERS, fallowings, or ploughings of grounds. See FALLOW, PLOUGHING, &c.

ARDESIA. See *Irish SLATE*.

ARDOR *ventriculi*, a heat of the stomach, usually expressed by the term HEART-burn, or CARDIALGY.

ARDUINA, *bastard LYCIUM*, in *Botany*, a genus of the *pentandria monogynia* class: the corolla of which has a single petal; the stigma is bifid; and the fruit is a double-celled berry with a single seed. There is one species.

ARE, or A-LA-MI-RE, one of the eight NOTES in the scale of music.

AREA, in general, denotes any plain surface, whereon we walk, &c.

The word is Latin, importing more properly a threshing-floor; and is derived from *arere*, to be dry.

AREA, in *Architecture*, denotes the space or site of ground on which an edifice stands. It is also used for inner courts, and those portions of ground.

AREA, in *Geometry*, denote the superficial content of any FIGURE.

Thus, if a figure, e. gr. a field, be in form of a square, and its side be 40 feet long, its area is said to be 1600 square feet: or it contains 1600 little squares, each a foot every way. Hence to find the area of a triangle, square, parallelogram, rectangle, trapezium, rhombus, polygon, circle, or other figure, is to find the magnitude or capacity thereof in square measure.—To do which, see the article TRIANGLE, &c. To find the area of fields, and other inclosures, they first survey or take the angles thereof, then plot them on paper, and thus cast up their contents in acres, roods, &c. after the usual manner of other plain figures.

The law by which the planets move round the sun, is this; that a line, or radius, drawn from the centre of the sun to the centre of the planet, always sweeps or describes elliptic areas proportional to the times. Thus, the sun being supposed in S, and a planet in A (*Tab. Astronomy*, fig. 61. N° 2.) and letting it proceed in any given time, to B; in such progress, its radius AS will have described the area ASB. Suppose, again, the planet to be arrived to P; then the elliptic space PSD being drawn equal to the other ASB, the planet will move through the arch PD in the same time as through the arch AB.

Sir I. Newton demonstrates, that whatever bodies do observe such law in their motions about any other body, do gravitate towards such body.

AREA is also used, in *Medicine*, for a disease which makes the hair fall.

The area is a general kind of depilation; and is distinguished into two species, ALOPECIA, and OPHIASIS.

AREA, in *Optics*. See FIELD.

AREB, a kind of imaginary money, used in the dominions of the great mogul.

Four arebs are equal to one *crou*, or 100 *lacs*; one *lac* to 100,000 *roupes*.

ARECA, or ARECK, a fruit of the East Indies, wherein they drive an incredible trade, and of which they make a prodigious consumption; there being scarce any person from the richest to the poorest, who does not make use of it. See *Table of Microscopical Objects*, Class 2.

The tree which bears the areck, is tall, straight, thin, and round. It is of the palm kind, and has no branches; but its leaves are beautiful to the sight, they form a round tuft on the top of the trunk, which is as straight as an arrow. It grows sometimes to the height of thirty-five feet, and is a great ornament in gardens.

The shell which contains the fruit is yellowish, smooth without, but rough and hairy within, in which it pretty much resembles the shell of the cocoa-nut. Its size is equal to that of a large walnut; its kernel is as big as a nutmeg, to which it bears a great resemblance without; and when cut, has the same whitish veins within. In the centre of the fruit, when it is soft, is contained a greyish and almost liquid substance, which grows hard, in proportion as it ripens. The fruit when ripe is astringent, but not unpalatable.

The chief use that is made of areck, is to chew it with leaves of betle, mixing it with a chalk in a red paste, made of sea-shells. In order to chew it, they cut the areck into four quarters, and take one quarter of it, which they wrap in a leaf of beetle, over which they lay a little of that chalk: afterward they tie it by twisting it round. This bit thus prepared is called *pinang*, which is a Ma-

layan word used all over the East Indies. The *pinang* promotes spitting very much; the spittle is red, which colour the areck gives it. This mastication cools the mouth, and fastens the teeth and gums. Some pretend that areck strengthens the stomach, when the juice of it is swallowed, and most of the Indians do swallow it. Another property ascribed to it, is the curing, or carrying off, all that might be unwholesome or corrupt in the gums. Of this fruit the extract is made, which in our shops is called *terra Japonica*. To this extract they sometimes join that of another plant named *lycium*, and also calcined shells; it is generally adulterated. Geoffroy.

AREM, or AL-AREM, a vast mound or dam, which formed a stupendous reservoir above the city Saba, whose rupture caused an inundation, famous in eastern writers. Sale's *Prel. Disc.*

The word *arem* is Arabic, and literally signifies any mound, or dam, for the containing of water.

ARENA, among the Romans, sometimes signified the same with an *amphitheatre*; viz. a place where the GLADIATORS had their combat.

The word is Latin and signifies *sand*; because the place was always strewed with sand, to conceal from the view of the people the blood spilt in the combat.

Properly speaking, *arena* was only the pit or space in the middle of those places where the athletes and gladiators performed.

The arena was the same thing, with regard to the gladiators, that the *tampus*, or field, was to soldiers and armies; viz. the place where they fought.—He who fought in the arena, was called *arenarius*. Nero is said to have strewed the arena with gold-dust.

ARENA, in *Architecture*, is the middle or body of a temple, and comprehends the whole space between the *antæ* and the extreme wall of the building.

ARENARIA, in *Botany*. See *Sea-CHICKWEED*.

ARENARIA, in *Ornithology*, the name of a bird, called in English the *sanderling*, and in some places, particularly in Cornwall, the *curwiller*.

It is a water-bird, of the long-legged, and open footed, not webbed, kind, and is a little larger than the *tringa minor*, or *sand-PIPER*.—These birds are common about the sea-shore, and generally fly in large flocks.

ARENARIA, in *Ancient Writers*, is used for sand-pits, or ground out of which sand is dug. Vitruvius.

ARENARII, in *Antiquity*, gladiators who combated with beasts in the arena, or amphitheatre. The *arenarii* were slaves of the lowest rank, so that though manumitted, they were not capable of being Roman citizens. They were the same with what were otherwise called *BESTIARII*.

ARENARIUM, in *Ecclesiastical Writers*, denotes a cemetery or burying ground.

The *arenaria* were properly a kind of pits, or holes, under ground, wherein the ancient Christians not only buried their dead, but held their religious assemblies, in times of persecution. Baron. *Annal.* and Du-Cange.

ARENATION is used, by some *Physicians*, for a kind of dry bath, in which the patient only sits with his feet on hot sand.

AREOLA, or AREOLA *mamillaris*, in *Anatomy*, the coloured circle which surrounds the nipple. See BREAST.

AREOPAGUS, or ARÆOPAGUS, in *Antiquity*, a sovereign tribunal at Athens; famous for the justice and impartiality of its decrees: to which the gods themselves are said to have submitted their quarrels.

Authors are divided, as to the reason and origin of the name: some imagine *areopagus* the proper name of the court of justice, which was situate on a hill in Athens; and that in this court the senate of that illustrious city assembled.—Others say, that *areopagus* was the name of the whole suburbs of Athens, wherein stood the hill on which the court was built; and the name *areopagus* seems to countenance this last opinion; for it signifies literally, the hill or rock of Mars; from *μαρος*, *hill*, and *αρειος*, belonging to Mars. In effect, the denomination might either arise hence, that the *areopagus* was built in a place where had been a temple of Mars: or, because the first cause pleaded there was that of this god, who was accused of killing Halirrhottus the son of Neptune, and tried here before twelve gods, and acquitted by a majority of voices; or, finally, because the Amazons, whom the poets feign to have been the daughters of Mars, when they besieged Athens, pitched their tents, and offered sacrifices to the god of war in this place.

This tribunal was in great reputation among the Greeks; and the Romans themselves had so high an opinion of it, that they trusted many of their difficult causes to its decision. Authors are not agreed about the number of the judges who composed this august court. Some reckon thirty-one, others fifty-one, and others five hundred; in effect, their number seems not to have been fixed, but to have been more or less in different years.—By an inscription quoted by Volaterranus it appears, they were then three hundred.

At first this tribunal only consisted of nine persons, who had all discharged the office of archons, had acquitted themselves with honour in that trust, and had likewise given an account of their administration before the *logistæ*, and undergone a very rigorous examination. Their salary was equal, and paid out of the treasury of the republic: they had three *oboli* for each cause.

The *areopagites* were judges for life.—They never sat in judgment but in the open air, and that in the night time; to the intent that their minds might be more present and attentive; and that no object, either of pity or aversion, might make any impression upon them. However, some maintain, that the building in which the *areopagites* assembled, was not wholly uncovered; and they observe, that among the ruins, large stones have been found, whose joints are in the same angle with the pediment that must have been used for a covering.—All pleadings before them were to be in the simplest and most naked terms; without exordium, epilogue, or appeal to the passions.

At first they only took cognizance of criminal causes; but in course of time their jurisdiction became of greater extent.—Mr. Spon who examined the antiquities of that illustrious city, found some remains of the *areopagus* still existing in the middle of the temple of Theseus, which was heretofore in the middle of the city, but is now without the walls.—The foundation of the *areopagus* is a semicircle, with an esplanade of 140 paces round it, which properly made the hall of the *areopagus*. There is a tribunal cut in the middle of a rock, with seats on each side of it, where the *areopagites* sat, exposed to the open air.

This court by some is said to have been instituted by Solon; but others carry it much higher, and assert it to have been established by Cecrops, about the time that Aaron died; viz. in the year of the world 2553, maintaining withal, that Solon only made some new regulations in it, increased its power and privileges, and made it superior to the *ephetæ*, another celebrated court instituted by Draco.—In effect, Demosthenes himself, in his oration against Ctesiphon, owns himself at a loss on the point: *The institutors of this tribunal, says he, whatever they were, whether gods or heroes, &c.*

AREOMETER. See ARÆOMETER.

ARFOSTYLE. See ARÆOSTYLE.

AREOTICS. See ARÆOTICS.

ARES, a term framed by Paracelsus, to express a hidden disposer, in the three principles of things, from which each being receives its proper form and substance, and assumes its own specific nature, not that of any other being. Paracelsus distinguishes the *ares* into *archeical*, which is *natural*; and *chemical*, which is *artificial*. See ARCHÆUS.

ARETALOGI, in *Antiquity*, a sort of philosophers, chiefly of the Cynic or Stoic tribe, who, having no school or disciples of their own, haunted the tables of great men, and entertained them in their banquets with disputations on virtue, vice, and other popular topics. Pitiscus Lex. There are sometimes also denominated *circulatores philosophi* Calvin. Lex. Jur.

ARETHUSA, in *Botany*, a genus of the *gynandria diandria* class; with a tubular *nectarium* within the bottom of the corolla, and a style connected with the lower lip. There are three species.

ARETIA, in *Botany*, a genus of the *pentandria monogynia* class, the corolla is shaped like a salver, and divided into five segments, with an oval tube; the stigma is depressed above, and the capsula is globular and single-celled.

ARETOLOGY, ARETOLOGIA, that part of moral philosophy which treats of virtue, its nature, and the means of arriving at it.

ARGAL, or ARGEL, the hard lees sticking to the sides of wine-vessels; more frequently called TARTAR.

ARGEA, or ARGEI, in *Antiquity*, human figures made of rushes, thrown annually by the Vestals into the river Tiber, on the day of the ides of May.

This ceremony we learn from Festus and Varro; the latter of whom, however, says, they were cast by the priests, unless by *sacerdotibus* we suppose he meant *priestesses*. He adds, that the number of figures was thirty. Plutarch, in his Roman questions, enquires, why they were called *argea*? There are two reasons assigned: the first that the barbarous nation, who first inhabited these parts, cast all the Greeks they could meet with into the Tiber; for *Argians* was a common name for all Grecians; but that Hercules persuaded them to quit so inhuman a practice, and to purge themselves of the crime, by instituting this solemnity.—The second, that Evander, an Arcadian, and a sworn enemy of the *Argians*, to perpetuate that enmity to his posterity, ordered the figures of *Argians* to be thus cast into the river.

ARGEMON, or ARGEMA, in *Medicine*, an ulcer about the iris of the eye, comprehending part of the white, and part also of the black.

The *argemon* appears of a red colour, on the outside of the iris, and white within it. When it spreads far, and eats deep, it sometimes occasions the UVEA to fall.

ARGEMONNE, in *Botany*. See Prickly POPPY.

ARGEMONION, in *Botany*, a name given by some of the late Greek writers, to the plant called SARCOCOLLA by the other writers of their times.

ARGENT, in *Heraldry*, signifies the white colour, used in the coats of gentlemen, knights, and baronets.

Barons, and all nobles, have the white colour called *pearl*; and sovereign princes have theirs called *luna*.—Without either *argent* or *or*, the heralds say, there can be no good armory.

Argent is expressed, in engraving, by the parts being left plain, without any strokes from the graver.

The word is French, derived from the Latin *argentum*, SILVER; this colour being supposed the representation of that metal: whence the Spaniards call this field *campo de plata*, silver field.

In the doubling of mantles, where the white is supposed to represent a fur, and not a metal, it may be blazoned *white*.

ARGENTARIA *creta*, silver chalk, in *Natural History*, a name given to an earth, not properly a chalk, but a kind of TRIPELA. It is a very beautiful earth, of a loose friable texture, and perfectly pure white. It is dug in Prussia, and is much esteemed for cleaning plate. It has also been found in France, and of late in Ireland.

There are many white chalks of various hues, which are dug in Germany, America, Italy, and other countries.

That dug in the duchy of Mantua, in Italy, is much used by painters, and at Rome vulgarly called *gesso*.

ARGENTARIUS is frequently used, in *Roman Writers*, for a money-changer or banker.

The *argentarii* were monied people, who made a profit either by the changing, or lending of money at interest.

These had their *tabernæ*, or offices, in the *forum Romanum*, built there as early as the reign of L. Tarquinius Priscus.

The *argentarii* and *fœneratores* were much hated on account of their covetousness and extortion. Du-Cange and Pitiscus.

ARGENTARIUS, in *Writers of the Middle Age*, an officer entrusted with the custody of money.

In this sense *argentarius* amounts to the same with the Greek *ἀργυροφύλαξ*, and our *cashier*. Du-Cange.

ARGENTARIUS *miles*, in our *Old Writers*, an officer of the exchequer, whose business it was to carry up the bag of money from the lower exchequer to the higher, in order to its being examined or told. Spelman.

ARGENTARIUS is also applied in the *Civil Law*, to those who adorned military arms with silver or gold.

In which sense the word amounts to the same with BARBARICARIUS.

ARGENTATI *milites*, in *Antiquity*.—Livy, lib. vi. speaks of *argentati milites*, as distinguished from *aurati*. Aquinas supposes these to have been similar to the ARGYRASPIDES and CHRYSALPIDES; but the descriptions do not quadrate. Livy only represents the *argentati* as clothed in white linen coats. Aquin. Lex. Mil.

ARGENTEUM *os*, in *Natural History*. See Os argenteum.

ARGENTICOMUS, among *Ancient Astrologers*, denotes a kind of silver-haired comet, of uncommon lustre, supposed to be the cause of great changes in the planetary system.

ARGENTIL, an old English name for the plant called *per-cipier Anglorum*; in English, PARSLEY piert, or PARSLEY break-stone. See APHANES.

ARGENTINA, in *Ichthyology*, the name of a genus of fish, of the MALACOPTERYGIOUS kind; and in the Linnaean system, of the order of *abdominales*: the characters of which, according to Artedi, are these: the body is oblong and cylindric; the teeth are placed on the tongue and palate. Artedi mentions only one species of this genus; this has large eyes, and the tail is forked. It is caught about the shores of Italy.

Mr. Ray describes the *argentina* to be a small fish of the harengiform kind, caught in the Mediterranean, and common in the markets of Rome.

ARGENTINA, a medicinal plant, nearly resembling CINQUEFOIL, of some use as a cooler and astringent.

ARGENTUM. See SILVER.

ARGENTUM *album*, mentioned in *Domesday Book*, signifies, according to Spelman, bullion, or silver uncoined. In those ancient days, such metal passed as money from one to another in payment. *Sumitur pro ipso hoc metallo pensili non signato*.

ARGENTUM *Dei*, God's penny, anciently signified earnest-money, or money given to bind a bargain; in some places called *erles*, or *arles*, and by the civilians and canonists, ARRHÆ. *Et cepit de prædicto Henrico tres denarios de argenti Dei præ manibus*.

ARGENTUM *Mosaicum*, or *musivum*, is an amalgam or metalline paste, which may be easily bruised into silver-like flakes of powder, and is used for colouring plaister figures, and for other purposes, as a pigment. It consists of equal parts of tin, bismuth, and mercury, melted together.

together. The powder is mixed with white of eggs, or spirit varnish, and then applied to the intended work, which is afterwards burnished. See GILDING and SILVERING.

ARGESTES, is used by Vitruvius for the wind which blows from that quarter of the horizon, which is 75° from the south, and westward.

Ricciolus uses the term to denote the wind which blows at 22° 30' from the west towards the north, coinciding with that which is otherwise called *West-North-West*. Ast. Reform.

ARGETENAR, in *Astronomy*, a star of the fourth magnitude, in the flexure of the constellation ERIDANUS.

ARGILLA, or ARGIL, *clay*, a general name for all earths used in pottery, brick, and tile-making, and for the like purposes. See CLAY.

ARGILLACEOUS *earths*, such as form with water a tenacious paste, or soft stones; they burn hard, are corroded by strong coction in the concentrated mineral acids, but not acted upon by moderate digestion. They are the basis of earthen wares. They vitrify with salts, with arsenic, with gypsum, and difficultly with lead. See Neumann's Works, and Dr. Lewis's Additions, p. 21, & seq.

ARGO, in *Antiquity*, a ship or vessel celebrated among the poets; being that wherein the Argonauts, of whom Jason was the chief, made their expedition, in quest of the golden fleece.

The occasion of this expedition, is thus represented by Greek writers. Phryxus, flying with his sister Helle from the rage of their stepmother Ino, the daughter of Cadmus, went on board a ship, whose ensign was a golden ram, and sailed to Colchis (now Mingrelia, part of Georgia.) Helle was drowned by the way, in that sea which from her was called the Hellespont, now the Dardanelles. This was the ground of the poetical fable, that a ram with a golden fleece swam away with them to Colchis; and that the Argonauts undertook their famed expedition, in order to find that fleece. Sir Isaac Newton thinks that this expedition was really an embassy sent by the Greeks, during the intestine divisions of Egypt, in the reign of Amenophis, to persuade the nations upon the coast of the Euxine and Mediterranean seas, to take that opportunity of shaking off the yoke of Egypt, which Sesostris had laid upon them: and that fetching the golden fleece was only a pretence to cover their true design.

Jason, having happily accomplished his enterprize, consecrated the ship *Argo* to Neptune; or, as others say, to Minerva, in the Isthmus of Corinth; where, they add, it did not remain long before it was translated into heaven and made a constellation.

The generality of authors represent the ship *Argo* as of a long make, resembling the modern galleys; and furnished with thirty benches of rowers. It could not however be of any great bulk, since the Argonauts were able to carry it on their backs from the Danube to the Adriatic sea.

ARGO *navis*, or the *Ship*, in *Astronomy*, is a constellation of fixed stars, in the southern hemisphere, whose stars, in Ptolemy's catalogue, are 45; in Tycho's, 11; in the Britannic catalogue, and Sharp's Appendix, 64; the longitudes, latitudes, magnitudes, &c. whereof are as follow:

Situation of the stars:	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
Under the shield in the stern.	Ω	0 38 "	1 46 45	50 6	
	Ω	27 26 26	35 18	3 6	
	Ω	1 34 22	49 14	58 4.5	
	Ω	27 32 40	35 9	13 6	
5.			27 32 26	32 54	5 6
Under the northern shield.	Ω	29 22 18	37 32	35 5	
	Ω	1 44 14	44 58	49 3.4	
	Ω	28 43 17	33 8	53 5.6	
In the top of the stern.	Ω	29 2 0	34 9	45 4	
	Ω	29 26 5	35 3	10 6	
10.					
15.	Ω	3 20 43	42 36	40 4	
	Ω	4 10 24	42 53	10 6	
	Ω	27 55 7	17 48	27 4	
	Ω	4 34 24	39 4	45 6	
	Ω	7 5 31	43 18	24 3	
20.					
			5 39 6	38 20	40 5
			3 56 19	32 30	17 6
			4 22 52	32 59	10 6
			4 15 47	32 6	27 1.5
25.			5 44 40	34 44	10 5.6
			7 20 0	34 57	0 6
In the stern.			7 30 6	31 29	17 6
In the middle of the shield.			2 17 3	46 3	8 5
In the rudder.	Ω	29 40 48	47 24	53 3	
	Ω	7 8 40	49 40	47 6	

Situation of the stars:	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
In the keel.	Ω	26 33 9	58 31	55 3	
	Ω	5 17 56	58 25	50 5	
			7 6 24	57 44	5 4
			10 16 2	53 4	27 5
In the transom.			14 46 31	58 20	37 2
30.					
At the bottom of the mast.			11 19 21	59 42	38 4
			29 54 6	57 21	30 5
			28 16 24	58 14	45 5
In the middle of the mast.	Ω	3 42 27	60 7	53 5	
			2 45 38	61 8	17 5
35.					
In the sail.	Ω	22 58 28	51 9	53 4	
			22 49 5	48 55	16 3.4
In the section of the transom.			21 40 27	43 18	22 4
			23 0 39	42 52	9 5
40.			7 21 51	55 52	3 2
In the keel.	Ω	10 1 42	59 18	36 5	
	Ω	4 58 47	63 47	21 3.4	
Below the keel.			23 34 7	64 26	51 2
	Ω	19 20 46	72 38	59 2	
45.			20 58 39	70 17	59 3
50.	Ω	15 6 26	67 10	36 2	
			12 56 10	66 15	44 4
			25 3 13	63 42	33 2
	Ω	0 23 49	64 13	53 4	
			4 54 36	65 21	30 5
55.					
			1 32 2	67 4	54 2
	Ω	29 35 19	67 30	10 4	
	Ω	29 53 19	70 6	50 5	
			7 2 14	69 27	31 5
In the helm.			2 8 50	52 56	6 4
Canobus.	Ω	13 13 59	66 17	16 5	
	Ω	13 24 32	66 5	19 3	
60.	Ω	25 50 54	66 16	30 5	
	Ω	11 16 49	75 50	10 1	
Between Canobus and the Flying Fish.			23 58 28	72 51	14 3
Between the Ship and Centaur.	Ω	18 50 51	74 27	30 4	
	Ω	20 37 49	83 1	59 4	
	Ω	10 56 22	51 9	46 4	
			23 11 20	48 14	45 4

ARGOL, the same with TARTAR.

ARGOL. See ARCHIL.

ARGONAUTA, a genus of worms of the *testacea* order: the animal is a sepia, and the shell univalve, spiral, membranaceous, and single celled. There are two species.

ARGONAUTIC, something belonging to the ARGONAUTS.

The *Argonautic* expedition is one of the greatest *epochs*, or periods of history, which Sir Isaac Newton endeavours to settle, and from thence to rectify the ancient CHRONOLOGY. This he shews, by several authorities, to have been one generation, or about thirty years earlier than the taking of Troy; and forty-three years later than the death of SOLOMON.

Dr. Bryant rejects the history of the *Argonautic* expedition as a Grecian fable, founded indeed on a tradition derived from Egypt, and ultimately referring to Noah's preservation, &c. in the ark. Anc. Myth. vol. ii. p. 473.

ARGONAUTICA, in *Literary History*, denotes poems on the subject and expedition of the ARGONAUTS. We have the *Argonautics* of Orpheus in epic verse, published by H. Stephens; the *Argonauticon* of Valerius Flaccus, in eight books of Latin heroics, in imitation of Apollonius, with respect to which Burman observes, that the imitator has often surpassed the original; the *Argonautics* of Apollonius Rhodius, an heroic poem, consisting of four books, *opus*, as Quintilian calls it, *non contemnendum*.

ARGONAUTS, in *Antiquity*, a company of fifty-one, according to Valerius Flaccus, or, according to Apollonius Rhodius, forty-four heroes, who embarked along with Jason in the ship *Argo*, for Colchis, with a design to obtain a golden fleece.

Hercules, Theseus, Castor, Orpheus, &c. were of the number of the *Argonauts*.

ARGONAUTS of *St. Nicholas*, was the name of a military order, instituted by Charles III. king of Naples, in the year 1382, for the advancement of navigation, or, as some say, merely, for preserving amity among the nobles.

They wore a collar of shells, enclosed in a silver crescent, whence hung a ship with this device, *Non credo tempori, I do not trust time*. Hence these *Argonaut* knights came to be called *Knights of the Shell*. They received the order of St. Basil, archbishop of Naples; and held their assemblies in the church of St. Nicholas, their patron.

ARGOS,

ARGOS, ἀργός, from α negative, and ἔργον, work, or business; as if it were ἀεργός. So ἀργός ἀπλύτος is silver not worked; ἀργὸν ὄπλον, in Hippocrates, is crude wheat, not prepared, but such as it is taken from the floor.

ARGUMENT, in Rhetoric, is some reason, or series of reasoning, by which we establish the proof, or shew the probability, of some given proposition.

Logicians, somewhat more scientifically, define *argument*, a medium, from whose connexion with two extremes, the connexion of the two extremes themselves is inferred.

Arguments are termed *grammatical*, *logical*, *physical*, *metaphysical*, *moral*, *mechanical*, *theological*, &c. according to the art, science, or subject, from whence the middle term is borrowed. Thus, if we prove that no man should steal from his neighbour, because the scripture forbids it, this is a *theological argument*; if we prove it from the law of the land, it is *political*; but if we prove it from the principles of reason and equity, the *argument* is *moral*.

Arguments are either *certain* and *evident*, or *doubtful* and *merely probable*. *Probable arguments* are those whose conclusions are proved from some probable medium. *Evident* and *certain arguments*, are those which prove their conclusions by clear media and undoubted principles: these are called *demonstrations*.

In reasoning, Mr Locke observes, that men ordinarily use four sorts of *arguments*. The first is to alledge the opinions of men, whose parts and learning, eminency, power, or some other cause, have gained a name; and settled their reputation in the common esteem, with some kind of authority: this may be called *argumentum ad verecundiam*. Secondly, another way is to require the adversaries to admit what is alledged, as a proof; or to assign a better: this he calls *argumentum ad ignorantiam*. A third way, is to press a man with consequences, drawn from his own principles or concessions: this is known by the name of *argumentum ad hominem*. Fourthly, the using proofs drawn from any of the foundations of knowledge or probability: this he calls *argumentum ad judicium*; and observes, that it is the only one of all the four, that brings true instruction with it, and advances us in our way to KNOWLEDGE. For, 1. it argues not another man's opinion to be right, because I, out of respect, or any other consideration but that of conviction, will not contradict him. 2. It proves not another man to be in the right way, nor that I ought to take the same with him, because I know not a better. 3. Nor does it follow, that another man is in the right way, because he has shewn me that I am in the wrong: this may dispose me perhaps for the reception of truth, but helps me not to it. That must come from proofs and arguments, and light arising from the nature of things themselves; not from my shamefacedness, ignorance, or error. See REASON and REASONING.

Beside these, there are other *arguments* enumerated by different writers, as the *argumentum ab amore*, which is used to engage the reason by the affections; the *argumentum ad ignaviam*, called by the Greeks ἀργος λόγος, which always concludes in favour of inaction; the *argumentum ab invidia*, which is made use of to render an adversary's opinion odious; M. le Clerc has a dissertation on this *argument* as applied to theology; and also the *argumentum a tuto*, drawn from the consideration of its being safer to choose one side of the question than the other, when the evidence is equal on both sides. This has been much used against atheists and infidels; it was first started by Arnobius, and adopted by several advocates for Christianity, as Paschal, Tillotson, Gastrel, &c. Lord Shaftesbury and others have endeavoured to explode it: Clarke and Leibnitz only allow it a moral force. Mosheim has a dissertation on this *argument*, viz. De Vi Argumenti quod a tuto dicitur in Theologia. Wolfem. 1723. 4°.

Logicians divide their *arguments*, with regard to their form, into *sylogisms*, *enthymemes*, *inductions*, &c.

An *argument in form*, is a *sylogism* framed according to the strict rules of *logic*.—According to Aristotle, the *enthymeme* is the *argument* of *rhetoric*, as the *sylogism* is that of *logic*.—*Rhetoric* is defined by some, the art of finding *arguments* adapted to persuade, or gain belief.

Rhetoricians divide *arguments*, with respect to the places they are drawn from, into *intrinsic* or *artificial*; and *extrinsic* or *inartificial*, or *remote*.

ARGUMENTS, *artificial*, or *intrinsic*, by the Greeks called ὑπερυπα, by Cicero *insita*, are the proper invention of him who speaks: or they are those which are taken from the subject treated of; of which there are several kinds, viz. genus and species, form, cause, and effect, &c. See each in its place, GENUS, &c.

To these some add two other places of *argument*, viz. the manners, and the passions.

ARGUMENTS, *inartificial*, or *extrinsic*, ἀρετυπα, by Cicero called *assumpta*, are those which are borrowed from abroad, and are only applied by the orator to the point in hand; such are laws, common report, books, oaths, torture, and witnesses.

The places, or general heads of *arguments*, with regard to their end, may be divided into, 1. Those intended to persuade or dissuade, which are chiefly drawn from the considerations of profit, honour, and equity: 2. Those intended to praise, or dispraise: and, 3. Those intended to accuse and defend.

ARGUMENT, *dialectical*. See DIALECTICAL.

ARGUMENT is also used for a syllabus, or abridgment of the subject of a book, history, comedy, or the like.

We have almost lost the original use of prologues, which was to give the *argument* of the play.

ARGUMENT, in *Astronomy*, is an arch whereby we seek another unknown arch proportional to the first.

Hence;

ARGUMENT of *inclination* is an arch of a planet's orbit intercepted between the ascending node, and the place of the planet from the sun, numbered according to the succession of the signs. See INCLINATION.

ARGUMENT, *menstrual*, of *latitude*, is the distance of the moon's true place from the sun's true PLACE.

By this we find the quantity of the real obscuration in eclipses, or how many digits are darkened in any place. See ECLIPSE.

ARGUMENT of the moon's *menstrual latitude*, or *Menstrual ARGUMENT* of the *longitude*, is an arch of her eccentric, LP (Tab. Astron. fig. 32.) intercepted between her true place once equated L, and a right line PQ, drawn through the centre of the eccentric B, parallel to the menstrual line of the apsidal.

The *annual argument* of longitude is represented by the angle DAH.

ARGUMENTATION, the act of inventing or framing *arguments*, of making inductions, and drawing conclusions. See INDUCTION, &c.

Argumentation, according to Cicero, is the delivering or unfolding of an argument.—The matter of *argumentation* is propositions: the form, their due disposition, with regard to one another, so that a conclusion may be drawn from them. See ENTHYME, PROPOSITION, RATIOCINATION, SORITES, SYLLOGISM, &c.

ARGUS, a kind of animal full of eyes, called in Iceland *ofcabicorn*: of which Wormius has given a description, and Jacobus has given an account. It is of the testaceous kind, of an oblong form, resembling a crab's tail, and about two fingers breadth in length.

ARGUS, a species of pheasant in the Chinese Tartary.

ARGUS-shell, in *Conchyliology*, a species of porcelain-shell, beautifully variegated with spots, resembling in some measure those in a peacock's tail.

ARGUTIE, witty and acute sayings, which commonly signify something farther than what their mere words at first sight seem to import.

Writers on rhetoric speak of divers species of *argutia*, viz.

ARGUTIE *ab aliis*, when something is said, which seems repugnant either to the nature and property of a thing, or to common custom, the laws, &c. which yet in reality is consistent therewith; or when something is given as a reason of another, which yet is not the reason of it. For instance, *si Canis nihil didicisset, errasset minus*: again, *aureum hoc sæculum est, quia plurimus jam auro bonis venit*.

ARGUTIE *ab allusione*, those wherein allusion is made to some history, fable, sentence, proverb, or the like; e. gr. *multi umbram captant & carnem amittunt*.

ARGUTIE *a comparatis*, when two things are compared together, which yet at first sight appear very different from each other, but so as to make a pretty kind of *simile*, or *dissimile*; e. gr. *par est pauper nil cupiens peincipi omnia habenti*.

ARGUTIE *a repugnantibus*, when two things meet in a subject, which yet regularly cannot be therein; or when two things are opposed to each other, yet the epithet of the one is attributed to the other; e. gr. *dum tacent clamant*.

ARGYRASPIDES, or ARGYROASPIDES, in *Antiquity*, persons armed with silver bucklers, or BUCKLERS silvered.

The *argyraspides*, according to Quintius Curtius, made the second corps of Alexander's army; the first was the phalanx.

According to Justin's account, lib xii. cap. 7. Alexander having penetrated into India, and extended his empire as far as the ocean; for a monument of his glory, ordered

dered the armour of his soldiers, and the housings of his horses to be adorned with silver.—And hence commanded them to be called *argyraspides*, from the Greek *αργυρος*, silver, and *ασπίς*, buckler.

By this author it should seem, that Alexander's whole army were called *argyraspides*.—After that prince's death, the *argyraspides* despised all other chiefs of the army, disdaining to obey any other, having borne arms under Alexander.

ARGYRITÆ *agonis*, in *Antiquity*, games in which money was the prize. Potter.

ARGYRITIS, in *Natural History*, a name given by the ancients to a substance resembling silver.

In this sense, *argyritis* was used to signify such litharge as was of a white colour, by way of distinguishing it from that which was yellow, which they dignified with the name *chrytisis*, as we do at present with that of litharge of gold.

The *argyritis* of late writers, seems to have been the same with the *lapis magnetis* of the ancients, mentioned by Theophrastus, and distinguished from the **MAGNET**.

ARGYRODAMAS, in *Natural History*, a sort of silver-coloured **TALC**, which bears the fire, and neither burns, melts, nor changes its hue. Plott's Hist. Staff.

Hence its denomination among the ancients of *argyrodamos*, *quasi argentum indomitum*.

ARGYROGONIA is used by some alchemists for a kind of argentific, or silver making seed, of a white colour, pretended to be procurable from a solution of that metal perfectly concocted.

Argyrogonia stands contradistinguished from *chryfogonia*.

ARGYROLIBANUS, in the *Materia Medica* of the *Ancient Greeks*, a word used to express the white kind of *olibanum*.

ARGYROPOEIA, in *Alchemy*, the art of making silver, out of other more imperfect metals.

The word is formed of *αργυρος*, silver, and *ποιεω*, I make.

ARIADNIA, in *Antiquity*, solemn festivals held at Naxos, in honour of *Ariadne*.

The *Ariadnia* are said to have been instituted by Theseus, in atonement for his cruelty in exposing *Ariadne*, big with child, on that coast. They were of a mournful cast; one part of the ceremony was for a young woman to lie down, and counterfeit all the agonies of a woman in labour. Plut. in Thest. and Potter's Arch.

ARIANS, followers of *Arius*, a presbyter of the church of Alexandria about the year 315; who owned Christ to be God, yet maintained him inferior to the Father even as to his deity, and his essence to be different from that of the Father, and that he was neither co-eternal nor co-equal with him: also that the Holy Ghost was not God.

The *Arians* owned that the Son was the word, but denied that word to have been eternal; asserting, that it had only been created before all other beings.—They held, that Christ had nothing of man in him, but the flesh, with which the *λογος* or word was joined, which supplied the rest.

The *Arians* were first condemned and anathematized by a council at Alexandria in 320, under Alexander, bishop of that city; who accused *Arius* of impiety, and caused him to be expelled from the communion of the church: and afterwards by 380 fathers in the general council of Nice, assembled by Constantine in the year 325. But, notwithstanding that, *Arianism* was not extinguished: on the contrary, it became the reigning religion, especially in the East, where it obtained much more than in the West. *Arius* was recalled from banishment by the emperor Constantine, in two or three years after the council of Nice; and the laws that had been enacted against him were repealed. In the year 335, Athanasius, his zealous opponent, was deposed and banished into Gaul; and *Arius* and his followers were reinstated in their privileges, and received into the communion of the church: in little more than a year after this, he fell a victim to the resentment of his enemies, and died a tragical death, occasioned probably by poison, or some other violence. The *Arian* party found a protector in Constantius, who succeeded his father in the empire of the East; and the zeal with which he abetted them, produced many animosities and tumults to the time of his death, in the year 362. They underwent various revolutions, persecuting and oppressed, under succeeding emperors, according to the degree of interest they had in the civil power; till, at length, Theodosius the Great exerted every possible effort to suppress and disperse them.

The *Arians* were divided into various sects, of which

ancient writers give an account under the names of *Semi-Arians*, *Eusebians*, *Aetians*, *Eunomians*, *Acacians*, *Psathyrians*, and others. But they have been commonly distributed into three classes, viz. the genuine *Arians*, *Semi-Arians*, and *Eunomians*.

Arianism was carried in the fifth century into Africa under the Vandals; and into Asia under the Goths. Italy, the Gauls, and Spain, were also deeply infected with it: and towards the commencement of the sixth century, it was triumphant in many parts of Asia, Africa, and Europe. But it sunk almost all at once, when the Vandals were driven out of Africa, and the Goths out of Italy, by the arms of Justinian. However, it revived again in Italy under the protection of the Lombards, in the seventh century.

Erasmus seems to have aimed, in some measure, to restore *Arianism*, at the beginning of the sixteenth century, in his commentaries on the New Testament: accordingly, he was reproached by his adversaries with *Arian* interpretations and glosses, *Arian* tenets, &c. To which he made little answer, save that there was no heresy more thoroughly extinct than that of the *Arians*: *Nulla heresis magis extincta quam Arianorum*. But the face of things was soon changed: Servetus, a Spaniard by nation, published, in 1531, a little treatise against the Trinity: which once more set the heresy of the *Arians* on foot in the West.—Indeed he rather shewed himself a *Photinian*, than an *Arian*; only that he made use of the same passages of scripture, and the same arguments against the divinity of our Saviour, with the proper *Arians*.

It is true, Servetus had not, properly speaking, any disciples; but he gave occasion, after his death, to the forming of a new system of *Arianism* in Geneva, much more subtil and artful than his own; and which did not a little perplex Calvin.—From Geneva, the new *Arians* removed to Poland, where they gained considerable ground; but at length became **SOCINIANS**.

The appellation *Arian* has been indiscriminately applied, in more modern times, to all those who consider Jesus Christ as inferior and subordinate to the Father; and whose sentiments cannot be supposed to coincide exactly with those of the ancient *Arians*. Mr. Whiston was one of the first divines, who revived this controversy in the beginning of the eighteenth century. He was followed by Dr. Clarke, who published his famous book, entitled "The Scripture Doctrine of the Trinity," &c. in consequence of which, he was reproached with the title of *Semi-Arian*. He was also threatened by the convocation, and combated by argument. Dr. Waterland, who has been charged with verging towards *Tritheism*, was one of his principal adversaries. The history of this controversy, during the present century, may be found in a pamphlet, intitled, "An Account of all the considerable Books and Pamphlets that have been wrote on either Side, in the Controversy concerning the Trinity, from the Year 1712; in which is also contained, an Account of the Pamphlets written this last Year, on each Side, by the Dissenters to the end of the year 1719." Published at London, 1720.

ARIANISM, the doctrine of *Arius*, who lived in the beginning of the fourth century. See **UNITARIAN**.

ARIDED, in *Astronomy*, a fixed star of the second magnitude, in the extremity of the Swan's tail.

This is also called **HIEREZIM**, **ADIGEGE**, and **ARIDEF**.

ARIDELOSIS, *αριδλωσις*, in *Rhetoric*, is sometimes used for the figure commonly called **SYNONYMIA**.

ARIDULLAM, in *Natural History*, the name of a fossil substance, used in the East Indies in intermittent fevers. It is of a greenish yellow colour, and coarse texture, and, when burnt, emits fumes smelling like arsenic. It is properly of the **ZARNIC** kind, though somewhat different from all the European kinds.

ARIDURA, in *Physic*, a dryness, or want of juice and moisture of the parts.

ARIDURA is also used by some for an *aridity*, or consumption.

ARIDURA is more particularly used to denote a hectic fever.

ARIDURA, is more frequently used, by *Modern Writers*, to denote a particular atrophy, or wasting of some single member of the body.

In which sense, it amounts to the same with what we otherwise call **WITHERING**.

ARIES, or the *Ram*, in *Astronomy*, the first of the twelve signs of the zodiac; from which also a twelfth part of the ecliptic takes its denomination.

The stars in the constellation *Aries*, in Ptolemy's catalogue, are 18; in Tycho's, 21; in Hevelius's, 27; in the Britannic catalogue, 66: the longitudes, latitudes, magnitudes, &c. whereof, are as follow:

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
			° ' "	° ' "	
		♈	26 58 25	11 04 58 N	7.6
			26 48 15	9 01 26	7.6
			26 36 18	5 57 3	6
			26 49 04	5 23 59	7.6
Preced. star in the horn:		♈	28 51 00	7 08 58	4
Subseq. and more north star in the horn.		♈	29 37 59	8 28 16	3
		♈	0 54 20	10 57 12	
In the neck.		♈	29 10 57	5 20 12	6
In the crown of the head.		♈	1 22 15	10 47 47	5
			3 26 14	12 31 52	6.7
10.					
That under the Lucida.		♈	4 02 12	12 04 02	6
Informis over the head.		♈	2 55 08	9 13 29	6
			3 19 18	9 57 12	2
			4 40 46	12 05 32	6
			2 43 49	5 56 58	6
15.					
In the nose, the more north. of two.		♈	5 04 35	11 57 00	8
			3 46 50	7 22 45	6
			3 25 14	6 08 45	7
			1 49 50	1 46 25	6.7
			5 59 38	11 27 44	6
20.					
In the nose the more south.		♈	5 43 40	10 46 20	7
			4 32 25	5 43 39	6.5
			4 41 59	5 27 23	7
In the extremity of the foremost foot.		♈	3 00 49	3 33 31 S.	5
			3 30 53	4 09 43	7
25.					
		♈	7 19 13	4 44 07 N	6.7
			6 41 33	2 40 42	6.7
			7 31 45	4 41 30	6
			6 18 40	0 01 15 S.	6.7
Informis, alias 16th of the triangle.			10 14 15	8 49 48 N	7
30.					
The north in the loins.		♈	6 20 07	2 44 12	5.6
Informis, alias the 17th of the triangle.			9 48 35	6 07 56	6
The south in the loins.		♈	11 48 01	10 51 52	5
Informis, alias the 18th of the triangle.			9 59 55	4 01 56	6
			12 35 47	11 17 13	4
35.					
In the preced. hind knee.		♈	9 45 08	1 44 43	7
			9 03 43	0 36 24 S.	6
			8 17 35	3 21 50	7
Most northern of the informes.			14 00 55	12 28 08 N	4
			10 52 39	1 56 14	6
40.					
Brightest of the informes.		♈	13 51 41	10 25 37	3
In the leg.		♈	10 47 52	1 06 13	6
In the hindmost knee.		♈	10 35 46	1 19 37 S.	6
			12 09 32	0 58 37	6
In the thigh or hip, the north.		♈	12 32 11	1 28 58	6.7
45.					
The south.		♈	12 34 24	1 10 03	6.7
			13 42 08	3 35 37	6.7
In the root of the tail.			44 10 09	4 08 01	5
Alias, 20th of the triangle.			16 13 50	8 51 53	7
			13 44 34	0 46 38	7
50.					
Alias, 21st of the triangle.			16 22 21	8 59 42	7
Alias, 22d of the triangle.			16 39 20	7 29 05	6
			15 03 56	0 16 22	7
			15 30 48	1 05 39	6.7
Alias, 23d of the triangle.			18 38 06	10 54 25	7
55.					
Alias, 24th of the triangle.			8 41 02	8 58 25	7.6
Foremost of the three in the tail.		♈	16 30 18	1 47 34	4
The middle.		♈	17 36 34	2 51 19	5
			20 19 30	8 23 00	7
			20 03 05	6 59 28	7
60.					
Last of the tail.		♈	19 03 42	2 34 05	5
			20 56 54	8 45 25	6
The middle.		♈	19 18 49	2 04 57	6
			20 39 45	5 51 39	6
The third.			19 41 15	2 02 52	7
		♈	21 06 22	3 46 01	7

ARIES also denotes a *battering ram*; or a military engine with an iron head, much in use among the ancients, to batter and beat down the walls of places besieged.

Of this there were three kinds; the first rude and plain, the other artificial and compound.

The first seems to have been no more than a great beam, which the soldiers bore in their arms, and with one end of it, by main force, assailed the walls. This required a great force to work it; yet produced but a small effect.

The second or compound ram is described by Josephus (De Excid. Hierosol. 3.) thus: "The ram is a vast long beam, like the mast of a ship, strengthened at one end with a head of iron, something resembling that of a ram, whence it took its name. This is hung by the middle, with ropes, to another beam, which lies across a couple of posts; and hanging thus equally balanced, is, by a great number of men, violently thrust forward, and recoiled backward, and so shakes the wall with its iron head, nor is there any tower or wall so thick or strong, as to resist the repeated assaults of this forcible machine."

The third only differed from the former, in that it was covered with a *velum*, or screen, to guard the soldiers, whence it also called *testudo arietaria*.

Mr. Felibien describes a fourth sort of *battering ram*, which ran on wheels; and was the most perfect and effectual of them all. Vitruvius affirms, that the *battering ram* was first invented by the Carthaginians, while they laid siege to Cadiz: theirs was the simple kind first mentioned: Pephaemenos, a Tyrian, afterwards contrived to suspend it with ropes: and finally, Polydus, the Thessalian, to mount it on wheels at the siege of Byzantium, under Philip of Macedon. Yet Pliny assures us, that the *ram* was invented at the siege of Troy; and that it was this that gave occasion to the fable of a wooden horse.

The engine apposed the ram was called *lupus*, the wolf. —Plutarch tells us, that Mark Anthony, in the Parthian war, used a *ram* of 80 feet long; and Vitruvius assures us, they were sometimes made 106, and sometimes 120 feet long; to this great length, perhaps, the force of the engine was in great measure owing.

The *ram* was managed at once by a whole century of soldiers; so that it played continually, and without intermission; being usually covered with a *vinea*, to protect it from the attempts of the enemy.

ARIETATION. See EARTHQUAKE.

ARIETUM *levatio*, an ancient kind of sportive exercise, probably the same with what of later times is called *running at the quintain*.

ARILLUS, in Botany, the exterior coat or tunic of the seed, which comes off of itself.

ARIMANIUS, one of the chief deities of Persia. This deity, according to the philosophy of Zoroaster revived by the Manichæans, is the principle of evil, which at last will be totally vanquished by Oromasdes, the author of good.

ARINGA, in Ichthyology, a name given by Paulus Jovius and others to the HERRING.

ARIONI, in Antiquity, a kind of prophets, or religious conjurers, who by abominable prayers, and horrid sacrifices at the altar of idols, procured answers to their questions concerning future events. Ibid. Orig. l. viii. c. 9.

These are also called *harioli*, and their operation, *hariolation*.

Sometimes they were denominated *aruspices*, or *haruspices*. The *arioli* were distinguished by a slovenly dress, disorderly and matted beards, hair, &c.

ARISARUM, or ARUM, in Botany. See WAKE robin.

ARISE—Licence to ARISE. See LICENCE.

ARISH, a Persian long measure, containing 3197 English feet. Arbuth. Tab. 32.

The Persian *arish*, according to Mr. Greaves, is a long measure equal to $38 \frac{36}{100}$ English inches.

ARISI, rice, an Indian word, which does not properly signify the plant which produces the rice, but the seed itself when cleansed from its husk, and rendered fit for use. The Indians call it *arisi* in this state; but in the husk, and upon the plant, they call it *nellon*.

ARISTA, in Ichthyology, see ATHERINA.—In Astronomy, the same as SPICA VIRGINIS.

ARISTA, in Botany, a long needle-like beard, that grows out from the husk of corn, or grass; called also the *awn*.

ARISTARCHUS, in its original Greek, signifies *best prince*; but in its ordinary use among the learned, denotes a very severe critic; there having been a learned grammarian of that name, who criticised on the verses of the very best poets, as Homer, &c.

Hence we derive the title of several books; as *Aristarchus sacer*, the name of Heinsius's notes on the New Testament; *Aristarchus Anti-Bentleianus*, &c.

ARISTIDA, in Botany, a genus of the *triandria digynia* class: the calyx of which is a bivalve subulated glume, of the length the corolla; the corolla is a glume of one valve, opening longitudinally, hairy at the base, and terminated by three sub-equal patulous *aristæ*; the fruit is a connivent glume, containing a naked filiform single seed, of the length of the corolla. There are three species.

ARISTOCRACY, in Politics, a form of government, where the supreme power is lodged in the hands of the optimates,

optimates, i. e. of a council, or senate, composed of the principal persons of a state, either in respect of nobility, capacity, or probity.

The word is derived from *αριστος*, *optimus*, and *κράτωρ*, *impero*, *I govern*.

The ancient writers of politics prefer the *aristocratical* form of government to all others.—The republic of Venice is an *aristocracy*.

Aristocracy seems to coincide with *oligarchy*; which, however, is more ordinarily used to signify a corruption of an *aristocratical* state, where the administration is in the hands of too few; or where some one or two usurp the whole power.

ARISTOLOCHIA, popularly called **BIRTHWORT**; a medicinal plant, used as an ingredient in Venice treacle, and many other compositions.

Cicero derives its name from its inventor *Aristolochus*: others from its virtues.—These last suppose it formed from *αριστος*, *optimus*, and *λοχία*, *lochia*, or *purgations*, because it is found of excellent use in bringing down the lochia, or discharges of women newly delivered.

Some alexipharmic qualities are also ascribed to them; on which account they have a place in the composition of the *theriaca*, and some other medicines of the same tribe. Externally applied, they are reckoned detergent and suppurative, and, for that reason, make a part of the styptic plasters of Crollius and Paracelsus. Taken internally, they are great resolvers of viscidities, and therefore much recommended against the gout, asthma, &c. They allay the excessive pains after child-birth, and are very serviceable for the necessary purgations on that occasion. Some of the species are used in America, particularly one in Virginia, whose roots are used against the bites of venomous beasts, in malignant fevers, and the small pox. Its alexipharmic virtue has occasioned it to be called *Viperinum Virginica*, and *Serpentaria Virginiana*, otherwise **SNAKE-ROOT**.

ARISTOPHANEUM, in the *Ancient Physic*, a name given to a kind of emollient plaster, prepared of pitch, wax, opopanax, apochyma, and vinegar.

ARISTOTELIA, in *Antiquity*, annual feasts, celebrated by the citizens of Stagiris, in honour of *Aristotle*, who was born there; and in gratitude for his having procured from Alexander the rebuilding, and re-peopling of that city, which had been demolished by king Philip. Ammon. in Vit. *Aristot.* Stanley's Hist. of Philos. P. vi. c. 8.

ARISTOTELIAN, something that relates to the philosopher *Aristotle*.—Thus we say, an *Aristotelian* dogma, the *Aristotelian* school, &c.

The philosopher from whom the denomination arises, was the son of Nicomachus, physician of Amyntas, king of Macedonia, born in the year of the world 3566, before Christ 348, at Stagira, a town of Macedonia, or, as others say, of Thrace; whence he is also called the *Stagirite*.

At seventeen years of age he entered himself a disciple of Plato, and attended in the Academy till the death of that philosopher. Repairing afterwards to the court of king Philip, at his return he found that Xenocrates, during his absence, had put himself at the head of the Academic sect; upon which he chose the Lyceum for the future scene of his disputation.

It being his practice to philosophize walking, he got the appellation *Peripateticus*; whence his followers were also called *Peripatetics*.

In the schools, *Aristotle* is called the *Philosopher*; and the *Prince of Philosophers*. Such was the veneration paid to him, that his opinion was allowed to stand on a level with reason itself; nor was there any appeal from it admitted, the parties, in every dispute being obliged to shew, that their conclusions were no less conformable to *Aristotle's* doctrine than to truth.

Laertius, in his life of *Aristotle*, enumerates his books, to the number of 4000; of which, scarce above 20 have survived to our age: they may be reduced to five heads; the first, relating to poetry and rhetoric; the second, to physics; the third, to ethics and politics; the fourth, to physics; and the fifth, to metaphysics. In all which, as there are many things excellent, particularly what relate to poetry, rhetoric, and the passions; so there are others which the improvements of later ages have taught us to explode and despise.

ARISTOTELIAN philosophy, the philosophy taught by *Aristotle*, and maintained by his followers.

The *Aristotelian* is otherwise called the *Peripatetic philosophy*; the rise and fate whereof, see under **PERIPATETICS**.

ARISTOTELIANS, a sect of philosophers, otherwise called *Peripatetics*.

The *Aristotelians* and their *dogmata* prevailed for a long while, in the schools and universities; even in spite of all the efforts of the Cartesians, Newtonians, and other

corpuscularians. But the systems of the latter have at length gained the pre-eminence; and the Newtonian philosophy in particular is now very generally received. The principles of *Aristotle's* philosophy, the learned agree, are chiefly laid down in the four books *de Caelo*: the eight books of *Physical Auscultation*, *οὐρανικὴ ἀκουστική*, belonging rather to logics, or metaphysics, than to physics. Instead of the more ancient systems, he introduced *matter*, *form*, and *privation*, as the principles of all things; but he does not seem to have derived much benefit from them in natural philosophy. His doctrines are, for the most part, so obscurely expressed, that it has not yet been satisfactorily ascertained what were his sentiments on some of the most important subjects. He attempted to refute the Pythagorean doctrine concerning the twofold motion of the earth; and pretended to demonstrate, that the matter of the heavens is ungenerated, incorruptible, and subject to no alteration: and he supposed that the stars are carried round the earth in solid orbs.

The reader will find a distinct and candid account of the logical part of his philosophy, by Dr. Reid, Professor of Moral Philosophy in the University of Glasgow, in the second volume of Lord Kaimes's *Sketches of the History of Man*. Edinb. 4to. 1774. p. 165.

J. Harris, esq. has published a sensible commentry on his *Categories*, under the title of *Philosophical ARRANGEMENTS*.

See a more particular account of the principles of the *Aristotelian* philosophy, under the articles **ACCIDENT**, **ANTIPERISTASIS**, **ELEMENT**, **FUGA VACUI**, **FORM**, **PRINCIPLES**, **QUALITY**, **SYMPATHY**, &c.

ARISTOTELICA *rota*. See **ROTA**.

ARISTOTUS, in *Ichthyology*, a name given by Albertus and others, to the fish which we call the **SHAD**, or the mother of herrings. See **THRISSA** and **CLUPEA**.

ARITHMANCY. See **ARITHMOMANCY**.

ARITHMETIC, **ARITHMETICA**, the art of numbering; or, that part of mathematics, which considers the powers and properties of numbers, and teaches how to compute or calculate truly, and with expedition and ease. Some authors choose to define *arithmetic*, the science of discrete quantity.

Arithmetic consists chiefly in the four great rules or operations of **ADDITION**, **SUBTRACTION**, **MULTIPLICATION**, and **DIVISION**.

It is true, for the facilitating and expediting of computations, mercantile, astronomical, &c. divers other useful rules have been contrived; as, the rules of proportion, of alligation, of false position, extraction of square and cube roots, progression, fellowship, interest, barter, rebate, reduction, tare and tret, &c.—But these are only applications of the first four rules. See these rules under their several heads, **ADDITION**, &c.

We have very little intelligence about the origin and invention of *arithmetic*: history neither fixes the author, nor the time.—In all probability, however, it must have taken its rise from the introduction of commerce; and consequently it should be of Tyrian invention.

From Asia it passed into Egypt (Josephus says, by means of Abraham.) Here it was greatly cultivated and improved; insomuch that a large part of the Egyptian philosophy and theology seems to have turned altogether upon numbers. Hence those wonders related by them about unity, trinity; the numbers seven; ten, four, &c. In effect, Kircher, in his *Oedip. Egypt.* tom. 2. p. ii. shews, that the Egyptians explained every thing by numbers; Pythagoras himself affirming, that the nature of numbers goes through the whole universe; and that the knowledge of numbers is the knowledge of the Deity.

From Egypt *arithmetic* was transmitted to the Greeks, who handed it forward, with great improvements, which it had received by the computation of their astronomers, to the Romans; from whom it came to us.

The ancient *arithmetic*, however, fell far short of that of the moderns: most of what they did, was to consider the various divisions of numbers; as appears from the treatises of Nicomachus, written in the third century of Rome, and that of Boethius, still extant. A compendium of the ancient *arithmetic*, written in Greek, by Psellus, in the ninth century from our Saviour, was given us in Latin by Xylander, in 1556.—A more ample work of the same kind was written by Jordanus, in the year 1200, published with a comment by Faber Stapulensis in 1480. A treatise of *arithmetic* was also written by Johannes de Sacro Bosco, who died about the year 1256.

Arithmetic, under its present state, is variously divided into different kinds; *theoretical*, *practical*, *instrumental*, *logarithmical*, *numerous*, *specious*, *decimal*, *dynamical*, *tetraëtical*, *duodecimal*, *sexagesimal*, &c.

ARITHMETIC, *theoretical*, is the science of the properties; relations, &c. of numbers, considered abstractedly; with

with the reasons and demonstrations of the several rules. Euclid furnishes a *theoretical* ARITHMETIC, in the seventh, eighth, and ninth books of his Elements.—Barlaamus Monachus has also given a theory for demonstrating the common operations, both in integers and broken numbers, in his Logistica, published in Latin by J. Chambers, an Englishman, in 1600.—To which may be added, Lucas de Borgo, who in an Italian treatise published in 1523, gives the several divisions of numbers from Nicomachus, and their properties from Euclid; with the algorithm, both in integers, fractions, extractions of roots, &c.

ARITHMETIC, *practical*, is the art of numbering or computing; that is, from certain numbers given, or finding certain others, whose relation to the former is known.

As, if a number be required equal to two given numbers 6 and 8.

The first entire body of *practical arithmetic*, was given by Nic. Tartaglia, a Venetian, in 1556, consisting of two books; the former the application of *arithmetic* to civil uses; the latter, the grounds of algebra. Something had been done before by Stifelius, in 1544, where we have several particulars concerning the application of irrationals, cosines, &c. no where else to be met with.

We omit other mere practical authors, which have come since, the number whereof is almost infinite; as Gemma Frisius, Metius, Clavius, Ramus, Buckley, Diggs, Record, Wingate, Cocker, Leyburn, Malcolm, &c. &c. The theory of *arithmetic* is joined with the *practice*, and even improved in several parts, by Maurolycus, in his *Opuscula Mathematica*, 1575; by Henestius, in his *Arithmetica Perfecta*, 1609, where the demonstrations are all reduced into the form of syllogisms; and by Tacquet, in his *Theoria & Praxis Arithmetices*, 1704.

ARITHMETIC, *harmonical*, is so much of the doctrine of numbers, as relates to the making the comparisons, reductions, &c. of musical intervals.

ARITHMETIC, *instrumental*, is that where the common rules are performed by means of instruments contrived for ease and dispatch; such are several sorts of scales, and sliding-rules; such, more particularly, are Napier's bones, described under their proper article: fir Sam. Moreland's instrument, the description whereof was published by himself, in 1666; that of M. Leibnitz, described in the Miscellan. Berolin. and that of Polenus, published in the Venetian Miscellany, 1709.

The Chinese have little regard to any rules in their calculations; instead of which they use an instrument already described. See ABACUS and SHWAN-PAN.

To these may be added,

ARITHMETIC, *logarithmetical*, performed by tables of logarithms.

The best piece on this subject is Hen. Brigg's *Arithmetica Logarithmica*, 1624.

To this head may also be added, the Universal Arithmetical Tables of Prosthaphæreses, published in 1610, by Herwart ab Hohenburg; whereby multiplication is easily and accurately performed by addition, and division by subtraction.

ARITHMETIC, *logistical*. See LOGISTICAL.

ARITHMETIC, *numerous*, is that which gives the calculus of numbers, or indeterminate quantities; and is performed by the common numeral, or Arabic characters.

ARITHMETIC, *specious*, is that which gives the calculus of quantities; using letters of the alphabet instead of figures, to denote the quantities.

Specious arithmetic coincides with what we usually call algebra, or *literal arithmetic*.

Dr. Wallis has joined the numeral with the literal calculus; and by means hereof, demonstrated the rules of fractions, proportions, extractions of roots, &c. a compendium of which is given by Dr. Wells, under the title of *Elementa Arithmetica*, an. 1698.

ARITHMETIC, *decimal*, or *decadal*, is that performed by a series of ten characters, so that the progression is from 10 to 10.

Such is the common *arithmetic* among us, which makes use of the ten Arabic figures, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9; after which we begin 10, 11, 12, &c.

This method of computation is not very ancient, being utterly unknown to the Greeks and Romans.—It was introduced into Europe by Gerbert, who was afterwards pope, under the name of Sylvester II. who borrowed it from the Moors of Spain.—No doubt it took its origin from the ten fingers of the hands, which were made use of in computations before *arithmetic* was brought into an art.

The eastern missionaries assure us, that to this day the Indians are very expert at computing on their fingers, without any use of pen and ink. Let. Edif. & Cur.—Add, that the natives of Peru, who do all by the different arrangement of grains of maize, outdo any Euro-

pean, both for sureness and dispatch, with all his rules.

ARITHMETIC, *decimal*, is also used for the doctrine of decimal fractions.

ARITHMETIC, *binary*, or *dyadic*, is that wherein only two figures, unity, or 1, and 0, are used. See BINARY *Arithmetic*.

M. Dancicourt, in the Miscell. Berol. gives us a specimen of the use hereof in arithmetical progressions; where he shews, that the laws of progression may be more easily discovered hereby than in any other method where more characters are used.

ARITHMETIC, *tetradic*, is that wherein only the figures 1, 2, 3, and 0, are used.

We have a treatise of this *arithmetic*, by Erhard Weigel; but both *binary*, and this, are little better than curiosities, especially with regard to practice; inasmuch as the numbers may be much more compendiously expressed by *decadal arithmetic* than by either of them.

ARITHMETIC, *vulgar*, is that conversant about integers and vulgar fractions.

ARITHMETIC, *sexagesimal*, or *sexagenary*, is that which proceeds by sixties; or the doctrine of sexagesimal fractions; supposed to have been invented by Ptolemy, in the second century. In this notation the integral numbers from 1 to 59 were expressed in the common way; then *sixty* was called a *sexagena prima*, and marked I'; twice *sixty*, or 120, II'; and so on to 59 times 60, or 3540, which is LIX'. *Sixty* times *sixty*, or 3600, was called *sexagena secunda*, and marked with two dashes, I''; twice 3600, II''; and ten times 3600, X'', &c. And in this way the notation was continued. But if a number less than *sixty* was joined with any of the *sexagesimal* integers, their proper expression was annexed without the dash; e. gr. four times 60 and 25 is IV' XXV; the sum of twice 60, ten times 3600, and 15, is X'' II' XV, &c. So near did the inventor of this method approach to the Arabic notation: instead of *sexagesimal* progression, he had only to substitute *decimal*; to make the signs of numbers from 1 to 9 simple characters, and to introduce a character which signifies nothing by itself, serving only to fill up places. The *sexagena integrorum* were soon laid aside, after the introduction of the Arabic notation; but the *sexagesimal* fractions continued till the invention of *decimals*. See SEXAGESIMAL.

Sam. Reyher has invented a kind of sexagenal rods, in imitation of Napier's bones, by means whereof the *sexagenary arithmetic* is easily performed.

ARITHMETIC, *political*, is the application of *arithmetic* to political subjects; as, the strength and revenues of princes, number of inhabitants, births, burials, &c. See POLITICAL *Arithmetic*.—To this head may be referred the doctrine of CHANCES, GAMING, &c.

ARITHMETIC of *infinities*, is the method of summing up a series of numbers consisting of infinite terms; or of finding the ratios thereof.

This method was first invented by Dr. Wallis; as appears from his Opera Mathematica, where he shews its use in geometry, in finding the areas of superficies, and the contents of solids, and their proportions.—But the method of FLUXIONS, which is an universal *arithmetic* of infinities, performs all this much more easily; and multitudes of other things, which the former will not reach.

ARITHMETIC of *rational* and *irrational*s. See RATIONAL, &c.

ARITHMETICAL *complement* of a logarithm, is what the logarithm wants of 10,000,000.

Thus the *arithmetical complement* of 7.1079054, is 2.8920946, where each figure but the last is subtracted from 9, and that from 10.

It is sometimes also used in trigonometrical calculations, when radius or 10.0000000 is the first term, to save the labour of subtraction. It is distinguished by placing a point before, and another after the index; thus, .2.8920946.

ARITHMETICAL *medium* or *mean*. See MEDIUM.

ARITHMETICAL *progression*. See PROGRESSION.

ARITHMETICAL *proportion*. See PROPORTION.

ARITHMETICAL *ratio*. See RATIO.

ARITHMOMANCY, a kind of divination, or method of foretelling future events, by means of numbers.

The word is compounded of ἀριθμός *number*, and μαντεία *divination*.

The GEMATRIA, which makes the first species of the Jewish CABBALA, is a sort of *arithmomancy*.

ARK, or ARC, *arcus*, in Geometry, Astronomy, &c. See ARCH.

ARK, ARCA, in the scripture-language, denotes a kind of floating vessel built by Noath, for the preservation of the several species of animals from the deluge.

The

The *ark* has afforded several points of curious enquiry among the critics and naturalists, relating, to its form, capacity, materials, time of building, place of resting after the flood, &c.

Noah is computed to have been one hundred years in building the *ark*, viz. from the year of the world 1555, to the flood, which happened in the year 1656; at least this is the common opinion of the learned. Origen, lib. iv. contra Cels. St. Austin, de Civit. Dei, lib. xv. c. 27. and contra Faustum, lib. xii. c. 18. and in his Quest. 5. and 23. on Gen. Rupert, lib. iv. in Gen. xx. assert as much; and are followed by Salian, Torniel, Spondemus, Pelletier, &c.

Yet Berofus affirms, that Noah only begun to build the *ark* seventy-eight years before the flood: Solomon Jarchi, on the other hand, will have it to have been an hundred twenty years in building, Tanchuma fifty-two and the Mahometans only two years. See the texts, Gen. vi. &c. F. Fournier, in his Hydrography, gives into the opinion of the fathers; noting, that the hands employed in it were only Noah and his three sons. To this purpose he alleges the instance of Archias of Corinth, who, with the help of three hundred workmen, built Hiero's great ship in one year. Add, that Noah's eldest son was not born till about the time when the *ark* was begun, and the younger after; so that it was a long time before they could do their father any service.—However, for so large a building, a prodigious number of trees must have been required, which would employ a great number of workmen to fell and hew, were it possible for three men to have laid them.

The wood whereof the *ark* was built, is called in scripture גפר, *else gopher, gopher wood*: and in the LXX. ξυλα τετραγων, *square timbers*. Onkelos and Jonathan render *gopher* by קדרון, *kedros, cedar*: St. Jerom, in the Vulgate, by *ligna lævigata, planed wood*; and elsewhere, *ligna bituminata, q. d. pitched wood*. Kimchi translates it *wood most proper to float*; Vatable, *light wood*, which swims in the water without corrupting; Junius Tremellius, and Buxtorf, a kind of cedar, by the Greeks called *κεδρελαιη*; Avenarius and Munster, *pine*; Fuller and Bochart, *cypress*; others, *fir*; Castalio, *turpentine*, &c.—Pelletier prefers the opinion of those who hold the *ark* made of cedar: his reasons are, the incorruptibility of that wood; the great plenty thereof in Asia, whence Herodotus and Theophrastus relate, that the kings of Egypt and Syria built whole fleets of it in lieu of deal; and the common tradition throughout the East imports, that the *ark* is preserved entire to this day on mount Ararat.

The dimensions of the *ark*, as delivered by Moses, are three hundred cubits in length, fifty in breadth, and thirty in height; which, compared with the great number of things it was to contain, seem to many to have been too scanty. And hence an argument has been drawn against the authority of the relation. Celsus long ago laughed at it, calling it *καθαλον αλλοουλον, the absurd ark*. To solve this difficulty, many, both of the ancient fathers and later critics, have been put to very miserable shifts. Origen, St. Augustine, and others, maintain, that by the cubit here spoken of, we are to understand the Egyptian geometrical cubit, equal, according to them, to six vulgar cubits, or nine feet. But the truth is, it does not appear there ever was any such measure as a geometrical cubit, either among Egyptians or Jews.—Others account for it, by asserting the stature of mankind in the first ages to have been much greater than in our days; and consequently, the cubit, which is taken for a part of the human body, proportionably larger. But this does not avail, since the same reason will infer an equal augmentation of the size of other animals. Others suppose the sacred cubit to be that here spoken of, which was a hand's breadth longer than the civil one: but this only affords a small supply; beside, the sacred cubit does not appear to have been ever used, except in sacred edifices, as the temple and tabernacle.

This difficulty is much better solved by Buteo and Kircher, who, supposing the common cubit of a foot and a half, prove geometrically, that the *ark* was abundantly sufficient for all the animals supposed to be lodged therein. The capacity of the *ark* will be doubled, if we admit, with Cumberland, &c. that the Jewish cubit was 21.888 inches.—Snellius computes the *ark* to have been above half an acre in area. Cuneus, and others, have also calculated the capacity of the *ark*.—Dr. Arbuthnot computes it to have been 81062 tons.—Father Lamy says, that it was an hundred and ten feet longer than the church of St. Mary at Paris, and sixty-four feet narrower; to which his English translator adds, that it must have been longer than St. Paul's church in London, from west to east, broader than that church is high in the inside, and about fifty-four feet in height, of our measure.

The things contained in the *ark* were, beside eight per-

sons of Noah's family, one pair of every species of unclean animals, and seven pair of every species of clean animals, with provisions for them all, during the whole year.—The former appears, at first view, almost infinite; but if we come to a calculus, the number of species of animals will be found much smaller than is generally imagined; out of which, in this case, are to be exempted such animals as can live in the water; and bishop Wilkins imagines, that only seventy-two of the quadruped kind needed a place in the *ark*.

It appears to have been divided into three stories; and it is agreed on, as most probable, that the lowest story was destined for the beasts, the middle for the food, and the upper for the birds, with Noah and his family; each story being subdivided into different apartments, stalls, &c. Though Josephus, Philo, and other commentators, add a kind of fourth story, under all the rest; being, as it were, the hold of the vessel, to contain the ballast, and receive the filth and faeces of so many animals.

Drexelius makes three hundred apartments; father Fournier, three hundred and thirty-three; the anonymous author of the Questions on Genesis, four hundred: Buteo, Temporarius, Arius Montanus, Wilkins, Lamy, and others, suppose as many partitions as there were different sorts of animals.—Pelletier only makes seventy-two, viz. thirty-six for the birds, and as many for the beasts: his reason is, that if we suppose a greater number, as three hundred and thirty-three, or four hundred, each of the eight persons in the *ark* must have had thirty-seven, forty-one, or fifty stalls to attend and cleanse daily, which he thinks impossible. But there is not much in this; to diminish the number of stalls, without a diminution of the animals, is vain; it being, perhaps more difficult to take care of three hundred animals in seventy two stalls, than in three hundred. Buteo computes, that all the animals contained in the *ark* could not be equal to five hundred horses; he even reduces the whole to the dimensions of fifty-six pair of oxen. Father Lamy enlarges it to sixty four pair, or an hundred and twenty-eight oxen; so that supposing one ox equal to two horses, if the *ark* had room for two hundred and fifty-six horses, there must have been room for all the animals. And the same authors demonstrates, that one floor of it would suffice for five hundred horses, allowing nine square feet to a horse.

As to the food in the second story, it is observed by Buteo from Columella, that thirty or forty pounds of hay ordinary suffices an ox for a day; and that a solid cubic of hay, as usually pressed down in our hay-racks, weighs about forty pounds; so that a square cubic of hay is more than enough for one ox one day. Now it appears that the second story contained 150,000 solid cubits; which, divided between two hundred and six oxen, will afford each more hay by two thirds than he can eat in a year.

Bishop Wilkins computes all the carnivorous animals equivalent, as to the bulk of their bodies, and their food, to twenty-seven wolves; and all the rest to two hundred and eighty beeves. For the former he allows the sustenance of 1825 sheep, and for the latter 109,500 cubits of hay: all which will be easily contained in the two first stories, and much room to spare.—As to the third story, no body doubts of its being sufficient for the fowls, with Noah, and his sons and daughters.

Upon the whole, the learned bishop remarks, that of the two, it appears much more difficult to assign a number and bulk of necessary things to answer the capacity of the *ark*, than to find sufficient room for the several species of animals already known to have been there.—This he attributes to the imperfections of our lists of animals, especially those of the unknown parts of the earth; adding, that the most expert mathematician at this day could not assign the proportions of a vessel better accommodated to the purpose than is here done; and hence finally concludes, that “the capacity of the *ark* which had been made an objection against scripture, ought to be esteemed a confirmation of its divine authority; since, in those rude ages, men being less versed in arts and philosophy, were more obnoxious to vulgar prejudices than now; so that had it been a human invention, it would have been contrived according to those wild apprehensions which arise from a confused and general view of things; as much too big, as it has been represented too little.”

ARK of the Covenant, in Scripture, denotes a kind of chest, wherein, by God's command, Exod. xxv. 16. were kept the two tables of stone, whereon God had engraven the ten commandments, given to Moses on the mount, and held in high veneration among the Hebrews. It contained likewise the golden pot that had manna and Aaron's rod, and the tables of the covenant. Heb. ix. 4. The *ark* was reposit in the holiest place of the tabernacle.—It was taken by the Philistines, and detained twenty, some say forty years, at Kirjath Jearim; but

the people being afflicted with emroids on account of it, returne it with divers presents.—It was afterwards placed in the temple.

The lid or covering of the *ark*, was called the *propitiatory*, or mercy-seat; over which were two figures placed, called *Cherubim*, with expanded wings of a peculiar form. Here the *Schechinah* rested both in the tabernacle and temple in a visible cloud; hence were issued the divine oracles by an audible voice; and the high priest appeared before this mercy-seat once every year on the great day of expiation; and the Jews, wherever they worshipped, turned their faces towards the place where the *ark* stood. In the second temple there was also an *ark*, made of the same shape and dimensions with the first, and put in the same place, but without any of its contents and peculiar honours. It was used as a representative of the former, on the day of expiation, and a repository of the original copy of the holy scriptures, collected by Ezra and the men of the great synagogue, after the captivity. And in imitation of this, the Jews, to this day, have a kind of *ark* in their synagogues, wherein their sacred books are deposited. This they call *aron*. Leo of Modena gives a description thereof, in his account of the customs and ceremonies of those of his nation: "The Jews, says he, in the eastern sides of their synagogues, have an *ark*, or armory, called *aron*; in memory of the *ark* of the covenant. In this are preserved the five books of Moses, written on vellum, with ink made on purple," &c. Some have supposed that the figure of this *ark* is still remaining on the triumphal arch of Titus at Rome; though Villalpandus and others, with greater reason, are of opinion, that it is the table of shew-bread. Prideaux's Conn. vol. i. p. 209.

Tertullian calls this *ark*, *Armarius Judaicum*; whence the phrase, *to be in the armory of the synagogue*, q. d. in the number of canonical writings.

A chest or coffer very nearly resembling the Jewish *ark*, and called the *house of the God*, was found in Huaheine, one of the islands in the southern sea. Mr. Banks could obtain no other information concerning it than what the name imports. Hawkesworth's Account, &c. vol. ii. p. 252.

ARK is used for a large chest, in which corn and fruit are deposited.

ARLYNG, in Ornithology, a name by which the common OENANTHE is called in many parts of England.

ARM, *brachium*, a part of the human body, terminating at one end in the shoulder, and at the other in the hand.

Among Physicians and Anatomists, ARM only includes that part between the shoulder and the elbow; the rest from the elbow to the wrist, being taken into the greater HAND; by others call the *fore-arm*.

The *arm*, in this latter acceptation, has only one large bone, called the HUMERUS, or shoulder-bone.

It has five sorts of motions, which are effected by five pair of muscles; upwards, by the *deltoides*, *supraspinatus*, and *coracobrachialis*; downwards by the *teres rotundus major*, and *latissimus dorsi*; forwards, by the *pectoralis*; backwards, by the *infraspinatus*; and circularly, by the *transversalis*, *subscapularis*, and *infraspinatus*. See each muscle described under its proper article.

The other part consists of two bones, called FOCILS; viz. the *radius* and *cubitus*, or *ulna*.

The muscles whereby this part is moved, are the *biceps*, *brachialis internus*, *gemellus*, *brachialis externus*, *anconæus*, *pronator radii teres*, and *quadratus*; *supinator longus*, and *brevis*.—See each in its place. The usual venesections are in the *arm*.

We have an account of a man whose *arm*, with the *scapula*, was torn off by a mill, and who was cured without any hæmorrhage. Phil. Trans. N^o 449. sec. 5.

ARM, in the *Manege*, is applied to a horse, when he endeavours to defend himself against the bit; to prevent obeying, or being checked thereby.

A horse is said to *arm* himself, when he presses down his head, and bends his neck, so as to rest the branches of the bridle upon his brisquet; in order to withstand the effort of the bit, and guard his bars and his mouth.

A horse is said to *arm himself with the lips*, when he covers the bars with his lips, and deadens the pressure of the bit. This frequently happens in thick-lipped horses.—

The remedy is by using a bit-mouth, forged with a cannon or scratch-mouth, broader near the bankers than at the place of its pressure, or rest upon the bars.

For *arming against the bit*, the remedy is, to have a wooden ball covered with velvet or other matter, put on his chaul; which will so press him between the jaw-bones, as to prevent his bringing his head so near his breast.

ARM, in Geography, is used for a branch of a sea, or river. Italy and Sicily are only parted by an *arm* of the sea.—Sr. George's *arm*, in the Mediterranean, is the Thracian Bosphorus.

ARM, among Gardeners, is sometimes used in respect of cucumbers and melons, in the same sense as branch of other plants.

ARM is also used figuratively for *power*.—The secular *arm* is the lay or temporal authority of a secular judge; to which recourse is had for the execution of the sentences passed by ecclesiastical judges.

The church sheds no blood; even the judges of inquisition, after they have found the person guilty, surrender him to the secular *arm*.

The council of Antioch, held in 341, decrees, that recourse be had to the secular *arm* to repress those who refuse obedience to the church; for secular *arm*, they here use exterior power.

ARM, in the *Military Art*, *Heraldry*, &c. See ARMS and ARMOUR.

ARM, in *Sea-Langnage*.—A ship is said to be *armed*, when fitted out, and provided, in all respects, for war.

Armed ship more peculiarly denotes a vessel that is occasionally taken into the service of government in time of war, and employed to guard some particular coast, or attend on a fleet. All ships of this sort are commanded by an officer of the navy, and are upon the same establishment with the king's sloops.

Also a cross-bar shot is said to be *armed*, when some rope-yarn, or the like, rolled round about one end of the iron bar which runs through the shot, both that the shot may be the better rammed down into the gun, and lest the sharp end of the bar should catch into any honeycombs within the cylinder of the piece.

ARM, *yard*. See YARD.

ARM, in respect of the *Magnet*.—A loadstone is said to be *armed*, when it is capped, cased, or set in iron or steel; in order to make it take up the greater weight; and also to distinguish readily its poles.

It is surprising, that a little iron fastened to the poles of a MAGNET, should improve its force to such a degree, as to render it 150 times stronger than when naked. Mr. Butterfield told Dr. Lister, that some load-stones would gain much more, and others much less, by *arming*, than one would expect; and he has observed, that there are some magnets, which seem to act more powerfully *unarmed* than *armed*. Whether the magnetic force of some passes more easily through iron than that of others; or whether the effect depends on the different quality of iron, experiments have not yet ascertained.—A strong load-stone ought to have thick irons, and a weak one but thin ones: so that a stone may be easily overthod.

The usual armour of a LOAD-stone, in form of a right-angled parallelepipedon, consists of two thin pieces of steel or iron, of a square figure, and a thickness proportionable to the goodness of the stone: if a weak stone have a strong armour, it will produce no effect; and if the armour of a strong load-stone be too thin, its effect will not be so considerable as when thicker.—The proper thickness is found by filing it thinner and thinner, till its effect is found at the greatest possible strength.

The armour of a spherical LOAD-stone, consists of two steel shells fastened to one another by a joint, and covering a good part of the convexity of the stone. This also is to be filed away till the effect is found the greatest.

Kircher, in his book *de Magnete*, tells us, that the best way to *arm* a loadstone, is, to drill a hole through the stone from pole to pole, and in that, to place a steel rod of a moderate length; which rod, adds he, will take up more weight at the end, than the stone itself, *armed* the common way, can do.

Gassendus and Cabæus prescribe the same method of *arming* a load-stone; but Muschenbroek has found, by repeated trials, that the usual armour already mentioned is preferable to that obtained in his way, and he gives the following directions for preparing it. When the poles of the magnet have been discovered, by means of steel filings and a small needle, he directs that those parts where the poles lie should be rubbed or ground into parallel planes, without shortening the polar axis; and the magnets may be afterwards shaped into the figures of cubes or parallelepipeds, or any other that may be found most convenient. Plates of the softest iron should then be prepared, of the same length and breadth with the whole polar sides of the proposed magnet. The thickness of these plates, so as that they may admit and convey the greatest quantity of the magnetic virtue, is to be previously determined by experiment, in a manner which he prescribes for the purpose: a thicker piece of iron is to be annexed at right angles to these plates which is called *pes armoræ*, the foot or base of the armour: the plates, accurately smoothed and polished, are to be applied and firmly tied to each of the polar sides, whilst the thicker part or base is made closely to touch the lower part of the magnet. In this way, he says, almost all the magnetic virtue issuing from the poles enters into the armour, is directed to the base, and

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and condensed by means of its roundness, so as to sustain the greatest weight of iron. Phys. Exper. and Geom. Dissert. 1729. p. 131. See MAGNET, *armed*.

ARMA dare, to give arms, in some ancient charters, signifies to dub, or make a knight.

ARMA deponere, to lay down arms, was a punishment anciently enjoined when a man had committed an offence. Leg. Hen. I.

ARMA mutare, q. d. to change arms, was a ceremony used to confirm a league or friendship.

ARMA moluta, were sharp weapons: Fleta calls them *arma emolita*.

ARMA revertere, inverted arms, was a punishment when a man was convicted of treason or felony.

ARMADA, a Spanish term signifying a fleet of men of war. The armada which attempted to invade England in the time of queen Elizabeth, is famous in history; it was partly scattered by the wind, and partly subdued by the English fleet. On which occasion a medal was struck with this motto, *Affavit Deus, et dissipantur*.

ARMADILLA, in the Spanish America, denotes a squadron of men of war, to the number of six or eight, from twenty-four to fifty pieces of cannon, which the king maintains, to prevent foreigners from trading with the Spaniards and the Indians, both in time of war and peace.

The vessels of this *armadilla* are those that have been so much talked of, under the name of *guarda costas*.

They have even power to take all Spanish merchant-ships they meet with on the coasts, that have not licences from the king.

The South sea has its *armadilla* as well as the North sea. The ordinary abode of the former are at Calao, a port of Lima; that of the latter, at Carthage.

ARMADILLO, in Zoology, the name of an animal somewhat approaching to the hedge-hog kind, and called by the Latin authors the *ECHINUS Brasiliensis*. It is also called *tatou*; and by Linnæus, *dasyus cingulis novem, palmis tetradaetylis, plantis pentadaetylis*. See TATU.

We have several species of this creature described to us; but the most usual is of the figure and size of a large pig, and has a bony covering, which extends over the whole body, the head and the tail. This is composed of a number of very elegant scales, which have two junctures near the hinder part of the head, by means of which the creature is able to move its neck. On the back there are seven divisions, with a thick membrane between; and in all other parts of the body the shell is whole. The legs, so far as they come in sight, are in the same manner fended by a bony covering. The feet are made like hands; each have five toes, and the nails are round. Its colour is a sort of reddish tawney. It digs up the ground with its nose, in the manner of a hog, but much more nimbly; the tail is thick at the insertion and tapers to the extremity. The creature feeds on roots and fruits, as potatoes, melons, and the like, but will eat meat also if it comes in its way. It is usually found in dry places. Ray.

This creature gathers himself up, when he pleases; head, feet, and tail, within his shell, and becomes as round as a ball; and this he does, not only when pursued, but every time he sleeps. He is so good at digging, that, unless tied up, he will make his way out under the walls of a house. He is extremely valued among the Brazilians, for the whiteness and delicacy of his flesh, and furnishes a principal dish at their best feasts. The plates of his shell, powdered and given in a dose of a dram, are esteemed a sudorific; and as a remedy for the *lues venerea*. See *Tab. of Quadrupeds*, N° 21.

See a description and drawing of one of these animals, in *Phil. Trans.* vol. liv. N° 97.

ARMAMAXI, in Antiquity, a kind of Scythian chariots, or carriages, composed of two wheels, variously adorned with crowns, shields, breast-plates, and other spoils, carried in procession after the images of the gods and great men. The word is composed of the Latin *arma*, and the Greek *μαξα*, *plaustrum*, carriage.

These were sometimes called *amaxi*, or *amaxæ*. Pitisc. Lex. Ant.

ARMAMENT, a large body of forces, raised and provided with the furniture of war, either for land or sea service.

ARMAN, among Farriers, a confection of great efficacy to prevent a total loss of appetite in horses.

ARMARIUM unguentum, among Hermetical Philosophers, a SYMPATHETIC ointment, or weapon-salve, whereby wounds are said to have been cured at a distance, by only dressing the weapon.

ARMATIUM, in Ancient Physic, a deterfive kind of collyrium, of great value in removing asperities of the eye lids. Its chief ingredients were *as usum*, gum ammoniac, and the roots of the tree *thus*. The preparation is described by Galen, Aetius, Paulus, and Scribonius.

ARMATURE, ARMATURA, in a general sense, is the same with what we otherwise call armour.

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ARMATURA is more particularly used in the *Ancient Military Art*, for a kind of exercise, performed with missile weapons, as darts, spears, arrows, and the like.

In this sense, *armatura* stands contradistinguished from *paralia*; the latter being the exercise of the heavy-armed, the former of the light-armed.

The *armatura* was practised with great diligence among the Romans; they had their *campidoctores*, on purpose to instruct the *tyrones*, or young soldiers, in it. Under it were included the throwing of the spear or javelin, shooting with bows and arrows, &c.

ARMATURA is also an appellation given to the soldiers who were light-armed.

Aquinas seems, without reason, to restrain *armatura* to the *tyrones*, or young soldiers, under discipline or tutorage in the exercise above mentioned.

ARMATURA is also a denomination given to the soldiers in the emperor's retinue. Du-Cange.

Of these we find two schools, mentioned in the *notitia imperii*, called the *armaturæ seniores*, and *armaturæ juniores*.

Their commander was entitled *TRIBUNUS armaturarum*.

ARMED, in Sea-Language. See ARM.

ARMED, in Heraldry, is used in respect of beasts and birds of prey, when their teeth, horns, feet, beak, talons, or tusks, are of a different colour from the rest.—He bears a cock, or a falcon, *armed*, or, &c.

ARMENA, in Botany, a name given by Pliny to a kind of wild asparagus; but the ancient Greeks have used the same word to express the young shoots of the common asparagus, at the time when they are eaten; and not only these, but the young sprouts of the cabbage, and of all other esculent plants.

ARMENIACA, in Botany. See APRICOT.

ARMENIAN bole. See BOLE.

ARMENIAN stone, lapis ARMENUS, a mineral cupreous stone, or earth of a blue colour, sometimes spotted with green, black, and yellow. It is a very scarce fossil, anciently brought only from Armenia, but is now found very pure, though in small quantities, in the mines at Gosselaer in Saxony.

The *Armenian stone*, in its harder state, bears a near resemblance to *lapis lazuli*, from which it seems only to differ in degree of maturity; they are distinguished by this, that the *lapis armenus* is softer, and instead of sparks of gold, is often speckled with green.

Boerhaave ranks it among semi-metals; and supposes it composed of a metal and earth. Woodward says, it owes its colour to an admixture of copper.

Mr. Kirwan says, that it consists of calcareous earth or gypsum, penetrated with the blue calx of copper: hence it sometimes effervesces with acids, sometimes not; but never gives fire with steel; it loses its colour when heated. Elem. of Mineral. p. 262.

Its chief use is in Mosaic work, though it has some place also in physic. It is a very valuable substance in painting, being a bright and florid blue. It was in so high esteem as a paint, among the ancients, that counterfeiters were continually attempted to serve in its place.

Both this and the *lapis lazuli* are ORES of copper.

ARMENIANS, in respect of religion, a division among the eastern Christians; thus called from *Armenia*, the country anciently inhabited by them.

Some have supposed, that Christianity was established in *Armenia* by the apostle St. Bartholomew; but this is certain, that in the beginning of the fourth century the *Armenian Christians* were in a flourishing state.

The *Armenian church*, in the sixteenth century, was governed by three patriarchs, the chief of whom resided in a monastery at Echmiazin. There were other bishops among them, who assumed the title of patriarchs, without prerogatives annexed to it; though, by authority derived from the chief patriarch, they were allowed to consecrate bishops, and every third year to make and distribute the holy chrism, or ointment, which is the privilege of the patriarchs alone.

The *Armenians*, since the conquest of their country by Scha Abbas king of Persia, have had no fixed place of habitation, but are dispersed in divers parts of Persia, Turkey, and Tartary, and even some parts of Europe, particularly Poland.—Their chief employment is merchandize, in which they excel.—The cardinal de Richlieu, we are told, had a design to make an establishment of them in France, for promoting the commerce of that country. And the chancellor Seguier granted them a printing-house at Marseilles.

With regard to religion, there are two kinds of *Armenians*; the one catholics, and subject to the pope, having a patriarch in Persia, and another in Poland. The other make a particular sect, having two patriarchs in Natolia. The *Armenians* are generally accused of being Monophysites, and only allowing of one nature in Jesus Christ. As to the eucharist, they agree with the Greeks, except in this, that they mix no water with their wine, and use unleavened bread after the manner of the Latins.

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They abstain very rigorously from eating of blood, and meats strangled, and are much addicted to fasting; in so much that from their discourse, one would conclude that almost their whole religion consisted in fasting.

The monastic order is in great repute among them, since one of their patriarchs introduced that of St. Basil; but part of them, which have united with the church of Rome, have changed their ancient rule, for that of the Dominicans.

ARMENIAN Bibles, see BIBLES.

ARMERIUS, see DIANTHUS.

ARMIGER, *armour-bearer*, in *Modern Writers*, denotes a title of dignity, rendered in English by *Esquire*.

ARMILAUSA, in *Antiquity*, a short military coat, reaching down only to the knee. Aquin. and Pitisc. Lex. Ant.

It was thus called, as being divided both before and behind, and only close about the shoulders, in *armos tantum clausa*, quasi *armiclausu*. Ibid. Orig. l. xix. c. 22.

The word is sometimes also written, *armelausa*, *armelausia*, *armicasia*, and *armicasia*.

ARMILAUSA is also applied, in *Ecclesiastical Writers*, to the scapular of monks and canons; thus called on account of its hanging from the arms, or shoulders. Schmid Lex. Eccles. p. 73.

The same habit is vulgarly called *patience*.

ARMILLA *membranosa* is a name given by some anatomists to the annular ligament.

ARMILLARY, ARMILLARIS, in *Astronomy*, an epithet given to an artificial sphere, composed of a number of metalline circles, representative of the several circles of the mundane sphere put together in their natural order.

The word is formed of the Latin *armilla*, a bracelet.

Armillary spheres ease and assist the imagination to conceive the constitutions of the heavens, and the motions of the heavenly bodies.

Such is that represented (*Tab. Astron. fig. 21.*)—Where P and Q represent the poles of the world, AD the equator, EL the ecliptic and zodiac, P A G D the meridian, or the solstitial colure, T the earth, FG the tropic of cancer, HT the tropic of capricorn, MN the arctic circle, OV the antarctic, N and O the poles of the ecliptic, and RS the horizon.

The *armillary* sphere not long since constructed by Dr. Long, in Pembroke-hall, Cambridge, is eighteen feet in diameter; and more than thirty persons may conveniently sit in it. The lower part of the sphere invisible in England is cut off; the whole apparatus is so contrived, that it may be turned round with as little labour as it takes to wind up a jack.

ARMILLARY *trigonomet*, an instrument first contrived by Mr. Mungo Murray, and improved by Mr. Ferguson, consisting of five semicircles; viz. meridian, vertical circle, horizon, hour circle, and equator; so adapted to each other by joints and hinges, and so graduated and divided, as to serve for expeditiously resolving many problems in astronomy, dialling, and spherical trigonometry. For the drawing, description, and method of using it, see Ferguson's *Traacts*, p. 80, &c.

ARMILLATI *milit*, those who wore bracelets on their left arms bestowed on them by their generals, or emperors. Though the term is more frequently applied to soft and effeminate soldiers, who wore bracelets on their arms, not as the rewards of their prowess, but marks of their foppery. Aquin. Lex.

ARMILUSTRIUM, in *Antiquity*, a feast held among the Romans; wherein they sacrificed, armed at all points, and with the sound of trumpets.

Some defined *armilustrum* to have been a feast, wherein a general review was made of all the forces in the Campus Martius.—But this does not come up to the point; for Varro does not derive the word from the Latin *arma* and *lustrare*, to make a review; but from the custom of holding this feast in the place where the reviews were used to be made, or rather from their going round the place armed with bucklers.

The sacrifice was intended for the prosperity of the arms of the people of Rome; and was celebrated on the fourteenth of the calends of November.

ARMINGS, in a ship, are the same with *wast-cloths*, being red cloths, hung about the outides of the ship's upperworks, fore and aft: and before the cubbridge-heads.

There are some also hung round the tops, and called *top-armings*. See TOP.

ARMINIANISM, the doctrine of Arminius and of his followers. See ARMINIANS.

ARMINIANS, the followers of Arminius, a celebrated minister of Amsterdam, and afterwards professor of theology in the university of Leyden. Arminius, though educated at Geneva, and having imbibed the doctrines concerning predestination and grace, maintain-

ed by Calvin, Beza, Zanchius, &c. began to express his doubts concerning them in the year 1591; and upon farther enquiry, adopted sentiments more nearly resembling those of the Lutherans than of the Calvinists. After his appointment to the theological chair, at Leyden, he thought it his duty to avow and vindicate the principles which he had embraced; and the freedom with which he published and defended them, exposed him to the resentment of those who adhere to the theological system of Geneva, which then prevailed in Holland; but his principal opponent was Gomar, his colleague. The controversy which was thus begun, became more general after the death of Arminius, in the year 1609, and threatened to involve the United Provinces in civil discord. The *Arminian* tenets gained ground under the mild and favourable treatment of the magistrates of Holland, and were adopted by several persons of merit and distinction. The *Calvinists*, or *Gomarists*, as they were now called, appealed to a national synod; accordingly the synod of Dort was convened by order of the States General, in 1618, and was composed of ecclesiastical deputies from the United Provinces, as well as from the reformed churches of England, Hesse, Bremen, Switzerland, and the Palatinate. The principal advocate in favour of the *Arminians* was Episcopius who at that time was professor of divinity at Leyden. It was first proposed to discuss the principal subjects in dispute, and that the *Arminians* should be allowed to state and vindicate the grounds on which their opinions were founded: but some difference arising as to the proper mode of conducting the debate, the *Arminians* were excluded from the assembly; their case was tried in their absence; and they were pronounced guilty of pestilential errors, and condemned as corrupters of the true religion. In consequence of this decision, they were treated with great severity; they were deprived of all their posts and employments; their ministers were silenced and their congregations were suppressed. However, after the death of prince Maurice, who had been a violent partizan in favour of the *Gomarists*, in the year 1625, the *Arminian* exiles were restored to their former reputation and tranquillity; and under the toleration of the state, they erected churches and founded a college at Amsterdam, appointing Episcopius to be the first theological professor. The *Arminian* system has very much prevailed in England since the time of archbishop Laud, and its votaries in other countries are very numerous.

The distinguishing tenets of the *Arminians* may be comprized in the following five articles; relating to predestination, universal redemption, the corruption of man, conversion, and perseverance. With respect to the first they maintained, "That God, from all eternity, determined to bestow salvation on those, who he foresaw would persevere unto the end in their faith in Christ Jesus; and to inflict everlasting punishments on those who should continue in their unbelief, and resist, unto the end, his divine succours; so that election was conditional, and reprobation in like manner the result of foreseen infidelity, and persevering wickedness."

On the second, the *Arminians* taught, "That Jesus Christ, by his sufferings and death, made an atonement for the sins of all mankind in general, and of every individual in particular; that, however, none but those who believe in him, can be partakers of their divine benefit."

On the third article, they held, "That true faith cannot proceed from the exercise of their natural faculties and powers, nor from the force and operation of free will, since man, in consequence of his natural corruption, is incapable either of thinking or doing any good thing; and that therefore it is necessary, in order to his conversion and salvation, that he be regenerated and renewed by the operation of the Holy Ghost, which is the gift of God through Jesus Christ."

Fourthly, "That this divine grace, or energy of the Holy Ghost, begins and perfects every thing that can be called good in man, and consequently all good works are to be attributed to God alone; that nevertheless, this grace is offered to all, and does not force men to act against their inclination, but may be resisted, and rendered ineffectual, by the perverse will of the impenitent sinner".—Some modern *Arminians* interpret this and the last article with a greater latitude.

Fifthly, "That God gives to the truly faithful, who are regenerated by his grace, the means of preserving themselves in this state;" and though the first *Arminians* made some doubt with respect to the closing part of this article, their followers uniformly maintain, "that the regenerate may lose true justifying faith, forfeit their state of grace, and die in their sins."

The modern system of *Arminianism* likewise, founded on a comprehensive plan projected by Arminius himself, as appears from a passage in his last will, extends the limits of the Christian church, and relaxes the bonds of fraternal communion in such a manner, that Christians of all sects and denominations, whatever their sentiments and opinions may be, papists excepted, may be formed into one religious body, and live together in brotherly love and concord. But, in order to avoid the reproach of being altogether unconnected by any common principles, Episcopius drew up a confession of faith, expressed for the most part in words and phrases of Holy Scripture, which the *Arminians* have generally adopted, though not enjoined upon them by any authoritative obligation.

The *Arminians* are also called *Remonstrants*, from an humble petition intitled their *Remonstrance*, which, in the year 1610, they addressed to the States of Holland. Their principal writers are, Arminius, Episcopius, Vorstius, Grotius, Curcellæus, Limborch, Le Clerc, and Wetstein; not to mention many others, of more modern date. Brandt's Hist. of the Reformation in the Netherlands; and Mosheim's Eccles. Hist. by Dr. Maclean, vol. v.

ARMISTICE, **ARMISTITIUM**, from *arma stare*, or *sistere*, a short truce, or a cessation of arms for a small time.

ARMOISIN, in *Commerce*, a silk stuff, or kind of taffety, of an indifferent goodness; made at Lyons, and at several places in Italy. There are half *armoisins*, made at Avignon, which are of inferior quality, and less price than the others. Some pretend that the word *armoisin* comes from the Italian *armesino*; or that those silks were thus called, because there were coats of arms delineated on the cloths in which they were wrapped.

There is also a taffety of this name manufactured in the East Indies; but of an inferior quality to those made in Europe.

ARMONIAIC See *Sal AMMONIAC*.

ARMONICA, from *armonia*, harmony, is a name which Dr. Franklin has given to a musical instrument constructed with drinking-glasses. It is well known, that a drinking-glass yields a sweet tone, by passing a wet finger round its brim. Mr. Puckeridge, of Ireland, was the first who thought of playing tunes formed of these tones. He collected a number of glasses of different sizes, fixed them near each other on a table, and tuned them by putting into them water, more or less, as each note required. Mr. Delaval, F. R. S. made an instrument in imitation of that which was contrived by Mr. Puckeridge; and from this instrument Dr. Franklin took the hint of constructing his *armonica*.

The glasses for this musical instrument, are blown as near as possible in the form of hemispheres, having each an open neck or socket in the middle. The thickness of the glass near the brim is about one tenth of an inch, increasing towards the neck, which in the largest glasses is about an inch deep, and an inch and a half wide within; but these dimensions lessen, as the size of the glasses diminishes, only observing that the neck of the smallest should not be shorter than half an inch. The diameter of the largest glass is nine inches, and that of the smallest three inches: between these there are twenty-three different sizes, differing from each other a quarter of an inch in diameter. For making a single instrument, there should be at least six glasses blown of each size, and out of these, thirty-seven glasses (which are sufficient for three octaves with all the semitones) may be found, that will either yield the note required, or one a little sharper, and fitting so well into each other, as to taper regularly from the largest to the smallest. The glasses being chosen, and the note for which each glass is intended being marked upon it with a diamond, they are to be tuned by diminishing the thickness of those that are too sharp, which is done by grinding them round from the neck towards the brim, comparing, by means of a well-tuned harpsichord, the tone drawn from the glass by your finger, with the note you want, as sounded by the corresponding string of the harpsichord. The largest glass in the instrument is G, a little below the reach of a common voice, and the highest G, including three complete octaves: and they are distinguished by painting the apparent parts of the glasses within side, every semitone white, and the other notes of the octave with the seven prismatic colours; so that glasses of the same colour (the white excepted) are always octaves to each other.

When the glasses are tuned, they are to be fixed on a round spindle of hard iron, an inch in diameter at the thickest end, and tapering to a quarter of an inch at the smallest. For this purpose, the neck of each glass is fitted with a cork, projecting a little without the neck; these corks are perforated with holes of different diameters, according to the dimension of the spindle in that part of it where they are to be fixed. The glasses are all placed within one another; the largest on the biggest end of the spindle, with the neck outwards; the next in

size is put into the other, leaving about an inch of its brim above the brim of the first; and the others are put on in the same order. From these exposed parts of each glass, the tone is drawn, by laying a finger upon one of them, as the spindle and glasses turn round. The spindle thus prepared, is fixed horizontally in the middle of a box, and made to turn on brass gudgeons at each end. A square shank comes from its thickest end through the a box, on which shank a wheel is fixed by a screw: this will serve, like a fly, to make the motion equable, when the spindle is turned by the foot like a spinning-wheel. The wheel is eighteen inches in diameter, and conceals near its circumference about twenty-five pounds of lead, and may be made of mahogany. An ivory pin is fixed in the face of the wheel, about four inches from the axis; over which is put the loop of the string, that comes up from the moveable step to give it motion. The box is about three feet long, eleven inches wide at the biggest end, and five inches at the smallest end: it is made with a lid, which opens at the middle of its height, and turns up by back-hinges. The instrument, thus completed, stands on a neat frame with four legs. This instrument is played upon by sitting before it, as before the keys of a harpsichord, turning the spindle with the foot, and wetting the glasses now and then with a sponge and clean water. The fingers should be first soaked in water; and rubbed occasionally with fine chalk, to make them catch the glass, and bring out the tone more readily. Different parts may be played together, by using both hands; and the tones are best drawn out when the glasses turn from the ends of the fingers, not when they turn to them.

The advantages of this instrument, says Dr. Franklin, are, that its tones are incomparably sweet beyond those of any other; that they may be swelled and softened at pleasure by stronger or weaker pressures of the finger; and continued to any length: and when it is once well tuned, it never again wants tuning. Franklin's Letters, &c. on Philosophical Subjects, p. 428. See *Musical GLASSES*.

ARMOR, or **ARMOUR**, a defensive habit, wherewith to cover and secure the body from the attack of an enemy. In ancient statutes this is frequently called **HARNES**.

Parts of *armor* are, the buckler, cuirass, helmet, coat of mail, gantlet, &c.

A complete *armor* anciently consisted of a casque or helm, a gorget, cuirass, gantlets, tasses, brassets, cuisses, and covers for the legs, to which the spurs were fastened.—This they called *armor cap-a-pie*; and was the wear of the cavaliers, and men at arms.

The infantry had only part of it; viz. a pot or head-piece, a cuirass, and tasses; but all light.—Lastly, the horses themselves had their *armor*, wherewith to cover the head and neck.

Of all this furniture of war, scarce any thing is now retained, except the cuirass; the gorget or neck-piece, worn by officers, being at present only a badge of honour, and of no defence.

The gallantry of going to the battle naked, without any defensive *armor*, prevailed so far, that the French, during the reign of Louis XIV. were obliged to be continually issuing ordonnances to restrain it; in consequence of which, the general officers, and those of the cavalry, were obliged to resume the cuirass, which yet has been but ill observed.

ARMOR, *Coat*, is the escutcheon of any person, or family, with its several charges, and other furniture; as mantling, crest, supporters, motto, &c.

Thus we say, a gentleman of *coat-armor*; meaning one who bears arms.

ARMORACIA, in *Botany*, a name given by the ancients to a kind of RADISH. Pliny mentions it, but his account is very unsatisfactory.

ARMORIAL, something that relates to arms, or heraldry. In this sense we say an *armorial* figure, *armorial* bearing, *armorial* ensign, the *armorial* lily of France, *armorial* lion or leopard of England, &c.

ARMORIAL is also a title given to several books, which contain the arms of a number of persons of quality.

In this sense, we meet with the French *armorial*, the Spanish *armorial*, &c.

ARMORIC, or **AREMORIC**, something that belongs to the province of Bretagne, or Britany, in France.

The name *Armorica* was anciently given to all the northern and western coast of Gaul, from the Pyreneans to the Rhine; under which name it was even known in Cæsar's time. Cæf. de Bell. Gall. lib. vii. cap. 14.

ARMORIC, absolutely used, denotes the language in use among the inhabitants of Britany.

The French usually call this language *Bas-breton*; compounded, says M. Menage, of *ar*, upon, and *mor*, sea.

The *Armoric* is a dialect of the Welch, and sister of the Cornish language.

The inhabitants of Britany, of Cornwall, and of Wales, formerly understood each other's speech; though considerable diversities have crept in between these languages, since their separation from each other.

The inhabitants of Britany, Mr. Llyud observes, by their intercourse with the French, have much altered their ancient orthography; besides that there are several words in the *Armoric* which have no affinity with the Welch: and that both the *Armoric* and Cornish retain several ancient words and phrases which are lost in the Welch. Julian Manoir, a Jesuit, has published an *Armoric* grammar and vocabulary, in French, which has been translated into English by Mr. Williams, and published with notes by Mr. Llyud. In *Archæol.* tit. 3. & 4. p. 180, &c. Before him, Yvon Quillivere had published an *Armoric* vocabulary at Paris, 1521.

Toland has given a catalogue of several *Armoric* words, which prove to be Irish; also a vocabulary *Armoric* and Irish.

ARMOURER, a maker of arms, or armour.

The Roman *armourers* were disposed in certain places in the empire, it being forbid either to sell, to buy, or make arms elsewhere. They were exempt from all offices, and taxes, and received a salary from the public.

When once they had taken the employment on themselves, neither they, nor their children, were allowed to quit it. To prevent this, they had a kind of note, or stigma, impressed on the arm, whereby they might be known. If any of them fled, or secreted their ware, the rest were obliged to answer for him; on account of which, the effects of such as died without a legal heir went to the college.

There were fifteen *armamentaries*, or repositories of arms in the Eastern empire, placed near the frontiers, and nineteen in the Western. *Pitisc. Lex. Ant.*

ARMOURER of a ship, a person whose office is to take care that the arms be in a condition fit for service.

ARMORY, or **ARMOURY**, a store-house of arms or a place where military habiliments are kept, to be ready for use. There are *armories* in the Tower, and in all arsenals, citadels, castles, &c.

ARMORY, is also used for a branch of **HERALDRY**: being the knowledge of coat-armors, as to their blazons, and various intendments.

ARM pit. See **AXILLA**.

ARMS, **ARMA**, in a general sense, includes all kinds of weapons, whether for defence, or offence.

Nicod derives the word from the Latin phrase, *quod operiant armos*, because they cover the shoulders or sides; but Varro derives *arma*, *ab arcendo*, *eo quod arceant hostes*. It is supposed, that the first artificial arms were of wood, and were only employed against beasts; and that Belus, the son of Nimrod, was the first that waged war; whence, according to some, came the appellation *bel-lum*.—Diodorus Siculus takes Belus to be the same with Mars, who first trained soldiers up to battle.

Arms of stone, and even of brass, appear to have been used before they came to iron and steel—Josephus assures us, that the patriarch Joseph first taught the use of iron arms in Egypt, arming the troops of Pharaoh with a casque and buckler.

What contributed most to render the Romans masters of the world, was, that having successively warred against all nations, they constantly renounced their own methods, *arms*, &c. whenever they met with better.—Thus Romulus, during his war with the Sabines, a bold and warlike nation, adopted their broad buckler, in lieu of the small Argian buckler, which he had used till that time. Montefq. *Confid. sur les Causes de la Grand. des Rom.* chap. i. p. 2, seq.

The principal arms of the ancient Britons were hatches, scythes, lances, swords, and bucklers: the Saxons, &c. brought in the halberd, bow, arrows, arbalets, &c.

By the ancient laws of England, every man was obliged to bear arms, except the judges and clergy. Under Henry VIII. it was expressly enjoined on all persons to be regularly instructed, even from their tender years, in the exercise of the arms then in use; viz. the long bow and arrows; and to be provided with a certain number of them. 33 H. 8.

ARMS, **ARMA**, in Law, are extended to any thing which a man takes in his hand in his wrath, to cast at, or strike another.—So Crompton.—*Armorum appellatio non ubique scuta, & gladios, & galeas significat, sed & fustes & lapides.* See VI & *armis*.

By the common law, it is an offence for persons to go or ride armed with dangerous weapons: but gentlemen may wear common armour, according to their quality, &c. 3d Inst. The king may prohibit the force of arms, and punish offenders according to law; and herein every subject is bound to be aiding. Stat. 7 Edw. I. None shall come with force and arms before the king's justices, nor ride armed in affray of the peace, on pain to forfeit their armour, and to suffer imprisonment, &c. 2 Ed. III. c. 3.

The importation of arms and ammunition is prohibited, by 1 Jac. II. c. 8. and by 1 W. and M. stat. 2. c. 2. Protestant subjects may have arms, for their defence. So likewise, arms, &c. shipped after prohibition, are forfeited, by 29 Geo. I. c. 16. sec. 2.

Arms of offence in use among us at present, are, the sword, pistol, musquet, bayonet, pike, &c.

The arms of the Highlanders are, the broad sword, target, poniard, and whinyar or dirk, &c.

There are several acts of parliament for disarming the Highlanders; see 1 Geo. I. c. 54. 11 Geo. I. c. 26. 19 Geo. II. c. 39. 21 Geo. II. c. 34. 26 Geo. II. c. 22. and 29.

ARMS of defence. See **ARMOR**.

Fire-ARMS are those charged with powder and ball: such are cannon, mortars, and other ordnance; musquets, carbines, pistols, and even bombs, granadoes, carcasses, &c. For the rebound or resiliency of *fire-arms*, see **REBOUND**. In the History of the Royal Academy for the year 1707, we have an account of some experiments made with *fire-arms* differently loaded, by M. Cassini. Among other things he observes, that by loading the piece with a ball which is somewhat less than the calibre; and only laying a little gunpowder below the ball, and a good deal above it, it will yield a vehement noise, but have no sensible effect or impulse on the ball.

This he takes to have been all the secret of those people who pretended to sell the art of rendering one's self invulnerable, or shot-proof.

ARMS, Pass of, was a kind of combat in use among the ancient cavaliers. See **PASS**.

ARMS, stand of.—A *stand of arms* signifies a musquet, a bayonet, a sword, belt, and cartridge-box.

ARMS of parade, or *courtesy*, were those used in the ancient joust, and tournament; which were commonly unshod lances, swords without edge or point, wooden swords, and even canes.

ARMS denote the natural weapons, or parts of defence, of beasts: as claws, teeth, tusks of elephants, beaks of birds, &c.

ARMS are also used figurately for the profession of a soldier.—Thus we say, he was bred to arms.—See **FRA-TERNITY**, **LAW**, **PLACE**, **SUSPENSION of arms**.

ARMS, or **ARMORIES**, are also used, in *Heraldry*, for marks of dignity, and honour, regularly composed of certain figures and colours, given or authorized by sovereigns, and borne in banners, shields, coats, &c. for the distinctions of persons, families, and states; and passing by descent to posterity.

They are called *arms*, in regard they are borne principally on the buckler, cuirass, banners, and other apparatus of war.—They are also called *COATS of arms*, *COAT-armour*, &c. because anciently embroidered on fur-coats, &c.

Some will have the name to have been first occasioned by the ancient knights, who in their jousts and tournaments bore certain marks (which were frequently their mistress's favours) in their armour, i. e. their helms or shield, to distinguish them from each other.

There has been a great dispute, among the learned, about the origin of *arms*.—Favyn will have them to have been from the beginning of the world; Segoin, from the time of Noah; others from that of Osiris, which is supported by some passages in Diodorus Siculus. Some again, from the example of the Patriarch Jacob, who, when he blessed his sons, gave them marks of distinction, which the twelve tribes bore on their ensigns; others, from the times of the Hebrews, because arms were given to Moses, Joshua, the twelve tribes, David, &c.

Others will have them to have taken their rise in the heroic age, and under the empires of the Assyrians, Medes, and Persians; building upon the accounts of Philostratus, Xenophon, and Quintus Curtius.

Some pretend that the use of arms, and the rules of **BLAZON**, were regulated by Alexander.—Others will have them to have had their original under the empire of Augustus; others, during the inundations of the Goths; and others, under the empire of Charlemagne.

Chorier observes, that, among the ancient Gauls, each man bore a mark on his buckler, by the sight whereof he might be known to his fellows; and hence he refers the original of the arms of noble families. Camden has observed something like this of the ancient Picots, and Britons, who, going naked to the wars, painted their bodies with **BLAZONS**, and figures of divers colours, which he supposed to have been different in different families, as they fought divided by kindreds. Yet Spelman says, that the Saxons, Danes, and Normans, first brought arms from the North into England; and thence into France.

Upon the whole, it is certain, that, from time immemorial, there have been symbolical marks in use among men, to distinguish them in armies, and to serve as ornaments for shields and ensigns; but these marks were used arbitrarily as devices, emblems, hieroglyphics, &c.

and were not regular *armories*, like ours, which are hereditary marks of the nobility of a house, regulated according to the rules of HERALDRY, and authorized by princes.

Before Marius, even the eagle was not the constant ensign of the Roman armory; but they bore in their standards a *wolf*, *leopard*, or *eagle*, indifferently, according to the fancy of the generals.

The same diversity has been observed with regard to the French and English; on which account, authors are divided when they speak of the ancient *arms* of those countries.—In effect, it appears, from all the best authors, that the armories of houses, as well as the double names of families, were not known before the year 1000. And several have endeavoured to prove, that the use of *arms* did not begin till the time of the first croisades of the Christians in the East.

The truth is, it appears to have been the ancient tournaments that occasioned the fixing of armories.

Henry the Fowler, who regulated the tournaments in Germany was the first who introduced these marks of honour, which appear to be of an older standing in Germany than any other part of Europe.—It was then that COATS of *arms* were first instituted; which were a kind of livery composed of several bars, fillets, and colours; whence came the *fess*, *bend*, *pale*, *chevron*, and *lozenge*; which were some of the first elements of ARMORIES. See BEND, CROSS, FESS, &c.—Those who had never been concerned in any tournament, had no *arms*, though they were gentlemen.

Such of the nobility and gentry as crossed the sea, in the expeditions to the Holy Land, also assumed these tokens of honour to distinguish themselves.

Before these times, we find nothing upon ancient tombs but crosses, with Gothic inscriptions, and representations of the persons deceased. The tomb of pope Clement IV. who died in 1268, is the first whereon we find any *arms*; nor do they appear on any coins struck before the year 1336. We meet with figures, it is true, much more ancient, both in standards, and on medals; but neither cities nor princes ever had *arms* in form: nor does any author make mention of *blazoning* before that time.

Originally, none but the nobility had a right of bearing *arms*; but king Charles V. having ennobled the Parisians, by his charter in 1371, he permitted them to bear *arms*: from whose example the more eminent citizens of other places did the like.

Camden refers the original of hereditary *arms* in England, to the time of the first Norman kings. He says, their use was not established till the reign of king Henry III. and instances in several of the most considerable families in England, wherein, till that time, the son always bore different *arms* from the father.—About the same time it became the custom here in England, for private gentlemen to bear *arms*; borrowing them from the lords of whom they held in fee, or to whom they were the most devoted. See BEARINGS.

ARMS, at present, follow the nature of titles, which being made hereditary, these are also become so, being the several marks for distinguishing of families and kindreds, as names are of persons and individuals.

Arms make the object of the art of HERALDRY.

ARMS are variously distinguished by the *Heralds*.

ARMS of *alliance*, are those which families, or private persons, join to their own, to denote the *alliances* which they have contracted by marriage.

ARMS *assumptive*, are such as a man has a right to assume of himself, in virtue of some gallant action.

As, if a man who is no gentleman of blood, nor has coat armour, takes a gentleman, lord, or prince, prisoner in any lawful war, he becomes entitled to bear the shield of such prisoner, and enjoy it to him and his heirs.—The foundation hereof is that principle in *Military law*, that the dominion of things taken in lawful war, passes to the conqueror.

ARMS, *canting*, are those wherein the figures bear an allusion to the name of the family.—Such are those of the family of La Tour in Auvergne, who bear a tower; that of the family of Prado in Spain, whose field is a meadow.

Most authors hold these the most noble and regular, as is shewn by an infinity of instances produced by father Varenne and Menetrier.—They are much debased, when they come to partake of the REBUS.

ARMS, *charged*, are such as retain their ancient integrity and value, with the addition of some new honourable CHARGE or BEARING, in consideration of some noble action.

ARMS of *community*, are those of bishopricks, cities, universities, and other bodies corporate.

ARMS of *concession*, or augmentation of honour, are either

entire arms, or else one or more figures given by princes as a reward for some extraordinary service.

ARMS of *Dominion*, are those which emperors, kings, and sovereign states bear; being annexed to the territories which they possess. Thus the three lions are the *arms* of England; the *fleurs de lys* those of France, &c.

ARMS of *family*, or *paternal arms*, are such as belong to a particular family, and which no other person has a right to assume.

ARMS, *full*, or *entire*, are such as retain their primitive purity, integrity, or value, without any alterations, diminutions, abatements, or the like.

It is a rule, that the simpler and less diversified the *arms*, the more noble and ancient they are.—For this reason, Garcias Ximenes, first king of Navarre, and his successors, for several ages, bore only GULES, without any figure at all.

The *arms* of princes of the blood, of all younger sons, and junior families, are not pure and full; but distinguished and diminished by proper differences &c. See DIFFERENCE, &c.

ARMS of *patronage*, are those which governors of provinces, lords of manors, &c. add to their family *arms* in token of their peculiar superiority and jurisdiction. See also PATRONAGE.

ARMS of *pretension*, are those of such kingdoms or territories to which a prince or lord has some claim, and which he adds to his own, though the kingdoms or territories be possessed by a foreign prince, or other lord. Thus the kings of England have quartered the *arms* of France with their own, ever since the claim of Edward III. to that kingdom, in 1330.

ARMS of *succession*, are assumed by those who inherit estates, manors, &c. by will, intail, or donation, and which they either impale or quarter with their own *arms*.

ARMS are also said to be *parted*, *couped*, *quartered*, &c. See PARTI, &c.

Arms are said to be *false* and *irregular*, when there is something in them contrary to the established rules of HERALDRY.—As, when metal is put on metal, or colour on colour, &c.

The laws, and other affairs of *arms*, with the cognizance of offences committed therein, belong, among us, to the earl-marshal, and college of *arms*. See COLLEGE of *arms*.

ARMS, in *Falconry*, denote the legs of a hawk, from the thigh to the foot. See HAWKING.

ARMS, *king at*. See KING at *arms*.

ARMS, *herald at*. See HERALD.

ARMS, *poursuivant at*. See POURSUIVANT.

ARMY, a large body of soldiers, consisting of horse and foot, under the command of a general, with several ranks of subordinate officers under him.

An army consists of squadrons and battalions, and is usually divided into three corps; which are ranged in three lines. The first line is called the *van-guard*; the second, the *main body*; and the third, the *rear-guard*, or *body of reserve*.—The middle of each line is possessed by foot; the cavalry forms the wings on the right and left; and sometimes they also place squadrons of horse in the intervals between the battalions.

When the *army* is ranged in order of battle, there are five feet distance between the horses, and three between the foot. But in the shock the file contracts, and its front lessens almost to one half.

In each line the battalions are distant from each other about 180 feet, a distance about equal to the extent of their front; and the same holds of the squadrons, which are about 300 feet distant, the extent of their own front. These intervals are left for the squadrons and battalions of the second line, to range themselves against the intervals of the first line; and those of the third line, against the intervals of the second; that both the one and the other may march more readily through these spaces to the enemy.

There are usually 300 feet left between the first line and the second, and 600 between the second line and the third; that there may be room to rally when the squadrons and battalions are broke. Sauv. Nouv. Ecol. Milit. p. 266.

Long experience has shewn, that in Europe, a prince, with a million of subjects cannot keep an *army* of above ten thousand men, without ruining himself. It was otherwise in the ancient republics: the proportion of soldiers to the rest of the people, which is now as about one to an hundred, might then be as about one to eight. The reason seems owing to that equal partition of lands, which the ancient founders of commonwealths made among their subjects; so that every man had a considerable property to defend, and had means to defend it with. Whereas, among us, the lands and riches of a nation being shared among a few, the rest have no way of

of subsisting, but by trades, arts, and the like: and have neither any free property to defend, nor means to enable them to go to war in defence of it, without starving their families. A large part of our people are either artificers or servants, and so only minister to the luxury and effeminacy of the great. While the equality of lands subsisted, Rome, though only a little state, being refused the succours which the Latins were obliged to furnish after the taking of the city in the consulate of Camillus, presently raised ten legions within their own walls: which was more, Livy assures us, than they were able to do in his time, though masters of the greatest part of the world. A full proof, adds the historian, that we are not grown stronger; and that what swells our city is only luxury, and the means and effects of it. Vide Liv. Dec. i. lib. vii. and Confid. sur des Causes de la Grand. des Rom. chap. iii. p. 24.

Our *armies* anciently were a sort of militia, composed chiefly of the vassals and tenants of the lords.

When each company had served the number of days or months enjoined by their tenure, or the customs of the fees they held, they returned home. See TENURE, FEE, &c.

The *armies* of the empire consist of divers bodies of troops, furnished by the several circles. See EMPIRE, and CIRCLE.

The gross of the French armies, under the Merovingian race, consisted of infantry. Under Pepin and Charlemagne, the *armies* consisted almost equally of cavalry and foot: but since the declension of the Charlovingian line, the fees being become hereditary, the national *armies*, says Le Gendre, are chiefly cavalry.

The *armies* of the Grand Signior consist chiefly of JANIZARIES, SPAHIS, and TIMARIOTS.

ARMY, *naval*, is a number of ships of war, equipped and manned with sailors and marines, under the command of an admiral, with other inferior officers under him.

ARMY of *observation*, is employed by besiegers, to prevent relief being brought into a place, or the siege being raised by the enemy.

ARMY, *royal*, is an *army* marching with heavy cannon; capable of besieging a strong, well fortified city.

For the diseases incident to *armies*, see DISEASE, CAMP, GARRISON, HOSPITAL, SOLDIER, &c.

ARNABOS, in the *Materia Medica*, a name of an aromatic drug, described by Paulus Aegineta, and other of the Greek physicians, and supposed to be the same with the *zarnab* of Avicenna, that is, with the CARPESIA of the more ancient Greek writers.

This was a drug much used as an aromatic and cordial, and allowed in many cases to be a good substitute for CINNAMON. It was the young shoots of the CUBEETREE, or something of that kind.

ARNALDIA, in *Physic*, a slow malignant kind of disease, frequent formerly in England; the most distinguishing symptom whereof was a falling of the hair.

Authors are much at a loss for the nature and kind of this disease, which appears to have been peculiar to our country. From the description given of it in an ancient chronicle, Mollerus concludes it to have been a species of the venereal disease, as that distemper appeared in those days in this country.

ARNICA, in *Botany*, a genus of the *syngenesia polygamia superflua* class. Its characters are, that it hath a compound flower; the borders or rays being composed of many female florets, which spread open; the disk or middle hath many hermaphrodite flowers, which are tubulous, and have each five short *stamina*. In the hermaphrodite flowers, the *germen* is situated below the flower, which afterwards become a single oblong seed, crowned with long slender down. There are two species; which grow on the Alps, and in the northern parts of Europe.

There is another *arnica*, which Neumann calls *schweedenfis*, that is, a species of the *aster*. P. 361.

Dr. Bruckner recommends the decoction of *arnica vera*, or PLAVIENSIS, in feverish disorders, accompanied with hæmorrhages, efflorescentiæ, &c.

Neumann says, the flowers and leaves are emetic, or purgative; and it is said, he adds, that an infusion of them is remarkably serviceable for resolving coagulated blood from falls, &c. and in obstructions of different kinds. He gives also the chemical history of this species of DORONICUM. P. 356.

ARNODI, in *Antiquity*, the same with RHAPSODI.

The word is compounded of *apv@*, a lamb, which was their usual reward; and *ωδν*, song, or singing.

ARNOLDISTS, ARNALDISTS, in the twelfth century; so called from their chief, Arnold of Bresse, who was a great declaimer against the wealth and vices of the clergy; and who is also charged with preaching against baptism and the eucharist.

After raising great disturbances at Bresse and Rome, he was burnt at this latter place in 1155, and his ashes cast

into the Tiber.—His disciples were also called *Publicani*, or *Poplicani*.

ARNOTTA, in *Botany*, a name given by the peasants of Burgundy, and many other places, to certain roots which they frequently turn up, from five or six inches depth, in plowing the ground. They carefully collect these, and eat them, after roasting in the ashes, or otherwise; by which sort of cooking they acquire the taste of a chestnut, and are found to be a very wholesome and nourishing food. They are blackish on the outside, and white within, and are of the size of a small walnut. They are common in the north of Scotland, and called *arnots*.

ARNULPHIN, *Arnulphinus* a coin of the value of a ducat and a half, current in some parts of France in the 15th century. Du-Cange.

AROBÉ, by some spelt and pronounced *urrobe*; in Spanish, *arroba*; in the language of Peru, *arrou*: a weight used in Spain, Portugal, Goa, Brazil, and throughout all Spanish America. All these *arobes* are scarcely like each other but in name, being very different in weight, and in their proportion to the weights of other countries. The *arobe* of Madrid, and almost all over Spain, weighs twenty-five Spanish pounds.

AROLEC, the name of a weight, in use in some parts of America, and in quantity equal to twenty-five pounds of our weight.

AROMA is, by some authors, particularly applied to denote MYRRH.

AROMA *Germanicum*, a denomination given by Platerus to ELECAMPANE.

Some writers give the title *aroma Germanicum* to JUNIPER-berries, on account of the great esteem they are in among that people, for their spicy, warm qualities; in which respect they are by many preferred to ginger itself.

AROMA *philosophorum*, is used by some for SAFFRON.

Others give the appellation of *aroma philosophorum* to Paracelsus's AROPH.

AROMATIC, AROMATICUS, is understood of a drug, plant, or the like, which yields a brisk fragrant smell, and a warm spicy taste.

The word is formed of *αρωμα*, which is compounded of *αρι*, very, and *ωδυν* or *ωσυν*, smell.

AROMATICS, or AROMATIC medicines, are either *simple* or *compound*.—To this class belong most cardiac, cephalic, and carminative remedies, with many stomachic ones.

Of this kind are frankincense, storax, benjoin, cinnamon, mace, cloves, nutmeg, pepper, &c.—Such also are lavender, marjoram, sage, thyme, rosemary, &c.

The peculiar qualities of *aromatics* reside in their essential oils, and resinous parts. The more essential oil any vegetable affords, the weaker the oil is, and *vice versa*. The taste and pungency of some of them reside in the oil, and of others of them in a fixt gummy resinous matter.

Powders which have *aromatic*, or other acrid particles in them, not only absorb liquors, but give more or less stimulus; and as the effect of all irritation is some degree of inflammation, which in sores is principally removed by a subsequent increased suppuration, these powders may assist to separate corrupted from sound parts. Such of them as have balsamic particles in their composition, encourage the suppuration most.

Several of them resist the putrefaction of animal substances, and thereof may preserve a carious bone, or the matter coming from it, from such a high degree of putrefaction as they might otherwise attain.

Beside these effects on the fore, regard must always be had to their operation, if any of their particles are absorbed by the blood-vessels, for some of them produce a fever in a greater or less degree, others become purgatives. &c. Med. Ess. Edinb. vol. v. art. 24.

Aromatics are of particular service in cold cachectic habits, where the load of humours has been forced away by strong detergents and cathartics; as they tend to strengthen the fibres, and prevent a relapse.—Hence also they become of necessary use after purging, and carrying off the waters of a dropsy, or in the intervals, to fortify the springs, and prevent a filling again.

AROMATICUM *rosatum*, is a compound officinal powder, made of red roses, liquorice, aloes-wood, yellow Sanders, cinnamon, cloves, mace, gum tragacanth, nutmegs, cardamoms galangals, spikenard, ambergrise, and musk, all mixed together. It is chiefly prescribed in cordial and cephalic boluses and electaries, to strengthen the stomach and head, which all *aromatics* have a tendency to do.

AROMATICUM *vinum*. See VINUM.

AROMATICUS *calamus*. See CALAMUS.

AROMATITIS, in *Ancient Physiology*, a kind of bituminous stone, by some represented as a gem, both in smell and colour resembling myrrh.

It is said to have been found in Arabia and Egypt, and to have been in great use among ladies, as a perfume.

ARONDE, in *Fortification*. See DOVETAIL, and QUEUE d' Aronde.

ARO ORCHIS, in *Botany*. See GALANGAL.

AROPH, a term used by Paracelsus, to denote a medicine endued with a power of breaking or dissolving the stone in the human body.

In which sense, *aroph* amounts to the same with *lithontriptic*. Van Helmont assures us, that he was possessed of the *aroph*; and from his account, it seems to have been a preparation of saffron and rye-bread, digested with spirit of wine, in a horse-dung heat, and at length distilled: Vide Cnoeffel. in *Ephem. Acad. N. C. Dec. 1 An. 4. Obs. 109.*

AROPH *Paracelsi*, is also a name given to a kind of chemical flowers, elegantly prepared by sublimation, from equal quantities of *lapis hæmatitis*, and *salammoniac*; said to be of great efficacy in quartan agues, the *plica Polonica*, and hypochondriac diseases.

This is also called *aroma philosophorum*.

AROPH is also used to denote MANDRAGORA.

ARORNOS, in *Botany*, a name by which some authors have called the JUNIPER.

AROURA, a Grecian measure, of fifty feet.

AROURA was more frequently used for a square measure, the half of the plethron.

The Egyptian *aroura* was the square of a hundred cubits. *Arbuth. Tab. 9.*

ARPAGIUS, or rather HARPAGIUS, in some ancient inscriptions, signifies a person who died in the cradle, at least in early youth.

The word is formed from *ἀρπαζω*, *rapiō*, *I snatch*.

The Romans made no funerals for their *arpagii*.—They neither burnt their bodies, nor made tombs, monuments, or epitaphs for them, which occasioned Juvenal to say,

—*Terra clauditur infans,
Et minor igne regi.*

In after-times it became the custom to burn such as had lived to the age of forty days, and had cut any teeth; though these they also called *ἀρπᾶκτοι*, or *ἀρπαγμενοι*, q. d. *rapti*, *ravished*. The usage seems to have been borrowed from the Greeks; among whom, Eustathius assures us, it was the custom never to bury their children either by night or full day, but at the first appearance of the morning; and that they did not call their departure by the name of death, but by a softer appellation, *ἡμερᾶς ἀρπαγῆ*; importing, that they were ravished by Aurora, or taken away to her embraces.

ARPENT. See ACRE.

ARQUATA, in *Ornithology*, the name of a bird, called also by some NUMENIUS, and commonly known in England by the name of the CURLEW.

The male in this species is somewhat smaller than the female, and is called the *jack-curlew*.

It is well known to be a very delicately tasted bird. *Ray.*

ARQUATA *minor*, in *Ornithology*, the name used by authors for the bird called by our sportsmen the WIMBREL.

ARQUEBUSADE, in *Medicine*, is a name given to a kind of water originally of French invention, recommended as useful in cases of gun-shot wounds, from whence it derives its name. The composition of it is not generally known, but it is said to be made from mint, sage, mugwort, &c. and lime-water distilled in wine.

It is also called *aqua vulneraria*, *aqua sclopetaria*, and *aqua catapultarium*.

ARQUEBUSS, a large hand-gun, something bigger than our musquet; and called, by some, a caliver. See HARQUEBUSS.

ARQUEBUSS *a Croc*, is a sort of small fort-arm, which carries a ball of about three half ounces; now only used in Old Castile, and some garrisons of the French.

ARRACHEE, in *Heraldry*, is understood of representations of plants forcibly torn up by the roots, with their roots hanging at them.

In this sense, *arrachee* amounts to the same with what is otherwise called *eradicate* or *erased*. *Nisb. Her.*

ARRACK, see ARAC.

ARRAIATIO *peditum*, the ranging or arraying of foot-soldiers.

ARRAIGN, or ARAIGN, in *Law*, signifies to set a thing in order, or in its place.

It is derived from the French *arraisonner*, i. e. *ad rationem ponere*, to call a man to answer in form of law; which comes from the barbarous Latin *adrationare*, i. e. *placitare*.—In which sense, to arraign a criminal, is *ponere eum ad rationem*.

Thus he is said to arraign a writ of *novel disseisin*, who prepares and fits it for trial before the justices of the circuit. To arraign the assize, is to cause the demandant to be called to make the plaint, and to set the cause in such order as the tenant may be forced to answer thereto.

A prisoner is also said to be arraigned, when he is indicted, and brought forth to TRIAL.

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But no man is properly arraigned, except at the suit of the king, upon an indictment found against him, or other record, wherewith he is to be charged: and this arraignment requires that the prisoner appears to be tried, and holds up his hand at the bar, for the certainty of the person, and makes a sufficient plea to the indictment. 1 *Inst.* 262, 263. The prisoner is to hold up his hand only in treason and felony; but this is only a ceremony: if he own that he is the person, it is sufficient without it; and then upon his arraignment his fetters are to be taken off, and he is to be treated with all the humanity imaginable. 2 *Inst.* 315. 3 *Inst.* 35. The pleas upon arraignment are either the general issue, not guilty; plea in abatement, or in bar; and the prisoner may demur to the indictment; also he may confess the fact, but then the court has nothing more to do than to proceed to judgment against him. Till lately, if he stood mute, and did not put himself upon trial, he must have suffered the penance *pain fort & dure*, in cases of felony, &c. 3 *Inst.* 217. But now, by 12 *Geo. III. c. 20.* standing mute in felony or piracy is made a conviction. In indictments of high treason, of petit larceny, standing mute was always equivalent to a conviction, and the criminal shall receive the same judgment and execution. For the solemnity of the arraignment and trial of a prisoner, see *Dalt. c. 185. p. 515.*

ARRANGEMENT, or RANGEMENT, the disposition of the parts of a whole, in a certain order.

The modern philosophy shews us, that the diversity of the colours of bodies depends entirely on the situation and arrangement of the parts, which reflect the light differently; the diversity of tastes and smells on the different arrangement of the pores, which render them differently sensible; and the general diversity of bodies on the different arrangement of their parts.

The happy arrangement of words makes one of the greatest beauties of discourse.

ARRANGEMENTS, *philosophical*. This title is given by the ingenious J. Harris, esq. to a most excellent commentary on the CATEGORIES of Aristotle: it is just as happy a simplification of *Logic*, as his *Hermes* is of *Grammar*. Both these valuable books, so well calculated to convey sensible and precise notions of logic and grammar, might be very usefully and compendiously exhibited in the forms of a logical and grammatical tree, after the manner of genealogical tables.

ARRAS HANGINGS, a sort of rich TAPESTRY, made at Arras, in the county of Artois, in Flanders.

ARRAY, in *Law*, the ranking or ordering a jury or inquest of men impanelled on any cause.

The word may be derived either from the obsolete French, *array*, *order*; or from *raye*, *a line*, *stroke*, &c.

Hence to array a pannel, *ann. 3 Hen. V. &c.* is to set forth the men impanelled one by another.—By the statute, every array in assize ought to be made four days before.

ARRAYERS, or ARRAJERS, ARRAITORES, is used, in some ancient statutes, for such officers as had care of the soldiers armour, and saw them duly accounted in their kinds. *Statute 12 R. II. c. 6.*

In some reigns commissioners have been appointed for this purpose. Such were the commissioners of array appointed by king Charles I. in the year 1642.

ARREARS, ARREARAGES, ARRERAGIUM, or ARRIERAGIUM, the remains of an account; or a sum of money remaining in the hands of an accomptant.

The word is derived from the French *arrerages*, which is formed from *arriere*, *behind*.

ARREARS is also used more generally for a remainder of rents or monies unpaid at the due time; whether they be rents of a manor, or any other thing reserved: called also, in some writers, *arrieragium firmarum*.

ARRENTATION, in the *Forest Law*, the licensing an owner of lands in the forest, to inclose them with a low hedge, and small ditch, in consideration of a yearly rent. *Saving the arrentations*, denotes a power reserved to give such licences for yearly rent.

ARREST, in *Common Law*, the apprehending or restraining of one's person, in execution of the command of some court or officer of justice.

The word *arrest* is French, and is used in that language for a decree or determination of a cause debated to and fro: in which sense it seems derived from *αρεσεν*, *placitum*, *the pleasure of the court*.

Hence when a person is legally stopped, apprehended, and restrained of his liberty, for debt, &c. he is said to be arrested, or put under an arrest; which is the beginning of imprisonment.

None shall be arrested for debt, trespass, &c. or other cause of action, but by virtue of a precept or commandment out of some court: but for treason, felony, or breach of the peace, a man may arrest without precept or warrant. *Termes de Ley, 54.* Persons present at the committing

committing a felony, must use their endeavours to apprehend the offender, under penalty of fine and imprisonment. 3 Inst. 117. 4 Inst. 177. The king cannot command any one by word of mouth to be *arrested*; but he must do it by writ, or order of his courts, according to law: nor may the king *arrest* any man for suspicion of treason or felony, as his subjects may; because if he doth wrong, the party cannot have action against him. 2 Inst. 186. If a bailiff lays hold of one by the hand (whom he hath a warrant to *arrest*) as he holds it out at the window, this is such a taking of him, that the bailiff may justify the breaking open of the house to carry him away. 1 Vent. 306. When a person has committed treason or felony, &c. doors may be broke open to *arrest* the offender; but not in civil cases, except it be in pursuit of one *arrested*, or where a house is recovered by real action, to deliver possession to the person recovering. Plowd. 5. Rep. 91. Action of trespass &c. lies for breaking open a house to make *arrest* in a civil action. Mod. Caf. 105. But if it appear that a bailiff found an outer door, &c. open; it is said he may open the inner door to make an *arrest*. Comber. 327. An *arrest* in the night, as well as the day, is lawful. 9 Rep. 66. By stat. 29 Car. II. c. 7. *arrest* shall not be made on a Sunday, except in cases of treason, felony, or for breach of the peace. But a person may be retaken on a Sunday, if arrested the day before, &c. Mod. Caf. 231.

To *move* or *plead in arrest of judgment*, is, to shew cause why judgment should be stayed, though there be a verdict in the cause.

Judgment may be arrested for good cause in criminal cases, as well as civil; if the indictment be insufficient, &c. 3 Inst. 210. Four days are allowed to move in *arrest* of judgment.

To *plead in arrest of taking the inquest*, is, to shew cause why an inquest should not be taken.

ARRESTANDIS *bonis ne dissipentur*, a writ which lies for him whose cattle or goods are taken by another, who, during the controversy makes, or is likely to make away with them, and will hardly be able to give satisfaction for them afterwards.

ARRESTANDO *ipsum, qui pecuniam recepit ad proficiscendum in obsequium regis*, &c. is a writ which lies for the apprehension of him that hath taken press-money to serve in the king's wars, and hides himself when he should go.

ARRESTO *facto super bonis mercatorum alienigenorum*, &c. is a writ which lies for a denizen against the goods of strangers, or persons of another country, found within this kingdom, in recompence of goods taken from him in that country, after he hath been denied restitution there. This answers to what among the ancient civilians was called *clarigatio*, now barbarously **REPRISALIA**.

ARRETED, **ARRECTACUS**, is sometimes used in our ancient **LAW-books** for imputed, or laid to.—As, no folly may be *arreted* to one under age.

ARRETS, among *Farriers*, denote a sort of mangy tumors on the sinews of the hind legs of a horse, between the ham and the pastern; called also *rat-tails*. The name is taken from the resemblance they bear to the *arretes*, or back-bones of fishes.

ARRHABONARII, in *Ecclesiastical History*, a sect, in the sixteenth century, who held that the eucharist is neither the real flesh and blood of Christ, nor yet the sign of them, but only the pledge or earnest thereof.

The word is derived from *ἀρραβων*, *arrha*, earnest.

ARRHÆ, or *Argentum Dei*. See **EARNEST**, &c.

ARRAPHON, denotes a skull without sutures, found to be the cause of incurable **CEPHALALGIE**.

ARRHENOGOGON, in *Botany*, a name given by some to the *parietaria*, or **PELLITORY** of the wall.

ARRHEPHORIA, a feast among the Athenians, instituted in honour of Minerva, and Herse, daughter of Cecrops. The word is compounded of *ἀρρηστος*, *mystery*, and *φερω*, *I carry*; on account of certain mysterious things which were carried in procession at this solemnity.

Boys, or, as some say, girls, between seven and twelve years of age, were the ministers that assisted at this feast, and were denominated *ἀρρηφοροι*.

This feast was also called *Hersephoria*, from Herse, the daughter of Cecrops, on whose account it is said to have been first established.

ARRIAGI, in the *Materia Medica*, a name given by some authors, particularly by Serapion and Avicenna, to a fine kind of **CAMPHOR**.

ARRIERE-BAN, or **ARRIERE-ban**, in the *French Customs*, is a general proclamation, whereby the king summons to the war all that hold of him; both his vassals, i. e. the noblesse, and the vassals of his vassals.

M. Caseneuve takes the word to be composed of *arriere* and *ban*: the *ban*, according to him, denotes the convening of the noblesse or vassals, who hold fees imme-

diately of the king; and *arriere*, those who only hold of the king immediately.

To the provost of Paris belong the convoking and commanding of the *arriere-ban*.

ARRIERE fee, or *fief*, is a **FEE** dependent on some other superior one.

*Arriere-fee*s commenced at the time when the counts and dukes, rendering their governments hereditary in their families, distributed to their officers certain parts of the royal domains which they found in their provinces; and even permitted those officers to gratify the soldiers under them with parts thereof.

ARRIERE-guard. See **REAR-guard**.

ARRIERE-vassal, or *tenant*, the **VASSAL** or tenant of another vassal or tenant.

ARROBAS, or **AROBAS**. See **AROBÉ**.

ARROGATION, see **ADROGATION**.

ARRONDIE, in *Heraldry*. **CROSS-arrondie**, or *rounded*, is that whose arms are composed of sections of a circle, not opposite to each other, so as to make the arm bulge out thicker in one part than another; but both the sections of each arm lie in the same way, so that the arm is every where of an equal thickness; and all of them terminating at the edges of the escutcheon, like the plain cross.

ARROW, a missile weapon of offence, slender, pointed and barbed, made to be cast or shot with a bow. See **ARCHERY**.

We say, a flight of *arrows*: *arrows* are also called *shafts*.

ARROW-makers are called *fletchers*, who were formerly, as well as *bowyers*, persons of great consequence in the commonwealth.—*Arrow-heads* and quarrels were to be well boched or brased, and hardened at the points with steel; the doing of which seems to have been the business of the *arrow-smith*. Vide Stat. 7 H. IV. c. 7.

ARROW, in *Astronomy*, *Trigonometry*, &c. See **SAGITTA**.

ARROW, in *Fortification*, is a work placed at the salient angles of the glacis, and consists of two parapets, each forty toises long. The work has a communication with the covert-way, of about twenty-four or thirty feet broad, called *caponier*; and a ditch before it, of five or six toises.

ARROW, in *Surveying*, is used for small straight sticks about two feet long, shod with iron ferrils. Their use is to stick into the ground, at the end of the **CHAIN**.

ARROW, *elf*. See **ELF-arrows**.

ARROW, *magical*, a sort of weapon very common among the barbarous inhabitants of Lapland, and many other of the northern climates; and supposed to possess very strange virtues.

ARROW, *wildfire*. See **WILDFIRE**.

ARROW-head, *sagittaria*, in *Botany*, a genus of the *monoecia polyandria* class. Its characters are these: it hath male and female flowers on the same plant; the male flowers have a permanent empalement of three concave leaves; they have three roundish petals, which spread open, and many awl-shaped *stamina*, collected into a head terminated by erect summits. The female flowers are situated below the male; these have a three-leaved empalement, and three petals as the male, but no *stamina*; they have many compressed *germina* collected in a head, situated upon very short styles, and have permanent acute *stigmata*. The *germina* afterwards become oblong compressed seeds, having longitudinal borders, and are collected in globular heads. There are two species. See **SAGITTARIUM alexipharmacum**.

ARROW-headed grass. See **TRIGLOCHIN**.

ARROW-root, *Indian, maranta*, in *Botany*; a genus of the *monandria monogynia* class. Its characters are these: the flower hath one petal of the grinning kind, with an oblong compressed tube cut into six small segments, representing a lip-flower. It has one membranaceous stamen, appearing like a segment of the petal, and a roundish germen situated under the flower, which turns to a roundish three-cornered capsule with three valves, containing one hard rough seed. There are two species, natives of the warm parts of America.

It is esteemed a sovereign remedy against the bite of wasps, and the poison of the **MANCHINEEL-tree**.

ARS Notaria. See **ART**.

ARS Thessalica, *Thessalian art*, is used by *Ancient Writers*, for a species of **MAGIC**, whereby it is pretended, they could draw the moon and stars out of heaven.

It was denominated *Thessalian* from its supposed inventors, the people of Thessaly.

ARSCHIN, a long measure used in China, to measure stuffs; of the same length with the Dutch ell, which is two feet eleven lines.

ARSE-verse, in *Antiquity*, a term, or formula, inscribed on doors, to prevent fire.

It is said to be of Tuscan origin, where the word *arse* signifies *avert*, and *verse*, *fire*. Pitisc. Lex. Ant.

ARSELLA, in *Botany*, a name given by some of the Greek

Greek writers, to the *argemone*, a kind of wild poppy; and by others to the common *agrimony*. Both one and the other of these plants they also sometimes called *SARCOCOLLA*.

ARSENAL, a royal or public magazine, or place appointed for the making and keeping of arms, necessary either for defence or assault.

The *arsenal* of Venice is the place where the galleys are built and laid up.—The *arsenal* of Paris is that where the cannon or great guns are cast. It has this inscription over the gate:

*Ætna hæc Henrico vulcania tela ministrat,
Tela Giganteos debellatura furores.*

There are *arsenals*, or store-houses appropriated to naval furniture and equipments.—At Marseilles is the *arsenal* for the galleys; and at Toulon, Rochefort, and Brest, are those for the men of war.

ARSENIC, *ARSENICUM*, in *Natural History*, a ponderous mineral substance, volatile and unflammable, which gives a whiteness to several metals in fusion, and proves extremely caustic, or corrosive, to animals, so as to become a violent poison.

The word is compounded of *αρσην*, *man*, or *αρσην*, *male*, and *νικω*, *I kill*, alluding to its poisonous quality.

Arsenic is dug out of mines in Saxony, near Goslar; in Bohemia, in the valley of Joachim; and in England, in the Mendip hills, in great quantities. It has so strong a corrosive quality, as sometimes to burn and ulcerate the hands and feet of the miners; and is a deadly poison for all known animals. All the three kinds of *arsenic* are extracted from it; and it likewise serves to make *zaffera*, used by potters in giving a blue colour to their vessels; and the *encaustum caeruleum*, or that kind of blue sometimes used by painters; and often by women, to mix with their starch for whitening and stiffening linen. The way to make all these is taught by Kunkel, in his *Art of making Glafs*.

Arsenic is made by sublimation from *COBALT*: the method of which, as practised in Hungary, is given us by Dr. Krieg, in the *Philosophical Transactions*, N^o 293.—The *COBALT* being beat to powder, and the light sandy part washed off, by a current of water, they put what remains into the furnace; the flame of which passing over the powder, takes along with it the *arsenical* part, in form of a smoke; which being received by a chimney, and carried thence into a close wooden channel, sticks by the way to the sides; and is scraped off, in form of a whitish or yellowish powder.—From what remains of the *cobalt*, they proceed to make *SMALT*.

Arsenic consists of an acid salt, and a kind of mercurial metallic substance, which discovers itself when it is distilled in a retort, mixed with soap, suet, oil, or any fat or oily substance: for with a strong degree of fire, the *arsenic* will be raised into the neck of the retort in a metallic form, like *antimony*. The sulphur contained in *arsenic* is in so small a proportion, that it does not flame when cast on burning coals; though *cobalt* contains a great quantity of sulphur, which consequently has been separated from the *arsenical* parts in the calcination and deflagration, and so evaporated; but the smell of *arsenic* proves, that some sulphur still remains in it.

Arsenic is very volatile; for if any quantity of it is put into a crucible, and set over a fire, it neither burns, nor perfectly melts, but it will presently evaporate in white fumes, without leaving any remainder. Geoffroy. This poisonous mineral, though not found native in its perfect form, but buried in ores of various kinds, yet is capable of being separated, and raised out of that ore, by the vapours continually passing through the earth; and, in this case, is carried up into the air, and occasions many of the epidemical and fatal diseases, to which the countries, where minerals are found in the earth, are subject. Delafont does not scruple to attribute the plague itself to the air's being infected with these *arsenical* exhalations, entering the human body, either by the pores, or by respiration, or both.

Arsenic is attracted with a different force by different metals, and attracts them reciprocally: of all metals, it absorbs iron most greedily; after this, copper, tin, lead, silver, and gold, in this order of succession; therefore, all metals may be freed from the foulness of *arsenic* by iron. The *scoriae* may be used for this purpose in fusion, in an open fire; for though they do not produce this effect as *scoriae*, yet here being reduced to iron again, they act in the same manner as if pure iron had been put in.

Lead mixed with *arsenic*, and exposed to the fire, is, in great part, immediately carried away in form of a thick smoke; the remainder is a glass of a fine saffron colour. Silver is also penetrated by *arsenic* in the same manner, and loses its malleability; but the *arsenic* vanishes from it in a strong fire, in the form of a smoke. Gold,

penetrated by *arsenic*, becomes very brittle, and loses its colour; and, being suddenly thrown into a violent fire, part of it is sublimed.

The smallest quantity of *crystalline arsenic*, being mixed with any metal, renders it friable, and absolutely destroys its malleability.

Hence the refiners dread nothing so much as *arsenic* in their metals; nor could any thing be so advantageous to them, were such a thing to be had, as a *menstruum* that would absorb, or act on *arsenic* alone; for then their metals would be readily purified, without flying off, or evaporating.

A single grain of *arsenic* will turn a pound of copper into a beautiful white metal, called *alchemy*, looking like silver. This hint many persons have endeavoured to improve on, for making silver, but in vain, as the mixture could never be brought to sustain the hammer: some have been hanged for coining species of this spurious silver.

The chemists furnish several preparations of *arsenic*, which all turn on repeated ablutions and sublimations, to blunt its corrosive salts, and change it into a safe medicine, after the manner of sublimate.—Such are *ruby of arsenic*, &c. But it scarce appears worth the pains.

Arsenic, though a virulent poison, has been introduced into medicine. Mr. Boyle mentions a balsam made of it, with nitre and spirit of wine, or vinegar, as efficacious in the cure of venereal ulcers.

Dr. Cheyne mentions pills made of *arsenic*, as used for the cure of obstinate quartans.

Arsenic is applied to many mechanical purposes. It is used by dyers, as an ingredient in their composition for scarlets, and other fine red colours; by goldsmiths, for enamelling; by makers of glass, for promoting the fusion of frit, and transparency of glass; by potters for a white glazing; by assayers, in form of glass, for promoting the scorification of ores which contain tin and antimony, for the preparations of compound metals, and for whitening copper and brass. Neumann observes, that a beautiful metal, like the finest steel, may be made by melting cast iron with *arsenic*, glass, and a little tin; and that a metal resembling silver may be made from iron, tin, *arsenic*, and perhaps a little copper. Mr. Brandt (Act. Upsal. 1733.) proposes to make a varnish for ships of *arsenic*, with pitch, sulphur, or rosin, to preserve the timber from rotting, and from worms. See Neumann's *Natural History* of this substance, and his account of its various kinds, effects, uses, &c. in Dr. Lewis's edition of his *Works*, p. 140, & seq.

Arsenic is by some ranked in the class of *sulphurs*.

There are divers kinds of *arsenics*; viz. yellow, red, and crystalline or white.

ARSENIC, *native*, is called *ORPIMENT*. It is of a yellow or orange colour; whence it is also denominated *auripigmentum*. It is chiefly found in copper-mines, in a sort of glebes or stones, of different figures and sizes. Its colour, though always yellow, yet admits of different shades and mixtures, as a golden yellow, reddish yellow, greenish yellow, &c. It is found to contain a portion of gold, but so little, as not to quit the cost of separating; but there is, besides this, a yellow factitious *arsenic*, made of the white *arsenic* and sulphur.

Our yellow and red *arsenics* are artificial, being only white *arsenic* mixed with different proportions of sulphur. The white is the strongest, the yellow is weaker, and the red weakest. White *arsenic*, sublimed with one tenth of its weight of sulphur, is yellow; and with one fifth it is red. Both the yellow and the red fossil *arsenics*, when of a smooth texture, are called *zarnicks*; but when composed of small scales or leaves, they are called *auripigmenta*.

ARSENIC, *regulus of*, is the most fixed and compact part thereof, prepared by mixing it with pot-ashes and soap, then fusing the whole, and casting it into a mortar; upon which the heaviest part falls to the bottom.

ARSENIC, *caustic oil of*, is a butyrous liquor, like butter of antimony, prepared of *arsenic*, and corrosive sublimate, being a combination of marine acid with the *arsenic*.—It serves to eat off fungous flesh, and to cleanse carious bones, &c.

Some recommend rock crystal reduced to an impalpable powder, as an antidote against *arsenic*; but large quantities of milk, oils, or fat broths, are more to be depended on, while the poison remains in the *primæ viæ*: but after it has got into the blood, alexiterial medicines are to be used, such as Venice treacle, mithridate, bezoar, powder of vipers, contrayerva root, and such like, and afterwards a milk diet. Geoffroy.

ARSENICAL magnet, *magnes arsenicalis*, is a preparation of antimony, with sulphur and white *arsenic*.

ARSENOTHELYS, among *Ancient Naturalists*, the same with hermaphrodite.

The

The Greeks use the word both in speaking of men and beasts.—It is formed from *αρον*, and *ανδρς*, male and female.

ARSMART, *perficaria*, in *Botany*. Its characters are these: the flower hath no empalement; it hath one petal, which is permanent, and cut into five segments, which spread open; it has in some species five, and in others six short stamina, terminated by roundish fummits, and a three-cornered germen, supporting two or three short slender styles, crowned by single stigmas; the germen afterwards becomes a roundish, acute-pointed feed, wrapped up in the petal of the flower.

This, in the Linnæan system, belongs to the genus **POLYGONUM**.—There are several species.

The common *arsmart* without spots, is by some esteemed a good diuretic, but it seems too acrid to be given internally without great caution. Externally it is used by many in cataplasms against indurated tumors, and in inveterate ulcers: that with spotted leaves has no virtues. *Arsmart*, by its heat and pungency, becomes almost intolerable to the tongue; and hence it obtains in scorbutic, hypochondriac, and other disorders, arising from a sluggish circulation of the fluids.

Several value its distilled water for its efficacy in the stone in the kidneys or bladder. Some also use the plant in external applications, particularly to dissipate bruised blood: others for the tooth-ach, &c.

ARSIS and *thesis*, in *Prosody*, are names given to the two proportional parts into which every FOOT or RHYTHM is divided.

By *arsis* and *thesis* are usually meant no more than a proportional division of the metrical feet, made by the hand or foot of him that beats the time.

And in measuring the quantities of words the hand is elevated, as well as let fall; that part of the time which is taken up in measuring the foot, by lifting the hand up, is termed *arsis*, or *elevatio*: and the part where the hand is let fall, *thesis*, or *positio*. Vide Augustin. de Musica, lib. ii. cap. 10. In *plaudendo enim quia elevatur & ponitur manus, partem pedis sibi elevatio vendicat, partem positio*.

Fuga per ARSIN & thesin. See **FUGUE**.

ARSON, *ab ardendo*, in the law of England, a felony at common law, in maliciously and voluntarily burning the house, or out-houses, of another by night or by day. See Hawkins's Pleas of the Crown, book i. chap. 39.

As to the punishment of *arson*, it seems now clearly settled that the principal, not being in holy orders, is excluded from the benefit of clergy. See Hawk. lib. cit. book ii. chap. 33. sect. 107.

In some places this crime is punished by burning the offender. And this was the old Roman law. See **INCENDIARY**.

ARSURA, in *Ancient Customs*, a term used for the melting of gold or silver, either to refine them, or to examine their value. Spelman.

The method of doing this is explained at large in the Black Book of the Exchequer, ascribed to Gervaise, in the chapter De Officio Militis Argentarii, being in those days of great use, on account of the various places, and different manners in which the king's money was paid.

ARSURA is also used for the loss or diminution of the metal in the trial. In this sense, a pound was said *tot ardere denarios*, to lose so many penny-weights.

ARSURA is also used for the dust and sweepings of silver-smiths, and others, who work in silver, melted down Du-Cange.

ARSURA is also used, in some writers, for the disease called **ERYSIPELAS**, or **IGNIS sacer**.

ART, is defined to be a habit of the mind prescribing rules for the due production of certain effects; or the introducing the changes of bodies from some fore-knowledge and design in a person endued with a principle or faculty of acting.

The word *art* is derived from *απος*, utility, profit; and is found in that sense in *Æschylus*.

According to lord Bacon, it is a proper disposition of the things of nature by human thought and experience, so as to make them answer the designs and uses of mankind. Nature, according to that philosopher, is sometimes free, and at her own disposal; and then she manifests herself in a regular order; as we see in the heavens, plants, animals, &c.—Sometimes she is irregular and disorderly, either through some uncommon accident, or depravation in matter, when the resistance of some impediment perverts her from her course; as in the production of monsters.—At other times she is subdued and fashioned by human industry, and made to serve the several purposes of mankind.—This last is what we call *art*.—In which sense, *art* stands opposed to *nature*.

Hence the knowledge of nature may be divided into the history of generation, of *pretergeneration*, and of *arts*.—The first considers **NATURE** at liberty; the second, her *errors*; and the third, her *restraints*.

ART is also used for science, or knowledge reduced into practice.

Several of the schoolmen hold logic and ethics to be *arts*; in as much as they do not terminate in mere theory, but tend to practice.

In this sense some branches of the mathematics also are *arts*; others, matters of doctrine, or science.—*Statics* is wholly scientific, as it comprehends the mere contemplation of motion: *mechanics*, on the contrary, is an *art*, as it reduces the doctrine of *statics* into practice.

ART is more commonly used to denote a certain system or collection of rules, precepts, and inventions or experiments, which being duly observed, make the things a man undertakes succeed, and render them advantageous and agreeable.

In this sense, *art* is opposed to *science*, which is a collection of speculative principles and conclusions.

The nature and origin of *art*, and its distinction from science, are considered more at large in the preface to this work.

Arts, according to the foregoing definition, may be divided in *active* and *effective*.—Such as leave no external effect after their operation, as dancing, fiddling, &c. are called *active* or *practical arts*: those which do leave an effect behind them, as painting, &c. are called *effective arts*.

Farther, with respect to their scope and object, they may be divided into *human*, as *medicine*; and *divine*, as *theology*.

ARTS, *human*, again may be subdivided into *civil*, as *law*, *politics*, &c. *military*, as *fortification*, &c. *physical*, as *agriculture*, *chemistry*, *anatomy*, &c. *metaphysical*, as *logic*, *pure mathematics*, &c. *philological*, as *grammar*, *criticism*, &c. *mercantile*, to which belong the *mechanical arts* and *manufactures*. See each in its place.

Arts are more properly divided into *liberal* and *mechanical*.

ARTS, *liberal*, are those that are noble, and ingenious; or which are worthy of being cultivated without any immediate regard to the lucre arising from them. Such are *poetry*, *music*, *painting*, *grammar*, *rhetoric*, the *military art*, *architecture*, and *navigation*.

ARTS *mechanical*, are those, wherein the hand and body are more concerned than the mind; and which are chiefly cultivated for the sake of the profit attending them.—Of which kind are most of those which furnish us with the necessaries of life, and are popularly known by the name of trades—Such are *weaving*, *turnery*, *brewing*, *masonry*, *clock-making*, *carpentry*, *joinery*, *foundry*, *printing*, &c.

The *mechanical arts* take their denomination from *μηχανη*, *machine*; as being all practised by means of some machine or instrument.

With the *liberal arts* it is otherwise; there being several of them which may be learnt and practised without any instrument at all; as *logic*, *eloquence*, *medicine*, properly so called, &c.

The *arts* which relate to the sight and hearing, lord Bacon observes are reputed *liberal*, beyond those which regard the other senses, and are chiefly employed in matters of luxury: these are usually called the *fine arts*; such are *poetry*, *painting*, *sculpture*, *music*, *gardening*, and *architecture*.

It has been well noted by philosophers, that, during the rise and growth of states, the *military arts* chiefly flourish; when arrived at their height, the *liberal arts*; and when in a declining state, the *voluptuary arts*.

There are also divers particular *arts*; the art of memory, the art of deciphering, the art of swimming, art of diving, &c.

Democritus maintained, that men learnt all their *arts* from brutes; that the spider taught them *weaving*; the swallow, *building*, the nightingale, *music*, and several kinds of *medicine*.

ART, *term of*. See **TERM**.

ARTS, *bachelor of*. See **BACHELOR**.

ARTS, *master of*. See **MASTER**, **DEGREE**, **FACULTY**.

ART is also applied to divers imaginary, and even superstitious doctrines and inventions—Such are, Lully's **ART**, or the *transcendental ART*. This is an *art* by means of which a man may dispute whole days on any topic in nature, without understanding the least tittle of the thing in dispute; thus called from its inventor Raymond Lully. It consists chiefly in disposing the several sorts of beings into divers scales or climaxes, to be run down in a descending progression.—Thus, whatever was proposed as the subject of discourse, they would say, first, it is a being, and consequently, one true, good, perfect: then, it is either created, or uncreated. Again, every created being is either body or spirit, &c.

ART, *notoria* is a pretended manner of acquiring sciences by infusion, without any other application than a little fasting, and performing a few ceremonies. It was solemnly condemned by the Sorbonne in 1320.

ART, *St. Anselm's*, is a superstitious manner of curing wounds

wounds, by barely touching the linen wherewith those wounds had been covered.

Delrio, in his *Disquisitiones Magicæ*, observes, that some Italian soldiers, who practised this *art*, attributed the invention thereof to St. Anselm; but he assures us withal, that it was really invented by Anselm of Parma, a celebrated magician.

ART, *St. Paul's*, is a branch of the *arts notoria*, so called as being supposed to have been taught by St. Paul, after his being taken up into the third heaven.

ART and Part, is a phrase used in the north of England, and in Scotland. When any one is charged with a crime, they say he is *art and part* in committing the same; that is he was concerned both in the contrivance and in the execution of it.

The facts inferring *art and part* need not to be particularly laid in the libel or indictment, for these general words, as terms of stated signification, are sufficient. Yet these facts may be set forth, and it is proper so to do, if the prosecutor chooses to confide in the court rather than in the jury. Vide Mackenz. Crim. Law.

One may be *art and part*, 1. By giving counsel to perpetrate, without distinction, whether the crime would have been committed without such counsel or not: this being what can never be perfectly known. But it is to be observed, that in the more atrocious crimes, he that gives counsel is equally punished as he that commits them; but in the less atrocious, less severely. And sometimes reasons of mitigation are taken from the age, the manner of advising, &c.

2. By aid and assistance, and that either previous, or concomitant, or subsequent, to the commission of the crime.

3. By a clear and explicit mandate to commit the crime, or to do somewhat unlawful in itself, which with great probability might produce it, if executed by the hand of the mandatory, and not that of another.

ART, *hermetical*. See HERMETICAL.

ART, *hyssopic*. See HYSSOPIC.

ARTABA, an ancient measure of capacity used by the Persians, Medes, and Egyptians.

The Persian *artaba* is represented by Herodotus as bigger than the Attic *medimnus* by three Attic *choenixes*; from which it appears, that it was equal to $6\frac{1}{2}$ Roman *modii*; consequently that it contained $166\frac{2}{3}$ pounds of wine or water; or $126\frac{2}{3}$ pounds of wheat.

The Egyptian *artaba* contained five Roman *modii*, and fell short of the Attic *medimnus* by one *modius*; consequently held $133\frac{1}{3}$ pounds of water or wine, 100 pounds of wheat, or 60 of flour.

The Babylonians allowed their god Belus twelve *artabas* of fine flour for his daily sustenance; which will amount to 60 Roman *modii*, and consequently 720 pounds of flour.

The Median *artaba* was of the same content with the Attic *medimnus*, and consequently equal to six Roman *modii*, held 160 pounds of water, or wine, and 120 of wheat. Beverin. de Pond. & Mens. part ii. p. 125.

ARTADA, or **ARTADAR**, is used by some writers for *REALGAR* burnt, or calcined; commended by Paracelsus in malignant ulcers, and by Forestus for the cure of the *POLYPUS*.

ARTANITA of the ancients. See LEONTOPETALON.

ARTEDIA, in *Botany*, a genus of the *pentandriadigynia* class. We have no English name for this genus. The characters are, that it is an umbelliferous plant; the rays of the large umbel are difform, the flowers of the small ones in the disk are male, and the rays are hermaphrodite, these have each five slender stamina; those flowers that compose the rays have a small germen at bottom, which afterwards becomes a roundish compressed fruit, with a leafy border; this splits into two, and contains two oblong seeds with scaly borders. There are two species, natives of the East.

ARTEIMSIA, in *Antiquity*, yearly festivals observed in divers cities in Greece, particularly Delphi, in honour of Diana, surnamed Artemis.

In the *Artemisia*, a mullet was sacrificed to this goddess, as being thought to bear some resemblance to her, because it is said to hunt and kill the *SEA-BARE*. Athen. lib. vii.

ARTEMISIA, in *Botany*. See MUGWORT.

ARTEMONITES, in *Church History*, Christians in the third century who denied the divinity of Christ, asserting him to have only had a human nature, though divinely sent, and more excellent than the prophets. Prateol. Elench. Hæc. l. i. n. 70.

ARTENNA, in *Ornithology*, the name of a water-bird, of the size of a hen, of a brownish colour on the back, and white on the belly; having a hooked bill, and its three fore-toes connected by a membrane, but the hinder one loose. It is found on the island Tremiti in the Adriatic sea, and is supposed to be the *avis DIOMEDIS* of the ancients. Ray.

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ARTERIA aspera. See ASPERA.

ARTERIA sacra. See SACRA.

ARTERIA venosa, a name given by the ancients to what we call the pulmonary vein, or that vessel whereby the blood is conveyed from the lungs to the left ventricle of the heart. Gorr. Def. Med. p. 54.

The denomination was anciently given it, on a supposition of its being an air-vessel, and that it served for the conveyance of the vital aura from the lungs to the heart.

ARTERIACS, **ARTERIACA**, medicines proper for disorders of the *trachea*, and the voice.

Arteriacs are reduced by Galen into three kinds: 1. Such as are void of all acrimony, serving to mollify the asperities of the part; to which kind belong, gum tragacanth, *aster samius*, *amylum*, or starch, milk, &c. 2. Those of an acrimonious quality, whereby they stimulate even the found parts; such are honey, turpentine, bitter almonds, iris root, &c. 3. Those of an intermediate kind, soft and mild, yet detergent; such are butter, and divers preparations made of almonds, milk, honey, &c.

ARTERIA, or **ARTERIOUS**, in *Anatomy*, something that relates to the arteries. See ARTERY.

The *arterial* blood is supposed more warm, florid, and spirituous, than the venal.

ARTERIOSA vena, or *arterial vein*, a denomination given to the pulmonary artery, or that vessel whereby the blood is conveyed from the right ventricle of the heart to the lungs.

ARTERIOSUS canalis, is a tube in the heart of the *fœtus*; which, with the *foramen ovale*, serves to maintain the circulation of the blood, and to divert it from the lungs.

ARTERIOTOMY, in *Chirurgery*, &c. the operation of opening an artery; or of letting blood with a lancet by the arteries, practised in some extraordinary cases.

The word is formed of *αρτηρια*, and *τομή*, *feco*, *I cut*.

The word *arteriotomy*, according to its etymology, signifies that surgical operation, by which, for the safety of the patient, the arteries are opened almost in the same manner with the veins, in order to procure a discharge of blood. But though in our own days this operation is not so frequently attempted as in former ages, for fear not only of too great an effusion of blood, but also of an *ANEURISM*; yet if it is cautiously performed, it has the suffrage of the greatest physicians in its favour; as being a practice of singular use, and unattended with any bad consequences. Accordingly we read that the more ancient physicians opened arteries in various parts of the body.

Arteriotomy, however, being a hazardous operation, is seldom used with design, except in the forehead, the temples, and behind the ears, where the arteries are easily closed again by means of the *cranium* underneath, which would be very difficult to effect in any other part. In the other parts it usually proves fatal; and we have numerous instances of persons killed in bleeding, by the opening an artery instead of a vein.

Opening an artery is much more difficult than the opening a vein, as the vessel seldom appears plainly through the skin, and there is no guide but its vibration under the finger.

In the operation of *arteriotomy*, the patient must be placed in a good light, and the surgeon must place two fingers of his left-hand, at a small distance from each other, both on the artery. He must then observe the course of the vessel, and cut down into it deeper than in *phlebotomy*, and raise the point of the lancet, so as to make a sufficient orifice: in this he need not fear the cutting of the vessel quite through, for even that is attended with no ill consequences after deligation. If now the blood follows the lancet, in a very florid and salient stream, you may be satisfied the artery is well opened: if this is not the case it must be cut again; but as in this operation, the fine point of a lancet is apt to be broke against the bone, the use of a small scalpel is preferable. A pound or a pound and half of blood should be taken by this operation: when the sufficient quantity of blood is taken, the deligation must be made with three compresses, each larger than the other, laying on the smallest first, in which must be included a farthing, a bit of lead, or of chewed paper, to compress the artery against the bone, and the head, must continue tied up with a proper bandage eight days. Heister.

Fernelius, Severinus, Tulpius, and Catherwood, have endeavoured to introduce *arteriotomy* in apoplectic cases, as much preferable to venesection.

ARTERY, in *Anatomy*, a hollow fistulous canal, appointed to receive the blood from the ventricles of the heart, and distribute it to all parts of the body, for the maintenance of heat and life, and the conveyance of the necessary nutriment.—See *Tab. Ant. (Angeiol.) fig. 1.*

The word is, some imagine, derived from *αρ*, *aer*, the air, and *τηρεω*, *servo*, to keep; but others, who under-

stand the use of the part better derive it from *αἰσθῆσις*, *I lift*, because of its continual throbbing or beating. The *arteries* are ordinarily composed of three coats or membranes. The first or outermost, nervous or tendinous; being a thread of fine blood-vessels with nerves, for nourishing the other coats. The second muscular, and made up of circular, or rather spiral fibres; of which there are more or fewer strata, according to the bigness of the *artery*: these fibres have a strong elasticity, by which they contract themselves with force, when the power by which they have been stretched out ceases. The third and inmost coat is a fine, dense, transparent membrane, keeping the blood within its channels, which, otherwise, upon the dilatation of an *artery*, would easily separate the spiral fibres from one another. As the *arteries* grow smaller, these coats grow thinner.

All the *arteries* are conical, i. e. they begin with the trunk, and, growing less and narrower, end in branches so minute, that they escape the sight, unless assisted with microscopes; by which, in the tails of tadpoles, and very small eels, the extremities of the *arteries* seem, by the swift uninterrupted course of the blood, to be inosculated, or continued to the originations of the veins: though by the transparency of those vessels, the actual continuation be not visible.

The coats of the *arteries* are of a very dense, close texture; by which means the blood not being visible through them, they generally appear white. Add, that the blood, proceeding from a greater capacity to a less, is thereby somewhat obstructed in its passage; but being forced on by the motion of the heart, it distends the coats, and thereby occasions a salient motion, called the PULSE! —By this thickness and whiteness of the *arteries*, with the pulsation observed therein, *arteries* are distinguished from veins.

The pulse of the *arteries*, like that of the heart, consists of two reciprocal motions, a *systole* or contraction, and a *diastole* or dilatation: but they keep opposite times; the *systole* of the one answering to the *diastole* of the other.

All the *arteries* of the body, we have observed, arise in two large trunks, from the two ventricles of the heart. That from the right ventricle is called the *pulmonary artery*, serving to carry the blood into the lungs: that from the left, the *aorta*, or *great artery*; which, by its numerous ramifications, furnishes all the rest of the body, as far as the remotest stages of CIRCULATION.

The *great artery*, after it leaves the heart, divides into two large trunks, called the *ascending*, or upper, and *descending*, or lower trunks.

The *ascending trunk*, or *aorta ascendens*, conveys the blood to the head, and other upper parts of the body, and is subdivided into three branches.—The first, the right *subclavian*, whence arise the *carotid*, *vertebral*, *cervical*, right *axillary*, &c.—The second, is the left *carotid*.—The third, the left *subclavian*; whence arise the left *cervical*, *vertebral*, and *axillary*.—See each described in its proper article, AXILLARY, CAROTID, CERVICAL, SUBCLAVIAN, VERTEBRAL, &c.

The *descending trunk*, or *aorta descendens*, carries the blood to the trunk, and the lower parts of the body.

Out of this arise the *branchial*, *intercostals*, *cœliac*, *phrenic*, *mesenteric*, *emulgent*, *spermatic*, *iliac*, *umbilical*, *epigastric*, *hypogastric*, *crural*, &c. with their several ramifications.—See each in its place.

Mr. Weitbrecht concludes, from the small quantity of blood thrown out of the heart into the *arteries*, and the great resistance in the capillary *arteries*, that all or much the larger share of what is sent out of the heart, is retained in the *arteries* during the *systole* of the heart, and is sent forward into the veins, by the contraction of the *arteries*, but so, that the veins can have no pulsation, because so much as is received from the veins is thrown into the heart at the same time. The smallness of the quantity of blood thrown out of the heart makes him think, that the pulsation of the *arteries* cannot be so much owing to their distension, as to their change of place; and he says he perceived, upon trial, that all the *arteries* of the body are not dilated or contracted at the same time.

The *auricles* also, according to him, serve to give an *impetus* to the blood in the ventricles of the heart; for the blood moves so slow in the veins, that its *momentum* would not be sufficient to distend, and to give a spring great enough to the ventricles. The *pulmonary* blood acquiring considerable velocity by the motion of the lungs requires a much less *auricle* from the blood of the *vena cava*, Comment. Acad. Petrop. tom. vi. & vii.

A draught of the several *arteries*, with their divisions and subdivisions, in their natural order and position, as taken from the life, see in plate *Anatomy*, (*Angel* fig. 6.)

ARTERY is also applied to that fistulous tube, composed of cartilages and membranes, which descends from the

mouth to the lungs, for the conveyance and reconveyance of the air, in respiration.

This is particularly called the *aspera arteria*, or *trachæa*, and popularly the WIND-pipe.

ARTERY, wounded. See ANEURISM.

ARTHANITA, in Botany. See CYCLAMEN, and SOW-BREAD.

ARTHEL, something cast into a court, in Wales, or its marches; whereby the court is letted or discontinued for the time.—The casting of *arthel* is prohibited, 26 Hen. VIII. cap. 6.

ARTHRITIC Waters. See WATER.

ARTHRITICA, in Botany, a name given by some to the PRIMROSE, and by others to the ground-PINE.

ARTHRITIS in Medicine, a disease better known under the name of the GOUT.

The word is formed from *ἄρθρον*, *art.ulus*, *joint*; in regard the chief seat of that distemper is in the joints.

ARTHRODIA, in Anatomy, a species of ARTICULATION, wherein a flat head of one bone is received into a shallow socket of another.

The word is formed from *ἄρθρον*, *art.ulus*, and *δέχομαι*, *recipio*, *I receive*.

Such is the articulation of the *humerus*, with the *scapula*.

ARTHRODIA, or ARTHRODIUM, in Natural History, the name of a genus of CRYSTAL, of which there are five species. See Tab. Fossils, Class 3.

ARTHRODIA, in Zoology, a lately established class of *animacula*, containing those with visible limbs.

ARTHROSIS, in Anatomy, a juncture of two bones, designed for motion; called also *articulation*.

The word is formed from *ἄρθρον*, *art.ulus*.

ARTICHOKE, in Botany, called by the Latins CYNARA, of the *syngenesia polygamia aequalis* class. Its characters are these: it hath a compound flower made up of many hermaphrodite florers, included in one common scaly empalement. The florets are tubulous, equal, and uniform, divided at the top into five narrow segments; and they have five short, hairy stamina. At the bottom of each is situated an oval germen, which afterward becomes a single, oblong, compressed, four-cornered seed, crowned with long hairy down.

We have two sorts of *artichokes* that are cultivated in the English gardens, which we shall distinguish here, only by the names whereby they are generally known among gardeners.

The best sort is what the gardeners call the globe *artichoke*. This hath large heads, with broad brown scales, which turn inward; the fleshy part at the bottom of the scales is very thick, and is therefore much preferred to the other, called the French *artichoke*; the stalks of which do generally grow taller, with smaller heads, formed more conical than those of the globe; the scales are narrower, of a greener colour, and frequently turned outward. The fleshy part, or bottom, is not near so thick, and hath a disagreeable perfumed taste. This was almost totally rooted out of the English gardens before the hard frost in 1739-40, when the greatest part of the roots of the other sort were destroyed; many persons were supplied the following spring with plants from Guernsey, where they cultivate only the latter sort; but since the other has been increased again, this green sort has been rooted out of most gardens, to make way for the globe *artichoke*.

The manner of propagating this useful plant, is from slips or suckers taken from the old plant in February and March; these, if planted in a good soil, will produce a good fruit the autumn following. The old *artichoke* stocks are to be dressed in the latter end of February, or beginning of March; this must be thus performed; with a spade remove all the earth from about the stock; down below the part from which the young shoots are produced. Then make choice of two of the clearest and straightest, and most promising plants which are produced from the under-part of the stock; let these be left for a crop: then with a thumb force off all the other buds and young shoots close to the head of the stock from whence they are produced, and with the spade draw the earth about the two plants which are left, closing it fast with the hands to each of them, and separating them asunder as far as can be without breaking them, then crop off the tops of the leaves which hang down.

When this is done, a crop of spinach may be sowed between the stocks, which will be gathered off before they come to ripen; in the beginning of May, when the *artichokes* begin to fruit, all the young plants produced since the dressing must be removed, and all the suckers taken off, leaving only the one principal fruit; and when the *artichoke* is fit to gather, the stock must be cut down close to the ground, that it may shoot out new sprouts before

October,

October; which is the season for earthing them, or, as the gardeners call it, landing the *artichoke* stocks. Miller. The earthing them is thus done; cut off all the sprouts close to the ground, then dig trenches between the rows, covering up the stocks with the earth in ridges; those *artichokes* which are planted in a moist rich soil will always produce the largest fruit, but the roots will not live through the winter in a very moist one.

The *artichoke* is a pleasant wholesome, and very nourishing food; the roots are reckoned to be aperitive, cleansing, and diuretic; good for the jaundice, and to provoke urine.

The French and Germans eat not only the heads, but also the young stalks boiled, and seasoned with butter and vinegar. The Italians seldom boil the heads, but eat them raw, when young, with salt, oil, and pepper.

Artichokes have the reputation of promoting venereal inclinations to a very great degree; the stalks, preserved in honey, are said to be an excellent pectoral; but they should first be blanched, like celery.

The common leaves, boiled in white wine whey, are much commended in the jaundice, as is also the juice of these leaves. James.

ARTICHOKE, *Jerusalem*, is the root of a species of the *helianthus*, or *SUN-FLOWER* of the perennial kind, which is propagated in many gardens for the use of the kitchen; it is a very agreeably tasted root, but watery, and windy, and therefore at present generally disregarded.

It is propagated by planting out the smaller roots, or even pieces of the larger, which have buds to them, in the spring or autumn; they must be allowed a very considerable distance for they spread immoderately, and multiply very quick. In the autumn following, when their stems decay, the roots may be taken up for use. They are but unsightly plants, though very tall, and are commonly placed in obscure corners of a garden. Miller.

ARTICLE, **ARTICULUS**, a little part or division of a book, writing, or the like.—Aquinas divides his sum of theology into several questions; and each question into divers *articles*.—Such an account consists of so many *articles*.

ARTICLE is also applied to the several clauses or conditions of a contract, treaty of peace, or the like.

In this sense we say, *articles of marriage*, *articles of capitulation*, *preliminary articles*, &c.

ARTICLES, *of the clergy*, **ARTICULI cleri**, are certain statutes touching persons and causes ecclesiastical, made under Edward II. and III.

ARTICLE of faith is by some defined a point of Christian doctrine, which we are obliged to believe, as having been revealed by God himself, and allowed and established as such by the church.

The thirty-nine *articles* were founded, for the most part, upon a body of *articles* compiled and published in the reign of Edward VI. They were first past in the convocation, and confirmed by royal authority in the year 1562. They were afterwards ratified anew in the year 1571, and again by Charles I. The law requires a subscription to these *articles* of all persons ordained to be deacons or priests, 13 El. cap. 12. of all clergymen inducted to any ecclesiastical living, by the same statute, and of licensed lecturers and curates. 13 El. cap. 12. and 13 and 14 Ch. II. cap. 4. of the heads of colleges, of chancellors, officials, and commissaries, and of school-masters. By 1 Wil. III. cap. 18. dissenting teachers are to subscribe all except the 34th, 35th, and 36th, and part of the 20th (and in the case of Anabaptists, except also part of the 27th); otherwise they are exempted from the benefits of the act of toleration.

ARTICLE, *articulus*, in *Anatomy*, denotes a joint, or juncture, of two or more bones of the body.

ARTICLE of death, *articulus mortis*, the last pangs or agony of a dying person.

The pope usually sends his benediction to the cardinals, &c. in *articulo mortis*.

ARTICLE, in *Arithmetic*, signifies the number 10, or any number justly divisible into ten parts; as 20, 30, 40, &c.—These are sometimes called *decads*, and sometimes *round numbers*.

ARTICLE, in *Grammar*, denotes a particle used in most languages for the declining of nouns, and denoting the several cases and genders thereof.

The use of *articles* arises chiefly hence, that in languages which have no different terminations, to express the different states and circumstances of nouns, there is something required to supply that office.

The Latins have no *articles*; but the Greeks, and most of the modern languages, have had recourse to them, for fixing and ascertaining the vague signification of common and appellative names.

The Greeks have their *ι*, the eastern tongues their *he emphaticum*; the Italians their *il*, *lo*, and *la*.—The French their *le*, *la* and *les*.—The Germans their *der*, *das*, *dat*.

The English have also two *articles*, *a* and *the*; which being prefixed to substantives, apply their general signification to some particular things. See letter A.

Some grammarians make the *article* a distinct part of speech; others will have it a pronoun; and others a noun adjective. See **SPEECH** and **PRONOUN**.

Articles are of great service in a language, as they contribute to the more neat and precise expressing of several properties and relations, which must otherwise be lost. And hence one great disadvantage of the Latin, above other languages which have *articles*; in that the *article* being either expressed, or left out, makes an alteration in the sense, which the Latins cannot distinguish.

—Thus when the devil said to our Saviour, *si tu es Filius Dei*, it may either be understood, *if thou art a Son of God*, or, *if thou art the Son of God*.—Scaliger, from the want of *articles* in the Latin, has concluded them useless. The Italians even prefix *articles* to proper names, which do not naturally need any, because they of themselves signify things individually.—Thus they say, *il Ariosto*, *il Tasso*, *il Petrarca*.—Even the French join the *article* to the proper names of kingdoms, provinces, &c. as *la Suede*, *la Normandie*.—And we likewise annex it to the names of certain mountains and rivers; as the *Rhine*, the *Danube*, the *Alps*, &c.

ARTICLE, *indefinite*. The *article a* is said to be *indefinite*, because applied to names taken in their more general and confused signification; as, he travelled with the port and equipage of a prince; where the words, *a prince*, may be understood of any prince in general. Or, *a* respects our primary preception, and denotes individuals, as unknown.

ARTICLE, *definite*. The *article the* is said to be *definite*, or *demonstrative*, as fixing the sense of the word it is put before, to one individual thing. Or *the* respects our secondary preception, and denotes individuals as known. See **DEFINITIVE**.

Fa. Buffier, distinguishes a third kind of *articles* in French, which he calls *intermediate*, or *partitive*; serving to denote part of the thing expressed by the substantives they are added to: as, *des savants ont cru*, some learned men have supposed, &c. I want *de la lumiere*, some light, &c. The use and distinction of the *definite* and *indefinite articles* *le* or *la*, and *de* or *du*, make one of the greatest difficulties in the French tongue, as being utterly arbitrary, and only to be acquired by practice.—We may add, that in the English, though the *articles* be so few, yet they are of such frequent use, that they easily discover any stranger, from a natural Englishman.

ARTICULARIS, **ARTICULAR**, in *Medicine*; an epithet applied to a disease, which more immediately infects the *articuli*, or joints.

The *morbus articularis* is the same with the Greek *αρθριτις*, and our **GOUT**.

ARTICULATE *sounds* are those which express the letters, syllables, &c. of any alphabet, or language. See **INARTICULATE**.

Brutes cannot form *articulate* sounds, or they cannot *articulate* the sounds of their voice; excepting some few birds, as the *parrot*, *pye*, *raven*, *starling*, &c.

ARTICULATED *libel*, *libellus articulatus*; that wherein the parts of a fact are set forth to the judge in short, distinct *articles*.

This amounts to much the same with what is otherwise called *libellus positionalis*.

ARTICULATED *leaf*. See **LEAF**.

ARTICULATED *radius*, in *Natural History*. See **RADIUS** *articulatus*.

ARTICULATION, in *Grammar*, a distinct pronunciation of words and syllables.

Articulation is that part of grammar, which treats first of sounds and letters; then of their combinations, for the composing of syllables and words. Hence he who pronounces his words clearly and distinctly, is said to pronounce them *articulately*.

ARTICULATION, *αρθρωσις*, in *Anatomy*, the juncture or connexion of two bones. The bones cannot serve the intended purposes, except the several pieces are fitly adjusted, and then kept together in different ways. The most ancient osteologists (speaking only of the perfect bones of an adult) called the first of these *articulation*, and the other **SYMPHYSIS**.

Articulation thus understood is of two kinds, one moveable, by which the bones are allowed a certain degree of motion; the other immoveable, by which they are fixed together without motion. The first is commonly called **DIARTHROSIS**; that is (according to the expression of Carolus Stephanus, an ancient physician of the faculty at Paris) an *articulation* separated; the other *synarthrosis*, or an *articulation* conjoined. There is still another species of *articulation*, which cannot well be reduced to either of the two former, as partaking of both: this, therefore, may be established as a third kind, by the name of **AMPHIARTHROSIS**.

PHIARTHROSIS, which agrees better to this sort than to the other articulations, to which it has sometimes been applied.

ARTIFICERS, those who work with the hands, and sell things fashioned by them into other forms.

Artificers amount to the same with what we otherwise call *handicrafts* and *mechanics*: such are smiths, carpenters, taylors, shoemakers, weavers, and the like.

The Roman *artificers* had their peculiar temples, where they assembled and chose their own patron, to defend their causes: they were exempted from all personal services. Taruntenus Paternus reckons thirty-two species of *artificers*, and Constantine thirty-five, who enjoyed this privilege. The *artificers* were incorporated into divers colleges or companies, each of which had their tutelary gods, to whom they offered their worship, several of these, when they quitted their profession, hung up their tools, a votive offering to their gods. Pitisc. Lex. Ant. *Artificers* were held a degree below merchants, and *argentarii*, or money-changers, and their employment more fordid. Some deny, that in the earliest ages of the Roman state, *artificers* were ranked in the number of citizens: others, who assert their citizenship, allow that they were held in contempt, as being unfit for war, and so poor that they could scarce pay any taxes. For which reason they were not entered among the citizens, in the censor's books; the design of the *census* being only to see what number of persons were yearly fit to bear arms, and to pay taxes towards the support of the state. It may be added that much of the *artificers* business was done by slaves, and foreigners, who left little for the Romans to mind but their husbandry and war. Dion. Hal. lib. ii. p. 98. By means of the *arts*, the minds of men are engaged in inventions beneficial to the whole community; and thus prove the grand preservative against the barbarism and brutality, which ever attend on an indolent and inactive stupidity.

By the English laws, *artificers* in wool, iron, steel, brass, or other metal, going out of the kingdom into any foreign country without licence, are to be imprisoned three months, and fined in a sum not exceeding one hundred pounds. And such as going abroad, and not returning on warning given by our ambassadors, &c. shall be disabled from holding lands by descent or devise, from receiving any legacy, &c. and be deemed aliens. Stat. 5. Geo. I. cap. 27. By 23 Geo. II. cap. 13. § 1. penalty is also inflicted on seducing *artificers* to go abroad.

Ramazini has a treatise on the diseases of *artificers*.

ARTIFICER by fire, a denomination sometimes given to chemists, and workers in metal.

ARTIFICIAL, something made by art; not produced naturally, or in the common course of things.

ARTIFICIAL is also frequently used for *factitious*.

Thus we have *artificial* sal ammoniac, *artificial* borax, &c.

ARTIFICIAL fire-works are compositions of inflammable materials; chiefly used on solemn occasions, by way of rejoicing. See Sav. Etr. tom. iv. p. 66.

ARTIFICIAL lightning. See **ELECTRICITY** and **LIGHTNING**.

ARTIFICIAL lines, on a sector or scale, are certain lines so contrived, as to represent the logarithmic lines and tangents; which, by the help of the line of numbers, will solve all questions in *trigonometry*, *navigation*, &c. pretty exactly.

ARTIFICIAL magnets. See **MAGNETS**.

ARTIFICIAL music, that which is according to the rules of art; or executed by instruments invented by art. It is also used, in another sense, for some artful contrivance in music; as when a piece is sung in two parts; one whereof is by B molle, or flat, and the other by B sharp. See *Artificii Musicali* del Signor Vitali.

ARTILLERY, the heavy equipage of war; comprehending all sorts of great fire-arms, with their appurtenances; as cannons, mortars, bombs, petards, musquets, carbines, &c.

In this sense, the word *artillery* coincides with what we otherwise call *ordnance*.

The Persians, we are told in the embassy of Figueroa, would never, in 1518, have either *artillery* or *infantry* in their armies, because they hindered their charging and retiring with that nimbleness wherein their chief military address and glory lay.

The term *artillery* is sometimes also applied to the ancient instruments of war, as the *catapultæ*, battering rams, &c.

ARTILLERY, *park of*, is that place in a camp set apart for the *artillery*, or large fire-arms.

ARTILLERY, *traille*, or *train of*, is a set or certain number of pieces of ordnance, mounted on carriages, with all their furniture, fit for marching. To this frequently belong mortar-pieces, with bombs, carcases, &c. It is under the direction of the master of the *artillery*.

Their are trains of *artillery* in most of the king's maga-

zines; as in the Tower, at Portsmouth, Plymouth, Windsor, &c.

ARTILLERY guard is a detachment from the army to secure the artillery. This corps is in the front, and the centries are round the park. Upon a march they go in the front and rear of the *artillery*, and must be sure to leave nothing behind. If a gun or waggon break down, the captain is to leave a part of his guard to assist the gunners and matrosses in getting it up again.

The writers upon *artillery* are, Casimir Semionowitz, a Pole, Buchnerus, Braunius, Mieth, S. Remy in his *Memoires d'Artillerie*, M. Belidor, M. le Blond, and Muller on *Artillery*, which contain an accurate description of all the machines and instruments of war now in use, with every thing that relates to them.

ARTILLERY company of London, is a band of infantry, consisting of about four hundred men.

Their officers are a leader, two lieutenants, two ensigns three gentlemen of arms, two serjeants, and a provost-marshal.

ARTILLERY is also used for what we otherwise call *pyrotechnia*, or the art of fire-works, with the instruments and apparatus belonging thereto.

ARTISAN. See **ARTIST**.

ARTISCUS, from *aplos*, bread, in *Medicine*, denotes a *troche*, but more particularly that prepared of viper's flesh, mixed up with bread, to be used in the composition of Venice treacle.

These are more particularly called *artisci theriaci*, or *theriacal troches*.

They were formerly in great vogue, and brought with much parade from Venice; but Zwelfer discovered their vanity; since which time, viper's powder has been generally substituted for them, in the preparation of the treacle.

ARTIST, in general sense, a person skilled in some art; or, according to Mr. Harris's definition, a person possessing an habitual power of becoming the cause of some effect, according to a system of various and well-approved precepts.

In this sense, we say, an excellent, a curious *artist*. The pre-eminence is disputed between ancient and modern *artists*, especially as to what relates to sculpture, painting, and the like. At Vicenza, we are told of a privilege granted to *artists*, like that of clergy in England; in virtue of this, criminals adjudged to death save their lives, if they can prove themselves the most excellent and consummate workmen in any useful art. This benefit is allowed them in *favorem artis*, for the first offence, except in some particular crimes, of which coining is one. The exception is just, since here the greater the *artist*, the more dangerous the person. Evelyn's Disc. of Medals, ch. vii. p. 237, &c.

ARTIST, *artista*, in an academical sense, denotes a philosopher or proficient in the faculty of arts.

ARTIST is more peculiarly understood of a *chemist* or *alchemist*.

In which sense it is, that Paracelsus and other **ADEPTS** use the word.

ARTIZOOS, from *apli*, short, and *ζωη*, life, is used by some ancient physicians for an infant short-lived, by reason of a difficult birth, whereby he was long detained in the passage from the womb.

ARTOMELI, from *aplos*, bread, and *μελι*, honey, in *Ancient Pharmacy*, a kind of cataplasm, prepared of bread and honey, applied chiefly to the *præcordia*.

ARTOTYRITES, or **ARTOTYRITÆ**, a branch of the ancient *Montanists*, who first appeared in the second century; chiefly in Galatia.

They use bread and cheese in the Eucharist, or perhaps bread baked with cheese.—Their reason was, that the first men offered to God not only the fruits of the earth, but of their flocks too.

Hence, according to St. Augustine, came their name, which is composed of *apros*, bread, and *τυρος*, cheese.

ARVALES *fratres* were priests in ancient Rome, who assisted in the sacrifices of the *Ambarvalia* offered every year to Ceres and Bacchus for the prosperity of the principal fruits of the earth, viz. the corn and wine.

They were instituted by Romulus, and were twelve in number; all of them persons of the first distinction; the founder himself having been of the body.—They made a college, called *collegium fratrum arvalium*.

The mark of their dignity was a garland, composed of ears of corn tied with a white ribband: this Pliny says, was the first crown in use at Rome.

According to Fulgentius, Acca Laurentia, Romulus's nurse, was the first founder of this order of priests: she it seems, had twelve sons, who used to walk before her in procession to the sacrifice; one of whom dying, Romulus, in favour of his nurse, promised to take his place; and hence, says he, came this sacrifice, the number twelve, and the name of brother.—Pliny (lib. xvii. cap.

2.) seems to indicate the same thing, when he mentions, that Romulus instituted priests of the fields, after the example of Acca Laurentia his nurse.

ARVIL-supper, an entertainment made at funerals in the northern parts of England; and *arvil*-bread is the bread delivered to the poor on such occasions.

ARUM, *African*. See CALLA.

ARUM, *floating*. See ORONTIUM.

ARUM, in *Botany*. See WAKE-Robin.

ARUNCUS, *greater meadow sweet*, in *Botany*, the name of a genus of plants, called by Tournefort, and others, *BARRA copra*; and by Linnæus *SPIRÆA*.

This plant has been supposed to be of the same genus with the *filipendula*; but, by the examination of the flowers, they appear to be extremely different.

ARUNDELIAN Marbles, *MARMORA Arundeliana*, or Oxford MARBLES, are ancient stones, whereon is inscribed a chronicle of the city of Athens, engraven in capital letters in the island of Paros, one of the Cyclades, 263 years before Jesus Christ.

They take their name from Thomas earl of Arundel, who procured them out of the East, or from Henry his grandson, who presented them to the university of Oxford.—An account of all their inscriptions was published in 1676, by Dr. Prideaux.

ARUNDO, in *Botany*. See REED.

ARUNDO *Indica*, in the *Materia Medica*, the name of the *ARUNDO sanguinem draconis manans* of Morison. This is the plant from the fruit of which, by maceration in warm water, they get a kind of dragon's blood, which makes the fine red of the Indian varnishes. Dale.

ARURA, in *Antiquity*. See AROURA.

ARURA, in *Middle Age Writers*, denotes a field ploughed and sowed.

ARUSPICES, an order of priests among the ancient Romans, who foretold things to come, chiefly by inspecting the entrails of beasts which were killed in sacrifice. The word seems more properly written *haruspices*; as being derived from *haruga*, which signifies the entrails of victims; and *aspicere*, to view or consider.

The doctrine or discipline of the *aruspices*, was formed into a precise art, called *aruspicina*.

Cato, who was an *augur*, used to say, he wondered how one *aruspex* could look at another without laughing in his face. By which we learn what opinion he had of the solidity of the *aruspicina*.

ARUSPICI libri, a kind of sacred writings among the ancient Etrurians, wherein the laws and discipline of the *aruspices* were described.

These were also called *rituales*, sometimes *fulgurales libri*, as directing how to take indications from thunder, lightning, &c.

ARVUM, in *Ancient Agriculture*, properly denoted ground ploughed but not sowed.

Though the word is also sometimes extended to all arable, or corn land, in contradistinction from pasture.

ARX, in the *Ancient Military Art*, a town, fort, or castle, for defence of a place.

The *arx*, in ancient Rome, was a distinct edifice from the capitol, though some have confounded the two. According to Ryckius, the *arx*, properly speaking, was a place on the highest part of the Capitoline Mount, stronger and better fortified than the rest, with towers and pinnated walls; in which was also the temple of Jupiter Capitolinus. Struv. Synt. Ant. Rom. c. 11. p. 522.

ARX also denoted a consecrated place on the Palatine Mount, where the augurs publicly performed their office.

Some will have the *arx* to have been the augural temple; but Varro expressly distinguishes between the two.

ARX was particularly used for a public place in Rome, set apart for the operations of the AUGURS.

In which sense, *arx* amounts to the same with what is otherwise called *auguraculum*, and *auguratorium*, and in the camp *augurale*.

Out of this *arx* it was that the *feciales*, or heralds, gathered the grass used in the ceremony of making leagues and treaties. Liv. i. c. 24.

ARYTÆNOIDES, in *Anatomy*, the third and fourth cartilages of the LARYNX, situate under the *thyroides*, called also *gutturales*: thus called on account of the figure of an *αρυτανα*, *cwer*; which, together, they somewhat resemble: and the name is compounded of that word, and *ειδος*, *shape*, or *figure*.

ARYTÆNOIDEUS, in *Anatomy*, one of the muscles serving to close the LARYNX; otherwise called little *arytænoides*, and *aryartænoides*, as deriving its origin from the posterior and inferior part of the *arytænoides*.

The *arytænoides* has its head in one *arytænoid* cartilage, and its tail in the other; and serves to bring them together, and shut the *rima* or *glottis*.

ARYTHMUS, or ARHYTHMUS, in *Medicine*, is used by some for a sinking, or failure of the pulse, so that it can no longer be felt; but it more properly denotes an irre-

gularity, or want of due order and proportion of the PULSE.

The word is formed from the privative *α*, and *ρῶμος*, *modulus*, or *measure*.

AS, among *Antiquaries*, sometimes signifies a particular weight; in which sense the Roman *as* is the same with the Roman *libra*, or *pound*.

The word is by some derived from *ais*, which, in the Doric dialect, is used for *eis*, *one*, q. d. an entire thing; though others will have this money named *as*, quasi *as*; because made of brass.—Budæus has written nine books *de asse*, & *ejus partibus*, of the *as*, and its parts.

The *as* had several divisions. See the table under *As*, an integer.

As was also the name of a Roman coin, which was made of different matters and different weights, in different ages of the commonwealth.

Under Numa Pompilius, according to Eusebius, the Roman money was either of wood, leather, or shells.—In the time of Tullus Hostilius, it was brass, and was called *as*, *libra*, *libella* or *pondo*, because actually weighing a pound, or twelve ounces. The Romans reckoned by *asses* before they coined silver, in the 485th year of the city, and afterwards they kept their accounts in *SESTERCES*.

When the first Punic war had exhausted the treasury, they reduced the *as* to two ounces. In the second Punic war, Hannibal pressing hard on them, the *asses* were farther reduced to an ounce a piece.—Lastly, by the Papirian law, they took away half an ounce more, and reduced the *as* to a bare half ounce: and it is generally thought, that it rested here all the time of the commonwealth, and even till Vespasian's reign.

This last was called the Papirian *as*, because the law just mentioned was passed in the year of Rome 563, by C. Papirius Carbo, then tribune of the people. Thus, there were four different *asses* in the time of the commonwealth. The figure stamped on the *as*, was at first a sheep, ox, or sow; and from the time of the kings, a Janus with two faces on the one side, and the *rostrum* or prow of a ship on the reverse.

The triens and quadrans of copper had the figure of a small vessel called *ratis*, on the reverse. Thus Pliny: *Nota aris, (i. e. assis) fuit ex altera parte Janus geminus, ex altera rostrum navis: in triente vero & quadrante rates*. Hist. Nat. lib. xxxiii. cap. 3.—Hence these pieces were sometimes called *ratiti*.

As was also used to denote any integer, or whole.—Whence the English word *ace*.

Thus, *as* signified the whole inheritance; whence *heres ex assi*, the heir to the whole estate.

So the *jugerum*, or Roman acre of land, being reckoned the *integer*, was called *as*, and divided, like it, into twelve *unciae*.

The *as*, and its parts or divisions, stand thus:

I	As	12	Unciæ	$\frac{1}{2}$	Semis	6	Unciæ
$\frac{1}{2}$	Deunx	11		$\frac{1}{2}$	Quincunx	5	
$\frac{5}{6}$	Dextans	10		$\frac{1}{3}$	Triens	4	
$\frac{2}{3}$	Dodrans	9		$\frac{1}{4}$	Quadrans	3	
$\frac{1}{2}$	Bes	8		$\frac{1}{6}$	Sextans	2	
$\frac{1}{3}$	Septunx	7		$\frac{1}{12}$	Uncia	1	

ASA, among *Naturalists*. The writers of the later ages have formed this word *asa* from the *lasar* of the ancients, and attributed it to a gum very different from that anciently known by the name they have thus corrupted.

The *asa* of the ancients was an odoriferous and fragrant gum; and the *asa* of the after-ages had so little title to this epithet, that they distinguished it by one, expressing its being of an offensive or stinking smell.

The Arabian writers, according to this distinction, describe two kinds of *asa*, the one *stinking*, the other *aromatic*; and the modern Greeks preserved the name *asa*, or *lasar*, to the stinking gum the Latins called by that name, but added a distinctive epithet to express its smell, and called it *scardolasarum*.

ASA *dulcis*, in the *Materia Medica*, a name by which some authors have called the *benjamin*, or BENZOIN of the shops: Dale.

ASA *foetida*. See ASSA *foetida*.

ASAPHEIS, *ασαφεις*, from *α*, negative, and *σαφης*, *clear*, *open*: in Hippocrates, in *Prorrh.* & *Coac.* are such patients as do not utter their words in a clear manner. The defect is occasioned, as Galen says, *Comm. 2. in Prorrh.* "either by some hurt which the organs of speech have contracted from a disorder of the nerves, or else by a *delirium*."

ASAPPES, or AZAPES, an order of soldiers in the Turkish army, whom they always expose to the first shock of the enemy; to the end that the enemy being thus fatigued, and their swords blunted, the *spahis* and *janissaries* may fall on, and find an easy conquest.

The word is derived from the Turkish *saph*, which signifies

nifies *rank*, from whence they have formed *asphab*, to range in battle.

The *asappes* are said to be held of so little value, that they frequently serve as bridges for the cavalry to pass over, in bad roads, and as fascines to fill up the ditches of places besieged.—The greatest part of them are natural Turks; they travel on foot, and have no pay, but the plunder they can get from the enemy.

ASARABACCA, or **ASSARA-BACARA**, in *Botany*, a plant supposed to be mentioned by Pliny and Dioscorides, under the name of *baccharis*, or *nardus rustica*; by us called **ASARUM**; of the *dodecandria monogynia* class.

Its characters are, that the flower hath no petals, but a thick coloured empalement, and twelve short stamina. At the bottom of the empalement is inclosed a thick germen, which afterward turns to a thick capsula, having three cells containing several oval seeds. There are three species.

Among the ancients it was much in use as an emetic and cathartic. It is chiefly used among us as a sternutatory, in order to which, it is dried and reduced to a powder, to be taken as a snuff; in which quality it drains the head of mucous humours. It is also a powerful emmenagogue, and has been recommended by authors in the gout, drop-sy, and many other chronic disorders.

ASARIAN, in *Botany*, bastard **ASARUM**, a species of the **ANTIRRHINUM**, in the Linnæan system. Its characters are, that the flower is of one leaf, of the grinning kind, divided at the top into two lips, the upper one divided into two parts, the lower one slightly divided into three obtuse parts. The two lips join close together, so as to form a kind of snout. It hath four stamina; in the centre is placed a round germen, which afterward turns to a round husk, divided into two cells, full of roundish seeds. There are two species.

ASAROTA, *ασαρωτα*, from *α* and *σασω*, *I sweep*, a kind of painted pavements in use before the invention of mosaic work. The most celebrated was that at Pergamus, painted by Sesus, and exhibiting the appearance of crumbs, as if the floor had not been swept after dinner, whence, according to Pliny, the denomination. Perrault supposes them to have been a black kind of pavements of a spongy matter. Plin. Nat. Hist. lib. xxxvi. cap. 25. Perrault ad Vitruv. lib. vi. cap. 5.

ASARUM, in *Botany*. See **ASARABACCA**, and **ASARINA**.

ASASI, in *Botany*, a name given, by the people of Guinea, to a tree, the leaves of which being boiled in water, and held to the mouth, cure the tooth-ach. This tree, in its form and manner of growing, resembles the laurel; the leaves are very hard and stiff, and grow alternately on the stalks: they have short pedicles, and the branches are blackish and rugged, but they are variegated with small reddish spangles, or scaly protuberances. Phil. Trans. N° 232.

ASBESTINE, something incombustible, or that partakes of the nature and qualities of the *lapis asbestos*. Such as *asbestine* paper and cloth. See **ASBESTOS**.

ASBESTOS, a mineral substance, of a whitish, or silver colour, and a woolly texture; consisting of small threads, or delicate fibres, endued with the wonderful property of resisting fire, and remaining unconsumed in the intensest heat.

The word properly signifies an incombustible body; it is formed of the privative *α*, and *σβεσσειν*, *extinguo*.

This lanuginous mineral is sometimes also called *amianthus*, and sometimes *salamandra*, or *salamander's wool*, from the candle-wicks said to be made anciently of it. From a pungent quality, which Agricola says it has on the tongue, though without astringency, it has been by some called *alumen*, having the epithet of *plumeum* added to it, taken from its downy filaments, to distinguish it from the other alums; though it is to be observed, the true plume-alum is another sort of body, being a real efflorescence of alum.

From its light grey colour, it is called *polia* and *corsoides*; and from its likeness to the hoary fibres of some sorts of mat-weed, *spartapolia*. From the capacity it has of being spun into thread, it is called *linum*, with some distinguishing epithet, taken either from its quality, as *linum asbestinum vivum*, or *incombustibile*; or from the place where it is found, as *linum fossile*, *linum Indicum*, *Creticum*, *Cyprium*, and *Carpasium*, or *Carystium*. Besides the places whence it borrows its names, it is also found in Tartary, at Namur, in the Low Countries, in Thuringia among the mines, in the Old Noricum, in Egypt, in the mountains of Arcadia, at Puteoli, in the island of Corsica, in the island of Anglesey in Wales, and in Aberdeenshire in Scotland, at Montauban in France, and in the kingdom of Siberia.

Naturalists generally reckon it among the stones, whence its appellation of *lapis asbestos*, &c. But Dr. Plot rather judges it a *terra lapidosa*, or middle substance, between

stone and earth. As to its generation, the same author takes it to be a mixture of some salt, and a pure earth without sulphur, coagulated in the winter, and hardened by the heats in summer. The salt, Ja. Hessius pretends, is a liquid alum of a milky substance, inclining to yellow, that sweats out of the earth, and smells like rotten cheese.

The *asbestos*, or *lapis asbestos*, is really a sort of native, fissile stone, which one may split into threads or filaments, very fine and brittle, yet somewhat tractable, silky, and of a greyish silvery colour, not unlike the talc of Venice. Acids have no effect upon it.

It is almost insipid to the taste, indissoluble in water; and, exposed to the fire, it neither consumes nor calcines.—A large burning-glass, indeed, reduces it into little glass globules, in proportion as the filaments separate; but common fire only whitens it.

These filaments are of different lengths, from one inch to ten.—The stone is usually found inclosed within other very hard stones; though sometimes growing to the surfaces of them, and sometimes detached or separate from any.

The proprietor of a forge in France found great quantities of a substance, which answered all the common uses of native *asbestos*. Upon a farther inquiry into the nature of it, he concludes, that both the one and the other are calcined iron deprived of its phlogiston; and by reuniting the phlogiston with them, he can restore both to their primitive state of iron. Phil. Trans. vol. li. part 2. N° 72.

The *asbestos*, applied to any part of the body, excites an itching; and yet we read of it as anciently prescribed for diseases of the skin; and particularly for the itch: unless it were rather the *alumen plumosum* that was meant hereby; for even at this day, they are frequently confounded. The industry of mankind has found a method of working this untoward mineral, and employing it in divers manufactures, chiefly cloth and paper.

The manufacture is, undoubtedly, difficult enough. Pliny calls the *asbestos*, *inventu rarum, textu difficilimum*: Wormius assures us, that the method of making cloth of *asbestos* is now entirely unknown: in reality, one would scarce imagine the thing practicable, without the mixture of some other pliant matter, as wool, hemp, or flax, along with the *asbestos*, the filaments of this latter appearing too coarse and brittle, to make any tolerable fine work. However this be, Bapt. Porta assures us, that, in his time, the spinning of *asbestos* was a thing known to every body at Venice.

Sig. Castagnatta, superintendant of some mines in Italy, is said to have carried the manufacture to such perfection, that his *asbestos* was soft and tractable, much resembling lamb-skin dressed white: he could thicken and thin it at pleasure, and thus either made it into a very white skin, or very white paper.

This kind of linen cloth was chiefly esteemed by the ancients; though then better known, and more common, than among us, being held equally precious with the richest pearls: nor is it now of mean value, even in the country where it is most generally made, a China cover (i. e. a piece of twenty-three inches and three quarters long) being worth eighty tale, i. e. 36*l.* 13*s.* 4*d.* Pliny says, he himself had seen napkins thereof, which, being taken foul from the table, after a feast, were thrown into the fire, and by that means were better scoured than if they had been washed in water, &c. But its principal use, according to Pliny, was for the making of shrouds for royal funerals, to wrap up the corpse, so that the ashes might be preserved distinct from those of the wood, &c. whereof the funeral pile was composed: and the princes of Tartary, according to the accounts in the Philosophical Transactions, still use it at this day in burning their dead. Some of the ancients are said to have made themselves cloaths of it, particularly the Brachmans, among the Indians. The wicks for their perpetual lamps, according to Dr. Lister, were also made of it; and some to this day use it for the wicks of such lamps as they would not have any trouble with; because the *asbestos* never wasting, there is no occasion for shifting the wick: Septella, canon of Milan, had thread, ropes, nets, and paper, made of the *asbestos*. A handkerchief or pattern of this linen was long since presented to the Royal Society, a foot long, and half a foot broad. This gave two proofs of its resisting fire; though, in both experiments, it lost above three drachms in its weight. When taken out red-hot, it did not burn a piece of white paper, on which it was laid. Mr. Villette pretends, that his large burning concave usually vitrifies the *asbestos*.

The method of preparing the incombustible paper and cloth is thus described by Ciampini. The stone is laid to soak in warm water, then opened and divided by the hands, that the earthy matter may be washed out. The

ablution

ablution being several times repeated, the flax-like filaments are collected and dried; and they are most conveniently spun with an addition of flax. Two or three filaments of the *asbestos* are easily twisted along with the flaxen thread, if the operator's fingers are kept oiled. The cloth also, when woven, is best preserved by oil from breaking or wasting. On exposure to the fire, the flax and oil burn out, and the cloth remains pure and white. Probably from the dissipation of some extraneous matter of this kind proceeded the diminution of weight in the handkerchief just recited; for pure *asbestos* leaves nothing. The shorter filaments which separate in washing the stone, may be made into paper in the common manner. Phil. Trans. N° 273.

It is first necessary to observe, that in the searching after this substance, the distinction between the *asbestos* and amianthi is carefully to be observed, the one of these being composed of the long threads, and the other of very short and abrupt ones; this is their great distinction, and all the *asbestos*, or long-threaded ones, are more or less fitted for this work, and none of the *amianthi*, or short-threaded ones, are at all so. Besides, the *asbestos* is somewhat heavier than the amianthus.

ASBESTOS, false, is a name given to plume-alum. See *Plume ALUM*.

ASCARIDES, in *Medicine*, a slender sort of worms, found in the *intestinum rectum*, chiefly of children, and frequently voided with their *feces*; sometimes also adhering to the fundament, or even pendent from it.

They are thus called from *ασκαριζω*, *I leap*, on account of their continual troublesome motion, causing a most intolerable itching. They are ranged by Linnæus among the *vermes intestinae*.

The *ascarides* are worms not so dangerous as some others, but more difficult to be expelled, and that for several reasons. The first is, because those creatures are remote from the stomach; so that remedies lose their virtue before they can come where the worms are, the second is, because the *ascarides* are wrapt up in viscous humours, which hinder the operation of medicines. The third is, because these worms ascend sometimes into the *cæcum*. Now that gut being like the bottom of a sack, the *ascarides* keep themselves as it were intrenched in that place. However, it be, it is better to attack them below.

The best known remedy for them is Harrowgate water, at the spring; the flower of brimstone taken with treacle, in such a quantity as to purge the patient gently every day, is perhaps the next most efficacious remedy. The fumes of tobacco, injected in form of a clyster, have been successfully used for expelling *ascarides*. Med. Obs. and Inq. vol. ii. p. 307.

Ascarides are said to be often the occasion of a *prolapsus ani*. See *PROCIDENTIA*.

The name *ascarides* is also given by M. Reaumur to a sort of small worms or maggots, bred from the eggs of winged animals; which bury themselves between the membranes of the leaves of plants, and there eat away the parenchymatous substance.

As small as these *ascarides* in general are, they do not fail to shew the proper characters, by which they may be reduced to regular classes: those which have had their origin from the eggs of butterflies, are truly and properly caterpillars in miniature; the others are maggots from flies; and if from beetles, they are hexapode worms. Of the little caterpillars, some have sixteen feet, some only fourteen; and some of them are perfectly smooth and equal all over their body; others have a number of rings or annular divisions, like the larger caterpillars; their several changes in arriving at the fly-state are the same with those of the common silk-worm, and other species of large caterpillars.

The *ovula* of the parent butterfly are deposited singly, only one being placed on a leaf; for the little caterpillar is of the nature of the solitary, not the gregarious animals. These eggs are so small, as to be scarce visible, except to an observer so accurate as M. Reaumur; but he not only discovered them lying upon the leaves of plants, but traced them to the time of their hatching; and observed this curious particular, that the caterpillar never enjoys the light or free air, but as soon as ever it is hatched eats its way through the integument of the leaf; and, under the cover of its shell, buries itself among the parenchymatous matter, whence it never comes out again till it arrives at the fly state.

The worms which are hatched of the eggs of flies, make their way as speedily into the substance of the leaf: but with this difference in the manner of doing it, that as the caterpillar eats its way through with its teeth, the worm strikes its head forcibly against it several times, and by repeated blows at length breaks a hole in it, large enough to admit its little body; and then feeds on the parenchyma of the leaf, in the same manner with the caterpillar. These finally change into their chrysalis

state, within the covert of the membrane of the leaf. The last kind of *ascarides* which are to become beetles, make their way into the substance of the leaf in the same manner; and when they have fed their destined time upon its parenchyma and juices, they sometimes change in the covering of the membrane, and sometimes come out of their holes, and choose the surface of the leaf for the scene of this great catastrophe.

ASCENDANT, in *Genealogy*, is understood of ancestors, or such relations as have gone before us: such are father, grandfather, &c.—They are thus called in contradistinction to descendants, or the descending line. It is a canon in law, that inheritances never lineally ascend. Marriage is always forbid between the *ascendants* and *descendants*, in a direct line.

ASCENDANT, in *Astrology*, denotes the *horoscope*: or the degree of the ecliptic which rises upon the horizon, at the time of the birth of any one.

This is supposed to have an influence on the person's life and fortune, by giving him a bent and propensity to one thing more than another.

In the celestial theme, this is called the *first house*, the *angle of the East*, or *Oriental Angle*, and the *significator of life*.—Such a planet ruled in his *ascendant*.—Jupiter was in his *ascendant*, &c.

Hence the word is also used in a moral sense, for a certain superiority which one man has over another, from some unknown cause.

ASCENDENS obliquus. See *OBLIQUUS*.

ASCENDING, in *Astronomy*, is understood of those stars, or degrees of the heavens, &c. which are rising above the horizon, in any parallel of the equator.

ASCENDING latitude is the latitude of a planet when going towards the north pole.

ASCENDING node is that point of a planet's orbit, wherein it passes the ecliptic, to proceed northward.

This is otherwise called the *northern node*, and is represented by this character Ω . See *NODE*, &c.

ASCENDING signs, among *Astrologers*, are those which are upon their ascent, or rise, from the *nadir*, or lowest part of the heavens, to the *zenith*, or highest.

ASCENDING, in *Anatomy*, is applied to such vessels as carry the blood upwards, or from lower to higher parts of the body. The *ascending aorta*, *aorta ascendens*, is the superior trunk of the artery, which furnishes the head.

The *ascending cava*, *vena cava ascendens*, is a large vein, formed by a meeting or union of the iliacs of one side, with those of the other. See *Tab. Anat. (Splanchn.) fig. 1. lit. O. (Angeiol. fig. 6. lit. cc.)*

Many of the ancient anatomists called this the *descending cave*; as imagining that the blood descended from the liver by this vein, to supply the parts below the diaphragm. But the moderns have shewn, that it has a quite contrary use, and serves for the conveyance of the blood from the lower parts to the heart; whence its appellation *ascendant*.

ASCENSION, *ASCENSIO*, a rising or moving upward.

ASCENSION, in *Theology*, is particularly used for that miraculous elevation of our Saviour, when he mounted to heaven in the sight of his apostles.

ASCENSION-day, popularly called *Holy Thursday*, a festival of the church, held ten days before Whitsuntide, in memory of our Saviour's *ascension*.

ASCENSION, in *Astronomy*, is either *right* or *oblique*.

ASCENSION, right, of the sun, or of a star, is that degree of the equinoctial, accounted from the beginning of Aries, which rises with the sun, or star, in a right sphere.

Or, *right ascension*, is that degree and minute of the equinoctial, counted as before, which comes to the meridian with the sun, or star, or other point of the heavens.

The reason of thus referring it to the meridian, is, because that it is always at right angles to the equinoctial, whereas the horizon is only so in a right, or direct sphere.

The *right ascension* stands opposed to the *right descension*. Two fixed stars, which have the same *right ascension*, i. e. are at the same distance from the first point of Aries in a right sphere; or, which amounts to the same, are in the same meridian, rise at the same time.—If they be not in the same meridian, the difference between the time when they rise is the precise difference of their *right ascension*.—In an oblique sphere, where the horizon cuts all the meridians obliquely, different points of the meridian never rise or set together; so that two stars, on the same meridian, never rise or set at the same time; and the more oblique this sphere, the greater is the interval of time between them.

To find the *right ascensions* of the sun, stars, &c. trigonometrically, say, As radius is to the cosine of the sun's greatest declination, so is the tangent of the distance from Aries to Libra, to the tangent of *right ascension*.—To find the *right ascensions* mechanically by the globe, see *GLOBE*.

The

The *arch of right ascension* is that portion of the equator intercepted between the beginning of Aries, and the point of the equator which is in the meridian: or, it is the number of degrees contained therein.—This coincides with the right *ascension* itself.—The right *ascension* is the same in all parts of the globe.

We sometimes also say, the *right ascension* of a point of the ecliptic, or any other point of the heavens.

The difference between the *right* and *oblique ascensions* is called the *ASCENSIONAL difference*.

ASCENSION, *angle of right*. See ANGLE.

ASCENSION, *oblique*, is an arch of the equator intercepted between the first point of Aries, and that point of the equator, which rises together with a star, &c. in an oblique sphere.

The oblique *ascension* is numbered from west to east; and is more or less, according to the different obliquity of the sphere.

To find the oblique *ascensions* of the sun, either trigonometrically, or by the globe, see GLOBE.

The *arch of oblique ascension*, is an arch of the horizon intercepted between the beginning of Aries, and the point of the equator, which rises with a star, or planet, in an oblique sphere.—This coincides with the *oblique ascension* itself.—The *oblique ascensions* change according to the latitude of the places.

ASCENSION and *descent*, *refraction of*. See REFRACTION.

ASCENSIONAL *difference* is the difference between the right and oblique *ascension* of the same point on the surface of the sphere.

To find the *ascensional difference* trigonometrically; having the latitude of the place, and the sun's declination given, say, As radius is to the tangent of the latitude, so is the tangent of the sun's declination to the sine of the *ascensional difference*.

If the sun be in any of the northern signs, and the *ascensional difference*, as D O, be subtracted from the right *ascension* reckoned at D (*Tab. Astronomy, fig. 63.*) the remainder will be the oblique *ascension* at O.—If he be in a southern sign, the *ascensional difference* being added to the right *ascension*, the sum is the oblique *ascension*; and thus may tables of oblique *ascensions* be constructed for the several degrees of the ecliptic, under the several elevations of the pole. The sun's *ascensional difference* converted into time, is just so much as he rises before or after six o'clock.

ASCENSORIUM sometimes occurs in our ancient writers for a stair, or step.

ASCENT, ASCENSUS, the motion of a body tending from below upwards; or the continual recess of a body from the earth.

In this sense the word stands opposed to *descent*.

The Peripatetics attribute the spontaneous *ascent* of bodies to a principle of levity, inherent in them.

The moderns deny any such thing as spontaneous levity, and shew, that whatever *ascends*, does it in virtue of some external impulse, or extrusion. Thus it is that smoke, and other rare bodies, *ascend* in the atmosphere; and oil, light woods, &c. in water: not by any external principle of levity, but the superior gravity, or tendency downwards of the parts of the medium wherein they are.

The *ascent* of light bodies in heavy mediums is produced after the same manner as the *ascent* of the lighter scale of a balance.—It is not that such scale has an internal principle, whereby it immediately tends upwards; but it is impelled upwards by the preponderancy of the other scale; the excess of the weight of the one having the same effect by augmenting its impetus downwards, as so much real levity in the other: because the tendencies mutually oppose each other, and that action and reaction are always equal. See this farther illustrated under the articles SPECIFIC Gravity, and FLUID.

ASCENT of Bodies on inclined Planes. See the doctrine and laws of them under Inclined PLANE.

ASCENT of fluids is particularly understood of their rising above their own level, between the surfaces of nearly contiguous bodies, or in slender capillary glass tubes, or in vessels filled with sand, ashes, or the like porous substances.

This effect happens as well in *vacuo*, as in the open air, and in crooked, as well as strait tubes. Some liquors, as spirit of wine, and oil of turpentine, *ascend* swifter than others; and some rise after a different manner from others. Mercury does not ascend at all, but rather subsides.

The *phenomenon*, with its causes, &c. in the instance of capillary tubes, will be spoken of more at large under CAPILLARY tube.

As to planes. Two smooth polished plates of glass, metal, stone, or other matter, being so disposed as to be almost contiguous, have the effect of several parallel ca-

pillary tubes; and the fluid rises in them accordingly: the like may be said of a vessel filled with sand, &c. the divers little interstices whereof form, as it were, a kind of capillary tubes. So that the same principle accounts for the appearance in them all. And to the same may probably be ascribed the *ascent* of the sap in vegetables.

Thus Sir I. Newton. "If a large pipe of glass be filled with sifted ashes, well pressed together, and one end dipped into stagnant water, the fluid will *ascend* slowly in the ashes, so as in the space of a week or fortnight to reach the height of thirty or forty inches above the stagnant water. This *ascent* is wholly owing to the action of those particles of the ashes which are upon the surface of the elevated water; those within the water attracting as much downwards as upwards: it follows, that the action of such particles is very strong; though being less dense and close than those of the glass, their action is not equal to that of glass, which keeps quick-silver suspended to the height of sixty or seventy inches, and therefore acts with a force which would keep water suspended to the height of about sixty feet. By the same principle, a sponge sucks in water, and the glands in the bodies of animals, according to their several natures and dispositions, imbibe various juices from the blood." Optics, p. 367.

If a drop of oil, water, or other fluid, be laid on a glass plane, perpendicular to the horizon, so as to stand without breaking, or running off; and another plane, inclined to the former so as to meet a-top, be brought to touch the drop, then will the drop break, and *ascend* towards the touching end of the planes; and it will *ascend* the faster in proportion as it is higher, because the distance between the planes is constantly diminishing.—After the same manner, the drop may be brought to any part of the planes, either upward or downward, or sideways, by altering the angle of inclination.

Lastly, if the same perpendicular planes be so placed, as that two of their sides meet, and form a small angle, the other two being only kept apart by the interposition of some thin body; and thus immersed in a fluid tinged with some colour; the fluid will ascend between the planes, and this the highest where the planes are nearest; so as to form a curve line, which is found to be a just hyperbola, one of the asymptotes whereof is the line of the fluid, the other being a line drawn along the touching sides.—The physical cause, in all these *phenomena*, is the same power of ATTRACTION.

ASCENT of vapour. See CLOUD and VAPOUR.

ASCENT, in Astronomy, &c. See ASCENSION.

ASCENT, in Logic, denotes a kind of argumentation, wherein we rise from particulars to universals.

As, when we say, this man is an animal, and that man is an animal, and the other man, &c. therefore, every man is an animal.

ASCESIS, properly denotes exercise of the body. It is formed from the verb *ασκειν*, used by the ancients in speaking of the sports and combats of the *athletæ*.

ASCESIS is also used by philosophers, to denote an exercise conducive to virtue, or to the acquiring a greater degree of virtue. Budæus has a dissertation on this philosophical *ascesis*.

ASCETERIUM, in Ecclesiastical Writers, is frequently used for a monastery, or place set apart for the exercises of virtue and religion.

The word is formed from *ascesis*, exercise, or *ascetra*, one who performs exercise. Originally it signified a place where the *athletæ*, or gladiators, performed their exercises.

ASCETIC, an ancient appellation given to such persons as, in the primitive times, devoted themselves more immediately to the exercises of piety and virtue, in a retired life; and, particularly, to prayer, abstinence, and mortification.

The word is derived from *ασκω*, *exerceo*, I exercise.

Afterwards, when the monks came in fashion, this title was bestowed upon them; especially upon such of them as lived in solitude.

ASCETIC is also a title of several books of spiritual exercises.—As, the *Asceticks*, or devout treatises of St. Basil, archbishop of Cæsarea in Cappadocia.

We also say the *ascetic life*, meaning the exercise of prayer, meditation, and mortification.

A SECRETIS. See SECRETARY.

ASCHARIOUNS, or ASCHARIANS, followers of Ascharius, one of the most celebrated doctors among the Mahometans.

ASCHIA, in Ichthyology. See GRAYLING.

ASCIA, in Antiquity, an instrument supposed of the ax-kind, used in the fabric of the Roman tombs, and frequently represented on them.

The formula *sub ascia dedicare*, is frequently found inscribed on ancient tomb-stones. We also meet with *rogum ascia ne poleito*, among the antique laws of the Twelve Tables.

Tables. These expressions, and the figure of the *ascia*, as seen on the tombs, have puzzled several antiquaries, who have formed very curious conjectures concerning it. F. Martin rejects all their opinions; and with considerable probability affirms, that the *ascia* was a hoe, or sort of pick-ax for digging up the ground, which is to this day called *affados*, or *affaidos*, in Languedoc. This *ascia* he pretends was not an instrument of common use, but consecrated and employed only for digging of graves; and that it is the same with what Sidonius Apollinarius calls *rastrum funebre*, wherewith the Gauls digged their graves. Lib. iii. ep. 12.

This, he thinks, appears plainly to be the signification of the word, from the Latin proverb, *ipse mihi asciam in crus implegi*; which often happens to those who work with this instrument.

On this footing the famous law of the Twelve Tables, wherein the *ascia* is mentioned, and the explication of which has puzzled all our antiquaries, contained only a prohibition to dig graves with an instrument of iron or copper, such as the *ascia*. In reality it was a tradition observed by the remotest antiquity, that no instrument made of those metals should be used in sepulchres.

Dom. Martin has given a dissertation concerning the funeral monuments of the Romans, consecrated *juxta asciam*. La Relig. des Gaul. tom. ii. liv. 5.

ASCIA is also used in *Surgery*, for a kind of bandage, somewhat oblique, or crooked; whose form and use are well described by Scultetus, in his *Armam. Chirurg. p. 1. tab. 54. fig. 3.*

ASCI, in *Geography*, are those inhabitants of the globe, who, at certain times of the year, have no shadow.

The word is formed of the privative *a*, and *σκια*, *umbra*, *shadow*.

Such are the inhabitants of the torrid zone; because the sun is sometimes vertical to them.—To find on what days the people of any parallel are *ascii*, see *GLOBE*.

ASCIDIA, a genus of the order of *mollusca* worms, in the Linnæan system.

ASCINDOE, in *Botany*, a name given by the people of Guinea to a shrub, which they use in medicine, boiling it in water, and giving the decoction in gonorrhœas, and the like complaints. Petiver has named it the prickly Guinea shrub, with roundish crenated leaves, and filamentous flowers. The leaves are about an inch wide, and about an inch and a half long; they stand on short foot-stalks; and at the ends of the branches, there stand clusters of staminate flowers. The thorns on the large branches are very strong. Phil. Trans. N^o 232.

ASCITÆ, in *Antiquity*, a sect, or branch, of Montanists, who appeared in the second century.

The word is derived from *ασκος*, a bag, or bottle.

The *Ascitæ* were so called, because they introduced a kind of Bacchanals into their assemblies, who danced round a bag or skin blowed up; saying, these were those new bottles filled with new wine, whereof Jesus Christ makes mention, Math. ix. 17.—They are sometimes also called *Ascodrogitæ*.

ASCITES, in *Medicine*, a species of DROPSY, affecting chiefly the abdomen, or lower belly.

The word is borrowed from *ασκος*, *uter*, *bag*, or *bladder*.

The *ascites* is the ordinary WATER-DROPSY.

ASCLEPIA, in *Antiquity*, feasts celebrated through Greece in honour of Bacchus.

ASCLEPIAD, ASCLEPIADEUS, a Greek or Latin verse of four feet, containing a spondee, a choriambus, and two dactyls; or, which amounts to the same, a spondee, two choriambuses, and a pyrrhichius.

Such is the verse,

Mæcenatavis edite regibus.

And,

Sublimi feriam sidera vertice.

ASCLEPIAS, in *Botany*, *Vinsexticum*, *Hirundanaria*. See SWALLOW-WORT.

ASCODRUTÆ, in *Antiquity*, a sect in the second century, who rejected all use of symbols and sacraments, on this principle, that incorporeal things cannot be communicated by things corporeal, nor divine mysteries by any thing visible.

ASCOGEPHYRUS, in *Middle Age Writers*, denotes a bridge supported on bags made of leather, or bullocks hides. Such bridges appear to have been in use among the ancients, and to have given the denomination to a tribe of Arabs, hence called *Ascitæ*.

Hence also the appellation *ascomanni*, given to pirates, by reason of their using bridges, or rather boats made of leather. Plin. Hist. Nat. lib. vi. c. 9. Du-Cange.

ASCOLIA, in *Antiquity*, a feast, which the peasants of Attica celebrated in honour of Bacchus.

They sacrificed a he-goat to him, (as being the destroyer of vines); and of the victim's skin made a foot-ball, which they blew up, and anointed with some unctuous matter; or, as Potter thinks, they made a bottle of it, which they filled with oil and wine. The young people

playing at this, and keeping themselves always on one foot, whilst the other was suspended in air, by their frequent falls, gave occasion of diversion to the spectators. He that held the sport longest, and made the largest hops, was the conqueror. Hence the game called *ascolia*. Pitiscus.

ASCRIPTI, or ADSCRIPTI, in *Antiquity*, those who entered their names in the colonies, and became *coloni*.

ASCRIPTITII, or ADSCRIPTITII, a kind of villains who coming from abroad, settle in the lands of some new lord, whose subjects or servants they commence; being so annexed to the lands, that they may be transferred and sold with the same.

The *ascriptitii* are annexed to the land they hold, so that they cannot stir from it; besides, that whatever they acquire accedes to the benefit of the lord of the land. Du-Cange, and Calv. Lex. Jur.

ASCRIPTITII is sometimes also used in speaking of aliens or foreigners, newly admitted to the freedom of a city or country.

ASCRIPTITII was also used in the *Military Laws*, for the recruits appointed to supply the losses of the legions, called also ACCENSI.

ASCRIPTIVI, in *Antiquity*. See ASCRIPTITII.

ASCUS, in *Natural History*, a word used by De Laet, as the name of that pouch or bag which nature has given to the OPOSSUM, or POSSUM, as our common people in America call it, for the receiving the young ones into it in time of danger.

This *ascus* is a skinny bag, separate from the rest of the body, and only adhering by a membrane to the bottom of the belly. It is a vulgar error to suppose that the young of this animal are taken back again into the womb, in time of danger, they being only at liberty to creep into and out of this bag, prepared on purpose for them.

ASCYRUM, in *Botany*. See ST. PETER'S-WORT.

ASEKI, or ASEKAI, the name which the Turks give to the favorite sultaneffes, who have brought forth sons. These are greatly distinguished above others in their apartments, attendants, pensions, and honours. They have sometimes shared the government. The sultana who first presents the emperor with a male child, is reckoned the chief favourite, is called *buyuk aseki*, and ranks as a legitimate wife: though, from the time of Bajazet I. the sultans are forbid to marry by a public law, which Solyman II. violated in favour of Roxalana. ASELLI, two fixed stars of the fourth magnitude, in the constellation CANCER.

ASELLI is sometimes used for MILLEPEDES.

ASELLII Pancreas. See PANCREAS.

ASELLUS, in *Ichthyology*, the name of a genus of fish, including the cod and whiting; of which writers enumerate several species. See Willughby's Hist. Pisc. p. 160. See COD and FISHERY.

ASEMOS, *ασημος*, from *a* negative, and *σημα*, a sign, is an epithet applied to events that fall out contrary to all appearance, and without any manifest cause.

ASEPTA, in *Medicine*, *ασηπτα*, from *a* negative, and *σηπω*, to putrefy; signifies any thing unputrefied, or unconcocted.

ASH-tree, *fraxinus*, in *Botany*, a genus of the *polygamia dioecia* class. Its characters are, that it hath hermaphrodite and female flowers on the same tree, and sometimes on different trees. The hermaphrodite flowers have no petals, but a small empalement including two erect stamina. In the centre is situated an oval compressed germen, which afterwards becomes a compressed bordered fruit, shaped like a bird's tongue, having one cell, inclosing a seed of the same form. The female flowers are the same, but have no stamina. Linnæus enumerates three, and Miller six species.

These trees are now propagated in plenty in the nurseries for seed, as there have been of late years a great demand for all the hardy plants of trees and shrubs which will live in the open air; but all those trees which are grafted upon the common *ash*, are not so valuable as those which are raised from seeds, because the stock generally grows much faster than the grafts; whereby the lower part of the trunk, so far as the stock rises, will often be twice the size of the upper; and if the trees stand much exposed to the wind, the grafts are frequently broken off to the stock, after they are grown to a large size, which is a great disappointment to a person, after having waited several years, to see their trees suddenly destroyed. Beside, if the wood of either of the sorts is valuable, it can be of little use when the trees are so raised.

The common *ash* propagates itself in plenty by the seeds which scatter in the autumn; so that where the seeds happen to fall in places where the cattle do not come, there will be plenty of plants come up in the spring. But where any person is desirous to raise a quantity of the trees, the seeds should be sown as soon as they are ripe, and then the plants will come up the following spring: but if the seeds are kept out of the ground till

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spring, the plants will not come up until the year after, which is the same with all the sorts of *ash*.

When the plants are come up, they must be kept clean from weeds during the summer; and if they make any good progress in the seed-bed, they will be fit to transplant by the following autumn; therefore there should be some ground prepared to receive them, and as soon as their leaves begin to fall, they may be transplanted. In taking them up, care should be taken not to tear off any of their roots; to prevent which, they should be taken up with a spade, and not drawn up as is frequently practised. For, as many of the plants which rise first from seeds, will outstrip the others in their growth, so it is frequently practised to draw up the largest plants, and leave the smaller to grow a year longer before they are transplanted: and to avoid hurting those which are left, the others are drawn out by hand, and thereby many of their roots torn off or broken. The better way therefore is to take up all, transplanting the larger ones together in rows, and the smaller by themselves. The rows should be three feet asunder, and the plants a foot and a half distant in the rows. In this nursery they may remain two years, by which time they will be strong enough to plant where they are to remain; for the younger they are planted out, the larger they grow: so that where they are designed for use they should be planted very young; and the ground where the plants are raised should not be better than that where they are designed to grow.

If a wood of these trees is rightly managed, it will turn greatly to the advantage of its owner; for by the underwood which will be ready for cutting every eight or ten years, there will be a continual income, more than sufficient to pay the rent of the ground, and all other charges; and still there will be a stock preserved for timber, which in a few years will be worth forty or fifty shillings a tree.

The best season for selling these trees is, from November to February; for if it be done too early in autumn, or too late in the spring, the timber will be subject to be infested with worms, and other insects: but for lopping of pollards, the spring is preferable for all soft woods. This timber is of excellent use to the wheelwright and cartwright, for ploughs, axle-trees, wheel-rings, harrows, bulls, oars, blocks for pullies, and many other purposes. Miller's Gardener's Dict.

ASH, mountain, see SERVICE-tree.

ASH, poison, see POISON-wood.

ASHES, *cineres*, the terrene or earthy part of wood, and other combustible bodies, remaining after they are burnt or consumed with fire.

This name is generally applied to the substance remaining of bodies containing an inflammable matter, after they have been deprived of it by burning, or calcination in open air. Pewterers, for example, give the name of *tin-ashes* to the earth of this metal, which in fusion has been deprived of its phlogiston and metallic properties.

Ashes are properly the earth and fixed salts of the fuel, which the fire cannot raise; all the other principles being gone off in the smoke.

The chemists frequently call the *ashes* of a body its *calx*.

—*Ashes*, if well burnt, are usually pure white, because the oil to which they owe their blackness when in a coal, is supposed quite evaporated. The *ashes* of kali, fern, or the like, are a principal matter in the composition of glass.

The *ashes* of all vegetables are found to contain iron, inasmuch, that M. Geoffroy, makes it a chemical problem, which he proposes to the public, to find *ashes* without any particles of iron therein.—Whether the metal existed in the plants themselves, or is produced in them by the operation of calcination, is a point very ingeniously controverted between Mess. Geoffroy, and Lemery the younger, in the Memoirs of the Royal Academy. See the substance of the dispute under METAL.

Ashes are of considerable use in making lixiviums, or leys, for the purposes of medicine, for bleaching, and for sugar-works, &c.

White *ashes* were forbid to be exported, 2 and 3 Ed. VI. c. 26. on account of their necessary use in the making of soap and saltpetre; as well as for the whitening of linen, and the dying and scouring of woollen cloth.

In the bills of entry, we find divers sorts of *ashes* imported from abroad: as POT-*ashes*, PEARL-*ashes*, from Germany; wood or SOAP-*ashes*, and WEED-*ashes*. See POT-*ashes*, &c.

The ancients preserved the *ashes* of their dead ancestors with great care and piety, in urns made for the purpose. See URN, &c.

The *ashes* of all kinds of fuel make a fine manure for lands. They are the most proper for cold and wet lands, and should be kept dry till the time of using them, that

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the rain may not wash out their salts. One load of dry *ashes* are found by the farmers to go as far as two loads that have been more carelessly kept. The wetting them moderately sometimes with urine, or soap-suds, adds to their virtue. Six loads of common *ashes* are generally allowed to an acre; but two loads of those preserved in this manner, will be sufficient for the same quantity of ground.

The advantage that vegetable *ashes* are of to land, is abundantly seen in the profit of the farmer, by burning his stubble, &c. But sea-coal *ashes* are the best for cold lands, and their virtue is found to be the most lasting of that of any kind.

Ashes are a great improvement for grass-ground, as well as ploughed lands. On the former they are to be strewed in April, and on the latter, as soon as the corn is sown. Soap-*ashes*, after the soap-boilers have done with them, are found also to be of very great advantage to cold and four lands. The worst sort of land we have, which is naturally over-run with furze and heath, has been tried with this manure, in large quantities, and vast crops of wheat have been obtained from it for six years together. Kiln-*ashes*, such as are made of straw, furze, &c. are as good as any, but they are very light. The malsters in the West of England sift these over their corn and grass, but being very light, this must by no means be done in windy weather, and succeeds best of all when done just before rain or snow.

Pot-*ashes*, after the pot-ash men have done with them, are also of great service; but as they have been, in a great measure, deprived of their salt, they are to be laid on in considerable quantity.

Turf-*ashes* are very good for all sorts of land, but especially for clay land; but these are much the better, when mixed first with lime.

ASHES, pot, see POT-*ashes*.

ASHLAR, a term used among Builders; by which they mean common or free-stones, as they come out of the quarry, and of different lengths and thicknesses.

ASHLERING, among Builders, signifies quartering, to lath to, in garrets, about 2½, or 3 feet high, perpendicular to the floor, up to the under side of the rafters.

ASH WEDNESDAY, the first day of Lent, supposed to have been so called from a custom in the church of sprinkling ashes that day on the heads of penitents then admitted to penance.

ASIARCHA, in Antiquity, the superintendent of the sacred games in Asia. Montfaucon. Pal. Græc. lib. ii. c. 6. p. 161.

The *Asiarcha* differed from the *Galatarcha*, *Syriarcha*, &c. Some will have the *Asiarchs* to have been persons of rank, chosen in the way of honour, to procure the celebration of the solemn games, at their own expences.

ASIATIC style, see STYLE.

ASICTOS, in Natural History, a name given by the ancients to a stone, described to have been of a black colour, variegated with spots and veins of red. See ABSYNTHUS.

ASILUS, in Ornithology, the name used by many for the LUTEOLA, or *regulus non cristatus*, an extremely small bird, common among willows.

ASILUS, in Zoology, the name of a genus of insects, belonging to the *diptera* of Linnæus, called in English the HORNET-fly, or WASP-fly.

The distinguishing characters of this genus are these; they are of the two-winged kind, with a style or oblong body, terminated by a protuberance or head, and called a ballancer, under each wing: to this add, that the head is furnished, by way of mouth, with a snout of a subulated figure, which is simple and very sharp at the extremity; horny and bivalve. They are among the largest of the FLY-kind. Linnæus enumerates seventeen species.

Authors have called these insects by the names of *muscæ crabroniformes*, *muscæ rapaces*, and *muscæ vespiiformes*.

ASINARI, an appellation given, by way of reproach, to the ancient Christians, as well as Jews, from a mistaken opinion, among heathens, that they worshipped an ass.

The appellation was originally given to the Jews, and only became applied to the Christians: the Jews were charged with keeping a golden ass's head in the sanctuary of the temple, to which on certain occasions, they paid adoration; in memory of a herd of asses, which in their passing through the wilderness, shewed Moses the way, under a distressing want of water, to a spring. Tacit. Hist. lib. v.

Some had even the impiety to represent Christ with an ass's ears, and one foot hooved, holding a book, with the inscription *Deus Christianorum ovonchos*. Crinit. de Honest. Discipl. lib. i. c. 9.

ASINIUS lapis, a name given by some writers of the middle ages, to a stone, said to be found in those places frequented by the wild ass. See BEZOAR.

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ASINUS *piscis*, in *Ichthyology*, a name given by some authors to the *EGLEFINUS*, or common haddock, called also *ONOS*. Willughby.

ASIO, in *Ornithology*, a name given by Aldrovandus, and others, to the *OTUS*, or lesser horn-owl.

ASKER, a name used in some parts of England for the water-newt, or *EFT*.

ASLANI, in *Commerce*, a name given to the Dutch dollar, current in most parts of the Levant.

The word is also written corruptly, *affelani*. It is originally Turkish, and signifies a lion, which is the figure stamped on it. The Arabs, taking the figure of a lion for a dog, called it *abusket*.

The *aslani* is silver, but of a base alloy, and oftentimes counterfeit. It is current for 115 or 120 aspers. See *ASPER*.

ASMODAI, the name given by the Jews to the prince of demons; and, according to R. Elias, the same with *Sammael*.

ASOTUS, in *Ichthyology*, a species of the *SILURUS*.

ASP, in *Natural History*, a small poisonous kind of serpent, whose bite gives a speedy, but easy death.

It is said to be thus denominated from *ασπις*, *shield*, in regard to its manner of lying convolved in a circle, in the centre of which is the head, which it exerts, or raises, like the *umbo* or *umbilicus* of a buckler.

This species of serpent is very frequently mentioned by authors, but so carelessly described, that it is not easy to determine which, if any of the species known at present, may properly be called by this name.

Naturalists mention three species of *asps*; the first called *chersea*, the second *chelidonia*, and the third *ptyas*, the most fatal of all.

It is with the *asp* the Cleopatra is said to have dispatched herself, and prevented the designs of Augustus, who intended to have carried her captive to adorn his triumphal entry into Rome. But the fact is contested: Brown places it among his *Vulgar Errors*. The indications of that queen's having used the ministry of the *asp*, were only two almost insensible pricks found in her arm. In reality, Plutarch says, it is unknown of what death she died.

Lord Bacon makes the *asp* the least painful of all the instruments of death: he supposes its poison to have an affinity to opium; but to be less disagreeable in its operation; which does not so well quadrate with the description of the symptoms given by Dioscorides and others. Immediately after the bite, the sight becomes dim, a sensible tumor arises, and a moderate pain is felt in the stomach.

Matthioli adds, that the bite is followed by a stupor of the whole body, paleness, coldness of the forehead, continual yawning, nictitation of the eye lids, inclination of the neck, heaviness of the head, sinking into a profound sleep, and lastly convulsions.

The bite of the *asp* is said by Aristotle to admit of no remedy. Pliny and *Ægineta* allow of no other cure but to cut off the wounded part. Others recommend burning the part, with the internal use of hot alexipharmic medicines.

The ancients had a plaster called *σπασπιδον*, made of this terrible animal, of great efficacy as a discutient of *strumæ*, and other indurations, and used likewise against pains of the gout. The flesh and skin or *exuvia* of the creature, had also their share in the ancient *Materia Medica*.

ASPALATH, **ASPALATHUM**, in *Pharmacy*, the wood of a foreign tree, heavy, oleaginous, somewhat sharp and bitter to the taste, and of a strong smell, and purple colour.

The *aspalath* is otherwise called *lignum Rhodium*, or *rose-wood*; and by some, *Cypress-wood*: the former on account of its sweet smell, or growth in the island of Rhodes; the latter from its being also found in the island of Cyprus. Though some will have *aspalathum* a different wood from the *lignum Rhodium*.

Aspalath was anciently in much repute, as an astringent, strengthener, and drier; but it is now much disused in internal practice.

In virtue, taste, smell, and weight, it resembles the *lignum aloes*; and in physic they are frequently substituted the one for the other.

Aspalathum affords an oil of an admirable scent; reputed one of the best perfumes; it is chiefly used in scenting pomatums, and liniments.

ASPALATHUS, *African Broom*, in *Botany*, a genus of the *diadelphia decandria* class; the calyx of which consists of a single leafed perianthium, divided into five segments; the corolla is papilionaceous; the fruit is a roundish, turgid, unilocular, bivalve pod; the seed is single, and frequently kidney-shaped. There are nineteen species.

ASPARAGUS, in *Botany*, vulgarly called *SPARROW-grass*; a genus of the *hexandria monogynia* class. Its

characters are, that the flower is naked, having no empalement, and is of the bell-shaped kind, spread open, and reflexed on the top. These are male and hermaphrodite, sometimes on different plants, and at other times on the same stalks. The hermaphrodite flowers have a *germen*, which afterwards becomes a round berry, having three cells; in each of which is lodged one or two seeds. The male flowers have six stamina, but no *germen* or style; nor are succeeded by any berries. There are ten species, according to Mr. Miller; the first of which is the common *asparagus*, which is cultivated for the use of the table, and may probably have been brought by culture to its present degree of perfection, from the wild sort which grows naturally in the fens of Lincolnshire, where the shoots are no longer than straws.

This *asparagus* is propagated by seeds, in the procuring which particular care should be taken to get them from a person of skill and integrity. But where a person is in possession of some good beds of *asparagus*, it is much the best way to save them himself; in order to which, a sufficient number of the fairest buds should be marked early in the spring, and be permitted to run up to seed; because those which run up after the season for cutting the *asparagus* are generally so backward, as not to ripen the seeds, unless the summer is warm, and the autumn favourable.

There are some persons who plant the seeds of *asparagus* in the place where the roots are to remain, which is a very good method, if it is performed with care. The way is this; after the ground has been well trenched and dunged, they lay it level, and draw a line across the ground, in the same manner as is practised in planting the young plants. With a dibble make holes at a foot distance, into each of which are to be dropped two seeds, for fear one should miscarry; which holes should not be more than half an inch deep. Then cover the seeds, and remove the line a foot back for another row; and after four rows are finished, leave space for an alley between the beds. If it is to be taken up for hot beds, there may be six rows planted in each bed, nine inches distance between the rows. This should be performed by the middle of February, because the seeds lie long in the ground: but if onions are intended to be sown upon the ground, that may be performed a fortnight or three weeks after, provided the ground be not stirred so deep as to disturb the *asparagus* seeds, in raking the onion seeds into the ground.

A month after this, the *asparagus* will come up; the crop of onions must then be thinned, and the weeds carefully cleared away. About August the onions will be fit to pull up. In October following, cut off the shoots of the *asparagus* within two inches of the ground, clear well all weeds away, and throw up the earth upon the beds, so as to leave them five inches above the level of the alleys. A row of coleworts may be planted in the middle of the alleys, but nothing must be now sown on the beds. In the spring, the weeds must be hoed up; and all the summer, the beds kept clear of weeds. In October, they must be turned up, and earthed again, as in the preceding season.

The second spring after planting, some of the young *asparagus* may be cut for the table. The larger shoots should only be taken, and these should be cut at two inches under ground, and the beds every year managed as in the second year.

It is proper to take notice of a common error that has long prevailed with most people, which is that of not dunging the ground for *asparagus*, believing that the dung communicates a strong rank taste to it; which is a great mistake, for the sweetest *asparagus* is that which grows on the richest ground, the poor ground occasioning that rank taste so often complained of.

The quantity of ground necessary to be planted with *asparagus* to supply a small family, should be at least five or six rods; less than which will not do, for if there cannot be a hundred cut at a time, it will be scarcely worth while to plant it. Miller.

ASPARAGUS is a medicinal plant, which furnishes one of those called the five opening roots. It is a known diuretic; its top, or head, taken in the way of food, readily discovers itself in the smell of the urine; but its root is still more strongly endued with that quality, as containing more of the salt from which it is derived. Hence it becomes, among us, an ingredient in all compositions, intended to cleanse the *viscera*, and guard against jaundices, dropsies, &c. It is also of some use as a pectoral; and makes a chief ingredient in the syrup of marshmallows, against the stone. Though foreign physicians speak more sparingly of the use and virtues of this medicine.

ASPARAGUS was also used by the ancient Greeks, to express not only the young shoots of the plant of that name,

name, but any other young sprouts of an eatable plant. The sprouts of the several kinds of cabbage were particularly expressed by this word, or sometimes by the compound term *crambasparagus*.

ASPASIA, among *Ancient Physicians*, a constrictive medicine for the *pudenda muliebra*. It consisted only of wool, moistened with an infusion of unripe galls. *Castell. Lex. Med.*

ASPASTICUM, in *Ecclesiastical Writers*, a place or apartment adjoining to the ancient churches, wherein the bishop and presbyters sat, to receive the salutations of the persons who came to visit them, desire their blessing, or consult them on business.

This is also called *aspaticum*, *diaconicum*, *receptorium*, *mesatorium*, or *mesatorium*, and *salutatorium*; in English, *greeting-house*.

ASPECT, ASPECTUS, in *Gardening*, is used for what we otherwise call *exposure*.

ASPECT, in *Astronomy*, is used for the situation of the stars, or planets, in respect of each other; or, in *Astrology*, it denotes a certain configuration, and mutual relation between the planets, arising from their situations in the zodiac, whereby their powers are supposed to be mutually either increased or diminished, as they happen to agree or disagree in their active or passive qualities. Though such configurations may be varied and combined a thousand ways, yet only a few of them are considered.—Hence *Wolfius* more accurately defines *aspect* the meeting of luminous rays emitted from two planets to the earth, either situate in the same right line, or including an angle which is one or more quota parts of four right angles.

The doctrine of *aspects* was introduced by the astrologers as the foundation of their predictions. Hence, *Kepler* defines *aspect* an angle formed by the rays of two planets meeting on the earth, able to excite some natural power or influence.

The ancients reckoned five *aspects*, viz. *conjunction*, denoted by the character \odot ; *opposition*, by \odot ; *trine*, by Δ ; *quadrate*, by \square ; and *sextile*, by \ast .

Conjunction, and *opposition*, are the two extremes of the *aspects*; the first being the beginning, and the second the highest or ultimate term. See *CONJUNCTION*, and *OPPOSITION*.

Trigon, or *trine*, is the third part of a circle, or the angle measured by AB (*Tab. Astron. fig. 3.*)

Tetragon, or *quadrate*, is the fourth part of a circle, or the angle measured by the quadrant AD. *Sextile*, which is the sixth part of a circle, or angle, is measured by the sextant AG. See *TRIGON*, &c.

The *aspects* are divided, with regard to their supposed influences, into *benign*, *malign*, and *indifferent*.

The *quadrate aspect* and *opposition* are reputed *malign*, or *malific*; *trine* and *sextile*, *benign* or *friendly*; and *conjunction*, an *indifferent aspect*.

To the five ancient *aspects*, the modern writers have added several more: as *decile*, containing the tenth part of a circle; *tridecile*, three tenths; and *biquintile*, four tenths, or two fifths.—*Kepler* adds others, as he tells us, from meteorological observations: as the *semi-sextile*, containing the twelfth part of the circle; and *quincunx*, containing five twelfths.—Lastly, to the astrological physicians we owe, *octile*, containing one eighth; and *trioctile*, containing three eighths. Some have also added *quintile*, containing a fifth part of the circle; and *biquintile*, or two fifths.

The angle intercepted between two planets in the *aspect* of conjunction is 0° ; in the *semi-sextile aspect*, 30° ; in *decile*, 36° ; in *octile*, 45° ; in *sextile*, 60° ; in *quintile*, 72° ; in *quartile*, 90° ; in *tridecile*, 108° ; in *trine*, 120° ; in *trioctile*, 135° ; in *biquintile*, 144° ; in *quincunx*, 150° ; in *opposition*, 180° .

These angles, or intervals, are reckoned on the secondary circles; or according to the longitudes of the planets: so that the *aspects* are the same, whether a planet be in the ecliptic, or out of it.

The *aspects* are usually divided into *partile* and *platic*.

ASPECTS, *partile*, are when the planets are just so many degrees distant, as is above expressed. These alone are the *proper aspects*.

ASPECTS, *platic*, are when the planets do not regard each other from these very degrees; but the one exceeds as much as the other comes short.—So that the one does not cast its rays immediately on the body of the other, but only on its orb or sphere of light.

ASPECT, *double*, is used in painting, where a single figure is so contrived, as to represent two or more different objects, either by changing the position of the eye, or by means of angular glasses.—Instances hereof, see under the articles *ANAMORPHOSIS*, *CATOPTRIC*, *CISTULA*, and *MIRROR*.

ASPEN-tree, see *POPLAR*.

ASPER, in *Grammar*.—*Spiritus ASPER*, a character, or

accent, in form of a c; placed over certain letters, in the Greek tongue, to shew they are to be strongly aspirated, and that the breath is here to supply the place of an h.

ASPER, or ASPRE, also signifies a little Turkish silver coin, wherein most of the grand signior's revenues are paid.

The *asper* is worth something more than an English half-penny.—The only impression it bears, is that of the prince's name under whom it was struck.—The pay of the janizaries is from two to twelve *aspers per diem*.

ASPER, in *Ichthyology*, a small fish caught in the Rhone, so called from the roughness of its scales. Its head is large, in proportion to its body, and of a pointed shape. It has no teeth, but its jaws are sharp to the touch. It is of a dark red colour, with large black spots. It is good to eat, being esteemed aperitive. *Lemery*.

ASPERA Arteria, in *Anatomy*, the WIND-pipe; otherwise called the TRACHEA.

The *aspera arteria* is a canal situate in the middle and fore-part of the neck, before the *oesophagus*: its upper end is called the LARYNX; from whence it descends to the fourth vertebra of the back, where it divides, and enters the lungs.—See *Tab. Anat. Angeoil. fig. 2. & lit. c. Splanchn. fig. 12. lit. tt. & f.*

It is formed of annular cartilages, ranged at small and equal distances from one another, and growing smaller and smaller as they approach the lungs; those of the *bronchia* being so close to one another, that, in expiration, the second enters within the first, and the third within the second, and the following always enters the preceding.

Between the *larynx* and the lungs, these cartilages make not complete rings; being flat on one side, and not finishing the whole circle, but representing the figure of the ancient Greek *figma*: whence they are also denominated *figmoides*.—Their hind part, which is contiguous to the *oesophagus*, is membranous, that they may better contract and dilate, and give way to the food as it passes down the gullet.

The cartilages of the *bronchia* are completely annular; yet their capillary branches have no cartilages, but instead of them, small circular ligaments, which are at pretty large distances from one another.—The use of the cartilages is to keep the passage for the air open; but in the capillary *bronchia*, they would hinder the subsiding of the vessels.

These cartilages are tied together by two membranes, external and internal: the external is composed of circular fibres, and covers the whole *trachea* externally; the internal is of an exquisite sense, and covers the cartilages internally: it is composed of three distinct membranes; the first woven of two orders of fibres; those of the first order being longitudinal, for shortening the *trachea*; these make the cartilages approach, and enter one another: the other order is of circular fibres, for contracting the cartilages.

When these two orders of fibres act, they assist, together with the external membrane, in expiration, in coughing, and in altering the tone of the voice.

The second membrane is altogether glandulous; and the excretory vessels of its glands, opening into the cavity of the *trachea*, separate a liquor for moistening the same, and defending it from the acrimony of the air.—The last is a net of veins, nerves, and arteries; the veins are branches of the *vena cava*; the nerves of the recurrent; and the arteries are springs of the *carotides*.

Transverse sections of the *aspera arteria* have been commonly reputed mortal. Yet in the modern practice we find many instances to the contrary. In some dangerous cases of quinsies, &c. they are even obliged to cut open this part. This operation is called BRONCHOTOMY, or LARYNGOTOMY.

In the *Philosoph. Transact.* is a letter by Mr. John Keen, recommending the more frequent use of bronchotomy, or opening the wind-pipe, upon pressing occasions; which he urges from a remarkable case of a person who had the *trachea*, or wind-pipe, cut quite through beneath the *pomum Adami*, cured by stitching the wound, and using proper medicines.

There are curious observations on some peculiar advantages in the structure of the *aspera arteria*, or WIND-pipes of several birds, and of the land tortoise, in the *Phil. Transf. vol. lvi. No 24. an. 1766*. The birds referred to are the wild swan, colum, seras, crane, Indian cock, and demoiselle. See each, and TORTOISE.

ASPERGELLOUS, in *Botany*, the name given by *Micheli* to that genus of mosses, called by *Dillenius*, and others, *byssus*. *Linnaeus* preserves the name of *byssus* to these plants, but he removes them out of the class of mosses, and places them under the general series of funguses, defining them to be funguses composed of distinct capillary fibres, without knots.

ASPERGILLUM, in *Antiquity*, a long brush made of

horse-hair, fixed to a handle wherewith the lustral water was sprinkled on the people in lustrations and purifications. Horsley Brit. Rom. lib. ii. cap. i.

This is also denominated *aspergile*, and *asperforium*.

The ancients, instead of a brush, made use of branches of laurel and olive.

It is also used, in *Ecclesiastical Writers*, to denote the instrument in Romish Churches, wherewith holy water is sprinkled.

ASPERIFOLIOUS, in *Botany*, one of the divisions or classes of plants in the *Fragmenta Methodi Naturalis* of Linnæus; so denominated, because usually rough-leaved. According to Mr. Ray, these plants make a distinct genus, the characters of which are, that the leaves stand alternately, or without any certain order, on the stalks: the flowers are monopetalous, but they have the margin cut into five divisions, sometimes deep sometimes shallow; and the upper spike or top of the plant is often curved back, something like a scorpion's tail.

In the place of each flower, there usually succeed four seeds; Mr. Ray supposes the *cerinthe* the only plant of this genus that hath less than four seeds at the base of each flower: this indeed hath but two.

To the class of *herbæ asperfoliæ* belong the *pulmonaria maculosa*, *cynoglossa*, *borago*, *buglossa*, *anchusa*, *echium*, *linum umbilicatum*, *heliotropium majus*, *aparine major*, *consolida major*, *lithospermum*, *echium*, *scorpioides*, and *cerinthe*.

They all possess the same general virtues, and are sub-astringent, and useful both internally and externally, as agglutinants.

ASPERITY, implies the inequality or roughness of the surface of any body; whereby some parts of it do so stick out beyond the rest, as to hinder the hand, &c. from passing over it easily and freely.

Asperity, or roughness, stands opposed to smoothness, evenness, politure, &c.—From the *asperity* of the surfaces of contiguous bodies arises friction.

According to the relations of Vermausen, the blind man so famous for distinguishing colours by the touch, it should appear, that every colour hath its particular degree and kind of *asperity*. He makes black the roughest, as it is the darkest of colours; but the others are not smoother in proportion as they are lighter: i. e. the roughest do not always reflect the least light: for, according to him, yellow is two degrees rougher than blue, and as much smoother than green. See **COLOURS**.

ASPERJULA, a medicinal plant, reputed warm, and drying, recommended as an hepatic, and detergent.

This is also called *ASPERGULA odorata*, and *rubeola montana odorata*; in English, **WOODRUFFE**.

The ancients directed it externally in cataplasms, to assuage and discuss tumors, and applied it to the feet to promote delivery. But the moderns own no such qualities in it; nor do they much use it internally.

ASPERSION, the act of sprinkling with water, or some other fluid.

The word is formed of the Latin *aspergere*, to sprinkle, of *ad*, to, and *spargo*, I scatter.

Some contend for baptism by *aspercion*, others by *immersion*.

ASPERUGO, in *Botany, small wild **BUGLOSS**, or goose-grass; a genus of the *pentandria monogynia* class; the characters of which are, that the flower is of one leaf with a short cylindrical tube, and hath five short stamina in the centre, with four compressed germina, which afterwards become four oblong seeds, enclosed in the empalement. We have but one species, which also goes by the name of *great goose grass*, or *German madwort*.*

This is an annual plant, which is found wild in some parts of England, as near Newmarket, at Boxley in Suffex, and in Holy Island. It is preserved in the botanic gardens for variety, and may be easily propagated by seeds, which should be sown in autumn; and when the plants come up, they require no other culture than to keep them clear from weeds. They flower in May, and their seeds ripen in June.

ASPERULA, in *Botany*. See **WOODRUFFE**.

ASPHALATUS, in *Botany*. See **ROBINIA**.

ASPHALITES, in *Anatomy*, the fifth **VERTEBRA** of the loins.

It is thus called, because conceived as the support of the whole spine of the loins; from the privative *a*, and *σφαλλω*, I supplant.

ASPHALTOS, or **ASPHALTUM**, a solid, brittle, black, inflammable, bituminous substance, resembling pitch, brought from the East, and particularly from Judea; whence it is also called *Jews-pitch*.

The *asphaltos* of the Greeks is the *bitumen* of the Latins. Modern naturalists, who make a class of *bitumens*, generally place *asphaltos* at the head of it, as being the most matured and concocted of the whole tribe; but consisting of the same simple principles as the rest.

It is chiefly found swimming on the surface of the *Lacus*

Asphaltites, or Dead Sea; where anciently stood the cities of Sodom and Gomorrah.—It is cast up from time to time, in the nature of a liquid pitch, from the earth which lies under this sea; and being thrown upon the water, it there swims like other fat bodies, and condenses by little and little, through the heat of the sun, and the salt that is in it: it burns with great vehemence: in which it resembles *naphtha*: but is firmer as to consistence. The genuine *asphaltum* has no smell, and is not acted upon by water, nor highly rectified spirit of nitre, nor olive oil, nor the essential oils of aniseed or turpentine.

The Arabs use it for pitching their ships, as we do common pitch.—Besides this use, it was frequently employed in the embalming of the ancients. In a fluid state, it is used for burning in lamps, and for varnishes. It is supposed to fortify the constitution, and resist putrefaction; and to resolve, attenuate, cleanse, and cicatrize wounds; but is little used among us, either externally or internally.

It is usual to sophisticate the *asphaltos*, by mixing common pitch with it; the result whereof makes the factitious *pissasphaltum*, which the coarseness of the black colour, and the fetid smell, easily discover. Most of that which is sold in the shops under the name of *Jews-pitch*, is of the sophisticated kind. There is; however, beside this, a native *pissasphaltum*.

ASPHALTUM also denotes a kind of bituminous stone, found near the ancient Babylon, and lately in the province of Neuchâtel; which, mixed with other matters, makes an excellent cement, incorruptible by air, and impenetrable by water; this was supposed to be the mortar so much celebrated among the ancients, wherewith the walls of Babylon, and the temple of Jerusalem, were cemented.

It yields an oil which defends ships from water, worms, &c. much better than the ordinary composition; and which is also of good service for the cleansing and healing of ulcers, &c.

ASPHODELUS, in *Botany*. See **KING'S-SPEAR**.

ASPHYXIA, is used by *Ancient Physicians*, to denote a privation, or cessation of the pulse, through the whole body, and all its arteries.

The word is derived from *a*, and *σφυξίς*, a pulse.

In strictness, no such cessation can ever happen, except in case of death; but in some other cases, the pulse is found so remiss and languid, as not to be perceivable by the touch.

Hence the *asphyxia* is considered as an attendant of deep faintings, or deliquiums; and amounts to much the same with what is otherwise called *lipopsychia* or *syncope*.

Mr. Sage has lately published a treatise, recommending the volatile alkali fluor as the most effectual remedy in *asphyxies*. See **SUFFOCATION**.

ASPHYXIA is also used by some for a privation of pulse in some one part of the body, e. gr. in the arm, &c.

ASPIC, in *Botany*, a plant which grows in plenty in Languedoc, in Provence, and especially on the mountain of St. Baume, in France. It is a kind of lavender, nearly like what grows in our gardens; both with regard to the figure and colour of its leaves and flowers. The botanists call it *male lavender*, *lavendula mas*, or *spica nardi*, *pseudo nardus*, &c.

ASPIlates, or **ASPLENITES**, in the writings of the ancients, the name of a stone, famous for its virtues against the spleen, and many other disorders; it was to be applied externally, and fastened on to the part with camel's hair.

ASPINY, or **ANGLIARY-thorn**, a drug used in medicine, on which particular duties are imposed, by the tariff of the custom-house at Lyons.

ASPIRATE, **ASPIRATIO**, in *Grammar*, a character used to denote an aspiration.

The *aspirate*, by the Greeks called *spiritus asper*, and marked over their vowels, seems to be of a very different nature from the letters; but is nevertheless a true letter, as well as the rest, and a real consonant.—By letters we do not mean the characters of the alphabet, which are changeable according to the languages and the people, and among the same people, according to time and custom; and even according to the fancy of particular persons.—Thus some, for instance, write the *aspirates*, or letters *aspirated*; which, by others, are omitted; though both the one and the other pronounce alike; as in *huomo*, *huomini*, an Italian word frequently written *uomo*, *uomini*. But, by letters, we mean articulate sounds, marked by them, and formed by the organs of speech, viz. the throat, mouth, tongue, palate, teeth, &c.

These sounds are of two kinds, the one *simple*, and the other *compound*, or modified.—*Simple* are those pronounced by a single motion of the organ; such are the vowels.

Compound sounds are those same simple sounds modified

by a motion of the organ, superadded to the motion necessary to pronounce the simple sound; of which kind are the consonants:

Now an *aspirate* is an effect or consequence of a motion made by some of the organs of speech; and therefore it must either be a vowel, or a consonant.—The former it cannot be, as not being a simple sound; or a sound that may be pronounced by itself. It must therefore be a modificative, or consonant; and in effect it has all the properties of one.

For, 1st, It results from a motion of the organ, which, of itself, produces no sound. Thus the *spiritus* of the Greeks, our *h aspirate*, as well as that of the French, and other people, has no more sound of itself, than *b*, *c*, *d*, &c. and the same thing may be observed of the *aleph*, *beth*, and *caph*, of the Eastern languages.

2^{dly}, On the contrary, our *h*, the *spiritus* of the Greeks, and the other *aspirates* just mentioned, are pronounced with all the vowels, in the same manner as consonants are.—They modify those vowels, and are effects of a motion of the organ superadded to the motion necessary to form the vowel. Thus, to pronounce *ha*, two motions of the organ are required as well as for *ba*, or *ca*, &c. one for *a*, which itself is a sound; the other for *h*, which yields no sound, no more than *b*; but adds something to *a* which modifies it, and makes that *ha* is not mere *a*, nor *ba*, nor *ca*, &c. And this must hold still more sensibly in the stronger *aspirates*, as those of the oriental tongues ה, ח, ע, פ, ב, ג, &c. in all

which, there are evidently two motions, the one to express the vowel, and the other to modify it: now this being the nature and essence of a consonant, it follows, that let them be denoted in what manner they will, whether as our *h*, as the Orientals do, i. e. by proper characters in the course of the words themselves; or, as the Greeks do some of their's, by a sign of aspiration placed over the vowel, it matters not. The *aspirate* is no less a consonant in αιρω, than in χαιρω; in εω, than in χεω, in δλν, than in χολν; and so of others.

The third and last reason urged by some, is, that the Eastern languages, which, according to them, do not express the vowels, do yet express the *aspirates*. This kind of argument seems, however, to be grounded on a mistake; since it is more than probable that the א, ה, ו, γ of those languages, should be ranked among the vowels, and were so used.

Add, that the *aspirate* is frequently changed into a consonant, and expressed by a consonant. Thus, of ἐξ is made *sex*; of ἐπτα, *septem*; of ἐσπερος, *vesperus*, &c. of the Hebrew וי, וין, and thence *vinum*, &c. Nay even in the same language, Hesiod, speaking of Hercules's buckler, uses Ἡρσων for Θηρσων; making no difference between a Θ and an *aspirate*.

Hence it follows, that *aspirates* are real consonants; and that we ought not to exclude the *h*, in our language, out of the number of letters.

Other grammarians contend, that the *h* is founded only by a strong emission of the breath, without any conformation of the organs of speech, and consequently is no letter. See H.

ASPIRATION, the act of aspirating, i. e. of pronouncing any syllable, or word, strongly with a good deal of breath, and vehemence.

This we do, for instance, in those words which have the letter *h* before them, as *harangue*, *hook*, *Holland*, *hero*, &c. whereas the like syllables are sounded much softer and easier without the *h*; as in the *ear*, *eat*, &c. See H.

ASPIUS, in *Ichthyology*, a species of the *cyprinus*, belonging to the *abdominal* order. It is met with in the lakes of Sweden.

ASPLENIUM, in *Botany*, see MILT-waste.

ASS, *asinus*, in *Zoology*, a quadruped of the horse kind, with a long head, long ears, a round body covered with a short and coarse fur, of a pale dun colour, with a streak of black running down its back, and across its shoulders, and a tail not hairy all the way, as in a horse, but only at the end. As to his qualities, he is slow, lazy, and dull: but patient, proper to work hard, and to carry or drag heavy weights. The largest and strongest of these animals are chosen for stallions to leap mares, which are designed in studs for the breeding mules; and some of those mules are so highly valued, as to be sold even dearer than the finest horse.

Though the *ass* agrees with the horse in many respects, it nevertheless has but a mean resemblance to that noble animal; being not only smaller, but wanting the symmetry and beauty, so conspicuous in the horse.

The *ass's* ears seem much over-proportioned in length to the head. Its eyes are large, but have nothing bright or striking in them; and the neck is long, but lank; and the tail is very long.

So nearly allied are the horse and *ass* kind, that they will

copulate together, the produce of which commixture is a MULE.

This animal is originally a native of Arabia, and other parts of the East; its size and spirit decline as it advances into the colder regions. It was lost in England during the reign of Queen Elizabeth; and probably introduced again in the succeeding reign. We find mention of it in the history of this country, as early as the time of king Ethelred, and afterwards in the reign of Henry III. Pennant's *Zoology*, vol. i. p. 14.

The flesh of animals which have solid hoofs is very bad food; but of these, the best and lightest (as they say who have travelled over Asia) is the flesh of wild *asses*.

The blood of the *ass* is said to be sudorific, and that of a young *ass* to cure the jaundice.

Ass's milk is very nourishing and abstergent, and is, therefore, esteemed good in a consumption, in disorders of the stomach, abscesses of the kidneys, the stone in the bladder, and arthritic pains. It is esteemed gently cathartic, and was frequently directed by Hippocrates as a purge in large quantities. As a topic, it makes the gums firm, eases arthritic pains, and gives the face an agreeable whiteness, if washed with it. See MILK.

The urine of an *ass* is a powerful remedy, as is said, in disorders of the kidneys, cures the itch, takes away warts and callous excrescences, relieves in atrophies, palsies of the limbs, and pains of the gout.

The dung of this animal also is of use in medicine.

We have known, says Aetius, the juice of *ass's* dung highly beneficial in a dysentery, especially, if the beast has been fed upon the mountains, or has had an astringent pasture. If the juice be insufficient, let the dung be moistened with the juice of plantain, which must afterwards be expressed and infused.

The hoofs of *asses*, calcined and drank every day, are said to cure the epilepsy; and mixed and worked with oil, to discuss strumous swellings: also the ashes of the same, well beaten in woman's milk, and reduced to a collyrium, are supposed to deterge cicatrices in the eyes, if rubbed thereon together with milk.

Wild *asses* are plentiful in many warm countries, particularly in Africa. See ZEBRA.

Ass, cucumber, see MOMORDICA.

ASSES, order of, *asinorum ordo*, a denomination given to the Mathurins, or Trinitarians, because they were anciently obliged, in travelling, to ride on *asses*, not horses. This obligation was set aside, by a new rule given the order by pope Clement, in 1267. Du-Cange.

ASSA-DULCIS, see ASA-dulcis.

ASSA-fædita, or ASA-fætida, a gum, or resin, brought from the East Indies, of a brownish colour, a sharp taste, and a very strong offensive smell; whence it is also called *stercus diaboli*, or devil's dung.

The goodness of *assa-fætida* is known by its colour and smell: a tolerable scent, and a clear colour, are the signs of its good quality; as a black colour, and a great stench, are proofs of the contrary. The strong scent of this gum is much like that of garlic. The English and Dutch import it from Surat.

Geoffroy gives the following account of *assa-fætida*. Many authors, says he, have doubted whether our *assa-fætida* be that of the ancients, which was by them called the food of the gods. But when we consider the description of Dioscorides, and the relations of travellers, who say that the Persians, Indians, and other Eastern nations use it in fauces, and call it also the food of the gods, there can be no reason to question, but that our's is the same with the ancients.

Assa-fætida, says he, is a gum resin, brought to us in lumps of different colours; white, yellowish, blue, or brown; which last is the worst colour of all. It has a very strong foetid smell; and we are obliged to Kæmpfer for an exact history of the tree which produces it, and of the manner of gathering it, &c. In general, this tree, or large plant, is of the umbelliferous kind, growing plentifully in the province of Lahir, in the dominions of the Great Mogul; and in that of Chorazen, in Persia. In the months of July and August, the country people make incisions in the roots of these trees, through which the juice drains. It is whitish and thin at first, but by drying soon becomes thicker, and of a brown colour; in which form it is gathered, and preserved for use. The root of the plant resembles a large parsnep, and is externally black.

Assa-fætida is an excellent remedy in all hysteric disorders, whether only smelled to, or mixt in what is taken internally. It is also esteemed a good sudorific, and strengthens the stomach. The dose is from twelve grains to half a dram: but with a view to the stomach only, it must be given in small doses. Externally, it is a good dissolvent, and in that intention is an ingredient in the *ceratum de galbano*, and is sometimes tied to the bits of horse's bridles.

The

The *assa-fœtida* plant is recommended by Mr. Lawrence to be cultivated in our fields, for the food of cattle, instead of clover, saintfoin, or other such herbs as we sow among corn, and make into hay in the succeeding summers, and used as food for cattle at other seasons.

This gentleman is of opinion, that the sheep, fed on this plant, would afford mutton of a much finer flavour than any that we are at present acquainted with. But it seems strange, that this should be the effect of these creatures feeding on a plant of so strong a scent, that, as the same author observes, one dram of the fresh root smells more than a hundred weight of the drug, as kept by the druggists, and that the whole air is strongly and very disagreeably scented with it, wherever it grows. Upon the whole, it seems probable, that though this plant, or the *cytusus*, or several others, might be cultivated in England for the food of cattle, yet not any one would be so easily raised, or make so great an advantage to the farmer, as the SAINTFOIN.

ASSABA, the name given by the people of Guinea to a shrub which they are very fond of, for its medicinal virtue; they boil it in water, and rub it on a *bubo*, and it proves a cure. Phil. Trans. N^o 232.

ASSAC, or ASSAX, in the *Materia Medica* of the Ancients, the name given by the Arabians to the gum ammoniac of the Greeks; but by many of the qualities attributed to this drug, it does not appear to be the same that is now called so.

ASSACH, or ASSATH, a kind of purgation, anciently used in Wales, by the oaths of three hundred men.

ASSAILANT, one that assaults, or sets upon another. See ASSAULT.

ASSAPOORY, in *Natural History*, a name given by the people of the East Indies to a peculiar species of slate, which they use in medicine, reducing it to powder, and strewing this on burning coals, that the sick person may receive the fumes of it. It is principally used for children, when they are disordered by taking cold. The smell of it, while burning, is very offensive.

ASSARABACCA. See ASARABACCA.

ASSARIUM, denotes a small copper coin, being a part or diminutive of the *as*.

The word is used by Suidas indifferently with *οβολος*, and *νμισμα*, to denote a small piece of money; in which he is followed by Cujacius, who defines *ασσαριον*, by *minimus aris nummus*.

We find mention of the *assarion* in the gospel of St. Matthew, chap. x. ver. 29.

ASSARON, an ancient Jewish measure of capacity, equal to the tenth part of the *EPHAI*.

The *assarion* is the same with what is more frequently called *omer*, or *gomer*.

Josephus calls it *εσσαρον*; in the Hebrew it is also written *assarith*. Calmet and Arbuthnot.

ASSART, ASSARTUM, in *Law*, an offence committed in the forest, by pulling up, by the roots, woods which serve as thickets and covert for the deer, and making them plain as arable land.

This is the greatest trespass that can be committed in the forest, being more than a waste. For whereas waste of the forest is but the felling and cutting the coverts, which may grow again; *assart* is a total extirpation. What we call *assartum*, is elsewhere termed *DISBOC-CATIO*.

ASSART was also used for a parcel of land *assarted*. See ESSART.

ASSART-rents were those formerly paid to the crown for forest-lands *assarted*. See RENT.

ASSASIN, or ASSASSIN, a person who kills another with the advantage either of an inequality in the weapons, or by means of the situation of the place, or by attacking him at unawares.

The word *assassin* is said, by some, to have been brought from the Levant, where it took its rise from a certain prince of the family of the *Arfacidae*, popularly called *Assassins*, living in a castle between Antioch and Damascus, and bringing up a number of young men, ready to pay a blind obedience to his commands; whom he employed in murdering the princes with whom he was at enmity. The *Assassins*, or *Assasini*, *Assasini*, above mentioned, possessed eight or twelve cities about Tyre; they chose themselves a king, whom they called the *old man of the mountain*. In 1213, they assassinated Louis of Bavaria. They were Mahometans, but paid some tribute to the Knights Templars.—The favourers of the *Assassins* were condemned by the council of Lyons, and under Innocent IV. in 1231.—The Tartars overcame them, and killed their senior of the mountain in 1257, upon which the faction became extinct.

There was a certain law of nations, an opinion received in all the republics of Greece and Italy, whereby he that *assassinated* an usurper of the supreme power, was declared a virtuous man. At Rome, especially after the expul-

sion of the kings, the law was formal and solemn, and instances of it admitted. The commonwealth armed the hand of any citizen, and created him magistrate for that moment. Confid. sur les Cauf. de la Grand. des Rom. chap. xi. p. 121.

ASSATION, the preparing or dressing foods, or medicaments, in their own juices, by an external heat, without addition of any foreign moisture.

Assation, in respect of culinary matters, is more frequently called *roasting*; and, in pharmacy, *ustion*, or *torrefaction*.

The word is formed of the Latin *assare*, to roast.

ASSAULT, in the *Art of War*, an attack made upon a camp, fortress, or post in order to carry or become master thereof.

An *assault* is properly a general furious attack, wherein the assailants do not screen themselves by any works.—We say, to give an *assault*, to be commanded to the *assault*, to stand an *assault*, to repulse an *assault*, to carry by *assault*, &c.

While an *assault* lasts, and both parties are mixed, the fire of the batteries ceases; and there is no use of cannon on either side; for they are afraid of destroying their own men thereby.

A governor was formerly obliged to sustain three *assaults* before he gave up the place.—It is very difficult saving a town from pillage that is carried by *assault*.

Few places, of late years, stand *assaults*: M. de Feuquiere finds but three in his time. The first was Neuhafel in 1683, commanded by the Turkish bashaw: it was taken, as most others must be, because the column of infantry that marched to the breach, consisted of more ranks than that of the infantry which defended it.—The second was Buda, the bashaw of which was killed in the attack. He had some flanking works remaining, whose fires had not been entirely ruined by the artillery of the besiegers.—The third was the castle of Namur, defended by M. de Boufflers; which was not carried, because the column of infantry which attacked the breach, marched too far off unheltered.—We may add Bergen-op-zoom, taken by the French in 1747.—And, that it is almost impossible to carry a place by *assault* or storm, when the breach may be defended by the fires of works not yet destroyed. In reality, it should be defended by no other fires, but those which are opposed to it in front, or from the breach itself. Feuq. Mem. chap. xcix. Such obstinacy in defending places to the last extremity is no longer found, except among the Turks; with whom it is a point of religion not to surrender to the Christians, by capitulation, any place where they have once had a mosque.—Though of late they have sometimes departed from this maxim.

ASSAULT, ASSULTUS, or *Insultus*, in *Law*, an offer, or attempt, to hurt the person of another.

Or, it is a violent injury offered to a man's person, of a larger extent than battery, because it may be committed by only offering to give a blow; or even, according to fame, by a threatening speech, by presenting a pistol, or the like. Though some, it is to be observed, deny that words can amount to an *assault*.

To rebuke a collector with foul words, so that he depart for fear, without doing his office, has been adjudged an *assault*; and to strike a man, though he be not hurt or sometimes not even hit with the blow, is reputed the same. For, in trespass for *assault* and battery, a man may be found guilty of the *assault*, and excused of the battery. 25 Ed. III. c. 4. But every battery includes an *assault*.

The *Assaulting* a person with offensive weapons, with a design to rob (though no robbery ensues), is punished with transportation for seven years. 7 Geo. II. c. 21. *Assaulting* in the street or highway, with intent to spoil people's cloaths, and so spoiling them, is felony and transportation, by 6 Geo. I. c. 23. sec. 11. And *assaulting* a privy counsellor in the execution of his office, is felony without benefit of clergy, by 9 Ann. c. 16.

ASSAY, ESSAY, or SAY, in *Metallurgy*, the proof or trial of the goodness, purity, value, &c. of metals, and metalline substances.

In ancient statutes, this is called *touch*; and those who had the care of it, *keepers of the touch*.—Under Henry VI. divers cities were appointed to have *touch* for wrought silver-plate. 2 Ann. VI. c. 14.—By this, one might imagine they had no better method of *assaying* than the simple one, by the touch-stone; but the case is far otherwise. In the time of king Henry II. the bishop of Salisbury, then treasurer, considering that though the money paid into the king's exchequer for his crown-rents, did answer *numero & pondere*; it might nevertheless be mixed with copper or brass: whereof a constitution was made, called the *trial by combustion*; which differs little or nothing from the present method of *assaying* silver. See a description of it in the Black Book in the

Exchequer, written by Gervase of Tilbury. c. xxi—The trial is also there called *essaium*, and the officer who made it is named *fusor*. Vide Lownd. Ess. Amend. Silv. coin p. 5, & 155.

The method still in use of *assaying* gold and silver, was first established by an act of the English parliament, in 1354. Anderson's Com. vol i. p. 187.

ASSAYING, *ars docimastica*, in its extent, comprehends particular manners of examining every ore, or mixed metal, according to its nature, with the best adapted fluxes; so as to discover, not only what metals, and what proportions of metal, are contained in ores; but likewise how much sulphur, vitriol, alum, arsenic, smalt, &c. may be obtained from every one respectively.

Assaying is more particularly used by moneyers and goldsmiths, for the making a proof or trial by the cuppel, or test, of the fineness or purity of the gold and silver to be used in the coining of money, and manufacture of plate, &c. or that have been already used therein.

There are two kinds of *assaying*; the one before metals are melted, in order to bring them to their proper fineness; the other after they are struck, to see that the species be standard.

For the first *assay*, the *assayers* use to take fourteen or fifteen grains of gold, and half a dram of silver, if it be for money; and eighteen grains of one, and a dram of the other, if for other occasions.

As to the second *assay*, it is made of one of the pieces of money already coined, which they cut into four parts. The quantity of gold for an *assay* among us, is six grains; in France, nearly the same; and in Germany, about three times as much.

In order to the due separation of metals from metals, or of a confused mixture of metals, such as those commonly called *electrums*, or such as the Corinthian brass was supposed to be, we must observe, that experience has taught us a certain effect of lead, which could not be well conceived *a priori*.

ASSAYING gold.—In order to the *assaying* of gold ores, it must be observed that the method varies, according to the nature and disposition of the mineral matters along with which the metals happened to be mixed; whether it be stony, earthy, sulphureous, arsenical, &c. The art of making *assays* with dispatch upon gold and silver ores, depends upon the scorification or vitrification of those heterogeneous fossile substances which may be incorporated therewith: lead and the glass of lead, and antimony and its glass, being great scorificators or vitrifiers, they become the natural agents on such occasions.

Silver is separated from gold by means of *aqua fortis*, which dissolves the silver, and leaves the gold entire behind; but in order to the success of the operation, the mixt mass should contain considerably more silver than gold, otherwise the particles of silver will be defended by those of the gold from the action of the acid. The writers on *assaying* generally direct three parts of silver to one of gold; but Dr. Lewis observes, that less is sufficient, and should therefore be made use of.—The separation of baser metals is effected by keeping the mass in fusion for some time upon a cuppel, with the addition of lead. The lead with all the metals, silver and platina excepted, turns into a *scoria* or dross, which rises to the surface, and is no longer miscible with any metallic body in its perfect metallic state.

For various other processes of *assaying*, the curious are referred to Dr. Lewis's Phil. Techn. who has treated this subject very copiously and very accurately.

The method of *assaying* gold by cuppelling, is thus performed. The *assayer*, having weighed the gold he intends to make the trial in, very exactly, with scales that will turn with the hundredth part of a grain, and noted down the weight, he adds twice as much fine silver thereto; though this should be in proportion to the fineness the gold seems to be of, the basest gold requiring the least silver. The gold and silver, thus weighed and mixed, are wrapped up in a piece of paper, to prevent their losing any thing of their weight, which would disturb the accuracy of the *assay*.

While the *assayer* is weighing his materials, a reverberatory fire is lighted in a furnace, furnished with a muffler, and a cuppel, or test, set therein to heat: this done, a little bullet of lead is put into the cuppel, of a weight proportionable to the quantity and quality of the gold to be *assayed*. The quantity of lead should be at least three or four times that of the gold; if the gold is very impure, ten or twelve times its quantity will be necessary. When copper and gold lie mixed in equal quantities, the copper will not be separated from the gold with less than twenty times its quantity of lead; and if the copper be in very small proportion, as a twentieth or thirtieth part of the gold and silver, upwards of sixty parts of lead are necessary for one of the copper. When the lead is well

melted, and appears very clean and bright, they put in the mixture of gold and silver, and let it fuse till it appear of an opal colour, and have fixed itself, in a little lump to the bottom of the cuppel.

This done, the cuppel is left to cool in the furnace itself; after which, the lump is separated very exactly from the place where it stuck to the vessel, and beaten or hammered on the hanvil; heating it again and again, on the coals, to promote the stretching. It is likewise made to pass several times between polished steel rollers, screwed gradually closer and closer, till it is extended into a very thin plate.

When sufficiently hammered, &c. they roll it up in form of a cornet, or coffin; and thus put it in a glass matrafs, capable of containing four spoonfuls of water; and, having added to it a quantity of *aqua fortis*, well corrected, that is, mixed with near one third of the quantity of river-water, they boil it over a wood fire, till such time as the *aqua fortis* yields no more red fumes.

This first water being poured off, and the cornet left alone at the bottom of the matrafs, they fill the matrafs again, but with pure *aqua fortis*; which, after boiling, is poured off in its turn, at such time as the fumes are become white.—This done, they fill up the matrafs with river-water, to wash the cornet.

When washed they put it dry into a crucible, with a cover over it, and heat it till it become of a cherry-colour. But the use of a crucible is attended with this inconvenience, that small particles of the earth are apt to adhere imperceptibly to the gold, and thus render the *assay* less certain.

This done, the *assay* is finished: and there remains nothing but to weigh it against the same weight of fine gold, as was used at first, before the *assay*: for by comparing the first weight of the gold, before it was put in the fire and the *aqua fortis*, with what it retained after it had thus undergone the test, they judge, from the greater or less loss it has sustained, of the quantity of alloy mixed with it.

By the above described processes, gold may be separated from all the known metallic bodies, platina excepted. See PLATINA.

The ultimate refinement of gold, is thought to be that procured by fusing it thin along with antimony; wherein the antimony tears away and imbibes the substance of all the other metals, but leaves the gold untouched; which therefore, as the heavier body, falls like a regulus to the bottom of the melting cone. See an account of the process in Dr. Lewis's Phil. Techn. p. 156; upon which he observes, that platina cannot thus be separated from the gold; that some of the silver will remain; and in general, that gold cannot be so effectually purified by substances which operate upon the alloy, and not upon the gold, as by those which act on the gold itself, and not on the alloy.

The alloy of gold is estimated by carats, that of silver by penny-weights. The carat with us is divided into four grains; among the Germans, into twelve parts; and by the French, into thirty-two. The Chinese reckon by touches, of which the highest number denoting pure gold, and corresponding to our twenty-four carats, is one hundred.

Gold without an alloy, is said to be twenty-four carats fine. According to the proportion of pure gold, to that of the alloy in an ounce, the mixture is said to be so many carats fine. If there be two carats of alloy, to twenty-two of pure gold, it is said to be twenty-two carats fine: if four of alloy, to twenty of gold, twenty carats fine, &c.

ASSAYING silver.—The process is much the same as in gold; only less difficult, and shorter. The silver is weighed, as before; and the same furnace, and muffler, the same fire, the same cuppel, used. Add, that lead is likewise put in the cuppel, proportioned to the quantity and quality of the silver to be *assayed*.

The lead being well melted, and clear, the silver is put in; and after it is brought to an opal colour, and fixed in a lump at the bottom of the cuppel, which happens in about half an hour; they let it cool, and cleanse it; and lastly, weigh it again, as in gold. And, from its diminution, they estimate the quantity of alloy.

The alloy of silver with copper, may be examined by the cuppel in the following manner: first, have ready a touch-stone, and a set of touch-needles; wipe carefully both the touch-stone and the metal to be examined, and rub the metal on the stone; compare its mark with the needles, and by that means make a guess at the quantity of copper contained, and of course know how much lead will be necessary for consuming that quantity. But as the lead necessary for consuming the copper is not in a quantity proportionable to that of the copper, when this is mixed with silver, we shall here give, from

Lazarus

Lazarus Erker, the quantity to be added in every case. We shall take for our examples a series of touch-needles, made according to the mark, divided into half ounces and grains. See TOUCH-NEEDLES.

$\frac{1}{2}$ ounce silver,	$\frac{1}{2}$ ounce copper,	Marks of lead to be added.
15 $\frac{1}{2}$ —	—	4.
15 —	1 —	6.
14 —	2 —	8.
12 and 13 —	4 and 3 —	10.
9 — 12 —	7 — 4 —	14.
4 — 8 —	12 — 8 —	15.
1 — 4 —	15 — 12 —	16.

Every body may reduce this table to the needles, made according to the mark of the averdupoise, or that of carats: nor is it necessary to proportion the quantities of lead to be added, so far as one half centner. Cramer.

In the mean time, let the metal to be tried with the needles undergo the operation of cuppelling; together with the quantity of lead indicated by the touching; and the fire must be made the gentler, as the silver is alloyed with a greater quantity of copper; and on the contrary, the smaller the quantity of the alloy of copper is, the stronger must be the fire to be used in the operation. When the lead, which must be first put into the cuppel, begins to smoke and boil, then the metal to be examined is to be added, and the fire continued till the copper is all consumed, and reduced to a yellow scoria; and the bead of silver left in the centre of the cuppel must be weighed, which, subtracting the known quantity of silver in the lead used in the operation, will shew the quantity of silver, and consequently that of the copper in the alloy.

ASSAYING of lead.—The assay of gold and silver being performed by means of lead; it is of the utmost importance the lead be free from any mixture of either of the two metals; otherwise the assay will be false, because the gold and silver mixed with the lead will not evaporate like other kinds of alloy, but unite with the metal under assay.

To prevent this disorder, and assure the operation, there is no way but first to assay the lead itself.

This assay is performed in the same furnace, and with the same cuppels, as those of gold and silver; but the process is incomparably more simple: all here required, when the cuppel is heated, being to put in the piece of lead to be assayed. If this lead evaporate entirely, it is fit for the purpose: on the contrary if there remain any little grain of silver, &c. at the bottom, it must be set aside.

ASSAYING of tin. See TIN.

ASSAY-MASTER, an officer, under certain corporations, entrusted with the care of making true touch, or assay of the gold and silver brought to him; and giving a just report of the goodness or badness thereof.

Such is the assay-master of the mint in the Tower, called also assayer of the king.

The assay-master of the goldsmith's company is a sort of assistant-warden, called also a touch-warden, appointed to survey, assay, and mark all the silver-work, &c. committed to him.—There are also assay-masters appointed by statute at York, Exeter, Bristol, Chester, Norwich, Newcastle, and Birmingham, for assaying wrought plate. The assay-master is to retain eight grains of every pound Troy of silver brought to him; four whereof are to be put in the pix, or box of deal, to be re-assayed the next year, and the other four to be allowed him for his waste and spillings. 12 and 13 W. III. c. 4: 1 An. c. 9.

Note, The number of penny-weights set down in the assay-master's report is to be accounted as per pound, or so much in every pound of twelve ounces Troy.—For every twenty penny-weight, or ounce Troy, the silver is found by the assay to be worse than standard, or sterling, six pence is to be deducted; because every ounce will cost so much to reduce it to standard goodness, or to change it for sterling.

In gold, for every carat it is set down to be worse than standard, you must account that in the ounce Troy it is worse by so many times 3 s. 8 d. And for every grain it is set down worse, you must account it worse by so many times 11 d. in the ounce Troy. And for every half grain 5 $\frac{1}{2}$ d; for so much it will cost to make it of standard goodness, &c. Touchstone of Gold and Silver Ware, &c. p. 41. &c.

ASSAY-balance. The flat pieces of glass often placed under the scales of an assay-balance, seem by their power of electricity, capable of attracting, and thereby making the lighter scale preponderate, where the whole matter weighed is so very small. See Phil. Trans. N° 480, p. 245.

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The electricity of a flat surface about three inches square, has been known to hold down one scale, when there were about two hundred grains weight in the other. See BALANCE and ELECTRICITY.

ASSAY of weights and measure, signifies the trial or examination of common weights and measures, by the CLERK of the market.

ASSEMBLAGE, the joining, or uniting of several things together; or, the things themselves so joined, or united.

The assemblage of two bones for motion, is called ARTICULATION.

Carpenters and joiners have various kinds and forms of assemblage; as, with mortises and tenons; with dovetails, &c. See DOVE-TAIL; MORTISE, &c.

The Europeans admire the CARPENTRY of some Indians, where the assemblage is made without either nails or pins. Herrera.

ASSEMBLAGE is also used in a more general sense, for a collection of several things, so disposed together, as that the whole has an agreeable effect.—It is with discourse as with bodies, which owe their chief excellency to the just assemblage and proportion of their members.

ASSEMBLY, a meeting of several persons in the same place, and with the same common design.

The word is formed of *ad* *simulare*; compounded of *ad*, *to*, and *simul*, together.

Assemblies of the clergy are called convocations, synods, councils; though that annual one of the kirk of Scotland retains the name *General Assembly*; &c.—The assemblies of judges, &c. are called *courts*, &c.—The assemblies of the Roman people were called *comitia*:—The assembly of a preacher, &c. is his audience:—The academies have their assemblies, or days of assembly.

Under the Gothic governments, the supreme legislative power was lodged in an assembly of the states of the kingdom, held annually for the like purposes as our parliament.

Some feeble remains of this usage still subsist in the annual assemblies of the states of Languedoc, Bretagne, and a few other provinces of France, but these are no more than shadows of the ancient assemblies. It is only in Great Britain, Sweden, and Poland, that such assemblies retain their ancient powers and privileges.

ASSEMBLIES of the campus Martii, or Maii, of the field of Mars, or May; see FIELD of Mars, &c.—Rebellious assembly, see REBELLIOUS.—Unlawful assembly, see UNLAWFUL.

ASSEMBLY is particularly used in the *Beau-monde*, for a stated and general meeting of the polite persons of both sexes for the sake of conversation, dancing, and play.

ASSEMBLY is also used in the *Military Art*, for the second beat of the drum, being that before the march.

On hearing this, the soldiers strike their tents, roll them up, and then stand to their arms.—The third beating is called the *march*, as the first is called the *general*.

ASSENSU, *sine*, *Capituli*. See SINE, &c.

ASSENSU Regio, see REGIO.

Dower ex ASSENSU Patris, see DOWER.

ASSENT, **ASSENSUS**, an agreement or acquiescence of the mind to something proposed, or affirmed.—Thus, to assent to any proposition, is to allow it to be true, or to perceive its truth.

Assent is distinguished, like faith, into *implicit* or *blind*; and *explicit*, or *seeing*, &c.—Others distinguish it into *actual* and *habitual*.

ASSENT, *actual*, is a determination of the mind, arising from the perception of the truth of any proposition.

ASSENT, *habitual*, consists in certain habits of believing or acquiescing, induced in the mind by repeated acts.

To this belongs faith, which is an assent arising from the authority of the person who speaks.—Such also is opinion, which is defined an assent of the mind *cum formidine oppositi*, &c.

ASSENT, for the measures and degrees of, see DEMONSTRATION, EVIDENCE, PROBABILITY, &c.

Father Malebranche lays it down as an axiom, or principle of method, never to allow any thing for truth, from which we can forbear our assent without some secret reproach of our own reason.

ASSENT, *royal*, see ROYAL.

ASSERAC, among the Turks, see ASSIS.

ASSERIDA, in *Botany*, a name given by the people of Guinea to a kind of shrub, the leaves of which being chewed, are a cure for the colic, to which that people are very subject. Phil. Trans. N° 232.

ASSERTION, **ASSERTIO**, in the language of the schools, a proposition which a person advances, and which he avows to be true, and is ready to maintain in public.

ASSESSOR, **ASSESSOUR**, an inferior or subordinate officer

of justice, chiefly appointed to assist the ordinary judge with his opinion and advice.

The word is formed of *ad*, *to*, and *sedeo*, *I sit*.

In this sense the masters in chancery are *assessors* of the lord chancellor.

There are two kinds of *assessors* in the imperial chamber, *ordinary* and *extraordinary*.—The ordinary are now in number forty-one, whereof five are elected by the emperor, viz. three counts or barons, and two *jurisconsulti*, or civil lawyers. The electors appoint ten, the six circles eighteen, &c. They act in quality of counsellors of the chamber, and have salaries accordingly.

ASSESSOR is also used for a person who *assesses* or lays *assessments* of taxes, and other public duties.

In this sense, *assessors*, among us, are inhabitants of a town, or village, elected by the community, to *assess*, or settle the taxes, and other impositions of the year, to fix the proportion which each person is to bear, according to his estate, and to see the collection made.—These are also called in our law *assisors*.—By the stat. 16 and 17 Car. II. two inhabitants in every parish were made *assessors* for the royal aid.

ASSETS (Fr. *affez*. i. e. *satis*, enough), in Law, signifies goods enough to discharge that burden which is cast upon the executor or heir, in satisfying the debts and legacies of the testator or ancestor. Bro. tit. *Assets*. *Assets* are real or personal; where a man hath lands in fee simple, and dies seized thereof, the lands which come to his heir, are *assets* real; and where he dies possessed of any personal estate, the goods which come to the executor are *assets* personal. *Assets* are also divided into *assets per descent*, and *assets inter maines*; *assets* by descent, is where a person is bound in an obligation, and dies seized of lands which descend to the heir, the land shall be *assets*, and the heir shall be charged as far as the land to him descended will extend: *assets inter maines*, is when a man indebted makes executors, and leaves them sufficient to pay his debts and legacies; or where some commodity or profit ariseth to them in right of the testator, which are called *assets* in their hands. Terms de Ley, 56. 77.

Leases are *assets* to pay debts, notwithstanding the assent of the executor to the devise of them. 1 Lill. abr. 99. *Assets* in the hands of one executor, are *assets* in the hands of others; and if an executor hath goods of the testator in any part of the world, he shall be charged in respect of them. 6 Rep. 47. In actions against executors, the jury must find the value of the *assets*; for the plaintiff shall recover only according to the value of the *assets* found. 1 Rol. Rep. 58. A special judgment against *assets* only shall have relation to and bind the lands from the time of the filing the original writ or bill. Carth. Rep. 245.

ASSEVERATION, an earnest affirmation or avouching.

ASSIDEANS, or rather HASIDEANS, in Antiquity, a sect among the Jews; thus called from the Hebrew *הסידים*, *hhasidim*, merciful, righteous.

The *Assideans* are recorded as holding works of supererogation necessary. They were the fathers and predecessors of the PHARISEES; and from them likewise arose the ESSENI.

ASSIDENT *sign*, *signum assidens*, in Medicine, a symptom which usually attends a disease, but not always.

Thus a dry rough tongue, thirst, and watching, are *assident signs* in an ardent fever.

In this sense, *assidents* differ from *pathognomonics*, which are inseparable from the disease.

ASSIDUUS, or ADSIDUUS, among the Romans, denoted a rich or wealthy person.

The word in this sense is derived from *as*, *assis*, q. d. a monied man.

Hence we meet with *assiduous* sureties, *assidui fidejussores*, answering to what the French now call city sureties, or securities, *cautions bourgeoise*.

When Servius Tullius divided the Roman people into five classes, according as they were assessed, or taxed to the public; the richer sort, who contributed ASSES, were denominated *assidui*; and as these were the chief people of business, who attended all the public concerns; those who are diligent in attendances came to be denominated *assidui*.

ASSIDUI was also used for volunteers, or those who served in the army at their own expence.

ASSIENTO, or ASSIENTA, in matters of Commerce, a contract on convention between the king of Spain and other powers, for furnishing the Spanish dominions in America with negro slaves.

The term is originally Spanish, and signifies a bargain: accordingly the first *assiento* was a treaty or contract made with the French Guinea company, whereby they were put in possession of this privilege, in consideration

of a certain duty which they were to pay to the king of Spain's farms, for every negro thus furnished.

The Spaniards, having almost destroyed the natural inhabitants of Spanish America, have been many years, and still are obliged to perform the work of their mines, and other laborious business by negroes, of whom they could scarce ever obtain the number they have wanted: and it is certain, if they were fully supplied, they would get yearly above twice the silver perhaps they now do, or have done for many years past. It must be confessed, they have used variety of measures to obtain them. The Genoese undertook to supply them at a concerted price between them; for which end they formed a company called the *assiento*, who had their factors at Jamaica, Curacao, and Brasil: but, by their ill management, made nothing of this contract; nor did their successors the Portuguese. After them it fell into the hands of the French, who made so much of it, that they were enabled, by a computation made from the registers of Spain, to import into the French dominions, no less than 204,000,000 of pieces of eight. Yet they at length overglutted the market, and became sufferers towards the conclusion.

By the treaty of Utrecht, Philip V. being declared king of Spain by the allies; it was one of the articles of the peace between England and France, that the *assiento* contract should be transferred to the English. Accordingly a new instrument was signed in May 1713, to last thirty years; and the furnishing of negroes to the Spanish America was committed to the South-sea COMPANY, just then erected: though the first convention for this purpose was made in or about the year 1689.

In virtue whereof they were yearly to furnish 4800 negroes; for which they were to pay at the same rate as the French, with this condition, that during the first twenty-five years, only half the duty should be paid for such as they shall import beyond the stated number.

The last article gives them a farther privilege not enjoyed by the French; which is that the English *assientists* shall be allowed, every year, to send to the Spanish America a ship of five hundred tons, loaden with the same commodities as the Spaniards usually carry thither; with a licence to sell the same, concurrently with them, at the fairs of Porto Bello, Carthage, and Vera Cruz. This additional article was supposed as advantageous to the company as the whole contract besides; being granted contrary to the usual Spanish policy, which has ever solicitously preserved the commerce of their America to themselves.

Some new articles have been since added to the ancient *assiento*; as, that the English shall send their register-ship yearly, even though the Spanish flota and galleons do not go; and that, for the first ten years, the said ship may be of 650 tons.

Finally, as the South-sea company had, on the whole been losers by their trade, and as at the time of the treaty of Aix-la-Chapelle, in 1748, they had only four years more of the *assiento* term remaining (the war between Spain and England having commenced in 1739, and interrupted the continuance of it), which Spain was determined not to renew, at least not on any promising terms; for these, and other reasons, it was concluded by the British court to instruct her minister at Madrid, to obtain the best equivalent that could be procured for the remaining short time of the company's *assiento* contract.

The manner of valuing the negroes, in order to settle the king of Spain's duty, is the same as delivered under NEGRO.

ASSIGN, in Common Law, a person to whom a thing is assigned, or made over.

The word *assign* is said to have been introduced in favour of bastards; who, because they cannot pass by the name of heirs, are comprized under that of *assigns*.

ASSIGNABLE Magnitude, in Geometry, is used for any finite magnitude. And,

ASSIGNABLE Ratio, for the ratio of any finite quantities.

ASSIGNEE, in Law, a person to whom a thing is appointed, or assigned, to be occupied, paid, or done.

An *assignee* differs from a *deputy* in this, that the *assignee* possesses or enjoys the things in his own right; and a *deputy* in the right of another.

Assignee may be so either by deed or by law.

ASSIGNEE by deed is, when a lessee of a term sells and assigns the same to another: that other is his *assignee by deed*.

ASSIGNEE by law, is he whom the law so makes, without any appointment of the person.

Thus, an executor is *assignee by law* to the testator, who dies possessed of a lease made to him and his *assigns*.

ASSIGNEES under a commission of bankruptcy, are persons to whom the bankrupt's estate is assigned, for the benefit

of the creditors: they are chosen at one of the three meetings appointed by the commissioners, and published in the Gazette, by the major part, in value, of the creditors, who shall then have proved their debts; but they may be originally appointed by the commissioners, and afterwards approved or rejected by the creditors; and no creditor shall be admitted to vote in the choice of assignees, whose debt does not amount to ten pounds. The assignees may pursue any legal method of recovering the property vested in them, by their own authority; but cannot commence a suit in equity, nor compound any debts owing to the bankrupt, nor refer any matters to arbitration, without the consent of the creditors, or a major part of them in value, obtained at a Gazette meeting.

The assignees must, within twelve months after the commission issued, give one and twenty days notice to the creditors of a meeting for a dividend; and within eighteen months, a second and final dividend shall be made, unless all the effects were exhausted by the first.

ASSIGNING is used for the act of appointing a deputy; or the making over a right to another.

In this sense we say, such lands or estates were assigned or made over to such persons for such uses, &c.—In the stat. 20 Edw. I. we read of justices assigned to take assizes, &c.

ASSIGNING also signifies pointing out or setting forth.—Thus we say, to assign the real cause of such an event, &c.

To assign error, is to shew in what part of a process at law an error is committed..

To assign false judgment, verdict, &c. is to declare how and where judgment, verdict, or the like, is unjust.

To assign waste, is to shew especially wherein the waste is committed.

ASSIGNMENT, the act of assigning, or transferring the interest or property a man has in any thing; or of appointing or setting over a right to another.

No estate of freehold or term of years shall be assigned, but by deed in writing signed by the parties, except by operation of law. Stat. 29 Car. II. cap. 3. If lessee for years assigns all his term in his lease to another, he cannot reserve the rent in the assignment; for he hath no interest in the thing by reason of which the rent reserved should be paid; and where there is no reversion, there can be no distress; but debt may lie on it as on a contract. 1 Lill. abr. 99. If an assignment is made by an assignee, the first assignee is not liable for the rent; for if he be accepted by the lessor, the admission of one assignee is the admission of twenty. Comp. Attorn. 491. Bonds, &c. are assigned by power of attorney, to receive and sue in the assigner's name: but bills of exchange are assignable by indorsement; and the assignees may recover in their own names, by stat. 3 and 4 Ann. c. 9.

The assignment of a dower, is the setting out of a woman's marriage-portion by the heir.

ASSIGNMENT, novel. See NOVEL.

ASSIMILATION, the act of assimilating; an act whereby a thing is rendered similar, and like to another.

The word is compounded of *ad*, *to*, and *similis*, *like*.

ASSIMILATION, ASSIMILATIO, in *Physics*, is properly a motion whereby bodies convert other duly disposed bodies into a nature like, or homogeneous to their own.

Instances of this assimilation we see in flame, which converts the oily or other particles of fuel into its own fiery and luminous nature. The like also appears in air, smoke, and spirits of all kinds.

The like we see in vegetables, where the watery juices imbibed from the earth, being farther prepared and digested in the vessels of the plant, become of a vegetable nature, and augment the wood, leaves, fruit, &c.

So also, in animal bodies, we see the food assimilated, or changed into an animal substance, by digestion, chylification, and the other operations necessary to nutrition.

ASSIMILATION, in *Rhetoric*. See SIMILE.

ASSIRATUM, in *Antiquity*, a bloody draught, where-with treaties were ratified.

It was made of wine and blood, called by the ancient Romans *assir*.

ASSIS, in *Physiology*, either denotes opium, or a powder made of hemp-seed, which being formed into boles about the bigness of chestnuts, is swallowed by the Egyptians, who are hereby intoxicated, and become ecstatic, and full of the most agreeable visions.

This is also called by the Turks *assirac*.

ASSISA, or ASSISIA, see the articles ASSISE, and TALLAGE.

ASSISA cadere, to fall from the assize, in *Law*, is to be nonsuited.

ASSISA cadit in juratum, is where the thing in controversy is so doubtful, that it must necessarily be tried by a JURY.

ASSISA capi in modum assise, is when the defendant pleads directly to the assise, without taking any exception to the count, declaration, or writ.

ASSISA continuanda, is a writ directed to the justices, to take an assize for the continuance of a cause, where certain records alledged cannot in time be procured by the party.

ASSISA nocuentis, is an assise of nuisance.

ASSISA panis & cerevisie, denotes the power or privilege of assigning or adjusting the weight and measure of bread and beer.

ASSISÆ judicium, in *Law*, signifies a judgment of the court, given either against the plaintiff or defendant; for default.

ASSISA proroganda, is a writ directed to the justices of assise, for the stay of proceedings, on account of the king's business, wherein the party is employed.

ASSISE, or ASSIZE, assisa, in *Law*, a sitting of judges, or justices, for the hearing or determining of causes.

The word is French, *assise*, or *assis*, seated; formed of the Latin *assideo*, I sit by; which is compounded of *ad*, *to*, and *sedeo*, I sit.

ASSISE, clerk of. See CLERK.

ASSISE, or ASSISES, was anciently used for certain extraordinary sittings of superior judges, in the inferior courts depending on their jurisdiction; to enquire whether the subaltern judges and officers did their duty: to receive the complaints preferred against them; and take cognizance of appeals from them. These are also called *mercurial assises*.

ASSISE was also a COURT or assembly, composed of several great persons of the realm; held occasionally in the king's palace, for the final decision of all affairs of importance.

This is more usually called, among our writers, *placita*, *malla publica*, or *curiæ generales*. Yet there is some difference between *assises* and *placita*.—The viscounts, or sheriffs, who originally were only lieutenants of the comites, or counts, and rendered justice in their place, held two kinds of courts, the one ordinary, held every day, and called *placitum*; the other extraordinary, called *assise*, or *placitum generale*; at which the count himself assisted, for the dispatch of the more weighty affairs.

Hence the term *assise* came to be extended to all grand days of judgment, at which the trials and pleadings were to be solemn and extraordinary.

The modern constitution of *assises* is pretty different from that hitherto spoken of.—Our *assise* may be defined a court, place, or time, where and when writs and processes, either civil or criminal, or both, are considered, dispatched, decided, &c. by judges and jury.

In this sense we have two kinds of *assises*, *general* and *special*.

ASSISES, or ASSIZES, *general*, are those held by the judges twice a year in their several circuits.

The nature of these *assises* are explained by lord Bacon, who observes, that all the counties of the kingdom are divided into six circuits; through each of which two learned men, assigned by the king's commission, ride twice a year, called *justices* or *judges of assise*, who have several commissions by which they sit; viz.

1. A commission of oyer and terminer, directed to them, and many others of the best account in their respective circuits. In this commission the judges of *assise* are of the *quorum*; so that without them there can be no proceeding. This commission gives them power to transact matters relating to treasons, murders, felonies, and other misdemeanors.

The second is of *gaol-delivery*, which is only to the judges themselves, and the clerk of the *assise* associate.—By this commission, they have concern with every prisoner in gaol, for what offence soever.

The third is directed to themselves and the clerk of the *assise*, to take writs of possession, called also *assises*; and to do right and justice thereupon.

The fourth is to take the *NISI PRIUS*, directed to the justices, and the clerks of *assises*; whence they are also called *justices of nisi prius*.

The fifth is a commission of peace, in every county of their circuit; and all the justices of the peace, having no lawful impediment, are bound to be present at the *assises* to attend the judges.

The sheriff of every shire is also to attend in person or by a sufficient deputy allowed by the judges, who may fine him if he fail.

This excellent constitution of judges, circuits, and *assises*, was begun in the time of Henry II. though somewhat different from what it is now.

The *grand assise*, or trial by jury, instituted by Henry II. as an alternative instead of judicial combats, is particularly

larly described by Glanvil, who was probably the adviser of the measure.

For this purpose, a writ *De magna assisa eligenda* was directed to the sheriff, to return four knights, who were to elect twelve others to be joined with them; all these together formed the *grand assise*, ordained to try the matter of right.

The judges of *assise* came into use in the room of the ancient justices in eyre, *justitiiarii in itinere*; who were appointed by the great council of the realm, A. D. 1176. 22 Hen. II. with a delegated power from the king's great court, and they made their circuit round the kingdom once in seven years, for the purpose of trying causes. They were afterwards directed by Magna Charta, c. 12. to be sent into every county once a year. Blackstone's Com. vol. iii.

Assise special, is a particular commission granted to certain persons to take cognizance of some one or two causes, as a disseisin, or the like.—This was very frequently practised among our ancestors. Bracton, lib. iii. c. 12.

Assise is also used for a writ directed to the sheriff, for the recovery of possession of things immovable, whereof a man's self, or ancestors, have been disseised.

Lyttelton, and others, suppose these writs of *assise* to have given the denomination to the *assises*, or courts so called, and they assign several reasons of the name of the writ: as,

1. Because such writs settle the possession, and right, in him that obtains by them. 2. Because originally they were executed at a certain time and place appointed; for by the Norman law, the time and place must be known forty days before the judges sit; and by our law there must be fifteen days preparation, except they be tried in the standing courts at Westminster.—But it is more natural to suppose the writs denominated from the courts; and that they were called *assises*, because anciently tried at special courts of *assises*, set and appointed for that purpose.—Though of latter days, these are dispatched at the general *assises*, along with the commission of oyer and terminer, &c.

This writ is as well of things corporeal as incorporeal rights, being of four sorts, viz.

Assise of novel disseisin, *assisa novæ disseisinæ*, which lies where a tenant in fee-simple, fee-tail, or for life, is lately disseised of his lands or tenements, rent-service, rent-fee, or rent charge, common of pasture, common way, &c.

To this may be added, the bill of fresh force, directed to the officers or magistrates of cities or towns corporate; being a kind of *assise* for recovery of possession in such places, within forty days after the force, as the ordinary *assise* is in the county.

Assise of mort d'ancestor, *assisa mortis antecessoris*, lies where a father, mother, brother, uncle, &c. dies seised of lands, tenements, rents, &c. held in fee-simple; and, after their death, a stranger abates. It is good as well against the abator, as any other in possession.

Assise of darrein presentment, *assisa ultimæ presentationis*, lies where a person, or his ancestor, have presented a clerk to a church; and after the church becomes vacant by death, or otherwise, a stranger presents his clerk to the same church in disturbance of them.

These three *assises* were instituted by Henry II. in the place of duels; which, till then, had obtained on these occasions. See DUEL.

Assise of utrum lies for a parson against a layman, or for a layman against a parson, for a land or tenement, doubtful whether it be in lay-fee, or fee-alms. See TITHE.

Assise is also used, according to Lyttelton, for a jury.—This, that author supposes it to be by a *metonymia effecti*, the jury being so called, because summoned by virtue of the writ of *assise*.

Yet it must be observed, that the JURY summoned upon a writ of right, is likewise called the *assise*; but this may be said to be *καταχρησμός*, or abusively so termed.—*Assise*, in this signification, is divided into *magna* & *parva*.

Assise is farther used, according to Lyttelton, for an ordinance, or statute, regulating the weight, size, or dimensions of certain commodities.—Thus the ancient statute of bread and ale, anno 51 Hen. III. is termed the *assise of bread and ale*, *assisa panis & cerevisiæ*.

Assise is farther used for the scantling or quantity itself, prescribed by the statute.—When wheat is of such or such price, BREAD shall be of such *assise*.

We have divers statutes for fixing the *assise* of fish, cloths, wood, billets, faggots, and the like. Vide 34 & 35 Hen. VIII. c. 3. 9 Ann. c. 15. 10 Ann. c. 6. 19 Car. II. c. 3. 4 Jac. I. c. 2. 1 Geo. I. stat. 2. c. 18.

Fixing any *assise* of cloth, or prescribing what length breadth, weight, &c. it shall have, sir Josiah Child thinks, does more hurt than good. As the fashions and humours of mankind are variable, to supply all markets at all times, we must have all sorts, cheap and light, as well as heavier and better.—Stretching with tenters is essential to our drapery, and the precise degree or quantity of it cannot without injury be prescribed by any law; but must be left to the vender's or exporter's discretion.

Assise of the forest, is a statute or condition containing orders to be observed in the king's forest.—It is called an *assise*, because it sets down and appoints a certain measure, rate, or order, in the things it concerns.

Assise, again, is used for the whole process in court, founded on a writ of *assise*; and sometimes for a part of it, viz. the issue or verdict of the jury.

Thus we read, that, "*assises* of novel disseisin shall not be taken but in their shires; and after this manner, &c." Mag. Cart. cap. 12.—So in Merton, cap. 4. Hen. III. we meet with "certified by *assise*, quitted by "*assise*, &c."

Assise, continuance of, see CONTINUANCE.—Justices of *assise*, see JUSTICE.—Limitation of *assise*, see LIMITATION.—Rents of *assise*, see RENT.

Assiser, or *Assizer* of weights and measures, is an officer who has the care and oversight of those matters.

Assisii, in Ecclesiastical Writers, denote persons beneficed in a cathedral church, not in a rank below that of canons. The *assisi* perhaps answered to our minor canons. They were thus called, either because they were allowed an *assisa* or pension, or from *assiduus*, diligent.

Assisor, the same with Assessor.

In Scotland *assisors* are the same with our JURORS.

Assistance, see AID.

Assistant is used for a person or officer appointed to attend another principal officer, for the more easy and regular discharge of his function.—Such a bishop or priest had seven or eight *assistants*.

Assistant, in Roman Catholic countries, is particularly applied to a kind of counsellors, or comptrollers, added to the generals or superiors of monasteries, &c. to take care of the affairs of the community.

The general of the Jesuits has five *assistants*, of consummate experience, chosen by him out of all the provinces of the order, and denominated from the kingdoms or countries to which they belong, i. e. Italy, Spain, Germany, France, and Portugal.

In a like sense, most of our trading companies have their courts of *assistants*.

Assistants are also those condemned to *assist* in the execution of a criminal.

Assisus, in Ancient Law Writers, denotes a thing demised, or farmed out for such an *assise*, or certain rent, in money or provisions. Hence *terra assisa* was commonly opposed to *terra dominica*; this last being held in DEMESNE, or occupied by the lord, whereas the former was let out to tenants. Hence also *redditus assisus* denotes the set or standing rent.

Assithment, or *Assythment*, in the Law of Scotland, is a compensation for a man slain.

Assithment is the same with what, in the English Law, is called man-BOTE.

Assius Lapis, in Physiology, see LAPIS ASSIUS.

Associate, an ADJUNCT, partner, or member.

The word is compounded of *ad*, and *socius*, companion.

Association, *Associatio*, the act of associating, or forming a society or company.

Association is properly a contract or treaty of partnership, whereby two or more persons unite together, either for their mutual assistance, or for the joint carrying on of an affair; even for a more commodious manner of life.—The closest of all *associations* is that made by the band of matrimony.

Association of ideas, is where two or more ideas constantly and immediately follow or succeed one another in the mind, so that one shall almost infallibly produce the other; whether they be any natural relation between them, or not.

When there is a real affinity or connexion in ideas, it is the excellency of the mind, to be able to collect, compare, and range them in order, in its enquiries: but where there is none, nor any cause to be assigned for their accompanying each other, but what is owing to mere accident or habit: this unnatural *association* becomes a great imperfection, and is, generally speaking, a main cause of error, or wrong deductions in reasoning. Thus, the idea of goblins and sprites has really no more affinity with darkness than with light; and yet let a foolish maid inculcate these ideas often on the mind of a child, and raise them there together, it is possible he shall never be able to separate them again so long as he lives,

lives, but darkness shall ever bring with it those frightful ideas.—Let custom, from the very childhood, have joined the idea of figure and shape to the idea of God, and what absurdities will that mind be liable to, about the Deity?

Such wrong combinations of ideas, Mr. Locke shews; are a great cause of the irreconcilable opposition between the different sects of philosophy and religion: for we cannot imagine, that all who hold tenets different from, and sometimes even contradictory to one another, should wilfully and knowingly impose upon themselves, and refuse truth offered by plain reason: but some loose and independent ideas are by education, custom, and the constant din of their party, so coupled in their minds, that they always appear there together: these they can no more separate in their thoughts, than if they were but one idea, and they operate as if they were so. This gives sense to jargon, demonstration to absurdities, consistency to nonsense, and is the foundation of the greatest, and almost of all, the errors in the world. See IDEA and ABSTRACTION.

Association forms a principle part of Dr. Hartley's mechanical theory of the mind. He distinguishes it into synchronous and successive; and ascribes our simple and complex ideas to the influence of this principle or habit. Particular sensations result from previous vibrations conveyed through the nerves to the medullary substance of the brain; and these are so intimately associated together, that any one of them, when impressed alone, shall be able to excite in the mind the ideas of all the rest. Thus we derive the ideas of natural bodies from the association of the several sensible qualities with the names that express them, and with each other. The sight of part of a large building suggests the idea of the rest instantaneously, by a synchronous association of the parts; and the sound of the words, which begin a familiar sentence, brings to remembrance the remaining parts, in order, by successive association. Dr. Hartley maintains that simple ideas run into complex ones by association; and apprehends that by pursuing and perfecting this doctrine, we may some time or other be enabled to analyse those complex ideas, that are commonly called the ideas of reflection, or intellectual ideas, into their several component parts, i. e. into the simple ideas of sensation of which they consist; and that this doctrine may be of considerable use in the art of logic, and in explaining the various phenomena of the human mind. Observations on Man. vol. i. passim. see VIBRATIONS and VIBRATIUNCLES.

ASSOCIATION, in Law, is a patent by the king, either of his own motion, or at the suit of a party plaintiff, to the justices of assize; to have other persons associated to them, in order to take the assize.

Upon this patent of association, the king sends his writ to the justices of the assize, thereby commanding them to admit such as are so sent.

The clerk of the ASSIZE is usually associate of course; in other cases some learned serjeants at law are appointed.

ASSOCIATION of parliament. In the reign of king William III. the parliament entered into a solemn association to defend his majesty's person and government against all plots and conspiracies: and all persons bearing offices, civil or military, were enjoined to subscribe the association to stand by king William, on pain of forfeitures and penalties, &c. by stat. 7 and 8 W. III. c. 27.

ASSOILE, in our Ancient Law-Books, signifies to absolve, deliver, or set free from an excommunication. See ABSOLUTION.

ASSONANCE, in Rhetoric and Poetry, a term used where the words of a phrase, or verse, have the same sound or termination, and yet make no proper rhyme.

These are usually vicious in English; the Romans sometimes used them with elegance: as *militem comparavit, exercitum ordinavit, aciem lustravit*.

The Latins call it *similiter definens*; and the Greeks *ομοιοτηλευτον*.

ASSONANT rhymes is a term particularly applied to a kind of verses common among the Spaniards, where a resemblance of sound serves instead of a natural rhyme.

Thus, *ligera, cubierta, tierra, mesa*, may answer each other in a kind of assonant rhyme, because they have each an *e* in the penultimate syllable, and an *a* in the last.

ASSRUMINA, in Botany, the name given by the people of Guinea to the shrub whose leaves they use as a cure for the long worms, which are found in their flesh in those parts of the world; they only bruise the leaves, and apply a large lump of the mass to the part where the worm is, and they are eased at once, without the pain and hazard of drawing it out. Phil. Trans. N^o 232.

ASSUMPSIT, in Law, a naked CONTRACT; or a voluntary promise by word of mouth, by which a man assumes and takes upon him to perform, and pay any thing to another.

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This term comprehends any verbal promise; and is variously expressed by the civilians, according to the nature of the promise: sometimes by *pañum*; sometimes by *promissio*, *pollicitatio*, or *constitutum*.

Where a man sells goods to another the law makes the *assumpsit*; and promises that he shall pay for them.

ASSUMPTION, a feast celebrated in the Romish church, in honour of the miraculous ascent of the Holy Virgin, as they describe it body and soul, into heaven.

ASSUMPTION was also, among our Ancestors, used for the day of the death of any saint: *Quia ejus anima in cælum assumitur*. See ANNIVERSARY.

ASSUMPTION, in Logic, is the minor, or second proposition, in a categorical syllogism.

ASSUMPTION is sometimes also used for a CONSEQUENCE drawn from the propositions whereof an argument is composed.

Thus we say, the PREMISES are true, but the assumption is captious.

ASSUMPTIVE arms, in Heraldry. See ARMS.

ASSURANCE, policy of. See POLICY.

ASSURANCE, in Commerce. See INSURANCE.

We have several offices of assurance from fire.—As the Royal-Exchange assurance; the Sun-fire-office; the Hand-in-hand fire-office; the London assurance, &c. some for houses, others for goods, and some for both.

We have also assurances for life, in virtue whereof, when the person assured dies, a sum of money becomes payable to the person in whose behalf the policy of assurance was granted.

ASSURANCES on lives.—By ASSURING a life is meant obtaining security for a sum of money to be received should the life drop, in consideration of such a payment made to the assurer, as is a sufficient compensation for the loss and hazard to which he exposes himself.—The sum at which this compensation should be valued depends,

1. On the rate of interest at which money is improved; and, 2. On the probability of the duration of the life to be assured.—If interest is high, and also the probability high of the duration of the life, the value of the assurance will be proportionably low. On the contrary, if the rate of interest is low, and the probability of living also low, the value of the assurance will be proportionably high.—In order to explain this: let 100*l.* be supposed to be assured on a life for a year to come; that is, let 100*l.* be supposed payable a year hence, provided a life of a given age fails in that time. Were the interest of money at 5 per cent. and the life sure of failing, the value of the assurance would be the same with the present value of 100*l.* payable at the end of the year, reckoning interest at 5 per cent: that is, it would be that sum, which being now put out to interest at 5 per cent. would produce 100*l.* at the end of the year, or 95*l.* 4*s.* 8*d.* See ANNUITIES.

On the contrary, if it be an even chance or the odds are equal, whether the life does or does not fail in the year, the value of the assurance will be half the former value, or 47*l.* 12*s.* 4*d.*—If the odds against its falling are two to one, that is, if it is to be expected, that some one of three lives; at the age of the given life, will fail in the year, the value of the assurance will be a third of the first value, reckoning the same interest; or 31*l.* 15*s.*—If the odds are 19 to 1, or if it may be expected, that some one out of twenty lives; at the age of the given life, will fail in a year; the value of the assurance will be a twentieth part of the first value, or 4*l.* 16*s.*—If the odds are 49 to 1, or only one out of fifty such lives as the given life can be expected to fail in the year; the value of the assurance will be a fiftieth part of the first value; that is, it will be 1*l.* 18*s.*—Now the odds of 3 to 1 are, according to Dr. Halley's Table of Observations, see MORTALITY, the odds that a life aged 87, will not drop in a year. The odds of 19 to 1 are the odds, according to the same table, that a life aged 64, will not drop in a year. And the odds of 49 to 1 are the odds that a life aged 39 will not drop in a year. It follows, therefore, that the value of the assurance of 100*l.* for a year, on a life aged 87, is 31*l.* 15*s.*, on a life 64, 4*l.* 16*s.* on a life aged 39, 1*l.* 18*s.* reckoning interest at 5 per cent. If interest is reckoned at 3 per cent. these values will be 32*l.* 7*s.*—4*l.* 17*s.*—1*l.* 18*s.* 10*d.*

The assurances most commonly practised are such assurances as these on single lives for single years; but private assurers, and also some assuring offices, being ignorant of the principles of calculation in this case, it has been the custom among them to pay no regard to any difference of ages, but to demand 5*l.* from all ages indiscriminately, for the assurance of 100*l.* for one year.—Nothing can be more absurd or inequitable; for it appears that this is more than the value of the assurance of a life at the age of 64; and that it is more than double the value of the assurance of a life aged 39, allowing the assured to make 5 per cent. of the money he advances.

When a life is assured for any number of years, the value may be either paid in *one single present* payment; in consequence of which the sum assured will become payable without any farther compensation, whenever, within the given term, the life shall happen to drop. Or the value may be paid in *annual payments*, to be continued till the failure of the life, should that happen within the term; or, if not, till the determination of the term.

The method of finding these values cannot be easily understood by those who are not acquainted with the doctrine of life-annuities, as it has been taught by mathematicians; but the following observations may be of use to give some general idea of the subject.

Let us suppose, that a person at 39 years of age wants to assure 100*l.* on his life for 26 years, or till he is 65 years of age; and that he chuses to advance the proper compensation for it in a *fixed annual* payment; the first is to be made immediately, and to be continued till either the term ends, or his life drops.—The value of the *assurance* for the *first* year is by what has been already shewn, 1*l.* 18*s.* reckoning interest at 5*per cent.* The value of the *assurance* for the last year of the term, supposing him to have lived to the beginning of it, or to have completed 64, is likewise, by what has been already shewn, 4*l.* 16*s.* reckoning all along the same interest.—If, therefore, the value of the *assurance* for the whole 26 years is to be one constant sum payable at the beginning of every year, that sum ought, it is obvious, to be *greater* than the *first*, and *less* than the *last*; or a sum, which is some *mean* between 1*l.* 18*s.* and 4*l.* 16*s.*—The rule for finding this mean, in all cases, is the following.

“ From the value of an annuity *certain* for the given term, found by Table III. under the article of ANNUITIES, subtract the value of the life for the given term found in the method explained under the article LIFE-*Annuities*, and reserve the remainder.—Multiply the value of 1*l.* due at the end of the given term (found by Table I. under the article *Annuities*) by the *perpetuity* (see PERPETUITY); and also by the *probability* (see MORTALITY) that the given life shall fail in the given term. The *product* added to the *reserved remainder*, and the *total* multiplied by the annual interest of the sum to be assured, and afterwards divided by 1*l.* increased by its interest for a year, and also by the value already mentioned, with unity added, of the life for the given term, will be the required value of the *assurance* in a *fixed annual* payment, till either the life fails, or the term ends.

EXAMPLE.

Let the term be 26 years, the life aged 39, the sum 100*l.* and the interest 5*per cent.*

SOLUTION.

The value of the life of a person whose age is 39 for 26 years, is reckoning interest at 5*per cent.* and taking M. De Moivre's valuation of lives 11.113. See LIFE-*Annuities*. This value subtracted from 14.375 (the value of an annuity certain for 26 years) (see Table III. under *Annuities*) leaves 3.262 the remainder to be *reserved*.

The value of 1*l.* to be received at the end of 26 years is .2812 by Table II. under the Article ANNUITIES. The probability that the life of a person aged 39 shall fail in 26 years, is, by Dr. Halley's Table of Observations, (see MORTALITY, $\frac{2}{3} \frac{6}{4}$). And the *perpetuity* is 20. These numbers multiplied by one another, and 3.262 added to the *product*, makes 6.508, which multiplied by 5*l.* the annual interest of 100*l.* gives £32.54. This last sum divided by 1.05, or 1*l.* increased by its interest for a year, gives 31*l.* And 31*l.* divided by 12.113, the value of the life for 26 years, with unity added, gives, £2.56, or 2*l.* 11*s.* 2*d.* $\frac{1}{2}$; which is the required value, in *fixed annual payments*, of the *assurance* of 100*l.* on the given life for 26 years, reckoning interest at 5*per cent.*

The value of the same *assurance*, in *one present* payment is, evidently, that sum which is the value of an annuity (equal to the annual payment just determined on the life for the given term. That is, it is the sum which is the value of an annuity of 2*l.* 11*s.* 2*d.* $\frac{1}{2}$ for 26 years on a life aged 39. The first payment of which is to be made immediately. The *product*, therefore, of the value of the life for 26 years, with unity added, into £2.56, is the value of the *assurance* in a single present payment. It is, therefore, 31*l.* or the sum arising in the foregoing operation, before the division by the value of the life for the given term.

If the *assurance* is to be made for the whole possible duration of the life, the method of finding the value will be more simple, and the rule for this purpose is as follows.

“ From the *perpetuity*, subtract the value of the given life, and multiply the remainder by the *product* of the

“ given sum into the interest of 100*l.* for a year: and “ this last *product*, divided by 100*l.* increased by its interest for a year, will give the value in a *single present* payment. And this payment divided by the value “ of the life, will give the value of the *assurance* in *annual payments* during the continuance of the life.”

EXAMPLE.

Let the age of the life be, as in the last example, 39; the sum to be assured for its whole duration, 100*l.* and the rate of interest 5*per cent.*

The interest of 100*l.* for a year is 5*l.*—100*l.* increased by this interest is 105*l.* and the value of the life is according to Mr. De Moivre's (see LIFE-*Annuities*) valuation of lives, 11.966.—The value of the life subtracted from the PERPETUITY (that is, from 20) gives £8.034, which multiplied by the *product* of 100*l.* into 5, or by 500, gives 4017; and this divided by 105 or by 100*l.* (increased by its interest for a year) £38.25, which is a value in the *single* payment of the *assurance* of 100*l.* for the whole duration of a life, aged 39, reckoning interest at 5*per cent.* And this payment divided by £11.966 is £3.196, the value of the same *assurance* in *annual payments* during the continuance of the life.

REMARKS.

If the value of the *assurance* is desired in annual payments, this rule supposes the *first* not to be made till the end of a year. If the first payment is to be made immediately, as was supposed in the former question, the value in a single payment (found as directed by the rule) must be divided by the value of the life *increased by unity*; that is, in the present instance, by £12.966, which will make the required value of the *assurance* £2.95, instead of 3.197, or 2*l.* 19*s.* instead of 3*l.* 3*s.* 11*d.*

The reason of directing that unity should be added to the values of lives taken from the tables, in order to find the values of *assurances* in *annual payments*, beginning immediately, is that, in all the tables, the values of annuities on lives are given on the supposition that the first payment is not to be made till the end of a year. If therefore, the first yearly payment is to be made immediately, the value must exceed that in the tables one year's purchase.

REMARK II.

The PERPETUITY means the value of the fee-simple of an estate found by dividing 100*l.* by the rate of interest. For example: if the rate of interest is 5*per cent.* the perpetuity is 20; for 100*l.* divided by 5 gives 20.—In like manner, 25, 28.57, 33.333, may be found to be the *perpetuity*, when the rates of interest are 4, $3\frac{1}{2}$, and 3*per cent.*

REMARK III.

If instead of a *gross sum*, an *estate*, or a perpetual annuity is to be assured for the whole duration of a life, the value in a *single* payment, will be “ the value of the life “ subtracted from the perpetuity, and the remainder “ multiplied by the annuity, or by the rent of the estate.”—And the value, in *annual payments* beginning immediately, will be “ the single payment divided by the value of the “ life increased by unity.”—Universally. It ought to be remembered, that the *assurance* of an *estate* or *annuity* after any given life or lives, is worth as much more than the *assurance* of a corresponding sum, as 100*l.* increases by its interest for a year, is greater than 100*l.*—Thus, the present values, in *single* and *annual payments*, of the *assurance* of an estate of 5*l.* *per ann.* for ever, and of a 100*l.* in money, on the whole duration, or on any part of an assigned life, are to one another, interest being at 5*per cent.* as 105*l.* to 100*l.*—The reason of the difference is, that the algebraical calculations, by which these values are determined, suppose that the *gross sum*, and the first yearly payment of the *annuity* are to be received at the same time, after the extinction of the lives. It is easy to see, that this is a circumstance which must make the latter of most value.

This specimen is sufficient to explain the general nature and principles of *assurances* on single lives; and to teach the method of finding, in all cases, the values of such *assurances*. Those who may wish to know more on this subject, and to see the mathematical demonstrations of the rules we have here given, may consult Dr. Price's treatise, entitled, Observations on reversionary Payments; on the Method of calculating the Values of Assurances on Lives, &c. chap. 1.

Assurances may be made on any number of *joint* lives, or on the *longest* of any lives: that is, an assurer may bind himself to pay any sums at the extinction of any *joint* lives, or the *longest* of any lives, or at the extinction of any one or two of any number of lives. Rules for finding the values in all such cases, as far as two lives are concerned,

concerned, may be found in the treatise just referred to. There are farther *assurances* one survivorships; by which is meant an obligation for the value received, to pay a given sum or annuity, *provided* a given life shall survive any other given life or lives. The method of finding these values will be given under the article SURVIVORSHIP.

All these different kind of *assurances* are of the greatest use; and the offices for making them are a particular advantage to the public. The principal of these offices in England are the London and the Royal Exchange *assurance* offices; the Amicable Society, incorporated for a perpetual *assurance* office; and the Society for equitable *Assurances* on Lives and Survivorships, near Black-Fryars bridge.

The two first of these offices, having chiefly in view *assurances* of ships and houses, they do little in the way of *assurances* on lives; and all the business they transact in this way is at 5*l.* for every 100*l.* assured on a single life for a single year, without paying any regard to the ages of the lives assured.

The Amicable Society at Serjeant's Inn requires an annual payment of 5*l.* from every member during life, payable quarterly. The whole annual income hence arising is equally divided among the *nominees*, or *heirs*, of such members as die every year; and this renders the dividends among the *nominees*, in different years, more or less according to the number of members who have happened to die in those years. But this society engages that the dividends shall not be less than 150*l.* to each claimant, though they may be more.—None are admitted whose ages are greater than 45, or less than 12; nor is there any difference of contribution allowed on account of difference of age.—This society has subsisted ever since 1706, and its credit and usefulness are well established. Its plan, however, is liable to several objections.—First it is evident, that regulating the dividends among the *nominees*, by the number of members who die every year, is not equitable; because it makes the benefit which a member is to receive depend, not on the value of his contribution, but on a *contingency*; that is, the number of members that shall happen to die the same year with him.—Secondly, its requiring the same payments from all persons under 45 is also not equitable; for the payment of a person admitted at 12, ought not to be more than half the payment of a person admitted at 45.—Thirdly, its plan is so narrow, as to confine its usefulness too much. It can be of no service to any person whose age exceeds 45. It is, likewise, by no means properly adapted to the circumstances of persons who want to make *assurances* on their lives for only one year, or a short term of years. For example; the true value of the *assurance* of 150*l.* for five years, on the life of a person whose age is 39, may be found, by the first rule, to be nearly three guineas *per ann.* supposing interest at 3 *per cent.* and the probability of the duration of human life, as they are given in Dr. Halley's Table of Observations. But such an *assurance* could not be made in this society without an annual payment of 5*l.*

Neither is the plan of this society at all adapted to the circumstances of persons who want to make *assurances* on particular survivorships. For example: a person possessed of an estate or salary, which must be lost with his life, has a person dependent upon him, for whom he desires to secure a sum of money payable at his death. But he desires this only as a security against the danger of his dying first, and leaving a wife, or a parent, without support. In these circumstances he enters himself into this society; and, by an annual payment of 5*l.* entitles his *nominee* at his death to 150*l.* In a few years, perhaps, his *nominee* happens to die; and having then lost the advantages they had in view he determines to forfeit his former payments, and to withdraw from the society. The right method in this case, would have been to have taken from such a person the true value of the sum assured, "on the supposition of non-payment, provided he should survive."—In this way, he would have chosen to contract with the society; and had he done this, he would have paid for the *assurance* (supposing interest at 3 *per cent.* his age 30, the age of his *nominee* 30, and the values of lives as given by Mr. De Moivre) 3*l.* 8*s.* in annual payments, to begin immediately, and to be continued during the joint duration of his own life, and the life of his *nominee*.

None of these objections are applicable to the plan of the society which meets at Black-Fryars Bridge, and which has justly styled itself the *Equitable Society for Assurances on Lives and Survivorships*. The business transacted by this society is so extensive, and it is governed so entirely by calculations, founded on the best rules and observations, that it cannot but prove one of the greatest public benefits.

It was established in the year 1762, in consequence of

proposals which had been made, and lectures recommending such a design, which had been read by Mr. Dodson, the author of the *Mathematical Repository*. It assures any sum of reversionary annuities, on any life or lives for any number of years, as well as for the *whole continuance* of the lives; and in any manner that may be best adapted to the views of the persons assured: that is either by making the assured sums payable *certainly* at the failure of any given lives: or on *condition* of survivorship; and also, either by taking the price of the *assurance* in one present payment, or in annual payments, during any single or joint lives, or any terms, less than the whole possible duration of the lives. Any persons, for instance, who depend on incomes which must be lost when they die, or who are only tenants for life in estates, may, if they want to borrow money, be enabled to give sufficient security, by assuring such sums as they want to borrow in this society, and assigning the policy; in consequence of which, the lender will, during the term of the *assurance*, be guarded against all danger of losing his principal by the death of the borrower.—In the same way clergymen, counsellors, persons holding any places of profit, traders, and others, who have families, whose subsistence depends on the continuance of their lives, may here be enabled to make some provision for their families after their decease. All persons who enjoy annuities for the lives of others, may here secure themselves against the loss they would sustain, should they survive the person on whose lives the annuities depend, by making *assurances* which should entitle them to any sums, payable on condition their survivorship should take place. Any person entitled to an estate, annuity, legacy, or office, after another person, provided he survives, may here secure some equivalent for his family at his decease, provided he does not survive.—Husbands may, in this society, secure annuities for their wives, provided they should leave them widows.—Parents, by assuring the lives of their children when infants, till they attain a given age, may secure for them, should they live to that age, such sums as may be necessary to put them out to apprenticeships, or to make capitals or fortunes for them, with which to set out in business, or to marry.—Any persons, apprehensive of being left without support in old age, when incapable of labour, may, in this society, purchase an annuity, to commence at any future year of his life, and to continue during the remainder of his life; and he may do this at a very small expence, if he is young, and willing to wait for the commencement of his annuity, till he is 55 or 60 years of age.

In short, there are no kinds of *assurances* on lives and survivorships, which this society does not make. In doing this, it follows the rules which have been given by the best mathematical writers on the doctrine of *Life Annuities* and *Reversions*, particularly Mr. Simpson; and, in order to gain such a profit as may render it a permanent benefit to the public, and enable it to bear the expences of management, it takes the advantage of making its calculations at so low an interest as 3 *per cent.* and, from tables of the probabilities and values of lives in London, where (as in all great towns) the rate of human mortality is much greater than it is in common among mankind. This society has lately made a particular enquiry into its own state, as to *profit* and *loss*, by all the business it has transacted from its first institution. This enquiry was made in three different methods, proposed to the directors by Dr. Price, the author of the *Treatise on Reversionary Payments*; and the result has been, that it appears, that a much smaller portion of the persons assured have died, than *should* have died, according to the tables for London, from which the calculations have been made, or even according to Dr. Halley's tables for Breslaw: that, for this reason, the claims have been much less than they *should* have been; and that the society has for many years been enjoying an income, some thousands *per ann.* greater than it wants, and a *surplus stock* of near 40,000*l.* over and above what is necessary to enable it to make good all its engagements.

In these circumstances, the society finding itself well secured against future hazards, and being unwilling to take from the public an extravagant profit, have determined to reduce all the *future* payments for *assurances* one tenth; and also to return to the persons now assured one tenth of all the payments which they have made. And there is it seems, reason to expect that this will be only a preparation for farther reductions. Nor need the public, we are informed, be apprehensive of their going too far in making reductions; for in consequence of the enquiry they have lately made, and of the order into which this enquiry has thrown their accounts, they will have it in their power to determine exactly from year to year what they are able to do, and always to keep under their view, a clear state of their own circumstances.

From the preceding account of this Society it is manifest that

that its business is such, that none but skilful mathematicians are qualified to conduct it. The interest of the society, therefore, absolutely requires, that it should make the places of those who manage its business so advantageous, as to induce the ablest mathematicians to accept them; and this will render it the more necessary for the society to take care, on any future vacancies, to pay no regard, in filling them up, to any other considerations than the ability and integrity of the candidates. The consequence of granting good pay will be a multitude of solicitations on every vacancy, from persons who, however unqualified, will hope for success from their connexions, and the interest they are able to make; and should the society, in any future time, be led by such causes to trust its business in the hands of persons not possessed of sufficient ability, as *calculators* and *mathematicians*, such mistakes may be committed as may prove in the highest degree detrimental. We have reason to know, that at present the society is in no danger of this kind; and one of the great public advantages attending it is, that it has established an *office*, where not only the business we have described is transacted with faithfulness and skill, but where also all who want solutions of any questions relating to life-annuities and reversions may apply, and be sure of receiving just answers.

TABLE of the rates of *assurance* on single lives in the Society for equitable Assurances near Black-Fryars Bridge.

SUM assured 100*l*.

Age.	One year.			Seven years at an annual payment of			For the whole life at an annual payment of		
	<i>l</i> .	<i>s</i> .	<i>d</i> .	<i>l</i> .	<i>s</i> .	<i>d</i> .	<i>l</i> .	<i>s</i> .	<i>d</i> .
10	1	9	6	1	10	7	2	2	10
15	1	11	0	1	12	7	2	6	6
20	1	13	11	1	16	0	2	12	10
25	1	17	7	2	0	2	3	0	6
30	2	2	6	2	6	0	3	8	11
35	2	8	7	2	14	2	3	17	9
40	2	19	2	3	5	1	4	7	11
45	3	11	0	3	18	6	5	0	0
50	4	4	8	4	11	2	5	12	11
55	5	0	9	5	11	7	6	9	3
60	5	19	1	6	16	10	7	17	7
65	7	0	11	8	13	0	10	3	9

These rates are 10 *per cent*. lower than the true values according to the decrements of life in London, reckoning interest at 3 *per cent*.; but at the same time, for all ages under fifty, they are near a *third* higher than all the true values, according to Dr. Halley's Table of the decrements of life at Breslaw, and Dr. Price's Tables of the decrements of life at Northampton and Norwich.—As, therefore, this society has lately found that the decrements of life among its members have hitherto been lower than even those given in these last Tables, it may be reasonably expected, that they will in time reduce their rates of *assurance* to the true values, by these Tables.

ASSURANCE, *collateral*. See COLLATERAL.

ASSURGENT *leaves*, in *Botany*, denotes such as are first bent down, and then rise erect towards the apex.

ASSUROR, a merchant or other person, who assures, or makes out a policy of assurance for a ship, house, life, or the like.

Assurors are not answerable for what damages arise through the negligence, or other fault of the master or seamen; or even those which arise from any vice or defect in the thing assured.

ASSURRITANI, or ASSURRANI, a branch of *Donnists* in the middle of the fourth century. The *Assurritani* maintained, the Son inferior to the Father; they rebaptized their converts from the catholics, and asserted that the church is not composed of good and bad, but of the good alone.

ASSYRIAN *letters*, *literæ Assyriæ*, a denomination given by several Rabbins, and Talmudists, to the characters of the present Hebrew alphabet, as supposing them to have been borrowed from the Assyrians during the Jewish captivity in Babylon. Montfaucon.

ASTAEUS, a species of the *crab* insect.

ASTAKILLOS, a denomination given by Paracelsus to a malignant gangrenous ulcer in the legs, occasioned by a mercurial salt in the blood. This is also called by him *araneus*, and *ulcus araneum*, the *spider's ulcer*.

ASTALIN, in *Ancient Writers*, the same with *astanda*.

ASTANDA, in *Antiquity*, a royal courier or messenger, the same with ANGARUS.

King Darius of Persia is said by Plutarch, in his book on the fortune of Alexander, to have formerly been an *astanda*.

ASTRARILÆ, ASTHARITÆ, or ASTHAROTHITÆ, a name given by some of the Jews, who fell into the worship of Astaroth, or Astharoth, the goddess of the Sidnians, supposed the same with Astarte, or the moon.

ASTAROTH, in *Mythology*, an idol of the Philistines, which the Jews destroyed at the command of Samuel. It was also the name of a deity of the Sidonians, which was worshipped by Solomon in his idolatrous days.

ASTATI, in the ninth century, the followers of one Sergius, who renewed the errors of the MANICHEES.

The word is derived from the privative *a*, and *στημι*, *sto*, to stand, and signifies any thing unstable and inconstant. They prevailed much under the emperor Nicephorus; but his successor, Michael Curopalates, curbed them with very severe laws.

ASTEISM, in *Rhetoric*, a genteel way of irony, or handsome way of deriding another. Such is that of Virgil:

Qui Bavium non odit, amet tua carmina Mævi, &c.

ASTER, in *Botany*. See STAR-WORT.

ASTER, in *Mineralogy*, a denomination given to a species of Samian earth.

ASTER *thalassius*, the *stella-marina*. or STAR-fish.

ASTER is also a denomination, in the *Ancient Pharmacy*, given to a kind of medicine, invented by Andromachus, against defluxions, and divers other pains.

ASTENA, a genus of worms of the *mollusca* order, in the Linnæan system.

ASTERIA, in *Zoology*, a name by which some authors have called the *accipiter palumbarius*, or GOSHAWK.

ASTERIA is also the name of a gem, usually called the cat's eye, or *oculus cati*. It has only two colours, a pale brown and a white, the brown seeming the ground, and the white playing about in it, as the fire-colour in the opal. It is considerably hard, and will take a fine polish, but is usually worn with its native shape and smoothness.

It is found in the East and West Indies, and in Europe. The island of Borneo affords some very fine ones, but they are usually small; they are very common in the sands of rivers in New Spain: and in Bohemia they are not unfrequently found immersed in the same masses of jasper with the OPAL.

ASTERIA is also the name of a figured stone. See STAR-stone.

ASTERIA. See STAR-fish.

ASTERION, in *Astronomy*, one of the CANES VENATICI.

ASTERISCUS, *asteroides buphthalmum*, in *Botany*. See Ox-eye.

ASTERISK, a character in form of a small star, set over any word, or sentence, to make it the more conspicuous, or to refer to the margin, or elsewhere, for a quotation, explanation, or the like.

The word is a diminutive of *αστηρ*, a star.

ASTERISM, ASTERISMUS, in *Astronomy*, the same with CONSTELLATION.

The word comes from *αστηρ*, *stella*, star.

ASTERN, denotes any distance behind a ship.

ASTEROPHYTON, in *Natural History* the name given to a kind of STAR-fish, which is composed of a great number of cylindric rays, each branching out into several others, so as to represent the branched stalks of a very intricate shrub.

ASTEROPODIUM, in *Natural History*, the name given by authors to a kind of extraneous fossil, of an imbricated texture, composed of a number of small convex or concave plates, and serving, when entire, as a base, or root, to the *asteria*, or STAR-stone.

It is very plain, that this is the remains of some animal body, probably of the star-fish kind, to which the *asteria* have also once belonged; but our imperfect knowledge in the animal history, has not yet ascertained us of the particular creature; the most probable conjecture is, that it is the Magellanic STAR-fish, the rays of which nicely and exactly represent some of the most perfect *asteropodia*.

ASTHMA, in *Medicine*, a disease of the lungs, accompanied with a shortness and difficulty of respiration.

An *asthma* is a difficulty of breathing, arising from a disorder of the lungs; and usually attended with violent motions of the diaphragm, abdominal and intercostal muscles, to the very *scapula*, and the *pinnæ* of the nostrils; as also with a rattling in the throat.

If respiration be only thick and quick, without the other symptoms, it is called a *dyspnœa*.—And if it be so intense as to occasion a violent motion of the muscles of the thorax, so that the patient cannot be tolerably easy, except in an erect posture, it is called an *orthopnœa*.

The *asthma* is usually divided into moist and dry, or manifest and occult, or *pneumonic* and *convulsive*: the first is attended with an expectoration of purulent matter; the latter is without.

The true or *pneumonic asthma* is occasioned by an abundance of cerosities, or of gross, viscous, or purulent humours,

humours collected in the cavities of the lungs, which stop up or straiten the passages of the air, and compress the bronchia.

Asthma may also be owing to empyemas, phthises, polypuses, crudities in the stomach, cachexies, &c.

Dr. Mead observes, that whatever occasions the ambient air to enter the lungs with less freedom than usual, brings on this disease. Hence it may arise, 1st, From an impediment to the action of the diaphragm, or of the intercostal and abdominal muscles. 2dly, From an obstruction of the free passage of the air into the *aspera arteria*, or its ramifications, whether it arises from a tumour, or from viscid humours. 3dly, The air itself may be a cause, if it be much heavier or lighter than usual. 4thly, The tenderness of the lungs may sometimes occasion this distemper, as appears from those who are subject to a difficulty of breathing upon removing from the thick air of the town into the clear air of the country. 5thly, The difficult passage of the air through the lungs may be reckoned among the causes of difficult respiration. And this may happen either from the weakness of the heart, or the too great thickness of the blood.

That kind called the convulsive *asthma* is supposed to be occasioned by an irregular motion of the animal spirits; and happens when the spirits do not flow fast enough, or in sufficient quantity, into the muscles of the breast, either by reason of an obstruction, or of some other obstacle: the necessary consequence whereof is a violent and painful respiration, in which nature's effort seems to be the relieving herself from the load of a *plethora*, by a spitting of blood, though she fails in the attempt. The convulsive *asthma* resembles the *incubus*, or night-mare, in many particulars; but it never seizes any body, unless they are awake, whereas the other usually attacks them when between sleep and waking; and this is a much more lasting complaint, and more frequent, in the return of its fits than the other. The *incubus* also prevents respiration in so violent a degree, that the person can form no articulate sound. But the convulsive *asthma* suffers a somewhat more free respiration, and the use of the voice. The *incubus* is a disease of very little danger: the convulsive *asthma*, on the contrary, is a very dangerous, and often fatal, disorder. Juncker, *Consp. Med.* p. 364.

ASTHMA, convulsive, signs of it. These are a terrible shortness of breath, which differs from that of the suffocative catarrh only in this, that it is somewhat less violent, and is not attended with the same sensation of a stuffing up of the breast; a numbness of the limbs, and a general lassitude of the whole body; there is a violent compression felt in the breast, and about the shoulders, with a great palpitation of the heart. The face is red in some parts, and seems tumid, and the temporal arteries are distended. The bowels are usually costive, and there is a dimness often in the eyes, and sometimes an alienation of the mind. These symptoms usually come on in an evening, and last an hour or two. Often, however, the fits are of much longer duration, and sometimes they observe regular periods, at different distances of time.

ASTHMA, convulsive, persons subject to it. Those of plethoric habits are much more subject, than any other people, to this disease. It does not often seize young persons, except in consequence of other diseases, and in that case it usually is a very bad omen. It is most common to people of a middle age, and with them, sometimes returns with frequent, but less violent fits, for many years together; sometimes it is more violent, and takes them off in a very little time. People often fall into this disease, from having been used to periodic bleedings, or cuppings, and having afterwards neglected them; those who change a busy or laborious life, for an idle or sedentary one, also often fall into it; as do those who have had the gout, thrown back by improper medicines. Women also sometimes fall into it from suppressions or imminutions of the *meneses*; and men of hypochondriac habits, from suppressions of habitual evacuations of blood from the hæmorrhoidal veins. The causes of this disease are very various, and it is sometimes an idiopathic, sometimes a symptomatic, complaint; it very often attends malignant fevers, and arthritic complaints, and joins itself with other distemperatures of the breast.

ASTHMA, convulsive, prognostics in it. This, though not immediately destructive, is often a very dangerous complaint, and in a shorter or longer time, proves fatal to the patient. In middle-aged people it usually brings on either acute fevers, or spitting of blood; and in old people, palsies, apoplexies, or suffocative catarrhs. Juncker.

The *asthma*, again, is either *continual*, or *periodical*, and *intermitting*; which last returns chiefly when a sober regimen is not observed.

The *asthma* is found to be the more violent when the patient is in bed, and in a prone posture; the contents of

the lower belly, in that case, bearing against the diaphragm so as to lessen the capacity of the breast, and to leave the lungs less room to move.

ASTHMA, method of treatment. The cure of the true or pneumonic *asthma* is by bleeding; after which emetics may be used; and if the paroxysm returns, epispastics, with glysters instead of purges. — Linctuses also give some relief, millepedes, spirit of gum ammoniac, with sal ammoniac, coffee, tincture of sulphur, &c. are also greatly commended in *asthmatic* cases.

Sir John Pringle observes, that coffee made fresh and strong, allowing about an ounce for one dish, and repeated every quarter or half an hour, is the best abater of the paroxysms of the periodic *asthma*, which he has ever known.

For the convulsive kind, the cure is attempted by antiepileptics, antihysterics, antispasmodics, opiates, &c. — Externally, spirit of wine and camphor may be rubbed on the breast and shoulders, especially where the patient has been used to cupping, and has neglected it; rubbing the shoulders with a flannel, often has a good effect also; and fumigations may be used of amber, storax, and mastic, with flowers of citrine stæchas. When the fit is off, the patient should use frequent washing the feet in warm water, and should be always blooded in the foot in spring and fall; he should also take gentle purges at times, and if the neglect of habitual cuppings, or suppressions of the hæmorrhoids, or, in women, of the *meneses*, have concurred, great care is to be taken to bring all back to their old state again, otherwise no radical cure can be expected. Besides, a mixture of spirit of hartshorn, and tincture of salt of tartar, should be given to promote an equal distribution of the blood to all parts of the body.

Bleedings in the time of the fit, though they always give relief, yet are as much to be avoided as possible, since they subject the patient to frequent returns, and make it always necessary to repeat them at the time; for as nature intends, by this *asthma*, the relieving herself from a *plethora*, by a discharge of blood, where she finds this intent answered by the opening a vein, she will always afterwards bring on this disease, when at all molested by a *plethora*, and will never suffer it to go off but by the same means. In a first attack of this disease, bleeding is not absolutely necessary, and is therefore always to be carefully avoided; but in cases where custom has made it necessary, it must be done, and a large quantity always taken away. Bleeding in the arm is found most serviceable in the time of the fit, and in the foot, by way of prevention. Vomits, in these cases, are often very hurtful, and the more violent ones always dangerous, in consideration of the spitting of blood, which there is always a greater or lesser tendency to; yet, in cases where a full meal has just preceded it, and where there is no immediate reason against it, a small dose of some gentle vomit may be properly given, after bleeding, and a glyster. Dr. Akenfide recommends an emetic of ipecacuanha, to be used as speedily in the fit, as attending circumstances will admit. A sweat very often succeeds the more violent fits of this disorder, and is always observed to do the patient good; this is promoted by the nitrous and cinnabarine medicines. When this disease is attended with hypochondriac complaints, the *mixture simplex*, well camphorated, is found of great use, as it dispels the flatulencies, which, in this case, are joined with, and always greatly exasperate, the disease. The volatile salts are to be avoided in the time of the fit, and all anodynes, if given while the bowels are in a costive state, bring on mischief. The giving, in this case, the expectorating medicines, which are serviceable in other *asthmas*, is not only useless, as there is in this case, nothing to be expectorated, but it is also dangerous. Finally, in cases where there are hypochondriac complaints joined with this disease, the application of leeches to the hæmorrhoidal veins is attended usually with great success. Juncker & Med. Trans. Lond. vol. i.

The method of cure in this distemper, says Dr. Mead, must vary with its causes. Blood-letting is, generally speaking, useful in every species of it. Vomits are useful, if the stomach or lungs be loaded with tough phlegm. The body must be kept open with gentle cathartics. Flatulent food and drink should be avoided; exercise used till weariness; and friction, till a sweat is ready to break out.

Oxymel of squills, and simple cinnamon water, or garlic, are good in case of viscid and tough humours. But if the fault lie in the nervous juice, the strong smelling gums are proper, especially the milk of gum ammoniac. Anodynes are very hurtful in the first case, but serviceable in this, if joined, with volatile salts or spirits. The paregoric elixir is one of the best of this tribe.

As every species of this disease is attended with more or less effervescence in the blood, the bark will be found useful; and there have been instances where it has done

Vast service, mixed with the cinnabar of antimony. Mead, Mon. & Pract. Med. cap. 8.

Blisters on the back give relief during the fit; and by keeping them open as long as possible may prevent returns.

In general, all ales, and especially that prepared of wheat, are in this disorder to be avoided. In *asthmatic* cases, the most proper liquor is old Rhenish wine, mixed with three or four parts of pure spring water, or the Seltzer waters. Besides infusions by way of tea, prepared of hyssop, Paul's betony, garden crowfoot, ground-ivy, liquorice root, the *tragus* (sea-grape), and the flowers of the daisy, are highly beneficial in all *asthmas*, from whatever cause they may arise. Such substances as are too sweet, or prepared with sugar or honey, are in every species of the *asthma*, but more especially those of the serous, or hypochondriacal kind, to be carefully abstained from. Hoffman.

ASTIPULATOR, in the Roman order, he by whose consent and leave a nun takes the religious habit. Du-Cange.

ASTORCHA, in *Botany*, a name by which some authors call the yellow *stæchas*, and others the purple, commonly called the Arabian.

ASTRÆA, from *αστρ*, *star*, in *Astronomy*, a name which some give to the sign Virgo, by others called Erigone, and sometimes Isis.

The poets feign that Justice quitted heaven to reside on earth, in the golden age; but, growing weary of the iniquities of mankind, she left the earth, and returned to heaven, where she commenced a constellation of stars, and from her orb still looks down on the ways of men. Ovid. Met. lib. i. ver. 149.

ASTRAGAL, in *Anatomy*, a bone of the heel, having a convex head, articulated with the *tybia*, by *ginglymus*. See *Tab. Anat. (Osteol.) fig. 7. a. a. fig. 3. n. 25. 25.*

The *astragalus*, called also *talus*, and popularly *os balistæ*, is the first bone of the *tarsus*, and the highest of all those that belong to the foot.

This bone may be divided into two portions, one large and *posterior*, the other small and *anterior*; the first is, as it were, the body of the bone, the latter an *apophysis*, though commonly called, the *anterior* portion. The body, or *posterior* portion, has four sides, one *superior*, two *lateral*, and one *inferior*. The upper side is the largest; it is covered all over with a cartilage, and is cylindrically convex from before backward, with a depression running through the middle of its breadth, which represents half a pulley, and is continuous with the two lateral cartilaginous sides, of which the external is broader than the other. The upper side is articulated with the lower side of the *basis* of the *tybia*, the internal lateral side with the inner ankle, and the external lateral side with the outer ankle; below the lateral internal side there is a great depression without a cartilage, and several other inequalities. The lower side is likewise cartilaginous, and obliquely concave, for its articulation with the *os calcis*. At the very lowest and *posterior* part of the body of the *astragalus*, on the edge of the lower side, is a small oblique smooth notch, or channel, for the passage of the tendons. The *apophysis*, or *anterior* part of the *astragalus*, is distinguished from the body, by a small depression on the upper part; and on the lower part by a long oblique unequal notch, very broad toward the outside. The *anterior* side of this *apophysis* is all cartilaginous, and obliquely convex, for its articulation with the *os scaphoides*. The lower side, which is likewise cartilaginous, is parted in two, and articulated with the *os calcis*, being distinguished from the lower side of the body of the bone, by the long oblique notch already mentioned. Beside these two cartilaginous sides, there is a third below the *anterior* towards the inner part, which, in the dried skeleton, touches nothing. Winslow.

Some also apply the name *astragalus* to the *vertebræ* of the neck. — Homer, in his *Odyssey*, uses the term in this sense.

ASTRAGAL, in *Architecture*, from the Greek *αστραγαλος*, the bone of the heel, is a little round member, in form of a ring or bracelet: serving as an ornament at the tops and bottoms of columns. See *Tab. Architect. fig. 40. lit. E. & fig. 2. 24. 25. 27.*

It is also used both above and below the listel, adjoining immediately to the square or die of the pedestal. It is frequently carved with hearts and olives, which the French call *pater-nosters*.

ASTRAGAL, in *Gunnery*, is a kind of ring or moulding on a piece of ordnance, at about half a foot distance from the mouth; serving as an ornament to the piece, as the former does to a column.

ASTRAGAL *tyles*. See *TYLE*.

ASTRAGALOIDES, in *Botany*, the *phaca* of Linnæus. See *Bastard Milk VETCH*.

ASTRAGALOMANCY, a species of divination performed by throwing small pieces, with marks corresponding to the letters of the alphabet; the accidental disposition of which formed the answer required. This kind of divi-

nation was practised in a temple of Hercules at Achaia. Hist. de l'Acad. Inscrit. tom. i. p. 122.

The word is derived from *αστραγαλος*, and *μαντεια*, *divination*.

ASTRAGALOTE, in *Natural History*, a species of fossil *alum*, thus called, from its resembling a *talus*, or ankle-bone; whence it is also denominated *talare*.

ASTRAGALUS, in *Botany*, a genus of the *diadelphia decandria* class, *wild liquorice*, *liquorice vetch*, or *milk vetch*. Its characters are, that it hath a butterfly flower; the standard, or *vexillum*, is upright, blunt, and reflexed on the sides; the wings, which are oblong, are shorter than the standard; and the heel, which is bordered, is of the same length with the wings; at the bottom of the flower is situated a taper germen, which afterward becomes a pod having two cells, with a row of kidney-shaped seeds in each. Miller enumerates twenty species. The root of this plant, drank in wine, stops a looseness and provokes urine. Dried to a powder, it is, with good effect, sprinkled on old ulcers, and stops bleeding. Lemery.

According to some, it is good to increase the milk in wet-nurses.

ASTRAL, something belonging to the stars, or depending on the stars.

The word comes from *astrum*, of the Greek *αστρ*, *star*.

ASTRAL, or siderial year. See *YEAR*.

ASTRANTIA, in *Botany*. See *MASTER-Wort*.

ASTRAPÆA, in *Natural History*, a name given by the ancients to a stone, since called, improperly, *astrapia*, and by some *astrapea*. The description we have of it, is, that it was of a blue, or blackish ore, with white variegations, running in the form of waves and clouds in it. Some specimens of the Persian *lapis lazuli* are of this kind, but they are rare. It is probable that the ancients meant these, by the name; but as they were not a distinct species, they ought not to have confounded the same stone under two names.

ASTRARII, in *Middle Age Writers*, the same with *mansuarii*, those who live in the house, or family, at the time, for instance, when a person dies. Du-Cange.

These are also denominated *astro-addicti*, q. d. *tyed to the hearth*.

ASTRARIUS *heres* is used in our *Old Writers*, where the ancestor, by conveyance, hath set his heir apparent, and his family, in a house, in his life-time.

Spelman carries the import of the word farther, as if it denoted an heir to whom the inheritance was given by his predecessor in his own life, by a writing in form.

The word is formed from *astre*, an ancient French term for the hearth of a chimney.

ASTRICTION, *adstrictio*, in *Medicine*, an operation intended partly to constrict the parts and pores of the body, when too loose, and partly to restrain the course of the humours, when too fluid.

Astriction, with regard to the object, is of two sorts; the first employed on the too much relaxed *solids*; the second on the *fluids*, chiefly in hæmorrhages; intended to moderate or restrain the flux of the blood through the customary passages, as the nose, *menfes*, *lochia*, and the like; and sometimes also to stop extraordinary and unusual hæmorrhages, arising from violent causes.

ASTRICTOR *toga*. See *TOGA*.

ASTRICUS *lapis*, in *Natural History*, a kind of figured stone, broken or cut from the *inaspros*, after the same manner as the *trochita* from the *entrochi*.

ASTRILD, in *Ornithology*, a species of the *LOXIA*.

ASTRINGENS *crocus martis*. See *CROCUS*.

ASTRINGENTS, in *Medicine*, binding remedies; or such as have the power of contracting the parts, and diminishing the pores thereof.

Astringents chiefly act either by the asperity of their particles, whereby they corrugate the membranes, and make them draw up closer; or by thickening the fluids, whereby they cannot run off so fast as before.

Hence, *astringents* are of the class of strengtheners, or corroborants; the nature and operation whereof, see under the article *STRENGTHENER*.

Astringents naturally stand opposed to *laxatives*. They only differ from what are called *styptics*, in degree of efficacy.

Among simples, mint, red roses, nettles, fanicle, barberries, quinces, pomegranate, floses, cinnamon, blood-stone, alum, chalk, boles, coral, &c. are the principal *astringents*.

Astringent medicines are to be avoided in all inflammatory cases, for they disturb nature in the effort she is making to relieve herself from a congestion of blood in the part; and prevent that free passage which the blood ought to have, and which alone can make a cure, or break through the obstruction that is the real disease.

Mr. Petit concludes, from a great many experiments he made in covering pieces of flesh with the different sorts of *astringents* employed in hæmorrhages, that some act only

only as absorbents; such are earthy substances, most of the *astringent* plants, some gums, resins, and animal substances. Other *astringents* absorb, and at the same time, their saline and sulphureous particles, insinuating themselves into the flesh, preserve it from corruption. Vitriol and alum, which are acknowledged to be among the strongest *astringents*, appeared, by his experiments, to absorb most humidity. Mem. Acad. Scienc. an. 1732. *Astringents* are best administered in small doses, with a large quantity of some proper liquid. Extracts made from *astringent* vegetables do not keep long. Dr. Percival, in his Medical Essays and Experiments, observes, that *astringents*, acid and vegetable, neutralize each other; that vegetable acids lessen their astringency externally; but that mineral acids increase it both internally and externally. Vegetable *astringents* are the most powerful, as medicines; and of these one of the strongest is galls.

From the infusions of certain *astringent* vegetables, mixed with green vitriol, commonly called copperas, is produced a deep black liquor, of most extensive use for dyeing and staining black; to woollen and silk it gives a permanent colour, although from linen, and other vegetable bodies, this blackness is discharged by washing. Of such *astringent* vegetables, the principal are, the excrescences from the oak, called GALLS, proceeding from the juices of the tree, issuing through small wounds made by certain insects, not found in this climate. Other kinds of excrescences are found upon our oaks, occasioned, perhaps, by insects of another kind. There are many other vegetable substances that have a like effect in different degrees; all, in general, that are austere, *astringent*, or corrugating to the taste, inasmuch, that turning a solution of vitriol black, is looked upon as a sure test of *astringency* in vegetables. This power, by which they produce this BLACKNESS, and their *astringency*, or that quality by which they contract animal fibres, and by which they contribute to the TANNING of leather, seem to depend upon one and the same principle, and to be proportional to another. This *astringent* and colouring matter is dissolved and extracted from galls, acorns, the leaves, the bark, and wood of the oak; from the leaves, small branches, and flowery clusters of the sumach tree, balauftine flowers, pomegranate peel, alder bark, bistort root, &c. both by water and spirit of wine, and it does not exhale in the evaporation of liquors by heat. There are differences in the *phænomena* produced by different *astringents*. Commercio Phil. Techn. p. 344, 382, 418.

See Neumann's chemical history of *astringent* vegetables, his account of their antiseptic nature, of the methods of extracting their *astringency*, of their striking colours with chalybeate vitriol, of their use in tanning, of their giving some durable dyes, and of their fixing others, in Dr. Lewis's edition of Neumann's Works, with his own additional observations, 4to. an. 1759. p. 362, & seq.

ASTROBOLISM, the same with *sphacelus*; though properly applied to plants which are destroyed in the dog-days, as if blasted by that star.

The word is derived from *αστρον*, *star*, and *βαλλω*, *I strike*.

ASTRODICTICUM, an astronomical instrument invented by M. Weighelius, by means of which many persons shall be able at the same time to behold the same star.

ASTROGNOSIA, from *αστρον*, *star*, and *γινωσκειν*, *I know*; the art of knowing the fixed stars, their names, ranks, situations in the constellations, and the like.

ASTROITES, lapis ASTROITES, ASTROCHITES, or ASTERIA. See STAR-stone.

ASTROLABE, ASTROLABIUM, was originally used for a system or assemblage of the several circles of the sphere, in their proper order and situation with respect to each other.

The ancient *astrolabes* appear to have been much the same with our armillary spheres.

The first and most celebrated of this kind was that of Hipparchus, which he made at Alexandria, the capital of Egypt, and lodged in a secure place, where it served for divers astronomical operations.—Ptolemy made the same use of it; but as the instrument had several inconveniencies, he contrived to change its figure, though perfectly natural, and agreeable to the doctrine of the sphere; and to reduce the whole *astrolabe* upon a plane surface, to which he gave the denomination of the PLANISPHERE.—Hence

ASTROLABE is used among the moderns for a PLANISPHERE; or stereographic projection of the circles of the sphere upon the plane of some great circle thereof.

The usual planes of projection are that of the equinoctial, the eye being supposed in the pole of the world; that of the meridian, the eye being supposed in the point of intersection of the equinoctial and horizon; and that of the horizon.

Stoffler, Gemma Frisius, and Clavius, have treated at

large of the *astrolabe*.—For a farther account of the nature and kinds thereof, see PLANISPHERE.

ASTROLABE, or Sea ASTROLABE, more particularly denotes an instrument chiefly used for taking the altitude of the pole, the sun, or stars, at sea.

The word is formed from *αστρον*, *star*, and *λαβω*, *I take*.—The Arabs call it in their tongue *ashtarlab*; a word formed by corruption from the common Greek name: The common *astrolabe*, represented Tab. Navigation, fig. 22. consists of a large brass ring, about fifteen inches in diameter, whose limb, or a convenient part thereof, is divided into degrees and minutes; fitted with a moveable index, or label, which turns upon the centre, and carries two sights.—At the zenith is a ring A, to hang it by, in time of observation.

To use the *astrolabe*, turn it so to the sun, as that the rays may pass freely through both the sights F and G, in which case the edge of the label cuts the altitude in the divided limb.

The *astrolabe*, though now grown into disuse, is at least equal to any of the other instruments used for taking the altitude at sea; especially between the tropics, when the sun comes near the zenith.—There are a great many other uses of the *astrolabe*; whereof Clavius, Henrion, &c. have written entire volumes.

ASTROLOGICAL fate. See FATE.

ASTROLOGY, the art of foretelling future events, from the aspects, positions, and influences of the heavenly bodies.

The word is compounded of *αστρον*, *star*, and *λογος*, *discourse*; whence, in the literal sense of the term, *astrology* should signify no more than the doctrine or science of the stars; which we read was its original acceptance, and made the ancient *astrology*; though, in course of time, an alteration has arisen; that which the ancients called *astrology*, being afterwards termed ASTRONOMY.

Astrology may be divided into two branches, *natural* and *judiciary*.

To the former belongs the predicting of natural effects; as, the changes of weather, winds, storms, hurricanes, thunder, floods, earthquakes, &c.

This art properly belongs to PHYSIOLOGY, or *natural philosophy*; and is only to be deduced *a posteriori*, from phenomena and observations.

Its foundation and merits the reader may gather from what we have said under AIR, ATMOSPHERE, and WEATHER.

For this *astrology*, Mr Boyle makes an apology, in his History of the Air.

ASTROLOGY, *judiciary* or *judicial*, which is what we commonly call simple *astrology*, is that which pretends to foretell moral events; i. e. such as have a dependence on the free-will and agency of man; as if they were directed by the stars. This art, which owed its origin to the practices of knavery on credulity, is now universally exploded by the intelligent part of mankind.

The professors of this kind of *astrology* maintain, "That the heavens are one great volume or book, wherein God has written the history of the world; and in which every man may read his own fortune, and the transactions of his time.—The art, they say, had its rise from the same hands as *astronomy* itself: while the ancient Assyrians, whose serene unclouded sky favoured their celestial observations, were intent on tracing the paths and periods of the heavenly bodies, they discovered a constant settled relation or analogy, between them and things below; and hence were led to conclude these to be the *Parcae*, the Destinies, so much talked of, which preside at our births, and dispose of our future fate.

"The laws therefore of this relation being ascertained; by a series of observations, and the share each planet has therein; by knowing the precise time of any person's nativity, they were enabled, from their knowledge in astronomy, to erect a scheme or horoscope of the situation of the planets, at that point of time; and hence, by considering their degrees of power and influence, and how each was either strengthened or tempered by some other, to compute what must be the result thereof."

Thus the *astrologers*.—But the chief province now remaining to the modern professors, is the making of calendars or almanacks.

Judicial *astrology* is commonly said to have been invented in Chaldaea, and thence transmitted to the Egyptians, Greeks, and Romans; though some will have it of Egyptian origin, and ascribe the invention to Cham. But it is to the Arabs that we owe it. At Rome the people were so infatuated with it, that the *astrologers*, or, as they were then called, the *mathematicians*, maintained their ground in spite of all the edicts of the emperors to expel them out of the city. See GENETHLIACI.

Add, that the Bramins, who introduced and practised this art

art among the Indians, have hereby made themselves the arbiters of good and evil hours, which gives them great authority: they are consulted as oracles; and they have taken care never to sell their answers but at good rates.

The same superstition has prevailed in more modern ages and nations. The French historians remark, that in the time of queen Catherine de Medicis, *astrology* was in so much vogue, that the most inconsiderable thing was not to be done without consulting the stars. And in the reigns of king Henry III. and IV of France, the predictions of *astrologers* were the common theme of the court conversation.

This predominant humour in that court was well rallied by Barclay, in his *Argenis*, lib. ii. on occasion of an *astrologer*, who had undertaken to instruct king Henry in the event of a war then threatened by the faction of the Guises.

ASTROLUS, in *Natural History*, a name given by authors to a white and splendid stone, small in size, and of a roundish figure, resembling the eyes of fishes.

ASTROMETEOROLOGIA, the art of foretelling the weather, and its changes, from the aspects and configurations of the moon and planets.

This makes a species of *astrology*, distinguished by some under the denomination of *meteorological astrology*.

ASTRONIUM, in *Botany*, a genus of the *dioccia pentandria* class: the calyx of which has five leaves, and the corolla five petals.

ASTRONOMICAL, something that relates to *astronomy*.

ASTRONOMICAL Calendar, Characters, Column, Horizon, Hours, Month, Quadrant, Ring-Dial, Sector, Tables, Telescope, Time, Year. See the several substantives.

ASTRONOMICAL Observations. See COELESTIAL Observations.

The *astronomical* observations of the ancients, among which those of Hipparchus make a principal figure, are carefully preserved by Ptolemy in his *Almagest*.

In the year 880, Albategni, a Saracen, applied himself to the making of observations: in 1457, Regiomontanus undertook the province at Norimberg; and his disciples, J. Wernerus, and Ber. Waltherus, continued the same from 1475 to 1504. Their observations were published together in 1544.—In 1509 Copernicus, and after him the landgrave of Hesse, with his assistants Rothmannus and Byrgius, observed; and after them Tycho, at Uraniburg, from 1582 to 1601.—All the observations hitherto rehearsed, together with Tycho's apparatus of instruments, are contained in the *Historia Cœlestis*, published in 1672, by order of the emperor Ferdinand.—Soon after, Hevelius, with a still more magnificent and better contrived apparatus of instruments, described in his *Machina Cœlestis*, began a course of observations. It is objected to him, that he only used plain sights, and could never be brought to take advantage of telescopic ones; which occasioned Dr. Hook to write animadversions on Hevelius's instruments, printed in 1674, wherein he too rashly despises them, on account of their inaccuracy: but Dr. Halley, who, at the instance of the Royal Society, went over to Dantzick in the year 1679, to inspect his instruments, approved of their justness, as well as of the observations made with them. See SIGHTS. Jer. Horrox, and Will. Crabtree, two of our own countrymen, are famous for their observations from the years 1635 to 1645.—They were followed by Flamsteed, Cassini the father and son, Halley, de la Hire, Roemer, and Kirchius.—See farther under OBSERVATORY, CATALOGUE, &c.

ASTRONOMICAL place of a star or planet, is its longitude or place in the ecliptic, reckoned from the beginning of Aries in *consequentia*, or according to the natural order of the signs.

ASTRONOMICALS, a name used by some writers for sexagesimal fractions; on account of their use in *astronomical* calculations.

ASTRONOMICUS Radius. See RADIUS.

ASTRONOMY, ASTRONOMIA, the doctrine of the heavens, and their phenomena.

The word is compounded of *αστρον*, star, and *νομος*, law, rule.

Astronomy is properly a mixed mathematical science, whereby we become acquainted with the celestial bodies, their magnitudes, motions, distances, periods, eclipses, &c. Some understand the word *astronomy* in a more extensive sense, including under it the theory of the universe, and the primary laws of nature; in which sense it rather seems a branch of physics than of mathematics.

The heavens may be considered two ways; either as they appear to the naked sense, or as they are discovered by the understanding; and hence *astronomy* is divided into two branches, SPHERICAL and THEORETICAL.

The invention of *astronomy* has been variously assigned; and several persons, several nations, and several ages, have laid claim to it.—From the accounts given us by the ancient historians, it appears that kings were the first inventors and cultivators of it: thus, Belus, king of As-

syria; Atlas, king of Mauritania; and Uranus, king of the country situate on the shore of the Atlantic ocean, are severally recorded, as the persons to whom the world owes this noble science; to whom we may add, Fohi, Taut, and Zoroaster, as some of the most ancient of all the *astronomers*, whose names are recorded.

This at least is pretty evident, that it was known to those nations long before it came into Greece: agreeably to which Plato tells us, it was a Barbarian who first observed the heavenly motions; to which he was led by the clearness of the weather in the summer season; as in Egypt and Syria, where the stars are constantly seen, there being no rain or clouds to interrupt the prospect. And the want of this clearness of atmosphere the same author lays down as the reason why the Greeks came so late to the knowledge of *astronomy*.

The generality of writers fix the origin of *astronomy* and astrology in Chaldea; and accordingly among the ancients we find the word *Chaldean* frequently used for *astronomer*. Some choose, however, to attribute the invention to the ancient Hebrews; and some, even to the first men; building on the authority of Josephus, and what he mentions about Seth's pillars.

It may be worth noting, though there are no historical facts to support it, that Rudbeck, in his *Atlantica*, maintains *astronomy* to have been invented by the Swedes; his reasons are, the great diversity in the length of the days in that country, which must naturally lead the people to conclude the earth round, and that they lived near one of its extremes.

By Porphyry's account, *astronomy* must have been of a very ancient standing in the East; for he tells us, that when Babylon was taken by Alexander, there were brought thence celestial observations for the space of 1903 years, which therefore must have commenced within 115 years after the flood, or within fifteen years after the building of Babel.—Epigenes, according to Pliny, affirmed, that the Babylonians had observations of 720 years engraved on bricks.—Achilles Tatius ascribes the invention of *astronomy* to the Egyptians; and adds, that their knowledge therein were engraven on columns, and by that means transmitted to posterity.

M. Bailey, in his elaborate *Histoire de l'Astronomie Ancienne*, &c. endeavours to trace the origin of *astronomy* among the Chaldeans, Egyptians, Persians, Indians, and Chinese, to a very early period. He maintains, that it was cultivated in Egypt and Chaldea 2800 years before the Christian æra; in Persia, 3209; in India, 3101; and in China, 2952 years before this æra: he also apprehends, that *astronomy* had been studied long before this distant period, and that we are only to date its revival from thence.

From the Egyptians, *astronomy* is commonly supposed to have passed to the Greeks; Laertius tells us, that Thales, first about the nineteenth Olympiad, and after him Eudoxus and Pythagoras, travelled into Egypt, to be instructed in the science; and that this last, in particular, living in a close community with the Egyptian priests for seven years, and being initiated into their religion, was instructed in the true system of the universe; which he afterwards taught in Greece and Italy.—He was the first, among the Europeans, who taught that the earth and planets turn round the sun, which stands immovable in the centre; that the diurnal motion of the sun and fixed stars is not real, but apparent, arising from the earth's motion round its own axis, &c.—Diogenes Laertius says, that Pythagoras taught that the world was round, containing the earth in the middle of it; and that Philolaus first maintained, that the earth moved in a circle.

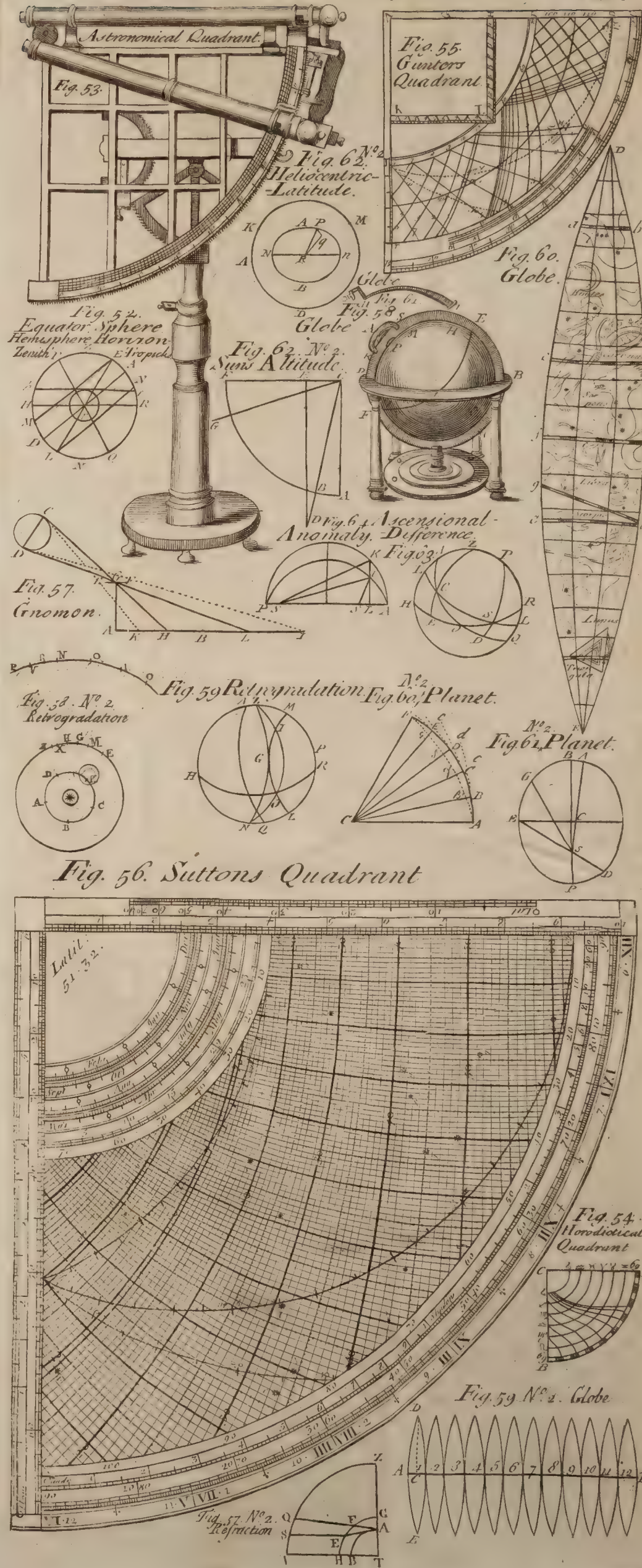
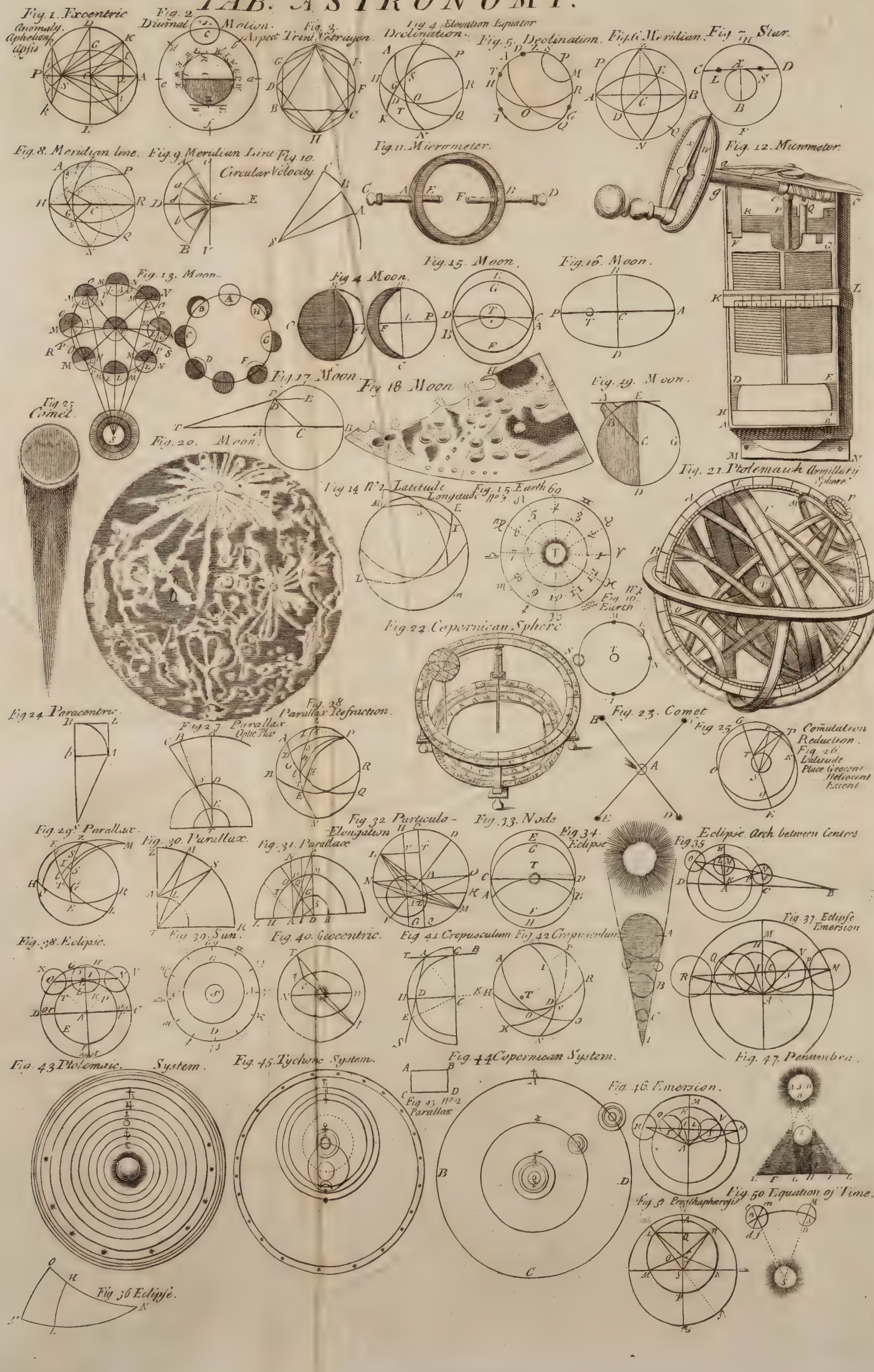
Yet Vitruvius represents the introduction of *astronomy* into Greece somewhat differently: maintaining, that Berosus, a Babylonian, brought it thither immediately from Babylon itself; and opened an *astronomical* school in the island of Cos. Pliny, lib. vii. cap. 37. adds, that in consideration of his wonderful predictions, the Athenians erected him a statue in the *gymnasium*, with a gilded tongue.—If this Berosus be the same with the author of the Chaldee histories, he must have been before Alexander.

After Pythagoras, *astronomy* sunk into neglect; most of the celestial observations brought from Babylon were lost; and it was but a very small number that Ptolemy, in his time, was able to retrieve. However, some few of his followers continued to cultivate *astronomy*; among whom were Philolaus and Aristarchus Samius; the latter of whom expressly affirms, that the fixed stars and the sun remain immovable, and that the earth is carried in a circle round the sun, placed in the middle of its course. Nor is there any satisfactory evidence, though many claims have been set up, that the true system was understood or proposed before his time. Archimed. Aren. ed. Oxon, 1676.

TAB. ASTRONOMY.

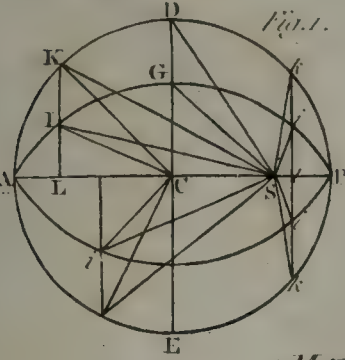
Astronomy.

Plate I.

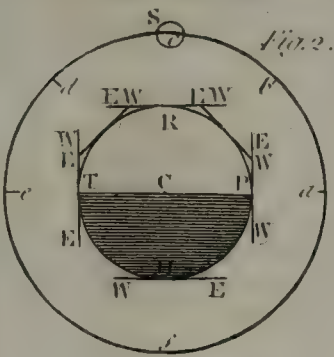


ASTRONOMY.

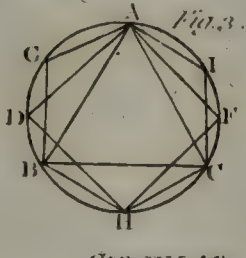
ANOMALY, APHELION, APSIS, ECCENTRIC.



DAILY Motion



ASPECT, TRINE, TETRAGON.



DECLINATION ELEVATION

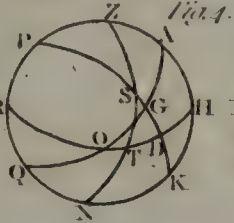
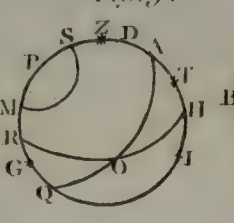
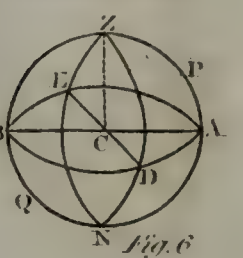


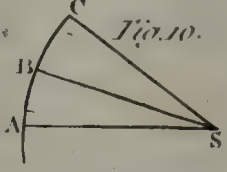
Fig. 5.



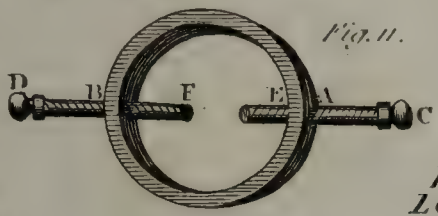
MERIDIAN



CIRCULAR Velocity

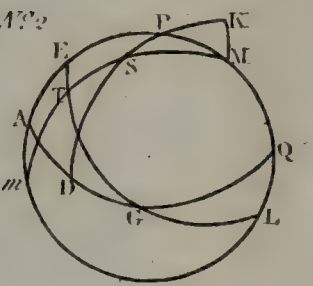


MICROMETER



LATITUDE, LONGITUDE.

Fig. 14. N° 2



EARTH. Fig. 15. N° 2.

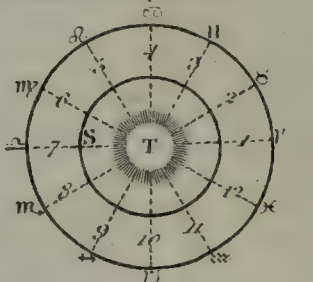
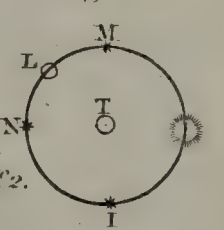
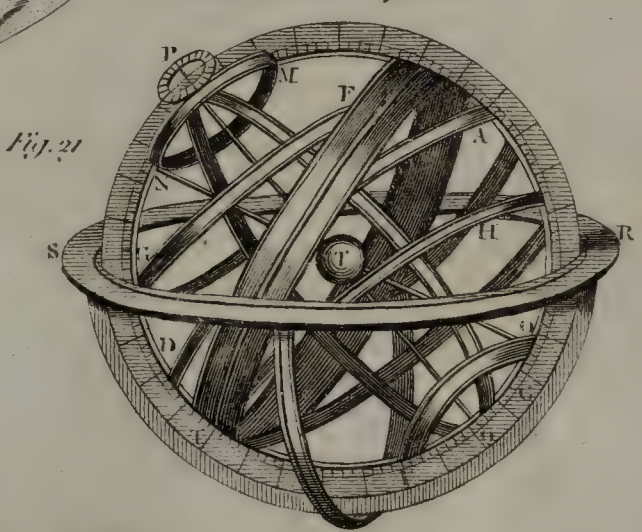


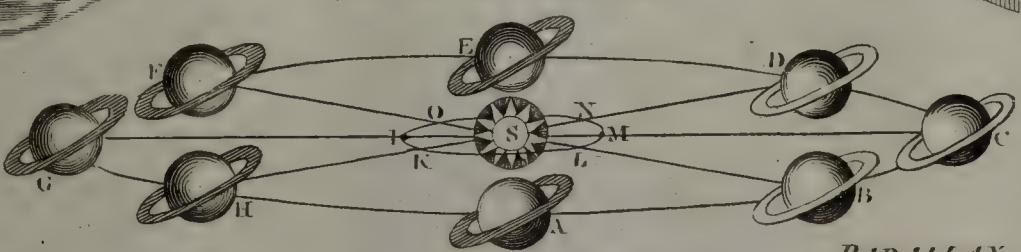
Fig. 16. N° 2.



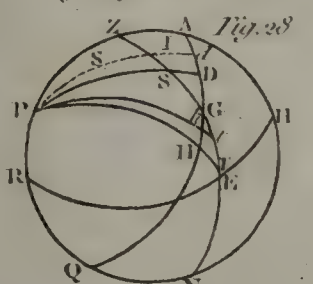
ARMILLARY Sphere



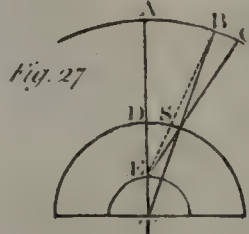
Saturn's RING. Fig. 22



PARALLAX of Refraction

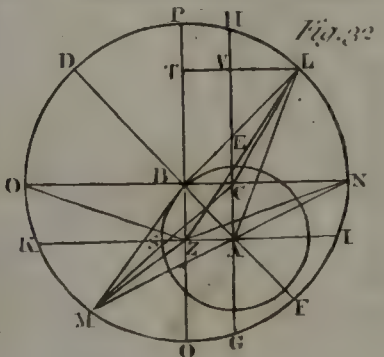


PARALLAX, Optic PLACE.

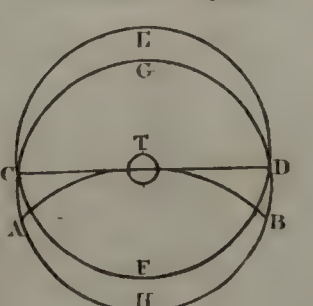


PARTICULA error

Fig. 32



NODE Fig. 33



P A R A L L A X

Fig. 30

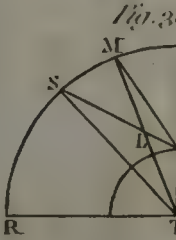
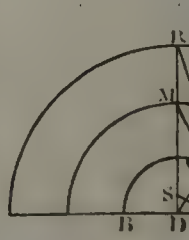
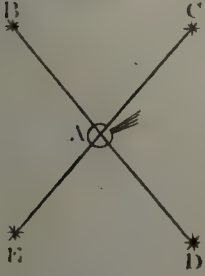


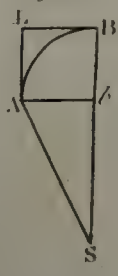
Fig. 31



COMET Fig. 23

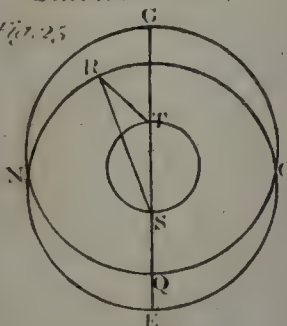


PERICENTRIC. Fig. 24



COMMUTATION, ELONGATION.

Fig. 25



LATITUDE, REDUCTION.

Fig. 26

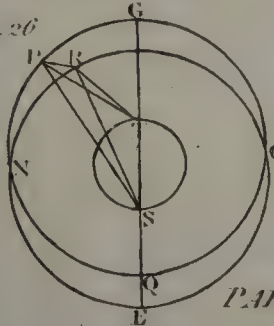
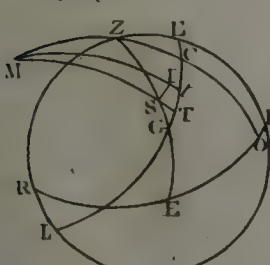
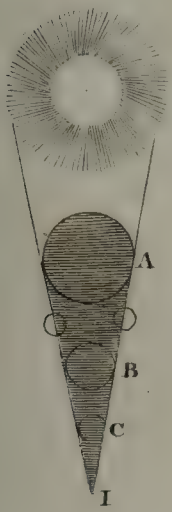


Fig. 29.



ASTRONOMY Tab. II.

Fig. 31.



E C L I P S E

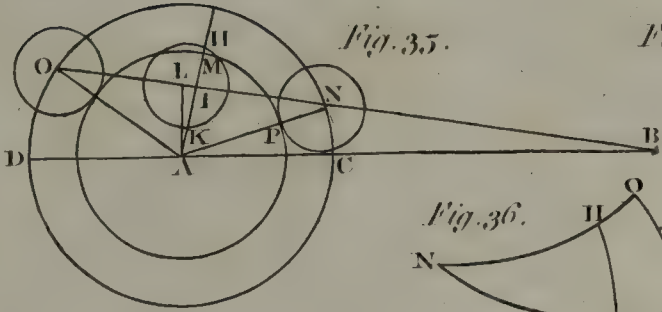


Fig. 35.

Fig. 37.

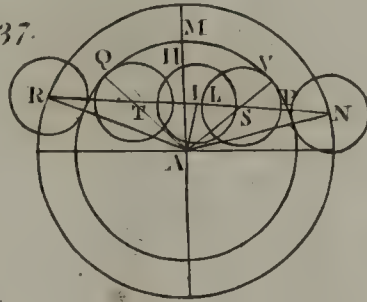


Fig. 38.

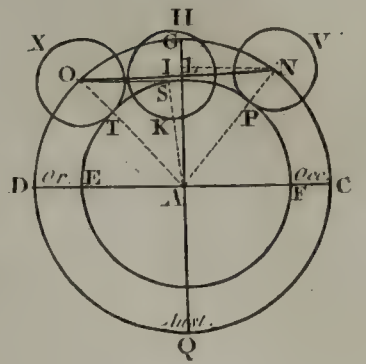
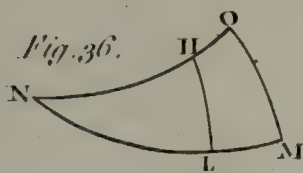
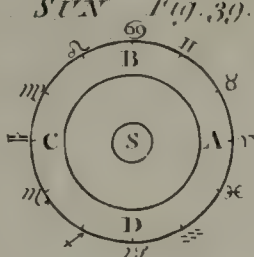


Fig. 36.

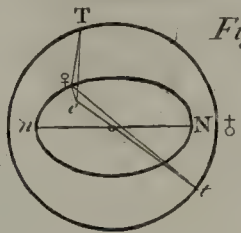


SUN Fig. 39.



GEOCENTRIC

Fig. 40.



C R E P U S C U L U M

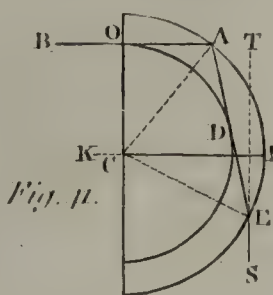
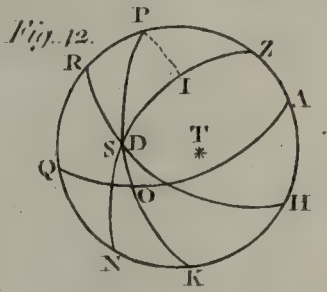


Fig. 41.

Fig. 42.



P E N U M B R A

Fig. 43.

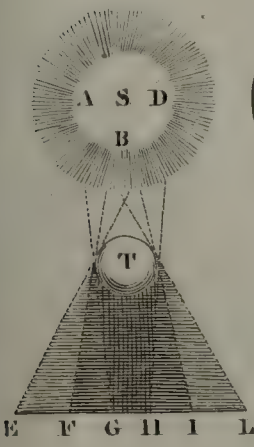
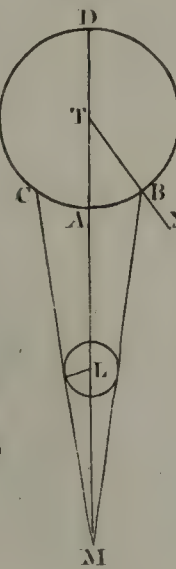


Fig. 44.



P L A N E T

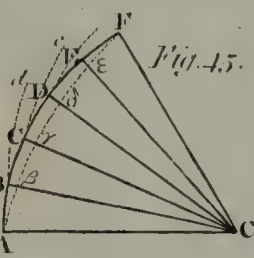


Fig. 45.

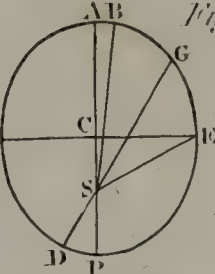
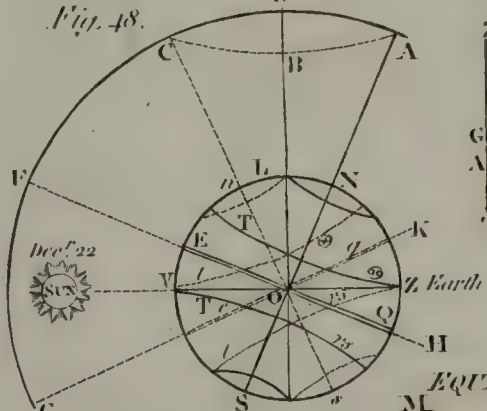


Fig. 47.

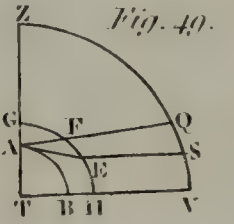
P R E C E S S I O N
of the Equinoxes

Fig. 48.



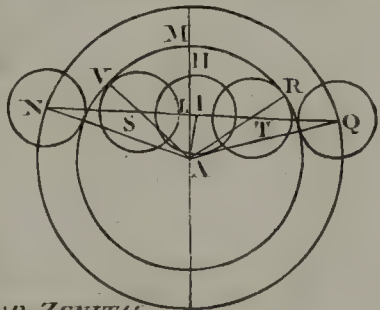
R E F R A C T I O N

Fig. 49.



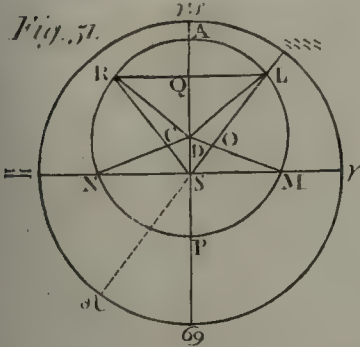
E M E R S I O N

Fig. 46.



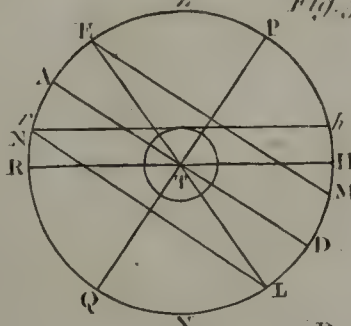
P R O S T I L I P I L E R E S I S

Fig. 51.



E Q U A T O R, Z E N I T H,
H E M I S P H E R E, H O R I Z O N T R O P I C S.

Fig. 52.



R E T R O G R A D A T I O N

Fig. 53.

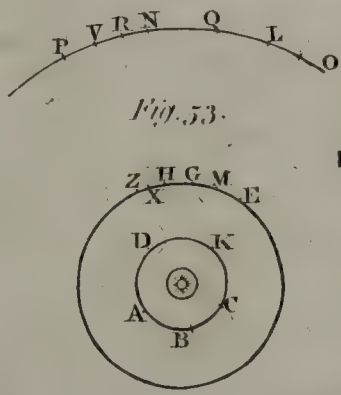
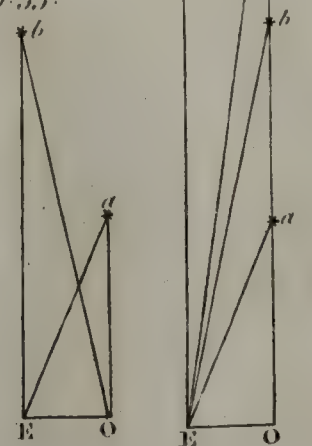


Fig. 55.



G N O M O N Fig. 57.

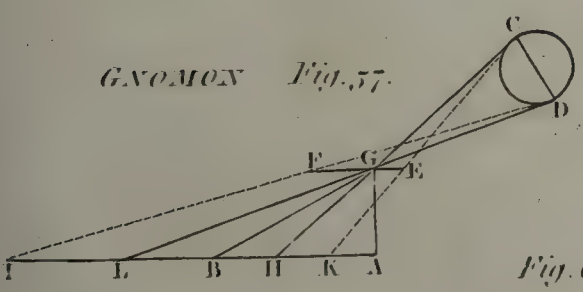


Fig. 59. N° 2.

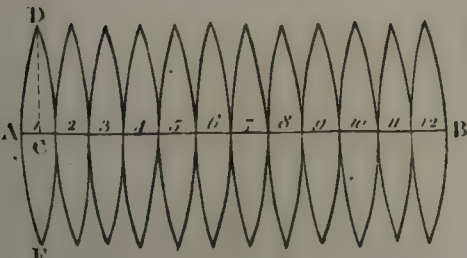
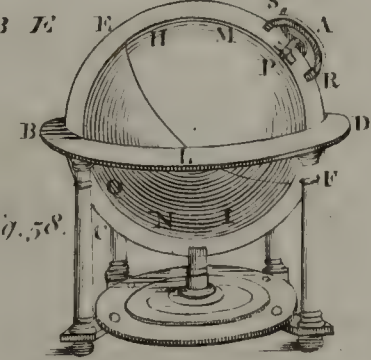


Fig. 60.



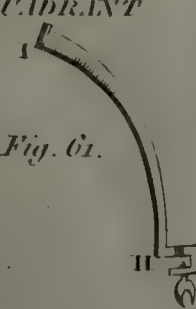
G L O B E

Fig. 58.



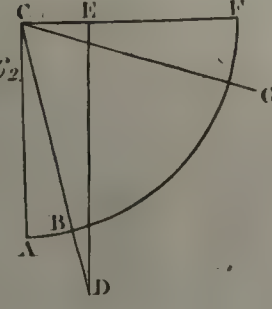
A S T R O N O M I C A L
Q U A D R A N T

Fig. 61.



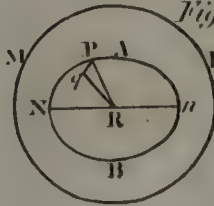
S U N ' S A L T I T U D E

Fig. 62.



H E L I O C E N T R I C
L A T I T U D E

Fig. 62. N° 2.



A S C E N T I O N A L D I F F E R E N C E

Fig. 63.

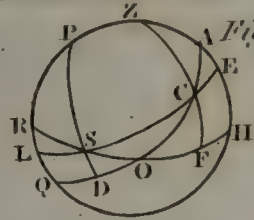
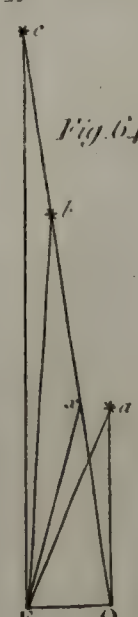


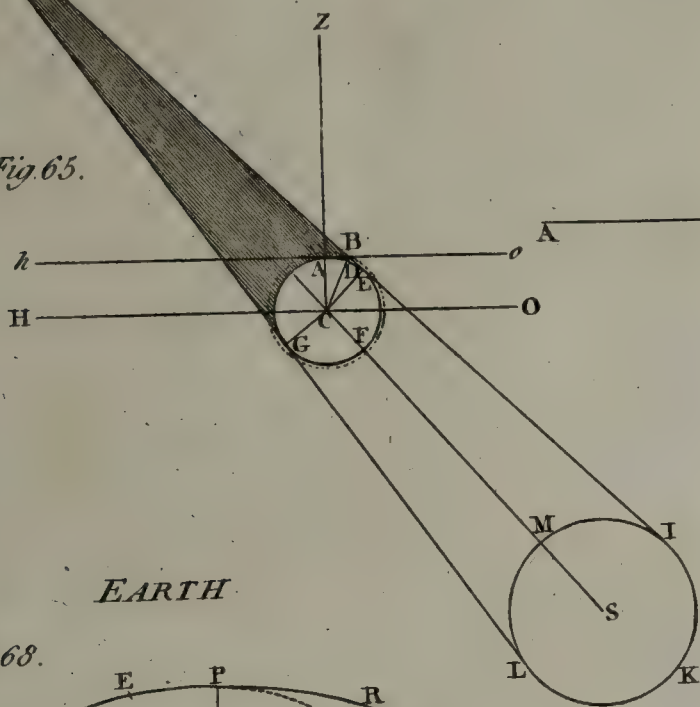
Fig. 64.



ASTRONOMY. *Tab. II.*

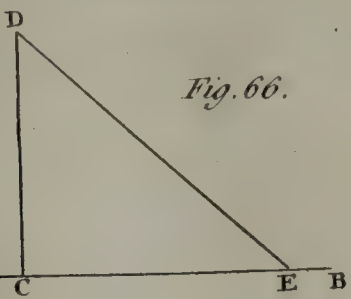
CREPUSCULUM

Fig. 65.



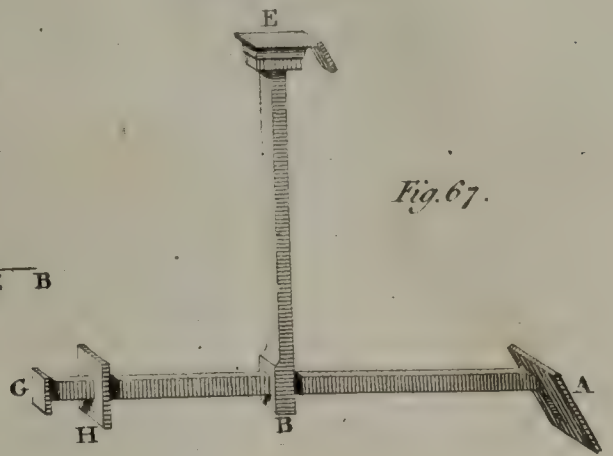
CULMINATION

Fig. 66.



DEMI Cross

Fig. 67.



EARTH

Fig. 68.

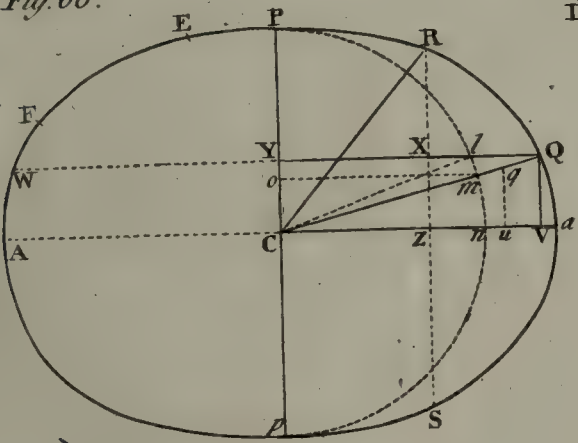
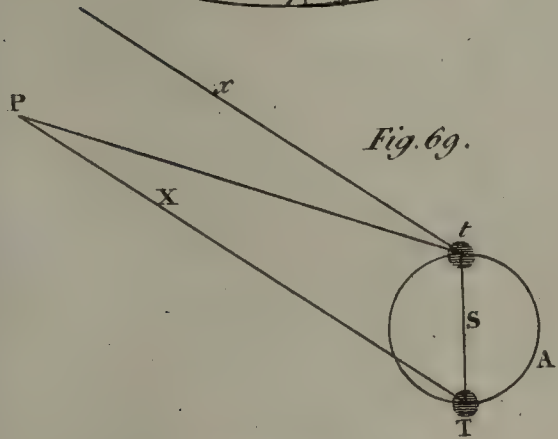
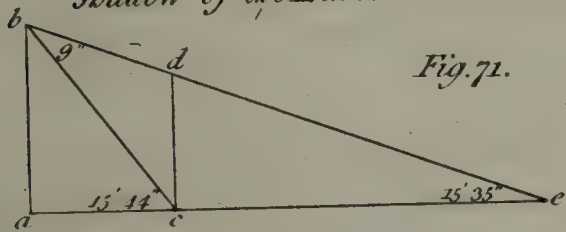


Fig. 69.



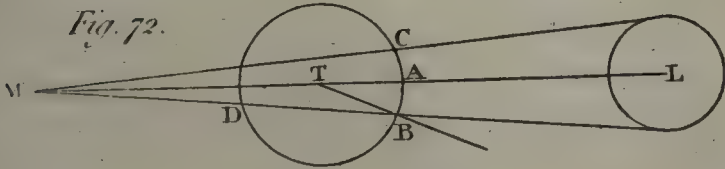
Shadow of the Earth in ECLIPSE of the Moon

Fig. 71.



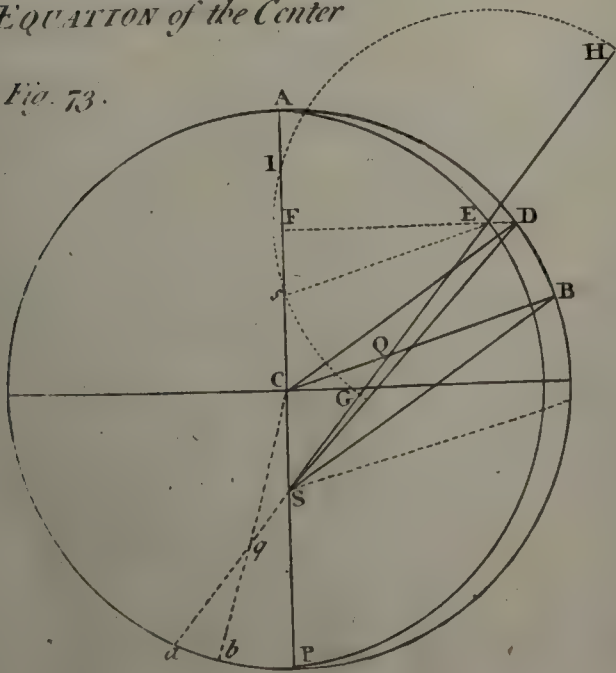
ECLIPSE

Fig. 72.



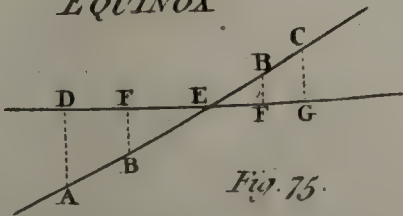
EQUATION of the Center

Fig. 73.



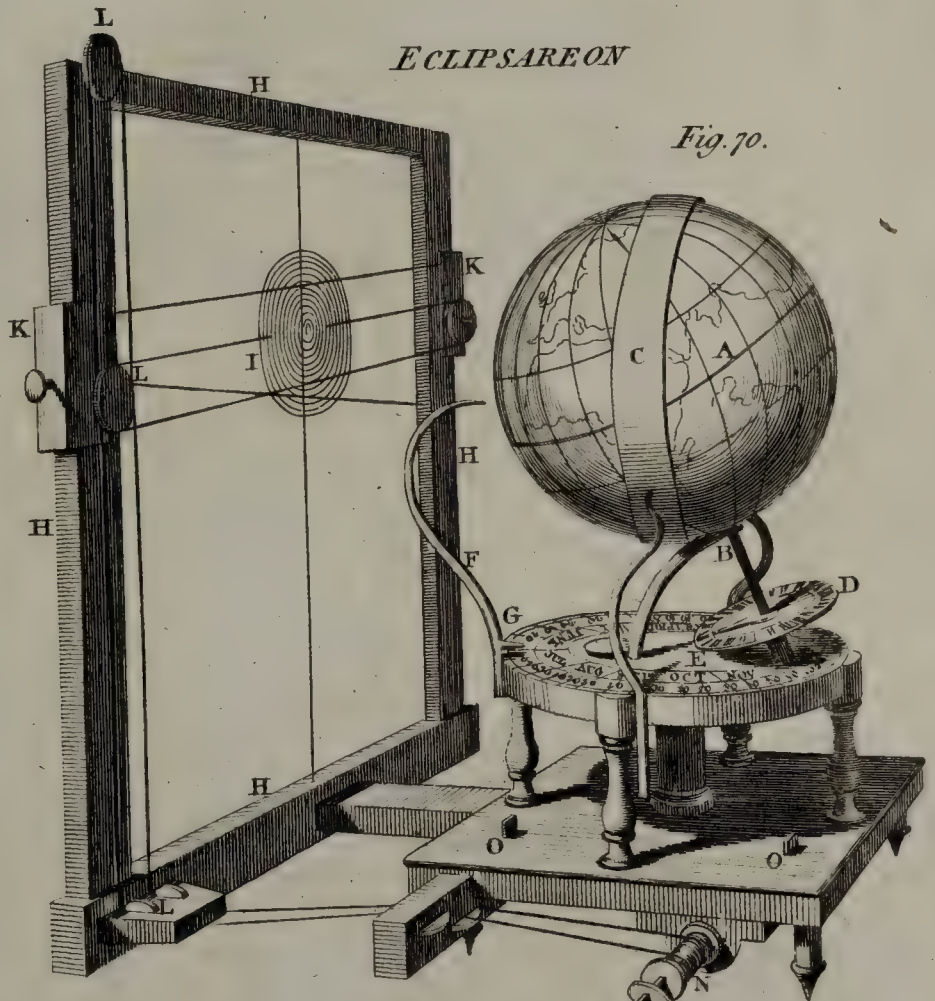
EQUINOX

Fig. 75.



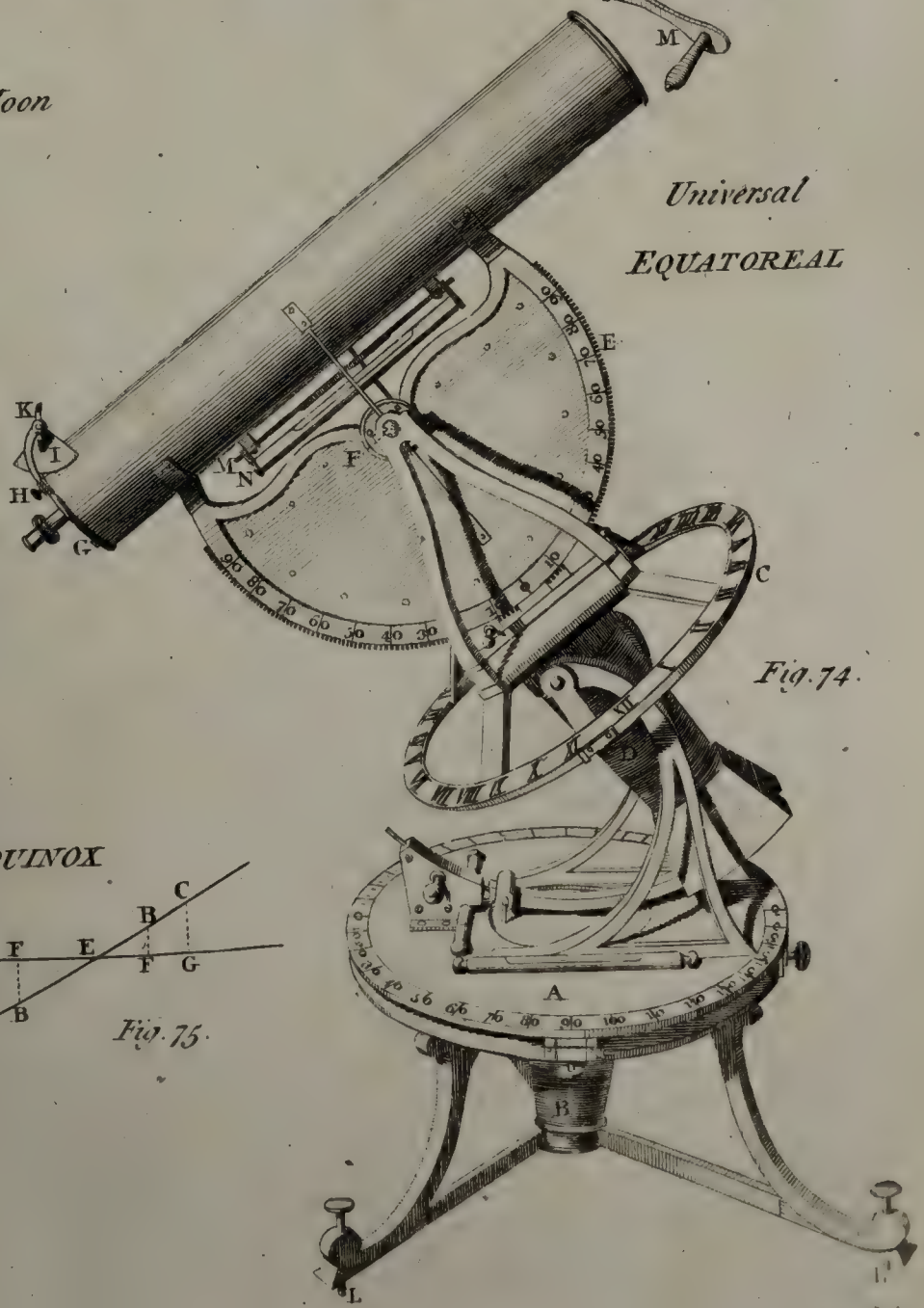
ECLIPSAEON

Fig. 70.



*Universal
EQUATOREAL*

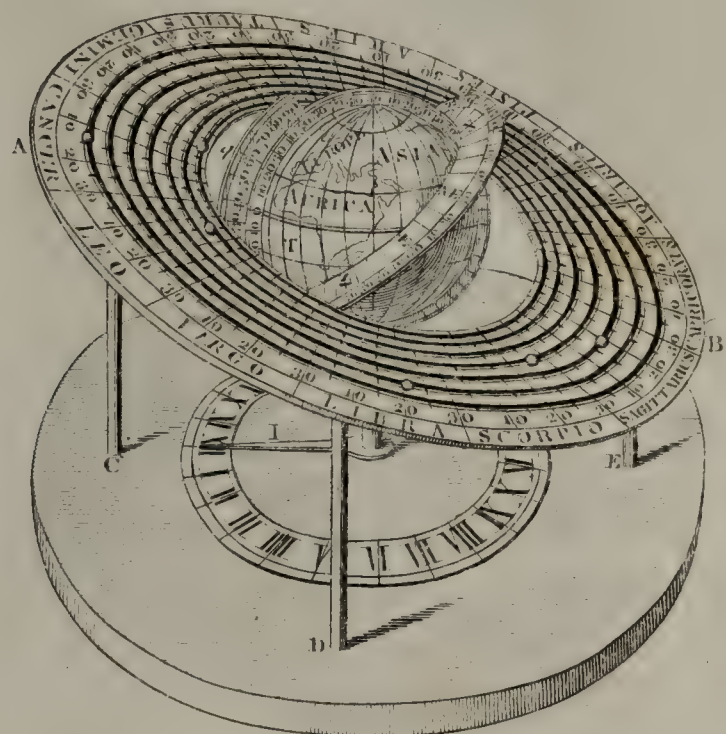
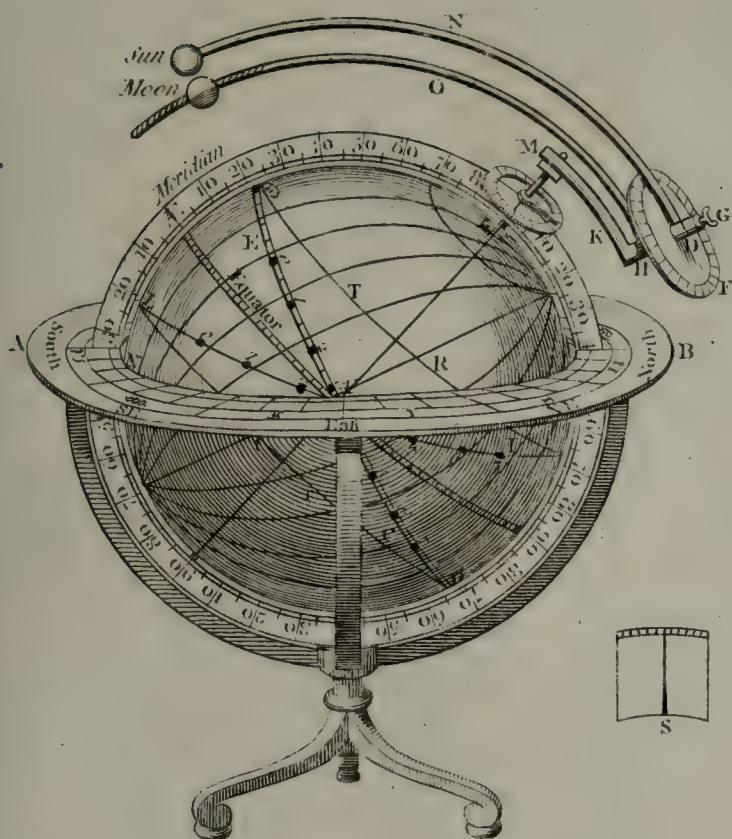
Fig. 74.



ASTRONOMY *Tab. III.*

Celestial GLOBE Fig. 76

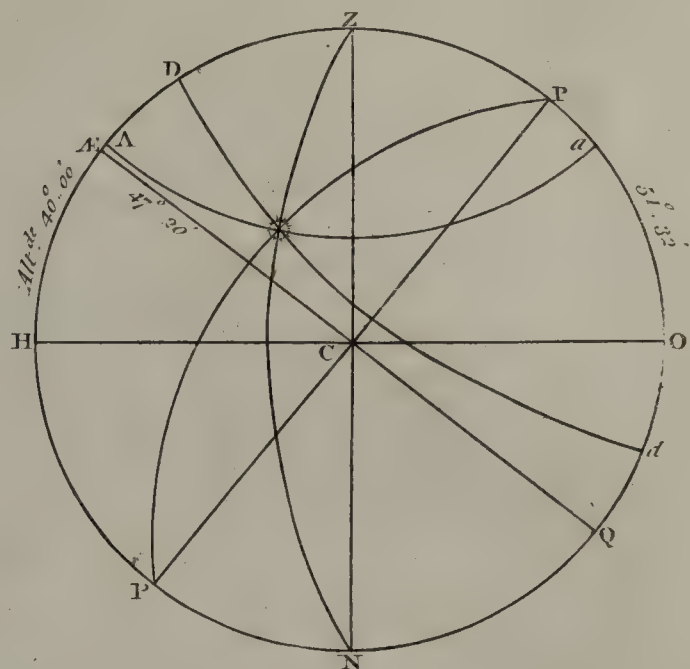
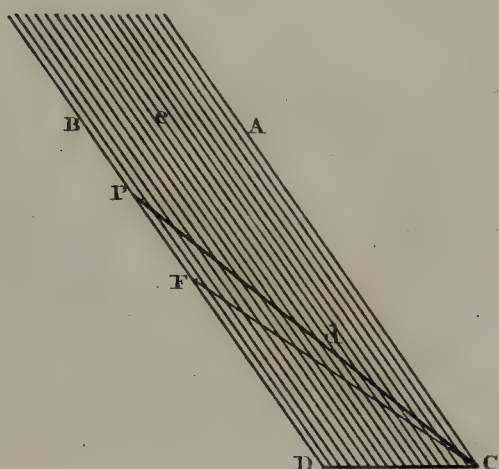
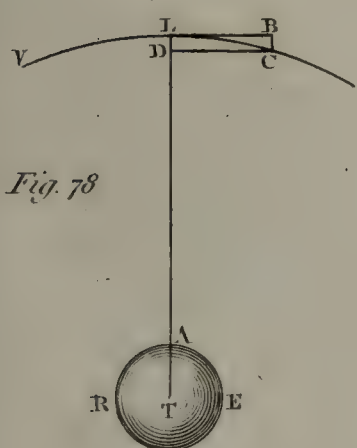
Planetary GLOBE Fig. 77.



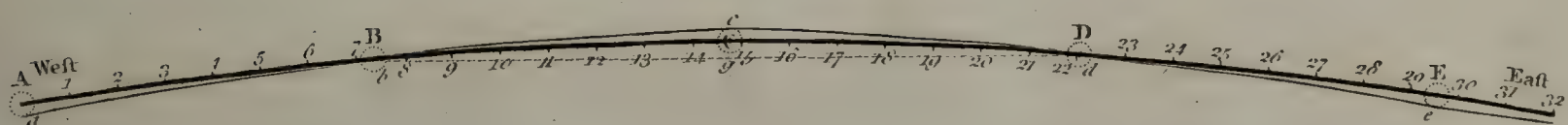
H O U R Fig. 80.

GRAVITY

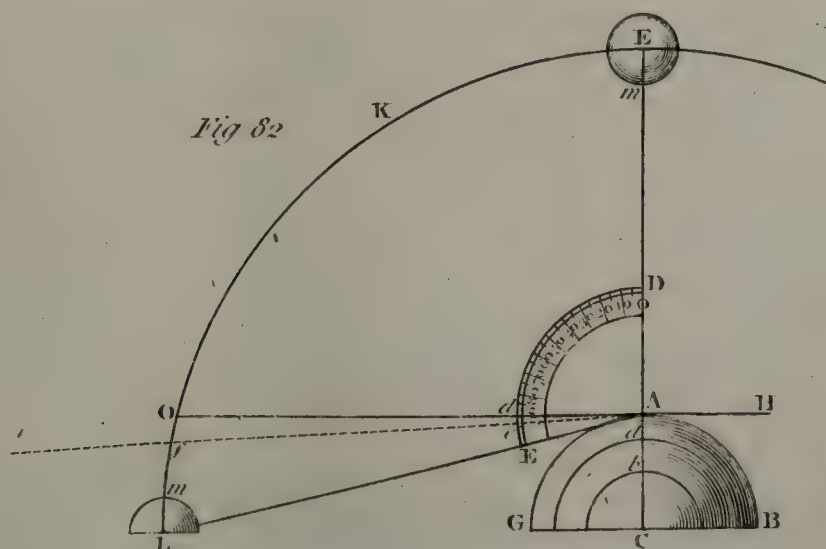
HEAT Fig. 79.



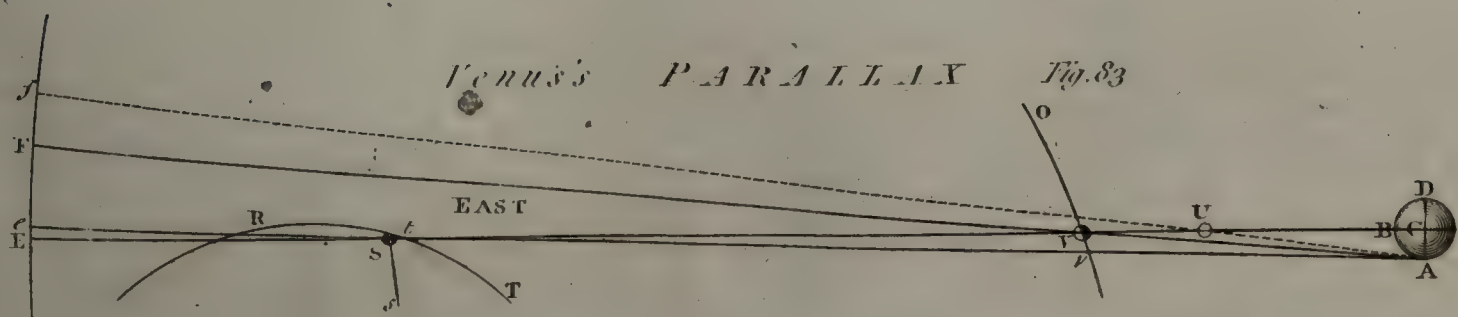
M O O N Fig. 81.



Moon's PARALLAX



Venus's PARALLAX Fig. 83



ASTRONOMY *Tab. IV.*

Astronomical

Q U A D R A N T

Gunter's

Fig. 85.

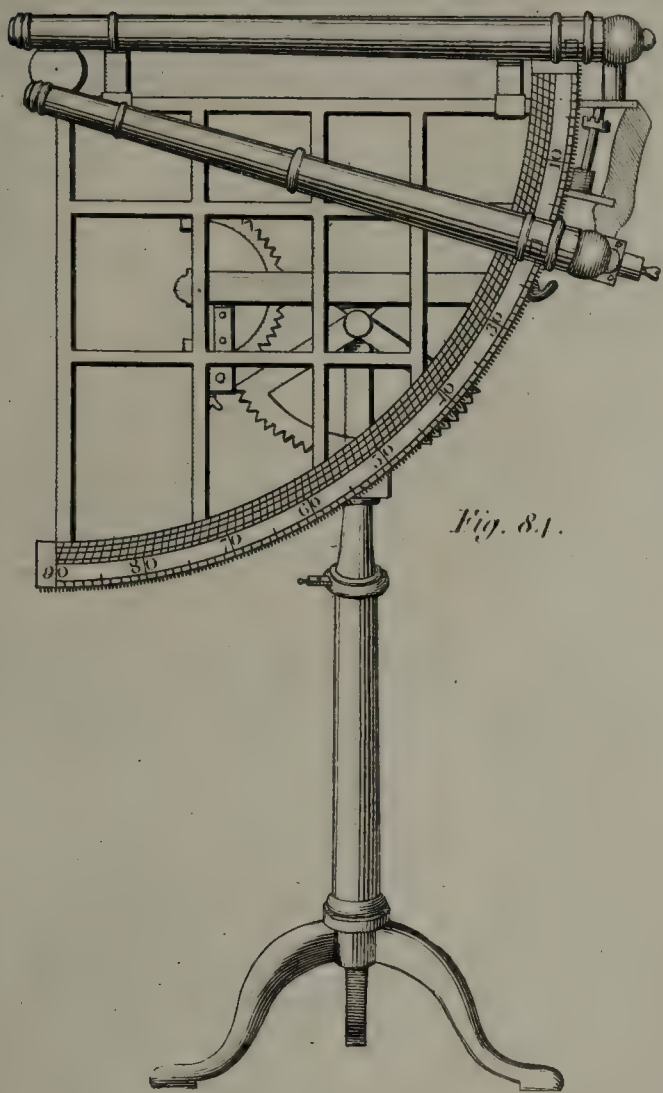
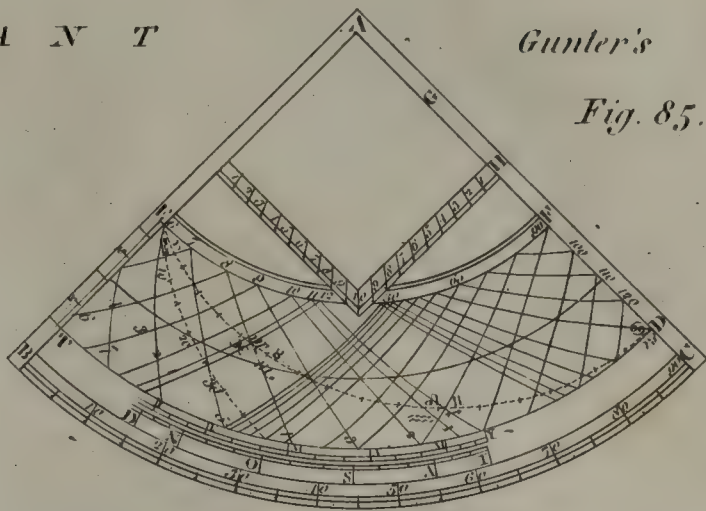
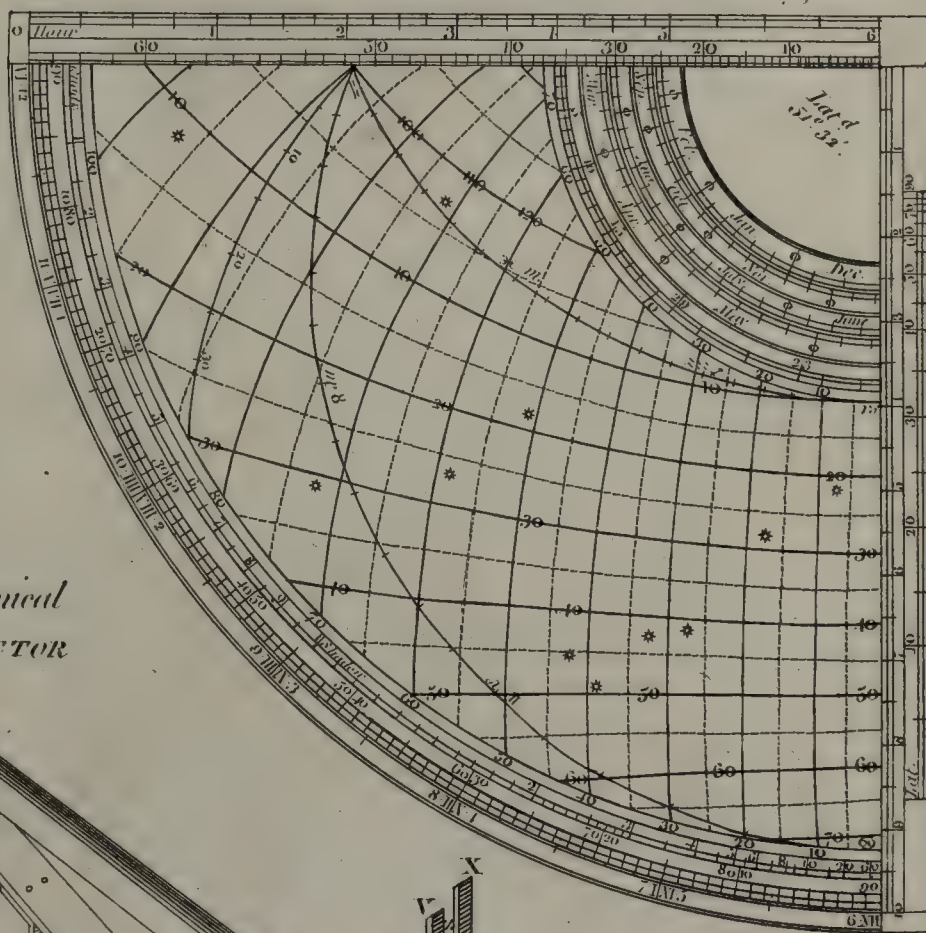


Fig. 84.

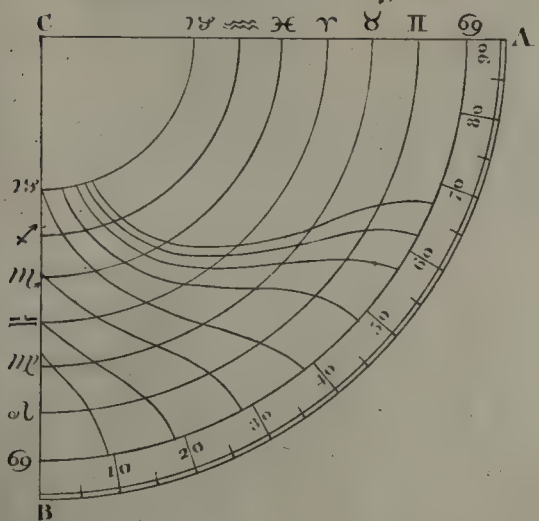


Sutton's

Fig. 87.



Horodictical *Fig. 86.*



Astronomical
S E C T O R

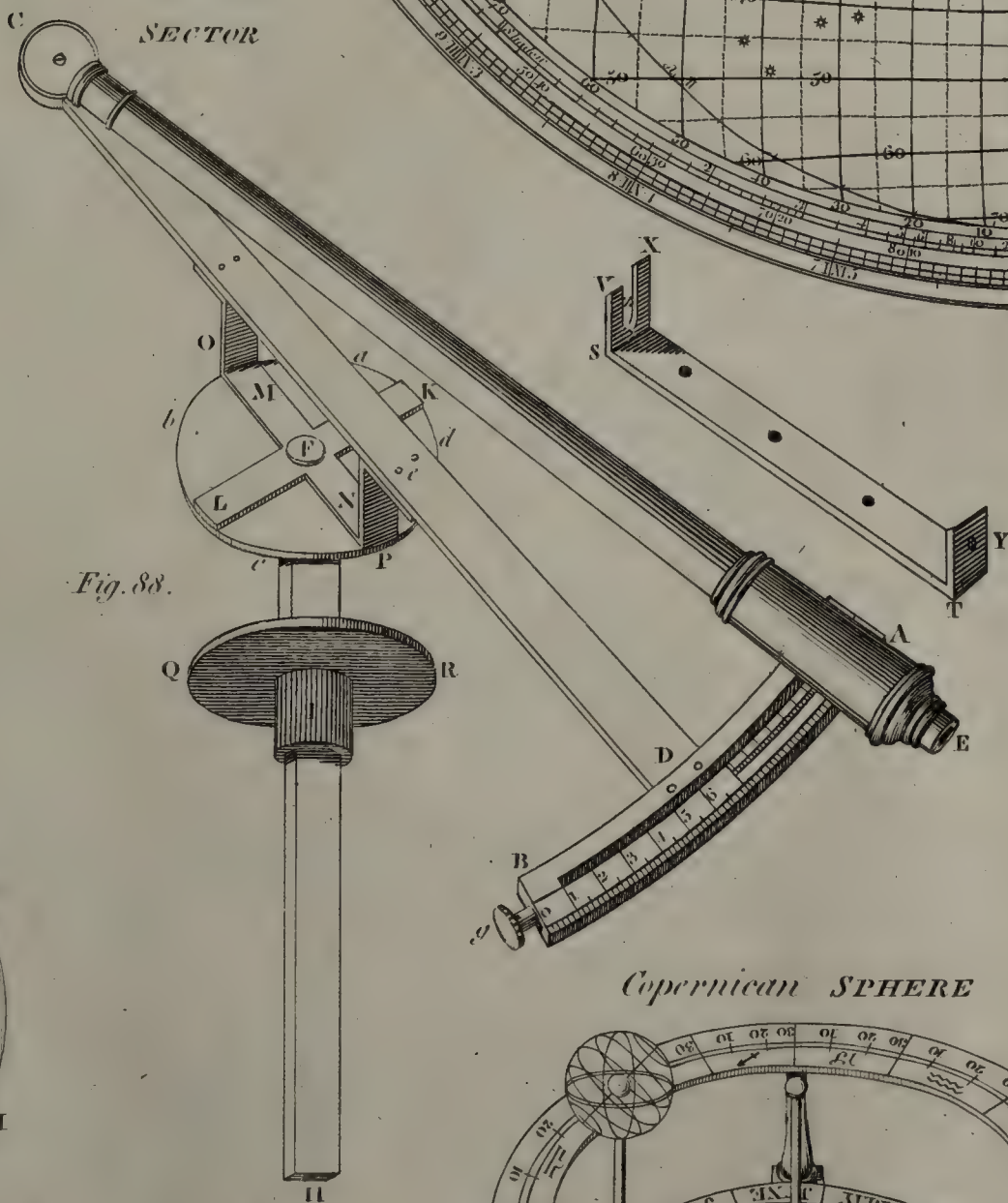


Fig. 88.

Armillary S P H E R E

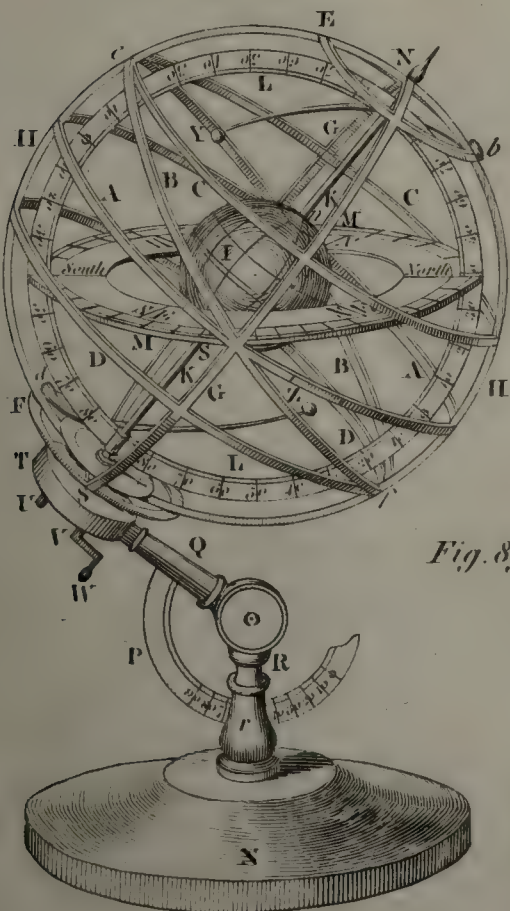


Fig. 89.

Copernican S P H E R E

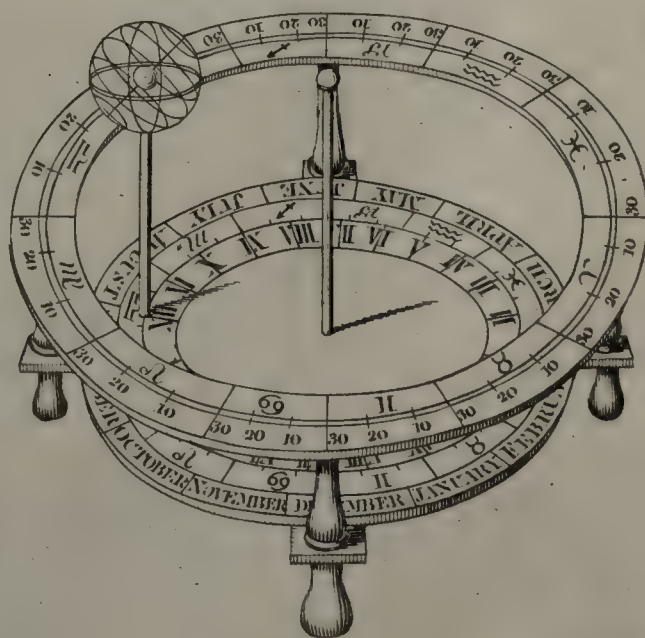


Fig. 90.

At length, those patrons of learning, the Ptolemies, kings of Egypt, founding an academy of *astronomy* at Alexandria, there arose several eminent *astronomers* from it; particularly Hipparchus, who, according to Pliny, undertook what would have been a great work even for a god to achieve, viz. to number the stars, and leave the heavens as an inheritance to posterity: he foretold the eclipses both of the sun and moon for 600 years; and on his observations is founded that noble work of Ptolemy, intitled *Μεγάλη Συνταξις*.

The Saracens, on their conquest of Egypt, got a tincture of *astronomy*, which they carried with them out of Africa into Spain; and by this means, *astronomy*, after a long exile, was at length introduced afresh into Europe.

From this time, *astronomy* began to improve very considerably, being cultivated by the greatest geniuses, and patronized by the greatest princes.—Alphonfus, king of Castile, enriched it with those tables which still bear his name. See TABLE.

Copernicus re-established the ancient Pythagorean system; and Tycho Brahe published a catalogue of 770 fixed stars, from his own observations.

Kepler, from Tycho's labours, soon after discovered the true theory of the world, and the physical laws by which the heavenly bodies move.

Galileo first introduced telescopes into *astronomy*, and by their means discovered the satellites of Jupiter; the various phases of Saturn, the mountains of the moon, the spots in the sun, and its revolution about its axis. See SATELLITE, and TELESCOPE.

Add, that Hevelius, from his own curious observations, furnished a catalogue of fixed stars, much more complete than Tycho's. Huygens and Cassini discovered the satellites of Saturn, and his ring. And Gassendus, Horrox, Bullialdus, Ward, Ricciolus, Gascoign, &c. each contributed very considerably to the improvement of *astronomy*.

The immortal Newton first demonstrated, from physical considerations, the great law that regulates all the heavenly motions, sets bounds to the planets' orbs, and determines their greatest excursions from the sun, and their nearest approaches to it. It was he that first taught the world whence arose that constant and regular proportion observed by both primary and secondary planets, in their circulation round their central bodies; and their distances compared with their periods. He has also given us a new theory of the moon, which accurately answers all her inequalities, and accounts for them from the laws of gravity and mechanism. See NEWTONIAN, and ATTRACTION.

Dr. Halley obliged the world with the *astronomy* of comets, and with a catalogue of the stars in the southern hemisphere; and was a very great benefactor to *astronomy*, by his observations: to which may be added, that he printed a new set of astronomical tables, more accurate than any before published.

Mr. Flamsteed upwards of forty years watched the motions of the stars; and has given us a great number of curious observations of the sun, moon, and planets; besides a noble catalogue of 3000 fixed stars; which is more than double the number in that of Hevelius.—Nothing seemed wanting to *astronomy*, but an universal and complete theory of the celestial phenomena, explained according to their true motions, and physical causes, which has been performed by Dr. Gregory.

ASTRONOMY is sometimes divided, with respect to its different states, into *new* and *old*.

ASTRONOMY, *ancient*, is such as the art stood under Ptolemy, and his followers; with all the apparatus of solid orbs, epicycles, excentrics, deferents, trepidations, &c. The ancient *astronomy* is delivered by Claud. Ptolemy, who died A. D. 147, in his *Μεγάλη Συνταξις*; translated, in 827, into Arabic; and by G. Trapezentius into Latin. An epitome of it, for the use of learners, was made by Purbachius, and his scholar Regiomontanus, in 1550, containing the whole doctrine of the heavenly motions, their magnitudes, eclipses, &c.—On the model hereof, Albategni, the Arab, compiled another work, on the knowledge of the stars, published in Latin in 1575.

ASTRONOMY, *new*, is such as the art has been since Copernicus; by whom those fictitious machines were thrown out; and the constitution of the heavens reduced to more simple, natural, and certain principles.

The modern *astronomy* is delivered by Copernicus, in his six books of Celestial Revolutions, published in the year 1566, wherein, by retrieving Pythagoras's and Philolaus's *dogma* of the motion of the earth, he laid the foundation of a juster system: in Kepler's Commentaries of the Motions of Mars, published in 1609, wherein, in lieu of the circular orbits admitted by all former astro-

nomers, he proposed the elliptic theory; which, in his Epitome of the Copernican *astronomy*, published in 1635, he applied to all the planets: in Ish. Bullialdus's *Astronomia Philolaica*, published in 1645, wherein he endeavoured to amend Kepler's theory, and render the calculus more exact and geometrical: some errors committed by Bullialdus were pointed out by Dr. Seth Ward, in his Inquiry into the Philolaic Astronomy, *Inquisitio in Astronomiæ Philolaicæ Fundamenta*, published in 1653, and corrected by himself in his Foundations of the Philolaic Astronomy more clearly explained, in 1657: in Ward's *Astronomia Geometrica*, published in 1656, wherein a geometrical method is proposed of computing the planets' motions; though not consistent with the true laws of their motions established by Kepler. The same was proposed the year following by the count de Pagan. The truth is, Kepler himself does not seem to have been ignorant of it; but he rather chose to set it aside, as finding it contrary to nature: in Newton's *Astronomia Britannica*, published in 1657, and Street's *Astronomia Carolina*, in 1661, both upon Ward's hypothesis: in Vin. Wing's *Astronomia Britannica*, published in 1669, wherein, proceeding on Bullialdus's principles, he gives just examples of all the precepts in practical *astronomy*, well accommodated to the capacity of learners.

In Ricciolus's *Almagestum Novum*, published in 1651, we have the several hypotheses of all the astronomers, ancient as well as modern.—And in Dr. Gregory's *Elementa Astronomiæ Physicæ & Geometricæ*, in 1702, the whole modern astronomy, as founded on the discoveries of Copernicus, Kepler, and Sir Isaac Newton.—

The Marrow of the old *astronomy* is given by Tacquet; and of the new *astronomy* by Whiston, in his *Prælectiones Astronomicæ*, in 1707. For novices in the art, Mercator's *Institutiones Astronomicæ*, published in 1676, which contains the whole doctrine, both according to the ancients and moderns: and Dr. Keill's *Introductio ad veram Astronomiam*, in 1718, which only takes in the modern, are the best calculated: to which might be added, Long's, and Ferguson's *Astronomy*, of more modern date.

ASTROPECTEN, in *Natural History*, a name given by some authors, to a species of STAR-*fish*, composed of a body, or central nucleus, furrowed in the manner of the shells of the common scallop, and parting into five principal rays, from each of which there issue several transverse processes, covered with a hairy down.

ASTROPODIA, see ASTERIA, STAR-*stone*.

ASTROSCOPE, ASTROSCOPIUM, a kind of astronomical instrument, composed of two cones, on whose surface the constellations, with their stars, are delineated, by means whereof the stars may easily be known.

The *astroscope* is the invention of Wil. Schukhard, formerly professor of mathematics at Tübingen, who published a treatise expressly on it, in 1698.

ASTROSCOPIA, from *αστρος*, star, and *σκοπεω*, I consider; the art of observing, and examining the stars, by means of telescopes, in order to discover their nature and properties.

Huygens improved this art considerably, in his *Astroscopia Compendiaria Tubi Optici molimine liberata*; where he shews how to manage the largest glasses without help of a tube. See TELESCOPE.

ASTROTHERMATA, in *Astrology*, the places or positions of the stars in a theme of the heavens. Vital. Lex. Math.

ASTROTHERSIA, from *αστρος*, and *τιθεμι*, I place; is used by some for a constellation, or image in the heavens, composed of several stars.

ASTRUM, or ASTRON, a constellation, or assemblage of stars. In which sense it is distinguished from *aster*, which denotes a single star.

Some apply the term in a more particular sense, to the Great Dog, or rather to the great bright star in his mouth. Vital.

ASTURIS, in *Zoology*, a name by which some authors have called the accipiter PALUMBARIUS, or GOSHAWK. Ray.

ASTYNOMI, see AGORANOMUS.

ASYLUM, a sanctuary, or place of refuge, where a criminal who shelters himself is deemed inviolable, and not to be touched by any officer of justice.

The word is compounded of the privative particle *α*, and *συλαα*, I hurt; because no person could be taken out of an *asylum* without SACRILEGE.

The first *asylum* was established at Athens, by the descendants of Hercules, to shelter themselves from the fury of his enemies.

The temples, altars, statues, and tombs, of heroes, were, anciently, the ordinary retreat of those who found themselves aggrieved by the rigour of the laws, or oppressed by the violence of tyrants: but temples were held the most sacred and inviolable refuge. It was supposed, that the gods took upon them to punish the criminal

criminal who thus threw himself upon them; and that it would be a great impiety in man to take vengeance out of the hands of the immortals.

The Israelites had their cities of refuge, which were of God's own appointment; where the guilty, who had not committed any deliberate crime, found safety and protection. As to the heathens, they allowed refuge and impunity even to the vilest and most flagrant offenders, some out of superstition, and others for the sake of peopling their cities; and it was by this means, and with such inhabitants, that Thebes, Athens, and Rome, were first stocked. We even read of *asylums* at Lyons and Vienne among the ancient Gauls; and there are some cities in Germany which still preserve the ancient right of *asylum*.

Hence, on the medals of several ancient cities, particularly in Syria, we meet with the inscription, ΑΣΥΛΟΙ, to which is added, ΙΕΡΑΙ. This quality of *asylum* was given them, according to M. Spanheim, in regard to their temples, and of the gods revered by them.

The same qualities have also been given to deities: thus Diana of Ephesus is called *ασυλος*. Add that the camp formed by Romulus and Remus was called *asylum*, and afterwards became a city, in which was a temple erected to the gods *Asylæus*, Θεός Ασυλαίου.

The emperors Honorius and Theodosius granting the like immunities to churches, the bishops and monks laid hold of a certain tract or territory, without which they fixed the bounds of a secular jurisdiction: and so well did they manage their privileges, that convents, in a little time, became next akin to fortresses; where the most notorious villains were in safety, and braved the power of the magistrate.

These privileges, at length, were extended not only to the churches and church-yards, but also to the bishops houses, whence the criminal could not be removed without a legal assurance of life, and an entire remission of the crime. The reason of the extension was, that they might not be obliged to live altogether in the churches, &c. where several of the occasions of life could not be decently performed.

But, at length, these *asyla*, or sanctuaries, were also stripped of most of their immunities, because they served to make guilt and libertinism more bold and daring. In England, particularly, they were entirely abolished. See SANCTUARY.

ASYLUS, in the *History of Insects*. See GAD-fly.

ASYMMETRY, a want of proportion, or correspondence between the parts of a thing. See SYMMETRY.

The word is derived from the privative *α*, *συ*, with and *μετρον*, measure, q. d. without measure.

In *Mathematics*, the term is particularly used for what we more usually call *incommensurability*; which is when between two quantities there is no common measure: as between the side, and diagonal of a square. In numbers, surd roots, as $\sqrt{2}$, &c. are incommensurable to rational numbers.

ASYMPTOTE, in *Geometry*, a line which continually approaches nearer and nearer to another; yet will never meet with it, though indefinitely prolonged. See LINE.

The word is compounded of the privative *α*, *συ*, with, and *πτω*, from *πιπτω*, I fall; q. d. incoincident, or which never meet. Some Latin authors call these lines *intactæ*.

Bertinus enumerates divers sorts of *asymptotes*; some straight, others curve; some concave, others convex, &c. and farther, proposes an instrument for describing them. Though, in strictness, the term *asymptotes* seems appropriated to right lines.

ASYMPTOTES, then, are properly right lines, which approach nearer and nearer to some curve, of which they are said to be the *asymptotes*; but which, though they and their curve were indefinitely continued, would never meet.

Asymptotes may be conceived as tangents to their curves at an infinite distance.

Two curves are also said to be *asymptotical*, when they thus continually approach, without a possibility of meeting.

Thus two parabolas, whose axes are in the same right line, are *asymptotical* to one another.

Of curves of the second kind, that is, the conic sections, only the hyperbola has *asymptotes*, which are two in number, long ago demonstrated by Apollonius Pergæus.

All curves of the third kind have at least one *asymptote*; but they may have three; and all curves of the fourth kind may have four *asymptotes*.

The conchoid, cissoid, and logarithmic curve, though not reputed geometrical curves, have each also one *asymptote*.

The nature of *asymptotes* will be easily conceived in the

instance of the *asymptote* of a conchoid. Suppose *MMAM*, &c. (*Tab. Analysis*, fig. 1.) be a part of a conchoid, *C* its pole, and the right line *BD*, so drawn that the parts *QM*, *EA*, *OM*, &c. of right lines drawn from the pole *C*, are equal to each other; then will the line *BD* be an *asymptote* of the curve; because the perpendicular *MI*, &c. is shorter than *MO*; and *MR* than *MQ*, &c. so that the two lines continually approach; yet the points *M*, &c. and *R*, &c. can never coincide, since there is still a portion of a line to keep them asunder; which portion of a line is infinitely divisible, and consequently must be diminished infinitely before it becomes nothing.

ASYMPTOTES of the HYPERBOLA are thus described. Suppose a right line *DE* (*Tab. Conics*, fig. 20.) drawn through the vertex *A* of the hyperbola, parallel to the ordinate *Mm*, and equal to the conjugate axis, viz. the part *DA*, or *AE* to the semi-axis: then, two right lines drawn from the centre *C* of the hyperbola, through the points *D* and *E*, viz. the right lines *CF* and *CG*, are *asymptotes* of the curve.

If the hyperbola *GMR* (*fig. 12. N° 2.*) be of any kind whose nature with regard to the curve, and its *asymptote*, is expressed by this general equation, $x^m y^n = a^m + n$; and the right line *PM* be drawn any where parallel to the *asymptote* *CS*, and the parallelogram *PCOM*, be completed: this parallelogram is to the hyperbolic space *PMGB*, contained under the determinate line *PM*, the curve of the hyperbola *GM* indefinitely continued toward *G*, and the part *PB* of the *asymptote* indefinitely continued the same way, as $m-n$ is to n : and so if m be greater than n , the said space is squareable; but when $m=n$, as it will be in the common hyperbola, the ratio of the foregoing parallelogram to that space is as 0 to 1: that is, the space is infinitely greater than the parallelogram, and so cannot be obtained: and when m is less than n , the parallelogram will be to the space as a negative number to a positive one, and the said space is squareable.

ASYMPTOTE of a logarithmic curve. If *MS* (*fig. 33.*) be the logarithmic curve, *PR* an *asymptote*, *PT* the subtangent, and *MP* an ordinate; then will the indeterminate space $RPMS = PM \times PT$; and the solid, generated by the rotation of this curve about the *asymptote* *VP*, will be half of a cylinder whose altitude is equal to the length of the subtangent, and the semidiameter of the base equal to the ordinate *QV*.

ASYMPTOTES, by some, are distinguished into various orders.

An *asymptote* is said to be of the first order, when it coincides with the base of the curvilinear figure: of the second order, when it is a right line parallel to the base: of the third order, when it is a right line oblique to the base: of the fourth order, when it is a common parabola, that has its axis perpendicular to the base; and, in general, of the order $r+2$, when it is a parabola, the ordinate of which is always as a power of the base, whose exponent is r .

The *asymptote* is oblique to the base when the ratio of the first fluxion of the ordinate to the fluxion of the base, approaches to an assignable ratio, as its limit; but it is parallel to the base, or coincides with it, when this limit is not assignable.

The determination of the *asymptotes* of curves, is a curious part of the higher geometry: Mr. de Fontenelle has given several theorems relating to this subject, in his *Geometrie de l'Infini*. But this matter is treated of with greater accuracy by Mr. Maclaurin, in his *Fluxions*, book i. chap. 10. where he has been careful to avoid the modern paradoxes concerning infinites and infinitesimals. The areas bounded by curves, and their *asymptotes*, though indefinitely extended, sometimes have limits to which they may approach, so as to differ less from those limits, than by any given quantity. This happens in hyperbolas of all kinds except the first or Apollonian. The same is also true of the area, comprised between the logarithmic curve and its *asymptote*. See LOGARITHMIC curve. Those who do not scruple to suppose the curve and its *asymptote* to be infinitely produced, say, that the infinitely extended area becomes equal to its limit.

The *asymptotical* area in the common or Apollonian hyperbola, and in many other curves, has no limit; and it is usual to say, these areas are infinitely great; by which, however, no more is meant, than that the curve, and its *asymptote*, may be extended, till the space comprehended between them exceeds any given magnitude. Some authors, and Dr. Wallis among the rest, have talked of some of these areas, as if they were more than infinite. This happened from an analogy they imagined between positive, nothing, and negative, and what is finite, infinite, and more than infinite. See HYPERBOLA.

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Solids generated by hyperbolic areas, revolving about their *asymptotes*, have sometimes also their limits; and sometimes they may be produced, till they exceed any given solid. See Art. 307, 309, of the above mentioned author.

When a curve, and its *asymptote*, are supposed to be produced infinitely, and the area, comprised between them, to revolve about the *asymptote*, the surface generated will be finite, or infinite, according as the area of the generating figure is finite or infinite.

For the *asymptotes* of curves, described by the intersections of right lines revolving about given poles, see Mr. Mac-laurin's Fluxions, art. 313. seq.

ASYMPTOTE, *parabolic*; see PARABOLIC *asymptote*.

ASYMPTOTIC *spaces*; see HYPERBOLA.

ASYNDETON, a figure in Grammar, implying a defect, or want of conjunctions in a sentence.

The word is derived from the privative *α*, and *συνδew*, colligo, I bind together.

As, in the instance, *veni, vidi, vici, I came, I saw, I conquered*; where the copulative *et, and*, is omitted: or in that of Cicero concerning Catiline, *abiit, excessit, evasit, erupit*: or in that verse of Virgil,

Ferte citi flammæ, date vela, impellite remos.

Asyndeton stands opposed to *polyasyndeton*, where the copulatives are multiplied.

ATABULUS, in *Physiology*, a kind of wind in Apulia, of a dry pinching quality, and very noxious in its effects.

The ancient naturalists speak of the *atabulus* in terms of horror, on account of the ravage it made among the fruits of the earth, which it scorched, or withered up.

ATAIR, see ALCAIR.

ATAMASCO *lily*, in Botany, see AMARYLLIS.

ATANTA, in Botany, a name given by the people of Guinea to a kind of *sumach*, called, by Petiver, *Rhus Guineense trifoliatum ferratum scabium*, from its being trifoliate, and having rough and ferrated leaves. This somewhat resembles the hoary trifoliate African *sumach* of Plukenet; but it differs in this, that its leaves are edged with prickles, whereas those of Plukenet's kind are only deeply sinuated. The people of Guinea are very fond of this, for its medicinal virtues; they give it as a restorative, boiled in water. Phil. Trans. N^o 232.

ATARAXY, a term much used by the *Sceptics* and *Stoics*, to denote that calmness and tranquillity of mind, and that firmness of judgment, which sets us free from any agitations or emotions arising from self-opinion, and the knowledge we imagine ourselves possessed of.

The word is compounded of *ατ-ρ*, but, and *ταξις*, order. In this *ataraxy*, they supposed the sovereign good, or highest bliss in this life to consist.

ATAXY, a want of order or regularity.

The word is compounded of the privative *α*, and *ταξις*, order.

Ataxia is chiefly used in *Medicine*, where the order of the critical days, or other phenomena of a disease, are inverted.

The physicians have frequent recourse to an *ataxy*, or irregularity of the spirits, when at a loss to account for any disorder in the body. The spirits, Dr. Drake observes, being always at hand, are forced to bear the blame of a thousand things they are innocent of.

ATCHE, in *Commerce*, a small silver coin, current in the states of the Grand Seigneur, equal to about a third part of the English penny.

The *atche* is the smallest coin used in Turkey; where there is no copper money current, except in the province of Babylon.

Some call the *atche* the little *asper*: it is stamped like the *para*, with Arabic characters. Three or four *atches* are commonly given in exchange for the *para*.

ATCHIEVEMENT, in *Heraldry*, the coat of arms of any person, or family, duly marshalled, with its external ornaments, or supporters, helmet, wreath, crest, and motto. The word is formed of the French, *achevement, finishing, consummation, perfection*.

Such are those usually hung out on the fronts of houses after the death of some considerable person, now corruptly called HATCHMENTS.

ATEGAR, a weapon among the Saxons, which seems to have been a hand-dart. The word comes from the Saxon *acton*, to fling, or throw, and *gar*, a weapon.

ATELLANÆ, in *Antiquity*, a kind of comic and satiric pieces, presented on the Roman theatre; somewhat less ludicrous than the farces on the English stage, and yet less grave and serious than the Greek and Latin comedies and tragedies.

The *Atellanæ*, or *fabulæ Atellanæ* of the Romans, answered to the *satyræ* among the Greek.

They were thus called from *Atella*, a city of Tuscany, where they were first represented; and from whence, on account of their mirth and humour, they were introduced

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into Rome. But they became at length so licentious and impudent, that the senate was obliged to suppress them.

ATELEIA, denotes an exemption from tribute, taxes, or other burdens.

Ατελεια λειτεργιατων, is particularly used, in some *Ancient Laws*, for an exemption from offices, granted the Egyptian clergy by Constantius.

ATERGATIS, in *Mythology*, a goddess of the Syrians, supposed to be the mother of Semiramis. She was represented with the face and breasts of a woman, but the rest of her body resembled a fish. Vossius says the term signifies *without fish*, and conjectures that the votaries of this deity abstained from fish.

ATH, ATHA, or ATHE, among our Anglo-Saxon ancestors, signifies an *oath*, especially that taken by way of purgation.

In this sense we meet with breaking of *ath*, privilege of *ath*, *athas*, and *ordela*.

ATHAMADULET, or ATHEMADAULET, the prime or chief minister in the Persian empire.

The *athamadulet* is much the same with the grand visier in Turkey; excepting that he has not the command of the army, which the visier has.

The *athamadulet* is great chancellor of the kingdom, president of the council, superintendent of the finances; and has the charge of all foreign affairs. He is in effect viceroy, or administrator of the kingdom: he issues the king's mandates, or orders, in this style. *Bende derga ali il alia etmadaulet*, that is, *I, who am the support of the power, the creature of this port, the highest of all ports, &c.*

ATHAMANTA, in Botany, see SPIGNELE.

ATHANASIA, among the *Ancient Physicians*, an epithet given to a kind of antidotes, supposed to have the power of prolonging life, even to immortality.

In the Augustan dispensatory we still find a medicine under the appellation of *athanasia magna*, commended against dysenteries and hæmorrhages.

ATHANASIA, in Botany, is used by some authors for TANZY.

ATHANASIAN Creed. See CREED, TRINITY, and TRINITARIANS.

ATHANATI, an order of soldiers among the ancient Persians.

The word is Greek, and signifies *immortal*; being compounded of the private *α*, and *θαντος*, death.

The *athanati* were a body of cavalry, consisting of ten thousand men, always complete, because, when any one of them died, another was immediately put into his place.—It was for this reason that they were called *athanati* by the Greeks, by the Latins *immortales*.

ATHANOR, in *Chemistry*, a large immoveable furnace, built of brick and earth, and covered with a tower at the top; proper to maintain a temperate and equal degree of heat, for a considerable time.

The word *athanor* is borrowed from the Arabs, who call an oven *tannour*, from the Hebrew *תנור*, *tannour*, an oven, or furnace: whence, with the additional particle *אל*, *אלתנור*, *altannour*, &c.—Others choose to derive the name from *athanatos*, *immortal*; because of its durable fire.

The heat of the *athanor* is increased or diminished by opening or shutting a register. It is made to communicate its heat by tubes, or apertures, at the side of the hearth, or fire-place, to several adjacent vessels; by which means different operations are carried on at the same time.

The *athanor* is also called *piger Henricus*, *slow Harry*; because chiefly used in the slower operations; and because, when once filled with coals, it keeps burning a long time; whence the Greeks call it *ακεδης*, q. d. *giving no trouble*, as it does not need to be continually attended.—It is also called the *philosophical furnace*, or *furnace of arcana*; sometimes *uterus chymicus*, or *spagiricus*; and, popularly, the *tower furnace*, *furnus turritus*.

The lamp FURNACE, which is a true *athanor*, may be successfully used in operations which do not require much heat.

ATHEIST, a person who does not believe the existence of a God, nor a Providence; and who has no religion, true or false.

The word is derived from the privative *α*, and *θεος*, God.

In general, a man is said to be an *atheist*, who owns no being superior to nature, that is, to men, and the other sensible beings in the world.

In this sense, Spinoza may be said to be an *atheist*, and it is an impropriety to rank him, as the learned commonly do, among *deists*; since he allows of no other God beside nature, or the universe, of which mankind makes a part; and there is no *atheist* but allows of the existence of the world, and of his own existence in particular.

Plato distinguishes three kinds of *atheists*.—Some, who deny, absolutely, that there are any gods; others, who allow the existence of gods, but maintain that they do not concern themselves with human affairs, and so deny a Providence; and others, who believe there are gods, but think they are easily appeased, and that they may remit the greatest crimes for the smallest supplication.

Some distinguish *speculative atheists*, or those who are so from principle, and theory—from *practical atheists*, whose wicked lives lead them to believe, or rather to wish, that there were no God.

Cicero represents it as a probable opinion, that they who apply themselves to the study of *philosophy* believe there are no gods.—This must, doubtless, be meant of the *academic philosophy*, to which Cicero himself was attached, and which doubted of every thing: on the contrary, the *Newtonian philosophers* are continually recurring to a Deity, whom they always find at the end of their chain of natural causes. Some foreigners have even charged them with making too much use of the notion of a God in *philosophy*, contrary to the rule of Horace:

Nec Deus interfit, nisi dignus vindice nodus.

Among us, the philosophers have been the principal advocates for the existence of a Deity. Witness the writings of Sir Isaac Newton, Boyle, Ray, Cheyne, Nieuwentyt, &c. To which may be added divers others, who, though of the clergy (as was also Ray), yet have distinguished themselves by their philosophical pieces, in behalf of the existence of a God; e. gr. Derham, Bentley, Whiston, Samuel and John Clarke, Fenelon, &c. So true is that saying of Lord Bacon, that though a smattering of philosophy may lead a man into *atheism*, a deep draught will certainly bring him back again to the belief of a God and Providence.

ATHELING, among our Saxon ancestors, was a title of honour properly belonging to the heir apparent, or presumptive, to the crown.

The word is formed from the Saxon *atheling*, of *athel*, noble.—It is sometimes also written *adeling*, *edling*, *etbling*, and *etheling*.

King Edward the Confessor, being without issue, and intending to make Edgar, to whom he was great uncle by the mother's side, his heir, first gave him the honourable appellation of *Atheling*.

Antiquaries observe, that it was frequent among the Saxons to annex the word *ling* or *ing* to a Christian name, to denote the son, or younger; as *Edmundling*, for the son of Edmund; *Edgarling*, for the son of Edgar: on which footing some have thought *Atheling* might primarily import the son of a nobleman, or prince.—But, in reality, *Atheling*, when applied to the heir of the crown, seems rather to denote a person endowed with noble qualities than the son of a nobleman; and corresponds to the *nobilis Cæsar* among the Romans.

ATHENA, in the *Ancient Physic*, a plaster, or liniment commended against wounds of the head and nerves, of which we find descriptions given by Oribasius, Ælius, and Ægineta.

ATHENÆA, a feast of the ancients Greeks, held in honour of Minerva, who was called *Athene*.

These were afterwards called **PANATHENÆA**.

ATHENÆUM, in *Antiquity*, a public place wherein the professors of the liberal arts held their assemblies, the rhetoricians declaimed, and the poets rehearsed their verses.

The word is derived from *Athens*, a learned city, where many of these assemblies were held; or from the name of Pallas, *Athene*, goddess of Science; intimating, that *Athenæum* was a place consecrated to Pallas, or set apart for the exercises over which she presides.

The *Athenæa* were built in form of amphitheatres; and were all encompassed with seats, which Sidonius calls *cunei*.

The three most celebrated *Athenæa* were those at Athens, at Rome, and at Lyons; the second of which, according to Aurelius Victor, was built by the emperor Adrian.

ATHENATORIUM, among *Chemists*, a thick glass cover placed on a cucurbit, having a slender umbo, or prominent part, which enters like a stopple, within the neck of the cucurbit.

ATHENIPPUM, in the *Ancient Physic*, a collyrium, commended against divers diseases of the eyes: thus denominated from its inventor Athenippus.

Its description is given by Scribonius Largus, and by Gorræus after him.

Galen mentions another *athenippum*, of a different composition, by which it appears, this was a denomination common to several collyriums.

ATHERINA, in *Ichthyology*, a name given by Rondeletius, and some other authors, to the *hepsetus*, or *anguilla*, a small fish, common on the shores of the Mediterranean; but by Bellonius appropriated to a fish of a different genus. It is of the order of *abdominales* in the Linnæan arrangement; and comprehends two species, viz. the *hepsetus* and *menidia*; the latter of which is found in the fresh waters of Carolina, and is called by Garden, *silver-fish*.

ATHEROMA, in *Medicine*, a kind of tumour, of a pappy consistence; without pain, or discolouring the skin.

The *atheroma* is contained in a *cystis*, or membranous bag; and does not give way when touched with the finger, nor retain any dent after pressure.

The *atheroma* is thus called from *αθηρα*, a kind of pap, or pulp, which the matter of this tumour resembles.—It is near akin to the *melicer*es and *steatoma*; and is cured, like them, by section.

ATHLETÆ, in *Antiquity*, persons of strength and agility, disciplined to perform in the public games.

The word is formed from *αθλος*, *certamen*, *combat*; whence also *αθλον*, the prize, or reward, adjudged the victor.

Under *athletæ* were comprehended wrestlers, boxers, runners, leapers, throwers of the disk, and those practised in other exercises, exhibited in the Olympic, Pythian, and other solemn sports; for the conquerors in which, there were established prizes.

From the five usual exercises, the *athletæ* were also denominated *πενταθλοι*, and by the Latins *quinguetiones*; at least such as professed them all.

ATHLETIC crown, see **CROWN**.

ATHLETIC habit, denotes a strong hale constitution of body, which was the object the *athletæ* aimed at, and to which their diet corresponded.

ATHLETIC weight, see **WEIGHT**.

ATHLIPTOS, in *Medicine*, from *α* negative, and *θλιψ*, to press. Uncompressed *αθλιπτος* *αεχον*, as Galen says, is an expression used by some to signify the approach of a feverish paroxysm without compressions.

ATHLOTHETA, in *Antiquity*, an officer appointed to superintend the public games, and adjudge the prizes.

The *athlotheta* was the same with what was otherwise called *αθληναια*, *brabeuta*, *agonarcha*, *agonotheta*, &c.

ATHNACH, the name of one of the principal of the Hebrew ACCENTS, which serves not only to regulate the voice, but to distinguish the members of a sentence, whence its name *athnach*, i. e. *respiratio*: on this account it is called *kin* and *pause*, and answers to our colon, and sometimes to a note of interrogation; it is marked under a letter thus (:).

ATHWART, in *Navigation*, is synonymous with across the line of the course.

ATHWART the fore-foot, is a phrase that denotes the flight of a cannon-ball from one ship across the course of another, to intercept the latter, and oblige her to shorten sail, that the former may come near enough to examine her.

ATHWART-haul, expresses the situation of a ship, when she is driven by wind or tide, or any other accident, across the fore-part of another.

ATHWART-ships, reaching across ships from one side to the other.

ATIA; see **ODIO** et **ATIA**.

ATIBAR: thus the inhabitants of the kingdom of Gago, in Africa, call gold-dust; from which word the Europeans, and especially the French, have composed the word *tibir*, which also signifies gold-dust among those who trade in that commodity.

ATINGA GUACU MUCU, in *Zoology*, the name of a Brazilian bird of the starling kind. It resembles the thrush in size. See *Tab. III. of Birds*, N^o 31.

ATIZOE, in the writings of the *Ancient Naturalists*, a name of a stone used in the consecration and anointing of kings. Pliny describes it to have been of a lenticular figure, and of the size of three fingers, of a bright silvery colour, and of a pleasant smell. He says it was found in India, and in some other places. Agricola is of opinion, it was a kind of bitumen.

ATLANTIC Ocean, see **OCEAN**.

ATLANTIDES, in *Astronomy*, a denomination given to the Pleiades, or seven stars, sometimes also called *virgilæ*. They are thus called, as being supposed by the poets to have been the daughters either of Atlas, or his brother Hesperus, who were translated into heaven.

ATLANTIS, in *Antiquity* an island spoken of by Plato, and many other writers, under some extraordinary circumstances; and rendered famous by a controversy among the moderns, concerning its place and existence. The *Atlantis* took its name from Atlas, Neptune's eldest son, who, they tell us, succeeded his father in the government of it.

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The most distinct account of this celebrated country is given us in Plato's *Timæus* and *Critias*; which amounts, in a few words, to what follows. "The *Atlantis* was a large island in the Western ocean, situate before, or opposite to, the straits of Gades. Out of this island there was an easy passage into some others, which lay near a large continent, exceeding all Europe and Asia. Neptune settled in this island, which he distributed among his ten sons: to the youngest fell the extremity of the island called *Gadir*, which in the language of the country signifies *fertile* or *abundant in sheep*. The descendants of Neptune reigned here from father to son, for a great number of generations, in the order of primogeniture, during the space of 9000 years. They also possessed several other islands; and passing into Europe and Africa, subdued all *Lybia* as far as Egypt, and all Europe to *Asia Minor*. At length the island sunk under water; and, for a long time afterwards, the sea thereabouts was full of flats and shelves."

The learned Rudbeck, professor in the university of Upsal, in an express treatise, intitled, *Atlantica*, five Manheim, maintains, very strenuously, that Plato's *Atlantis* is Sweden and Norway; and attributes to his country, whatever the ancients have said of their *Atlantis*, or *Atlantic* island.—Others will have America to be the *Atlantis*; and hence infer that the new world was not unknown to the ancients: but what Plato says, does by no means support this supposition. America should rather seem to be the vast continent beyond the *Atlantis*, and the other islands mentioned by Plato.

Kircher, in his *Mundus Subterraneus*; and Beckman, in his *History of Islands*, chap. 5. advance the most probable opinion.—The *Atlantis*, according to them, was a large island which extended from the Canaries to the Azores; and these islands are the remains thereof not swallowed up by the sea.

ATLANTIS, *New*, is the name of a fictitious, philosophical commonwealth, of which a description has been given by lord Bacon.

The *New Atlantis* is supposed to be an island in the South-Sea, to which the author was driven, in a voyage from Peru to Japan. The composition is an ingenious fable, formed after the manner of the *Utopia* of Sir Thomas More, or Campanella's *City of the Sun*. Its chief design is to exhibit a model or description of a college, instituted for the interpretation of nature, and the production of great and marvellous works, for the benefit of men, under the name of Solomon's house, or the college of the six days work. Thus much, at least, is finished; and with great beauty and magnificence. The author proposed also a frame of laws, or of the best state or mould of a commonwealth. But this part is not executed. *Bac. Works*, tom. iii. p. 235.

ATLAS, in *Geography*, a celebrated mountain in Africa, which is so high, that it seems to bear the heavens. Hence the fable, in which *Atlas*, the king of this country, is said to bear the heavens on his shoulders: thus he is represented in the famous statue at the Farnese palace at Rome.

ATLAS, in *Architecture*, is a name given to those figures, or half-figures of men, sometimes used instead of columns, or pilasters; to support any member of architecture, as a balcony, or the like.

These are otherwise called **TELAMONES**.

ATLAS, in *Anatomy*, the name of the first *vertebra* of the neck, which supports the head. See *Tab. Anat. (Osteol.)* fig. 6.

The *atlas* has no spinal *apophyses*; because the motions of the head do not turn on this *vertebra*, but on the second. As it is obliged to turn about as often as the head moves round, had there been any spinal *apophyses*, it would have incommoded the motion of the muscles in the extension of the head.—It is also of a finer and firmer texture than the other *vertebrae*; and differs farther from them, in that those receive at one end, and are received at the other; whereas this receives at both extremes; for two eminences of the *occiput* are inserted within its two upper cavities, which makes its articulation with the head: and, at the same time, two other eminences of the second *vertebra* are received within its two lower cavities, by means of which they are articulated together.

ATLAS is also a title given to books of universal geography, containing maps of the known parts of the world; as if they were viewed from the top of that celebrated mountain, which the ancients esteemed the highest in the world; or rather on account of their holding the whole world like *Atlas*.

ATLAS, in *Commerce*, a silk satten manufactured in the East Indies.

It must be owned that the manufacture of these silks is wonderful, especially of the flowered *atlasses*; in which

the gold and silk are worked together in such a manner, as no workman in Europe can imitate: yet they are far from having that fine gloss and lustre, which the French know how to give their silks.

In the Chinese manufactures of this sort, they gild paper on one side with leaf gold, then cut it into long slips, and weave it into their silks; which makes them with very little cost look very rich and fine. The same long slips are twisted or turned about silk threads so artificially, as to look finer than gold thread, though it be of no great value.

ATLAS, a species of beetle.

ATMOSPHERE, an appendage of our earth; consisting of a thin, fluid, elastic substance, called *air*, which surrounds the terraqueous globe to a considerable height, gravitates towards its centre, on its surface, is carried along with it round the sun, and partakes of all its motions both annual and diurnal.

By *atmosphere* is usually understood the whole mass, or assemblage of ambient air: though, among some of the more accurate writers, the *atmosphere* is restrained to that part of the air next the earth, which receives vapours and exhalations, and refracts the rays of light.

The farther or higher spaces, though perhaps not wholly destitute of air, are supposed to be possessed by a finer substance called *ether*, and are hence called *etherial regions*.

The word is formed of *ατμος*, *vapour*, and *σφαῖρα*, a *sphere*. See **ETHER** and **HEAVENS**. And for the nature, constitution, properties, and different states and uses of the *atmosphere*, see the article **AIR**.

A late eminent author considers the *atmosphere* as a large chemical vessel, wherein the matter of all the kinds of sublunary bodies is copiously floating; and thus exposed to the continual action of that immense furnace the sun; whence proceed innumerable operations, sublimations, separations, compositions, digestions, fermentations, putrefactions, &c.

We have a large apparatus of instruments, contrived for indicating and measuring the state and alterations of the *atmosphere*; as **ANEMOMETERS**, **BAROMETERS**, **HYGROMETERS**, **MANOMETERS**, **THERMOMETERS**, &c. The *atmosphere* insinuates itself into all the vacuities of bodies; and thus becomes the great spring of most of the mutations here below; as **GENERATION**, **CORRUPTION**, **DISSOLUTION**, &c.

It is one of the great discoveries of the modern philosophers, that the several motions attributed by the ancients to a *juga vacui*, are really owing to the **PRESSURE** of the *atmosphere*.

Galileo, having observed that there was a certain standard altitude, beyond which no water could be elevated by pumping, took an occasion from thence to call in question the doctrine of the schools, which ascribed the ascent of water in pumps, to the *juga vacui*, and in the room thereof he happily substituted the hypothesis of the air's pressure and gravitation. It was to him, indeed, little better than an hypothesis, since it had not then those confirmations from experiments which were afterwards found out by his scholar Torricellius, and other succeeding philosophers, particularly Mr. Boyle.

ATMOSPHERE, *the electricity of it*. Beside those large quantities of the electric matter, with which the clouds are charged in a thunder-storm, it has been observed, first by M. Monnier in 1752, and afterwards repeatedly and with peculiar attention by others, that the *atmosphere* is seldom or ever wholly destitute of the electrical fluid: but the quantity is most considerable, and may most easily be drawn from the air, when it is in its driest state. A person electrified negatively may satisfy himself of this, by extending his arm in the open air, and presenting a long sharp needle with its point upwards; for the electric matter collected from the remoter air will appear luminous, as it converges to the point of the needle. Mr. Canton's balls are likewise an excellent contrivance for the same purpose, and may be made use of, not only for determining the electricity of the *atmosphere* in general, but the positive or negative quality of it. But there is no electrician, whose observations in this way have been conducted with greater accuracy, and farther pursued, than S. Beccaria. From him we learn, that the *atmosphere* discovers no signs of electricity in windy and clear weather, nor in moist weather without rain, nor when the sky is covered with distinct and black clouds with a slow motion; but he always observed a moderate, though interrupted electricity for the most part of the positive kind, in a clear sky when the weather was calm, and in rainy weather without lightning, a little before the rain fell, and during the continuance of it, till the rain was almost over. And the electricity was stronger, as his rods were higher, and the strings which were extended and insulated in the open air were longer.

longer. Beccaria's Essay on Atmospheric Electricity, annexed to the English translation of his Artificial Eleat. p. 421, &c. See LIGHTNING, RAIN, VAPOURS, &c.

ATMOSPHERE, figure of it. The *atmosphere* envelops all parts of the surface of our globe; if therefore both the one and the other continued at rest, and were not endowed with a diurnal motion round their axis, then the *atmosphere* would be exactly spherical, according to all the laws of gravity; for all the points of the surface of a fluid in a state of rest, must be equally removed from its center. But the earth and the ambient *atmosphere* are invested with a diurnal motion, which carries both the one and the other round their axes. As the different parts of the earth have a centrifugal force, the tendency of which is more considerable, and that of the centripetal less, as the parts are more remote from the axis; the figure of the *atmosphere* must become an oblate spheroid; because the parts that correspond to the equator, are farther removed from the axis than the parts which correspond to the poles.

Besides, the figure of the *atmosphere* must represent a spheroid, because the sun strikes more directly the air which encompasses the equator, and is comprehended between the two tropics, than that which pertains to the polar regions. Whence it follows, that the mass of air, or part of the *atmosphere*, adjoining to the poles, being less heated, cannot expand so much, nor reach so high. Nevertheless, as the same force which contributes to elevate the air, diminishes its pressure on the surface of the earth, higher columns of it at or near the equator, all other circumstances being the same, may be no heavier than those that are lower at or near the poles.

ATMOSPHERE, weight of it. Organical bodies are peculiarly affected by this pressure: to this, in part, plants owe their VEGETATION; and animals their RESPIRATION, CIRCULATION, NUTRITION, &c.

To this also we owe several considerable alterations in the animal œconomy, with regard to health, life, disease, &c. See AIR.

And hence, a calculation of the precise quantity of this pressure becomes a point worthy of attention. — Our bodies, then, are equally pressed on by the incumbent *atmosphere*; and the weight they sustain is equal to a cylinder of air, whose base is equal to the superficies of our bodies. — Now, a cylinder of air of the height of the *atmosphere*, when greatest, is known to be equal to a cylinder of water of the same base, and 35 feet high; or a cylinder of mercury 30½ inches, as appears from the Torricellian experiment; as also from the height to which water ascends in pumps, syphons, &c.

Hence it follows, that every foot square of the surface of our bodies, is pressed by a weight of air equal to 35 cubical feet of water, or 30½ cubical inches of mercury; and a cubical foot of water being found by experiment to weigh 62½ pounds, the compass of a foot square upon the surface of our bodies, sustains a quantity of air equal to 2187½ pounds; for $62\frac{1}{2} \times 35 = 2187\frac{1}{2}$; and so many feet square as the surface of our bodies contains, so many times 2187½ pounds does that body bear.

Hence, if a man's body contain 15 square feet, which is near the truth, he will sustain a weight equal to 32812½ pounds; which is above 14½ tons for the greatest load, or weight of air when it is the heaviest.

Mr. Cotes has given us a computation of the weight of all the air which presses upon the whole surface of the earth. He finds this weight to be equal to that of a globe of lead of sixty miles diameter. The computation proceeds on these principles: that the weight of a column of air, reaching to the top of the *atmosphere*, is most commonly equal to a column of water, having the same basis, and the altitude of 34 feet; that the semi-diameter of the earth is equal to 20,949,655 feet; and that the specific gravity of water is to that of lead as 1000 to 11,325. Cotes Hydrost. Lect. p. 112.

By an easy calculation, supposing a column of mercury 29½ feet high at the mean density of the *atmosphere*, and one inch thick, to weigh 15 pounds, there will be a pressure on every square foot of $144 \times 15 = 2160$ pounds: on the surface of a body of 15 square feet, 32400lb. or more than 14½ tons. And as the earth's surface contains in round numbers, 200,000,000 square miles, and every square mile, 27,878,400 square feet; there must be 5,575,680,000,000,000, square feet on the earth's surface; which multiplied by 2160 pounds, the pressure on a square foot, gives 12,043,468,800,000,000,000 pounds for the pressure or weight of the whole *atmosphere*.

The difference of the weight of the air which our bodies sustain at one time more than at another, is also very great.

The whole weight of the air which presses upon our bodies when the mercury is highest in the barometer, is equal to 32812½ pounds. Whence the difference between the greatest and the least pressure of the air upon our bodies, may be proved to be equal to 3280½ pounds.

The difference of the air's weight, at different times, is readily measured by the different height to which the mercury is raised in the barometer; and the greatest variation of the height of the mercury being three inches, a column of air of any assignable base equal to the weight of a cylinder of mercury of the same base, and of the altitude of three inches, will be taken off from the pressure upon a body of an equal base, at such times as the mercury is three inches lower in the barometer; so that every inch square of the surface of our bodies is pressed upon at one time more than another, by a weight of air equal to the weight of three cubical inches of mercury.

Now a cubical foot of water being 62 pounds, a cubical foot of mercury is 875 pounds = 5040000 grains; and as 5040000 grains are to a cubical foot, or 1728 cubical inches, so are 2916 grains to one cubical inch: therefore a mass of mercury of a foot square = 144 square inches, and three inches high, must contain 432 cubical inches of mercury, which multiplied by 2916, the number of grains in a cubical inch of mercury, gives 1259712 grains. And this weight does a foot square of the surface of our bodies sustain at one time more than at another.

Suppose again the surface of the human body = 15 feet square, then would the body sustain at one time more than at another a weight = 15×1259712 grains = 18895680 grains = 3280 pounds 6 ounces, which is near 1½ ton.

Hence, it is so far from being a wonder, that we sometimes suffer in our health by a change of weather, that it is the greatest wonder we do not suffer oftener and more by such changes. — For when we consider, that our bodies are sometimes pressed upon by near a ton and a half weight more than at another, and that the variation of the additional pressure of many pounds, is often very sudden; it is surprising that every such change does not entirely break the frame of our bodies to pieces.

In effect, the vessels of our bodies being so much straitened, by an increased pressure, would stagnate the blood, and the circulation would quite cease, if nature had not wisely contrived, that, when the resistance to the circulating blood is greatest, the *impetus* by which the heart contracts should be so too. For, upon an increase of the weight of the air, the lungs will be more forcibly expanded, and thereby the blood will be more intimately broken and divided, so that it becomes fitter for the more fluid secretions, such as that of the nervous fluid; by which the HEART will be more strongly contracted. And the blood's motion towards the surface of the body being obstructed, it will pass in greater quantity to the brain, where the pressure of the air is taken off by the *cranium*; upon which account also, more spirits will be separated, and the heart on that account too be more enabled to carry on the CIRCULATION, through all passable canals; whilst some others, towards the surface, are obstructed.

The most considerable alteration made in the blood, upon the air's greater or lesser pressure on the surface of our bodies, is its rendering the blood more or less compact, and making it crowd into a less, or expand into a greater space, in the vessels which it enters. For the air contained in the blood always keeps itself in *œquilibrio* with the external air that presses upon our bodies; and this it does by a constant *nifus* to unbend itself, which is always proportionable to the compressing weight by which it was bent: so that if the compression of weight of the circumambient air be ever so little abated, the air contained within the blood unfolds its spring, and forces the BLOOD to take up a larger space than it did before.

The reason we are not sensible of this pressure is explained in the following manner by Borellus, De Mot. nat. a grav. fac. prop. 29, &c. After saying that sand, perfectly rammed in a hard vessel, is not capable, by any means, of being penetrated or parted, not even by a wedge; and likewise that water, contained in a bladder compressed equally on all sides, cannot yield or give way in any part; he proceeds, "In like manner, within the skin of an animal are contained a diversity of parts, some hard, as bones; others soft, as muscles, nerves, membranes, &c. others fluid, as blood, fat, &c. Now it is not possible the bones should be broke or displaced in the body, unless the weight lay heavier on one part than on another, as we sometimes see in porters. If the pressure be subdivided, so that it lie equally all around, upwards, downwards, and sideways, and no part of the skin be exempt

"there-

“therefrom; it is evidently impossible any fracture or luxation should follow. The same may be observed of the muscles and nerves; which, though soft, yet being composed of solid fibres, do mutually sustain each other, and resist the common weight. The same holds of blood, and the other humours; and as water does not admit any manifest condensation, so the animal humours contained in their vessels may suffer an attrition from an impulse made in one or more particular places, but can never be forced out of their vessels by an universal compression.—It follows, that as none of the parts undergo either separation, luxation, contusion, or any other change of situation; it is impossible any sense of pain should ensue, which can only be the effect of a solution of continuity. This is confirmed by what we see in “DIVERS,” &c.

The same is farther confirmed by Mr. Boyle; who, including a young frog in a vessel half full of water, and intruding so much air as that the water might sustain eight times the weight it otherwise would; yet the animalcule, notwithstanding the great tenderness of its skin, did not seem to be at all affected thereby.

For the effects of the removal of the pressure of the atmosphere, see AIR-pump.—For the cause of the variations in the weight and pressure of the atmosphere, see BAROMETER.

ATMOSPHERE, height of it. The height of the atmosphere is a point about which the modern naturalists have been very solicitous.—Had not the air an elastic power, but were it every where of the same density, from the surface of the earth to the extreme limit of the atmosphere, like water, which is equally dense at their depths; it being above observed, that the weight of the column of air, reaching to the top of the atmosphere, is equal to the weight of the mercury contained in the barometer; and the proportion of weight likewise being known between equal bulks of air and mercury; it were easy to find the height of such column, and consequently that of the atmosphere itself.—For a column of air, one inch high, being to an equal column of mercury as 1 to 11200; it is evident, that 11200 such columns of air, that is, a column of 933 feet high, is equal in weight to one inch of mercury: and consequently the 30 inches of mercury, sustained in the barometer, require a column of air 27990 feet high; whence the height of the atmosphere would only be 27990 feet, or little more than five English miles high.

But the air, by its elastic property, expands and contracts; and it being found by repeated experiments in England, France, and Italy, that the spaces it takes up, when compressed by different weights, are reciprocally proportional to those weights themselves; or, that the air takes up the less space, the more it is pressed: it follows, that the air in the upper regions of the atmosphere, where the weight is so much less, must be much rarer than nearer the surface of the earth; and consequently, that the height of the atmosphere must be much greater than is above assigned.

Mr. Cotes, in his Hydrostatical Lectures, lect. ix. has demonstrated, in a very familiar and intelligible manner, that if any number of distances from the surface of the earth be taken in an arithmetical progression, the densities of the air at those distances will be in a geometrical progression. Let $x a a x$ (Tab. Pneumatics, fig. 22.) represent a vessel reaching from the surface of the earth $a a$ to the top of the atmosphere $x x$; and let the side $a x$ be divided into inches $a b, b c, c d, \&c.$ and let the lines $b k, c l, d m, \&c.$ be drawn parallel to $a x$; it is evident that the air contained between these parallel lines becomes rarer as we ascend, because every ascending parallel successively is pressed by a less column of superincumbent air than the next below it. Suppose then that the air $a k$ is every where uniform, but denser than the air $b l$, and so upwards. Let the air $b l$ be reduced into a less space by βq , so as to become of equal density with the air $a k$, by making the space βq less than $b l$, in the proportion that the air $b l$ is less dense than the air $a k$. And let a similar construction be continued, so as to reduce every inch breadth of air to the same density with the air $a k$. The spaces $a k, b q, c r, \&c.$ will evidently be as the densities of the several inches of air, $a k, b l, c m, \&c.$ and the quantity or weight of the superincumbent air belonging to each of these spaces, and reaching to the top of the atmosphere, will always be as the sum of all the spaces situated above any space proposed; the quantity or weight being, by the construction of the figure, as the space which it possesses. Since then the density of the air is as the force which compresses it, and this force is the quantity of superincumbent air, the densities of the air between $a a$ and $b k, b k$, and $c l, c l$ and $d m, \&c.$ are to each

other as the quantities of air above $a a, b k, c l, \&c.$ up to the extremity of the atmosphere. But these densities, by what we have already shown, are as the spaces $a k, b q, c r, \&c.$ and the quantities of superincumbent air, are as the spaces $x b \beta q r s t v x, x c \gamma r s t v x, x d \delta s t v x, \&c.$ therefore the spaces $a k, b q, c r, \&c.$ are to each other respectively as the spaces $x b \beta q r s t v x, x c \gamma r s t v x, x d \delta s t v x, \&c.$ Now the former spaces $a k, b q, c r, \&c.$ being the differences of the latter, and mutually proportional, are, by a well-known theorem in proportion, in a geometrical progression; as the distances $a b, a c, a d, \&c.$ are in an arithmetical progression. And thus the densities of the air belonging to every one of the inches, continued to the extremity of the atmosphere, decrease in the same geometrical progression; and every the least variation of altitude will cause the same proportional variation of density in the air. As the rarity of the air is reciprocally as its density, we may conclude that if the distances from the earth increase in an arithmetical progression, the different degrees of rarity of the air increase in a geometrical progression. Whence it is obvious, that the distances are every way proportional to the logarithms of the corresponding rarities.

This law was first observed and demonstrated by Dr. Halley, from the nature of the hyperbola; and afterwards by Dr. Gregory, by means of the logarithmic line. See Phil. Trans. N°. 181. or Abr. ibid. vol. ii. p. 13. and Greg. Astron. lib. v. prop. 3.

By this proposition, having made two or three barometrical observations of the rarity of the air at two or three different heights, it is easy to find its rarity at any other height, or the height corresponding to any rarity; and consequently the altitude of the whole atmosphere, supposing the utmost degree of rarity known, beyond which the air cannot go.

Upon these principles the following table is calculated; supposing first as a mean of the observations at the Puy de Domme in France, and those on Snowdon-hill in Wales, that at the altitude of seven miles, the air is four times rarer than at the surface of the earth.

At the altitude of	7	Miles above the surface of the earth, the air is	-----4	Times rarer than at the earth's surface.
	14		-----16	
	21		-----64	
	28		-----256	
	35		-----1024	
	42		-----4096	
	49		-----16384	
	56		-----65536	
	63		-----262144	
	70		-----1048576	
	77		-----4194304	
	84		-----16777216	
	91		-----67108864	
	98		-----268435456	
	105		-----1073741824	
	112		-----4294967296	
	119		-----17179869184	
	126		-----68719476736	
	133		-----274877906944	
	140		-----1099511627776	

It might be easily shewn, by pursuing the calculation in this table, that a cubic inch of the air we breathe would be so much rarified at the altitude of 500 miles, that it would fill a sphere equal in diameter to the orbit of Saturn.

But it is to be observed, that these computations of the rarity of the atmosphere, at different heights, are founded on this principle, that the density of the air is every where proportionable to the superincumbent weight. And this rule holds true only upon the supposition, that the heat is uniform, at different distances from the earth; for if the air be hotter in one part than in another, the air will be more rarified in the hotter part, than it will be in the cooler, although pressed by the same weight, or at the same altitude above the earth's surface.

It must not be here omitted, that some observations made by Cassini, and his associates, seem to render this method precarious.—In continuing the meridian line of the observatory at Paris, they measured the altitudes of several mountains with great accuracy; noting the height of the barometer at the top of each; and found, that the rarefactions of the air, as you ascend from the level of the earth, are much greater than they ought to be, according to this proportion.

Suspecting, therefore, the justness of the experiments, the Royal Academy made divers others, under great dilatations of air, far exceeding the rarities found on the tops of the mountains; the result whereof was, that they

all exactly answered the proportion of the incumbent weights. Whence it should follow, that the higher air about the tops of mountains is of a different nature, and observes a different law from that near the earth.

The reason hereof may be owing to the great quantity of gross vapours and exhalations here, more than there; which vapours being less elastic, and not capable of so much rarefaction as the pure air above, the rarefactions of the pure air increase in a greater ratio than the weights diminish. — M. Fontenelle, however, from some experiments made by M. de la Hire, accounts for the phenomenon in a different manner; alledging, that the elastic power of air is increased by the admixture of humidity therewith; and consequently, that the air near the tops of mountains, being moister than that below, becomes thereby more elastic, and rarefies in a greater ratio than naturally and in a drier state it would. — But Dr. Jurin shews, that the experiments produced to support this system are by no means conclusive. Append. ad Varenii Geograph.

M. Bouguer likewise, in the Memoirs of the Royal Academy of Sciences at Paris for the year 1753, intimated his opinion, that the condensations of the *atmosphere* did not observe the same law at different heights; and endeavoured to account for the variation, by supposing that particles of air at different heights are possessed of unequal degrees of elasticity. If this were the case, it would be impossible to apply the barometer to the mensuration of heights with any degree of certainty. But M. De Luc has shewn, by his more accurate experiments, that this pretended inequality of spring in the particles of air does not subsist; and that its condensations and dilatations follow the same law uniformly at all heights and in all climates, excepting only the differences that are caused by heat, and other local circumstances. He has also given a rule for the measurement of heights by the barometer, deduced from a greater number of experiments, and much more accurate, than any hitherto published. In order to give the reader a just idea of the method which he pursued in investigating and applying his rule, it is necessary to observe, that the difference of the elevation of any two places, will be as the logarithm of the ratio of the densities of the air at each; and since the density is every where as the compressing force, and this again as the length of the column of quicksilver sustained by it in the barometer, the difference of elevation will be as the logarithm of the ratio of the altitudes of the quicksilver at the same time in the two different stations, or as the difference of the tabular logarithms of the numbers by which these altitudes would be expressed in any given measure. This is an obvious consequence of the law of rarefaction already demonstrated, waving the consideration of the accelerative force of gravity, which may be considered as uniform at any distances subject to observation and experiment. Premising this theorem, M. De Luc prepared a barometer of the syphon kind, as best adapted to correct the error arising from the repulsion of the quicksilver by the glass tube, by boiling the quicksilver after it was put into the tube, and by other precautions, in order to purge it of air and moisture; and in order to make proper allowances for the variations of the density of quicksilver by heat and cold, he provided two thermometers, one attached to the frame of the barometer itself, and the other made for being exposed to the open air, in order to shew its degree of heat. That he might be able to judge of the allowance requisite to be made for any variation of heat or cold, he heated the air in his room, in the winter season, to as great a degree as possible, and noted the rise of the barometer, owing to the diminution of its specific gravity by heat; and he also observed the height of the thermometer, both before and after the room was heated. The barometer in this experiment was at 27 French inches; and he infers from it, that an increase of heat from freezing to that of boiling water, will raise the mercury in the barometer 6 lines, or $\frac{1}{4}$ th part of the whole. If the barometer is higher than 27 inches, the variation will increase in the same proportion; therefore, calling the height of the barometer B, the whole rise for an increase of heat from

freezing to boiling water, will be $\frac{B}{54}$; and as it will be

less for a less difference of heat, if the number of degrees on the thermometer between boiling and freezing water be called K, and the rise of the thermometer from any given point be called H, the correspondent

rise of the barometer will be $\frac{B}{54} \times \frac{H}{K}$ by the increase of heat from the given point by the number of degrees H. If the heat decreased, then H would signify the degrees of decrease in heat, and the barometer would sink by

$\frac{B}{54} \times \frac{H}{K}$. M. De Luc made the fixed temperature of

heat, by means of which he reduced his observations of the barometer, $\frac{1}{4}$ th of the interval from freezing to boiling water above the given point; and if the thermometer was higher than this degree, he subtracted

$\frac{B}{54} \times \frac{H}{K}$; if it was lower, he added it to the observed

altitude of the barometer; and thus obtained the exact height of the barometer, such as it would have been, if the density of its quicksilver had been the same as answers to the fixed degree of temperature. He thus corrected the heights of his barometer, at the bottom and at the top of a hill, for the particular degree of heat indicated by the thermometer attached to the barometer at each station; and these corrected heights he made use of in his subsequent calculations. The two altitudes of the barometer are represented by B and b, and the logarithms of these quantities are taken in the four first places of figures after the characteristic, or by considering the remaining figures as decimals; C is assumed to represent the mean height of a thermometer, exposed to the air at the top and bottom of the hill, the freezing point being 0, and that of boiling water 80; and M. De Luc finds, by his experiments, that the height of the hill will be given in French toises, when C is $6\frac{1}{2}$, by simply taking the difference of the logarithms of the heights of the barometer, or it will be equal to $\log. B - \log. b$; and in any other degree of heat, it will be greater or less in proportion as the rarity of the air is greater or less than in the fixed temperature; or, greater or less by $\frac{1}{4}$ th part of the whole for every degree of the thermometer reckoned from the fixed temperature $16\frac{1}{2}$. And therefore the height of the hill will be expressed in French measure by this formula,

$$\log. B - \log. b + \log. B - \log. b \times \frac{C - 16\frac{1}{2}}{215} = \frac{C - 16\frac{1}{2}}{215} \times \log. B - \log. b \times 1 + \frac{C - 16\frac{1}{2}}{215}$$

Mr. Maskelyne and Dr. Horsley have reduced this formula to English measure, to the scale of Fahrenheit's thermometer, and likewise to thermometers of different scales. Dr. Horsley has evinced the agreement of M. De Luc's conclusions with the geometrical theory of the *atmosphere* founded on the law of gravitation. The rule resulting from the formula adapted to Fahrenheit's thermometer, is thus expressed by Mr. Maskelyne in common language: take the difference of the tabular logarithms of the observed heights of the barometer, at the two stations, considering the four first figures exclusive of the index as whole numbers, and the remaining figures as decimals; subtract or add $\frac{1}{4}$ th of the difference of the altitude of the Fahrenheit's thermometer, attached to the barometer at the two stations, as it was highest at the lower, or upper station; and thus you will have the height of the upper station above the lower, in English fathoms nearly. This height may be corrected by the following proportion: as 449 is to the difference of the mean altitude of Fahrenheit's thermometer exposed to the air at the two stations from 40°, so is the height of the upper station found nearly to the correction, which is to be added or subtracted, as the mean altitude of the thermometer was higher or lower than 40°; and the sum or difference will give the true height of the upper station above the lower in English fathoms: and multiplying by 6, it will be had in English feet.

The rule adapted to particular scales will be as follows: From or to the difference of the tabular logarithms, as in the former case, subtract or add the difference of the altitude of the thermometer of a particular scale, attached to the barometer, at the two stations, as it was highest at the lower or upper station; the difference or sum will give the height nearly, in English fathoms: then say, as 1000 is to the sum of the altitudes of the thermometer of a particular scale exposed to the air at both stations, so is the height of the upper station above the lower, already found, to a fourth quantity; which added or subtracted, as the aforesaid sum of the altitudes of the thermometer is positive or negative, will give the true height in fathoms; and multiplying by 6, in English feet.

M. De Luc found that the height of the *atmosphere*, supposing its limits where the mercury in the barometer would stand only at one line, and the thermometer indicating 0 in his scale, 17° in that of Reaumur, and about 70° in Fahrenheit's, is 25105,450 toises, or 11 leagues and 3 toises: and in the same circumstances, if the mercury in the barometer sunk to $\frac{1}{4}$ of a line, the height of that part of the *atmosphere* would be 35105,450 toises.

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M. De Luc's Recherches sur les Modifications de l'Atmosphere, vol. ii. Phil. Transf. vol. lxiv. part. i. N^o 20 and 30. See BAROMETER.

M. De la Hire, after Kepler, has recourse to the more ancient method of ascertaining the height of the *atmosphere*, viz. from the consideration of the CREPUSCULA. It appears, from the observations of astronomers, of the duration of twilight, and of the magnitude of the terrestrial shadow in lunar eclipses, that the effect of the *atmosphere* to reflect and intercept the light of the sun, is sensible to the altitude of between 40 and 50 miles. So far then we may be certain that the *atmosphere* reaches; and at that altitude we may collect, from what has been already said, that the air is above 10,000 times rarer than at the surface of the earth. How much farther the *atmosphere* may extend, we are altogether ignorant. Cotes's Hydrost. Lect. p. 123. and 125.

It is allowed by astronomers, that when the sun is 18° below the horizon, we begin or cease to see the TWILIGHT: now the ray whereby we see it can be no other than a horizontal line, or a tangent to the earth in the place where the observer is; but this ray cannot come directly from the sun, which is under the horizon; and must therefore be a ray reflected to us by the last inner and concave surface of the *atmosphere*. We are to suppose that the sun, when 18° below the horizon, emits a ray which is a tangent to the earth, and strikes upon this last surface of the *atmosphere*, and is thence reflected to our eye, being still a tangent, and horizontal. If there were no *atmosphere*, there would be no CREPUSCULUM; and consequently, if the *atmosphere* were not so high as it is, the *crepusculum* would begin and end when the sun is at a less distance from the horizon than 18°, and contrarily. Hence we gather, that the largeness of the arch, by which the sun is depressed when the *crepusculum* begins or ends, determines the height of the *atmosphere*. We are to note, however, that 34' must be subtracted from the arch of 18° for the refraction which raises the sun so much higher than he would be; and 16' more for the height of the upper limb of the sun, which is supposed to send the ray above his centre, which is supposed to be 18° low. The remaining arch, therefore, which determines the height of the *atmosphere*, is only 17° 10'. Two rays, one direct, and the other reflected, but both tangents to the earth, must necessarily meet in the *atmosphere* at the point of reflexion, and comprehend an arch between them of 17° 10', whereof they are tangents. Hence it follows, from the nature of the circle, that a line drawn from the centre of the earth, and cutting the arch in two, will go to the point of concurrence of those two rays; and as it is easy to find the excess of this line above the semi-diameter of the earth, which is known, it is easy to find the height of the *atmosphere*, which is only that excess. See CREPUSCULUM.

On this principle M. De la Hire discovers the height of the *atmosphere* to be 37223 fathoms, or near 17 French leagues. The same method was also made use of by Kepler, who only rejected it because it gave the height of the *atmosphere* 20 times greater than he otherwise allowed it. It must be added, that in this calculus, the direct and reflected rays are supposed to be right lines; whereas, in fact, they are curves, formed by the perpetual refraction the rays undergo in passing through a series of different densities of air. Computing then upon them, as two similar curves, or rather as a single curve, one extreme whereof is a tangent to the earth; its vertex, equally distant from both the extremes, determines the height of the *atmosphere*; which, therefore, will be found somewhat lower than in the former case; the point of concurrence of two right lines, which are here only tangents to the curve, the one at one end, and the other at the other, being higher than the vertex of the curve. In this way, M. la Hire finds the *atmosphere* 36362 fathoms, or 16 leagues. Hist. de l'Acad. Roy. de Scien. an. 1713. p. 71. See REFRACTION, &c.

The *atmosphere* has a refractive power, which is the cause of many phenomena. Alhazen the Arabian, who lived about A. D. 1100, seems to have been more inquisitive into the nature of refraction than the preceding writers. But neither Alhazen, nor his follower Vitellio, knew any thing of its just quantity, which was not known to any tolerable degree of exactness, till Tycho Brahe, with incredible diligence, settled it.

Neither did Tycho, nor Kepler, discover in what manner the rays of light were refracted by the *atmosphere*. Tycho thought the refraction was chiefly caused by dense vapours, very near the earth's surface. Kepler placed the cause wholly at the top of the *atmosphere*, which he took to be uniformly dense; and thence he determined its altitude to be little more than that of the highest mountains. But the true constitution of the density of the *atmosphere*, deduced afterwards from the Torricellian experiment, afforded a juster idea of these refractions, especially after

t appeared by repetition of M. Lowthorp's experiment, that the air's refractive power is proportionable to its density. By this variation of the air's density, a ray of light, in passing through the *atmosphere*, is continually refracted at every point, and thereby describes a curve, and not a straight line, as it would have done were there no *atmosphere*, or were its density uniform.

The refractive power of the *atmosphere* increases the altitude of the stars, and contracts their intervals; it also causes the sun and moon to appear of an oval figure, when near the horizon. But it is to be observed, that the horizontal moon appears oval but rarely, especially in the evenings of warm weather, the refractions being then smaller. Vide Smith's Optics. See also REFRACTION.

The *atmosphere*, or air, has also a reflective power; and this power is the cause that enlightens objects so uniformly on all sides. The absence of this power would occasion a strange alteration in the appearance of things; their shadows would be so very dark, and their sides enlightened by the sun so very bright, that probably we could see no more of them than their bright halves; so that, for a view of the other halves, we must turn them half round, or, if immoveable, must wait till the sun could come round upon them. Such a pellucid unreflective *atmosphere* would indeed have been very commodious for astronomical observations upon the course of the sun and planets among the fixed stars, visible by day as well as by night; but then such a sudden transition from darkness to light, and from light to darkness immediately, upon the rising and setting of the sun, without any twilight, and even upon turning from or to the sun at noon day, would have been very inconvenient and offensive to our eyes.

Thus, though the *atmosphere* is greatly assistant to the illumination of objects, yet it must also be observed that it stops a great deal of light. By M. Bouguer's experiments, it seems that the light of the moon is frequently 2000 times weaker in the horizon, than at the altitude of 66 degrees; and that the proportion of her lights at the altitudes of 66 and 19 degrees, is about 3 to 2. The lights of the sun must bear the same proportion to each other at those heights; which M. Bouguer made choice of, as being the meridian heights of the sun, at the summer and winter solstices, in the latitude of Croisie in France. Smith's Optics, Rem. 95.

It has been said that a ray of light, passing through the *atmosphere*, describes a curve. M. De la Hire took great pains to demonstrate, that supposing the density of the *atmosphere* proportional to its weight, this curve is a cycloid: and he says, that if the ray be a tangent to the *atmosphere*, the diameter of the generating circle will be the height of the *atmosphere*; and that this diameter increases, till at last, when the rays are perpendicular, it becomes infinite, or the circle degenerates into a right line. This reasoning supposes that the surface of the *atmosphere* is a plane; but since it is a curve, he observes that these cycloids became in fact epicycloids. Hermannus has detected the error of M. De la Hire, and shewn that this curve is infinitely extended, and has an asymptote: and Dr. Brook Taylor observes, that this curve is one of the most intricate and perplexed that can well be proposed. Method. Increm. p. 168, &c.

This ingenious author computes the refractive power of the air, to be to the force of gravity at the surface of the earth, as 320 millions to 1.

F. De Lana thought he had contrived an *aeronautic* machine for navigating the *atmosphere*: Sturmius, who examined it, declared it not to be impracticable: but Dr. Hooke was of a different opinion, and detected the fallacy of the contrivance. Roger Bacon long before proposed something of the same kind. The great secret of this art, is to contrive an engine so far lighter than air, that it will raise itself in the *atmosphere*, and together with itself, buoy up and carry men with it. The principle on which it is to be effected, is by exhausting the air of a very thin and light, yet firm, metalline vessel, with an air pump.

But the hopes of success in such an enterprise will appear very small, if it be considered, that if a globe were to be formed of brass, of the thickness only of $\frac{1}{16}$ of an inch, that globe must be above 277 feet in diameter to swim in the air; and if, as De Lana supposes, the diameter of the globe were but 25 feet, the thickness of the metal could not exceed $\frac{1}{16}$ of an inch. Vide Herman. Phoronom, p. 158.

The method now practised is that of filling a globe, formed of taffety, &c. with an air or vapour rarer than common air. Inflammable air, produced from zinc, by the acid of vitriol, which is about twelve times lighter than common air, is generally used for this purpose in the construction of modern balloons.

ATMOSPHERE, lunar.—The moon was formerly thought to be surrounded, like the earth, with a changeable *atmosphere*;

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mosphere; but this is justly denied by modern astronomers, who, in watching the moon's appulse to any star in her way, have found that the star retains its full brightness till the instant of its being hid by the edge of the moon; whereas, if the moon were surrounded with an *atmosphere*, the star (seen through it) would appear to grow dimmer and dimmer, as the moon came nearer and nearer to it, because it would be gradually seen through parts of her *atmosphere* more and more dense, as they must be, the nearer they are to the moon.

For the reality of the *atmospheres* of the other planets, see PLANET.

For the *atmospheres* of comets, and the sun, see COMET, SUN, MACULÆ, and ZODIACAL light.

ATMOSPHERE of solid or consistent bodies, is a kind of sphere formed by the effluvia, or minute corpuscles emitted from them.

Mr. Boyle endeavours to shew that all bodies, even the hardest and most coherent, as gems, &c. have their *atmospheres*. See GEM.

ATMOSPHERE, in *Electricity*, denotes that medium which was conceived to be diffused over the surface of electrified bodies, and to consist of effluvia issuing from them; whereby other bodies immersed in it became endued with an electricity contrary to that of the body to which the *atmosphere* belongs. This was first taken notice of at a very early period in the history of this science, by Otto Guericke, and afterwards by the academicians del Cimento, who contrived to render the electric *atmosphere* visible, by means of smoke attracted by, and uniting itself to a piece of amber, and gently rising from it, and vanishing as the amber cooled. But Dr. Franklin exhibited this electric *atmosphere* with great advantage, by dropping rosin on hot iron plates held under bodies electrified, from which the smoke rose and encompassed the bodies, giving them a very beautiful appearance. He made other observations on these *atmospheres*; he took notice that they and the air did not seem to exclude one another; that they were immoveably retained by the bodies from which they issued; and that the same body, in different circumstances of dilatation and contraction, is capable of receiving or retaining more or less of the electric fluid on its surface. However, the theory of electrical *atmospheres* was not sufficiently explained and understood for a considerable time; and the investigation led to many very curious experiments and observations. Mr. Canton took the lead, and was followed by Dr. Franklin; Mess. Wilcke and Epinus prosecuted the inquiry, and completed the discovery. The experiments of the two former gentlemen prepared the way for the conclusion that was afterwards drawn from them by the latter, though they retained the common opinion of electric *atmospheres*, and endeavoured to explain the phenomena by it. The conclusion was, that the electric fluid, when there is a redundancy of it, in any body, repels the electric fluid in any other body, when they are brought within the sphere of each other's influence, and drives it into the remote parts of the body, or quite out of it, if there be any outlet for that purpose. By *atmosphere*, M. Epinus says, no more is to be understood than the sphere of action belonging to any body, or the neighbouring air electrified by it. Sig. Beccaria concurs in the same opinion, that electrified bodies have no other *atmosphere* than the electricity communicated to the neighbouring air, and which goes with the air, and not with the electrified bodies. And Mr. Canton likewise, having relinquished the opinion that electrical *atmospheres* were composed of effluvia from excited or electrified bodies, maintained that they only result from an alteration in the state of the electric fluid contained in, or belonging to the air surrounding these bodies to a certain distance; for instance, that excited glass repels the electric fluid from it, and consequently, beyond that distance makes it more dense; whereas excited wax attracts the electric fluid existing in the air nearer to it, making it rarer than it was before. In the course of experiments that were performed on this occasion, Mess. Wilcke and Epinus succeeded in charging a plate of air, by suspending large boards of wood covered with tin, with the flat sides parallel with one another, and at some inches asunder; for they found, that, upon electrifying one of the boards positively, the other was always negative; and a shock was produced by forming a communication between the upper and lower plates. Beccaria has largely considered the subject of electric *atmospheres*, in his *Artificial Electricity*, p. 179, &c. Eng. edit. Dr. Priestley's *Hist. of Electricity*, vol. ii. sect. 5. See CONDUCTOR, luminous.

ATOCION, *ατοκιον*, from *α*, privative, and *τινω*, I bring forth, in *Ancient Naturalists*, denotes an abortive medicine, or a medicament proper to expel the *fœtus* after conception.

ATOLLENS *oculi*, in *Anatomy*, a name given by Albinus

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to one of his *quatuor recti muscoli oculi*. This is the muscle called by Molinett, and others, the *superbus*, and by Cowper, the *elevator oculi*.

ATOM, in *Philosophy*, a part or particle of matter, so minute as to be indivisible.

The word is formed of the privative *α*, and *τεμνω*, I divide.

Atoms are properly the *minima natura*, the last or ultimate particles into which bodies are divisible; and are conceived as the first rudiments, or component parts of all physical magnitude; or the pre-existent and incorruptible matter whereof bodies were formed.

The notion of *atoms* arises hence, that matter is not divisible in infinitum.

And hence the Peripatetics are led to deny the reality of *atoms*, together with that of mathematical points: an *atom*, say they, either has parts, or it has none: if it hath none, it is a mere mathematical point: if it hath, then do these parts also consist of others, and so on to infinity.

But this is to recede from the genuine character of *atoms*, which are not esteemed indivisible, because of their want of bigness, or parts (for all physical magnitude must have three dimensions, length, breadth, and thickness, and all extension is divisible); but they are indivisible on account of their solidity, hardness, and impenetrability, which preclude all division, and leave no vacancy for the admission of any foreign force to separate or disunite them.

As *atoms* are the first matter, it is necessary they should be indissoluble, in order to their being incorruptible.—Sir Isaac Newton adds, that it is also required they be immutable, in order to the world's continuing in the same state, and bodies being of the same nature now as formerly.

Hence the ancients were also led to maintain *atoms* eternal: because what is immutable, must be eternal.

They also added gravity; and, in consequence thereof, motion to their *atoms*: and farther, observing that *atoms* thus falling perpendicularly, could not join or unite together; they superadded a fortuitous or side motion, and furnished them with certain hooked parts, in order to enable them to catch and hang the better together.

—And from a casual and fortuitous jumble of these *atoms*, they suppose the whole universe to be formed.

ATOMICAL *philosophy* denotes the doctrine of atoms; or a method of accounting for the origin and formation of all things, from the supposition of atoms, endued with gravity and motion.

The *atomical philosophy* was first broached and taught by Mofchus, a Sidonian, some time before the Trojan war.—Leucippus and Democritus probably learnt it from him.—But it was most cultivated and improved by Epicurus; whence it became also denominated the *Epicurean philosophy*.

It has been since retrieved by Gassendus, and others; and is now espoused and adhered to by a great part of the philosophical world, under the denomination of the *CORPUSCULAR philosophy*.

ATOMOS, a species of the crab insect.

ATONEMENT. See EXPIATION, LUSTRATION, PROPITIATION, and SACRIFICE.

ATONICS, in *Grammar*, words unaccented. See ACCENT.

ATONY, in *Medicine*, &c. a want of tone or TENSION; or a relaxation of the SOLIDS of a human body; occasioning a loss of strength, faintings, &c. See FIBRE, RELAXATION, &c.

The word is compounded of the privative *α*, and *τονος*, tone, of *τενω*, tendo, I stretch.

ATRABILARIÆ *capsulæ*. See CAPSULÆ.

ATRABILIS, in *Ancient Medicine*, black or adust bile. *Atrabilis* was one of the great humours of the ancient physicians; whence arose the *atrabilary*, one of their TEMPERAMENTS; answering to what we call MELANCHOLY. See BILE, and HUMOUR.

The ancients, says Dr. Percival, supposed the *atra bilis* to be derived either from the dregs of the blood, or from yellow bile highly concocted. A celebrated modern anatomist thinks it is blood which, having lodged some time in the intestinal canal, has acquired blackness and putridity. Is it not more probable that, in general, it is no other than gall become acrid by stagnation of the *vesica fellea*, and rendered viscid by the absorption of its fluid parts? When discharged into the *duodenum* in this state, it occasions universal disorder, till evacuated by vomiting or purging. Eff. vol. ii. p. 110.

ATRA dies, in *Antiquity*, denotes a fatal day, whereon the Romans received some memorable defeat.

The word literally imports a black day; a denomination taken from the colour, which is the emblem of death, and mourning. Whence the Thracians had a custom of marking all their happy days with white stones, or *calculi*;

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calculi, and their unhappy days with black ones, which they cast, at the close of each day, into an urn. At the person's death, the stones were taken out, and from a comparison of the numbers of each complexion, a judgment was made of the felicity or infelicity of his course of life.

The *dies atræ*, or *atri*, were afterwards denominated *nefasti*, and *posteri*.

Such, in particular, was the day when the tribunes were defeated by the Gauls, at the river Allia, and lost the city; also that whereon the battle of Cannæ was fought: and several others marked in the Roman calendar, as *atræ*, or *unfortunate*.

ATTRACTYLIS, in *Botany*. See *Distaff* THISTLE.

ATRAGENE, the name by which the *viorna*, or *traveller's* joy, a small winding shrub, common in hedges, is known in the shops. In the Linnæan system, it is a genus of the *polyandria polygynia* class of plants, with a four-leaved calyx, twelve petals, and tailed seed.

ATRAMENTA, see **INKS**.

ATRAPHAXIS, in *Botany*, a genus of the *hexandria digynia* class. We have no English name for this plant. Its characters are, that the flower hath a permanent empalement, with two roundish sinuated petals larger than the empalement which are permanent; it hath six capillary stamina; in the centre is situated a compressed germen, which afterward becomes a roundish compressed seed, shut up in the empalement. Miller and Linnæus mention two species.

ATRESIA, from *a* and *τρᾶς*, whence *τῖτρεα*, to perforate, in *Medicine*, imperforation, or the state of those persons who want some natural aperture.

ATRETI, those persons, of either sex, in whom the *anus*, or genitals, are imperforate, or close, whether naturally, or occasioned by some accident, or disease, as the growth of some fleshy excrescence, or a membrane which stops the orifice.

ATRICAPILLA, in *Ornithology*, the name of a little bird, commonly known by the name of the *black-cap*, and called, by some other authors, *sicedula*, *scyalis*, or *melanchoryphus*, and by the Italians *coponegro*. See **MELANCHORYPHUS**.

ATRICES, or **ATTRICES**, in *Medicine*, small tubercles about the *anus*, which sometimes disappear, and then return again, at least while in their early state.

The *atrices* are ranked in the number of *condylomata*, or *fici*. Some authors also give the denomination *atrici* to a kind of latent wounds in the extremity of the *rectum*, which however do not perforate the same.

ATRICILLA, in *Ichthyology*, a species of the **LARUS**.

ATRIENSES, in *Antiquity*, a kind of servants, or officers, in the great families at Rome, who had the care and inspection of the *atria*, and the things lodged therein.

These are otherwise called *atriarii*, though some make a distinction between *atrienses* and *atriarii*; suggesting that the latter were an inferior order of servants, perhaps assistants of the *atrienses*, and employed in the more servile offices of the *atrium*, as to attend at the door, sweep the area, &c.

The *atrienses* are represented as servants of authority and command over the rest; they acted as procurators, or agents, of their master in selling his goods, &c. To their care was committed the statues and images of the master's ancestors, &c. which were placed round the *atrium*; and which they carried in procession at funerals, &c.

In the villas, or country-houses, the *atrienses* had the care of the other furniture, and utensils, particularly those of metal, which they were to keep bright from rust. Other things they were to hang from time to time in the sun, to keep them dry, &c. They were clothed in a short white linen habit, to distinguish them and prevent their loitering from home.

ATRIP, in *Nautical Language*, is applied either to the anchor or sails. The anchor is *atrip*, when it is drawn out of the ground in a perpendicular direction, either by the cable or buoy-rope. The top-sails are *atrip*, when they are hoisted up to the mast-head, or to their utmost extent.

ATRIPLEX, in *Botany*, see **ORACH**.

ATRIUM, in *Ecclesiastical Antiquity*, denotes an open place or court, before a church, making part of what was called the *narthex*, or *ante-temple*.

The *atrium* in the ancient churches was a large area, or square plat of ground, surrounded with a portico or cloyster, situate between the porch or vestibule of the church, and the body of the church.

Some have mistakenly confounded the *atrium* with the porch or vestibule, from which it was distinct; others with the *narthex*, of which it was only a part.

The *atrium* was the mansion of those who were not suffered to enter farther into the church. More parti-

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cularly, it was the place where the first class of penitents stood, to beg the prayers of the faithful, as they went into the church.

ATRUM is also used, in the *Canon Law*, for the cemetery, or church-yard.

In this sense we find a law, prohibiting buildings to be raised in *atrio ecclesiæ*, except for the clergy; which the glossary explains thus: *id est in cæmeterio*, which includes the space of forty paces around a large church, or thirty round a little church or chapel.

ATROPA, in *Botany*, see *Deadly* NIGHTSHADE.

ATROPHY, a disease, wherein the body, or some of its parts, do not receive the necessary nutriment, but dwindle or waste incessantly.

The word is compounded of the privative *a*, and *τροφω*, *I nourish*, q. d. *privation of nourishment*.

An *atrophy* is either nervous, or the effect of evacuations.

A nervous *atrophy* or consumption, is that which owes its original to a bad and morbid state of the spirits; and to the weakness or destruction of the tone of the nerves; from whence an imbecility, and an universal consumption in the whole habit of the body, ultimately proceeding from a want of due assimilation of the nutritious juice: so from the beginning of the disease, there is to be found a want of appetite, and a bad digestion in the stomach, from an imperfect elaboration and volatilization of the chyle. Which sort of *atrophy* may justly be reckoned one of the fatal symptoms of the scurvy.

An *atrophy* from inanition, is that which derives its original from a preternatural defect or subtraction of the nutritious juice, and that long and habitual; which differs according to the variety of the outlets formed in the body, either by nature or art, by which this precious liquor either has, or may run off and be wasted.

There is also a species of symptomatical consumption, which though it immediately proceeds from a preternatural and ill state of the blood and spirits, yet has a mediate dependence upon some other preceding disease, which impressed that morbid disposition on the spirits and humours.

ATROPHY, *signs of it*. An *atrophy* is known by a general languor both of body and mind; a depraved and unhealthy look of the face; a light and unsettled sleep; an uncertain appetite, sometimes voracious, sometimes nauseating all things, but usually most desirous of cold foods; a straitness of the breast, and an uneasiness after eating; great internal heat, and dryness of the tongue. The bowels are usually lubricous and moist, and throw out the food half undigested; in some cases, however, they are observed to be dry and costive. The urine often appears to be a chylous matter: the abdomen is tumid and hard in the first stages of the disease, but afterwards it becomes more flaccid, and then on feeling it there may be several nodes and lumps perceived. The body by degrees wastes away, and there is a continual feverishness and thirst, and that especially in the night-time: and these symptoms often increase to that violence, as plainly to resemble a hectic, and bring on an equal loss of strength and spirits.

Sometimes the *atrophy* arises from worms, and then the whole face is always pale; the nostrils are full of a mucous matter, and sometimes become excoriated; the appetite is voracious, and the patient feels an insufferable restlessness when hungry, which goes off, and generally becomes inclined to sleep after a full meal. When this is the case in young subjects, the rickets and swellings about the joints usually succeed the other symptoms, and crookedness of the legs, gibbosity of the back, and various distortions of the spine follow it: these often put an end to the *atrophy*; but as they continue and become lasting deformities, they are a very unhappy remedy.

ATROPHY, *persons subject to atrophies*. Children, while young, are very subject to this disease, and often fall into it from improper food: the use of heavy and feculent malt liquors, and of acids, which coagulate the milk, that usually makes a large part of their nutriment. The suppression of their sweats is another frequent cause of *atrophies*, especially when occasioned by large draughts of cold liquors when they are hot in the night, and sometimes by an improper use of astringents to stop those *diarrhæas* to which they are frequently subject. Youths more grown up are often thrown into an *atrophy* by eating voraciously of crude, thick, heavy, and obstruent diet, or from the drinking spirituous liquors: sometimes from their having been injudiciously treated in fevers, and sometimes from their being violently infested with worms in their bowels. Men in more mature age usually fall into it after being debilitated by other illnesses, and by the remains of the causes of those illnesses being left in the body; and by nothing oftener are reduced

reduced to this distempered state, than by inordinate hæmorrhages. Persons who are scrophulous, or have infarctions of the external glands, are also usually at one time or other afflicted with this infarction of the internal ones, and few escape it that labour under any other violent concretions of the internal parts.

ATROPHY, prognostics. A recent *atrophy* is not difficult of cure; and even the most inveterate one, though stubborn enough, is always much less dangerous and difficult of cure than an hectic. The more complicated this disease is, the more difficult it always is in the cure; and it is hence that grown persons are not so easily or so often cured as children, because with them it is usually complicated with many other disorders; and, in general, that *atrophy* which is brought on by hæmorrhages, or by ill-treated illnesses, is much more difficult of cure than that which arises from a wrong diet. And, finally, in *atrophies* arising from worms, when they are destroyed the disease usually ceases.

ATROPHY, method of cure. All symptomatical consumptions are evidently incurable, unless a particular respect be first had to the distempers upon which they depend; but if these are once removed by art, this kind of consumption ceases of consequence; and therefore the cure of this consumption is to be sought for in the cure of those distempers which are the causes of it.

The first thing to be done in general is, to thoroughly absterge and cleanse the *primæ viæ* by gentle purges, among which nothing is so proper as calomel, assisted by syrup of rhubarb, or the like; and these purgatives are afterwards to be repeated at different intervals, during the course of the cure. After the first purges, resolvent and attenuating medicines are to be given; and, finally, the preparations of steel, decoctions of *arum* and pimpnel root, with ground-ivy, are very beneficial, as is also the juice of ground-ivy given alone; and the resolvent salts, as tartar of vitriol, nitre, and the like, with some of the aperient tinctures of steel.

An *atrophy* differs from a hectic in this, that there is in it only an infarction of the mesenteric glands, whereas in the other case they are generally ulcerated; and in degree the difference also is manifest, all the symptoms being more violent in the hectic than in the simple *atrophy*.

It should also be distinguished from leanness, the rickets, and that weakness and consumption of children, who pine away only for want of a due supply from the breast.

Dr. Thomas Short, in his *New Observations*, Moral, Natural, Medical, &c. recommends milk and cyder in the *atrophy*.

ATTACHING, or ATTACHMENT, in Law, the taking or apprehending a person or thing either by commandment, or writ.

The word is formed of the French *attacher*, to fasten, *attie*; and that from the corrupt Latin *attachiare*, of *attexere*, to weave to; or rather, as others think, from the Celtic *tach*, a nail; and *tacha*, to nail; or the Saxon *tæcan*, to take.

Lambard makes this difference between an *arrest* and an *attachment*; that an *arrest* proceeds out of an inferior court by precept only, and an *attachment* out of a higher court, either by precept, or writ; and that a precept to *arrest* hath these formal words, *duci facias*, &c. and a writ of *attachment* these, *præcipimus tibi quod attachies talem, & habeas eum coram nobis*.

By this it appears, that he who *arrests* carries the party *arrested* to another higher person, to be disposed of forthwith: whereas he that *attaches* keeps the party *attached*, and presents him in court at the day assigned in the *attachment*.

There is this farther difference, that an *arrest* lies only upon the body of a man; and an *attachment* sometimes on his goods too: for a man may be *attached* by an hundred sheep.

Moreover, *attachment* is a kind of process by which courts of law proceed against their own officers and others, in cases of contempt, &c.

ATTACHMENT by writ, differs from *distress* in this, that an *attachment* does not reach lands, as a *distress* does; and that a *distress* does not touch the body, which an *attachment* does.—Yet the two are frequently confounded together.

In the most common use, an *attachment* is an apprehension of a man by his body, to bring him to answer the action of the plaintiff.—A *distress*, with a writ, is the taking of a man; a *distress*, without a writ, is the taking of a man's goods for some real cause; as rent, service, &c.

ATTACHMENT out of the Chancery is had of course, upon an *affidavit* made that the defendant was served with a *subpœna*, and appears not; or it issueth upon not performing some order or decree.

After the return of this *attachment* by the sheriff, *quod non est inventus in ballivâ sua*; another *attachment*, with proclamation, issues: and if he appear not thereupon, a commission of rebellion.

ATTACHMENT of the Forest, is one of the four courts held in the forest.

The lowest court is called the court of *attachment*, or woodmote-court, the second is the court of regard, or survey of dogs, the third is that of swain-mote, the highest, the justice in eyre's seat. See *COURTS of Forest*, &c. The court of *attachment* seems so called, because the verderers of the forest have therein no other authority, but to receive the *attachments* of offenders against vert and venison taken by the foresters, and to enrol them, that they may be presented or punished at the next justice-seat.

This *attachment* is by three means: by goods and chattels, by body, pledges, and mainprize; or by body only. This court is held every forty days throughout the year; whence it is also denominated *forty days court*.

ATTACHMENT of privilege, is, by virtue of a man's privilege, to call another to that court whereto he himself belongs, and in respect whereof he is privileged to answer some action.

ATTACHMENT, foreign, is an *attachment* of goods or money found within a liberty or city, to satisfy some creditor within such city or liberty.

By the custom of some places, particularly of London, a man may *attach* money or goods in the hands of a stranger; as, if A owes B 10*l.* and C owes A 10*l.* B may *attach* the 10*l.* in the hands of C, to satisfy himself.

ATTACHIAMENTA honorum, in our *Ancient Law-books*, denotes a distress taken upon the goods or chattels of any person sued for a personal estate, or debt, by the legal *attachiators* or bailiffs, as a security to answer the action.

ATTACHIAMENTA de spinis & basco, signifies an ancient privilege granted to the other officers of forests, to take to their own use, thorns, brush, and windfalls, within their own precincts or liberties.

ATTACK, an attempt upon any person or thing; or the act of beginning a combat or dispute.

ATTACK, in the Military Art, is an attempt or engagement to force a post, a body of troops, or the like.

We say to begin, to make, sustain an *attack*, &c. Several authors have written of the art of *attack* and *DEFENCE*.

ATTACK of a siege, is an effort made by the besiegers with trenches, mines, galleries, &c. to make themselves masters of a fortress, in *attacking* one of its sides. See *FORTIFICATION*, and *SIEGE*.

It is a rule always to *attack* on the weakest side; unless there be superior reasons for the contrary—as was the case at the siege of Lille: in which the part where prince Eugene made his *attack*, was the strongest in the whole place.

In sieges there are sometimes one, sometimes two, or at most three *attacks*.—The *attacks*, where they are several, ought to have a communication.

ATTACK, false, is that which is not so vigorously prosecuted; serving only to make a diversion among the besieged, and to oblige them to divide their forces, that the true *attack* may be carried on with greater success.

ATTACK in flank, is to *attack* both sides of the bastion.

ATTACK, line of, see *LINE*.

ATTAGEN, αἰάγας, or αἰάγην, in *Ornithology*, an Asiatic partridge, called by some a *francolin*: a bird which is represented both by Martial and Aristophanes, as the sweetest which was dressed at the public feasts. From these circumstances, the *attagen* appears to be the same with our *gor-cock*, *moor-cock*, or *red-game*.

Trallian recommends this bird in a *phthisis*; Galen, in nephritic complaints; and Avicenna believed it increased the seminal secretions.—The inside of the gizzard of this bird is extremely fragrant when fresh killed.

The *red-game* lives chiefly on vegetables, and uses but little exercise, being scarcely ever on the wing, unless to avoid danger. Hence it does not abound with highly exalted salts. It is a very agreeable and wholesome food.

ATTAINER, in Law, is when a man has committed felony, treason, or other crime, and judgment is passed upon him for the same.

The children of a person attainted of treason cannot be heirs to him, or any other ancestor; and if he were noble before, his posterity are hereby degraded, and made base: nor can this corruption of blood be salved but by an act of parliament, unless the judgment be reversed by a writ of error.

Our ancient laws makes this difference between *attainder* and *conviction*, that a man was said to be *convicted* presently upon the verdict; but not *attainted* till it appeared he was no clerk, or being a clerk, and demanded by his

his ordinary could not purge himself.—Add, that *attainder* is more extensive than *conviction*; *conviction* being only by the jury, whereas *attainder* may also be by outlawry, confession of the party, or the like.

A man is *attainted* two ways; by *appearance*, or by *process*.

Attainder by appearance is either by confession, by battle, or by verdict. Confession, from which *attaint* proceeds, is twofold; one at the bar before the judges, when the prisoner, upon his indictment read, owns himself guilty, never putting himself upon his jury. The other is before the coroner, in sanctuary; where he, upon his confession, was in former times constrained to abjure the realm; which is also called *attainder by abjuration*.

Attainder by battle is when the party appealed by another, choosing rather to try the truth by combat than by jury, is vanquished.

Attainder by verdict, is when the prisoner at the bar, answering not guilty to the indictment, hath an inquest of life and death passed on him, and is by the verdict of the jury pronounced guilty.

Attainder by process, otherwise called *attainder by default*, or *attainder by outlawry*, is where a party flies, or does not appear, after being five times publicly called in the county-court, and at last, upon his default, is pronounced or returned outlawed.

ATTAINDER, *bill of*, is a bill brought into parliament for *attainting*, condemning, and executing a person for high treason.

ATTAINT, **ATTINCTA**, in *Law*, a writ which lies after judgment, against a jury that hath given a false verdict, contrary to the evidence, in any court of record, be the action real or personal, if the debt or damages exceed 40s.

If the verdict be found false, the judgment anciently was, that the jurors meadows should be ploughed up, their houses broken down, their woods grubbed up, their lands and tenements forfeited to the king, their goods and chattels forfeited, their bodies be cast into gaol, and that they should become for ever infamous. But by the statute 11 Hen. VII. c. 24. revived by 23 Hen. VIII. c. 3. a more moderate punishment was inflicted upon *attainted* jurors; viz. perpetual infamy; and if the cause of action were above 40l. value, a forfeiture of 20l. a piece by the jurors; or if under 40l. then 5l. a piece; to be divided between the king and the party injured.

If it passed against him that brought the *attaint*, he shall be imprisoned, and grievously ransomed at the king's will.—But the practice of setting aside verdicts upon motion, and granting new trials, has so far superseded the use of *attaints*, that no instance of it occurs later than 1593.

ATTAINT, among *Farriers*, signifies a knock or hurt in a horse's leg; proceeding either from a blow with another horse's foot, or from an over-reach in frosty weather, when a horse, being rough-shod, or having shoes with long calkers, strikes his hinder-foot against his fore-leg. The farriers distinguish *upper attaints*, given by the toe of the hind foot upon the sinew of the fore leg; and *neither attaints*, or over-reachers on the pastern-joint, which are little bladders like wind-galls, coming either by a wrench, a strain, an over-reach, or the like. The usual place is in the heel or frush.

ATTAINTED, **ATTAINTUS**, or **ATTINCTUS**, in *Law*, is used for a person found guilty of some crime or offence, particularly of felony or treason, by due course of law.

Yet a man is said to be *attainted* of perjury, *attainted* of disseisin; and so it is used in French; as, *estre atteint*, & *vaincu en aucun cas*, is to be cast in any cause.

ATTELABUS, a genus of insects belonging to the order of *coleoptera* in the Linnæan system.

ATTALICÆ vestes, in *Antiquity*, garments made of a kind of cloth of gold.

They took the denomination from Attalus, surnamed Philometer, a wealthy king of Pergamus, who was the first, according to Pliny, who procured gold to be woven into cloth. Hist. Nat. lib. iii. cap. 48.

ATTALUS, and **ATTALICUS**, in the *Ancient Physic*, epithets given to certain medicines, described by Galen, but now out of use.

ATTELLANÆ, see **ATELLANÆ**.

ATTEMPERATION, in *Rhetoric*, &c. the casting a restriction, or softening, on something said by the *formulas*. *Fama est, ut perhibent*, &c.

ATTENDANT, or **ATTENDENT**, in a general sense; see **ASSISTANT**, **RETINUE**, and **SATELLITES**.

ATTENDANT, **ATTENDENS**, in *Law*, signifies one that owes duty or service to another, or depends in some manner upon him.

Thus if there be lord mesne and tenant; and the tenant hold of the mesne by a penny: and the mesne hold over by two-pence: if the mesne release to the tenant all his

right in the land, and the tenant die, his wife shall be endowed of the land, and shall be *attendant* on the heir, of the third part of the penny, not of the third part of the two pence; she being to be endowed of the best possession of her husband.

Where the wife is endowed by the guardian, she shall be *attendant* to the guardian, and to the heir at his full age.

ATTENTION, **ATTENTIO**, a due application of the ear, or the mind, to any thing said, or done, in order to acquire a knowledge thereof.

The word is compounded of *ad*, *to*, and *tendo*, *I stretch*.

Attention of mind is not properly an act of the understanding, but rather of the will, by which it calls the understanding from the consideration of other objects, and directs it to the thing in hand. Nevertheless, our *attention* is not always voluntary: an interesting object seizes, and fixes it beyond the power of controul.

Attention, in respect of hearing, is the stretching or straining of the *membrana tympani*, so as to make it more susceptible of sounds, and better prepared to catch even a feeble agitation of the air. Or, it is the adjusting the tension of that membrane to the degree of loudness or lowness of the sound to which we are attentive.

ATTENUANTS, or **ATTENUATING medicines**, are such as subtilize and break the humours into finer parts; and thus dispose them for motion, circulation, excretion, &c.

Attenuants stand opposed to *incrassants*, or thickeners, medicines which condense, inspissate, &c.

These medicines are of the utmost importance in the practice of physic, as a little reflection upon their natures, qualities, and manner of operation, will easily convince us. To this class belong the roots of *arum*, *asarabacca*, *acorus*, elecampane, and florentine *orris*; the leaves of brook-lime, scurvy-grass, water-cress, Indian cressles, dittander, fumitory, marsh-trefoil, small centaury; all the species of garlic, onion, and leek, and the wood and bark of *guaiacum*; among the spices, pepper and ginger; among the seeds, those of mustard, scurvy-grass, and cressles; among the gums, *galbanum*, *ammoniacum*, myrrh, and benjamin. Among the chemical preparations, the most powerful *attenuants* are calomel, *æthiops*, flour of brimstone, the fixed alkaline salts, the salts of the purging waters, vitriolated tartar, regenerated tartar, and solution of crabs eyes, nitre, and *sal ammoniac*; the volatile salt and the urinous spirit of *sal ammoniac* also; to which may be added, oxymel of squills, and the acid tincture of antimony. Medicated springs also belong to this class of medicines, because they, beside their diluting and aperient natures, are also highly *attenuating*. Infusions in form of tea, from the quantity of warm water they consist of, are also very efficacious *attenuants*, and are very powerful in the dissolving coalescent molecules. Of this class also are sweet whey, and a multitude of other less used and less powerful medicines.

Of these, some act upon the fluid, and others upon the solid parts of the human body. Those which act upon the fluids, by mere contact, are very few in number, being only the watery diluents which are of singular efficacy in colliquating the viscid and glutinous humours. All the other medicines mentioned as *attenuants* act only on the solids, by increasing their tone, augmenting their strength, heightening their contractile force, and adding to the elasticity and systolic motion of the vessels; by which means they press and impel more vigorously their contained fluids, and by that means divide and break them, by driving them forcibly through small passages.

Attenuating and *inciding* medicines are of very extensive use in physic, and come under different denominations, according to the different effects they produce. Thus, when tenacious and viscid juices not only stagnate in the cavities of the vessels, but obstruct the minute ducts of the *viscera* and emunctories, these medicines, by their *inciding* and *attenuating* quality, discharge the humours, and remove the obstructions; for which reason they are not improperly called *aperients*; and they deserve also, in these cases, the names of *antiscorbutics*, and *sweeteners of the blood*.

Attenuants produce so great a variety of effects, that it is proper we should be well acquainted with their several kinds, as appropriated to the several disorders, and know which will prove most serviceable in each. The dissolving and *attenuating* of viscid crudities in the stomach and *primæ viæ*, is well answered by the roots of *arum*, *acorus*, pepper, ginger, and the like; as also by *sal ammoniac*, vitriolated tartar, and fixed alkaline salts, and the simple or dulcified spirit of salt. When crude and unconcocted humours are to be evacuated by stool, this intention is very well answered by the neutral salts, as the salts of the purging water, and the *sal polycrestum*, with a sufficient quantity of a watery vehicle.

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When viscid humours, occasioning disorders of the breast, are to be *attenuated* and expectorated, the intention is most effectually answered by elecampane and orris roots; and by *gum ammoniacum*, myrrh, or benjamin, and balsam of Peru; or by regenerated tartar, oxymel of squills, a solution of crabs eyes in distilled vinegar, and the syrups of tobacco, and the like.

When the mass of blood is tainted by thick and tenacious *fordes*, and the emunctories are by that means obstructed, and the humours contaminated by a saline sulphureous and scorbutic dyscrasy, the most efficacious of the *attenuants*, are the horse-radish, scurvy-grass, water and garden-cresses, mustard, *gum-ammoniacum*, benjamin, myrrh, the oil of fixed nitre, oil of tartar *per deliquium*, solutions of nitre, spirit of *sal ammoniac*, salt of wormwood with lemon-juice, and the salts of the medicinal waters.

When grumous or coagulated blood, occasioned by contusions or blows, is to be *attenuated*, and again dissolved, the intention is admirably answered by the roots of Solomon's seal, vinegar, and crabs eyes, the regenerated tartar, and nitre prepared with antimony.

And in cases where the lymph has acquired a preternatural thickness and viscosity, especially if from a venereal taint, the curative intention is most effectually answered by *guaiacum*, the acrid tincture of antimony, calomel, *athrops* mineral, and the like; which when skilfully used, are of singular efficacy in dissolving and *attenuating* the viscid juices impacted in the glands of the liver. Hoffman.

ATTENUATION, the act of *attenuating*; that is, of making any fluid thinner, and less consistent, than it was before.

The word is compounded of *ad*, and *tenuis*, thin.

Attenuation is defined more generally by Chauvin, the dividing or separating of the minute parts of any body, which before, by their mutual *nexus* or implication, formed a more continuous mass.—Accordingly, among *Alchemists*, we sometimes find the word used for pulverization, or the act of reducing a body into an impalpable powder, by grinding, pounding, or the like.

ATTERMINING, in our *Old Writers*, is used for a time, or term granted for payment of a debt, according to Blount.

ATTESTATION, the giving testimony, or evidence, of the truth of any thing; especially in writing.

The word is compounded of *ad*, *to*, and *testis*, witness.

MIRACLES need be well *attested*, to gain credit.

ATTIC, something relating to Attica, or the city of Athens.—In matters of *Philology* we use, *Attic* salt, *sales Attici*, meaning a delicate, poignant kind of wit and humour, peculiar to the Athenian writers.—*Attic* witness was a witness incapable of corruption; so an *Attic* muse was an excellent one, &c.

ATTIC is also used in *Architecture* for a kind of building, wherein there is no roof or covering to be seen; thus called because usual at Athens.

ATTIC, or **ATTIC Order**, is also a kind of little order, after the manner of a pedestal, raised upon another larger order, by way of crowning, or to finish the building.—See *Tab. Archit. fig. 40. (C.)* which exhibits an *Attic order* with pilasters.

An *Attic* is sometimes also used for the convenience of having a wardrobe, or the like; and instead of regular columns, has only pilasters of a particular form; and sometimes no pilasters at all.

There are also *Attics* used for high altars.—The order takes its name from Athens, where it was first practised.

ATTIC of a roof, is a little story or pedestal, either of stone or wood covered with lead, serving as a kind of parapet to a terrace, platform, or the like.

ATTIC Base, is a peculiar kind of base used by the *Ancient Architects*, in the Doric order; and which *Modern Architects* have given to the Doric column.

The *Attic base* is the same with Palladio's *Ionic base*.

The *Attic* is the most beautiful of all the bases. See **BASE**.

ATTIC continued, is that which encompasses the whole circumference of a building, without any interruption; following all the jets, the returns of the pavilions, &c.

ATTIC interposed, is that situate between two tall stories, sometimes adorned with columns, or pilasters.

ATTIC Year, see **YEAR**.

ATTILUS, a river-fish, of the **STURGEON**-kind, called by some *adello*, *adano*, and *adeno*. It grows to a very large size, and when full-grown, casts its scales, and never has any fresh ones in their place, but remains perfectly smooth; in which it differs from the common *sturgeon*. But it seems not to differ in any essential point from the *Huso Germanorum*. It is an eatable fish, but is greatly inferior in taste to the *sturgeon*. Willughby.

A T T

ATTINGA, a species of the *diodon* in the order of **NANTES**.

ATTIRE, in *Botany*, is used by some to denote the third part or division of the flower of a plant; the other two being the *empalement* and the *foliation*.

The *attire* is of two kinds; *seminiform*, and *florid*—The *seminiform attire* consists of two parts; chives, or *stamina*; and summits, or *apices*; one upon each *stamen*.

The *florid attire* is usually called the *thrums*, as in the flowers of marygold, tansy, &c.—Those thrums are called *suits*, which consist of two, but most times of three pieces.—And the outer part of the suit is the *florid*, whose body is divided at the top like a cowslip-flower, into five parts, or distinct leaves.

ATTIRE, in *Hunting*, denotes the **HEAD** and horns of a deer.

The *attire* of a stag, if perfect, consists of bur, pearls, beam, gutters, antler, fur-antler, royal, fur-royal, and croches.—Of a buck, of the bur, beam, brow-antler, advancer, palm, and spellers.

ATTITUDE, in *Painting* and *Sculpture*, the posture, or gesture, of a figure, or statue; or the disposition of its parts, by which we discover the action it is engaged in, and the very sentiment supposed to be in the mind of the person represented.

The word comes from the Italian *attitudine*, which signifies *the same*; and that from the Latin *aptitudo*, *fitness*.

The representing of this action and sentiment in a strong and lively manner, makes what they call a *good expression*.

ATTOLLENS, in *Anatomy*, a name common to several muscles, whose office or action is to raise the parts they belong to.

The word is compounded of the Latin *ad*, *to*, and *tollo*, I lift.

The *attollens*, or *attollent* muscles, are otherwise called *levators* and *elevators*.

ATTMELLA, see **AHMELLA**.

ATTORNARE, in the original sense, signified to turn over money and goods, that is, to assign and appropriate them to certain persons, or use. This is properly called *attornare rem*.

ATTORNARE personam, denotes to depute a representative, or proxy, to appear and act for another.

Thus in trials at *Common Law*, the plaintiff, or defendant, retained *attornatum suum positum in loco suo adluendum vel perpendum*.

ATTORNATO faciendo vel recipiendo, in the *Common Law*, a writ to command a sheriff, or steward, of county-court, or hundred court, to receive and admit an *attorney* to appear for the person that oweth suit of court. F. N. B. 156. Every person that owes suit to the county-court, court-baron, &c. may make an *attorney* to do his suit. Stat. 20. H. III. c. 10.

ATTORNEY, **ATTURNATUS**, or **ATTORNATUS**, in *Law*, a person appointed by another to do something in his stead, particularly to solicit and carry on a law-suit.

The word is compounded of the Latin, *ad*, *to*; and the French *tourner*, to turn; q. d. *to turn a business over to another*. The ancient Latin name, according to Bracton, is *responsalis*.

Attorneys, in *Common Law*, are much the same with *procurators*, *proflors*, or *synodics*, in the *Civil Law*.

Attorneys are properly those who sue out writs or process, or commence, carry on, and defend actions, or other proceedings, in the names of other persons, in any of the courts of common law. They are distinguished from *solicitors*, who do the like business in courts of equity; as the chancery, equity-court in the exchequer, chamber-court of the duchy, or the like.

None are to be admitted to act either as the one or the other, without having served a clerkship of five years, taken the oath provided in that case, and been enrolled.—

Judges of the said courts of law are to examine into the capacity of the *attorneys*; and those of the courts of equity, into the capacity of the *solicitors*. 2. G. II. c. 23.

Anciently, those of authority in courts had it in their power whether or no to suffer men to appear or sue by another than themselves; as appears from Fitz. de Nat. Brev. in the writ, *Dedimus potestatem de attornato faciendo*; where it appears that men were driven to procure the king's writs, or letters patent, to appoint *attorneys* for them: but it is since provided by parliament, that it shall be lawful to appoint an *attorney* without any circuition: as appears by several statutes. 20 H. III. c. 10. 6 Ed. I. c. 8. &c.

There is a great diversity of writs in the table of the register, wherein the king commands the judges to admit of *attorneys*; whereby there arose so many unskilful *attorneys*, and so many mischiefs thereby, that for restraining them, it was enacted, 4 H. IV. c. 13. that the judges

Judges should examine them, and displace the unskilful; and again, 33 H. VI. c. 7. that there should be but a certain number of *attorneys* in Norfolk and Suffolk. And many subsequent statutes have brought them under farther regulations. 3 Jac. I. c. 7. 12 G. I. c. 29. 2 G. II. c. 23. 22 G. II. c. 46. 23 G. II. c. 26.

Attorney is either *general* or *special*.

ATTORNEY-general, is he who is appointed to manage the affairs, or suits of a community; or rather, he who is appointed to conduct all the suits in general, whether of a community, or a particular person.

Such as the *attorney-general* to the king, who is the same as the *procurator Cæsaris* in the Roman empire. See **PROCURATOR**.

To him come warrants for making out patents, pardons, &c.

He is at the head of managing all law-affairs of the crown, either in criminal prosecutions, or otherwise; especially in matters of treason, sedition, &c. In all courts he pleads within the bar; but, when a privy counsellor, he cannot plead in any court, but on the king's affairs, without obtaining a privy-seal for so doing.

ATTORNEY-special, is he who is employed in one or more causes particularly specified.

Attorneys are also distinguished, with respect to the courts, into *attorneys at large*, and *attorneys special*, belonging to this or that court only.—No man can practise as an *attorney* in any particular court, unless he is admitted and sworn an *attorney* of that court.

ATTORNEY of the duchy court of Lancaster, attornatus curiæ ducatus Lancastriæ, is the second officer in that court; being there, for his skill in law, placed as assessor to the chancellor of the court.

ATTORNEY, Letter of. See **LETTER**.

ATTORNEY, Warrant of. See **WARRANT**.

ATTOURNMENT, or **ATTORNTMENT**, in *Law*, a transferring of duty and service to another lord; or an acknowledgment which a tenant makes of homage and service to a new lord.

Thus, when one is tenant for life, and he in reversion grants his right to another, it is necessary the tenant for life agree thereto, which is called *attournment*, and without which nothing passes by the grant.—If the grant be by fine, in court of record, the tenant shall be compelled to *attourn*. Sat. 27. H. VIII.

The words used in *attournment* are these: *I agree to the grant made to you*; or, more commonly, *I attourn to you by force of the same grant*; or, *I become your tenant*; or *deliver to the grantee a penny by way of attournment*. Lyttel. lib. 3.

Attournment is either by word, or by act; voluntary, or compulsory; by the writ *per quæ servitia*, or by distress.—It may be made to the lord himself, or to his steward, in court.

There is also *attournment* in deed, and *attournment* in law. *Attournment* in law is an act, which, though it be not an express *attournment*, yet, in intendment of law, is of equal force.

This was a large topic in our *Common Law*; but now much of this learning is out of use: and by a late statute it is enacted, that all grants and conveyances of manors, lands, rents, reversions, &c. by fine or otherwise, shall be good without the *attournment* of the tenants of such lands, or of the particular tenant upon whose estate any such reversion, &c. shall be expectant or depending. But notice must be given of the grant to the tenant; before which he shall not be prejudiced by payment of any rent to the grantor, or for breach of the condition for non-payment. Stat. 4 and 5 Ann. c. 16. And *attournments* of lands, &c. made by tenants to strangers, shall be void, and their landlord's possession not affected thereby. Though this shall not extend to vacate any *attournment* made pursuant to a judgment at law, or with consent of the landlord; or on a forfeited mortgage, &c. by II. G. II. c. 19.

ATTRACTION, **ATTRACTIO**, or **TRACTIO**, in *Mechanics*, the act of a moving power, whereby a moveable is drawn, or brought nearer to the mover.

The word is compounded of *ad*, *to*, and *traho*, *I draw*.

As **ACTION** and **RE-ACTION** are always equal, and contrary; it follows, that, in all *attraction*, the mover is drawn towards the moveable, as much as the moveable towards the mover.

ATTRACTION, or **ATTRACTIVE force**, in the *Ancient Physics*, denotes a natural power supposed to be inherent in certain bodies, whereby they act on other distant bodies, and draw them toward themselves.

This the Peripatetics call the *motion of attraction*; and on many occasions, **SUCTION**; and produce various instances where they suppose it to obtain.—Thus the air in respiration, is taken in, according to them, by *attraction of suction*; so is the smoke through a pipe of tobacco;

and the milk out of the mother's breast: thus also it is, that the blood and humours rise in a cupping-glass, water in a pump, and smoke in chimneys; so vapours and exhalations are attracted by the sun, iron by the magnet, straws by amber, and electrical bodies, &c. But the later philosophers generally explode the notion of *attraction*; asserting, that a body cannot act where it is not; and that all motion is performed by mere impulsion.—Accordingly, most of the effects which the ancients attributed to this unknown part of *attraction*, the moderns have discovered to be owing to more sensible and obvious causes; particularly the pressure of the AIR. To this are owing the phenomena of inspiration, snoring, sucking, cupping-glasses, pumps, vapours, exhalations, &c.

The power opposite to *attraction* is called **REPULSION**; which is also argued to have some place in natural things.

ATTRACTION, or **ATTRACTIVE power**, is more particularly used, in the *Newtonian Philosophy*, for a power, or principle, whereby all bodies, and the particles of all bodies, mutually tend towards each other.—Or, more justly, *attraction* is the effect of such power; whereby every particle of matter tends towards every other particle.

Attraction, its laws, *phenomena*, &c. form the chief subject of sir Isaac Newton's philosophy. See **NEWTONIAN Philosophy**.

The principle of *attraction*, in the Newtonian sense of it, seems to have been first surmised by Copernicus. "As for gravity," says Copernicus, "I consider it as nothing more than a certain natural appetite (*appetentia*) that the Creator has impressed upon all the parts of matter, in order to their uniting or coalescing into a globular form, for their better preservation; and it is credible that the same power is also inherent in the sun and moon, and planets, that those bodies may constantly retain that round figure in which we behold them." De Rev. Orb. Cœlest. lib. i. cap. 9. And Kepler calls gravity a corporeal and mutual affection between similar bodies, in order to their union. Ast. Nov. in Introd. And he pronounces more positively, that no bodies whatsoever were absolutely light, but only relatively so; and consequently, that all matter was subjected to the law of gravitation. Ibid.

The first in this country who adopted the notion of *attraction*, was Dr. Gilbert, in his book de Magnete; and the next was the celebrated lord Bacon. Nov. Organ. lib. ii. aphor. 36. 45. 48. Sylv. cent. i. exp. 33. In France it was received by Fermat and Roberval; and in Italy by Galilæo and Borelli. But till sir Isaac Newton appeared, this principle was very imperfectly defined and applied.

It must be observed, that though this great author makes use of the word *attraction*, in common with the school philosophers; yet he very studiously distinguishes between the ideas. The ancient *attraction* was supposed a kind of quality, inherent in certain bodies themselves; and arising from their particular or specific forms.

The Newtonian *attraction* is a more indefinite principle; denoting, not any particular kind or manner of action, nor the physical cause of such action; but only tendency in the general, a *conatus accedendi*, to whatever cause, physical or metaphysical, such effect be owing; whether to a power inherent in the bodies themselves, or to the impulse of an external agent.

Accordingly, that author, in his Philosoph. Nat. Prin. Math. notes, "that he uses the words *attraction*, *impulsi*, and *propension* to the centre, indifferently; and cautions the reader not to imagine, that by *attraction* he expresses the *modus* of the action, or the efficient cause thereof; as if there were any proper powers in the centres, which in reality are only mathematical points; or, as if centres could attract." Lib. i. p. 5.—So he considers centripetal powers as *attractions*; though physically speaking, it were perhaps more just to call them *impulses*." lb. p. 148. He adds, "that what he calls *attraction* may possibly be effected by impulse, though not a common or corporeal impulse; or after some other manner unknown to us." Optic. p. 322.

Attraction, if considered as a quality arising from the specific forms of bodies, ought, together with sympathy, antipathy, and the whole tribe of occult qualities, to be exploded. But when we have set these aside, there will remain innumerable *phenomena* of nature, and particularly the gravity or weight of bodies, or their tendency to a centre, which argue a principle of action seemingly distinct from impulse; where, at least, there is no sensible impulsion concerned. Nay, what is more, this action, in some respects, differs from all impulsion we know of; impulse being always found to act in proportion to the surfaces of bodies; whereas gravity acts according to their solid content, and consequently must arise from some cause

cause that penetrates or pervades the whole substance thereof.—This unknown principle, unknown, we mean, in respect of its cause, for its *phenomena* and effects are most obvious, with all the species and modifications thereof, we call *attraction*; which is a general name, under which all mutual tendencies, where no physical impulse appears, and which cannot, therefore, be accounted for from any known laws of nature, may be ranged.

And hence arise divers particular kinds of *attraction*; as, GRAVITY, MAGNETISM, ELECTRICITY, &c. which are so many different principles, acting by different laws; and only agreeing in this, that we do not see any physical causes thereof: but that, as to our senses, they may really arise from some power or efficacy in such bodies, whereby they are enabled to act, even upon distant bodies; though our reason absolutely disallows of any such action.

Attraction may be divided, with respect to the law it observes, into two kinds. 1. That which extends to a sensible distance. Such are the *attraction* of GRAVITY, found in all bodies: and the *attraction* of MAGNETISM, and ELECTRICITY, found in particular bodies. The several laws and *phenomena* of each, see under their respective articles.

The *attraction* of GRAVITY, called also among mathematicians the *centripetal force*, is one of the greatest and most universal principles in all nature. We see and feel it operate on bodies near the earth, and find, by observation, that the same power (i. e. a power which acts in the same manner, and by the same rules, viz. always proportionably to the quantities of matter, and as the squares of the distances reciprocally) does also obtain in the moon, and the other planets primary and secondary, as well as in the comets: and even that this is the very power whereby they are all retained in their orbits, &c. And hence, as gravity is found in all the bodies which come under our observation, it is easily inferred, by one of the settled rules of philosophizing, that it obtains in all others; and as it is found to be as the quantity of matter in each body, it must be in every particle thereof; and hence, every particle in nature is proved to *attract* every other particle, &c. See the demonstration hereof laid down at large, with the application of the principle to the celestial motions, under the articles CENTRIFUGAL, CENTRIPETAL, COMET, MOON, NEWTONIAN *Philosophy*, PLANET, SATELLITE, SUN, &c.

From this *attraction* arises all the motion, and consequently all the mutation, in the great world. By this, heavy bodies descend, and light ones ascend; by this projectiles are directed, vapours and exhalations rise, and rains, &c. fall. By this rivers glide, the air presses, the ocean swells, &c. In effect, the motions arising from this principle make the subject of that extensive branch of mathematics, called MECHANICS or STATICS; with the parts or appendages thereof, HYDROSTATICS, PNEUMATICS. See MATHEMATICS, PHILOSOPHY, &c.

2. That which does not extend to sensible distances.—Such is found to obtain in the minute particles whereof bodies are composed, which *attract* each other at, or extremely near, the point of contact, with a force much superior to that of gravity; but which at any distance from it decreases much faster than the power of gravity. This power, a late ingenious author chooses to call the *attraction* of COHESION; as being that whereby the atoms or insensible particles of bodies are united into sensible masses.

This latter kind of *attraction* owns sir Isaac Newton for its discoverer; as the former does, for its improver. The laws of motion, percussion, &c. in sensible bodies under various circumstances, as falling, projected, &c. ascertained by the later philosophers, do not reach to those more remote, intestine motions of the component particles of the same bodies, whereon the changes of the texture, colour, properties, &c. of bodies depend; so that our philosophy, if it were only founded on the principle of gravitation, and carried so far as that would lead us, would necessarily be very deficient.

But, beside the common laws of sensible masses, the minute parts they are composed of are found subject to some others, which have been but lately taken notice of, and are even yet very imperfectly known. Sir Isaac Newton, to whose happy penetration we owe the hint, contents himself to establish, that there are such motions in the *minima natura*, and that they flow from certain powers or forces, not reducible to any of those in the great world.

—In virtue of these powers, he shews, “That the small particles act on one another, even at a distance; and that many of the *phenomena* of nature are the result thereof. Sensible bodies, we have already observed, act on one another divers ways; and as we thus perceive the tenor and course of nature, it appears highly probable, that there may be other powers of the like kind; nature being very uniform and consistent with

“herself.—Those just mentioned reach to sensible distances, and so have been observed by vulgar eyes: but there may be others, which reach to such small distances as have hitherto escaped observation; and it is probable electricity may reach to such distances, even without being excited by friction.”

The great author just mentioned proceeds to confirm the reality of these suspicions from a great number of *phenomena* and experiments, which plainly argue such powers and actions between the particles, e. gr. of salts and water, oil of vitriol and water, *aqua fortis* and iron, spirit of vitriol and salt-petre. He also shews that these powers, &c. are unequally strong between different bodies; stronger, e. gr. between the particles of salt of tartar and those of *aqua fortis*, than those of silver; between *aqua fortis* and *lapis calaminaris*, than iron; between iron than copper, copper than silver, or mercury. So spirit of vitriol acts on water, but more on iron or copper, &c.

The other experiments which countenance the existence of such principle of *attraction* in the particles of matter, are innumerable; many of them the reader will find enumerated under the articles ACID, MATTER, MENSTRUUM, SALT, &c.

These actions, in virtue whereof the particles of the bodies above-mentioned tend towards each other, the author calls by a general indefinite name, *attraction*, which is equally applicable to all actions, whereby distant bodies tend towards one another, whether by impulse, or by any other more latent power: and from hence he accounts for an infinity of *phenomena*, otherwise inexplicable, to which the principle of gravity is inadequate. Such are COHESION, DISSOLUTION, COAGULATION, CRYSTALLIZATION, the ASCENT of fluids in capillary tubes, animal SECRETION, FLUIDITY, FIXITY, FERMENTATION, &c. See SPHERICITY, &c.

Thus (adds our immortal author) will nature be found very conformable to herself, and very simple; performing all the great motions of the heavenly bodies, by the *attraction* of GRAVITY, which intercedes those bodies, and almost all the small ones of their parts, by some other attractive power diffused through the particles thereof. Without such principles, there never would have been any motion in the world; and without the continuance thereof, motion would soon perish, there being otherwise a great decrease or diminution thereof, which is only supplied by these active principles.” Optics, p. 373.

We need not say how unjust it is in the generality of foreign philosophers, to declare against a principle which furnishes so beautiful a view, for no other reason, but because they cannot conceive how one body should act on another at a distance. It is certain, philosophy allows of no action but what is by immediate contact and impulse (for how can a body exert any active power there, where it does not exist? to suppose this of any thing even the Supreme Being himself, would perhaps imply a contradiction): yet we see effects without seeing any such impulse; and where there are effects, we can easily infer there are causes, whether we see them or no. But a man may consider such effects, without entering into the consideration of the causes; as, indeed, it seems the business of a philosopher to do: for to exclude a number of *phenomena* which we do see, will be to leave a great chasm in the history of nature; and to argue about actions which we do not see, will be to build castles in the air. It follows, therefore, that the *phenomena* of *attraction* are matter of physical consideration, and as such intitled to a share in the system of PHYSICS; but that the causes thereof will only become so, when they become sensible; i. e. when they appear to be the effect of some other higher causes (for a cause is no otherwise seen than as itself is an effect, so that the first cause must from the nature of things be invisible): we are therefore at liberty to suppose the causes of *attraction* what we please, without any injury to the effects. The illustrious author himself seems a little irresolute as to the causes, inclining, sometimes, to attribute *gravity* to the action of an immaterial cause; Optics, p. 343, &c. and sometimes to that of a material one. Ibid. p. 325.

In his philosophy, the research into causes is the last thing; and never comes under consideration till the laws and *phenomena* of the effect be settled; it being to these *phenomena* that the cause is to be accommodated. The cause even of any, the grossest, and most sensible action, is not adequately known: how impulse or percussion itself produces its effect, i. e. how motion is communicated by body to body, confounds the deepest philosophers; yet is impulse received not only into *philosophy*, but into *mathematics*; and accordingly the laws and *phenomena* of its effects make the greatest part of common *mechanics*.

The other species of *attraction*, therefore, in which no impulse is remarkable, when their *phenomena* are sufficiently ascertained, have the same title to be promoted

from *physical* to *mathematical* consideration; and this, without any previous inquiry into their causes, which our conceptions may not be proportionate to: let their causes be occult, as all causes, strictly speaking, are, so that their effects, which alone immediately concern us, be but apparent. See CAUSE.

Our noble countryman, then, far from adulterating philosophy with any thing foreign, or metaphysical, as many have reproached him with doing, has the glory of having thrown every thing of this kind out of his system, and of having opened a new source of sublimer *mechanics*, which, duly cultivated, might be of infinitely greater extent than all the *mechanics* yet known: it is hence alone we must expect to learn the manner of the changes, productions, generations, corruptions, &c. of natural things; with all that scene of wonders opened to us by the operations of *chemistry*.

Some of our own countrymen have prosecuted the discovery with laudable zeal: Dr. Keil, particularly, has endeavoured to deduce some of the laws of this new action, and applied them to solve divers of the more general *phenomena*, of bodies, as *cohesion*, *fluidity*, *elasticity*, *softness*, *fermentation*, *coagulation*, &c. And Dr. Friend, seconding him, has made a further application of the same principles, to account at once for almost all the *phenomena* that *chemistry* presents.—So that some philosophers are inclined to think that the new mechanics should seem already raised to a complete science; and that nothing now can occur, but what we have an immediate solution of, from the *attractive* force.

But this seems a little too precipitate; a principle so fertile should have been further explored; its particular laws, limits, &c. more industriously detected, and laid down, before we had proceeded to the application.—*Attraction*, in the gross, is so complex a thing, that it may solve a thousand different *phenomena* alike: the notion is but one degree more simple and precise than action itself; and till more of its properties are ascertained, it were better to apply it less, and study it more.—It may be added, that some of Sir Isaac Newton's followers have been charged with falling into that error, which he industriously avoided, viz. of considering *attraction* as a cause or active property in bodies, not merely as a *phenomenon* or effect.

As a specimen of the extent of the principle, and the manner of applying it, we shall here subjoin the principal laws and conditions of it; as deduced by Sir Isaac Newton, Dr. Keil, Dr. Friend, &c.

Theor. I. Besides that *attractive* power whereby the planets and comets are retained in their orbits, there is another, by which the several particles wherof bodies consist, attract, and are mutually attracted by, each other. This theorem, we have already observed, is demonstrable from a great number of *phenomena*.—We shall here only mention a few easy and obvious ones; as, the spherical figure assumed by the drops of fluids, which can only arise from such principle: the uniting and incorporating of two spherules of quicksilver into one, upon the first touch, or extremely near approach, of their surfaces: the rising of water up the sides of a glass bubble immersed therein, higher than the level of the other water, or of mercury up a sphere of iron, or the like.

As to the just law of this *attraction*, it is not yet determined: only this we know in the general, that the force, in receding from the point of contact, is diminished in a greater proportion than that of the duplicate ratio of the distances, which is the law of gravity. Because, if the diminution were only in such duplicate ratio, the *attraction* at any small assignable distance would be nearly the same as at the point of contact: whereas experience teaches, that this *attraction* almost vanishes, and ceases to have any effect, at the smallest assignable distance.—But whether to fix on a triplicate, quadruplicate, or some other proportion to the increasing distance, is not ascertained by experiment.

II. The quantity of *attraction*, in all bodies, is exactly proportional to the quantity of matter in the *attracting* body; as being in reality the result or sum of the united forces of the *attractions* of all those single particles, of which it is composed; or, in other words, *attraction* in all bodies is, *ceteris paribus*, as their solidities.

Hence, 1. At equal distances the *attractions* of homogeneous spheres will be as their magnitudes.—And, 2. At any distance whatever, the *attraction* is as the sphere divided by the square of the distance.

This law, it must be noted, only holds in respect of atoms, or the smallest constituent particles, sometimes called *particles of the last composition*; and not of corpuscles or compositions made up of these; for they may be so put together, as that the most solid corpuscles may form the lightest particles, i. e. the unsuitness of their surfaces for intimate contact may occasion such great interstices, as

will make their bulks large in proportion to their matter. III. If a body consists of particles, every one of which has an *attractive* power decreasing in a triplicate, or more than a triplicate ratio of their distances; the force wherewith a particle is attracted by that body in the point of contact, or at an infinitely little distance from the contact, will be infinitely greater than if that particle were placed at a given distance from the body.

IV. Upon the same supposition, if the *attractive* force, at any assignable distance, hath a finite ratio to its gravity, this force in the point of contact, or at an infinitely small distance, will be infinitely greater than its power of gravity.

V. But if in the point of contact the *attractive* force of bodies hath a finite ratio to their gravity; this force in any assignable distance is infinitely less than the power of gravity; and therefore it becomes nothing.

VI. The *attractive* force of every particle of matter, in the point of contact, almost infinitely exceeds the power of gravity, but is not infinitely greater than that power; and therefore, in a given distance, the *attractive* force will vanish to nothing.

This *attractive* power, therefore, thus superadded to matter, only extends to spaces extremely minute, and vanishes at greater distances; whence, the motion of the heavenly bodies, which are at a prodigious distance from each other, cannot be disturbed by it, but will continually go on, as if there were no such power in bodies.

Where this *attracting* power ceases, there, according to Sir Isaac Newton, does a repelling power commence; or rather, the *attracting* does thenceforward become a *repelling* power.

VII. Supposing a corpuscle to touch any body, the force whereby that corpuscle is impelled, that is, the force with which it coheres, to that body, will be proportionable to the quantity of contact; for the parts, farther removed from the point of contact, contribute nothing towards its *COHESION*.

Hence, according to the difference in the contact of particles, there will be different degrees of cohesion; but the powers of cohesion are greatest when the touching surfaces are planes; in which case, *ceteris paribus*, the force by which one corpuscle adheres to others will be as the parts of the touching surfaces.

Hence it appears why two perfectly polished marbles, joined together by their plain surfaces, cannot be forced asunder, but by a weight which much exceeds that of the incumbent air.

Hence also may be drawn a solution of that famous problem concerning the cohesion of the parts of matter.

VIII. The power of *attraction* in the small particles increases, as the bulk and weight of the particles diminishes. For, the force only acting at or near the point of contact, the *momentum* must be as the quantity of contact, that is, as the density of the particles, and the largeness of their surfaces: but the surfaces of bodies increase or decrease as the squares, and the solidities, as the cubes, of the diameters. Consequently the smallest particles, having the largest surfaces in proportion to their solidities, are capable of more contact, &c. Those corpuscles are most easily separated from one another, whose contacts are the fewest and the least, as in spheres infinitely small.

Hence we have the cause of *FLUIDITY*.

IX. The force whereby any corpuscle is drawn to another nearly adjacent body, suffers no change in its quantity, let the matter of the *attracting* body be increased or diminished; supposing the same density to remain in the body, and the distance of the corpuscle to continue the same.

For since the *attractive* powers of particles are diffused only through the smallest spaces, it is manifest, that the remoter parts at C, D, and E (*Tab. Nat. Hist. fig. 22.*) contribute nothing towards *attracting* the corpuscle A: and therefore the corpuscle will be attracted with the same force towards B, whether these parts remain, or be taken away; or, lastly, whether others be added to them.

Hence, particles will have different *attractive* forces, according to their different structure and composition; thus a particle perforated will not attract so strongly as if entire. So, again, the different figures into which a particle is formed, will occasion a diversity of power; thus a sphere will attract more than a cone, cylinder, &c.

X. Suppose a body of such a texture as that the particles of the last composition, by an external force, such as a weight compressing them, or an impulse given by another body, may be a little removed from their original contact, but so as not to acquire new ones; the particles by their *attractive* force tending to one another, will soon return to their original contacts.—But when the same contacts and positions of the particles which compose any body, return, the same figure of the body will also be restored; and therefore bodies which have lost their original figures, may recover them by *attraction*.

Hence appears the cause of ELASTICITY.—For, where the contiguous particles of a body have by any external violence been forced from their former points of contact, to extremely small distances; as soon as that force is taken off, the separated particles must return to their former contact: by which means the body will resume its figure, &c.

XI. But if the texture of a body be such, that the particles, by an impressed force being removed from their contacts, come immediately into others of the same degree, that body cannot restore itself to its original figure. Hence we understand what texture that is, wherein the SOFTNESS of bodies consists.

XII. The bulk of a body heavier than water may be so far diminished, that it shall remain suspended in water, without descending by its own gravity.

Hence it appears why saline, metallic, and other such-like particles, when reduced to small dimensions, are suspended in their *menstrua*.

XIII. Greater bodies approach one another with a less velocity than smaller.—For the force with which two bodies A and B (*Tab. Nat. Hist. fig. 23. N^o 2.*) approach, resides only in the nearest particles; the more remote having nothing to do therein. No greater force therefore will be applied to move the bodies A and B, than to move the particles *c* and *d*; but the velocities of bodies moved by the same force are in a reciprocal ratio of the bodies: wherefore the velocity with which the body A tends towards B is to the velocity with which the particle *c* detached from the body would tend towards the same B, as the particle *c* is to the body A; consequently the velocity of the body A is much less than would be the velocity of the particle *c* detached from the body.

Hence it is, that the motion of large bodies is naturally so slow and languid, that an ambient fluid, and other circumjacent bodies, generally retard them; whilst the lesser go on more briskly, and produce a greater number of effects; so much greater is the *attractive* energy in smaller bodies than in the larger.—Hence again appears the reason of that chemical axiom: *salts do not act till they are dissolved*.

XIV. If a corpuscle placed in a fluid be equally attracted every way by the circumambient particles, no motion of the corpuscle will ensue.—But if it be attracted by some particles more than others, it will tend to that part where the attraction is greatest; and the motion produced will correspond to the inequality of the attraction; viz. the greater the inequality, the greater the motion, and *vice versa*.

XV. Corpuscles floating in a fluid, and attracting each other more than the particles of the fluid that lie between them, will force away the particles of the fluid, and rush to one another with a force equal to that by which their mutual attraction exceeds that of the particles of the fluid.

XVI. If a body be immersed in a fluid whose parts more strongly attract the particles of the body than they do one another; and if there be a number of pores or interstices in the body pervious to the particles of the fluid; the fluid will immediately diffuse itself through those pores. And if the connexion of the parts of the body be not so strong, but that it may be overcome by the force of the particles rushing within it; there will be a dissolution of the body.

Hence, for a *menstruum* to be able to dissolve any given body, there are three things required. 1. That the parts of the body attract the particles of the *menstruum* more strongly than these attract each other. 2. That the body have pores or interstices open and pervious to the particles of the *menstruum*. 3. That the cohesion of the particles, which constitute the body, be not strong enough to resist the irruption of the particles of the *MENSTRUUM*.

XVII. SALTS are bodies endued with a greater attractive force, though among them be interspersed many interstices, which lie open to the particles of water; these are therefore strongly attracted by those saline particles, so that they forcibly rush into them, separate their contacts, and dissolve the texture of the salts.

XVIII. If the corpuscles be more attracted by the particles of the fluid than by each other, they will recede from each other, and be diffused through the whole fluid.

Thus, if a little salt be dissolved in a deal of water, the particles of the salt, though specifically heavier than water, will evenly diffuse themselves through the whole water, so as to make it as saline at top as bottom.—Does not this imply, that the parts of the salt have a *centrifugal*, or *repulsive* force, by which they fly from one another; or rather, that they attract the water more strongly than they do one another? For as all things ascend in water, which are less attracted than water by the gravity of the earth, so all the particles of salt floating in water, which are less attracted by any particle of salt than wa-

ter is, must recede from the particle, and give way to the more attracted water. *Newt. Opt. p. 363.*

XIX. Corpuscles, or little bodies, swimming in a fluid, and tending towards each other; if they be supposed elastic, will fly back again after their congress, till, striking on other corpuscles, they be again reflected towards the first; whence will arise innumerable other conflicts with other corpuscles, and a continued series of percussions and reboundings.—But, by the *attractive* power, the velocity of such corpuscles will be continually increased: so that the *intestine* MOTION of the parts will at length become evident to sense.

Add, that in proportion as the corpuscles attract each other with a greater or less force, and as their elasticity is in a greater or less degree, their motions will be different, and become sensible at various times, and in various degrees.

XX. If corpuscles that attract each other happen mutually to touch, there will not arise any motion, because they cannot come nearer. If they be placed at a very little distance from each other, a motion will arise; but if further removed, the force wherewith they attract each other will not exceed that wherewith they attract the particles of the intermediate fluid; and therefore no motion will be produced.

On these principles depend all the *phenomena* of fermentation and EBULLITION.

Hence appears the reason why oil of vitriol, when a little water is poured on it, works, and grows hot: for the saline corpuscles are a little disjointed from their mutual contact, by the infused water; whence, as they attract each other more strongly than they do the particles of water, and as they are not equally attracted on every side, there must of necessity arise a motion.

Hence also appears the reason of that uncommon ebullition, occasioned by adding steel filings to the aforesaid mixture. For the particles of steel are extremely elastic; whence there must arise a very strong reflexion.

Hence also we see the reason why some *menstrua* act more strongly, and dissolve bodies sooner, when diluted with water.

XXI. If corpuscles mutually attracting each other have no elastic power, they will not be reflected back from each other; but will form a *congeries*, or little masses; whence a COAGULUM will arise.

If the gravity of the particles thus amassed exceed the gravity of the fluid, a PRECIPITATION will succeed.—Precipitation may also arise from an increase or diminution of the gravity of the *menstruum* wherein the corpuscles are immersed.

XXII. If corpuscles swimming in a fluid, and mutually attracting each other, have such a figure, as that in some given parts they have a greater *attractive* power than in others, and their contact greater in those parts than in others; those corpuscles will unite into bodies with given figures; and thence will arise CRYSTALLIZATION.

XXIII. Particles immersed in a fluid moved with a swift or slow progressive motion, will attract each other in the same manner as if the fluid were at rest: but if all the parts of the fluid do not move equally, the attractions will be disturbed.

Hence it is, that many salts will not crystallize, till the water wherein they are dissolved is cold.

XXIV. If between two particles of a fluid there happen to be a corpuscle whose two opposite sides have a strong *attractive* power, that intermediate corpuscle will agglutinate or fasten the particles of the fluid to itself.—And several such corpuscles diffused through the fluid will fix all its particles into a firm body; and the fluid will be frozen, or reduced into ice.

XXV. By the same principle of attraction and repulsion, most of the *phenomena* of ELECTRICITY may be accounted for.

It will in some degree appear in the course of this work under the various articles referred to, or comprized in it, how far the principles, contained in these several theorems, are well founded; where they will properly apply to the explication of the *phenomena* of nature, and how far any of them are confirmed and illustrated by later observations and discoveries.

ATTRACTION, center of. See CENTER.

ATTRACTION of mountains. According to the Newtonian theory of attraction, this principle pervades the minutest particles of matter, and the combined action of all the parts of the earth, forms the attraction of the whole. For the same reason, therefore, that a heavy body tends downwards in a perpendicular to the earth's surface, considered as smooth and even, it must be attracted towards the centre of a neighbouring mountain, by a force proportional to the quantity of matter contained in it; and the effect of this attraction, or the accelerative force produced by it, must depend on the nearest or distance of the mountain from the gravitating body, because this force

force increases as the squares of the distances decrease. Upon these principles it is obvious, that the plumb-line of a quadrant, or of any other astronomical instrument, must be deflected from its proper situation, by a small quantity, towards the mountain, and the apparent altitudes and zenith distances of the stars, taken with the instrument, be altered accordingly: e. g. if the zenith distance of a star on the meridian were observed at two stations under the same meridian, one on the south side of a mountain, the other on the north; and the plumb-line of the instrument were *attracted* out of its vertical position by the mountain, the star must appear too much to the north, by the observation at the southern station, and too much to the south by that at the northern station; and consequently the difference of the latitudes of the two stations resulting from these observations would be greater than it really is. If then the true difference of their latitudes be determined by measuring the distance between the two stations on the ground, the excess of the difference found by the observations of the star above that found by this measurement, must have been produced by the *attraction* of the mountain; and the half of it will be the effect of such *attraction* on the plumb-line at each observation, provided that the mountain attracts equally on both sides.

The first hint for determining the quantity of this *attraction* was suggested by Sir Isaac Newton in his *Treatise of the System of the World*; and the first experiment for this purpose was conducted by M. Bouguer, and M. de la Condamine, in the year 1738. Whilst they were employed in measuring three degrees of the meridian, near Quito in Peru, they endeavoured to ascertain the effect of the *attraction* of Chimborazo, a mountain in that neighbourhood, which, by a rough computation, they supposed to be equal to about the 2000th part of the *attraction* of the whole earth. By observing the altitudes of fixed stars at two stations, one on the south side of the mountain, and the other on the west, they found the quantity of $7\frac{1}{2}''$ in favour of the *attraction* of the mountain by a mean of their observations; whereas the plumb-line, according to the theory, should have declined from the true vertical line $1' 43''$. However, though the general result is favourable to the Newtonian doctrine, the experiment was performed under so many disadvantages, as not to afford the satisfaction which was to be wished. And M. Bouguer terminates his account of their observations, with expressing his wishes, that the experiment might be repeated under more favourable circumstances either in France or in England. Figure de la Terre.

Nothing was afterwards done, till Mr. Maskelyne, the astronomer-royal, made a proposal to the Royal Society for this purpose in the year 1772; and in 1774 he was deputed to make the trial, accompanied with proper assistants, and furnished with the most accurate instruments. He made choice of the mountain Schehallien, in Scotland, for the scene of his operations; the direction of which is nearly from east to west, its mean height above the surrounding valley about 2000 feet, and its highest part above the level of the sea 3550 feet. Two stations for observations were selected, one on the north, and the other on the south side of the mountain. Every circumstance that could contribute to the accuracy of the experiment was regarded; and from observations of ten stars near the zenith, Mr. Maskelyne found the apparent difference of the altitudes of the two stations to be $54'' 6$; and from a measurement by triangles, formed from two bases on different sides of the mountain, he found the distance of their parallels to be 4364 feet, which, in the latitude of Schehallien, viz. $56^{\circ} 40'$, answer to an arch of the meridian of $43''$, less by $11'' 6$ than that found by the sector. Its half, therefore, or $5'' 8$, is the mean effect of the *attraction* of the mountain. From this experiment, conducted with great assiduity and accuracy, and terminated to the establishment of the Newtonian theory, Mr. Maskelyne infers, that the mountain Schehallien exerts a sensible *attraction*; and therefore that every mountain, and every particle of the earth, is endued with the same property, in proportion to its quantity of matter. The law of the variation of this force in the inverse ratio of the squares of the distances is likewise confirmed by it; for if the force of the *attraction* of the hill had been only to that of the earth, as the matter in the hill to that of the earth, and had not been greatly increased by the near approach to its centre, the *attraction* must have been wholly insensible. And he infers also, that the mean density of the earth is at least double of that at the surface, and consequently, that the density of the internal parts of the earth is much greater than that of those near the surface; and the whole quantity of matter in the earth will be at least twice as great as if it were composed of matter of the same density with that at the surface; and therefore that the hypothesis of those natu-

ralists, who suppose the earth to be only a great hollow shell of matter, is groundless. And finally, that the sensible deflections in the plumb-lines of astronomical instruments, by the density of the superficial parts of the earth, must cause apparent inequalities in the mensurations of degrees in the meridian. He candidly acknowledges after all, that a single experiment is not sufficient to ascertain a matter of such importance, and recommends other experiments of a similar kind to be repeated in various places, and attended with different circumstances. Schehallien may differ in its internal constitution from other mountains, as there is no appearance of its ever having been a volcano, which is the case of many others. Phil. Trans. vol. lxxv. part 2. N^o 48 and 49.

ATTRACTIVE power, or force. See POWER and ATTRACTION.

The *attractive virtue* in loadstone is communicable by touching, to iron or steel.

ATTRACTIVES, or ATTRACTIVE remedies, denote medicines which are to be externally applied, and which by their activity and warmth penetrate the pores, and mix with and rarefy any obstructed matter, so as to render it fit for discharge, upon laying open the part by a caustic or incision.

Attrahens are the same with what we otherwise call *drawers, ripeners, maturants, and digestives*.

The principal simples belonging to this class are, the several kinds of fats or *adipes*, the dungs of pigeons and cows, bran, yest, herring, melilot, tobacco, oil, pitch, resin, frankincense, &c. See each under its proper article.

In many instances, as the matter rarefies and grows more fluid by means of such medicines, the reflux blood is apt to wash it back into the common mass; which sometimes does great mischief; or by making it take up more room upon its rarefaction, it occasions it to distend more the parts in which it is contained: upon which a sense of pain is excited, and thereby a greater concurrence of fluid, and consequently an increase of the tumour.—So that medicines under this denomination require the most careful management.

ATTRIBUTE, from *attribuo*, in a general sense, that which agrees to some person, or thing; or a quality which determines something to be after a certain manner.

Thus, understanding is an *attribute* of mind; figure, an *attribute* of body, &c. — Spinoza makes the soul and the body to be of the same substance; with this only difference, that the soul is to be conceived under the *attribute* of thought, and the body under that of extension.

Of the several *attributes* belonging to any substance, that which presents itself first, and which the mind conceives as the foundation of all the rest, is called its *essential attribute*.

Thus, extension is by some, and solidity by others, made the *essential attribute* of body or matter.

The other *attributes* are called *accidental* ones: e. gr. roundness in wood, or learning in a man. — Mr. Locke endeavours to prove, that thinking, which the Cartesians make the *essential attribute* of the mind, is only an accidental one.

ATTRIBUTE, in *Logic*, is an epithet given to any subject; or it is any predicate thereof; or whatever may be affirmed or denied of any thing.

Every proposition consists of a subject, an *attribute*, and a *copula*, or conjunctive particle. See PROPOSITION.

Attributes are usually divided into *positive*, which give a thing somewhat; as when we say of a man, that he is *animate*; and negative; as when we say of a stone, that it is *inanimate*.

Others, again, divide them into *common*, which agree to several different things; as *animal*, which agrees both to man and brute; and *proper*, as *thought*, &c. which agrees only to spirit, *rationality* to man, &c.

ATTRIBUTES, in *Theology*, denotes the several qualities, and perfections which we conceive in God; and which constitute his proper essence; as justice, goodness, wisdom, &c.

The heathen mythologists divided the deity into as many distinct beings as he has *attributes*: thus the power of God was called *Jupiter*; the wrath of God *Juno*; the absolute will of God *Fate*, or *Destiny*, to which even his very power is subject.

ATTRIBUTES, in *Painting* and *Sculpture*, are symbols added to figures and statues, to denote their particular office and character.

Thus the club is an *attribute* of Hercules; the palm is an *attribute* of victory; the peacock of Juno; the eagle of Jupiter; the trident of Neptune; the balance of Justice; the olive of Peace, &c.

ATTRIBUTIVES, in *Grammar*, are words which are significant of *attributes*; and thus include adjectives, verbs, and

and particles, which are *attributes* of substances; and adverbs, which denote the *attributes* only of *attributes*. Mr. Harris, who has introduced this distribution of words, denominates the former *attributives* of the first order, and the latter *attributives* of the second order. Harris's Hermes.

ATTRITION, *tritura*, or *frictio*, expresses such a motion of bodies against one another, as strikes off some superficial particles; whereby they gradually become less and less.

The word is formed of *atterere*, to wear.

The grinding and polishing of bodies is performed by *attrition*.

The effects of *attrition* in exciting heat, light, electricity, &c. see under **ELECTRICITY**, **FIRE**, **HEAT**, and **LIGHT**.

ATTRITION is also frequently used for the friction or rubbing of such simple bodies one against another, as will not wear out, but will occasion some particular determinations of the fluids they contain.

Thus, the various sensations of hunger, pain, or pleasure, are said to be occasioned by the *attritions* of the organs formed for such impressions.

ATTRITION, among *Divines*, denotes a sorrow or regret for having offended God; arising from a sense of the odiousness of sin, and the apprehensions of punishment; i. e. of the loss of heaven, and the pains of hell.

Attrition is esteemed the lowest degree of repentance, being a step short of contrition, which supposes the love of God an ingredient or motive of our sorrow and repentance. See **CONTRITION**.

ATTROW, in *Botany*, a name given by the people of Guinea to a plant which they use in cases of swellings, boiling the leaves in water, and using the decoction by way of a fomentation.

It is a species of **KALI**, and is called by Petiver *kali Guineense foliis polygoni, floribus verticilli in modum dispositis*, from its leaves resembling the common knot-grass, and its flowers growing in rundles round the stalks. Phil. Trans. N^o 232.

ATTRUMAPHOC, in *Botany, a name given by the people of Guinea to a shrub which they use in medicine; they boil it in water, and give the decoction in the venereal disease. The juice of it, when fresh pressed out, is also used, snuffed up the nostrils, to promote sneezing, and cure several disorders of the head and eyes. Phil. Trans. N^o 232.*

It is a species of **COLUTEA**, called by Petiver *COLUTEA lanuginosa floribus parvis siliquis pilosis deorsum tendentibus*; and Dr. Herman calls it an *astragalus*.

ATTURNATO *faciendo vel recipiendo*; see **ATTORNATO**, &c.

ATYPOS, from *α*, negative, and *τυπος*, form or tenor, erratic, or irregular, a word used by the old writers in medicine, for such diseases as did not observe any regularity in their periods.

Others have also used the same word in a very different sense, namely, for deformities and irregularities in the limbs; and others, for persons, who from some defects in the organs of speech, cannot articulate certain particular sounds.

AVA AVA, a plant so called by the inhabitants of Otaheite, in the South Sea, from the leaves of which they express an intoxicating juice. It is drank very freely by the chiefs, and other considerable persons, who vie with each other in drinking the greatest number of draughts, each draught being about a pint; but it is carefully kept from their women. Hawkesworth's Voyages, vol. ii. p. 200.

AVANIA, in the *Turkish Legislature*, a fine for crimes, and on deaths, paid to the governor of the place. In the places where several nations live together under a Turkish governor, he takes this profitable method of punishing all crimes among the Christians, or Jews, unless it be the murder of a Turk. Pocock's Eg. vol. ii. part 2. p. 30.

AVANT, a French preposition, signifying *before*, or any priority either in respect of time, or place; sometimes used, in composition, in our language, but more usually contracted, and wrote *vaunt*, or *vant*, or even **VAN**.

AVANT fossé, &c. See **VAN fossé**.

AVANT guard, &c. See **VAN GUARD**, &c.

AVANTE, among the *Old Writers* in *Physic*, a name given to a disease, seeming, from their accounts of it, the same we call **HYPOCHONDRIASM**.

AVANTURINE, in *Natural History*, a yellowish stone full of sparkles, resembling gold, very common in France. An artificial imitation of it is made by mixing sparkles of copper with glass, whilst it is in fusion, which is used by enamellers, and to sprinkle as sand upon writings.

AVARAMO TEMO, in *Botany*, the name of a siliquose tree, which grows in the Brasils. The bark is externally of a cineritious, and internally of a deep red colour; and is the only part of the plant used by the skilful for me-

dicinal purposes; though the same astringent qualities are by some applied to the leaves; for the bark, which is of a bitter taste, whether reduced to a powder, or boiled and used by way of fomentation, happily cures inveterate and obstinate ulcers, and, as it is said, has been found to cure cancers themselves, by means of its remarkably cleansing and drying nature.

Beside these purposes, it is also made choice of on account of its effectually astringent quality; for baths, designed to strengthen and invigorate the muscular parts of the body, when weakened, or too much relaxed. Ray says it is much used by courtezans for contracting the *pudenda*.

AVARIA, in the Turkish and Persian dominions, a sum of money exacted from the Christians or Europeans, to be quit of some false accusation framed on purpose.

AVAST, a term frequently used on board a ship, signifying to stop, hold, or stay.

The word is formed of the Italian *vasta*, or *basta*, it is enough, it suffices.

AVAUNCHERS, among *Hunters*, the second branches of a hart's horn.

AUBAINE, in the French *Customs*, a right vested in the king, of being heir to a foreigner, who dies within his dominions.

The word is formed of *aubain*, a foreigner; which *Ménage* derives further from the Latin, *alibi natus*; Cujas, from *advena*, which is the name foreigners bear in the capitularies of Charlemagne; Du-Cange, from *albanus*, a Scot, or Irishman; because these were anciently much given to travelling and living abroad.

The king of France, by the right of *aubaine*, claims the inheritance of all foreigners in his dominions; exclusive of all other lords, and even of any testament the deceased could make. An ambassador, though not naturalized, is not subject to the right of *aubaine*. The Swiss, Savoyards, Scots, and Portuguese, are also exempted from the *aubaine*, as being reputed natives and regnicoles.

AUBIER, anciently **AUBOUR**. Thus the French call that soft and whitish substance, which lies all round the tree between the bark and the solid wood; and for which we have no particular name in English. Mr. Barkley thinks it performs the office of veins. It may be considered as a third bark, and so some call it, whose fibres are less close or compact than those of the former; and is properly the lard or fat of the tree. It hardens by means of the juice that discharges itself there, and of the sap which flows in it, so that it becomes by little and little, as it were, imperceptibly a part of the woody substance of the tree; that is to say, it is converted into solid wood. There are few trees but have some of that *aubier*, or whitish substance, which is more or less thick, according to the situation in which the trees happen to be planted; for the more they are exposed to the hot rays of the sun, the less of that substance will be found in them. In the oak it is seldom above an inch, or an inch and a half thick. It has been observed that when a tree is cut down, or dies in the ground, the *aubier* remains always of the same consistency, without ever being turned into solid wood.

That substance is liable to rot; and therefore merchants, who cause timber to be squared, ought to be very careful that as little *aubier* be left upon it as possible.

AUBIN, in *Horsemanship*, a kind of broken gait, or pace, between an amble and a gallop; reputed a defect in a horse.

AUCTIO, **AUCTION**; this was originally a kind of sale, among the ancient Romans, performed by the public crier *sub hasta*, that is, under a spear stuck up on that occasion, and by some magistrate, who made good the sale by delivery of the goods.

This was termed *auctio*, q. d. *increase*; because, according to Sigonius, the goods were sold to him, *qui plurimum rem auget*, who would bid most for them.

AUCTION by *inch of candle*. See **CANDLE**.

AUCTORATI, in Roman *Antiquity*, an appellation given to such as entered the list as gladiators, and who received wages; or who hired themselves, for money, to perform in the games, or spectacles.

The *auctorati* degraded themselves by the act; and became servile and infamous.

AUCTORATI milites also denoted soldiers bound by oath, and the receipt of wages, to serve in war.

In this sense *auctorati* stand opposed to *exauctorati*, who were disbanded.

The stipend they received for their service, was denominated *auctoramentum*.

AUCTORITAS *senatus*, in the Roman *Antiquity*. See **SENATUS** *auctoritas*.

AUDIANISM, the system or sentiments of Audius, and his followers: particularly as to the belief of the human figure of the deity. See **ANTHROPOMORPHITES**.

AUDIENCE, in a general sense. See **HEARING**.

The

The word is formed from *audire*, to hear.

AUDIENCE is also used for the ceremonies practised in courts, at the admission of ambassadors, and public ministers, to a hearing.

Such an ambassador sent to demand *audience*; took his *audience* of leave to depart, &c.

In England, *audience* is given to ambassadors in the presence chamber; to envoys and residents, in a gallery, closet, or any place, where the king happens to be.

At their admission, the way, in all courts, is to make three bows; after which they cover, and sit down, the king first covering, and sitting down, and giving them the sign to put on their hats.—When the king cares not to have them be covered and sit, he continues uncovered himself, and standing all the while; which is taken as a slight and an affront.—After the first *audience*, it does not look well to be too hasty in demanding another.

At Constantinople, ministers usually have *audience* of the prime vizir; in his absence the *caimacan* admits them to *audience*.

AUDIENCE is also the name of a court of justice, established by the Spaniards in America; answering in effect to the parliaments of France.

They judge without appeal, and have each a certain district, which ordinarily takes in several provinces, called also *audiences*, from the names of the tribunal to which they belong.

Hence Sanfon divides Spain into as many of these *audiences* as there are of those tribunals.—New Spain comprehends three *audiences*, those of Guadalajara, Mexico, and Guatimala.

AUDIENCE is also the name of one of the ecclesiastical courts in England, which is held where ever the archbishop calls a cause to his own hearing.

The two archbishops have their courts of *audience*. That of the archbishop of Canterbury is under the direction of the dean of the arches, who is official of the *audience*, and keeps his court in the hall of Doctors Commons.

The court of *audience* is chiefly concerned in differences arising upon elections, consecrations, institutions, marriages, &c.

AUDIENCES, *chamber of*. See CHAMBER.

AUDIENDO & terminando, a writ or rather commission, directed to certain persons, when an insurrection or great misdemeanor is committed in any place, for the appealing and punishment thereof.

AUDIENTS, or AUDITORES, in *Church History*, an order of *catechumens*; consisting of those who were newly instructed in the mysteries of the Christian religion, and not yet admitted to baptism.

AUDIT, a regular hearing and examining of an account by officers appointed for that purpose. See AUDITOR.

AUDITA querela, a writ which lies against him, who has taken a statute-merchant, or a recognizance in the nature of a statute-staple, or a judgment or a recognizance of another; and has asked, or obtained, execution of the same from the mayor and bailiffs, before whom it was entered; at the complaint of the party who entered the same, upon suggestion of some just cause why execution should not be granted; as a release, or other exception.

To writs of execution the defendant cannot plead; so that if there be any matter since the judgment to discharge him of the execution, he is to have *audita querela*: upon which the justices shall hear the complaint, and do right; and *audita querela* cannot be brought on a release, until judgement is entered of record. 1 Mod. 111.

This writ is granted by the lord chancellor, upon view of the exception suggested, to the judges of either bench, willing them to grant summons to the sheriff of the county where the creditor is, for his appearance at a certain day before them.

But the indulgence now shewn by the courts in granting a summary relief upon motion, in cases of evident oppression, has almost rendered useless this writ, and driven it quite out of practice.

AUDITIONALIS *scholasticus*, in *Middle Age Writers*, is used for an advocate who pleads causes for his clients in audiences. Du-Cange.

AUDITOR, a hearer, one who listens or attends to any thing.

AUDITORS, in *Church History*. See AUDIENTS.

The *auditors* formed one branch of the Manichean sect, which was divided into *elect* and *auditors*; corresponding, according to some writers, to *clergy* and *laity*; and according to others, to the *faithful* and *catechumens* among the catholics. By the Manichean rule, a different course of life was prescribed to the *elect* from that of the *auditors*. The latter might eat flesh, drink wine, bathe, marry, traffic, possess estates, bear magistracy, and the like; all which things were forbidding to the *elect*. The *auditors* were obliged to maintain the *elect*, and kneeled

down to ask their blessing. Beaufobre observes that the *elect* were ecclesiastics, and in general such as made profession of observing certain councils, called evangelic; such as the clergy and monks; and they were called the *perfect* by Theodoret. The *auditors* were the laity, and so denominated, because they heard in the church, whilst others taught and instructed.

AUDITOR, is also used for several officers appointed to *audit*, to hear accounts, pleadings, &c.

Anciently the word *auditor* was also used for a *judge*, and even for an *inquisitor*, appointed by judges to examine, and find out the truth of some matter in contest. *Notaries* are also frequently called *auditories*.

AUDITOR, in our *Law*, is an officer of the king, or some other great person, who yearly, by examining the accounts of under officers accountable, makes up a general book, with the difference between the receipts and charge, and their allowances or *allocations*.

AUDITORS of the *revenue*, or of the *exchequer*, are officers who take the accounts of those who collect the revenues, taxes, &c. raised by parliament; as also of the sheriffs, escheators, collectors, tenants, and customers; and set them down, and perfect them.

AUDITORS of the *prest*, or *imprest*, are officers in the exchequer, who take and make up the great accounts of Ireland, Berwick, the mint, customs, wardrobe, first-fruits, naval and military expences, and of all moneys impressed to any man for the king's service.

AUDITOR of the *receipts* is an officer of the exchequer who files the tellers bills, and makes an entry of them, and gives the lord-treasurer a certificate of the money received the week before; who presents the estimate or balance to the king.

He makes debentures to every teller, before they receive any money, and takes their accounts. He keeps the black book of receipts, and the treasurer's key of the treasury (where the ancient leagues of the realm, and many records of the king's bench, and common-pleas, are repositied); and fees every teller's money locked up in the new treasury.

There are also *auditors* of the first fruits, of the principality of Wales, of the duchy of Cornwall, &c. See FIRST-fruits, &c.

AUDITOR of the *rota*, the apostolic chamber, the chatelet, &c. See ROTA, CHAMBER, &c.

AUDITORS, *conventual*, collegiate, &c were officers formerly appointed among the religious, to examine and pass the accounts of the house.

AUDITORY, in an adjective sense, something belonging to the sense of HEARING.

AUDITORY, AUDIENCE, is also a collective name denoting an assembly of persons, hearing or attending to a person who speaks in public.

AUDITORY is also used for the seat or bench where a magistrate, or judge, hears causes.

At Rome, the several magistrates had *auditories*, or seats of justice, according to their dignity.—Those of the superior officers were called *tribunals*; those of the inferior, *subsellia*.

The *pedanei* had their benches or *auditories* in the portico of the imperial palace.—Those of the Hebrews, at the gates of cities.—The judges appointed by the ancient lords distributed justice under an elm, which was usually planted before the manor-house, and served them for an *auditory*.

AUDITORY, AUDITORIUM, in the *Ancient Churches*, was that part of the church where the *audientes* stood to hear, and be instructed.

The *auditorium* was that part now called *navis ecclesiæ*. See NAVE.

In the primitive times, the church was so strict in keeping the people together in that place, that the person who went from thence in sermon-time was ordered by the council of Carthage to be excommunicated.

AUDITORIUS, *meatus*, or AUDITORY passage, in *Anatomy*, called also *aurium alveare*, on account of the *cerumen* collected in it. See MEATUS auditorius.

AUDITORY nerves, in *Anatomy*, a pair of nerves arising from the *medulla oblongata*, and distributed, the one to the ear, the other to the tongue, eye, &c. See Tab. Anat. (Osteol.) fig. 5. lit. p p.

The soft and spongy branch of the *auditory nerve*, being diffused through the labyrinth and *tympanum* of the ear, is the immediate organ of the sense of hearing.

The *auditory nerves* make the seventh conjugation, according to the way of reckoning of the moderns; and the fifth, according to the ancients.

Anatomists observe a singular mark of the wisdom and contrivance of the Creator, in the *auditory nerves* being thus dispatched to different parts; an admirable and useful consent being hereby established between them.—

Hence it is, that most animals, upon hearing any uncouth sound,

found, are found to erect their ears, and prepare them to catch it; to open their eyes; to stand upon the watch; and to be ready with the mouth to call out, or testify their danger: accordingly most animals when surprised or terrified, shriek or cry out, &c.

Dr. Willis (Anat. Cerebr. cap. 17.) observes a farther use of this nervous communication between the ear and the mouth; which is, that the voice may correspond with the hearing, and be a kind of echo thereof; that what is heard with one of the two nerves, may be readily expressed with the voice, by the help of the other.

AVELLANA, in *Botany*. See CORYLUS and HAZEL-nut. AVELLANA *purgatrix*, in the *Materia Medica*, the fruit of a species of RICINUS. See PINEI Nuclei. See also CATAPUTIA and BEN.

AVELLANDA, in *Botany*, a name given by the Spaniards to the roots of the TARSI, or sweet CYPERUS. These are esculent, and of a very delicious taste; they seem to have had their name from their likeness to the *avellana nux* or hazel-nut. Garcias, and some others, have thought that the CURCAS of Malabar was the same with the *avellanda* of Europe. But this does not seem to be the case; for the *curcas* is a fruit probably the same with the fruit BEL, described by the Arabians; and though of the same size and shape with the *avellanda*, has a hard coat like the common filbert. The *curcas* of Egypt is indeed a root, but it is very different from these, being as long and as thick as a man's arm.

AVELLANE, or *cross* AVELLANE, in *Heraldry*, a form of cross, which resembles four filberts in their husks or cases, joined together at the great end. See CROSS.

Hence its name, a filbert in Latin being *nux avellana*.—Syl. Morgan says, it is this cross which ensigns the mound of authority, or the sovereign's globe.

AVE-MARIA, or AVE-MARY, the angel Gabriel's salutations of the Virgin, at his bringing her the tidings of the incarnation; thus called, as beginning with these words, *Ave, Maria*, q. d. *Hail, Mary*.

The *ave-mary* is a prayer or formula of devotion very usual in the Romish church. It was added to their prayers by order of pope John XXII. in the fourteenth century.—

Their chaplets and rosaries are divided into so many *ave-marys*, and so many *pater-nosters*; and hence the beads themselves, which indicate them, are also called *aves*, or *ave-marys*.

AVENA, in *Botany*. See OAT.

AVENS, in *Botany*. See HERB-bennet.

AVENAGE, in *Law*, a certain quantity of oats, paid to a landlord, in lieu of some other duties; or, as a rent, from the tenant.

The word is formed of the Latin, *avena*, oats.

AVENOR, an officer under the master of the horse; who, by order or warrant from him, swears in all the officers belonging to the royal stables. See MASTER of the horse.

The *avenor* also makes up the accounts of the stables, and issues debentures for paying the officers and servants.

In a stat. Car. II. we find the *avenor* mentioned, as an officer who provides oats for the stables.—In the Rot. Parl. Edw. III. we also read of *avenor* of the queen, of the prince, &c.

AVENTURÆ, in our *Ancient Writers*, signify TOURNA-MENTS, or military exercises on horseback.

ADVENTURE, or rather ADVENTURE, in our *Law Books*, a mischance, causing the death of a man, without felony; as, when he is suddenly drowned, or burnt by an accident or mischance, falling into the water or fire. See MISADVENTURE, and CHANCE-MEDLEY.

AVENUE, in *Fortification*, an opening or inlet into a fort bastion, or the like place, or the passes and ways to and from it. See FORT and BASTION.

The word is formed of *avenir*, or *advenir*, to arrive at.

AVENUE, in *Gardening*, is a walk planted on each side with trees, and leading to some place.

All *avenues*, Mortimer says, should lead to the front of a house, garden-gate, highway-gate, or wood, and terminate in a prospect.—In an *avenue* to a house whatever the length of the walk is, it ought to be as wide as the whole breadth of the front; and if wider it is so much the better: and *avenues* to woods and prospects ought not to be less than sixty feet wide.

The trees most proper for *avenues* with us, are the English elm, the lime the horse-chestnut, the common chestnut, the beech, and the *abele*. The English elm will do in all grounds, except such as are very wet and shallow; and this is preferred to all other trees, because it will bear cutting, heading, or lopping in any manner, better than most others. The rough or smooth Dutch elm is approved by some, because of its quick growth; this is a tree which will bear removing very well; it is also green almost as soon as any plant whatever in spring, and continues so as long as any, and it makes an incomparable hedge, and is preferable to all other trees for lofty espa-

liers. The lime is valued for its regular growth, and fine shade: the horse-chestnut is proper for all places that are not too much exposed to rough winds. The common chestnut will do very well in a good soil, and rises to a considerable height, when planted somewhat close, though when it stands single, it is rather inclined to spread than to grow tall. The beech is a beautiful tree, and naturally grows well with us in its wild state, but it is less to be chosen for *avenues* than the before mentioned, because it does not bear transplanting well, but is very subject to miscarry. Lastly, the *abele* is fit for any soil, and is the quickest grower of any forest tree. It seldom fails in transplanting, and succeeds very well in wet soils, in which the others are apt to fail. The oak is but little used for *avenues*, because of its slow growth.

The old method of planting *avenues* was with regular rows of trees, and this has been always kept to till of late; but we have now a much more magnificent way of planting *avenues*; this is by setting the trees in clumps, or platoons, making the opening much wider than before, and placing the clumps of trees at about three hundred feet distance from one another. In each of these clumps there should be planted either seven or nine trees; but it is to be observed, that this is only to be practised where the *avenue* is to be of some considerable length, for in short walks this will not appear so slightly as single rows of trees. The *avenues* made by clumps are fittest of all for parks. The trees in each clump should be planted about thirty feet asunder, and a trench should be thrown up round the whole clump, to prevent the deer from coming to the trees to bark them.

AVER-land, in our *Old Writers*, seems to have been such lands as the tenants did plow and manure, *cum averiis suis* for the proper use of a monastery, or the lords of the soil.

AVERA, in *Doomsday-Book*, denotes a day's work of a ploughman, or other labourer, which the king's tenants in his demesne lands were obliged to pay the sheriff.

AVERAGE, in *Agriculture*, a term used by the farmers in many parts of England, for the breaking of corn-fields, eddith, or roughings.

In this sense, it may be derived from *baver*, an English name for oats, or from *averia*, *beasts*, being as much as feeding for cattle or pasturage. Ray.

AVERAGE, AVERAGIUM, in *Law*, that duty or service which the tenant is to pay the king, or other lord, by his beasts and carriages.

The word is derived from the base Latin *averia*, *cattle* or *goods*; or the French *œuvre*, *work*.

AVERAGE, or AVERIDGE, in *Navigation and Commerce*, is used to denote the damage which happens to ships and their cargoes, from the time of their loading and sailing, till their return and unloading. It is divided into three kinds. 1. The simple *average*, which consists in the extraordinary expences incurred for the ship, such as the loss of anchors, masts, and rigging, by common accidents at sea; or, for the merchandise, such as the damages which they have sustained by storms, capture, shipwreck, wet, or rotting; all which must be defrayed by the thing that suffered the damage. 2. The large and common *average*, being expences incurred, and damage sustained, for the common security, both of the merchandise and ship, which are to be borne by the ship and cargo: such are ransom-money, goods thrown overboard, expences of unloading, or entering into a river or harbour, and the provisions and hire of the sailors, when the ship is detained by embargo. 3. The small *averages*, which are charges of towing and piloting the ship, one third of which must be charged to the ship, and two thirds to the cargo.

AVERAGE is more particularly used for the quota or proportion which each merchant or proprietor in the ship or loading is adjudged, upon a reasonable estimation, to contribute to a common *average*.

Such sum shall be divided among the several claimers, by way of *average*, in proportion to their respective interests and demands. 10 Ann. cap. 17.

AVERAGE is also a small duty, which those merchants who send goods in another man's ship pay to the master thereof, for his care of them over and above the freight.

Hence, in bills of lading it is expressed.—Paying so much freight for the said goods, with *primage* and *average* accustomed.

AVER-CORN, in *Ancient Writings*, such corn as by custom is brought by the tenant's carriages, to the lord's granary.

AVERDUPOIS pound. See POUND.

AVERDUPOIS weight. See WEIGHT.

AVERIA, in our *Law Books*, properly signify oxen or horses used for the plough; but, in a general sense, any cattle.

When mention is made of one beast, they say, *quidam equus*, *vel quidam bos*: when of two or more, they do not say, *equi* or *boves*, but *averia*.

AVERIA, *replegiare de AVERIIS*. See **REPLEGIARE**.

AVERIIS capitis in Withernam, a writ for the taking of cattle to his use, who hath cattle unlawfully distrained by another, and driven out of the county where they were taken, so that they cannot be replevied by the sheriff. Reg. Orig. 82. If the cattle are put into any strong place in the same county, the sheriff may take the *posse comitatus*, and break into it, to make the replevin. But when they are driven out of the county, he hath no authority to pursue them.

AVERMENT, in *Law*, usually signifies an offer of the defendant to make good or justify an exception, pleaded in abatement or bar of the plaintiff's action.

The word also sometimes signifies the act, as well as the offer, of justifying the exception.

Averment is two-fold, *general* and *particular*.

AVERMENT, *general*, is the conclusion of every plea to the writ, or in bar of replications, or other pleadings (for counts, or avowries in nature of counts, need not to be *averred*) containing matter affirmative; and ought to be with these words, *hoc paratus est verificare*.

AVERMENT, *particular*, is when the life of a tenant for life, or tenant in tail, is *averred*, &c.—An *averment* contains as well the matter as the form thereof.

AVERNI, among the *Ancient Naturalists*, certain lakes, grottoes, and other places, which infect the air with poisonous steams or vapours; called also *mephites*.

The word is formed of the privative *a*, and *opvis*, bird, as intimating that birds could not fly over them, but dropped down dead. *Avernus*, q. d. *aornus*, locus sine avibus.

Averni are said to be frequent in Hungary, on account of the abundance of mines therein.

The Grotta del Cani, in Italy, is a famous one.

But the most celebrated *avernus* was a lake near Baiæ, in Campania, by the modern Italians called Lago di Tripergola.—The fumes it emitted are represented by the ancients as being of so malignant a nature, that birds could not fly over it, but sunk down dead; which some later writers have chosen to attribute to this, that the sulphureous effluvia hereof not being of consistence to sustain the birds, they dropped by their own weight. This circumstance, joined with the great depth of the lake, occasioned the ancients to take it for the gate or entrance of hell: and accordingly Virgil makes Æneas descend this way into the infernal regions. Vibius Sequester says, there is no bottom to be found of it. See **HELL**. Next to the Baiæ, says Strabo, lies the Lucrine bay; and within it the lake *Avernus*; which is a deep darksome lake, with a narrow entry from the outer bay; it is surrounded with steep banks, that hang threatening over it, and is only accessible by the narrow passage, through which you sail in. These banks were anciently quite overgrown with a wild wood, impenetrable by a human foot. Its gloomy shade impressed an awful superstition upon the minds of the beholders; whence it was reputed the seat of the Cimmerians, who dwelt in perpetual night. Whoever sailed hither, first did sacrifice; and endeavoured to propitiate the infernal powers, with the assistance of some priests, who attended upon the place, and directed the mystic performance. Within, a fountain of pure water broke out just over the sea; but no creature ever tasted of it, believing it to be a vein of the river Styx: somewhat near this fountain was the oracle; and the hot waters, frequent in these parts, made them think they were branches of the burning Phlegethon.

AVERPENNY, q. d. **AVERAGE-PENNY**, money contributed toward the king's averages; or money given to be freed thereof. See **AVERAGE**.

AVERHOA, in *Botany*, the name of a genus of plants, of the *decandria pentagynia* class, the characters of which are these; the perianthium is small, erect, and composed of five leaves; the flower is composed of five lanceolated petals, which stand erect on the lower part, and are expanded at the top; the stamina are ten setaceous filaments, half of which are the length of the flower, and the other half shorter, these stand alternately together, and are terminated by roundish apices, or antheræ; the germen of the pistil is oblong, and faintly pentangular; the styles are five in number, and are setaceous and erect, and the stigmata are simple; the fruit is a turbinate pomum, obtusely pentangular, having five cells, and in each of them several seeds of an angular form, separated by membranes.

AVERHOISTS, a sect of Peripatetic philosophers, who appeared in Italy some time before the restoration of learning, and attacked the natural immortality of the soul.

They took their denomination from Averrhoes, a celebrated interpreter of Aristotle, born at Cordova in Spain, in the twelfth century, from whom they borrowed their distinguishing doctrine. The founder of this sect, Averrhoes, is sometimes called the Commentator, by way of

eminence, as being supposed to have entered best of all the commentators into the sentiments of the philosopher; infomuch that some have pretended the soul of Aristotle had migrated into the body of Averrhoes.

AVERRUNCATION, from *averrunci*, *I prune*, in *Agriculture*, the act of cutting or lopping off the superfluous branches of trees. See **PRUNING**.

AVERRUNCI, from *averrunco*, *I avert*, in *Antiquity*, an order of deities among the Romans, whose peculiar office was to avert dangers and evils.

The Egyptians had also their *dii averruni*, or *apotropæi*, who were pictured in a menacing posture, and sometimes with whips in their hands.—Isis was a divinity of this kind; as is shewn by Kircher. See *Oedip. Ægypt.* tom. iii. p. 487.

AVERSION, abhorrence, dislike. See **ANTIPATHY**.

The word is compounded of *a*, from and *vertere*, to turn.

AVERSIONE vendere, or *locare*, in *Writers of the Civil Law*, seems to denote the selling, or letting things in the lump without fixing particular prices for each piece.

AVERTI, in *Horsemanship*, is applied to a regular step or motion enjoined in the lessons.

In this sense they say, *pas averti*, sometimes *pas ecouté*, and *pas d'ecole*, which all denote the same.

The word is mere French, and signifies *advised*.

AVERY, a place where oats, or provender, are kept for the king's horses. See **AVERIA**.

AUGES, in *Astronomy*, two points in a planet's orbit, otherwise called *apsides*. See **APSIS**.

One of the *auges* is particularly denominated the *apogee*, the other *perigee*.

AUGITES, among *Ancient Naturalists*, a kind of gem, of a pale green colour, inferior in value to the topaz.

It is usually supposed the same with the *callais* or *calais*, though this was disputed even in Pliny's time.

AUGMENT, in the *Greek Grammar*, an accident of certain tenses; being either the prefixing of a syllable, or an increase of the quantity of the initial vowels. There are two kinds of *augments*.—*Temporale*, or of a letter; when a short vowel is changed into a long one; or a diphthong into another longer one: thus called, because the time of its pronunciation is now lengthened.

Augmentum syllabicum, or of a syllable is when a letter, viz. *ε*, is added at the beginning of the word; so that the number of syllables is increased.

AUGMENTS, in *Mathematics*. See **FLUXIONS** and **MOMENTS**.

AUGMENTATION, in a general sense, the act of augmenting; that is, of adding or joining something to another, to render it larger, or more considerable.

The governors of the bounty of queen Anne, for the augmentation of the maintenance of the poor clergy, by virtue of the several acts of parliament, made for that purpose, are empowered to augment all livings not exceeding 50*l.* per annum; and the number of livings following were certified to be capable of augmentation.

1071 Livings not exceeding 10 <i>l.</i> per annum, which may be augmented (with the bounty alone) six times each, pursuant to the present rules of the governors, which will make 6426 augmentations,	6426
1467 Livings above 10 <i>l.</i> and not exceeding 20 <i>l.</i> per annum, may be augmented four times each, which will make 5868 augmentations,	5868
1126 Livings above 20 <i>l.</i> and not exceeding 30 <i>l.</i> per annum, may be augmented three times each, which will make 3378 augmentations,	3378
1049 Livings above 30 <i>l.</i> and not exceeding 40 <i>l.</i> per annum, may be augmented twice each, which will make 2098 augmentations.	2098
884 Livings above 40 <i>l.</i> and not exceeding 50 <i>l.</i> per annum, may be each once augmented, which will make 884 augmentations.	884

5597 Total number of augmentations, which must be made by (the bounty alone) before the livings already certified will exceed 50*l.* per annum.

Computing the clear amount of the bounty to make 55 augmentations yearly, it will be 339 years, from the year 1714 (which was the first year in which any livings were augmented), before all the small livings above certified can exceed 50*l.* per annum; and if it be computed, that one half of such augmentations may be made in conjunction with other benefactors (which is very improbable) it will require 226 years before all the livings above certified will exceed 50*l.* per annum.

AUGMENTATION is also used for the *augment*, i. e. for the additament, or the thing added. Such a minister petitioned the king for an augmentation of salary, wages, &c.

AUGMEN-

AUGMENTATION, *court of*. See COURT, &c.

AUGMENTATIONS, in *Heraldry*, are additional charges to a coat armour frequently given as particular marks of honour, and generally borne, either on an escutcheon, or a canton.—Such are the arms of Ulster, borne by all the baronets of England.

AUGRE, or **AWGRE**, a carpenter's and joiner's instrument, serving to bore large round holes.

The *augre* consists of a wooden *handle*, and an iron *blade*, terminated at bottom with a steel *bit*.

AUGSBURG, *confession*. See AUGUSTAN.

AUGUR, in *Antiquity*, a minister of religion among the Romans, appointed to take *auguries* or presages concerning futurity from birds, beasts, and the appearances of the heavens.

The word is by some derived from *avis*, *bird*, and *garritus*, *chattering*; whence the original office of the *augurs* is supposed to have been to observe, and take indications from, the noise, calling, singing, chirping, and chattering, of birds. Agreeably to which, *auger* is commonly distinguished from *AUSPEX*, as the latter was supposed employed in observing the flight of birds.—Pezron derives it from the Celtic *au*, *liver*, and *gur*, *man*; so that according to him an *augur* was properly a person who inspected the entrails, and divined by means of the liver. On which principle, *augur* would have been the same with *ARUSPICES*.

The *augurs* made a college or community, which at first consisted of three persons (one for each tribe); then of four when (Servius Tullius increased the tribes to that number); then of nine (four of them patricians, and five plebeians): lastly, Sylla made the number fifteen—Cato was of the college of *augurs*.

They bore an *augural staff*, or wand, called *lituus*, as the ensign of their office and authority. No affair of moment could be resolved on, without first consulting them; and their advice, be it what it would, was, by a decree of the senate, appointed to be exactly and religiously observed.

AUGURAL, something relating to the **AUGURS**.

The *augural instruments* are represented on several ancient medals. Evelyn on Medals. chap. ii.

AUGURAL supper, *cæna auguralis*, that given by a priest on his first admission into the order, called also by Varro *adjicialis*. De Re Rustic. lib. iii. cap. 6.

AUGURAL books, *libri augurales*, those wherein the discipline and rules of *augury* were laid down. Cic. de Divin. lib. i. cap. 33.

AUGURALE, the place in a camp where the general took *auspicia*. This answered to the *auguratorium* in the city.

AUGURALE is also used, in Seneca, for the ensign or badge of an *augur*, as the *lituus*. De Tranquil. cap. xii.

AUGURATORIUM, a building on the Palatine mount, where public *auguries* were taken.

This is also called *auguraculum*, and *arx*.

AUGURY, the discipline of the *augurs*, or the practice of consulting the gods, and learning their will, by divers kinds of omens.

The observation of *auguries* is very ancient, as having been prohibited by Moses in Leviticus.—The cup put in Benjamin's sack, in Egypt, is said to have been that used by Joseph to take *auguries* by.

AUGURY, in its more general signification, comprises all the different kinds of divination; which Varro distinguishes into four species of *augury*, according to the four elements.—*Pyromancy*, or *augury*, by fire; *aëromancy*, or *augury* by the air; *hydromancy*, or *augury* by the water; and *geomancy*, or *augury* by the earth.

The particular branches are, *alektoromancy*, *anthropomancy*, *belomancy*, *catoptromancy*, *capnomancy*, *gastrumancy*, *geomancy*, *aruspicina*, *libanomancy*, *lecanomancy*, *necromancy*, &c. See each described under its proper article.

AUGUST, **AUGUSTUS**, in a general sense, something majestic, venerable, or sacred.

The title *Augustus*, was first given by the Roman senate to Octavius, after his being confirmed by them in the sovereign power.—It was conceived as expressing something divine, or elevated above the pitch of mankind, being derived from the verb, *augere*, *I increase*, *tanquam supra humanam sortem auctus*.

The successors of Octavius assumed the same quality; so that thenceforward **EMPEROR** and *Augustus* were the same thing: they became synonymous terms.

The presumptive heir of the empire, or he who was destined to succeed to the dignity, was first created *Cæsar*, which was a step necessary to arrive at that of *Augustus* or emperor.—Yet F. Pagi maintains the reverse; viz. that it was necessary to be *Augustus* previously to the being *CÆSAR*.

The **EMPRESSES** also took the quality of *Augustæ*; and even some ladies of the imperial family, who had never been wives of emperors, but mothers or daughters.

On medals and coins, some of the ancient kings of France are also found with the appellation *Augusti*; particularly

Childebert, Clothaire, and Clovis, add, that the wife of this last, Chrotechilda, is also called by Heric, in his book of the miracles of St. Germain, indifferently, either *Augusta*, or *queen*.

AUGUST, in respect of *Chronology*, denotes the eighth month of the Julian year.

This was called in the ancient Roman calendar, *sextilis*, as being the sixth from March, from which the Romans began their computation. The emperor Augustus changed the name and gave it his own; not that it was the month in which he was born, but because it had been fortunate to him, by several victories which he had gained in it.

Our Saxon ancestors called it *Wood-monath*, that is, *weed month*, on account of the plenty of weeds in this season. Spelman.

This month is esteemed one of the richest in the whole year, because of the harvest of the several sorts of grain which is produced in that season. Hence is to be derived the French proverb, *a man has made his August*; which proverb is much used among merchants to signify that a man has been successful in trade, and got an estate.

AUGUST is also used, in *Middle Age Writers*, for a power, or licence, of going out of a city in harvest-time to reap, &c. Du-Cange.

AUGUSTA, *Historia*, is the history of the Roman emperors from the time of Adrian to Carinus, that is, from the year of our Lord 157, to 285, composed by six Latin writers, Æl. Spartianus, Julius Capitolinus, Æl. Lampridius, Vulcatius Gallicanus, Trebellius Pollio, and Flavius Vopiscus. Fabr. Bibl. Lat. cap. 6.

AUGUSTALES, or *Sodales AUGUSTALES*, or *Flamines*

AUGUSTALES, where the priests of Augustus, appointed after the deification of that emperor by Tiberius, to perform the service of the new god.

AUGUSTALIA, in *Antiquity*, a feast instituted in honour of the emperor Augustus.

This festival was first established in the year of Rome 835, being the fourth after he had ended all his wars, and settled the affairs of Sicily, Greece, Asia, Syria, and the Parthians. The day whereon he made his entry into Rome, being the 4th of the ides of October, was appointed to be kept a feast; and was called *Augustalis*.

AUGUSTALIA was also a name given to the games celebrated in honour of the same prince, on the 4th of the ides of October.

AUGUSTALIS, or *Præfectus AUGUSTALIS*, a Roman magistrate who was appointed to govern Egypt, with a power much like that of a proconsul in other provinces.

AUGUSTAN, relating to Augustus, or Augusta.

AUGUSTAN æra. See ACTIAN.

AUGUSTAN confession denotes a celebrated confession of faith, drawn up by Luther and Melancthon, on behalf of themselves, and other ancient reformers, and presented in 1530 to the emperor Charles V. at the diet of Augusta or Augsburgh, in the name of the evangelic body. This *confession* contains twenty-eight chapters, of which the greatest part is employed in representing, with perspicuity and truth, the religious opinion of the protestants, and the rest in pointing out the errors and abuses that occasioned their separation from the church of Rome.

AUGUSTATICUM, in *Middle Age Writers*, denotes a largess, or donative, of an emperor, to the people, or soldiery.

AUGUSTEUM marmor, in the *Natural History of the Ancients*, a name given to the common green and white marble, so frequent in use with us for tables, &c. and called by our artificers Egyptian marble.

AUGUSTINE, **AUGUSTINUS**, of Janfenius, is a celebrated treatise of that author, bishop of Ypres, intitled, *Cornelii Janfenii, Episcopi Iprensis, Augustinus*, in three volumes, folio, printed at Louvain in 1640; the first tome whereof contains a discourse against *Pelagianism*; and the second, divers treatises of reason; the use of authority in theological matters; the state of innocence; fall of nature by sin; grace, &c.—From these several treatises were collected the five famous propositions, enumerated under the article **JANSENISM**.

AUGUSTINS, or **AUGUSTINIANS**, an order of religious; thus called from St. Augustin, whose rule they observe. The *Augustins*, popularly also called *Austin friars*, were originally hermits, whom pope Alexander IV. first congregated into one body, under their general Lanfranc, in 1256.

Soon after their institution, this order was brought into England, where they had about thirty-two houses at the time of their suppression.

The *Augustins* are clothed in black, and make one of the four orders of medivants.

From these arose a reform, under the denomination of *Bare-foot Augustins*, or *Minorites*, or *Friers Minor*.

There are also canons regular of St. *Augustin*, who are clothed in white, excepting their cope, which is black.

At Paris they are known under the denomination of, *religious of GENEVIEVE*; that abbey being the chief of the order.

There are also nuns and canoneses, who observe the rules of St. Augustin.

AUGUSTINIANS are also those divines who maintain, on the authority of St. Augustin, that grace is effectual from its nature, absolutely and morally, and not relatively and gradually. See EFFICACIOUS.

They are divided into rigid and relaxed.

AU-GUY-L'AN-NEUF, or AUGUILLANNEUF. See MISLETO.

AVIARY, a house or apartment kept for the keeping feeding, and propagating of birds.

The word is formed of *avis*, bird.

AVICENNIA, in *Botany*, a genus of the *didynamia angiospermia* class, the calyx of which are divided into five segments; the corolla is bilabiate; the capsule is coriaceous and rhomboidal, containing a single seed.

AVIGNON-berry, called also *French-berry*, is the fruit of a shrub by some authors called LYCIUM; growing plentifully near Avignon, and in other parts of France.

The berry is somewhat less than a pea; its colour is green approaching towards a yellow; and it is of an astringent and bitter taste.—It is much used by the dyers, who stain a yellow colour with it; and by the painters, who also make a fine golden yellow of it. See Box-thorn.

AVIS, bird, in *Ornithology*. See BIRD.

AVIS Indica. See APUS.

AVIS longa, a name given by Nieremberg to the *hoitlattotl* of the Americans, a bird very remarkable for the swiftness of its running.

AVIS nivea, a name under which Nieremberg has described an American bird of the size of a thrush, brown and black on the back, and yellow under the belly; it imitates the human voice and is called by the natives, CEOAN.

AVIS pennipulchra, the name of an American bird, described by Nieremberg, and called by the Indians *quetzalototl*. It is of the size of a pigeon, and is all over its body of the more beautiful colours of the peacock. There are, beside this species, three or four others. Mr. Ray has however, ranged all these under the number of birds, the accounts of which he is either dubious about, or suspicious of the truth of.

AVIS scica. See HOACTLI.

AVIS tropicorum, the name of a bird commonly called also, in English, the TROPIC bird, of the size of the common duck.

It is found only about the tropics, and thence has its name. See *Tab. of Birds*. N° 52.

AVIS venti, the bird of the wind. See HEATOTOTL.

AVIS paradisi. See PARADISE.

AVIS, knights d'Avis, an order of knighthood in Portugal, established about the year 1162.

When the city of Evora was taken from the Moors, in the reign of the first king of Portugal, it was garrisoned by several persons who assumed the title of knights of St. Mary of Evora, which was soon after changed for that of knights d'Avis, which the king gave them, and whither they removed from Evora. The badge of the order is a green cross flory, and they observed the rule of St. Benedict.

AVISO, an advice, piece of intelligence, or advertisement, to notify some event or matter worthy of knowledge.

The word is Italian, *advise*; and is chiefly used in matters of commerce.

AUK, in *Ornithology*, a name given by some to a bird called the ALKA in Latin, and more commonly known among us by the name of the RAZOR-BILL, a web-footed fowl, wanting the hinder toe.

AUL. See AWL.

AULA, in our *Ancient Law-Books*, signifies a court baron. — *Aula ibidem tenta quarto die Augusti*. &c.

Aula ecclesiæ is sometimes used for what we now call *navis ecclesiæ*. See NAVE.

AULA regia, or regis, a court established by William the Conqueror in his own hall, composed of the king's great officers of state, who resided in his palace, and were usually attendant on his person. This court was regulated by the article which forms the eleventh chapter of Magna Charta, and established in Westminster-hall, where it hath ever since continued. See COURT of King's Bench.

AULETES, αὐλητής, in *Antiquity*, denotes a flute-player.

One of the Ptolemies, kings of Egypt, father of Cleopatra, bore the surname, or denomination of *Auletes*.

AULIC, AULICA, an act which a young divine maintains in some foreign universities, upon the admission of a new doctor of divinity.

It is so called from the Latin *aula*, a hall; it being in the hall of the university that this act is usually held.

The person who presides at the disputation, is the same that is to take the doctor's cap.

AULIC, AULICUS, is also an appellation given to certain

officers of the emperor, who compose a superior court of council, which has an universal jurisdiction, and without appeal, over all the subjects of the empire, in all processes entered therein.

We say, *aulic council*, the *aulic court* or chamber, *aulic counsellor*, &c.

The *aulic council* is established by the emperor, who nominates the officers; but the elector of Mentz has a right of visiting it.—It is composed of a president, who is a catholic; a vice-chancellor, presented by the electors of Mentz, and of eighteen assessors, or counsellors, nine whereof are Protestants, and nine Romanists.

They are divided into two benches, one whereof is taken up by nobles, and the other by lawyers.—They hold their assemblies in the presence of the emperor; and for that reason are called *justitium imperatoris*, the emperor's justice; and *aulic council*, because theirs follows the emperor's court, *aula*, and has its residence in the place where he is.—This court clashes a little with the imperial chamber of Spire; in that they are preventive of each other; it not being allowed to move any cause from the one to the other.

Nor can the emperor himself hinder or suspend the decisions of either court: much less call any cause before himself, which has been once before them, without the consent of the states of the empire. Yet, in some cases, the same council forbears making any peremptory conclusion without the emperor's participation; and only decrees thus, *Fiat votum ad Cæsarem*; that is, make a report hereof to the emperor in his privy council.

AULNEGER, or ALNAGER. See ALNAGER.

AULO, a Grecian long measure. See MEASURE.

AULOS, in *Ichthyology*, a name by which several of the ancient writers have called the SOLEN, or RAZOR-fish.

AUMONE, or ALMS. See ALMS.

AUNCCEL-weight, quasi *Handsal-weight*, an ancient kind of balance, consisting of scales hanging on hooks fastened at each end of a beam or staff, which a man lifts up on his hand or fore-finger, and so discovers the equality or difference between the weight and the thing weighed.

There being great deceits practised in these weights, they were prohibited by several statutes; and the even balance alone commanded.

The word is still used in some parts of England, to signify meat sold by poising in the hand, without putting it into the scales.

AUNCESTOR. *Affise of Mort d'AUNCESTOR*. See ASSISE.

AUNCESTRAL homage. See HOMAGE.

AUNE, in *Commerce*, a long MEASURE, used in France, and other countries; of different lengths in different places. See ELL.

AVOCADO, a name given to a species of bay. See BAY-tree.

AVOCATORIA, a mandate of the emperor of Germany, directed to some prince or subject of the empire, to stop his unlawful proceedings in any cause brought by way of appeal before him.

AVOIDANCE, in *Law*, has two significations: the one when a benefice becomes void of an incumbent; the other, when we say in pleadings of chancery, confessed or avoided, traversed or denied, &c. See VOIDANCE.

AVOIRDUPOIS, or AVERDUPOIS weight, a kind of weight used in England: the pound whereof contains sixteen ounces. See WEIGHT.

The proportion of a pound *avoirdupois* to a pound troy, is as 17 to 14; or the *avoirdupois* pound contains 7000 grains, and the troy pound, 5760.

All the larger and coarser commodities are weighed by *avoirdupois* weight; as groceries, cheese, wool, lead, hops, &c.

AVOSETTA, in *Ornithology*. See RECURVIROSTRA.

AVOWEE, ADVOCATUS. See ADVOWEE, and ADVOCATE.

The *avowee* is he to whom the right of advowson of any church belongs, so that he may present thereto in his own name: he is thus called by way of distinction from those who sometimes present in another man's name, as a guardian, who presents in the name of his ward; as also from those who only have the lands whereto an advowson belongs for term of life or years, by intrusion or desseisin.

AVOWRY, in *Law*, is where one takes a distress for rent, or other thing; and the other sues replevin. In which case the taker shall justify, in his plea for what cause he took it; and if he took it in his own right, he is to shew it and so *avow* the taking; which is called his *avowry*. If he took it in the right of another, when he has shewed the cause, he is to make confession of the taking, as being a bailiff, or servant to him in whose right he did it.

AU-PIS-ALLER, a French phrase sometimes used among English writers, signifying, at the worst.

AURA, among *Physiologists*, an airy EXHALATION OF VAPOUR.

The word is derived from the Greek *αὔρα*, *gale*.

AURA, in *Chemistry*, a certain fine and pure spirit, found in every animal or vegetable body; but so subtle, as only to be perceptible by its smell and taste, or other effects, not found in any other but that body. This *aura* exhibits the proper character of the body, and is lodged in the oil of the body, to prevent its being dissipated and thrown off; and hence it is that all the ancient alchemists say spirit resides in sulphur. Boerhaave Ch. p. 168.

AURA, in *Ornithology*, a species of **VULTURE**.

AURÆ, in *Mythology*, a name given by the Romans to the nymphs of the air. They are mostly to be found in the ancient paintings of ceilings; where they are represented as light and airy; generally with long robes, and flying veils, of some lively colour or other, and fluttering about in the rare and pleasing element assigned to them. They are sportive and happy in themselves, and well-wishers to mankind.

AURANTIUM, in *Botany*. See **ORANGE-tree**.

AURANTIUS piscis, in *Ichthyology*, a name given by Nie-remberg to the **DORADO**, or dolphin, a species of the **CORYPHÆNA**, distinguished from the others by its forked tail.

AURARIA *functio*, *pensio*, or *præstatio*, a tax or tribute to be paid in gold.

The collector hereof was denominated *susceptor aurarius*, or *chrysopodestes*.

AURATA, in *Ichthyology*. See **GILT-head**.

AURATUS *eques*. See **EQUES**.

AUREA Alexandrina in *Pharmacy*, a kind of opiate, or antidote, composed of a great number of ingredients, which was in great fame among the ancient writers.

It is called *aurea*, from the gold (*aurum*) which is an ingredient in its composition; and *Alexandrina*, as having been first invented by a physician named Alexander.—It is reputed a good preservative against the colic and apoplexy.

AURELIA, in *Natural History*, the name of that state otherwise called chrysalis, in which butterflies and several other animals pass the time between their caterpillar or other creeping state, and their winged ones.

In this state no creature afford so beautiful a variety as the butter-fly kinds; and they all pass through this middle state, without one exception.

The figure of the *aurelia* or chrysalis, generally, approaches to that of a cone, or at least the hinder part of it is of this shape; and the creature while in this state, seems to have neither legs nor wings, nor has any power of walking. It seems, indeed, to have hardly so much as life. It takes no nourishment in this state, nor has it any organs for taking any; and indeed its posterior part is all that seems animated, this having a power of given itself some motions. The external covering of the chrysalis is cartilaginous, and considerably large, and is usually smooth and glossy; but some few of them have a few hairs, some are also as hairy as the caterpillars from which they are produced, and others are rough or, as it were, chagreened all over.

In all of these there may be distinguished two sides; the one of which is the back, the other the belly of the animal; and on the anterior part of the latter there may always be distinguished certain little elevations running in ridges, and resembling the fillets wound about mummies. The part whence these have their origin, is esteemed the head of the animal; the other side or back is smooth, and is of a rounded figure in most of the chrysalises; but some have ridges on the anterior part and sides of this part; and these usually terminate in a point, and make an angular appearance on the chrysalis. From this difference is drawn the first general distinction of these bodies. They are by this divided into two classes; the round and the angular kind. The first kind are by the French naturalists also called *feves*, from the common custom of calling the *chrysalis* of the silk worm, which is round, by this name.

There is something more regular in this distinction also than might be at first conceived; for the division is continued from the fly-state: the rounded chrysalises being almost all produced by the *phalænæ* or moths; and the angular ones by the *papilio*s, or day-flies. There are several subordinate distinctions of these kinds, but in general they are less different from one another than the caterpillars from whence they are produced.

The head of these of the first class usually terminates itself by two angular parts, which stand separate one from the other, and resemble a pair of horns. On the back, eminences and marks are discovered, which imagination may form into eyes, nose, chin, and other parts of the human face.

There are a great variety, and a great deal of beauty in the figures and arrangement of the eminences and spots on the other parts of the body of the chrysalis of different kinds. It is a general observation, that those chry-

salises which are terminated by a single horn, afford day-butterflies of the kind of those which have buttoned *antennæ*, and whose wings, in a state of rest, cover the under part of the body, and which use all their six legs in walking, those of many other kinds using only four of them. Those chrysalises, which are terminated by two angular bodies, and which are covered with a great number of spines, and have the figure of a human face on their back in the greatest perfection, afford butterflies of the day-kind, and of that class, the characters of which are, their walking on four legs, and using the other two, that is, the anterior part, in the manner of arms or hands. The chrysalises, which have two angular bodies on their heads, but shorter than those of the preceding, and whose back shews but a faint sketch of the human face, and which have fewer spines, and those less sharp, always turn into that sort of butterfly, the upper wings of which are divided into segments, one of which are so long as to represent a tail, and whose under wings are folded over the upper part of the back. A careful observation will establish many more rules of this kind, which are not so perfect as to be free from all exceptions, yet are of great use, as they teach us in general what sort of fly we are to expect from the chrysalis, of which we know not the caterpillar, and therefore can only judge from appearances.

These are the principal differences of the angular chrysalises; the round ones also have their different marks not less regular than those.

The greater number of the round chrysalises have the hinder part of their bodies of the figure of a cone; but the upper end, which ought to be its circular plane base, is usually bent and rounded into a sort of knee: this is usually called the head of the chrysalis; but there are also some of this kind, the head of which is terminated by a nearly plane surface: some of the creeping ten-legged caterpillars give chrysalises of this kind, which have each of them two eminences that seem to bring them towards the angular kind.

Among the angular chrysalises there are some whose colours seem as worthy our observation as the shapes of the others. Many of them appear superbly clothed in gold. These elegant species have obtained the name of chrysalis and *aurelia*, which are derived from Greek and Latin words signifying gold; and from these all other bodies of the same kind have been called by the same names, though less or not at all entitled to them. As some kinds are thus gilded all over, so others are ornamented with this gay appearance in a more sparing manner, having only a few spots of it in different places on their back and belly. Some species also have silver in the place of gold, either extending itself all over them, or forming some particular spots upon their back and belly. These obvious marks, however, are not to be depended upon as certain characters of distinction, for accidents in the formation of the chrysalis may alter them; and those which naturally would have been gilded all over, may be sometimes only so in part, and either these or the others may by accidents be so formed as to shew nothing of this kind at all, but be only of a dusky brown. Those, however, which have neither silver nor gold to recommend them to your eyes, do not want other colours, and those beautifully variegated. Some of them are all over of an elegant green, as is the chrysalis of the fennel-caterpillar; others of an elegant yellow, and some of a bright greenish tinge, variegated with spots of a shining black; we have a very beautiful instance of this last kind in the chrysalis of the elegant cabbage-caterpillar. The general colour of the chrysalis of the common butterflies, however, is brown.

Some also are of a fine deep black, and of these many are so smooth and glossy, that they are equal to the finest Indian jasper. The common caterpillar of the fig-tree gives an instance of one of these beautiful glossy ones; the caterpillar of the vine affords another of these fine black chrysalises.

The rounded chrysalises do not afford any thing of that variety of colouring so remarkably beautiful in the angular ones; they are usually of a dusky yellow, in different shades, and are often variously spotted with black: but these as well as all other chrysalises, before they arrive at their fixed colour, pass through several other temporary ones, from being of a different colour when first produced from the caterpillar, from what they are a few days afterwards; and some varying so greatly, though only in degree, as not to be distinguishable, by the most conversant eye, from what they are when first produced. The green rough caterpillar of the cabbage has a chrysalis which is green at first, and from that gradually goes through all the shades of green to a faint yellow, which is its lasting colour; and one of the oak caterpillars yields a chrysalis beautifully spotted with red at its first appearance, but these spots change to brown for their fixed colour:

colour: the third day from their formation usually fixes their lasting colours; and if they are observed to turn black in any part after this time, it is a sign that they are dead or dying.

The several species of insects as a fly, spider, and an ant, do not differ more evidently from one another, in regard to appearance, than do a caterpillar, its chrysalis, and a butterfly produced from it; yet it is certain that these are all the product of the same individual egg; and nothing is more certain than that the creature which was for a while a caterpillar, is after, a certain time, a chrysalis, and then a butterfly. These great changes produced in so sudden a manner, seem like the *metamorphoses* recorded in the fables of the ancients; and indeed it is very probable that those fables first took their origin from such changes.

The parts being distinguishable in the chrysalis, we easily find the difference of the species or class of the fly that is to proceed from it. The naked eye shews whether it be one of those that have, or of those that have not a trunk, and the assistance of a microscope shews the *antennæ* so distinctly, that we are able to discern whether it belongs to the day or night class: and often to what genus, if not the very species; nay in the plumose horned kinds, we may see by the *antennæ* whether a male or female *phalena* is to be produced from the chrysalis, the horns of the female being in this state evidently narrower, and appearing less elevated above the common surface of the body, than those of the male.

All these parts of the chrysalis, however, though seen very distinctly, are laid close to one another, and seem to form only one mass; each of them is covered with its own peculiar membrane in this state, and all are surrounded together by a common one, and it is only through these that we see them, or rather we see on these the figures of all the parts moulded within, and therefore it requires attention to distinguish them. The chrysalis is soft when first produced, and is wetted on the front with a viscous liquor; its skin, though very tender at first, dries, and hardens by degrees; but this viscous liquor, which surrounds the wings, legs, &c. hardens almost immediately, and in consequence fastens all those limbs, &c. into a mass, which were before loose from one another; this liquor as it hardens loses its transparency, and becomes brown; so that it is only while it is yet moist that these parts are to be seen distinct.

It is evident from the whole, that the chrysalis is no other than a butterfly, the parts of which are hid under certain membranes, which fasten them together, and when the limbs are arrived at their due strength they become able to break through these membranes, and then expand and arrange themselves in their proper order.

The first *metamorphoses* therefore differs in nothing from the second, except that the butterfly comes from the body of the caterpillar in a weak state, with limbs unable to perform their offices; whereas it comes from the chrysalis perfect.

M. Reaumur has given us many curious observations on the structure and uses of the several coverings that attend the varieties of the caterpillar kind in this state.

The creatures in general remain wholly immoveable in this state, and seem to have no business in it but a patient attendance on the time when they are to become butterflies; and this is a change that can happen to them only as their parts, before extremely soft and weak, are capable of hardening and becoming firm, by degrees, by the transpiration of that abundant humidity which before kept them soft; and this is proved by an experiment of M. Reaumur, who inclosing some chrysalises in a glass tube, found, after some time, a small quantity of water at the bottom of it, which could have come there no other way but from the bottom of the inclosed animal. This transpiration depends greatly on the temperature of the air; it is augmented by heat, and diminished by cold, but it has also its peculiarities in regard to the several species of butterfly to which the chrysalis belongs.

According to these observations, the time of the duration of the animal in the chrysalis state must be in different species very different; and there is indeed this wide difference, in the extremes, that some species remain only eight days in this state, and others eight months.

We know that the caterpillar changes its skin four or five times during its living in that state; and that all these skins are at first produced with it from the egg, lying closely over one another. It parts with or throws off all these one by one, as the butterfly, which is the real animal all this time within, grows more and more perfect in the several first changes. When it throws off one it appears in another skin of exactly the same form; but at its final change from this appearance, that is, when it throws off the last skin, as the creature within is now arrived at such a degree of perfection as to need no farther taking of nourishment, there is no farther need of

teeth, or any other of the parts of a caterpillar. The creature in this last change proceeds in the very same manner as in all the former, the skin opening at the back, and the animal making its way out in this shape. If a caterpillar, when about to throw off this last skin, be thrown into spirits of wine, and left there for a few days, the membranes within will harden, and the creature may be afterwards carefully opened, and the chrysalis taken out, in which the form of the tender butterfly may be traced in all its lineaments, and its eyes, legs, &c. evidently seen. It is not necessary however to seize upon this exact time for pruning the existence of the chrysalis or butterfly in the caterpillar; for if one of these animals be thrown into spirit of wine, or into vinegar, some days before that time, and left there for the flesh to harden, it may afterwards be dissected, and all the lineaments of the butterfly traced out in it; the wings, legs, *antennæ*, &c. being as evident here, and as large as in the chrysalis. Reaumur's Hist. Insect. vol. i. p. 2. 28.

It is very plain from this, that the change of the caterpillar into a chrysalis is not the work of a moment, but is carrying on for a long time before, even from the very hatching of the creature from the egg. The parts in the butterfly are not however disposed in exactly the same manner while in the body of the caterpillar, as when left naked in the form of the chrysalis; for the wings are proportionably longer and narrower, being wound up into the form of a cord, and the *antennæ* are rolled up on the head; the trunk also is twisted up, and laid upon the head; but this in a very different manner from what it is in the perfect animal, and very different from that which it lies in within the chrysalis; so that the first formation of the butterfly in the caterpillar by time arrives at a proper change of the disposition of its parts, in order to its being a chrysalis. The very eggs, hereafter to be deposited by the butterfly, are also to be found not only in the chrysalis, but in the caterpillar itself, arranged in their natural, regular order. They are indeed in this state very small and pellucid; but after the change into the chrysalis, they have their proper colour.

As soon as the several parts of the butterfly therefore are arrived at a state proper for being exposed to the more open air, they are thrown out from the body of the caterpillar, surrounded only with their membranes and as soon as they are arrived after this at a proper degree of strength and solidity, they labour to break through these thinner coverings, and to appear in their proper and natural form. The time of their duration in this state of chrysalis is very uncertain, some remaining in it only a few days, others several months, and some almost a year in appearance. But there is a fallacy in this, that many are not aware of. It is natural to think, that as soon as the creature has inclosed itself in its shell, be that of what matter it will, it undergoes the change into the chrysalis state. And this is the case with the generality; yet there are some which are eight or nine months in the shells before they become chrysalises, so that their duration in the real chrysalis state is much shorter than it naturally appears to be. M. Reaumur carefully watched the auriculated caterpillar of the oak into its several changes, and particularly from its chrysalis, which is of this last kind, into the fly; and has given an account of the method of this as an instance of the general course of nature in these operations.

The membranes which envelope the creature in this chrysalis state are at first tough and firm, and immediately touch the several parts of the inclosed animal; but by degrees, as these parts harden, they become covered, some with hairs, and others with scales. These, as they continue to grow, by degrees fall off the several particular membranes which cover the parts on which they are placed, to a greater distance, and by degrees wholly loosen them from the limbs. This is one reason of those membranes drying and becoming brittle.

The middle of the upper part of the *CORCELET* is usually marked with a line, that runs in a longitudinal direction; and this part is always more elevated than the rest, even in the conic kinds, which are no otherwise angular. This line is in some very bold and plain, in others it is so faint as not to be distinguishable without glasses: but it is always in the midst of that line that the shell begins to open. The motion of the head of the butterfly backwards first occasions this crack, and a few repetitions of the same motions open it the whole length of the line.

The clearing itself, however, entirely is a work of more time in this case than is the passing of the chrysalis out of the body of the caterpillar. In that case there is a crack sufficiently large in the skin of the back, and the whole chrysalis being loose comes out at once. But in this case every particular limb, and part of the body, has its separate case: and though these are almost inconceivably thin and tender, yet it is necessary that every part be drawn out of them before it appear naked to the open air.

air. As soon as all this is effected, and the animal is at full liberty, it either continues some time upon the remains of its covering, or creeps a little way distant from it, and there rests. The wings are what we principally admire in this creature. These are at this time so extremely folded up, and placed in so narrow a compass that the creature seems to have none at all; but they by degrees expand and unfold themselves, and, finally, in a quarter of an hour, or half an hour at the utmost they appear at their full size, and in all their beauty. The manner of this sudden unfolding of the wings is this: the small figure they make when the creature first comes out of its membranes, does not prevent the observing that they are at that time considerably thick. This is owing to its being a large wing, folded up in the nicest manner, and with folds so arranged, as to be by no means sensible to the eye, for the wing is never seen to unfold; but when observed in the most accurate manner, seems to grow under the eye to this extent. When the creature is first produced from the shell, it is every where moist and tender; even its wings have no strength or stiffness till they extend themselves; but they then dry by degrees, and with the other parts become rigid and firm. But if any accident prevents the wings from expanding at their proper time, that is, as soon as the creature is out of its shell, they never afterwards are able to extend themselves, but the creature continues to wear them in their contracted and wholly useless state; and very often when the wings are in part extended before such an accident happens, it stops them in a partial extension, and the creature must be contented to pass its whole life with them in that manner.

M. Reaumur has proved that heat and cold make great differences in the time of hatching of the butterfly from the chrysalis state: and this he particularly tried with great accuracy and attention, by putting them in vessels in warm rooms, and in ice-houses; and it seemed only owing to the hastening or retarding the evaporation of the abundant humidity of the animal in the chrysalis state, that it sooner or later appeared in the butterfly form. He varnished over some chrysalises, in order to try what would be the effect of thus wholly preventing their transpiration; and the consequence was, that the butterflies came forth from these two months later than their natural time. Thus was the duration of the animal in this state lengthened, that is, its existence was lengthened, but that without any advantage to the creature, since it was in the time of its state of inaction, and probably of insensibility.

Though this was of no consequence, M. Reaumur deduces from it a hint that seems to be of some use. He observes that hen's eggs, of which we make so many uses, and eat in so many forms, are properly, a sort of chrysalis of the animal; their germ, after they are impregnated by the cock, containing the young animal alive, and waiting only a due degree of warmth to be hatched and appear in its own form. Eggs transpire, notwithstanding the hardness of their shells; and when they have been long kept, there is a void found near one of their ends, between the shell and the internal membrane; this is a mark of their being stale, and is the effect of an evaporation of part of their humidity: and the same varnish that had been used to the chrysalises, being tried on eggs, was found to preserve them for two years, as fresh as if laid but the same day, and such as the nicest palate could not distinguish from those that were so. See EGGS.

It is not yet known how much farther this useful speculation might be carried, and whether it might not be of great use even to human life, to invent something that should act in the manner of this varnish, by being rubbed over the body, as the *athletæ* did of old, and the savages of the West Indies do at this time, without knowing why. But to return to the insects which are the subjects of this article: their third state, that in which they are winged, is always very short, and seems destined for no other action but the propagation of the species. See GENERATION, and PAPILIO.

AURELIANA, in *Botany*, a name given by some to a species of *panax*. See GINSENG.

AUREOLA, the crown of glory, given by painters and statuaries to saints, martyrs, and confessors, as a mark of the victory which they have obtained.

F. Sirmond says, this custom was borrowed from the heathens, who used to encompass the heads of their deities with such rays.

AUREUS, the Roman gold coin, equivalent to 25 DENARI, or 100 *sesterces*. Suet. in Oth. c. iv. Tacit. Hist. lib. i. Beverin. de Ponder. p. 33, seq.

In *Modern and Middle Age Writers*, it is called *solidus*, or *solidus aureus*.

The *aureus*, according to Arbuthnot, generally weighed double the DENARIUS: whence it must have been

worth, according to the first proportion of coinage mentioned by Pliny, 1*l.* 4*s* 3*d* $\frac{1}{4}$ sterling.—According to the proportion that now obtains among us, 1*l.* 0*s.* 9*d.* Plin. lib. xxxiii. c. 3. Arbuth. Tab. 25.—Ainsworth, however, makes the *aurei* (*denarii*) of the higher empire, weigh only five penny-weights; and under the lower empire, little more than half so much.

The weight of the *aureus* was gradually diminished by the emperors. The consular *aureus* weighed at a mean 126 troy grains, 40 of them being contained in the Roman POUND: the imperial *aureus*, being 45 to the pound, weighed 112 grains, and the *solidus*, being 72 to the pound, weighed 70 grains. Phil. Trans. vol. lxi. part ii. art. 42. See COIN, and DENARIUS.

AURICHALCUM, see ORICHALCUM.

AURICLE, AURICULA, in *Anatomy*, the external ear; or that part of the ear which is prominent from the head.

The word is a diminutive of *auris*, ear; q. d. *little ear*. For the structure and variety of the *auricle*, with the several parts thereof, their names &c. See EAR.

AURICLE is also applied to two appendages of the heart; being two muscular caps, covering the two ventricles thereof; thus called from the resemblance they bear to the external ear.

They move regularly, like the heart, only in an inverted order; their *systole* corresponding to the *diastole* of the heart, and *vice versa*. See Tab. Anat. (*Splanchn.*) fig. 12. lit. d. See also farther of their structure and office under the article HEART.

AURICULA, or AURICULA *ursi*, in *Botany*, BEAR'S ear, a species of PRIMULA in the Linnæan system. To enumerate the varieties of this plant, would be almost endless and impossible: for every year produces vast quantities of new flowers, differing in shape, size, and colour: in the leaves of these plants also, there is as great a variety, so that the skilful florist is often capable of distinguishing the particular sorts thereby.

But as it seldom happens that such of these flowers as are at one time in great esteem, continue to be regarded a few years after, (there being still finer or larger flowers produced from seeds, which are what the florists chiefly seek after), it would be needless to mention any of them. Suffice it therefore to give the characters of a good *auricula*. 1. The stem of the flower should be lofty and strong. 2. The footstalk of the single flower should be short, that the umbel may be regular and close. 3. The pipe or neck of each flower should be short, and the flowers large and regularly spread; being no ways inclinable to cup. 4. The colours should be very bright and well mixed. 5. The eye of the flower should be large, round, and of a good white or yellow: and the tube or neck not too wide.

All the flowers of this kind that want any of the above mentioned properties, are now rejected by every good florist; for as the varieties every year increase from seeds, so the bad ones are turned out to make room for better. The time for sowing the seed is commonly in August; but if it be sown before Christmas, it will be time enough. The best soil for it is a good light fresh sandy mould, mixed with very rotten neat's dung, or very rotten dung from the bottom of an old hot-bed.

The manner of propagating these flowers when obtained, is from off-sets or slips, taken from the old roots in April, when the flowers are in bloom. Those plants which have strong single heads, always produce the largest clusters of flowers; therefore the curious florists pull off the off-sets, as soon as it can be done with safety to the plant, to encourage them to flower the stronger.

These are the rules for propagating these plants; but in order to have them flower in perfection, the following rules must also be observed.

1. The plants must be preserved from too much wet in winter, and must have free air, and not too much sun.

2. In the beginning of February, if the weather be mild, the earth in your *auricula*-pots must be taken off as far as may be, without disturbing the roots, and new fresh earth laid in its place. 3. The pots must be covered with matting in the night, to defend them from frosts while the plants are budding. 4. When the stalk begins to be long, they must be defended from hasty rains, yet not kept too much under cover, which draws up the stalk too long, and makes it weak; and they must be watered frequently, a little at a time, and none of the wet must be suffered to fall on the plant. Lastly, when the flowers begin to open, the pots should be removed to a stage of shelves, one over another, placed under cover, open to the morning-sun, but sheltered from the mid-day's sun. Here they may remain till their flowers are past, and then they must be set out to have the benefit of the rains and free air, for the ripening of the seed, which must be saved carefully, and spread on papers, and laid to dry. Miller.

Though this herb is seldom kept in the shops, it nevertheless

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thelefs stands recommended as a vulnerary, and as fuch is found of fervice, both for internal and external purpofes. Mixed with ointments and plafter, it is reckoned good in ruptures. Four or fix fpoonfuls of the water, in which it has been boiled, taken every morning, is laid to cure coughs and ulcers of the lungs. The juice of its flowers removes fpoats of the face, and beautifies the fkin; and with the fame intention fome diftil a water from it. James.

AURICULA, in Zoology, fee EARWIG.

AURICULA *Judæ*, or *Jew's ear*, a kind of fungus, or muflroom, fomewhat refembling, in figure, a human ear.

It grows on old elder-trees, the tree on which, as fome pretend, Judas hanged himfelf; and hence, they think, the name is derived.

This fungus fteeped in water, and applied to the eyes, is laid to free them of inflammations: but its chief ufe is under the form of a gargle in decoctions, againft inflammations of the throat, or fwelling of the tonsils.

AURICULÆ *alvearium*, fee ALVEARIUM.

AURICULÆ *primus musculus*, in Anatomy, the name given by Fallopius to one of the mufcles of the head, called by Albinus the *attollens auriculam*, and by Winflow, the SUPERIOR *auriculæ*.

AURICULÆ *fecundus musculus*, in Anatomy, a name given by Fallopius, and others, to the mufcles of the ear, called by Albinus *retrahentes auriculam*. Thefe are three in number, and fo like one another, that they are eafily miftaken for one. Riolanus calls them the *proprie auris externæ*.

AURICULAM *retrahens*. See RETRAHENS.

AURICULAR, fomewhat that relates to the ears.

Thus we fay, an *auricular* witnefs, *auritis teftis*, a witnefs by hearfay.

AURICULAR *confeflion*, is that made in the ear privately.

AURICULAR *medicines*, are fuch as are futed to the cure of the diftempers of the ear.

AURICULARIS *abductor*, fee ABDUCTOR.

The finger next the little finger is alfo called *auricularis*, by the Greeks *ωττης*, becaufe ufed in picking the ear.

AURICULATED *leaf*, in Botany, is a leaf which has a lobe on each fide towards the bafe.

AURIFLAMMA, in the *French Hiftory*, properly denotes a flag, or ftandard, belonging to the abbey of St. Dennis, fufpended over the tomb of that faint, which the religious, on occafion of any war in defence of their lands, or rights, took down with great ceremony, and gave it to their protector, or advocate, to be borne at the head of their forces. Du-Cange.

AURIFLAMMA, is alfo fometimes ufed to denote the chief flag, or ftandard, in any army.

AURIGA, in Astronomy, the Waggoner; a conftellation of ftars in the northern hemisphere; whofe ftars, in Ptolemy's catalogue, are 14; in Tycho's, 27; in Hevelius's, 40; in the Britannic catalogue, 66: the names, fituations, longitudes, latitudes, magnitudes, &c. whereof are as follow:

Names and fituations of the ftars.	Signs.	Longitud.	Latitude.	Magnitude.
	Baye's Cha.		North.	
Preced. over the north. foot.	f	11 22 22	14 52 38	5
Middle and fouth. over the foot.	g	11 49 45	14 01 47	5.6
In the heel of the north. foot.	i	12 19 33	10 24 53	4
Laft of three over the foot.	u	13 18 41	15 04 00	5
		13 41 47	16 32 23	6
5				
In the preced. cubit.	s	13 44 35	16 48 06	6
Againft the hand, preced. Hædus.	z	14 31 10	20 54 24	4
Subfeq. Hædus.	n	14 18 58	18 10 10	4
10.		16 20 04	28 33 20	6.5
South of three in the loins.	u	15 06 52	18 15 14	4
Bright one of the fore-ftoulder, Capella.	z	16 15 16	15 23 18	5
		17 32 35	23 15 08	5
Middle one in the loins.	λ	17 31 41	22 51 48	1
		16 10 50	9 33 56	6
15.		17 28 54	10 58 39	5
Nebulofæ againft the hips.	South	16 49 17	10 13 20	6
	Middle	16 53 04	10 35 44	7.6
Northern ones in the fame.	Preced.	17 07 16	10 48 48	3
	Subfeq.	17 15 23	10 46 26	6
North. of three in the loins.	φ	18 10 58	18 34 23	6
20.				
Subfeq. in the hip.	σ	18 26 48	14 07 31	5.6
		17 39 8	5 42 51	6
Bright one in the fouth foot.	γ	18 13 55	5 21 31	2
In the fore-thigh.	φ	18 53 40	11 10 50	5.6
In the fore-knee.	κ	19 50 20	8 50 43	5.6

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Names and fituations of the ftars.	Signs.	Longitud.	Latitude.	Magnitude.
	Baye's Cha.		North.	
In the neck.	o	21 02 46	7 05 24	6
		23 09 55	26 22 39	6
		23 26 40	16 04 34	7
Preced. in the hind arm.	τ	23 30 14	15 43 41	5
North. in the head.	ε	24 50 05	32 13 32	7.6
30.				
In the hind thigh.	υ	23 50 38	13 50 33	6
Subfeq. in the hind-arm.	ν	23 57 31	15 41 07	5
South of two in the head.	δ	25 36 23	30 09 02	4
Brighter one in the hind-ftoulder.	β	25 35 31	21 28 21	2
A leffer one contiguous to that.	π	25 40 12	22 27 52	6
35.				
In the wriſt of the hinder-hand.	θ	25 52 25	24 25 21	6
		25 36 45	13 44 19	4
		26 19 09	19 31 48	6.7
		26 40 06	19 31 14	6.7
Inform. following the eaſtern arm	ι	27 00 05	15 30 59	6
40.				
		27 48 43	25 15 32	6
		28 59 02	25 59 32	6
		29 05 52	22 06 34	6
Inform. under the hind-knee.	κ	29 02 43	6 04 47	4.5
		29 27 23	30 02 57	6
45.				
Al. of Gemini 22d.	α	0 12 40	25 54 20	5
		1 17 50	23 20 54	6
		1 52 17	7 09 30	6
		3 28 15	4 46 26	5.6
		3 30 23	19 16 34	5.6
50.				
		3 26 46	16 10 35	5.6
		3 26 25	16 40 44	5
Al. of Gemini 25th.		4 16 29	5 46 56	6
Al. of Gemini 27th.		4 24 48	5 04 33	6
		3 55 02	21 21 22	5
55.				
		4 29 14	20 26 32	4
		4 18 57	25 40 00	5
		5 38 34	18 45 08	4.5
		6 21 56	15 52 47	6
Inform. behind Auriga towards Gemini. and the higher feet of Ursa major.		6 26 15	15 28 07	6
60.				
		6 35 28	15 31 22	6
		7 40 23	15 11 33	6.7
		10 02 53	16 43 35	4.5
		11 06 31	18 20 35	5
		12 30 02	14 28 11	5
		12 20 53	18 24 21	5

AURIGRAPHUS; from *aurum*, gold, and *γραφο*, I write; in *Middle Age Writers*, a copift, or calligrapher, who wrote in gold letters.

AURIPIGMENTUM, called alfo ORPIMENT.

AURIS, the ear. See EAR.

AURIUM *abſciſſio*, cutting off the ears, was a puniſhment inflicted, by the Saxon law, on thoſe who robbed churches; and, afterwards, on every thief; and, at length, on divers other criminals.

AURIS *afini*, *af's ears*, a name given by *Naturaliſts*, to a ſpecies of ſea-ſhell, ſuppoſed to reſemble the ear of an afs. See MUREX.

AURIS *marina*. See EAR-shell.

AURIS *porci*, *hog's ear*, in *Natural Hiftory*, a name given by authors to a ſea-ſhell, a ſpecies of the MUREX kind.

AURIS *elevator*, fee ELEVATOR.—*Auris externus*, fee EXTERNUS.—*Auris obliquus*, fee OBLIQUUS.—*Auris tinnitus*, fee TINNITUS.

AURISCALPIUM, an inſtrument wherewith to pick and cleanſe the ear from wax; and ſerving alſo for ſome other operations relating to diſorders of that part.

The word is compounded of *auris*, ear, and *ſcalpo*, I ſcratch, or prick.

AURORA, the morning twilight; or that faint light which begins to appear in a morning, when the ſun is within eighteen degrees of the horizon.

The poets have perſonified, and even made it a goddeſs; repreſenting her with a chariot, roſy fingers, &c.

Accordingly *Aurora* is the daughter of Titan and Terra.

AURORA *Borealis*, or AURORA *Septentrionalis*, the northern dawn, or light, is an extraordinary METEOR, or luminous appearance, ſhewing itſelf in the night-time, in the northern part of the heavens.

It is uſually of a reddiſh colour, inclining to yellow, and ſends out frequent conſeſcations of pale light, which ſeem to riſe from the horizon in a pyramidal undulating form, and ſhoot, with great velocity, up to the zenith.

The *Aurora borealis* appears moſt commonly in form of an arch; chiefly in the ſpring and autumn; after a dry year.—The arch is partly bright, partly dark; but generally

rally transparent. And the matter of which it consists is also found to have no effect on the rays of light which pass through it. Dr. Hamilton observes, that he could plainly discern the smallest speck in the Pleiades through the density of those clouds which formed part of the *Aurora borealis* in 1763, without the least diminution of its splendour, or increase of twinkling. Phil. Essays, Ess. iii. p. 106.

Sometimes it produces an *iris*.—M. Godin judges, that most of the extraordinary meteors and appearances in the skies, related as prodigies by the historians, e. gr. battles, and the like, may be probably enough reduced to the class of *AURORÆ boreales*. Vide Hist. Acad. R. Scienc. an. 1762, p. 405.

This kind of METEOR never appears near the equator, and was so rare in England, that none are recorded in our annals since that remarkable one, November 14, 1574, till the surprising *Aurora borealis*, March 6, 1716, which appeared for three nights successively, but by far more strongly on the first.—Indeed, in the years 1707, and 1708, five small ones were observed in little more than eighteen months.

Hence it should seem, that the air, or earth, or both, are not at all times disposed to produce this phenomenon, for though it is possible it may happen in the day-time in bright moon-shine or in cloudy weather, and so pass unobserved; yet that it should appear so frequent at some times, and so seldom at others, cannot well this way be accounted for.—That in March 1716, was visible to the west of Ireland, and the confines of Russia, and to the east of Poland; extending at least near 30° of longitude, and from about the 50th degree in latitude, over almost all the north of Europe; and in all places at the same time, it exhibited the like wondrous appearances.

Many attempts have been made to assign the cause of this phenomenon.—Dr. Halley imagines the watery vapours, or *effluvia*, rarefied exceedingly by subterraneous fire, and tinged with sulphureous streams, which many naturalists have supposed to be the cause of earthquakes, may also be the cause of this appearance: or that it is produced by a kind of subtle matter, freely pervading the pores of the earth, and which, entering into it nearer the southern pole, passes out again with some force, into the *æther* at the same distance from the northern; the obliquity of its direction being proportioned to its distance from the pole. This subtle matter, by becoming some way or other more dense, or having its velocity increased, may be capable of producing a small degree of light, after the manner of *effluvia* from electric bodies, which, by a strong and quick friction, emit light in the dark: to which sort of light this seems to have a great affinity. Phil. Transf. N° 347.—See Mr. Cotes's description of this phenomenon, and method of explaining it, by streams emitted from the heterogeneous and fermenting vapours of the atmosphere, in Smith's Optics, p. 69, &c. or Phil. Transf. abr. vol. vi. part ii.

The celebrated M. de Mairan, in an express treatise on the *Aurora borealis*, published in 1731, assigns its cause to be the ZODIACAL light, which, according to him, is no other than the sun's atmosphere; this light happening, on some occasions, to meet the upper parts of our air, on the side of the limits where universal gravity begins to act more forcibly towards the earth than towards the sun, falls into our atmosphere, to a greater or less depth, as its specific gravity is greater or less, compared with the air through which it passes. Vide Tract. Phys. & Hist. del'Aurore Boreal. Suite des Mem. de l'Acad. R. des Scienc. ann. 1731. p. 3, seq.—There is an abstract of Mr. Mairan's Physical and Historical Treatise of the *Aurora borealis*, in the Phil. Transf. N° 433. or Abridg. vol. viii. p. 540.

Mr. Euler thinks the cause of the *Aurora borealis* not owing to the zodiacal light, as Mr. de Mairan supposes; but to particles of our atmosphere, driven beyond its limits by the impulse of the light of the sun. On this supposition, he endeavours to account for the phenomena observed concerning this light. He supposes the zodiacal light, and the tails of comets, to be owing to a similar cause. See TAIL of comets, and ZODIACAL light. This light sometimes appears remarkably red, as it happened Dec. 5, 1737, of which we have very full accounts from divers parts of Europe, in the Phil. Transf. N° 459. sect. 7. p. 583—606.

Ever since the identity of lightning, and of the electric matter, has been ascertained, philosophers have been naturally led to seek the explication of aerial meteors in the principles of electricity; and there is now no doubt but most of them, and especially the *Aurora borealis*, are electrical phenomena. Beside the more obvious and known appearances which constitute a resemblance be-

tween this meteor and the electric matter whereby lightning is produced, it has been observed, that the *Aurora* occasions a very sensible fluctuation in the magnetic needle; and that, when it has extended lower than usual into the atmosphere, the flashes have been attended with various sounds of rumbling and hissing, taken notice of both by sig. Beccaria and M. Messier. Mr. Canton, soon after he had obtained electricity from the clouds, offered a conjecture, that the *Aurora borealis* is occasioned by the dashing of electric fire from positive towards negative clouds at a great distance, through the upper part of the atmosphere where the resistance is least. And he supposes, that the *Aurora*, which happens at the time when the magnetic needle is disturbed by the heat of the earth, is the electricity of the heated air above it; and this appears chiefly in the northern regions, as the alteration in the heat of the air in those parts will be the greatest: nor is this hypothesis improbable, when it is considered, that electricity is the cause of thunder and lightning; that it has been extracted from the air at the time of an *Aurora borealis*; that the inhabitants of the northern countries observe it to be remarkably strong when a sudden thaw succeeds very severe cold weather; and that the *tourmalin* is known to emit and absorb the electric fluid only by the increase or diminution of its heat. Positive and negative electricity in the air, with a proper quantity of moisture to serve as a conductor, will account for this and other meteors, sometimes seen in a serene sky. Mr. Canton has since contrived to exhibit this meteor by means of the *Torricellian* vacuum, in a glass tube about three feet long, and sealed hermetically. When one end of the tube is held in the hand, and the other applied to the conductor, the whole tube will be illuminated from end to end; and will continue luminous without interruption for a considerable time, after it has been removed from the conductor. If, after this, it be drawn through the hand either way, the light will be uncommonly intense, and without the least interruption from one hand to the other, even to its whole length. And though a great part of the electricity is discharged by this operation, it will still flash at intervals, when held only at one extremity, and kept quite still; but if it be grasped by the other hand at the same time in a different place, strong flashes of light will hardly ever fail to dart from one end to the other, and these will continue twenty-four hours and longer, without any fresh excitation. An arched double barometer of a considerable height is an improvement of this contrivance for exhibiting the appearance of an *Aurora borealis*, by means of the electric fire. Signior Beccaria, who has pursued his observations on atmospheric electricity farther than any of his associates in these inquiries, conjectures that there is a constant and regular circulation of the electric fluid from north to south; and he thinks, that the *Aurora borealis* may be this electric matter performing its circulation in such a state of the atmosphere as renders it visible, or approaching nearer the earth than usual. Dr. Franklin supposes, that the electrical fire discharged into the polar regions from many leagues of vaporised air raised from the ocean between the tropics, accounts for the *Aurora borealis*; and that it appears first, where it is first in motion, i. e. in the most northern part, and the appearance proceeds southward, though the fire really moves northward. Franklin's Exper. and Obs. 1769. p. 42. Phil. Transf. vol. xlviii. part i. p. 358. part ii. p. 784. Ib. vol. li. part i. p. 403. Lettere dell' Ellettricismo, p. 269; or Priestley's Hist. of Electricity, vol. i. See also an ingenious solution of this phenomenon, on the same principles, by Dr. Hamilton, Phil. Essays, Ess. iii.

We read of an *Aurora Australis*, a kind of light seen in the sky, towards the south, somewhat resembling those often seen towards the north. See Phil. Transf. N° 461. sect. 23, 24, and 25. and vol. liv. N° 53.

AURORA surgens, a phrase used by *Alchemists*, to express the multiplicative virtue of the philosophers stone.

AURUM, in *Natural History*, denotes gold. See GOLD. the word is chiefly used among us as applied to certain chemical preparations, whereof gold is the basis, or principal ingredient.—Such are the *aurum potable*, *aurum fulminans*, &c.

AURUM fulminans is a preparation of gold; thus called, because when cast in the fire, it produces a violent noise, like thunder. It consists of gold dissolved in *aqua regia*, and precipitated by oil of tartar *per deliquium*, or volatile spirit of *sal ammoniac*. The powder being washed in warm water, and dried to the consistence of a paste, is afterwards formed into little grains of the bigness of hemp-seed.

It is inflammable, not only by fire, but also by a gentle warmth; and gives a report much louder than that of gun-powder.

Its effect is commonly said to be principally downwards; in opposition to gun-powder, which is chiefly upwards: but this rather seems a vulgar error.

A scruple of this powder acts more forcibly than half a pound of gun-powder: a single grain laid on the point of a knife, and lighted at a candle, goes off with a greater noise than a musquet.—It is said to consume even to the very last atom.—Dr. Black attributes the increase of weight, and also the explosive property of this powder, to adhering fixable air.

This is a very dangerous preparation, and should be used with great caution.

AURUM mosaicum, *musicum*, or *musivum*, a preparation in Pharmacy; thus called from its golden colour and appearance. It is made of mercury, tin, *sal ammoniac*, and flowers of sulphur; by grinding, mixing, and then setting them three hours in a sand-heat.—The dirty sublimate being taken off, the *aurum mosaicum* is found at the bottom of the matras, as the *residuum*.

It is recommended in most chronical and nervous cases; and particularly convulsions of children.—Its dose is from four grains to a scruple.

Aurum mosaicum is tin sublimated by means of mercury, which receives its golden colour merely by the degree of heat proper for the operation. No other metal is sublimated in this manner, except zinc, which may be substituted in place of the tin, and which led Mr. Homberg to say, that zinc contains tin.

Aurum mosaicum weighs about one-twelfth more than the tin originally employed. It is used as a pigment, and for mixing with glass, to imitate the spangles of the *Lapis lazuli*; for which last purpose, shining *talc* is also made use of.—The *aurum mosaicum* is also called *aurum musivum*.—See some very curious experiments to shew the nature of this preparation, in the Phil. Trans. vol. lxi. 1771. N^o 15. where the curious may find various recipes for making it, and a description of the cheapest apparatus.

AURUM potable, or *tincture of gold*; a medicine formerly in great request, but at present rarely if ever used. It is prepared by mixing essential oil of rosemary with a solution of gold in *aqua regia*; and after shaking the vessel, the gold will be retained in the oil, swimming on the top. This oil is separated by inclination, and afterward digested for a month, in highly-rectified spirit of wine.

But after all, this is not a genuine tincture of gold, being only the gold divided into very small parts by the *spiculæ* of the *aqua regia*, swimming in the oil of rosemary. Nor can there be any radical tincture of gold, which may not, by evaporating the oil, be reduced to a powder; and the powder, by melting, be reduced into gold. The virtues of this tincture are entirely owing to the oil of rosemary.

The very name of *potable gold* imposes on a great many people, and gives an opportunity to empirics to cheat them with impunity; for they draw tinctures from some ingredients whose colours come near to that of gold, and sell them at an exorbitant rate, under the title of *aurum potable*. This sort of deceit is what generally succeeds best; for patients are prepossessed in favour of such medicines as cost much, carry great names, and have a specious appearance. It often happens that these tinctures, which go by the name of *aurum potable*, produce some good effects, because they can make them with such spirituous *menstrua*, as comfort the heart, and expel ill humours by perspiration: then the effect is extolled for a miracle, and attributed to the imaginary gold.

AURUM reginæ, see *QUEEN-gold*.

AURUM sophisticum, *mimic gold*, a chemical preparation, made as follows: take fine distilled verdigris eight ounces; crude Alexandrian tutty, four ounces; borax, twelve ounces; salt-petre, one ounce and a half; pulverize and mix them all together, tempering them with oil to the consistence of a plaster; then put a German crucible into a wind-furnace heat it red-hot, and putting your mass into it, let it be covered, and the furnace filled with coals over the crucible. When the mass is melted, let it cool of itself, then break the crucible, and you will find at the bottom a fine *regulus*, like gold, weighing about four ounces, which being malleable, may be wrought into any form.

AURUM vegetabile, a name given to *SAFFRON*.

AUSCULTARE, in *Ancient Customs*.—Because the reading of prayers with a graceful tone, or accent, makes some impression on the hearers; there was anciently a person appointed, in monasteries, to hear the monks read and sing, who instructed them how to perform, before they were admitted to read or chant publicly in the church, or before the people.—This was called *auscultare*, q. d. to hear, or listen.

AUSPEX, a name originally given to those who were afterwards denominated *AUGURS*.

In which sense the word is supposed to be formed from *avis*, bird, and *inspicere*, to inspect; *auspices*, q. d. *avis-pices*.

Some will therefore have *auspices* properly to denote those who foretold future events from the flight of birds.

AUSPICIUM, *AUSPICY*, the same with *AUGURY*.

Servius, indeed, distinguishes between *auspicy* and *augury*; making *auspicy* comprehend the consideration of all things, *augury* only of certain things: he adds, that the former was allowed a man any where abroad, whereas the latter might only be performed in his native place. And it is certain, that consuls, generals, and others, who took omens out of Rome, were properly said *auspicari*: nevertheless, custom appears to have over-ruled this distinction.

AUSTERE, implies a rough astringent taste: such as that of vitriol, alum, &c.

The word comes from *αυστερος*, which signifies the same. *Austere* things differ from *acerb*, or four ones, in that they constringe the mouth and tongue somewhat less, and are devoid of acidity.

AUSTERITY, *AUSTERENESS of taste*, that which denominates a sapid body *AUSTERE*.

AUSTERITY, among *Moral Writers*, sometimes denotes *rigour* in the inflicting of punishments.

We say, *austerity of manners*; the *austeries* of the monastic life. The *austerity* of the Roman censors kept the people in their duty. The greatest *austerity* of the Carthusians is perpetual solitude.

AUSTIN Friers, see *HERMITS*.

AUSTRAL, *AUSTRALIS*, the same with *southern*.

The word is derived from *auster*, south wind.

Thus *austral signs* are the six last signs of the zodiac; so called, because they are on the south side of the equinoctial.

AUSTRALIS Corona, see *CORONA Australis*.

AUSTRALIS Piscis, is a constellation of the southern hemisphere, not visible in our latitude; whose stars in Ptolemy's catalogue, are 18; and in the Britannic catalogue, 24: the longitudes and latitudes, &c. of which are as follow:

Situation of the stars.	Signs. Bayer's Cha.	Longitud.			Latitude.			Magnitude.
		°	'	"	°	'	"	
5.	μ	4	5	10	14	37	12	5
		4	55	26	14	58	20	6
		7	56	28	10	55	40	6
		7	35	20	15	36	7	4.5
		9	56	0	15	22	36	6
In the northern fin.	9	9	57	40	18	15	14	6
		11	12	10	17	43	27	6
		13	26	18	11	12	5	4.5
		12	54	28	18	17	15	4
10.	η	14	19	30	16	21	18	4
		17	57	48	14	21	20	6
		17	55	20	15	13	40	5
In the southern fin.	μ	18	8	10	16	51	45	6
		17	45	56	20	2	0	†
		18	16	30	19	45	20	5.5
15.	λ	21	3	20	15	40	40	4.5
		22	49	55	21	18	30	3
		26	58	40	17	14	18	3.4
		26	22	50	19	30	50	5
In the belly.	β	28	45	50	16	0	10	6
		28	13	16	20	26	36	6
		26	58	26	23	36	10	5
		27	50	15	23	36	7	5
In the southern part of the head.	ε	29	29	0	21	4	56	5
		29	29	0	21	4	56	5
In the gill.	δ	29	29	0	21	4	56	5
		29	29	0	21	4	56	5
20.	γ	28	13	16	20	26	36	6
		26	58	26	23	36	10	5
In the head.	γ	26	58	26	23	36	10	5
In the mouth.	δ	27	50	15	23	36	7	5
	α	29	29	0	21	4	56	5

AUSTRIACA SYDERA, a name given by Maupertuis to the spots in the sun, as supposing them to be small stars between the sun and us.

AUSTRO AFRICUS, the south-south-west point, or wind.

AUSTROMANCY, *AUSTROMANTIA*, properly denotes soothsaying or a vain method of predicting futurity, from observations of the winds.

AUSTURCUS, and *OSTRURCUS*, a *GOSHAWK*; from whence we usually call a falconer, who keeps that kind of hawks, an *ostringer*. In ancient deeds there has been reserved as a rent to the lord, *unum austurcum*.

AUTER droit, in *Law*, is where persons sue, or are sued, in another's right; as executors, administrators, &c.

AUTER vie; a person who holds an estate by the life of another, is usually called tenant *per auter vie*. Lytt. sect. 56.

AUTER-

A U T

AUTERFOITS *Sacquit*, in *Law*, a plea by a criminal, that he was heretofore *acquitted* of the same treason or felony. For one shall not be brought in danger of his life, for the same offence, more than once. 3 Inst. 213. But by stat. 3 Hen. VII. c. 1. this plea shall be no bar to the prosecution of any appeal.

AUTERFOITS *attaint*, a plea of former attainder, which is a good plea in bar, whether it be for the same or any other felony, under some exception; so that this plea is never good, but when a second trial would be quite superfluous.

AUTERFOITS *convict*, a plea upon a former conviction for the same identical crime, though no judgment was, or ever will be given: and this is a good plea in bar to an indictment.

AUTHENTIC, something of received authority. It also signifies something solemn, and celebrated; clothed in all its formalities; and attested by proper persons to whom credit has been regularly given.

AUTHENTICATING, the punishing an adulteress, by public whipping, and shutting her up in a convent for two years; after which, if the husband be not willing to take her back, she is shaven, veiled, and shut up for life.

It is thus called, as being the punishment prescribed in the *authentics*.

If the husband die within the two years, she seems to have a right to petition the court for her liberty; at least, another man, willing to marry her, may petition, and probably obtain it.

AUTHENTICS, **AUTHENTICÆ**, in the *Civil Law*, is a name given to the Novels of Justinian. See **NOVEL**.

The reason of the denomination is not well known.—Alciat will have it to have been first given them by Accursius. The Novels were originally composed in Greek, and afterwards translated into Latin by the patrician Julian, who also reduced them into fewer words, and less compass. And in the time of Bulgarus, there was a second version made, more exact and literal, though not quite so elegant as the former.

This translation, says the author just cited, being preferred by Accursius, he called it *authentica*, by way of preference to that of Julian, as being more conformable to the original. They are hereby distinguished from some other publications of later imperial constitutions, which are not regarded as of much authority.

AUTHOR, **AUCTOR**, properly denotes one who created or produced any thing; and is applied, by way of eminence, to the first cause; viz. God.

The word is formed of *autos*, *ipse*; or rather from the Latin participle *auctus*, or *aucto*, *I increase*.

We say, the *Author* of nature; *Author* of the universe, &c.

The term *author* is sometimes used in the same sense with *institutor* or *inventor*.—Polydore Virgil has wrote eight books of the *authors* or *inventors* of things, &c. See **INVENTIUM**.—Pythagoras is held the *author* of the *dogma* of *metempsychosis*.

AUTHOR, in matters of *Literature*, denotes a person who has wrote or composed some book or writing.

We say, the sacred *authors*; anonymous *authors*; ancient and modern *authors*; the Latin *authors* pillaged the Greeks, &c.—An original *author*, is he who first treated of any point or subject; who did not follow any other person, imitate any model either in the matter or the manner of what he has wrote. See **ORIGINAL**.

AUTHORITY, **AUCTORITAS**, in a general sense, denotes a right or power to command, and make one's self obeyed.

In this sense we say, the supreme or sovereign *authority*; absolute or despotic *authority*; the royal *authority*; the episcopal *authority*; the *authority* of the church, of a father, &c. The *authority* of Scripture, of a creed, confession, or the like.

AUTHORITY is also used for the testimony of an author or writing.

The word is also particularly understood of an apophthegm, or sentence of some great or eminent person, quoted in a discourse, either by way of proof, or embellishment.

Authority also includes rules, laws, canons, decrees, decisions, &c. alledged in conformation of a matter in dispute.

Passages quoted from Aristotle were of great *authority* in the schools: texts of Scripture are of decisive *authority*. *Authorities* make a species of arguments called by rhetoricians *inartificial* or *extrinsic arguments*.

For the use and effect of *authorities*, see **EVIDENCE**, **FAITH**, **PREJUDICE**, **PROBABILITY**, **REASON**, **REVELATION**, &c.

AUTHORITY, in *Law*, is a power to do something, conveyed by word or writing; as also by writ, warrant, commission, letter of attorney, &c. and sometimes by law.

A U T

AUTHORITY, or **AUTHORITIES**, likewise denote the treatises of ancient authors, such as Glanvil, Bracton, Britton, the author of the book *Fleta*, Lyttelton, Fitzherbert, Coke, and others, which are cited as *authority*; and furnish evidence that cases have formerly happened in which particular points were determined, which are now become settled and first principles.

AUTO *da fe*. See **ACT** of *Faith*.

AUTOCABDALI, in *Antiquity*, an order of musicians, who wore an ivy crown, or garland.

Scaliger seems to rank them in the number of *mimi*.

AUTOCEPHALUS, a person who is his own ruler or master, and who has no other over him.

The word is compounded of *autos*, *ipse*, and *κεφαλη*, *caput*, *head*.

This denomination was given, by the Greeks, to certain archbishops, who were exempted from the jurisdiction of patriarchs.—Such were the archbishop of Cyprus, by a general decree of the council of Ephesus, which freed him from the jurisdiction of the patriarch of Antioch.

There were several other bishops of the East, who were *autocephali*; and in the West, those of Ravenna pretended to the same right.—The sixth council, canon 39. says, that the *autocephali* have the same authority with patriarchs; but this is not to be understood in the full latitude of the words; but only as intimating, that the *autocephali* have the same authority over their bishops that patriarchs had over their archbishops: in which sense, only, they are equal to patriarchs.

AUTOCHTHONES, from *autos*, *ipse*, and *χθον*, *terra*; an appellation assumed by some nations, importing, that they sprung, or were produced, from the same soil which they still inhabited.

In this sense, *autochthones* amounts to the same with *aborigines*.

In this sense it was that the Greeks, and especially the Athenians, pretended to be *autochthones*, and, as a badge thereof, wore a golden grasshopper woven in their hair, an insect supposed to have the same origin.

AUTOCRATOR, from *autos*, and *κρατος*, *power*; a person vested with an absolute independent power, by which he is rendered unaccountable to any other for his actions.

The power of the Athenian generals, or commanders, was usually limited; so that, at the expiration of their office, they were liable to render an account of their administration. But, on some extraordinary occasions, they were exempted from this restraint, and sent with a full and uncontrollable authority: in which case, they were styled *αυτοκρατορες*.

The same people also applied the name to some of their ambassadors, who were vested with a full power of determining matters according to their own discretion, and resembled our *plenipotentiaries*.

AUTOCRATOR was also a title given to the Roman emperors, first to Julius, and afterwards to his successors, like that of Cæsar, or Augustus.

AUTODIDACTUS, from *autos*, and *διδασκειν*, *I teach*; a person self-taught.

It is used in divers senses, sometimes to denote a person who received his knowledge immediately from heaven, without any help or study. In which sense the word occurs in Homer, and Clemens Alexandrinus.—Sometimes for him who acquires his knowledge without either instruction by word of mouth, or reading of books. Such were the inventors of sciences and laws.—Sometimes, and that most usually, for him who arrives at learning by the use of books alone, without the assistance of any master, or instruction *vir à voce*.

AUTOGLYPHUS *lapis*, a stone mentioned by Plutarch, and some other of the ancients, as having naturally impressed on it the figure of Cybele. It is said to have been found in Sagaris, a river of Persia. Doubtless, if any such stone ever existed, the priests had got it made to deceive the people.

AUTOGRAPHUM, the very hand-writing of any person; or the original of a treatise, or discourse.—The word is used in opposition to a *copy*.

The word is formed of *autos*, and *γραφω*, *scribo*.

AUTOLITHOTOMUS, he who cuts himself for the stone. See **LITHOTOMY**.

Of this we have a very extraordinary instance given by Reisilius, in the *Ephemerides* of the Academy *Naturæ Curioforum*, an. 3. obs. 190.

AUTOMATON, or **AUTOMATUM**, a self-moving engine; or a machine which has the principle of motion within itself.

The word is compounded of *autos*, *ipse*, and *μαρμαι*, *I am excited*, or *ready*, whence *αυτοματος*, *spontaneous*.

Such were Archytas's flying dove, mentioned by Aulus Gellius, Noct. At. lib. x. c. 12. and Regiomontanus's wooden eagle, which, as historians relate, flew forth from the city, met the emperor, saluted him, and returned.

ed; as also his iron fly, which, at a feast, flew out of his hands, and, taking a round, returned thither again. Hakew. Apol. c. x. sect. 1.

Among *automata* are also reckoned all mechanical engines which go by springs, weights, &c. included within them: such are clocks, watches, &c. Vide Bapt. Port. Mag. Nat. c. 19. Scalig. Subtil. 326.

AUTONOMIA, from *autos*, *self*, and *nomos*, *law*, a power of living or being governed by our own laws and magistrates. The liberty of the cities which lived under the faith and protection of the Romans, consisted in their *autonomia*, i. e. they were allowed to make their own laws, and elect their own magistrates; by whom justice was to be administered, and not by Roman presidents or judges, as was done in other places, which were not indulged the *autonomia*.

AUTOPHOSPHORUS, is, by some, used to denote *phosphorus*. on account of its kindling as it were of itself.

AUTOPRACTI, from *autos*, and *πρακτε*, *I exact*, in the *Civil Law*; those indulged this privilege, that they should not be summoned or compelled to pay taxes, or tributes, by the collectors, but should be left to their own free will. Du-Cange.

Of this number were men of distinguished dignity, and those eminent for their probity and honour.

AUTOPSY, ocular inspection of the seeing a thing with one's own eyes.

The word is compounded of *autos*, *one's self*, and *opsis*, *sight*.

AUTOPYROS, from *autos*, and *πυρος*, *wheat*, in the *Ancient Diet*, an epithet given to a species of bread, wherein the whole substance of the wheat was retained, without retrenching any part of the bran.

Galen describes it otherwise, viz. as bread where only the coarser bran was taken out.—And thus, it was a medium between the finest bread, called *similagineus*, and the coarsest, called *furfuraceus*.

This was also called *autopyrites*, and *syncomisus*.

AUTOUR, in *Natural History*, a sort of bark which resembles cinnamon, but is paler and thicker; it is of the colour of a broken nutmeg, and full of spangles. It comes from the Levant, and is an ingredient in the carmine dye.

AUTUMN, the third season of the year; being that wherein the harvest, and the fruits of the summer, are gathered. *Autumn* begins on the day when the sun's meridian distance from the zenith, being on the decrease, is a mean between the greatest and the least; which in those countries is supposed to happen when the sun enters *Libra*. Its end coincides with the beginning of *winter*.

Divers nations have computed the year by *autumns*; the English Saxons, by *winters*.—Tacitus tells us, the ancient Germans were acquainted with all the other seasons of the year, but had no notion of *autumn*.

Autumn has always been reputed an unhealthy season. Tertullian calls it *tentator valetudinum*; and the satirist speaks of it in the same light.

Autumnus Libitinæ quæstus acerbæ.

AUTUMN, in *Alchymy*, the time or season when the operation of the philosopher's stone is brought to maturity and perfection.

AUTUMNAL, something peculiar to *Autumn*.

AUTUMNAL point, is one of the equinoctial points; being that from which the sun begins to descend towards the south pole.

AUTUMNAL equinox, is the time when the sun enters the *autumnal point*. See **EQUINOX**.

AUTUMNAL flowers. See **FLOWER**.

AUTUMNAL signs, are those through which the sun passes during the season of **AUTUMN**; *Libra*, *Scorpio*, and *Sagittarius*.

AUVERNAS, a very deep-coloured heady wine, made of black raisins so called, which comes from Orleans. It is not fit to drink before it is above a year old; but if kept two or three years, it becomes excellent.

AUX, in *Astronomy*, see **AUGES**.

Some use *aux* to denote the arch of the ecliptic, intercepted between the first point of Aries, and the point wherein the sun, or a planet, is at its greatest distance from the earth. Wolf. Lex. Math. p. 222.

AUXESIS, in *Mythology*, a goddess worshiped by the inhabitants of Egina, and mentioned by Herodotus and Pausanias.

AUXESIS, *auēsis*, *increase*, in *Rhetoric*, a figure whereby any thing is magnified too much. See **AMPLIFICATION**, and **INCREMENT**.

AUXILIARY, **AUXILIARIS**, any thing that is helping or assisting to another.

We say, *auxiliary books*; a prince is said to trust more to his own soldiers than to the *auxiliary troops*, &c.

AUXILIARY verbs, in *Grammar*, are such as help to ascertain or limit the sense of others; that is, are prefixed to them to form or denote their moods or tenses.

Such, in English are *have*, *am*, or *be*; in French, *être*,

and *avoir*; in Italian, *ho*, and *sono*, &c.—The *auxiliary am* supplies the want of **PASSIVES** in our language.

All the modern languages we know of make use of *auxiliary verbs*. The reason is, that the verbs thereof do not change their terminations or endings, as those of the Latin and Greek, to denote the different tenses or times of being, doing, or suffering; nor the different moods or manners of their signifying: so that, to supply this defect, recourse is had to different *auxiliary verbs*.

Besides the perfect *auxiliary verbs*, we have several defective ones; as *do*, *will*, *shall*, *may*, *can* and *have*; which, by changing the terminations, save the necessity of changing those of the verbs they are added to.—Thus, instead of *ego uro*, *tu uris*, *ille urit*, &c. we say, *I do burn*, *thou dost burn*, *he doth burn*, &c.

AUXILIUM, in *Law*. See **AID**.

AUXILIUM curiæ, signifies an order of court, for the summoning of one party at the suit of another.

AUXILIUM ad filium militem faciendum vel filiam maritan-dam, was a writ directed to the sheriff of every county, where the king or other lord had any tenants, to levy of them reasonable aid, towards the knighting of his eldest son, or the marriage of his eldest daughter.

AUXO, in *Mythology*, the name of one of two **GRACES** worshipped by the Athenians. See **HEGEMONE**.

AUXY; the French give the name of *auxy* wool to that which is spun in the neighbourhood of Abbeville, by those workmen who are called *houpiers*. It is a very fine and beautiful wool, which is commonly used to make the finest stockings.

AWAIT, in our old *Statutes*, is used to signify what we now call *waylaying*, or lying in *wait*, to execute some mischief. In stat. 13 R. II. c. 1. it is ordained, that no charter of pardon shall be allowed before any justice, for the death of any man slain by *await*, or malice pre-pensed, &c.

AWARD, in *Law*, the judgment of some person who is neither assigned by law, nor appointed by the judge, for ending a matter in controversy; but is chosen by the parties themselves that are at variance.

AWEIGH. See **ATRIP**.

AWK. See **AUK**.

AWL or **AUL**, a shoemaker's implement, wherewith holes are bored in leather, to facilitate the stitching or sewing the same.—The *blade* of the *awl* is usually a little flat, and bending; and the point ground to an acute angle.

AWME, or **AUME**, a Dutch **MEASURE** of capacity for liquids; containing eight *steckans*, or twenty *verges*, or *verteels*: answering to what in England is called a **TIERCE**, or one sixth of a *ton* of France, or one seventh of an English *ton*. Arbuth. Tab. 33.

AWN, in *Botany*, **ARISTA**; the beard growing out of the husks of corn or grass. It is sometimes used to signify a sharp point terminating a leaf.

AWNING, on board a ship, is when a sail, a tarpaulin, or the like, is hung over any part of the ship, above the decks, to keep off the sun, rain, or wind.

In the long-boat they make an *awning*, by bringing the sail over the yard and stay, and booming it out with the boat-hook.

AX, a carpenter's instrument, serving to hew wood.—The *ax* differs from the joiner's hatchet, in that it is made larger, and heavier, as serving to hew large stuff; and its edge tapering into the middle of its blade.—It is furnished with a long handle or helve, as being to be used with both hands.

AXAMENTA, in *Antiquity*, a denomination given to the verses, or songs, of the *salii*, which they sung in honour of all men.

The word is formed, according to some, from *axare*, q. d. *nominare*. Others will have the *carmina saliaria* to have been denominated *axamenta*, on account of their being written in *axibus*, or on wooden tables.

The *axamenta* were not composed, as some have asserted, but only sung by the *salii*. The author of them was Numa Pompilius; and, as the style might not be altered, they grew in time so obscure, that the *salii* themselves did not understand them. Varro says they were seven hundred years old. Quint. Inst. Or. lib. i. c. 11.

AXAMENTA, or **ASSAMENTA**, in *Ancient Music*, hymns or songs performed wholly with human voices.

AXILLA, or **ALA**, in *Anatomy*, the cavity under the upper-part of the arm; commonly called the **ARM-pit**.

The word is a diminutive of *axis*, q. d. *little axis*. Abscesses in the *axillæ* are usually dangerous, on account of the many blood-vessels, lymphatics, nerves, &c. thereabout, which form several large **PLEXUS**—By the ancient laws, criminals were to be hanged by the *axillæ* if they were under the age of puberty.

AXILLA, in *Botany*, is the space comprehended between the stems of plants and their leaves.

Hence we say, those flowers grow in the *axillæ* of the leaves;

leaves; i. e. at the base of the leaves or just within the angles of their pedicles.

AXILLARY, in *Anatomy*, something that belongs to the *axilla*, or lies near them.

AXILLARY artery, is a ramification of the trunk of the subclavian artery; which passing under the arm-pits, changes its name, and is called *axillary*.

AXILLARY vein, is one of the subclavian veins; which, passing under the arm-pits, divides itself into several branches; *superior, inferior, external, internal*, &c. which are spread over the arm.—See *Tab. Anat. (Angelol.) fig. 6. lit. m.*

AXILLARY nerve, called also the *auricular nerve*, arises from the last two cervical pairs; runs into the hollow of the *axilla*, behind the head of the *os humeri*, between the *musculus teres major & minor*, &c.

The second *vertebra* of the back is sometimes also called the *axillary vertebra*; because it is nearest to the arm-pits.

AXILLARY glands. See **HIRCUS**, and **GLANDS**.

AXILLARY leaves, in *Botany*, express such as grow out of the angles formed by the branches of the stem.

AXINOMANCY, **AXINOMANTIA**, from *ἀξιν*, *securis*, and *μαντεια*, *divinatio*, an ancient species of divination, or a method of foretelling future events by means of an ax or hatchet.

This art was in considerable repute among the ancients; and was performed, according to some, by laying an agate-stone on a red-hot hatchet; and also by fixing a hatchet on a round stake, so as to be exactly poised; then the names of those who were suspected were repeated, and he at whose name the hatchet moved was pronounced guilty.

AXIOM, **AXIOMA**, from *ἀξιω*, *I am worthy*, a self-evident truth; or a proposition whose truth every person receives at first sight.

Thus, that the whole is greater than a part; that a thing cannot be and not be at the same time; and that from nothing, nothing can arise, are *axioms*.

By *axioms*, called also *maxims*, are understood all common notions of the mind, whose evidence is so clear and forcible, that a man cannot deny them without renouncing common sense, and natural reason.

The rule of *axioms* is this, that whatever proposition expresses the immediate clear comparison of two ideas without the help of a third, is an *axiom*.—On the other hand, a truth which does not arise from an immediate comparison of two ideas, is an *axiom*.

Axioms in effect, strictly speaking, are no other than identic propositions.—Thus, to say that all right angles are equal to each other, is as much as to say, all right angles are right angles: such equality being implied in the very definition, or the very name.

Lord Bacon proposes a new science, to consist of general *axioms* under the denomination of *philosophia prima*.

For the reason of the evidence of the *axioms*, it may be observed, that knowledge being only the perception of the agreement or disagreement of ideas; where that agreement or disagreement is perceived immediately by itself, without the intervention or help of any other ideas, there our knowledge is self-evident: which being so, not only those usually allowed for *axioms* or *maxims*, but an infinite number of other propositions, partake equally with them in this self-evidence. Thus, that a circle, is a circle, or that blue is not red, are as self-evident propositions, as those general ones, what is, is; and it is impossible for the same thing to be, and not to be. Nor can the consideration of those propositions add any thing to the evidence or certainty of our knowledge of them. As to the agreement or disagreement of co-existence, the mind has an immediate perception of this but in very few. And therefore in this sort we have very little intuitive knowledge; though in some few propositions we have. Two bodies cannot be in the same place, is a self-evident proposition; the idea of fitting a place equal to the contents of its superficies, being annexed to our idea of body.

As to the relations of modes, *Mathematicians* have framed many *axioms* concerning that one relation of equality: as, that equals being taken from equals, the remainders will be equal, &c. which, however received for *axioms*, yet have not a clearer self-evidence than these, that one and one are equal to two; that if from the five fingers of one hand you take two, and from the five fingers of the other hand two, the remaining numbers will be equal. As to real existence, since that has no connexion with any other of our ideas, but that of ourselves, and of a first being; who have not so much as a demonstrative, much less a self-evident knowledge, concerning the real EXISTENCE of other beings.

For the influence of *axioms* or general maxims on the other parts of our knowledge; the rules established in the schools, that all reasonings are *ex præcognis & præconcessis*, seem to lay the foundation of all other know-

ledge in these maxims, and to suppose them to be *præcognita*; which implies two things, viz. that these *axioms* are those truths first known to the mind; and that on them the other parts of our knowledge depend.—But, first, that these *axioms* are not the truths first known to the mind, is evident from experience: for who knows not, that a child perceives that a stranger is not its mother, long before he knows it impossible for the same thing to be and not to be? And how many truths are there about numbers, which the mind is perfectly acquainted with, and fully convinced of, before it ever thought on those general maxims.

Hence it follows, that these magnified *axioms* are not the principles and foundations of all our other knowledge; for if there be a great many other truths as self-evident as they, and a great many that we know before them, it is impossible that they should be the principles from which we deduce all other truths.—Thus, that one and two are equal to three, is as evident, and easier known, than that the whole is equal to all its parts.—Nor, after the knowledge of this *axiom*, do we know that one and two are equal to three, better or more certainly than we did before. For if there be any odds in these ideas, the ideas of whole parts are more obscure, or at least more difficult to be settled in the mind, than those of one, two, or three. Either, therefore, all knowledge does not depend on *præcognita*, or general maxims, called *principles*; or else such as these, that one and one are two, that two and two are four, &c. and a great part of numeration, are *axioms*. To these, if we add all the self-evident propositions that may be made about all our distinct ideas, principles will be almost infinite; and a great many innate principles many men never come to know all their lives.

General maxims, or *axioms*, then, may be of use in disputes, to stop the mouths of wranglers; but they are of little in the discovery of unknown truths. Several general maxims are no more than bare verbal propositions, and teach us nothing but the respect and import of names one to another; as the whole is equal to all its parts: what real truth does this teach us more, than what the signification of the word *totum*, or *whole*, does of itself import? If rightly considered, we may say that where our ideas are clear and distinct, there is little or no use at all of maxims, to prove the agreement or disagreement of any of them. He that needs any proof to make him certain, and give his assent to this proposition, that two are equal to two, or that white is not black; will also have need of a proof to make him admit, that what is, is; or, that it is impossible for the same thing to be and not to be. But as maxims are of little use, where we have clear and distinct ideas; so they are of dangerous use where our ideas are confused, and where we use words that are not annexed to clear and distinct ideas. Locke.

AXIOM is also an established principle in some art or science.

Thus, it is an *axiom* in *Physics*, that nature does nothing in vain; that effects are proportional to their causes, &c. So it is an *axiom* in *Geometry*, that things equal to the same third are also equal to one another; that if to equal things you add equals, the sums will be equal, &c. It is an *axiom* in *Optics*, that the angle of incidence is equal to the angle of reflection, &c. It is an *axiom* in *Medicine*, &c. that there is no sincere acid in the human body, &c.

In this sense the general laws of motion are called *axioms*: as, that all motion is rectilinear, that action and reaction are equal, &c.

These particular *axioms*, it may be observed, do not immediately arise from any first notions or ideas, but are deduced from certain hypotheses: this is particularly observable in physical matters, wherein, as several experiments contribute to make one hypothesis, so several hypotheses contribute to one *axiom*.

AXIOM, in *Rhetoric*, is used by Hermogenes to denote grandeur, dignity, and sublimity of style.

AXIOS, a form of acclamation, anciently used by the people in the election of bishops. When they were all unanimous, they cried out *ἀξιός*, *he is worthy*, or *ἀναξιός*, *unworthy*.

AXIOSIS, in *Rhetoric*, denotes a third part of an exordium; sometimes also called *ἀποδοσις*, and containing some new proposition more nearly relating to the matter in hand, than the *πρόλασις*.

Thus in Cicero's oration *pro Milone*, the *protasis* is, *Non possum non timere, judices, visa hac nova judicii forma*; the *ἀναστροφή*. *Nec enim ea corona confessus vester cinctus est qua solebat*; the *ἀξίωσις*, *Sed me recreat Pompei consilium, cujus sapientiæ non fuerit, quem sententiis judicium tradidit, telis militum dedere*; the *βασίς*, *Quamobrem adeste animis judices, & timorem, si quem habetis, deponite*.

AXIS properly signifies a line, or a long piece of iron or wood passing through the centre of a sphere, which is moveable upon the same.

In this sense we say, the *axis* of a sphere, or globe; the *axis*, or *axle-tree* of a wheel, &c.

There is now a sort of improved iron *axle-trees* made for coaches and chaises, which will go in all roads, wider or narrower. Some screw to the end, after the French manner.

Axis, in *Anatomy*, is the second *vertebra* of the neck, reckoning from the skull. See *Tab. Anat. Osteol. fig. 9*. It is thus called because the first *vertebra*, with the head, move thereon, as an *axis*. See *CARDO*.

Axis, *spiral*, in *Architecture*, is the *axis* of a twisted column drawn spirally, in order to trace the circumvolutions without. See *COLUMN*, *twisted*.

Axis of the world, in *Astronomy*.—The *axis* of the world is an imaginary right line, which is conceived to pass through the centre of the earth, and terminating at each end in the surface of the mundane sphere.

About this line as an *axis*, the sphere in the Ptolemaic system, is supposed daily to revolve.

This *axis* is represented by the line *PQ*, *Tab. Astron. fig. 52*.—The two extreme points hereof, in the surface of the sphere, viz. *P* and *Q*, are called its *poles*.

Axis of the earth, is a right line upon which the earth performs its diurnal rotation from west to east. Such is the line *PQ*, *Tab. Geog. fig. 7*.—The two extreme points hereof are also called *poles*.

The *axis* of the earth is a part of the *axis* of the world.—It always remains parallel to itself, and at right angles with the *EQUATOR*. See *ANGLE*, *INCLINATION*, and *PARALLELISM*.

Axis of a planet, is a line drawn through the centre thereof, about which the planet revolves. The sun, moon, and all the planets, except Mercury and Saturn, are known, by observation, to move about their several *axes*; and the like motion is easily inferred of those two.

Axis of the HORIZON, the *EQUATOR*, *ECLIPTIC*, *ZODIAC*, &c. are right lines drawn through the centres of those circles, perpendicular to their planes. See *CIRCLE*.

Axis, in *Botany*, a taper column placed in the centre of some flowers, or katkins, about which the other parts are disposed.

Axis, in *Geometry*.—*Axis* of rotation, or circumvolution, is an imaginary right line, about which any plane figure is conceived to revolve, in order to generate a solid. Thus, a sphere is conceived to be formed by the rotation of a semicircle about its diameter or *axis*, and a right cone by that of a right angled triangle about its perpendicular leg, which is here its *axis*.

Axis of a circle or sphere, is a line passing through the centre of the circle or sphere, and terminating at each end, in the circumference thereof.

The *axis* of a circle, &c. is otherwise called the *diameter* thereof. Such is the line *AE*, *Tab. Geom. fig. 27*.

Axis is yet more generally used for a right line proceeding from the vertex of a figure to the middle of the base thereof.

Axis of a cylinder, is properly that quiescent right line, about which the parallelogram turns, by whose revolution the cylinder is formed.

Though, both in right and oblique cylinders, the right line joining the centres of the opposite bases is also called the *axis of the cylinder*.

Axis of a cone, is the right line, or side upon which the right-angled triangle forming the cone makes its motion. Hence it follows, that only a right cone can properly have an *axis*; because an oblique one cannot be generated by any motion of a plane figure about a right line at rest.

But because the *axis* of a right cone is a right line drawn from the centre of its base to the vertex; in analogy hereto, the writers of conics do likewise call the like line, drawn from the centre of the base of an oblique cone to the vertex, the *axis* thereof.

Axis of a conic section, is a right line passing through the middle of the figure, and cutting all the ordinates at right angles, and into two equal parts.

Thus if *AP*, *Tab. Conics, fig. 31*, be drawn perpendicularly to *FF*, so as to divide the section into two equal parts; it is called the *axis of the section*.

Axis, *transverse*, called also the *first* or *principal axis* of an *ellipsis*, is the *axis AP*, last defined: being thus called in contradistinction to the *conjugate* or *secondary axis*.

The *transverse axis* in the *ellipsis* is the longest; and in the *hyperbola* it cuts the curve in the points *A* and *P*, *fig. 32*.

Axis, *conjugate*, or *second Axis of the ellipsis*, is the line *FF*, *fig. 31*, drawn through the centre of the figure *C*, parallel to the ordinate *MN*, and perpendicularly to the transverse *axis AP*; being terminated at each extreme by the curve.

The *conjugate* is the shorter of the two *axes* of an *ellipsis*; and is not only found in the *ellipsis*, but in the *hyperbola*.

Axis, *conjugate*, or *second Axis of an hyperbola*, is the right line *FE*, *fig. 32*, drawn through the centre parallel to the ordinates *MN*, *MN*, perpendicularly to the transverse *axis AP*.—The *axis* of a *parabola* is of an indeterminate length; that is, is infinite.—The *axis* of the *ellipsis* is determinate. The *parabola* has only one *axis*; the *ellipsis* and *hyperbola* have two.

Axis of a magnet, or *magnetical Axis*, is a line passing through the middle of a magnet, lengthwise; in such manner, as that however the magnet be divided, provided the division be made according to a plane, wherein such line is found, the load-stone will be made into two load-stones.

The extremes of such lines are called the *poles* of the stone.

Axis, in *Mechanics*.—The *axis* of a balance is the line upon which it moves or turns.

Axis of oscillation, is a right line parallel to the horizon, passing through the centre, about which a *PENDULUM* vibrates.

Axis in peritrochio, or *wheel and axle*, is one of the five mechanical powers, or simple machines; contrived chiefly for the raising of weights to a considerable height. It consists of a circle, represented *AB* (*Tab. Mechanics, fig. 44*) concentric with the base of a cylinder, and moveable together with it, about its *axis EF*.—This cylinder is called the *axis*; and the circle, the *PERITROCHUM*; and the *radii*, or *spokes*, which are sometimes fitted immediately into the cylinder, without any circle, the *scytalæ*.—Round the *axis* winds a rope, whereby the weights, &c. are to be raised.

The *axis in peritrochio* takes place in the motion of every machine, where a circle may be conceived described about a fixed *axis*, concentric to the plane of a cylinder, about which it is placed; as in *CRANE-wheels*, *MILL-wheels*, *CAPSTANS*, &c.

Axis in peritrochio, the doctrine of it.—1. If the power, applied to the *axis in peritrochio*, in the direction *AL*, *fig. 7*, perpendicular to the periphery of the wheel, or to the *scytala* or spoke be to a weight *G*, as the radius of the *axis CE* is to the radius of the wheel *CA*, or the length of the spoke; the power will just sustain the weight, i. e. the weight and the power will be in *equilibrio*.

2. If a power applied in *F*, pull down the wheel, according to the line of direction *FD*, which is oblique to the radius of the wheel, though parallel to the perpendicular direction; it will have the same proportion to a power which acts according to the perpendicular direction *AL*, which the whole line has to the sine of the angle of direction *DFC*.

Hence, since the distance of the power in *A* is the radius *CA*; the angle of direction *DFC* being given, the distance *DC* is easily found.

3. Powers applied to the wheel in several points, *F* and *K*, according to the directions *FD* and *KI*, parallel to the perpendicular one *AL*, are to each other as the distances from the centre of motion *CD* and *CI*, reciprocally.

Hence, as the distance from the centre of motion increases, the power decreases; & *vice versa*.—Hence also since the radius *AC* is the greatest distance, and agrees to the power acting according to the line of direction; the perpendicular power will be the smallest of all those able to sustain the weight *G*, according to the several lines of direction.

4. If a power acting according to the perpendicular *AL*, raise the weight *G*, the space passed through by the power will be to the space passed through by the weight, as the weight to the power.

For, in each revolution of the wheel, the power passes through its whole periphery; and in the same time the weight is raised a space equal to the periphery of the *axis*: the space of the power, therefore, is to the space of the weight, as the periphery of the wheel to that of the *axis*: but the power is to the weight, as the radius of the *axis* to that of the wheel. Therefore, &c.

5. A power and a weight, being given, to construct an *Axis in peritrochio*, whereby it shall be sustained and raised: let the radius of the *axis* be big enough to support the weight without breaking. Then, as the power is to the weight, so make the radius of the wheel, or the length of the spoke, to the radius of the *axis*.

Hence, if the power be but a small part of the weight, the radius of the wheel must be vastly great.—E. gr. Suppose the weight 3000, and the power 50, the radius of the wheel will be to that of the *axis* as 60 to 1.

This inconvenience is provided against by increasing the number of wheels and *axes*; and making one turn round another by means of teeth or pinions.

Axis of a vessel, is that quiescent right line passing through the middle thereof, perpendicularly to its base, and equally distant from its sides.

Axis, in *Optics*.—*Optic axis*, or *visual axis*, is a ray passing through the centre of the eye; or it is that ray, which, proceed-

proceeding through the middle of the luminous cone, falls perpendicularly on the crystalline humour, and consequently passes through the centre of the eye.

AXIS, *common*, or *mean*, is a right line drawn from the point of concurrence of the two optic nerves, through the middle of the right line, which joins the extremity of the same optic nerves.

AXIS of a *lens*, or *glass*, is a right line passing along the *axis* of that solid, whereof the *lens* is a segment.

Thus, a spherical convex *lens* being a segment of some sphere, the *axis* of the *lens* is the same with the *axis* of the sphere; or it is a right line passing through the centre thereof.

Or, the *axis* of a *glass*, is a right line joining the middle points of the two opposite surfaces of the glass.

AXIS of *incidence*, in *Dioptrics*, is a right line drawn through the point of **INCIDENCE**, perpendicularly to the refracting surface.—Such is the line DB, *Tab. Optics. fig. 56.*

AXIS of *refraction*, is a right line continued from the point of incidence or refraction perpendicularly to the refracting surface, along the farther medium. Such is the line BE.

Or, it is that made by the incident ray, perpendicularly prolonged on the side of the second medium.

AXIS, in *Zoology*, the name of a very remarkable animal, of the deer kind in all respects, except that neither the male nor female have horns; the tail is considerably long, and the whole shape and make extremely like those of the fallow deer. The female is smaller than the male, and both are of a reddish tawney colour, variegated with spots of white; the belly is white. The voice is much more loud and shrill than that of the deer. It is very plain that this creature is neither of the red nor fallow deer kind, whence Bellonius, who saw it at Cairo in Egypt, was induced to call it the **AXIS**. Ray.

AXLE-tree. See **AXIS**.

AXOLOTI, in *Ichthyology*, a singular fish found in the lake of Mexico. It has four feet like the lizard, no scales, a matrix like a woman, and the menstrual flux. It has the taste of an eel.

AXUNGIA, a kind of fat, the hardest and driest of any in the bodies of animals.

The word is supposed to be formed *ab axe rotarum quæ unguntur*, from its being used as the grease of wheels.

The Latins distinguish fat into *pinguedo*, and *adeps*, or *sebum*; which last, when old, is particularly called *axungia*: but many of our modern writers confound them. Physicians make use of the *axungia* of the goose, the dog, the viper, and some others, especially that of man, which is held by some to be of extraordinary service in the drawing and ripening of tumors, &c.

AXUNGIA of *glass*, called also the *gall*, and *salt of glass*, is a scum taken from the top of the matter of glass before it be thoroughly vitrified. It is used in cleansing the teeth, and by farriers for clearing the eyes of horses.

AXUNGIA *lunæ*, an affected name given by the German chemists to the *terra GOLTBERGENSIS*, from their imagining that it contains some particles of silver, and owes to them its virtues in medicine.

AXUNGIA *solis*, is used for the **TERRA Silesiaca**, and said to be good against the plague, pestilential fevers, &c. Boyle.

AXYRIS, in *Botany*, a genus of the *monoccia triandria* class of plants. The calyx of the male flowers is a perianthium, composed of four patent, obtuse leaves, divided into three segments, without a corolla; in the female flowers the calyx is composed of five obtuse, concave, connivent, and permanent leaves, with the two exterior ones shorter than the rest, without a corolla or pericardium; the seed is single, oblong, compressed, obtuse, and contained in the cup.

AYEL, Fr. in *Law*, a writ which lies where the grandfather was seized in his demesne on the day he died, a stranger enters the same day and dispossesses the heir.

AYENIA, in *Botany*, a genus of the *gynandria pentandria* class, with a five-leaved calyx; the petals form a star with long shoots, under which are five *antheræ*; the capsule has five cells.

AYGULA, in *Zoology*, a species of ape.

AYRY, or **AERY** of **HAWKS**, a nest or company of *hawks*: so called from the old French word *aire*, which signifies the same.

AYSIA MENTA, or **AYZIA MENTA**. See **EASEMENT**.

AZAB, in the *Military Order of the Turks*, signifies a particular body of the soldiery taken in, or added first to the *janizaries*, but now become a separate body from them. The word, in the Oriental languages, signifies an unmarried person, and the original order of these was, that they should be single men.

The *azabs* in Egypt have been great rivals to the *janizaries*, and sometimes they have got the better. Their institution and officers are the same with those of the *janizaries*; but with this difference, that from *oda-bashees* they are made *serbajees*, and from that office *caias*, and come into the *divan*. On the contrary, among the *jani-*

zaries, when any one is made a *serbajee*, it is laying him aside, and he is no farther advanced. Pococke's Egypt.

AZABE-KABERI, from *kaber*, *sepulchre*, and *azab*, *torment*; denotes a temporary punishment, which as the Mahometans say, the wicked must suffer after death. Their crimes are hereby expiated, and Mahomet opens the gate of paradise to all who believe in him.

AZALEA, in *Botany*, *American upright honeysuckle*, a genus of the *pentandria monogynia* class; the characters are, that it hath a coloured empalement, which is permanent, cut into five acute parts at the top; that the flower is funnel-shaped, having a long naked tube, cut into five parts; the two upper segments being reflexed backward, the two sides bent inward, and the lower one turned downward: that it hath five slender *stamina* of unequal lengths, with a round *germen*, which afterwards becomes a roundish *capsula*, having five cells filled with roundish small seeds. There are two species which grow naturally on moist grounds in North America.

AZAMOGLANS. See **AGEMOGLANS**.

AZAPES. See **ASAPPES**.

AZARECAH, a sect of heretical Mussulmans, who acknowledge no punishment, temporal or spiritual.

AZAROLA. See **SERVICE-tree**.

AZARUM, a small, dry, blackish, stringy, medicinal root, much used in France as a specific for the farcy in horses. The *azarum*, called also *nardus sylvestris*, grows in the Levant, Canada, and about Lyons in France. The first is reputed the best. It is given in powder, from the quantity of an ounce to two.

AZAZEL, in *Jewish Antiquity*. See **SCAPE-GOAT**.

AZED, in the *Materia Medica*, a name given by the Arabian writers to a kind of camphor, which they make the third in value, placing it after the *alcansuri* and *abriagi*. The first of these was the finest of all the kinds of camphor, and was collected tolerably pure from the tree, as it grew in Cansur, the place whence it was named. The *abriagi* was the same camphor, rendered yet more pure by sublimation: this was a discovery of one of the kings of that country, and the camphor was named from him. The third kind, or *azed*, was the same with what we now receive from the Indies, under the name of crude or rough camphor. The word *azed* signifies only *large*, and was used to express the camphor formed into such large cakes, as it is also at this time. Avicenna says this camphor was gross, of a dusky colour, and much less bright and pellucid than the other kinds.

AZEDARACH, in *Botany*. See **BEAD-tree**.

AZELFOGE, in *Astronomy*, a fixed star of the second magnitude, in the *SWAN's tail*.

AZIMUTH, in *Astronomy*. The *azimuth* of the sun, or a star, is an arch of the **HORIZON**, comprehended between the meridian of the place, and any given vertical, in which the sun or star is.

The word is pure Arabic, which signifies the same thing. The *azimuth* is the complement of the eastern or western amplitude to a quadrant.

The *azimuth* is found trigonometrically, by this proportion; as *radius* is to the tangent of the latitude, so is the tangent of the sun's altitude to the cosine of the *azimuth* from the south, at the time of the equinox. To find the *azimuth* by the globe, see **GLOBE**.

AZIMUTH, *magnetical*, is an arch of the horizon contained between the sun's *azimuth* circle, and the magnetical meridian; or it is the apparent distance of the sun from the north or south point of the compass.

It is found, by observing the sun with an *azimuth* compass, when he is about 10 or 15 degrees high, either in the forenoon or afternoon.

AZIMUTH *compass*, is an instrument used at sea for finding the sun's magnetical *azimuth*.

The description and use of the *azimuth* compass, see under **AZIMUTH COMPASS**.

AZIMUTH *dial* is a **DIAL** whose style or *gnomon* is at right angles to the plane of the **HORIZON**.

AZIMUTHS, called also *vertical circles*, are great circles intersecting each other in the zenith and nadir, and cutting the horizon at right angles in all the points thereof. The **HORIZON** being divided into 360°, there are usually reckoned 360 *azimuths*. The *azimuths* are represented by the rhumbs on common sea-charts.

On the globe these circles are represented by the quadrant of altitude, when screwed in the zenith.

On these *azimuths* is reckoned the height of the stars, and the sun, when he is not in the meridian; that is, the *azimuths* shew what distance these are from the **HORIZON**.

AZOGA *ships*, are those Spanish ships commonly called the *quicksilver-ships*, from their carrying quicksilver to the Spanish West Indies, in order to extract the silver out of the mines in Peru and Mexico. But it is a great mistake to imagine that these ships are absolutely laden with quicksilver only; for though strictly speaking, they are to carry no goods unless on the king of Spain's account, they are generally full laden, notwithstanding this regulation,

lation, by reason that the merchants procure special licences of the king to load, upon paying a consideration for such licences.

AZONI, in *Mythology*, a term anciently applied to such of the gods as were not the private divinities of any particular country or people; but were acknowledged as gods in every country, and worshipped by every nation. See **GOD**.

The word is derived from the privative α , and $\zeta\omega\nu$ zone, country.

These *azoni* were a degree above the visible and sensible gods, which were called *zonai*; who inhabited some particular part of the world, and never stirred out of the district or zone that was assigned them. Such in Egypt were Serapis, Osiris, and Bacchus; and in Greece, the Sun, Mars, the Moon, and Pluto. They were called by the Romans *dii communes*.

AZOOPHAGUS, from α , $\zeta\omega\nu$, animal, and $\phi\alpha\gamma\omega$, I eat, in *Natural History*, a term used by authors to express such insects or animals as feed on herbs, never eating the flesh of any living creature.

AZOTH, among the *Ancient Chemists*, signified the first matter of metals; or the mercury of the metal, more particularly that which they call the mercury of the philosophers, which they pretend to draw from all sorts of metallic bodies.

Paracelsus's *azoth*, which he boasted of as an universal remedy, is pretended to have been a preparation of gold, silver, and mercury: a quantity of this he is said to have always carried with him in the pommel of his sword.

AZOTH is also a name given by some to the philosopher's stone. When the Arabs began to cultivate the study of chemistry, the metaphorical and hieroglyphical manner of writing, which obtained among them, seems to have given rise to a practice of calling the means made use of for bringing metals to perfection, by the name of medicines, and imperfect metals by the name of sick men, and gold by that of a sound and lively person. From hence the ignorant fall into the error of supposing, that these were to be understood in a literal sense; especially upon finding the impurities of the baser metals called by the name of leprosy, the most incurable of all diseases; and hence rose that opinion, which has since spread itself far and wide, that the imperfect metals might be turned into gold, and the bodies of sick men into sound ones, by the same preparation. To this preparation they gave the name *azoth*, or the philosopher's stone, and to its possessors the name of **ADEPTS**. Boerhaave's Chem.

AZURE, the blue colour of the sky.

AZURE, in *Heraldry*, signifies the blue colour in the coats of arms of all persons under the degree of a baron.

In the escutcheons of noblemen, blue is called *sapphire*; and in those of sovereign princes, *Jupiter*.—In engraving it is represented by strokes, or hatches drawn horizontally, as represented in *Tab. Heraldry*, fig. 3.

The French prefer this colour to all others, because the field of the arms of their kings is *azure*.

AZURE is also used for a mineral colour, better known by the name of *ultramarine*: this is prepared from the **LAPIS lazuli**.

In propriety, however, *azure* should rather denote a bright blue colour, made from the *lapis Armenus*; by our painters more usually called **LAMBERT'S blue**.

AZURE is also generally applied to the blue glass made from the earth of **COBALT**, and vitrifiable matters. This glass, which is called **SMALT** when in masses, is called *azure*, only when it is reduced to a fine powder. Several kinds of *azure* are distinguished according to its degree of beauty, by the names of *fine azure*, *powdered azure*, and *azure of four fires*. In general, the greater the intensity of colour, and the fineness of powder, the more beautiful and dear it is.

Azure is employed to colour **STARCH**; hence it has also been called *starch-blue*.

It is used for painting with colours, and for a blue enamel. See **ZAFFRE**.

AZURIUM, a hard chemical mass, produced from two parts of mercury, a third part of sulphur, and a fourth of **SAL ammoniac**.

AZYGOS, in *Anatomy*, a vein arising out of the *cava*, otherwise called *VENA sine pari*, because single, whence its name. See *Tab. Anat. (Splanchn)* fig. 12. litt. *h h*, and also see **VEIN**.

The *VENA azygos* is the third branch of the ascending trunk of the *cava*—It descends through the right side of the cavity of the *thorax*, and at its arrival at the eighth or ninth *vertebra* begins to keep the middle, and sends forth on each side intercostal branches to the interstices of the eight lower ribs; and there is divided into two branches, the larger of which is inserted sometimes into the *cava*, but oftener into the *emulgent*; the other enters the *cava*, commonly a little below the *emulgent*; but is seldom joined to the *emulgent* itself.

Morgagni gives this name to a muscle of the palate, which is usually called **STAPHYLINUS**.

AZYMITES, they who communicate in bread not leavened, or fermented. See **AZYMUS**.

This appellation is given by Cerularius to those of the Latin church, upon his excommunicating them in the eleventh century. Du-Cange.

The Armenians and Marionites do also make use of *azymus*, or unleavened bread, in their office; on which account some Greeks call them *azymites*.

AZYMUS, something not fermented, or that is made without leaven.

The word is composed of the privative α and $\zeta\omega\nu$, ferment.

The term *azymus* is much used in the disputes betwixt those of the Greek, and Romish church; the latter of whom contend, that the bread in the mass ought to be *azymus*, unleavened, in imitation of the paschal bread of the Jews, and of our Saviour, who instituted the sacrament on the day of the passover; and the former strenuously maintaining the contrary, from tradition and the constant usage of the church.

This dispute was not the occasion of the rupture between the Greek and Latin churches; Photius having broken with the popes 200 years before: though it is urged that before the time of Photius, A. D. 866, *azymus* was used in the Romish church; and that it was more generally used through the West, for which the authority of Alcuin, who died 794, is alledged.

St. Thomas, in 4 Sent. dist. 2. q. 11. art. 2. quæstione. 3. relates, that during the first ages of the church, none but unleavened bread was used in the eucharist, till such time as the Ebionites arose, who held, that all the observances prescribed by Moses were still in force: upon which, both the eastern and western churches took to the use of leavened bread; and, after the extinction of that heresy, the western church returned to the *azymus*; the eastern pertinaciously adhering to the former usage.

This account is controverted by father Sirmond, in a dissertation on the subject; wherein he shews, that the Latins had constantly communicated in leavened bread, till the tenth century. And cardinal Bona, *Rerum Liturgic.* c. 23. p. 185. greatly distrusts what St. Thomas alledges.—In the council of Florence it was decreed, that the point lay at the discretion of the church; and that either leavened or unleavened bread might be used: the western church has preferred the latter.

AZZALUM, in the *Ancient Physiology*, a species of iron, reputed the most excellent of all, supposed to have been brought from India, whence it was called *Indicum*, but, in reality, according to some, brought from China. *Plin. Hist. Nat. lib. xxxiv. c. 14.*

B.

B, The second letter of our alphabet, and of most others. This observation fails in the ancient Irish alphabet; where B is the first, and A the seventeenth; and in the Abyssinian, where A is the thirteenth.

B is the first consonant, and first mute, and in its pronunciation is supposed to resemble the bleating of a sheep; upon which account Pierius tells us, in his Hieroglyphics, that the Egyptians represented the sound of this letter by the figure of that animal.

B is also one of those letters which the eastern grammarians call *labial*, because the principal organs employed in its pronunciation are the lips. It has a near affinity with the other *labials* P and V, and is often used for P, both by the Armenians, and other Orientals; as in *Betrus* for *Petrus*, *apsens* for *absens*, &c. and by the Romans for V, as in *amabit* for *amavit*, *berna* for *verna*, &c. whence arose that jest of Aurelian on the emperor Bonofus, *Non ut vivat natus est, sed ut bibat*. See V.

B requires an entire closure and pressure of the lips, and is pronounced by forcing them open with a strong breath. This letter also, if it pass through the nose, becomes an M; as appears by those who have the nostrils stoppt by a cold or otherwise, when they endeavour to pronounce the letter M; for instance, *many men*, is by such a one sounded *bany ben*. See M.

With the ancients, B stood for 300, as appears by this verse:

Et B trecentum per se retinere videtur.

When a line was drawn above it, \overline{B} , it stood for 3000: and with a kind of accent below it, for 200; but among the Greeks, as well as Hebrews, this letter signified only 2.

B. F. in the preface to the Decrees, or Senatus-consulta of the old Romans, signified *bonum factum*. It is often found on medals, to mark the epocha or year.

Plutarch observes that the Macedonians changed Φ into B, and pronounced *Bilip*, *Beronice*, &c. for *Philip*, *Pheronice*, &c. and that those of Delphos used B, instead of Π ; as *Babeu* for *παιειν*, *Bupov* for *πυρον*, &c. See P.—The modern Greeks call the *beta*, *vita*.

The Latins said *suppono*, *oppono*, for *subpono*, *obpono*, and pronounced *optinuit*, though they wrote *obtinuit*, as Quintilian has observed. They also used B for F or PH; thus, in an ancient inscription, mentioned by Gruter, OBERNDARIO is used for OFRENDARIO. See F, &c.

In *Musick* b is used to denote a flat, or the lowering of a sound by a semi-tone minor. Thus A^b or bA is the flat of A, or the semitone-minor below A.

B, b, *quadro*, or ♩ , in the scale of musical notes, signifies the sound which is a tone above A, and a semi-tone below C.

In the works of the musicians of former ages, we often meet with the mark ♩ alone to signify the same sound as b. The letter B, among them, signified what we now call B flat: but among modern musicians, B is more commonly used for the sound which is a tone above A; and to denote B flat, or the semi-tone major above A, B^b or bB is used.

B is also used as an abbreviation of *basso* or *bass*. Hence B. C. stands for *basso continuo*, or the *thorough bass*.

B, in the chemical alphabet, denotes *mercury*, according to Raymond Lully.

B on some French coins denotes that they were struck at Rouen.

B is also used as a contraction for *Bachelor*; as B. A. *Bachelor of Arts*; B. LL. and B. D.

BAAL, in *Antiquity*, the supreme Being among the Phœnicians.

The descendants of Ham first worshipped the sun under this title, which they afterwards ascribed to the patriarch who was the head of their line; making the sun only an emblem of his influence and power. See DEMON.

BAALIM, in *Antiquity*, inferior deities among the Phœnicians. See DEMON.

BAALIS, a goddess among the Phœnicians. Some suppose that she was the same with the Diana of the Greeks.

BAAL-BERITH, in *Ancient Mythology*, derived from *baal*, *sovereign*, and *berith*, *covenant*; a deity acknowledged under this title by the Carthaginians and Phœnicians in their alliances.

BAAL-GAD, BAGAD, or BEGAD, in *Ancient Mythology*, an idol of the Syrians whose name was composed of *baal*, *lord*, and *gad*, *chance* or *fortune*; the god of chance or fortune. After the god of *thunder*, the god of *chance* was one of the first worshipped by mankind. See Phil. Trans. vol. lvi. N^o 2. an. 1766.

BAANITES, the followers of Baanes, who adopted and disseminated the Manichean notions in the ninth century, about the year 810.

BAARAS, or BAHARAS, or BACHARAS, an extraordinary kind of root, said to grow on mount Lebanon, in a valley called *Baaras* (whence the name), near the city Macheron.

By the account which Josephus gives of it, it seems to be a sort of vegetable phosphorus; for he represents it as of a flame colour, emitting rays of light in the night, and disappearing by day.

BAAT, in the language of the Siamese, answering to *tical* in that of the Chinese, denotes a weight and coin current in those kingdoms. It weighs about half an ounce.

BABBLING, among *Hunters*, is when the hounds are too busy after they have found a good scent.

BABOON, in *Zoology*, a large kind of ape, common in the East and West Indies. The head is large, and the mouth in a particular manner furnished with whiskers: the face is naked, but the back part of the head hairy. It has a very short tail, and is of a dark olive colour. See PAPIO and SIMIA.

BABYLONIAN, BABYLONIC, or BABYLONISH *epocha*, *gemara*, *hour*, &c. See EPOCHA, GEMARA, HOUR, &c. The *Babylonian* monarchy, history, &c. is the same with what is otherwise denominated the *Chaldean*, or *Assyrian*, &c.

In *Ancient Writers*, we find frequent mention of *Babylonica texta*, a rich sort of weavings, or hangings, denominated from the city of *Babylon*, where the practice of interweaving divers colours in their hangings first obtained. Plin. Hist. Nat. lib. viii. c. 48.

Hence also *Babylonic* garments, *Babylonic* skins, *Babylonic* carpets, housings, &c.

Babylonica solana, coverings laid over couches, &c. painted with gold, purple, and other colours.

BABYLONIAN, *Babylonius*, is also used in some *Ancient Writers* for an astrologer, or any thing relating to astrology.

Hence *Babylonia cura*, the art of casting nativities; and *numeri Babylonii*, the computation of astrologers. Hor. lib. i. od. 12.

BABYLONICS, in *Literary History*, a fragment of the ancient history of the world, ending at 267 years before Christ; and composed by Berofus or Berossus, a priest of Babylon, about the time of Alexander. Stanley Hist. Phil.

The *Babylonics* were very consonant with Scripture, as Josephus and the ancient Christian chronologers assure us; whence the author is usually supposed to have consulted the Jewish writers. There now remain only a few imperfect extracts, preserved chiefly by Josephus

Josephus and Syncellus. They were forged by Annius of Viterbo. Fabr. Bib. Græc.

BABYROUSSA, in *Zoology*, the name of an animal called by some *porcus Indicus*, or the Indian hog. It is of the size and shape of a stag. Its head and tail resemble those of a boar; and its legs and feet, the goat's. But besides all these singularities, there is another thing in which it differs from all the other known animals, which is, that it has four *dentes exerti*, or long and crooked tusks, two of which arise from the lower jaw, and the other two from the upper, making their way through the flesh. Some have chose to call them horns, but they are certainly more properly distinguished by the name of teeth, as they have each their *alveolus*, from which they grow just in the manner of teeth, and are of the substance of ivory, not of horn. The creature is found in the island of Borneo.

This animal is a species of the *sus* in the Linnæan system.

BAC, in *Navigation*, is used for a **PRAAM**, or ferry-boat. The word is French.

BAC, in *Brewing*. See **BACK**.

BACANTIBI, in *Ecclesiastical Antiquity*, wandering clerks, who strolled from church to church. Bingham.

The word seems formed by corruption from *vacantivi*.

BACCÆ, *Bermudienfes*, in the *Materia Medica*, the name of the fruit or berries of the *sapindus*, or soapberry-tree.

BACCALARIA, in *Middle Age Writers*, denotes a kind of country-farms, consisting of several manfes. Du-Cange.

BACCALARIA dominicaria, or *indominicata*, was more particularly used for a farm belonging to the lord, and kept in his own hands.

BACCHÆ, in *Antiquity*, the priestesses of Bacchus, who celebrated the *orgia*, or mysteries of that god.

The word was also used for the ivy crowns and garlands worn by the priests of Bacchus, in offering sacrifices to him.

BACCHANALIA, a religious feast, in honour of Bacchus, celebrated with much solemnity among the ancients, particularly the Athenians, who even computed their years thereby, till the commencement of Olympiads.

The *bacchanalia* are sometimes also called *orgia*, from the Greek *οργη*, *fury*; on account of the madness and enthusiasm wherewith the people appeared to be possessed at the time of their celebration.

They were held in autumn, and took their rise from Egypt; whence, according to Diodorus, they were brought into Greece by Melampus.

The form and disposition of the solemnity depended, at Athens, on the archon, and was, at first, exceeding simple; but, by degrees, it became incumbered with a number of ridiculous ceremonies, and attended with much dissoluteness and debauchery; insomuch that the Romans, who grew ashamed of them, suppressed them by a *senatus-consultum* throughout all Italy.

The women had a great share in the solemnity, which is said to have been instituted on their account: for a great number of them attended Bacchus to the conquest of the Indies, and carrying in their hands the *thyrsus*, i. e. a little lance, covered with ivy and vine-leaves, singing his victories and triumphs wherever they went; the ceremony was kept up after Bacchus's deification under the title of *Bacchanalia*, and the women were installed priestesses thereof, under that of *Bacchæ*, or *Bacchantes*.

These priestesses, at the time of the feast, ran through the streets, and over the mountains, covered with tyger's skins, their hair dishevelled, their thyrsus in one hand and torches in the other, howling and shrieking *Ευοισαβοι, ευοι Βαυχε, or Ιω Ιαυχε, or Ιω Βαυχε*.

Men and women met promiscuously at the feast, all perfectly naked, except only for the vine-leaves, and clusters of grapes, which bound their heads and hips; here they danced and jumped tumultuously, and, with strange gesticulations, sung hymns to Bacchus, till, being weary, and giddy, they tumbled down.

BACCHANALIA, *bacchanals*, is also a name given to pictures, or *basso relievos*, whereon the feast is represented, consisting chiefly of dancings, nudities, and the like.

There are antique *bacchanals*, still seen on several ancient friezes. The *bacchanals* painted by Poussin are excellent.

Some writers call the Romish **CARNAVAL**, the *Christian Bacchanalia*.

BACCHARACH wine, a name of a particular kind of wine, by some esteemed a kind of Rhenish; but Portzius, who has written expressly on the subject, observes that it differs from all the common Rhenish wine, in colour, odour, taste, and virtue.

BACCHARIS, *ploughman's spikenard*, in *Botany*, a genus of the Linnæan *syngenesia polygamia superflua* class. Its characters are, that the flower is composed of many hermaphrodite and female florets, which are included in one common cylindrical scaly empalement: that the hermaphrodite flowers are funnel-shaped, and have five slender *stamina* with an oval *germen*, which afterward becomes a

single short seed crowned with a long down; that the female flowers have no *stamina*, but in other respects are the same. There are two sorts, which grow naturally in North and South America.

Though this plant is but seldom used, yet some account it a good vulnerary, and useful in bruises, contusions, ruptures, and inward wounds, pains in the side, and difficulty of breathing.

BACCHARIS was also the name of a sweet ointment among the ancients, so called perhaps from this herb's being a principal ingredient in it.

BACCHI, in *Mechanics*, a kind of ancient machines, in form of goats, used by Jupiter in his wars against the giants.

Rudbeck describes two kinds of *bacchi*, one made like the battering-ram, wherewith Jupiter demolished the enemies fortifications; the other contrived to cast fire out of, from whence the Greeks are conjectured to have framed their idea of *chimera*.

BACCHIC, something relating to the ceremonies of Bacchus.

The celebrated *intaglio*, called Michael Angelo's ring, is a representation of a *bacchic* feast.

BACCHIC song, is sometimes used for a *chanfon à boire*, or composition to inspire jollity. But in a more proper sense, it is restrained to a dithyrambic ode, or hymn.

BACCHICA, in *Botany*, is used for *hedera*. IVY.

BACCHIUS, in the *Latin Poetry*, a kind foot, consisting of three syllables; whereof the first is short, and the two latter long; as *egēsūs*.

The *bacchius* is the reverse of a dactyl, and takes its name from that of Bacchus, because frequently used in the hymns composed in his honour. It was also called among the ancients, *anotrius*, *tripodius*, *saltans*; and by the Greeks, *παρταυος*.

BACCHUS, in *Mythology*, the name of two gods among the ancients: that in Egypt the son of Ammon, and the same with Osiris; and that of Thebes, the son of Jupiter, and Semele. The latter is the god of wine; and is represented under the figure of a jolly beardless youth, crowned with ivy and vine leaves; a spear wrapped with the same, in one hand; and with grapes, or a cup, in the other. See **BACCHANALIA**.

BACCHUS, in *Ichthyology*, a name given by some to the **MYXON**, a fish of the mullet-kind, remarkable for the red colour of its lips, and the extremity of the covering of the gills. See **MUGIL**.

BACCIFEROUS Plants, are such as bear berries, i. e. fruit, covered with a thin membrane, wherein is contained a pulp, which grows soft and moist when ripe, and incloses the seed within its substance.

The *bacciferous* trees Mr. Ray divides into four kinds, 1. Such as bear a caliculate, or naked berry; the flower and *calix* both falling off together, and leaving the berry bare, as the *sassafras-tree*, &c.

2. Such as have a naked monopyrenous fruit, that is, containing in it only one seed; as the *arbutus*, the *terebinthus*, *lentiscus*, &c.

3. Such as have a naked, but a polypyrenous fruit, that is, containing two or more kernels or seeds within it; as the *jasminum*, *ligustrum*, &c.

4. Such as have their fruit composed of many *alcini*, or round soft balls, set close together, like a bunch of grapes; as the *uva marina*, the *rubus vulgaris*, *rubus Idæus*, and the *rubus minor fructu cæruleo*.

BACCINIUM, or **BACCINA**, a basin or vessel to hold water to wash the hands. — The holding the basin, or waiting at the basin, on the day of the king's coronation, was an ancient tenure in serjeantry. Lib. Rub. Scaccar. f. 137.

BACCOFOE, in *Botany*, the name of a fruit very common in Guinea. It is like the banana, except that it is whiter, thicker, and shorter. The taste and smell are both very agreeable; and some pretend, that on cutting it through transversely, there is the figure of a crucifix on each side of it. Phil. Transf. N° 108.

BACHELOR, or **BACHELOR**, **BACCULAUREUS**, in *Middle Age Writers*, was a denomination given to those who had attained to knighthood, but were not rich enough, or had not a sufficient number of vassals to have their banner carried before them in battle; or, if they were of the order of bannerets, were not yet of age to display their own banner; but obliged to march to war under the banner of another.

Camden and others define *bachelor*, a person of a middle degree, between a knight and an esquire; of less age and standing than the former, but superior to the latter.

Others will have *bachelor* to have been a common name for all degrees between a mere gentleman and a baron. — Thus we find the lord admiral, when he was neither an earl, nor baron, denominated a *bachelor*. — "Ant it is to weet, that when the admiral rideth to assemble a shippe of war, or other, for the business and affairs of the realm,

B A C

"realm, if he be a *bachelor*, he shall take for his day-
"wages four shillings sterling; if he be an earl, or baron,
"he shall take wages after his estate and degree."

BACHELOR was more peculiarly a title given to a young cavalier, who made his first campaign, and received the military girdle accordingly.

BACHELOR was also a denomination given to him who had overcome another in a tournament, the first time he ever engaged.

BACHELORS, *Knights*, were anciently so called, *quasi* *bas chevaliers*, as being the lowest order of knights, and inferior bannerets, &c.

At present these are called *equites aurati*, from the gilt spurs that are put on them at the time of their creation.—The dignity was at first confined to the military men, but afterwards was conferred on the men of the long robe.

The ceremony is exceedingly simple; the candidate kneeling down, the king touches him lightly with a naked sword, and says, *Sois chevalier, au nom de Dieu*; and afterwards, *Avance, chevalier*.

BACHELOR is also used, in a college-sense, to denote a person possessed of the *baccalaureate*, which is the first degree in the liberal arts, or sciences.

The degree of *bachelor* was first introduced in the thirteenth century by pope Gregory IX. but it remains still unknown in Italy. At Oxford, before a person is intitled to the degree of *bachelor of arts*, he must have studied there four years; three years more to become *master of arts*; and seven more to commence *bachelor of divinity*.

At Cambridge, to commence *bachelor of arts*, he must have been admitted near four years; and above three years more before he commence *master*; and seven more still to become *bachelor of divinity*. He may commence *bachelor of law* after having studied it six years.

At Paris, to pass *bachelor in theology*, a person must have studied two years in philosophy and three years in theology, and held two acts of examination in the Sorbonne.—*Bachelors in the canon law* are admitted after two years study in the same, and sustaining an act according to the forms. A *bachelor of physic* must have studied two years in medicine, after having been four years master of arts in the university, and having stood an examination; after which he is invested with the fur, in order to be licensed.

In the university of Paris, before the foundation of divinity-professorships those who had studied divinity six years were admitted to go through their course, whence they were called *baccalarii cursores*; and as there were two courses, the first employed in explaining the Bible, during three successive years; the second, in explaining the master of the sentences for one year: those who were in their Bible course were called *baccalarii Biblici*; and those arrived at the sentences, *baccalarii sententiarum*. And, lastly, those who had gone through both, were denominated *baccalarii formati*, or *formed bachelors*.

At present, *formed bachelor* denotes a person who has taken the degree regularly after the due course of study and exercises, required by the statutes; by way of opposition to a *current bachelor*, who is admitted in the way of grace, or by diploma.

We also find mention of *bachelors of the church*, *baccalarii ecclesiæ*.—The bishops with his canons and *baccalarii*, *cum consilio & consensu omnium canonicorum suorum & baccaliorum*.

There is scarce any word whose origin is more controverted among the critics than that of *bachelor*, *baccalarius*, or *baccalaureus*: the two different acceptations of the word, literary and military, above recited, have each of them their advocates, who assert each to be the primitive sense, and derive the word accordingly.

Among those who hold the military *bachelor* to be the more ancient, are Cujas, who derives the word from *buccellarius*, a kind of cavalry, anciently in great esteem. Dugange deduces it from *baccalaria*, a kind of fees, or farms, consisting of several pieces of ground, each whereof contained 12 acres, or as much as two oxen would plough; the possessors of which *baccalaria* were called *bachelors*.

Caseneuve, and Altaferra, derive *bachelor* from *baculus*, or *bacillus*, a staff, because the young cavaliers exercised themselves in fighting with staves. Martinius derives it from *baccalaureus*, i. e. *baccâ laureâ donatus*, in allusion to the ancient custom of crowning poets with laurels, *baccis lauri*, as was the case with Petrarch at Rome in 1341. Alciat and Vives are of the same opinion: nor is this etymology improbable.

BACHELORS, in the livery companies in London, are those not yet admitted to the livery.

These companies generally consist of a master, two wardens, the livery, and the *bachelors*, who are yet but in expectation of dignity in the company, and have their function only in attendance on the master and wardens: they are also called yeomen.

BACHELOR is also a name given in the six companies of merchants at Paris to the elders, and such as having served

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the offices, have a right to be called by the masters and wardens to be present with them, and assist them in some of their functions, particularly in what relates to the *chef-d'œuvres*, or master-pieces of such as are candidates for being admitted masters.

BACHELOR is also particularly used for a man not married, or who is yet in a state of celibacy.

The Roman censors frequently imposed fines on old *bachelors*. Dion Halicarnassensis mentions an old constitution, by which all persons of full age were obliged to marry. But the most celebrated law of this kind was that made under Augustus called the *lex Julia de maritandis ordinibus*; by which *bachelors* were made incapable of legacies or inheritances by will, unless from their near relations.

The Rabbins maintain, that, by the laws of Moses, every person, except some few, are obliged in conscience to marry at twenty years of age: this makes one of their 613 precepts. Hence those maxims so frequent among their casuists. That he who does not take the necessary measures to leave heirs behind him, is not a man, but ought to be reputed a homicide. Lycurgus was not more favourable: by his laws *bachelors* are branded with infamy, excluded from all offices civil and military, and even from the shows and public sports. At certain feasts they were forced to appear, to be exposed to the public derision, and led naked round the market-place. At one of their feasts, the women led them in this condition to the altars, where they obliged them to make *amende honorable* to nature, accompanied with a number of blows, and lashes with a rod at discretion. To complete the affront, they forced them to sing certain songs composed in their own derision.

The Christian religion is more indulgent to the *bachelor*-state: the ancient church recommended it as preferable to, and more perfect than the matrimonial state. In the *Canon Law*, we find injunctions on *bachelors*, when arrived at puberty, either to marry or turn monk, and profess chastity in earnest.

BACILLI, or **BACULI**, in *Medicine*, such compositions as are made up in a cylindrical figure, like a stick; thus called from the Latin *baculus*, a staff. See **LOZENGE**.

BACK. See **DORSUM**.

BACK-bone. See **SPINE**.

BACK, in the *Manege*, and among *Farriers*. A horse's back should be straight, not hollow, which is called *saddle-backed*; horses of this kind are generally light, and carry their heads high, but want in strength and service. A horse with a weak back is apt to stumble.

In the French riding-schools, to mount a horse *a dos*, is to mount him bare backed, without a saddle.

BACK, in *Brewing*, a large flat kind of tub or vessel, wherein the wort is put to stand and cool before boiling.

The ingredients of beer pass through three kinds of vessels. They are mashed in one, worked in another, and cooled in a third, called *backs* or *coolers*.

To gauge a *Brewer's BACK*. Most *backs* have their sides straight; in case, however, they be not, but make either an acute or obtuse angle with the bottom, the true length and breadth must be carefully taken in the middle of every inch in depth; from whence the area may be found upon every tenth. For finding the area of the back, this rule must be observed, to multiply the length by the breadth, and divide by 282; which gives the contents in ale gallons.

To find the true dip of a **BACK**. Because *backs* are not placed level, but sloping, for conveniency of drawing off the wort; therefore, were the dip taken in too deep a place, the subject would be wronged; as would the king, if it were taken in too shallow a part; to guard against which, as many dips as are thought convenient must be taken; these being added together, and divided by the number of dips, will give a mean depth. When this is done, trial being made in different parts of the back, until one is found which answers exactly to the mean depth; let a mark or notch be made at the side of the back, to point it out as the true dipping-place for the future.

The bottom of large *backs* ought to be every where equally and well supported, to secure them from warping, which else they will do, more and more as they grow older.

BACK, in the *Distillery*, a vessel in which liquor is put to be fermented.

BACK of the post, in *Sea-Language*. See **STERN-post**.

BACK-board, in *Maritime Affairs*, is of a semicircular figure, placed transversely in the after-part of a boat, like the back of a chair, to recline against while sitting in the *stern-sheets*.

BACK the sails, to put them in a situation that will occasion the ship to retreat or move altern.

BACK-painting, is used by some for the art of pasting of prints and other designs on glass.

The art consists chiefly in laying the print upon a piece of crown

crown-glass, of such a size as fits the print. In order to do this, the print must be soaked in clean water for forty-eight hours, if it be on very strong, close, and hard gummed paper; but if on a soft, spongy paper, two hours will sometimes be sufficient. The picture being well soaked, must be laid between four sheets of paper, two over and two under it, that the moisture may be drawn out of it. In the mean while, let the glass upon which the print is to be laid be warmed at the fire; then with a hog's-hair brush dipped in melted Straßburg turpentine, spread the turpentine smoothly and evenly on the glass. Then lay the print upon the glass, rubbing it gently from one end to the other, that it may lie close. With the finger, rub off the paper from the back side of the print, till nothing can be seen but the print, like a thin film left upon the glass, and set it aside to dry. When it is dry, varnish it over with some white transparent varnish, that the print may be seen through it, which is now fit for painting.

Having prepared a variety of oil colours, which must be ground very fine, and tempered very stiff, lay such colours on the transparent print as each particular part requires, the master-lines of the print guiding the pencil; and thus each colour will appear fair to the eye on the other side of the glass, and look almost as well as a painted piece, if it be done neatly. The chief care to be used in this part of the work, is that of laying the colours on thick enough, that they may be struck plainly through the glass.

BACK; *Iron BACK* is a large plate of cast iron, frequently adorned with figures in low relieve, intended to preserve the stone-work of a chimney-back, and to reflect the heat of the fire.

BACKBEROND, or **BACKBEREND**, in *Law Writers*. denotes a criminal caught carrying off something on his back.

In this sense, Bracton uses it for a species of what the civilians call manifest theft, *furtum manifestum*.

In the *Forest Laws*, *backberond* is one of the four circumstances, or cases, wherein a forester may arrest the body of an offender against vert or venison in the forest. The others are *stable-stand*, *dog-draw*, and *bloody-hand*.

BACKING a colt, the operation of breaking him to the saddle, or bringing him to endure a rider.

To *back* a colt, they usually take him into ploughed ground, trot him a while, to rid him of his wantonness; then having one stay to his head, and govern the chaffing rein, the master mounts his back, not suddenly, but by degrees, first making several offers, or half-risings: when he bears these patiently, he mounts in earnest, and settles in his place, cherishing him, &c.

BACKING Warrants, in *Law*, denotes the signing of such as have been issued by a justice of the peace in one county, by a justice of the peace in another county, which is necessary before they can be executed there. This practice is authorized by statutes 23 Geo. II. c. 26. and 24 Geo. II. c. 55.

BACKS, among dealers in leather, denote the thickest and best tanned hides, used chiefly for soles of shoes.

BACKS of a hip. See **HIP**.

BACK-gammon, a game played with dice and tables, to be learned only by observation and practice.

BACK-beaver, a machine long used in several parts of England, particularly in Hampshire, Wiltshire, and Sussex, for winnowing corn. An improved construction of this machine, illustrated by a figure, was proposed by Dr. Hales, in the year 1747, which, he says, will not only render it fit for winnowing corn sooner and better than by any other means hitherto used, but also for clearing it of the very small corn, seeds, blacks, smut-balls, &c. to such perfection, as to make it proper for seed-corn. See Hales's *Uses of Ventilators*, part ii. p. 247, &c.

BACK-nails. See **NAIL**.

BACK-staff, in *Navigation*, an instrument, by the French called the *English quadrant*: it was invented by Capt. Davis; and is of good use in taking the sun's altitude at sea.—It consists of three vanes, A, B, and C, and of two arches (*Tab. Navigation*, fig. 6.) The vane at A, called the *horizon-vane*; that at B, the *shade-vane*; and that at C, the *sight-vane*. The lesser arch B is of 60 degrees, and that of C (or FG) of 30 degrees.

To *use* the **BACK-staff**. The shadow-vane B is set upon the 60 arch, to an even degree of some latitude, less by 10 or 15 degrees than you judge the complement of the sun's altitude will be; the horizon-vane is put on at A, and the sight-vane on the 30 arch FG: the observer's back being then turned to the sun (whence the name of *back-staff*, or *back-quadrant*), he lifts up the instrument, and looks through the sight-vane, raising or falling the quadrant, till the shadow of the upper edge of the shade-vane fall on the upper end of the slit of the horizon-vane; and then if he can see the horizon through the said slit, the observation is well made: but if the sea appear instead of the

horizon, the sight vane must be moved lower towards F: If the sky appear, it must be moved upward towards G, and thus tried till it comes right: then he observes how many degrees and minutes are cut by that edge of the sight-vane which answers to the sight-hole, and to them adds the degrees cut by the upper edge of the shade-vane: the sum is the sun's distance from the zenith, or the complement of his altitude. To find the sun's meridian, or greatest altitude on any day, continue the observation as long as the altitude is found to increase, which you will perceive by the appearance of the sea, instead of the horizon, removing the sight-vane lower; but when you perceive the sky appear instead of the horizon, the altitude is diminished; therefore, desist from farther observation at that time, and add the degrees upon the 60 arch to the degrees and minutes upon the 30 arch, and the sum is the zenith distance, or co-altitude of the sun's upper limb.

And because it is the zenith distance, or co-altitude of the upper limb of the sun, not the centre that is given by the quadrant, in observing by the upper end of the shade-vane, add 16 minutes, the sun's semidiameter, to that which is produced by your observation, and the sum is the true zenith distance of the sun's centre. If you observe by the lower part of the shadow of the shade-vane; then the lower limb of the sun gives the shadow; and, therefore, you must subtract 16 minutes from what the instrument gives: but considering the height of the observer above the surface of the sea, which is commonly between 16 and 20 feet, you may take 5 or 6 minutes from the 16 minutes, and make the allowance but of 10 minutes, or 12 minutes, to be added instead of 16 minutes.

Mr. Flamsteed contrived a glass *lens*, or double convex, to be placed in the middle of the shade-vane, which makes a small bright spot on the slit of the horizon-vane, instead of the shade; which is a great improvement, if the glass be truly made; for, by this means, the instrument may be used in hazy weather, and a much more accurate observation made in clear weather than could be by the shadow.

BACK-stays of a ship, are ropes belonging to the main-mast and fore-mast, and the masts belonging to them, serving to keep them from pitching forwards, or over-board.—See *Tab. Ship*, fig. 1. n. 105. 63. 25.—They are divided into *breast-back stays*, and *after-back stays*.

BACK-worm, a name given by *Sportmen* to a disease very common to hawks, and called also the *filander*. The worms are lodged between the skin and the flesh, and grow to a great length, some of them not being less than half a yard long. They are very troublesome to the bird, and will at length kill it, if they be not destroyed in time. Their usual place is under the skin of the lower part of the back, towards the rump.

There are several symptoms which discover the bird to be troubled with this disease; the principal are the stinking of its breath, the croaking and mourning in the night, ruffling and writhing the tail, and the smallness of the dung.

The best method of cure is this: squeeze out the juice of some strong and well-grown wormwood, put into it as many cloves of garlic as it will conveniently cover; let the cloves be well cleaned of all skins, and pierced with holes: this is to stand a few nights, and afterwards one of the cloves is to be given, fresh taken out of the liquor, every evening, for four nights together, and after a rest of a few days, the same number given again, and so on till the disease is removed. Others give a scouring of washed aloes, mustard-seed, and agaric, of each equal quantities.

BACOPA, in *Botany*, a name by which some authors call the banana-tree, or *musa fructu breviori*. Piso.

BACON, swine's flesh salted and dried in the chimney. Writers on this branch of oeconomics give rules for the hanging, the salting, and curing of *bacon*, larding with *bacon*, &c.

This appears to be in general an extremely improper and unwholesome aliment, especially for people who do not use great exercise; for those who do, may almost eat any thing without injury. Swine's flesh considered as an aliment is none of the best: and when hardened by salt, and dried by smoke, it is rendered more indigestible, and in consequence of that, productive of obstructions in a very great degree. We may add, that the fat of *bacon* frequently becomes rancid and acrimonious, and often even excoriates the mouth and throat.

BACON-sward, denotes the thick outer skin taken off the lard or fat. Old historians and law writers speak of the *service of the bacon*, a custom in the manor of Whichenovre in Staffordshire, and priory of Dunmow in Essex; in the former of which places, by an ancient grant of the lord, a sitch of *bacon*, with half a quarter of wheat, was to be given to every married couple, who could swear, that having been married a year and a day, they would never

within that time have once exchanged their mate for any other person on earth, however, richer, fairer, or the like. But they were to bring two of their neighbours to swear with them, that they believed they swore the truth. On this the lord of another neighbouring manor, of Rudlow, was to find a horse saddled, and a sack to carry the bounty in, with drums and trumpets, as far as a day's journey out of the manor: all the tenants of the manor being summoned to attend, and pay service to the *bacon*. Plott's Hist. Staff. c. x.

The *bacon of Dunmow*, first erected under Henry III. was on much the same footing; only the tenor of the oath was, that the parties had never once repented, or wished themselves unmarried again. Ib. c. x. sect. 80.

BACTRIANUS, in *Zoology*, a species of the CAMEL.

BACTROPERATA, an ancient appellation given to philosophers by way of contempt, denoting a man with a staff, and a budget.

The word is also written *baetropereta*. It is compounded of *βακτρον*, staff, and *περα*, bag, or budget.

BACULARES, a sect of ANABAPTISTS, so called, as holding it unlawful to bear a sword, or any other arms, besides a staff.

BACULARIUS, in *Writers of the Middle Age*, an ecclesiastical apparitor, or verger; who carries a staff, *baculus*, in his hand, as an ensign of his office.

BACULE, in *Fortification*, a kind of portcullis, or gate, made like a pit-fall with a counterpoise, and supported by two great stakes. It is usually made before the *corps du guard*, advancing near the gate.

BACULI, see **BACILLI**.

BACULI Sti. Pauli, or batons of St. Paul, a kind of figured stones, of the same substance with those resembling the bristles of some American *echini*, called by Dr. Plott *lapides Judaici*.

BACULOMETRY, the art of measuring accessible and inaccessible distances, by the help of *baculi*, staves, or rods. Schwenter has explained this art in his *Geometria Practica*; the rules of it are also laid down by Wolfius, in his *Elements*; Ozanam also gives an illustration of the principles of *baculometry*.

BACULOSUS ecclesiasticus, in some *Ancient Laws*, is used for a bishop, or abbot, dignified with the pastoral staff, or crozier.

BACULUS divinatorius, or *virgula divina*, a branch of hazle-tree, of a forked figure, used for the discovery of mines, springs, &c. See *VIRGULA divina*.

BADGE, in *Naval Architecture*, signifies a sort of ornament placed on the outside of small ships very near the stern, containing either a window, for the convenience of the cabin, or a representation of it. It is commonly decorated with marine figures, martial instruments, or such like emblems.

BADGER, *melis*, or *taxus*, in the Linnæan system of *Zoology*, is a species of the *ursus*, or bear, with very long fore-claws.

The *badger* is called in some parts of England, the *brock*, the *gray*, and the *pate*. The Greeks had no name for this animal, unless their *HYÆNA* was the same creature.

The body of the *badger* is short and thick; its neck very short; and its hairs long, and very rigid, and stiff like hog's bristles. Those on the back are of a pale yellow near the root, brown or black in the middle, and at the extremities yellowish again; so that the creature appears upon the whole, of a mixt colour, or what we call grey, on the back. The sides and belly are covered with hairs, which are all over of a pale yellowish hue; and the legs and shoulders, as also the belly, are wholly black. It has a broad white line from the top of the head to the nose; and on each side of this a very regular pyramidal black mark reaching up to the ears; and below these the jaws are whitish, so that the creature's face looks very oddly variegated. Its eyes are small, and its snout wholly like a dog's. The teeth are like those of a dog also; and the legs short; its fore-feet have sharp claws, with which it digs itself burrows in the earth. Its face is very like that of the fox, being broad at the top of the forehead, and sharpening to a point at the nose, so as to appear triangular in shape; and its cheeks are tumid, and furnished with strong muscles, whence it bites very hard. It feeds on insects and small animals, and on the roots of vegetables. We have them in many parts of England, particularly in the counties of Essex, Suffex, and Warwickshire.

This animal has a very strong smell, and like the dormouse, grows fat by sleeping. Under the tail it has a bag of secreted matter, which is very foetid.

The *badger's* skin is of some use in commerce. Their fat is sold by the druggists, as a remedy against disorders of the kidneys and the *sciatica*; and their hair, for the making pencils for painters and gilders.

BADGER, from *bajulo*, I carry; a licensed huckster, or person privileged to buy corn, or other provisions, and to

carry them from one place to another to make profit of, without being reputed an engrosser.

In the statutes he is also called a *kidder*, or *lader of corn*, 5 and 6 Ed. VI. c. 14. 5 El. c. 12—We also read of *badgers*, or retailers of salt, 9 W. III. c. 6.

BADGER-hunting, see **HUNTING**.

BADIAGA, in the *Materia Medica*, the name of a sort of spongy plant, common in the shops in Moscow, and some other northern kingdoms.

The use of it is the taking away the livid marks from blows and bruises, which the powder of this plant is said to do in a night's time.

We owe the knowledge of this medicine, and its history, to the accurate Buxbaum. He observes, that the plant is always found under water, and is of a very singular and peculiar nature.

It somewhat resembles the *alcyoniums*, and somewhat the sponges, but differs greatly from both, in that it is full of small round granules, resembling seeds. It is of a loose, light, and spongy structure, and is made up of a number of fibres of an herbaceous matter, and is dry, rigid, and friable between the fingers.

This may serve as the generical character of the *badiaga*, of which this accurate observer has found three different species.—Linnæus makes it a species of sponge.

BADIAN, or **BADIANA**, the seed of the anise tree that grows in China.

BADIGEON, a mixture of plaister and free-stone, well ground together, and sifted; used by statuaries to fill up the little holes, and repair the defects in stones, whereof they make their statues and other work.

The same term is also used by joiners, for saw-dust mixed with strong glue, wherewith they fill up the chaps, and other defects in wood, after it is wrought.

BADOUCE, in *Natural History*, the East Indian name of a fruit, very common in that part of the world. It is round, and of the size of one of our common apples; it is yellow on the outside, and white within. It resembles the *mangoustan*; but its pulp is more transparent; its taste is very agreeable, and has some resemblance to that of our gooseberries.

BÆCKEA, *Botany*, a genus of the *œtandria monogynia* class of plants; the calyx of which is a permanent perianthium, consisting of a single funnel-shaped leaf, cut into five segments at the brim; the corolla consists of five roundish spreading petals inserted into the cup; the pericarpium is a globose capsule, made up of four valves, and containing four cells, in which are a few roundish angular seeds.

BÆTUS, in *Ichthyology*, a name given by Aristotle, and other of the ancient Greeks, to the fish called by the Latin writers *cottus*; particularly to that species of it which we call the *bull-head*, or the *millers-thumb*.

BÆTYLOS, or **BÆTYLION**, in *Antiquity*, a kind of stones worshipped among the Greeks, Phrygians, and other nations of the East; supposed by modern naturalists to be the same with our *cœraunia*, or thunder-stone.

The priests of Cybele carried a *bætylos* on their breast, representing the mother of the gods. But it is a mistake to suppose, that this was the only representation of the goddess that they carried about with them.

BAFETAS, or **BAFTAS**, a cloth made entirely of coarse white cotton thread, which comes from the East Indies. Those of Surat are the best.

BAG, in *Commerce*, a term used to signify different quantities of certain commodities.

A *bag* of almonds, for instance, is about 3 hundred weight; of aniseeds, from 3 to 4 hundred; of pepper, from 1½ to 3 hundred; of goats-hair, from 2 to 4 hundred; of cotton-wool from 2½ to 4½, &c.

BAG, facculus, in *Medicine and Pharmacy*, denotes a kind of fomentation, prepared of proper ingredients, inclosed in a *bag*, to be applied externally to a part diseased, for present relief.

Dispensatory writers describe cordial *bags*, used in deliquiums; *bags* for the side, for the stomach, in weaknesses of the stomach; anodyne *bags* to ease pain in any part.

Wines and ales are frequently medicated by putting into them *bags* full of proper ingredients.

Sweet *bags*, are compositions of perfumes, scented powders, and the like, inclosed in *bags*, to give a fragrancy to cloaths, &c.

BAG, in *Farriery*, see **Chewing BALLS**.

BAG, oil, see **OIL**.

BAG, petty, see **PETTY**.

BAGS, sand, see **SAND**.

BAGADAT, a name by which some call the **CARRIER** pigeon, the *columba tabellaria* of Moore. This name is probably a corruption of the word Bagdat, the name of the city from whence they are sometimes brought to Europe; being originally brought thither from Badora.

BAGATINS, or *couriers*, a name given to the pigeon **CARRIERS**.

BAGAUDÆ,

BAGAUDÆ, or **BACAUDÆ**, an ancient faction of peasants, or malecontents, who ravaged Gaul.

The Gauls being oppressed with taxes, rose about the year of Christ 290, under the command of Amand and Elian; and assumed the name *bagaudæ*, which, according to some authors, signified, in the Gallic language, *forced rebels*; according to others, *tribute*; according to others, *robbers*; which last signification others allow the word had, but then it was only after the time of the *bagaudæ*, and doubtless took its rise from them. Du-Cange.

BAGAUZE is the name which is given, in the Antilles islands, to the sugar-canes, after they have passed through the mill. They are dried, and used for boiling the sugar.

BAGGAGE, is particularly used in the *Military Art*, for the necessaries, utensils, apparel, &c. of the officers and soldiers. The *baggage* includes also women, children, sutlers, &c.

The *baggage* is well called by Roman writers, *impedimenta*, on account of the great trouble and expence attending it. Unless strict discipline be kept, great inconveniences may arise from it; whence several military laws and ordinances relating to the *baggage*.

The *baggage*-waggons before a march are appointed a rendezvous, where they are marshalled by the waggon-master-general, according to the rank the several regiments bear in the army. On a march, they are sometimes ordered to follow the respective columns of the army, sometimes to follow the march of the artillery, and sometimes to make a column of themselves. The general's *baggage* is generally first. If the army march from the right, the *baggage* of that wing has the van; if from the left, the *baggage* of the left has the van. Each waggon has a distinguishing flag, to shew to what regiment it belongs.

Packing up the BAGGAGE, *vasa colligere*, was a term among the Romans, for preparing to go to the war, or to be ready for an expedition.

The formula whereby the soldiers declared they were in readiness, was, *vasa conclamare*.

The Romans distinguished two kinds of *baggage*, a greater and less: the lesser was carried by the soldier on his back and called *farcina*; consisting of the things most necessary to life, and which he could not do without. Hence *colligere farcinas*, packing up the *baggage*, is used for decamping, *castra movere*.

The greater and heavier was carried on horses and vehicles, and called *onera*. Hence *onera vehiculorum, farcinæ hominum*. The *baggage*-horses were denominated *sagmentari equi*.

The Roman soldiers in their marches were heavy laden, inasmuch that they were called by way of jest, *muli, mariana*, and *ærumnæ*. They had four sorts of luggage, which they never went without, viz. corn, or *buccelatum*, utensils, *valli*, and arms.—Cicero observes, that they used to carry with them above half a month's provisions; and we have instances in Livy, where they carried provisions for a whole month. Their utensils comprehended those proper for gathering fuel, dressing their meat, and even for fortification, or intrenchment; and what is more, a chain for binding captives.

For arms, the foot carried a spear, shield, saw, basket, *rutrum*, hatchet, *lorum, falx*, &c. Also stakes or pales, *valli*, for the sudden fortifying a camp; sometimes seven, or even twelve of these pales were carried by each man, though generally, as Polybius tells us, only three or four. On the Trojan column we see soldiers represented with this fardle of corn, utensils, pales, &c. gathered into a bundle, and laid on their shoulders.

Thus inured to labour, they grew strong, and able to undergo any fatigue in battle; the greatest part of which nevertired them, or put them out of breath. In after-times, when discipline declined, this luggage was thrown on carriages, and porters shoulders.

The Macedonians were not less inured to hardship than the Romans: when Phillip first formed an army, he forbid all use of carriages; yet with all their load, they would march in a summer's day, twenty miles in military rank.

BAGGING of hops. See Hops.

BAGNIO, an Italian term signifying a bath: it is used by us for a house with conveniences for bathing, sweating, and otherwise cleansing the body; and often for worse purposes.

BAGNIO is also become a general name in Turkey for the prisons where their slaves are inclosed; it being usual in those prisons to have baths.

BAGNOLENTSES, or **BAGNOLIANS**, a sect in the eighth century, who were thought Manichees, though they denied their errors.—They rejected the Old Testament, and part of the New; held the word to be eternal; and affirmed, that God did not create the soul when he infused it into the body.

They derive their name from *Bagnols*, a city in Languedoc, where they were chiefly found.

BAGOI, among the *Ancient Persians*, were the same with those called by the Latins, *spadones*, viz. a species of eunuchs, in whom the canal of the penis was so contorted by a tight *vinculum*, that they could not emit the semen.

BAGPIPE, a musical instrument of the wind-kind, chiefly used in country places, especially in the North.—It consists of two principal parts; the first a leathern bag, which is blown up like a foot-ball, by means of a port vent, or little tube, fitted to it, and stopped by a valve.

The other part consists of three pipes, or flutes; the first called the great pipe, or drone, and the second the little one, which pass the wind only out at the bottom: the third has a reed, and is played on by compressing the bag under the arm when full, and opening or stopping the holes, which are eight, with the fingers. The little pipe is ordinarily a foot long, that played on thirteen inches, and the port vent six.

The *bagpipe* takes in the compass of three octaves:

This instrument was called by the Romans *utricularis tibia*, and the players thereon, *utricularii*. The invention of it is derived by some from Tubal; others ascribe it to Pan; others to Mercury, to Faunus, to Marsyas, and to the young Sicilian shepherd Daphnis, who first composed pastorals.

An anonymous French author has published a treatise of the *bagpipe*, *traité de la musette*, with a new method of learning to play on it without a master. Fol. Par. 1672.

BAGRE, in *Ichthyology*, a small bearded fish of the anguilliform kind, of which there are several species. It has no scales, but is covered over the whole body with a soft mucous skin of a silvery whiteness, and the beard, the head, and fins, are all of the same colour; the eyes are large, the mouth small, and without teeth. It is caught in the American seas, and is eaten; but if any body is wounded by its thorns, it generally gives great pain, and is difficult to cure.

In the Linnæan system, this fish is a species of the *SILURUS*.

BAGRE de Rio, a name by which some call the fish more frequently known by the name of *NHAMDIA*.

BAGUETTE, in *Architecture*, a little round moulding, less than an astragal; sometimes carved and enriched with foliages, pearls, ribbands, laurels, &c.—See *Tab. Archit. fig. 2. and 11.*

According to M. le Clerc, when the *baguette* is enriched with ornaments, it changes its name, and is called *CHAPLET*; and unornamented, it is a *bead*.

BAHAR, or **BARR**, a weight used at Ternate, Moca, in the Moluccas, Achem, and divers other parts of the East Indies.

There are two kinds, the *great*, wherewith spice is weighed, equal to 524lb. 9 oz. averdupoise. The *little bahar* serves for the weighing quicksilver, vermilion, ivory, silk, musk, and other precious wares, equal to 437lb. 9 oz. averdupoise weight.

BAHIRA, among the *Ancient Arabs*, a name given to one of the four kinds of camels or sheep, which for some reasons of their religion were turned out at liberty with an earmark, no longer to be used for service like other cattle. The *bahira*, with the *fabai, wafita*, and *hami*, were abolished by Mahomet, as no ordinance of God.

Authors are not agreed as the characters of the *bahira*.

BAIL in *Law*, the setting at liberty one arrested, or imprisoned upon an action either civil or criminal; under sureties taken for his appearance at a day and place assigned.

It is called *bail*, because hereby the party confined is *baillé* from the Greek *βαλλειν*, delivered into the hands of those who bind themselves for his forthcoming: or from *bail*, used in the sense of a guardian, into whose hands the party is put for security sake.

Manwood distinguishes between *bail* and *mainprise* thus: he that is mainprised, is said to be at large, and to go about at his liberty, without ward, till the time of appearance; whereas he who is let to *bail* to two or more men, is always accounted by law to be in their ward and custody for the time: and they may, if they please, actually keep him in prison.

In civil cases every defendant is *bailable*: but in criminal matters it is otherwise. By the ancient common law, before and since the Conquest, all felonies were *bailable* till murder was excepted by statute. But the stat. Westm. 1. 3 Edw. I. cap. 15. takes away the power of *bailing* in treason, and divers instances of felony. And the statute 1 and 2 Ph. and Mar. cap. 13. farther regulates this matter: so that now, no justices of the peace can bail, upon an accusation of treason, of murder, of manslaughter, if the prisoner be clearly the slayer, or an indictment be found against him; nor of felony, against those who have broken prison. Outlawed persons, and those who have abjured the realm, approvers, and persons accused by them, persons taken with the *mainour*, or in the fact of felony, persons

sons charged with *arson*, and excommunicated persons, are also inadmissible to *bail*. Those who must be bailed, on offering sufficient security, are persons of good fame, charged with a suspicion of manslaughter, or inferior homicide; such persons, charged with petit larceny, or any felony, not before specified, or with being accessory to any felony. Moreover, it is agreed that the court of king's bench (or any judge thereof, in time of vacation) may *bail* for any crime whatsoever, be it treason, murder, or any other offence, according to the circumstances of the case; such persons only excepted, who are committed by either house of parliament during the session, or such as are committed for contempt by any of the king's superior courts of justice.

The refusal or delay of *bail* to persons *bailable*, is an offence by the common law, as well as by the statute West. 1. 3 Edw. I. cap. 15. and the *habeas-corpus* act, 31 Car. II. cap. 2. And it is expressly declared by statute 1. W. & M. stat. 2 cap. 1. that excessive bail ought not to be required; though it is left with the courts to determine what *bail* is excessive. If the magistrate takes insufficient *bail*, he is liable to be fined, if the criminal does not appear.

Bail is either *common* or *special*.

BAIL, *common*, is that given in actions of small prejudice, or slight proof; in which case any nominal sureties are taken; as John Doe, and Richard Roe: this being no other than a form of appearance.

BAIL, *special*, is given in cases of greater moment, where it is required that the sureties be subsidy-men at the least, and according to the value of the matter in question.

It was enacted a few years ago in compassion to the poor, that no persons should be held to special bail in any action brought for less than ten pounds.—This is observed as to writs issued out of the courts of Westminster-hall: and extended to all inferior courts by 19 Geo. III. c. 70.

BAIL *above*, or **BAIL** *to the action*, succeeds the return of the writ, or the appearance of the person *bailed*. The persons, who put in this *bail*, must be at least two in number, and enter into a recognizance, whereby they do jointly and severally undertake, that if the defendant be condemned in the action, he shall pay the costs and condemnation, or render himself a prisoner, or that they will pay it for him; which recognizance is transmitted to the court in a slip of parchment, called the *bail-piece*. And if required, the *bail* must justify themselves by swearing that they are housekeepers, and each of them worth double the sum for which they are *bail*, after payment of all their debts.

BAIL-*bond*, is a bond or obligation entered into by one or more sureties, upon putting in *bail* to the sheriff, insuring the defendant's appearance at the return of the writ.

BAIL *in error*, expresses the bail given by a person who brings a writ of error after verdict, or who is plaintiff in error.

BAIL *piece*. See **BAIL** *above*.

BAILS, *clerk of the*, is an officer belonging to the court of king's bench. He files the bail-pieces taken in that court, and attends for that purpose.

BAILE, or **BALE**, in the *Sea Language*.—The seamen call lading or casting the water by hand out of a boat or ship's hold with bucket, cans, or the like, *bailing*.

When the water is thus *bailed* out, they say the *boat* is *freed*. They also call those hoops that bear up the tilt of the boat, its *bailes*.

BAILEMEN *l*, a term in *Law*, signifying the delivery of things, whether writings or goods, to another; sometimes to be delivered back to the bailor, that is, to him who delivered them; sometimes to the use of him to whom they are delivered, and sometimes to a third person.

This delivery may be simple, as to keep for my use; or conditional, to be redelivered, when money is paid, &c. Upon *bailement*, or delivery of goods, these things are to be observed: if they are delivered to a man to be safely kept; and after, these goods are stolen from him, as he undertook to keep them safely, this shall not excuse him; but if he undertook to keep them as his own, he shall be excused. 2. Inst. 89. 4 Rep 83. 1 Rol. abr. 338.

BAILLIAGE is used for the office of a bailiff, for the place where he keeps his seat, and for the territory subject to his jurisdiction; which last is also denominated *bailiwick*.

BAILLIAGE, *water*, or **BAILIAGE**, is an ancient duty received by the city of London, for all goods and merchandises brought into or carried out of the port.

BAILIFF, in a general sense, denotes an officer appointed for the administration of justice within a certain district, called *bailiwick*.

The word is also written *baile*, *baily*, *bayly*, *baylie*, and *baillif*, in Latin *bailivus*.—It is formed from the French *baillif*, or *bail*, an old word, denoting a guardian, or governor of a youth, originally derived from the Latin *bajulus*, which signified the same.

Pasquier maintains, that *bailiffs* were originally a kind of

commissioners, or judges delegate, sent into the provinces to examine whether or no justice were well distributed by the counts, who were then the ordinary judges. Loyseau, with more probability, refers the origin of *bailiffs* to the usurpation and idleness of the great lords, who, having got the administration of justice into their own hands, and being weary of the burden, turned it over to their deputies, whom they called *bailiffs*.

The *bailiffs* had at first the superintendence of arms, of justice, and of the finances; but abusing their power, they were by degrees stripped of it, and the greatest part of their authority transferred to their lieutenants, who were to be men of the long robe. It is true, in France, they have still some prerogatives, as being reputed the heads of their respective districts: in their name justice is administered, contracts and other deeds passed, and to them is committed the command of the militia.

From these it was that the English *bailiffs* originally took both their name and their office: for as the French have eight parliaments, which are supreme courts, whence no appeal lies, within the precincts of the several parliaments, or provinces, and in which justice is administered by *bailiffs*, at least by their lieutenants: so in England are several counties wherein justice was administered by a viscount or sheriff, who appears likewise to have been called *bailiff*; and his district or county, *bailiwick*. Farther, the counties were again subdivided into hundreds; within which it is manifest justice was anciently rendered by officers called *bailiffs*. But those hundred-courts are now swallowed up by the county-courts, certain franchises alone excepted, and the *bailiffs* name and office grown into such contempt, at least these *bailiffs* of hundreds, that they are now no more than bare messengers, and mandatories within their liberties, to serve writs, and such mean offices.

Bailiffs are of two kinds, *viz.* *bailiffs errant* or *itinerant*, and *bailiffs of franchises*.

BAILIFFS *errant*, are those whom the sheriff appoints to go up and down the country to serve writs and warrants, in common county-courts, sessions, assizes, &c. The sheriff being answerable for the misdemeanour of these *bailiffs*, they are usually bound in an obligation for the due execution of their office, and thence called bound-*bailiffs*, which is vulgarly corrupted into a much more homely appellation.

BAILIFFS *of franchises* are those who are appointed by every lord within his liberty to do such offices therein, as the *bailiff* errant does at large in the county.

There are also *bailiffs of the forests*, and *bailiffs of manors*, who direct the husbandry, fell trees, gather rents, pay quit-rents, &c.

The word *bailiff* still retains some of its ancient significancy; being applied also to the chief magistrates of several corporate towns, as Ludlow, Leominster, &c.—And again the government of some of the king's castles is committed to persons called *bailiffs*; as, the *bailiff* of Dover castle.

We also meet with divers other species and denominations of *bailiffs* in these and the neighbouring countries; as *provincial*, *royal*, *itinerant*, and *hereditary bailiffs*; *bailiffs* of France, of the empire, of boroughs, of courts baron, manors, &c.

BAILIFF, *provincial*, *bailivus provincialis*, among the French, was an officer appointed to administer justice in a certain province, or county, with an authority somewhat like that of our justice of assize, instituted by the dukes and counts in their several territories, after they had procured the inheritance of them. These acted in the name, and by authority, not of the king, as justiciaries, but of the dukes, or counts, who appointed them, and whose deputies they were. Spelman takes them to be the same with what, among our Saxon ancestors, were denominated *aldermen of counties*, and *graves* or *reves*, which afterwards became *vicecomites*, and *sheriffs*.

Appeals lay from these to the *bailiffs* of France, *bailivi Franciæ*, who were those appointed over the provinces originally belonging to the crown.

BAILIFFS, *royal*, *bailivi regii*, were those over provinces afterwards annexed to the crown. Something like these still subsists in Scotland, under the title of high or hereditary *bailiffs*; as those of Cunningham, Carrick, and Kyle; the first in the families of the earls of Eglington, the second of the earl of Cassils, the third, of the earl of Loudon.

BAILIFFS *of boroughs*, *bailivi burgorum*, were magistrates anciently in cities and towns, answering, in some measure, to what of later times was called *portgrave*, *mayor*, &c.

Canterbury was a *bailiff* town five hundred years before it was made a mayor town. Westminster, Southwark, Scarborough, &c. are still governed by *bailiffs*.

Bailiffs differ in this from mayors, that the latter are always single in one place, whereas there were usually two *bailiffs* to a city, as formerly at London, and sometimes four, as at Norwich.

BAILIFF *of the empire* was anciently the vicar or regent of the empire: as appears from a letter of Henry of Flanders to pope

pope Innocent III. wherein he says, the princes, barons, and knights have elected me *bailiff of the empire*; *bailivus imperii*.

BAILIFF, *water*, is an officer anciently established in all port-towns, for the searching of ships; as appears from 28 Hen. VI. cap. 5.

There is such an officer still on foot in the city of London, who supervises and searches all fish brought thither; and gathers the toll arising from the river of Thames.—He attends also on the lord-mayor in his expeditions by *water*, and hath the principal care of marshalling the guests at the table—He also arrests men for debt, or other personal or criminal matters, on the river of Thames, by warrant of his superiors.

BAILIWICK, **BAILYWICK**, or **BAYLIWICK**, the territory of a bailiff; or the place within which his jurisdiction is terminated.

BAILLO, or **BALIO**, a name given at Constantinople, to the ambassador of Venice residing at the Porte; who also does the office of consul of his nation.

The word is doubtless the remains of the word *bajulus*, which the modern Greeks and Turks have formed into *bailo*.

The Venetian consuls at Aleppo, Alexandria, Smyrna, and other parts of the Levant, are also denominated *bailo*.

BAIOCCO, a money in modern Rome, equivalent to a tenth part of the *julio*, or a hundredth part of the ducat.

The *baiocco* is worth about nine deniers, French money.

BAIRAM, a name given to the great annual feast of the Mahometans.

The word is also written, by some authors, more conformably to the oriental orthography, *beiram*. It is originally Turkish, and signifies literally, a *feast-day*, or *holiday*.

The Mahometans have two *bairams*, the *great* and the *little*, which Scaliger, Erpenius, Rycaut, Hyde, Chardin, Bobovius, and other European writers, commonly interchange, giving the appellation *great* to that which the Turks call *little*, and *vice versa*.

This feast commencing with the new moon, the Mahometans are very scrupulous in observing the time when the new moon commences; to which purpose, observers are sent to the tops of the highest mountains, who, the moment they spy the appearance of a new moon, run to the city, and proclaim *muzodaluk*, *welcome news*; as it is the signal for beginning the festivity.

The ceremonies are described at large by Rycaut and Tournesfort.

BAIRAM, the *little*, is properly that held by the pilgrims at Mecca, commencing on the tenth of Dhu Ihajia, when the victims are slain, and lasting three days. This is called by the Arabs, *id al adha*, that is, the feast of the sacrifice, as being celebrated in memory of the sacrifice of Abraham, whose son God redeemed with a great victim. By European writers it is called the *lesser bairam*, as being less taken notice of by the generality of the people, who are not struck with it, because the ceremonies attending it are performed at Mecca, the only scene of the solemnity. Sale's Prel. Disc.

The *little bairam* lasts for three days, during which no work is done; but presents pass from one to another, with many other manifestations of joy. If the day after Ramadan should prove so cloudy, as to prevent the sight of the new moon, the *bairam* is put off to the next day, when it begins, though the moon be still obscured. When they celebrate this feast, after numerous ceremonies, or rather strange mimickries, in their mosque, they end it with a solemn prayer against the infidels, to root out Christian princes, or to arm them one against another, that they may have an opportunity to extend the borders of their law.

BAIT, *white*, in *Ichthyology*, a small fish, which is caught in great plenty, from August 1. to October 1. by stat. 30. Geo. II. c. 21, in the river Thames, near Blackwall, and which is esteemed very delicious. These are the fry of some fish, and have been variously attributed to the shad, the sprat, the smelt, and the bleak fish. Pennant observes, that this belongs to the genus of *cyprinus*, because it has only three branchiostegous rays, and one dorsal fin; its body is compressed like that of the bleak; its usual length is two inches; the under jaw is the longest; the irides are silvery, and the pupil black; the dorsal fin consists of about fourteen rays; the side line is strait; the tail forked, and the tips black. Zoology, vol. iii. p. 372.

BAIT, in *Fishing*. *Baits* make a capital article in angling; on the choice whereof much of the sport depends; different seasons, and different game, having their appropriate *baits*. The red, or earth-worm is good for the small fry most of the year round; and small fish are good *baits* for pikes at all times; sheep's blood and cheese are good *bait* in April; the bobs, dried wasps, and bees, are for May; brown flies for June; maggots, hornets, wasps, and bees, for July; snails in August; grasshoppers in September; corn, bramble-berries, and seeds, at the fall of the leaf; artificial pastes are for May, June, and July, and frogs for March.

Baits are either natural or artificial.

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BAITS, *natural*, include all kinds of worms, as the red worm, maggot, &c. also frogs, grasshoppers, hornets, bees, snails, roaches, bleak, gudgeon, and loaches, &c.

These *baits* are to be kept each sort separate, and fed with those things which they like best.

The red worm is to be kept in rich black mould, with a little fennel chopped among it; a little ox or cow dung, newly made, is also a very acceptable thing to them. They may be kept in a box, with small holes in it, or in a bag. Red worms, and all other sorts, scour quickly, and grow very tough and bright, on putting them into a thin clout, greased with fresh butter, or grease, before they are put into moss.

This is the best of all things to keep them in; but the moss must be first very well washed, and the water squeezed out again. As to food, a spoonful of cream, dropped into the moss once in three or four days, is better than any thing else. The moss is to be changed every week, and kept in a cool place.

White large maggots are an excellent *bait* for many sorts of fish, and they are to be kept on sheep's suet and liver, chopped small.

Frogs and grasshoppers are to be kept in wet moss, and long grass; and, on moistening this afresh every evening, it will keep a long time. They are to have their legs and wings cut off when they are used.

Live flies must be used as they are caught; but wasps, bees, hornets, and humble-bees, may be preserved dry.

The best method of drying them, is putting them in an oven after the bread is drawn. Care must be taken that they are not scorched; and when they are taken out they are to have the heads dipped in sheep's blood. This is to be suffered to dry on, and then they are to be preserved in a box. They will keep for three or four months.

BAITS, *artificial*, are flies of all kinds and shapes, made of silk, feathers, and the like. The variety of which is very great; there being not only different ones for every season and month in the year, but almost for every fish.

There are several *artificial baits*, for intoxicating of fowl, and yet without tainting or hurting the flesh, so as to make it unfit to eat.

BAITS, *dead*, are pastes of divers sorts, made of corn, cheese, fruits, wasps, sheep's blood, boiled beans, &c.

BAIT, *ledger*, is that which remains fixed in one certain place, while the angler may be absent; especially in fishing for pike.

BAIT, *walking*, is that which the angler attends, while he keeps moving from place to place, in quest of the fish.

BAITS of hemp, denote bundles of that plant, pulled and tied up, ready for steeping in water. See FLY-FISHING.

BAITING, or rather **BATING**, in *Falconry*, is when a hawk flutters with her wings, either from perch or fist, as if it were striving to get away.

BAITING also denotes the act of smaller or weaker beasts attacking or harassing greater and stronger ones.

In this sense we hear of the baiting of bulls and bears by mastiff or bull-dogs, with short noses, that they may take the better hold. Whales are baited by a kind of fish called *orie*, or *killers*; ten or twelve of which will attack a young whale at once, and not leave him till he is killed. Philosph. Transact. No. 287. p. 265.

Houghton gives us the history of *bull baiting*, a sport peculiar to England, and favouring, like some others, of our ancient Gothicism. Some of our countrymen are said to be fond enough of it, to buy bulls on purpose, and travel with them, at great charge, to all the chief towns around. The *baiting* of this animal makes his flesh tender and more digestible. In reality, it disposes it for putrefaction, so that, unless taken in time, *baited* flesh is soon lost.

BAJULATIO, the office of a *bajulus*, or bailiff.

BAJULUS, an ancient officer in the court of the Greek emperors; whereof there are several degrees: as the grand *bajulus*, who was preceptor of the emperor, and the simple *bajuli*, who were sub-preceptors.

Hence the Italians use the word *bajulus* of a kingdom in the same sense with *protector* of a kingdom among the English. The word is derived from the Latin verb *bajulare*, to carry, or bear a thing on the arms or on the shoulders.

Children, and especially those of condition, had anciently, beside their nurse, a woman called *gerula*, as appears from several passages of Tertullian; when weaned, or ready to be weaned, they had men to carry them about to take care of them, who were called *geruli*, and *bajula*, à *gerando* & *bajulando*.

BAJULUS is also used by Latin writers in the several other senses wherein *bailiff* is used among us.

BAJULUS was also the name of a conventual officer in the ancient monasteries, to whom belonged the charge of gathering and distributing the money and legacies left for masses and obits; whence he was also denominated *bajulus obituum novorum*.

BAIZE, in *Commerce*. See **BAYS**.

BAKER's central rule. See **CENTRAL rule**.

BAKING, the art of preparing bread, or of reducing meals of any kind, whether simple or compound, into bread. The forms of baking among us may be reduced to two; the one for unleavened, the other for leavened bread. The learned are in great doubt about the time when *baking* first became a particular profession, and *bakers* were introduced. It is generally agreed they had their rise in the East, and passed from Greece to Italy after the war with Pyrrhus, about the year of Rome 583. Till which time every housewife was her own *baker*: for the word *pistor*, which we find in Roman authors before that time, signified a person who ground or pounded the grain in a mill or mortar to prepare it for *baking*, as Varro observes. According to Athenæus, the Cappadocians were the most applauded *bakers*, after them the Lydians, then the Phœnicians. To the foreign *bakers* brought into Rome, were added a number of freed-men, who were incorporated into a body, or, as they called it, a *college*; from which neither they nor their children were allowed to withdraw.—They held their effects in common, and could not dispose of any part of them. Each bake-house had a *patronus*, who had the superintendency thereof; and these *patroni* elected one out of their number each year, who had the superintendence over the rest, and the care of the college. Out of the body of the *bakers* every now and then one was admitted among the senators. To preserve honour and honesty in the college of *bakers*, they were expressly prohibited all alliance with comedians and gladiators; each had his shop or bakehouse, and they were distributed into fourteen regions of the city. They were excused from guardianships, and other offices, which might divert them from their employment. By our own statutes, *bakers* are declared not to be handicrafts.—No man for using the mysteries or sciences of *baking*, brewing, surveying, or writing, shall be interpreted a handicraft. 22 H. VIII. cap. 13. The *bakers* of London make the nineteenth company. They were incorporated about the year 1307, and consist of a master, four wardens, thirty assistants, and one hundred and forty-nine on the livery, besides the commonalty. The *bakers* of London are under the jurisdiction of the lord-mayor and aldermen. A penalty is inflicted on *bakers* selling at a higher price than is set by the lord-mayor. See 3 Geo. II. cap. 29. and by 22 Geo. II. cap. 46. *bakers* are to set their marks on their bread. The assize of bread is regulated by several statutes. See 8 Ann. cap. 18. 31 Geo. II. cap. 29. 32 Geo. II. cap. 18. 3 Geo. III. cap. 6. and 11. The manner of *baking* at Otaheite, and in many islands of the South Seas, is as follows. They make fire by rubbing the end of one piece of dry wood upon the side of another, just as the carpenters whet a chissel; they then dig a pit in the ground about half a foot deep, and two or three yards in circumference; they pave the bottom of it with large pebble-stones, which they lay very smooth and even, and then kindle a fire in it with dry leaves, and the husks of the cocoa-nut. When the stones are properly heated, they take out the embers and rake out the ashes on every side, then cover the stones with a layer of green cocoa-nut tree leaves, and wrap up the animal that is to be dressed, in the leaves of the plantain. If it be a small hog, or dog, they wrap them up whole; if large, they split them. When placed in the pit, they cover it with hot embers, and lay upon them bread-fruit and yams wrapped up in like manner in the leaves of the plantain. Over these they spread the remainder of the embers, mixing among them some of the hot stones, with more cocoa-nut tree leaves, and then close up all with earth, so that the heat is kept in. After a time proportioned to what is dressing, the oven is opened, and the meat taken out, tender, full of gravy, and, as captain Wallis thought, better in every respect than when it is dressed any other way. Having no vessels in these islands that could bear the fire, the inhabitants of them had no idea of hot water, or its effects, and therefore always roasted or baked their meat in the manner above related. Hawkesworth's Account of Voyages in the Southern Hemisphere, vol. i. p. 484. **BAKING** is used for the exposing a substance, inclosed in a crust, to the fire. This makes an operation in pharmacy, used in the making of an oil of earth-worms, commended against arthritic, shooting pains. The worms having stood some time to putrefy, are covered up, together with the vessel they are in, with a wheatén crust, and set in the oven: by which they are converted to a thick yellow oily liquor. **BAKING porcelain.** See PORCELAIN. **BALA**, in *Botany*, a name used by some authors for the *musa*, or plantain tree, called also the *banana* and *ficoides*, by others. **BALAAMITES**, the name of a sect in the first age of Christianity, of the same import in the Hebrew language with Nicolaitans, in the Greek. See NICOLAITANS. **BALAENA.** See WHALE.

BALAM PULLI, in *Botany*, a name used by some authors for the tree whose fruit is the tamarind of the shops. **BALANCE**, or **BALLANCE**, *libra*, one of the six simple powers, in *Mechanics*, used principally for determining the equality, or difference of weights in heavy bodies, and consequently their masses or quantities of matter. The *balance* is of two kinds, viz. the *ancient* and *modern*. The *ancient* or *Roman*, called also *statera Romana*, or *steel-yard*, consists of a lever or beam, moveable on a centre, and suspended near one of its extremes: on one side the centre are applied the bodies of the weighed, and their weight is measured by the division marked on the beam; on the other side is the place where a weight moveable along it keeps the *balance* in equilibrio. The *modern balance*, now ordinarily in use, consists of a lever, or beam suspended, exactly by the middle; to the extremes whereof are hung scales, or basons. In each case, the beam is called the *jugum*, and the two moieties thereof on each side the axis, the *brachia*, or *arms*; and the handle whereby it is held, *trutina*; the line on which the beam turns, or which divides its brachia, is called the *axis*; and, when considered with regard to the length of the brachia, is esteemed but a point, and called the centre of the *balance*; and the places where the weights are applied, the *points of suspension* or *application*.—That slender part perpendicular to the *jugum*, whereby either the *equilibrium*, or preponderancy of bodies is indicated, is called the *tongue of the balance*. In the *Roman balance*, therefore, the weight used for a counterbalance is the same, but the points of application are various; in the common *balance*, the counterpoise is various, and the point of application the same. The principle on which each is founded is the same, and may be conceived from what follows. **BALANCE, doctrine of the.**—The beam AB (*Tab. Mechanics*, fig. 9.) the principal part of the *balance*, is a lever of the first kind, which (instead of resting on a fulcrum at C, its centre of motion) is suspended by somewhat fastened to C its centre of motion. So that the mechanism of the *balance* depends on the same theorem as that of the lever. Hence, as the known weight is to the unknown, so is the distance of the unknown weight from the centre of motion, to the distance of the known weight, where the two weights will counterpoise each other; consequently, the known weights shew the quantity of the unknown. Or thus: the action of a weight to move a *balance* is by so much greater, as the point pressed by the weight is more distant from the centre of the *balance*; and that action follows the proportion of the distance of the said point from that centre. When the *balance* moves about its centre, the point B describes the arch Bb (*fig. 10.*); whilst the point A describes the arch Aa, which is the biggest of the two: therefore in the motion of the *balance*, the action of the same weight is different, according to the point to which it is applied: hence it follows, that the proportions of the space gone through by the point at A is as Aa, and at B as Bb, but those arches are to one another, as CA, CB. **BALANCE, varieties in the application of the.**—If the brachia of a *balance* be divided into equal parts, one ounce applied to the ninth division from the centre, will equiponderate with three ounces at the third; and two ounces at the sixth division act as strongly as three at the fourth, &c. Hence it follows, that the action of a power to move a *balance* is in a ratio compounded of the power itself, and its distance from the centre: for that distance is as the space gone through in the motion of the *balance*. It may be here observed, that the weight equally presses the point of suspension at whatever height it hangs from it, and in the same manner as if it was fixed at that very point: for the weight at all heights equally stretches the cord by which it hangs. A *balance* is said to be in *equilibrio*, when the actions of the weights upon the brachia to move the *balance*, are equal, so as mutually to destroy each other. When a *balance* is in equilibrio, the weights on each side are said to be equiponderate: unequal weights may also equiponderate; but then the distances from the centre must be reciprocally as the weights. In which case, if each weight be multiplied by its distance, the products will be equal; which is the foundation of a steel-yard. Thus in a *balance* whose brachia are very unequal, a scale hanging at the shortest, and the longest divided into equal parts: if such a weight be applied to it, as at the first division shall equiponderate with one ounce in the scale; and the body to be weighed be put in the scale, and the above mentioned weight be moved along the longest *brachium*, till the *equilibrium* be found; the number of divisions between the body and the centre shews the number of ounces that the body weighs, and the subdivisions the parts of an ounce. On the same principle also is founded the *deceitful balance*, which cheats by the inequality of the *brachia*: for instance, take two scales of unequal weights, in the proportion of 9 to 10, and hang one of them at the tenth division of the *balance*

balance above described, and another at the ninth division, so that there may be an *equilibrium*; if then you take any weights, which are to one another as 9 to 10, and put the first in the first scale, and the second in the other scale, they will equiponderate.

Several weights, hanging at several distances on one side, may equiponderate with a single weight on the other side: to do this it is required, that the product of that weight, by its distance from the centre, be equal to the sum of the products of all the other weights, each being multiplied by its distance from the centre.

To demonstrate which, hang three weights of an ounce each, at the second, third, and fifth divisions from the centre, and they will equiponderate with the weight of one single ounce applied to the tenth division of the other *brachium*; and the weight of one ounce at the sixth division, and another of three ounces at the fourth division, will equiponderate with a weight of two ounces on the other side at the ninth division.

Several weights unequal in number, on either side, may equiponderate: in this case, if each of them be multiplied by its distance from the centre, the sums of the products on either side will be equal; and if those sums be equal, there will be an *equilibrium*.

To prove which, hang on a weight of two ounces at the fifth division, and two others, each of one ounce, at the second and seventh; and on the other side hang two weights, each also of one ounce, at the ninth and tenth divisions; and these two will equiponderate with those three. A *balance* of this kind, the arms of which are equally divided, has been sometimes called an *arithmetical balance*; because the arithmetical operations of addition, subtraction, multiplication, division, and the rule of three, may be easily performed by it. s'Gravelsande, *Physices, Elementa Math.* vol. i. p. 50.

To the justness of a *balance* it is required, that the points of suspension be exactly in the same line as the centre of the *balance*; that they be precisely equidistant from that point on either side; that the brachia be as long as conveniently they may; that there be as little friction as possible in the motion of the beam and scales; and lastly, that the centre of gravity of the beam be placed a little below the centre of motion.

Mr. Ludlam has contrived a *balance* of a new construction for the woollen manufactures. Their thread is made into skains of the same length; and the fineness of it is denominated from the number of skains which go to a pound; the coarsest being about twelve to the pound, and the finest near sixty. This machine is designed for weighing the skains, in order to determine their respective fineness. It resembles the beam of a common pair of scales; at one end of it is fixed a weight, called the counterpoise, and at the other end a hook; in sorting, the skain to be examined is put upon the hook, and sinks down more or less, according to its weight, till the counterpoise, by rising, balances it: and then the index or cock of the beam, points out on a gradual arch the number of skains of that sort which goes to the pound.

A scale, instead of the hook, might be used for weighing money, if the arch were properly divided for that purpose. See a drawing of this machine, and the explanation of the theory of it, in *Phil. Trans.* vol. lx. N^o 25, p. 205.

BALANCE of the air, is used to denote the weight of that fluid, whereby, according to its known property, it presses where it is least resisted, till it be equally adjusted in all parts.

BALANCE, assay, is a nice *balance* used in determining the exact weight of minute bodies. Its structure is very little different from that of the common sort; except that it is made of the best steel, and fitted for moving with the smallest weight.

BALANCE, in Astronomy. See *LIBRA*.

BALANCE of a clock or watch is that part of either, which by its motion regulates and determines the beats.—The circular part of it is called the *rim*, and its spindle the *verge*: there belong to it also two *pallets* or nuts, which play in the fangs of the crown-wheel; in pocket-watches, that strong stud in which the lower pivot of the verge plays, and in the middle of which one pivot of the crown-wheel runs, is called the *potence*: the wrought piece which covers the *balance*, and in which the upper pivot of the *balance* plays, is the *cock*: the small spring in the new pocket-watches is called the *REGULATOR*.

BALANCE, hydrostatical, is an instrument for determining the specific gravities of bodies. See *HYDROSTATICAL*.

BALANCE, in the Accounts of Merchants, is, when the debtor and creditor sides of any distinct account are equal. In such case the account is said to be *balanced*.

Balance of a merchant, or trader's books. This is a branch of the art of accountantship. In the method of keeping the books of traders, according to that excellent art of charge and discharge by double entry, such books, if correctly kept, will always be fit for a general *balance*. For such is the excellency of that method, that the books of

themselves must necessarily *balance* on the whole, though not in every distinct account, throughout the ledger.

BALANCE, among Painters. See *EQUILIBRIUM*.

BALANCE of Power, in the Political System, originates from, and is maintained by the alliances of different nations, as their circumstances and interest may require.

BALANCE of trade denotes an equality between the value of commodities bought of foreigners, and the value of the native productions transported into other nations.

It is necessary that this *balance* be kept in trading nations; and if it cannot be made in commodities, it must in specie. Hereby it is, that we know whether a nation gains or loses by foreign trade, or any branch thereof; and consequently, whether that nation grows richer or poorer. There are divers *methods of arriving at this knowledge*.

1. That most received is, by taking a strict survey of what proportion the value of the commodities exported bears to those imported. If the exports exceed the imports, it is concluded that nation is in a gaining way, it being supposed that the overplus is imported in bullion, and so increases the treasure of the nation.—But this method is very uncertain: by reason of the difficulty of obtaining a true account either of the exports or imports. (1.) Custom-house books are no rule in this case; by reason of the running of goods, especially many fine commodities of small bulk, but great value: as point, lace, ribbands, silk, jewels, fine linens, &c. also wines, brandies, teas, and the like. 2. To which add various accidents which affect the value of the stock either sent out or brought in; as losses at sea, markets, bankrupts, seizures, &c. (3.) Then, as to particular trades, there are divers countries to which the manufactures we send out are inconsiderable, yet the goods we import are necessary to the carrying on our trade in general; as the trade to Norway, &c. for timber and naval stores. Also the East India company, whose imports much exceed their exports; yet is their trade highly advantageous to the nation: as we sell much of these imports to foreigners, and wear others, e. gr. calicoes, and silks, in lieu of linens and silks from other countries, which would cost us dearer.

2. The second method is, by observing the course of exchange, which, if generally above the intrinsic value or par of the coins of foreign countries, shews that we not only lose by such exchanges, but that we lose by the general course of our trade.—But this method is imperfect; since we trade to many countries, with which there is no settled course of exchange.

3. A third way is, by observing the increase and diminution of our coin and bullion.—But this is the least obvious and palpable of any; for the money seems to vulgar eyes most plentiful when there is the least occasion for it; and more scarce as the occasions for employing it are more numerous and advantageous: by which means we seem to have most money when we have least trade. Thus, e. gr. when the East India company have a great sale to make, money is generally found to be scarce in London; because the occasion engages people to employ quantities which they had provided for that purpose. So, a high rate of interest will make money seem scarce, because every man as soon as he makes up a small sum, employs it in the purchase of stock.

4. The fourth method (which is Sir Jos. Child's) is derived from the increase, or the diminution, of our trade and shipping in general: for if these diminish, whatever profit particular men may make, the nation loses; and *vice versa*. He lays it down as an infallible rule, that in all parts of the world wherever trade is great, and continues so, and grows daily greater, and the shipping increases for a succession of ages, that trade must be nationally profitable. Even in the case of a merchant, who, by driving a great trade, ruins himself; though he lose, what a multitude are gainers by him, as the king, and custom-house officers; besides shiprights, butchers, brewers, bakers, ropemakers, porters, carmen, manufacturers, mariners, &c.

BALANCE, to, in Sea Language, signifies to contract a sail into a narrower compass, in a storm, by retrenching, or folding up a part of it at one corner.

BALANCE of the boom-main-sail, is performed, after all its reefs are taken in, by rolling up a similar portion of the hindmost, or aftmost lower corner called the *clue*, and fastening it strongly to the boom, securing it from being fretted by the cord that fastens it.

BALANCE of the mizen is thus performed; the *mizen-yard* is lowered a little, a small portion of the sail is rolled up at the *peak*, or upper corner, and fastened to the yard, about a fifth inward from the outer end, or yard-arm, towards the mast.

BALANCE-fish, in Ichthyology, an English name for the fish called the *zygæna* by authors, and by some the *hammer-headed shark*, or *libella*. It is, according to the new Attre-dian system, a species of the *squalus*, and is distinguished by that author, by the name of the *squalus* with a very broad and transverse head, resembling a hammer.

BALANCERS,

BALANCERS, in *Natural History*, are two small oblong bodies, placed under the wings of the two-winged flies, and, in some measure, supplying the office of the two other wings, which those of the four-winged class are possessed of.

BALANCIER, a machine used in the striking of coins, medals, counters, and the like. See **COINAGE**.

BALANI, in *Natural History*, the name of a genus of shell-fish, belonging to the class of multivalves, approaching to the shape of an acorn (*βαλανος*), and usually growing to the shells of the larger sort of sea shell-fish: they are commonly called in English, centre shells. See the figure in *Table III. of Shells*, N^o 26.

It is a very common error to mistake the names of the multivalve shells so far as to confound the *balani* and *conchæ antiferæ*, as they are called, together; though they be extremely different.

The *balani* are found affixed in clusters to a thousand different submarine things; such as the harder sea-plants, all sorts of testaceous, and crustaceous sea-animals, rocks, and timber. They may be arranged under the two subdivisions of wide and narrow mouthed, including several species. The small fish which nature has covered with this shell, is of a very admirable structure. Leewenhoeck acknowledges, that he never met with any animal, in which so many objects of wonder lay open to the naked eye as in this. It has twelve legs or arms which are crooked, and garnished with a great number of hairs: these twelve they elevate on all occasions; and, beside these, they have eight others, which are much smaller, and stand lower. Their body is, in all respects, like that of the *concha antiferæ*. It is cartilaginous, and mucous, and of an ill taste. The shell shapes itself, at the base, to the figure of the surface of whatever it grows to, and sticks very firmly to it.

The *balanus*, in the Linnæan system, is a species of the **LEPAS**.

BALANITES, in *Natural History*, a name given by the ancients to a stone, seeming to have been of the femipelucid gems. They describe two species of it; the one of which was yellow, and the other green, but each having veins of a flame colour. Their descriptions are too short for us to be able to ascertain what stones, among those known at this time, they meant.

Some think the *balanites* to have been the *lapis Judaicus*, on account of its acorn-like figure and size. Plin. Nat. Hist. lib. xxxvii. cap. 10. Ed. Hardouin.

BALANUS, *βαλανος*, or **GLANS**, is sometimes used by anatomists for the nut of the yard. Sometimes also the clitoris is so called.

BALANUS is also sometimes used for a **SUPPOSITORY**.

BALANUS MYREPSICA, in the *Materia Medica*, the oily acorn. The whole nut is of a purging quality; and the dry pressing or powder after the oil is taken out is of a cleansing and drying nature.

BALASS, or **BALLAS**, a precious stone, of the ruby kind; whence it is also denominated *ballas-ruby*.

BALATITI, in *Natural History*, a name given by the people of the Philippine islands to a species of bird, by the flight of which they divine the event of things.

BALAUSTINES, **BALAUSTIA**, from *βαλαυστιον*, in *Pharmacy*, the flowers of the wild pomegranate, or *malus punica sylvestris*, which are very rough to the tongue and palate, and very astringent; and on that account are frequently used in diarrhoeas, and other fluxes, hernias, &c.

BALBUSARDUS, in *Ornithology*, the name used by authors for the bird called in English the *bald buzzard*. It is of the long-winged and hawk-kind, and has been described by Aldrovandus, and some other authors, under the name of the *halietus* and *morphnus*, two kinds of the eagle. It frequents the shores of ponds and rivers, and sometimes of the sea, where it preys on fish. It builds on the ground among reeds, and lays three or four large white eggs, little less than hen's eggs.

BALCONY, from the French *balcon*, in *Architecture*. *Balconies* are a kind of open galleries without the walls of buildings, contrived chiefly for the convenience of looking around, seeing processions, cavalcades, and the like. Where there is but one, it is usually in the middle of the front of the edifice, and level with the first floor: sometimes they are made of wood, sometimes of cast iron; the former surrounded with a rail, or ballustrade, the latter wrought in various figures in *demi-relievo*. Some are also made of bar iron, fashioned in crail-work, or flourishes of divers fancies.

BALCONY, in a ship, denotes a gallery either covered or open, made abaft, either for ornament, or convenience of the captain's cabin.

BALDACANIFER, corruptly also written *balcanifer*, denotes a standard-bearer; chiefly in the ancient order of knights Templars.

BALDACHIN, or **BALDAQUIN**, a piece of architecture in form of a canopy, supported with columns, and serving as a crown or covering to an altar.

The word comes from the Italian *baldacchino*, which signifies the same.

BALDACHIN, or **BALDAKIN**, or **BALDEKIN**, popularly **BAUDEKIN**, in *Middle Age Writers*, denotes a rich kind of cloth made of gold warp and silk wool, variously figured. It took the denomination from its being formerly brought into these countries from *Baldacio*, or Babylon.

BALDMONIE, an old English name for gentian, the root of which is used in medicine; some also have called the *meum*, or spignel, by this name.

BALDNESS, **CALVITIES**, in *Medicine*, a falling of the hair, especially that of the sciniput, without being able to grow again; the moisture of the head, which should feed it, being dried up by some disease, old age, or the immoderate use of powder, &c.

It differs from *alopecia*, *area*, *ophiasis*, and *tinea*, as these all arise from some vice in the nutritious humour; *baldness*, from the defect of it. But the distinction is not always observed by modern physicians.

When the eye-lids shed their hair, it is called a *ptilosis*. Among the causes of *baldness*, immoderate venery is reputed one of the chief: old age usually bring it on of course. Some will have the proximate cause of *baldness* to be the dryness of the brain, and its shrinking from the *cranium*; it having been observed, that in *bald* persons there is always a vacuity or empty space between the skull and the brain.

Calvus, *Bald-pate*, was a frequent term of reproach among the Romans; among whom this defect was in great discredit. Hence divers arts to conceal it, as false hair, a *galericulus* contrived on purpose.

The later Romans, however, seemed to have been reconciled to *baldness*; for we find among them a kind of officers, or servants, called *glabratores*, or *glabrarii*, whose business was to take off the hair from all parts, even from the head. In an ancient inscription, there is mention of one Diophantus, **TI, CÆSARIS. ORNATOR. GLABR.** that is, *ornator glabrarius*. See **ALOPECIA**.

BALDWIN'S phosphorus, See **PHOSPHORUS**.

BALE, in *Commerce*, a term denoting a quantity of merchandise wrapped or packed up in cloth, and corded round very tight, after having been well secured with hay or straw, to keep it from breaking, or to preserve it from the weather. Most of the merchandise, capable of this kind of package, that are sent to fairs, or intended for exportation, ought to be in *bales*; and too much care cannot be taken in packing them, to secure them from damage.

To sell goods in the *bale* is to sell them in the lump, on shewing a specimen, without unpacking or taking off the cordage. Thus it is the East India company sell their *bale*-goods.

BALE-goods, in the *East India Trade*, the bulky goods, as saltpetre, pepper, red-earth, tea, &c.

The *bale* goods stand opposed to piece-goods.

BALES of camlet, at Smyrna, are called *tables*, on account of their flat square figure.

A *bale* of cotton yarn is from three to four hundred weight: of raw silk, it is from one to four hundred; of lockram or dowlas, either three, three and a half, or four pieces, &c.

BALE of paper, denotes a certain number of reams packed together in a bundle.

There are *bales* of more and fewer reams. Those sent from Marseilles to Constantinople usually contain twelve reams. A *bale* or *ballon* of crown paper, manufactured in some parts of Provence, consists of fourteen reams, and is sold in the Levant for Venice paper.

BALE of dice, denotes a little packet, or paper, containing some dozens of dice for playing with.

BALENGER, **BALENGARIA**, in *Middle Age Writers*, a kind of vessel of war, but what in particular seems not well known. Blount says, that by the stat. 28 Hen. VI. cap. 5. *balenger* seems to have been a kind of barge.

BALESTRA, in *Ichthyology*, a name by which Salvian and some other authors have called the fish more usually known by the name of **CAPRISCUS**.

BALISTA. See **BALLISTA**.

BALISTES, in *Zoology*, a genus of the swimming amphibia comprehending eight species.

BALIVIS, in *Natural History*, a name given by the people of the Philippine islands to the common duck of that part of the world; this is somewhat smaller than our wild-duck, and much more beautifully coloured.

BALIVO amovendo, a writ to remove a bailiff from his office, for want of sufficient land in the bailiwick.

BALKS, in *Agriculture, are ridges or banks between two furrows, or pieces of arable land: the word is sometimes also used for the poles or rafters over out-houses or barns; and among bricklayers for great beams, such as are used in making scaffolds.*

BALKS, among *Builders*, large pieces of timber brought from abroad in floats.

BALKS are a sort of beams imported, from five to twelve inches square.

The greater *balks* are accounted timber, if above eight inches square.

In some parts of England, *balk*, or *bawk*, denotes the summer beam of a building.

BALKS, or *bawks*, also denote poles laid over a stable, or other building, for the roof.

BALKERS, in the *Fishery*, persons placed on rocks, and eminences at sea, to spy the herring droves, and give notice to the fishermen by waving boughs, what way they go, and where they may be found. 1 Stat. Jac. 1. cap. 23.

BALL gives the denomination to a species of game or sport frequent among the ancients.

The Romans had four kinds of *pila*, or *balls*; the first called *trigon*, or *trigonalis*, because the three gamesters at it were placed in a triangle: these caught and tossed the *ball*, taking great care not to let it fall to the ground.

The second called *follis*, made of leather, blown up like our foot-balls: the largest sort of these were struck with the arm, the smaller with the fist: the former seem to have been distinguished by the appellation *paganica*, as being much used in country villages: the fourth was the *harpastus*, a kind of small *ball*, so called, because the gamesters endeavoured to snatch it from each other.

Galen has an entire treatise on the exercise of the *lesser ball*.

BALL, *pila*, is also the denomination of a form of medicines. We meet with *balls* for the tooth-ach; spitting-*balls* used to promote a discharge of saliva, &c.

BALL is also used in Cornwall, &c. for a tin-mine.

In this sense Godolphin's *ball* is said to be the most famous of all the *balls* or mines in Cornwall, for quantity of metal. Phil. Trans. N° 138. p. 951.

BALL is also used, in a well-known sense, for an assembly of both sexes, who dance to the sound of instruments.

BALLS, in *Architecture*, are represented at C. fig. 40. (*Tab. Archit.*) and are used for supporting Attic pedestals.

BALLS, *billiard*, are ivory *balls* used in the game of billiards. Moxon describes the method of turning hollow ivory *balls*, one within another. Mechan. Exerc. p. 219.

BALLS, in *Brewing*. They are either *brown* or *pale*, and used to fine, feed, preserve, and colour malt-drinks, wines, and cyders. See the composition of them described under *BREWING*.

BALLS, *chewing*, are those which the horse is to keep chewing or masticating in his mouth, a considerable time, without swallowing. These are chiefly used for lost appetite; a thing very incidental to horses.

They are usually made of *assa-fetida*, liver of antimony, juniper, bay-wood, and pellitory of Spain, beaten and incorporated into a mass with verjuice. The method of administration is to wrap one of the *balls* in a linen cloth, and having a string fastened to it, make the horse chew it two or three hours at a time.

BALLS, *crystalline*. There are two sorts of fossile bodies mentioned in authors by this name, and distinguished into the echinated, and concave.

The first are roundish nodules of strong matter, covered over with points of crystal; and the other, flints and other stones, having cavities in their middles, which are lined, or crufted over with these crystals.

BALL of the foot of a dog, is the prominent part of the middle of the foot, called by Latin writers of the middle age, *pelota*, which is to be taken away in *EXPEDITATION*. Du-Cange Gloss. Lat.

BALLS, in *Electricity*. Mr. Canton's *balls* are two pieces of cork, or pith of elder, nicely turned in a lathe, to the size of a small pea, and suspended by fine linen threads: intended as *ELECTROMETERS*, and of excellent use to discover small degrees of *electricity*, to observe the changes of it from *positive* to *negative*, and *vice versa*: and to estimate the force of a shock before the discharge, so that the operator shall always be able to tell very nearly before the discharge, by knowing how high he has charged his jars, what the explosion will be. Dr. Priestley's Hist. of Elect. 3d edit. 8vo. vol. ii. p. 101.

BALLS, *fire*, are bags of canvas filled with gunpowder, sulphur, saltpetre, pitch, &c. to be thrown by the soldiers, or out of mortars, in order to fire houses, incommode trenches, advanced posts, or the like.

The Greeks had divers kinds of *fire-balls* made of wood, sometimes a foot, or even a cubit long; their heads being armed with spikes of iron, beneath which were hemp, pitch, and other combustibles, which being set on fire, were cast among the enemy.

The preparations of *fire-balls*, among the moderns, consists of several operations, viz. making the bag, preparing the composition, tying, and lastly dipping the *ball*.

The bags for this purpose are either oval or round.

The composition, wherewith *fire-balls* are filled, is various. To ten pounds of meal-gunpowder, add two of saltpetre, one of sulphur, and one of colophony: or, to six pounds of gun-powder, add four of saltpetre, four of sulphur, one of powdered glass, half a pound of antimony, as much camphor, an ounce of sal ammoniac, and four of com-

mon salt, all pulverized. Sometimes they even fill *fire-balls* with hand-granadoes.

For tying the *fire-balls*, they prepare two iron rings, one fitted around the aperture, where the ball is to be lighted, the other near its base. A cord is tied to these rings in such manner as that the several turns represent semicircles, or meridians of the sphere, cutting the globe through the poles: over the cords, extended according to the length of the *ball*, others are tied, cutting the former at right angles, and parallel to each other, making a knot at each intersection. Lastly, putting in a leaden bullet, the rest of the space is filled with tow or paper. Thus completed, the *fire-ball* remains to be dipped in a composition of melted pitch, colophony, and linseed-oil, or oil of turpentine; after dipping, they cover it round with tow, and dip again, till it be brought to the just diameter required.

BALLS of *fire* in the air, are meteors sometimes seen passing over countries, and computed by philosophers to be often at least, thirty miles high. They sometimes burst at that height; and though the air must be exceeding rare there, yet the explosion is heard at that distance, and for seventy miles round on the surface of the earth, &c. Does not this look as if a rare atmosphere, almost a *vacuum*, was no bad conductor of sound; Dr. Franklin's Works, p. 437.

BALLS, *glass*. See *GLASS-balls*.

BALLS. *Zoologists* speak of a sort of *balls* of hair covered over with a smooth, shining coat, or shell found in the stomachs of oxen, cows, calves, horses, sheep, and goats, particularly the chamois, or *rupicapra*: See *ÆGAGROPILUS*.

Some also have been found in the *uterus*, and ovaries of females. Sir Hans Sloane gives the history of a *ball* found in the intestines of a man, much afflicted with the colic, six inches in circumference, of a spongy substance, and which when viewed with a microscope, appeared made up of small transparent hairs or fibres, wrought together like the *tophus bovinus*: in the middle was a common plumstone; which made, as it were, the core or *nucleus*, around which the fibrous matter had gathered *stratum super stratum*. Phil. Trans. N° 309. p. 2387. Sloan, in Phil. Trans. N° 282. p. 1283, seq. See *HAIR*.

Others have been found, with plum-stones, and cherry-stones, in the centres. Bezoars have usually some seed for a *nucleus*. The origin and formation of these *balls* are contested. Bartholin, and after him Dr. Plott, and others, attribute them to the creatures licking themselves, and swallowing the hair, which being elaborated in the *reticulum*, becomes compacted together much after the manner that the wool of a hat is by the hand of the workman; and lying long in the stomach, have a thick tough coat, superinduced by the plenty of slime it there meets with. Plott, l. c. § 71.

The Royal Academy of Sciences at Paris substitute another origin. In dissecting the chamois, a *ball* was found in the third ventricle, which did not seem composed of hair, but of woody fibres, as appeared from their inequality, which were neither uniform in figure and size, as hairs are. Add, that the like *balls* are found in horses, which are not animals that lick themselves, and where of consequence they must be formed of something else than hair. Hence the generality of naturalists, particularly Gesner and Cameraarius, take these *balls* to be formed of the residue of the plants, which the animals have eaten, the harder fibres whereof remain undigested. Those of the *rupicapra*, in particular, are supposed to be the fibres of the plant *doronicum*, reputed by some a species of *ACONITE*. Phil. Trans. N° 189. p. 373.

BALLS, or *BALLETS*, in *Heraldry*, make a frequent bearing in coats of arms, though never so called; but having according to their several colours several names; as *besants*, when the colour is *or*; *plates* when *argent*; *burts* when *azure*; *torteaux* when *gules*; *pomeis* when *vert*; *pellets* or *agreeses* when *sable*; *goipes* when *purple*; *oranges* when *tanne*; and *guzes* when *sanguine*.

BALL, *Hero's*, *pila Heronis*, is a kind of artificial fountain, wherein the water is made to spout out of a hollow *ball*, or globe.

It takes the denomination from the inventor Hero of Alexandria, who has left the description of it in his *Spiritualia*. See *FOUNTAIN*.

BALLS, *horse*, among *Farrriers*, a kind of cordial medicines administered in form of *balls*, supposed of great virtue for feeding and strengthening sound, as well as healing and raising unsound horses.

BALLS, *Markham's horse*, are a preparation of anise-seeds, carthamus, elecampane, and other ingredients, wrought into a stiff paste, and thence formed into *balls*. They are cleansing and emollient, efficacious in colds, surfeits and hard labour, and especially useful where any of the chief *viscera* are decayed: nothing raises a lean jade so soon, being partly food, partly physic.

B A L

BALLS, land, those which being thrown out of a mortar, fall to the ground, burn and burst there. The ingredients are much the same as in the water balls, only the specific gravity is not attended to.

BALLS, light, are such as diffuse an intense light around; or they are balls which being cast out of a mortar, or the hand, burn for some time and illuminate the adjacent parts.

Those for the hand are made of ground powder, saltpetre, brimstone, camphor, and borax, all sprinkled with oil and mouldered into a mass with suet, common and Greek pitch, to the size of an ordinary granado: this is wrapped up in tow, with a sheet of strong paper over it. To fire it, a hole is made into it with a bodkin, into which is put some priming, that will burn slow. Its use is to cast into any works that are to be discovered in the night time.

For the larger light balls, or those to be thrown to a greater distance, they are prepared by melting equal quantities of sulphur, turpentine, and pitch; and by dipping in this composition an earthen, or stone ball, of a diameter much less than that of the mortar out of which the fire-ball is to be cast: then rolling it in gun-powder, and covering it round with gauze, the dipping is repeated till it comes to fit the cavity of the mortar: lastly, it is sprinkled around with gun-powder. This, being once kindled, will strongly illuminate all round the place where it is thrown, and give opportunity for examining the state and condition thereof.

BALLS, martial, in *Chemistry*, a mixture of filings of iron, and cream of tartar, formed into a solid consistence, and the form of a ball, used to impregnate water, or other liquids, with iron, dissolved by the tartareous acid.

They are of the same nature as the *TINCTURE of Mars tartarised*; and therefore these preparations may be substituted for each other.

To make martial balls, take one part of filings of iron, and two parts of powdered cream of tartar; mix them well together, and put them into an earthen or iron vessel with some water; stir the mixture from time to time, till it becomes almost dry; add more water, and stir it as before, till it acquires, when nearly dry, somewhat of the consistence and tenacity of softened rosin; then it is rolled into the form of a ball, generally kept tied up in a rag, and when it is used, infused into water, till it gives some colour to that liquid. Mac. Chem. Dict. Eng. Ed.

BALLS, mercurial, in *Chemistry*, an amalgam of mercury and tin, sufficiently solid to be moulded, and to preserve a given form.

To make mercurial balls, add mercury to melted tin, and pour the fluid mass into a round and hollow mould.

These balls are said to purify water in which they are boiled; for which purpose travellers often carry some along with them. Macquer.

BALL, in the Military, and Pyrotechnical Arts, is a composition of divers ingredients, generally of the combustible kinds, serving to burn and destroy, give light, smok, stench, or the like.

In this sense we read of fire-balls, light-balls, smok-balls, stink-balls, sky-balls, water-balls, land-balls, &c.

Balls are likewise used for all sorts of fire-arms; those for cannon are made of iron, and those for muskets, &c. of lead.

BALL of a pendulum, the weight at the bottom. In shorter pendulums, this is called the bob.

BALL, among Printers, a kind of wooden tunnel stuffed with wool, contained in a cover of sheep's skin, which is nailed to the wood; with which the ink is applied on the forms, to be wrought off.

The pressman holding one of these balls in either hand, first daubs them on the ink-block, then working them on each other, he applies them afterwards on the forms, which retain the ink necessary to make an impression.

BALL, puff. See LYCOPERDON.

BALLS of silk-worms and spiders, are little cases or cones woven of silk, wherein those insects deposit their eggs. See SILK. Spiders are extremely tender of their balls, which they carry about with them, adhering to the papillæ about their anus. Grew speaks of balls or bags of a species of silk-worms in Virginia, as big as hens eggs, and containing each four aureliæ. Phil. Trans. N^o 362. p. 1037.

BALLS, sky, those cast on high out of mortars, and which, when arrived at their height, burst like rockets, and afford a spectacle of decoration. Sky-balls are made of a wooden shell, filled with various compositions, particularly that of the stars of rockets.

These are sometimes intermixed with crackers, and other combustibles, making rains of fire, &c.

BALLS, smok, or dark, those which fill the air with smok, and thus darken a place, to prevent discoveries. To prepare a darkening ball, make an oval, or spherical bag; melt rosin over the coals, and add an equal part of saltpetre not purified, also of sulphur, and a fifth part of charcoal. The whole being well incorporated, put in tow first

B A L

shred, and fill the bag with this composition, and dip it after the same manner as a fire-ball.

BALL-soap. See SOAP.

BALL and socket, a machine contrived to give an instrument full play, and motion every way.

It consists of a ball or sphere of brass, fitted within a concave semi globe, so as to be moveable every way, both horizontally, vertically, and obliquely. It is carried by an endless screw, and is principally used for the managing of surveying instruments; to which it is a very necessary appendage.

The ancient balls and sockets had two concaves, or channels, the one for the horizontal, the other for the vertical direction.

BALLS stink, those which yield a great stench where fired, to annoy the enemy.

Their preparation is thus: melt ten pounds of pitch, six of rosin, twenty of saltpetre, eight of gun powder, and four of colophony; to these add two of charcoal, six of horse-hoofs cut small, three of *assa fætida*, one of stinking sarsacen, and any other offensive ingredients. Then proceed as in making smok and fire-balls.

BALL, tennis, is a little globe, made and covered with cloth or leather, used in playing at the game of tennis.

BALLS, treacle, sometimes also called in a more especial manner, *cordial balls*, are made of juniper-berries, beaten, boiled, pressed, and strained; then the liquor boiled up a second time to the consistence of broth, and mixed with the cordial powder known among farriers, made of anise, fennel, liquorice, &c. adding to the whole some of the grains of kermes powdered. The mass being made into balls, is commended against disorders of the stomach, breast, wind, &c. and is by some called the treacle of the Germans.

BALLS, vegetable, in *Natural History* and *Botany*, a very particular kind of plant of a deep green colour, of an irregularly spherical shape, hollow within, and of different sizes, from an inch and a half to three inches in diameter. It probably belongs to the *CONFERVA* genus, in the class of mosses; though Mr. Ray has ranged a similar plant under the genus of *ALCYONIUM*. See CORAL. Phil. Trans. vol. xlvii. art. 83. an. 1752.

BALL-vein, in *Mineralogy*, a name given by the miners in Sussex to a sort of iron ore, common there, and wrought to considerable advantage. It yields not any great quantity of metal, but what it has runs freely in the fire; it is usually found in loose masses not in form of strata, and is often covered with one or more crusts. It generally contains some sparkling particles, and is usually of a circular form in the perfect masses; thickest in the middle, and gradually thinner as it approaches the sides. The ores of Sussex in general are poor, but they require very little trouble in the working, so that a considerable profit is annually made from them.

BALLS, water, those which swim and burn a considerable time in the water, and at length burst therein.

These are made in a wooden shell, the cavity of which is filled with a composition of refined saltpetre, sulphur, saw-dust boiled in water of saltpetre, and dried; to which sometimes other ingredients are added, as iron-filings, Greek pitch, amber dust, glass powdered, and camphor. The ingredients are to be ground and mixed up, and moistened with linseed-oil, nut-oil, olive-oil, hempseed-oil, or petrol. At the bottom is placed an iron coffin, filled with whole gun powder that the ball may at last burst with a great noise; and lastly, the ball is, by the addition of lead, or otherwise, made of the same specific gravity with water.

BALLS, wool. See WOOL.

BALLAD, or BALLET, a popular song containing the recital of some action, adventure, or intrigue.

The French confine their ballads to stricter terms. A ballad, according to Richelet, is a song consisting of three strophes, or stanzas, of eight verses each, besides a half strophe; the whole in rhyme, of two, three, or four verses, with a burthen repeated at the end of each strophe, as well as of the half strophe.

In the old English version of the Bible, the book of Canticles is intitled the ballet of ballets; which has given scandal to some Romish writers as countenancing the opinion of those who hold that book a ballet of love, or a recital of the amours between Solomon and his concubine, as Castalio and some others have conceived it to be.

Some have suggested that a collection of ballads is necessary to a minister, in order to learn the temper and inclinations of a people, which are here frequently uttered with great simplicity. The great Cecil, chief minister to queen Elizabeth, is said to have made a most ample collection of ballads, on this account.

A very ingenious political writer, Mr. Fletcher of Saltoun, says, that if he could but make the ballads of a nation, he would care very little who made the religion of it. There is a very curious collection of old English and Scottish Ballads, published in 3 vols. 8vo. by Dr. Percy; in which, and in a dissertation prefixed to Aikin's Collection of Songs,

Songs, &c. the curious in this way may find abundance of entertainment and information concerning old *ballads*, and *ballad-makers*.

BALLAST, in *Navigation*. any heavy matter used to sink a vessel to its proper depth in water, or to give it a just weight and counterpoise, and enable it to bear sail upright, without overturning.

The word comes from the Flemish *belast*, formed of *be*, and *last* or *left*. The French call it simply *lest*. In the Mediterranean, *quartelage*. In Latin writers of the lower age it is denominated *lastagium*.

The ordinary *ballast* is sand or stones, stowed in the bottom, or hold, next the false keel of a vessel: sometimes, lead, corn, or other heavy goods, serve for *ballast*. The *ballast* is sometimes one half, sometimes a third, and sometimes a fourth part of the burden of a vessel. Flat vessels require the most *ballast*.—Ships are said to be in *ballast*, when they have no other loading.

Masters of vessels are obliged to declare the quantity of *ballast* they bear, and to unload it at certain places. They are prohibited unloading their *ballast* in havens, roads, &c. the neglect of which has ruined many excellent ports. See 19 Geo. II. cap. 22.

That *ballast* is best which is heaviest, lies closest and fastest, and driest, both for the ship, bearing a sail, stowing of goods, health of the company, and saving of casks and other goods. If a ship have too much *ballast*, she will draw too much water; if too little, she will bear no sail.

BALLAST, to *trench the*, denotes, to divide the *ballast*, into two several parts, or more, in the ship's hold, commonly done to find a leak in the bottom of a ship, or to undock her.

BALLAST, the, *shoots*, that is, runs over from the one side to the other. Hence it is that corn, and all kinds of grain, is dangerous lading, for that is apt to *shoot*. To prevent which, they make *poucles*, that is, bulk-heads of boards, to keep it up fast, that it may not run from side to side, as the ship heels upon a tack.

BALLASTAGE. See **LASTAGE**.

BALLASTOONS, large, heavy luggage-boats, carrying goods by the river from Astracan and the Caspian sea to Moscow. These will carry from a hundred to two hundred tun; and have from a hundred to a hundred and ten, or twenty men employed to row, and tow them along.

BALLERUS, in *Ichthyology*, a name given by some authors to a species of fresh-water fish of the leather mouthed kind, which appears to be the same with the **CARCASSIUS**, or, as authors call it, the *carcassi tertium genus*.

BALLERUS, is also a name given by Aristotle to that species of cyprinus called *blicca* and *pleysia*, and *pallerus*, by the modern writers.

BALLET, or **BALET**, **BALETO**, a kind of dramatic poem, representing some fabulous action or subject, divided into several entries; wherein several persons appear, and recite things under the name of some deity, or other illustrious character.

BALLET, from *baller*, to *cast*, is more particularly used for a kind of comic dance, consisting of a series of several airs of different kinds of movements, which together represent some subject or action.

F. Menestrier has a treatise express on ancient and modern *ballets*, according to the rules of the stage; wherein he explains the nature of dancing according to Aristotle and the ancients.

BALLET, in English *Poetry*, &c. See **BALLAD**.

BALLIAGE, a small duty paid to the city of London, by aliens, and even denizens, for certain commodities exported by them; which they claim by their charter, dated the 5th of September, in the sixteenth of Charles II. confirmed by the twentieth rule of the Book of Rates; and by 2 W. and M. cap. 8.

BALLISTA, a military engine in use among the ancients, somewhat like our cross-bow, though much larger, and more forcible; it was used in the besieging of cities, to throw in stones, and sometimes darts and javelins.

The word is also frequently written, less consistently with its etymon, *ballista*, sometimes *ballistra*. It is formed from the Greek *baller*, *jacere*, being chiefly used in casting of darts and arrows, in which it differed from the **CATA-PULTA**, which was used only for casting stones; in other respects they were alike, and were each bent in the same manner.

Marcellinus describes the *ballista* thus; a round iron cylinder is fastened between two planks, from which reaches a hollow square beam placed cross wise, fastened with cords, to which are added screws; at one end of this stands the engineer, who puts a wooden shaft with a big head, into the cavity of the beam, this done, two men bend the engine, by drawing some wheels: when the top of the head is drawn to the utmost end of the cords, the shaft is driven out of the *ballista*, &c.

The generality of authors confound the *ballista* with the *catapulta*, attributing to the one what belongs to the other. According to Vitruvius, the *ballista* was made after divers

manners, though all used to the same purpose: one fort was framed with levers and bars; another with pulleys; another with a crane; and others with a toothed wheel. The *ballista* is ranked by the ancients in the sling kind, and its structure and effect reduced to the principles of the sling; whence it is called by Hero, and others *funda* and *fundibulus*. Guntherus calls it *Balearica machina*, as a sling peculiar to the Balearic islands.

Perrault, in his notes on Vitruvius, gives a new contrivance of a like engine for throwing bombs without gunpowder.

BALLISTA, in *Practical Geometry*, the geometrical cross, called also *Jacob's staff*. See **CROSS-STAFF**.

BALLISTA, or **Os BALLISTÆ**, is a denomination given by some anatomists to the first bone of the *tarsus*, otherwise called *talus* and *astragalus*.

BALLISTARII, or **BALLISTRARII**, in *Antiquity*, slingers in the ancient armies, or soldiers who fought with the *ballistæ*.

There are two kinds of *ballistarii milites*; the former cast stones, and other missile weapons, with the hand, called *manuballistarii*; sometimes simply, *manuballistæ*. The latter called *carroballistarii*; sometimes only *carroballistæ*, made use of a machine. Some speak of a third kind, called *arcuballistarii*; but these are better reduced to the second. The *ballistarii* were scarce heard of before the age of Constantine.

BALLISTARIUS is also used, in *Middle Age Writers*, for a cross bowman, or *arbaletier*.

BALLISTES, in *Ichthyology*. See **BALISTES**.

BALLISTEUM, or **BALLISTEA**, in *Antiquity*, a military song or dance used on occasions of victory.

The *ballistæ* were a kind of popular ballads, composed by poets of the lower class, without much regard to the laws of metre.

BALLISTICA, **BALLISTICS**, is used for the art of throwing heavy bodies. F. Mertennus has published a treatise on the projection of bodies, under this title.

BALLOON, or **BALLON**, in *Chemistry*, denotes a large round short-necked matras, or vessel, used in chemistry to receive what is distilled or drawn off by means of fire. They are generally round like hollow spheres, or like footballs, called in French *balons*, whence they derive their name. When chemists have occasion to drill holes in their *balloons*, or glass vessels, the operation is best performed by a copper drill and emery; a steel instrument makes vibrations which are apt to break the glass.

BALLOON is also used, in *Architecture*, for a round ball, or globe, placed on the top of a pillar, or the like, by way of acroter, or crowning. That on the top of St. Peter's at Rome is of brass sustained by an iron arming within; and, being at the height of sixty-seven fathoms, is above eight feet in diameter.

BALLOON also denotes a kind of game something resembling tennis.

The *balloon* is played in the open field, with a great round ball of double leather blown up with wind, and thus driven to and from with the strength of a man's arm, fortified with a brace of wood.

BALLOON, or **BALLOEN**, is more particularly used among *Voyagers*, for the state barges of Siam.

The *balloons* are a kind of brigantine, managed with oars, of very odd figures, as serpents, sea-horses, &c. but by their sharpness and number of oars, of incredible swiftness. The *balloons* are said to be made of a single piece of timber, of uncommon length; they are raised high, and much decorated with carving at head and stern: some are gilt over, and carry a hundred and twenty, or even a hundred and fifty rowers on each side. The oars are either plated over with silver, or gilt, or radiated with gold; and the dome or canopy in the middle, where the company is placed, is ornamented with some rich stuff, and furnished with a balustrade of ivory, or other costly matter, enriched with gilding. The edges of the *balloon* just touch the water, but the extremities rise with a sweep to a great height. Some are adorned with a variety of figures, made of pieces of mother of pearl inlaid: the richer sort, instead of a dome, carry a kind of steeple in the middle; so that considering the slenderness of the vessel, which is usually a hundred, or a hundred and twenty feet long, and scarce six broad, the height of the two ends, and of the steeple, with the load of decorations, it is a wonder they are not overfet.

BALLOON, a name lately given to an aerostatic machine, employed for the purpose of aerial navigation. Some attempts of this kind, formerly practised, are recited under the article *Artificial FLYING*. For a further account of these and also of other contrivances, see the Appendix.

BALLOTADES in the *Manege*, the leaps of a horse between the pillars, or upon a straight line; so that when his fore-feet are in the air, he only shews his hind shoes, without jerking out.

A horse naturally takes to *ballotades*, after putting him on caprioles;

caprioles; when the fire and mettle of the caprioles is over, he falls of course to *ballotades*, and then to *CROUPADES*, unless a poinçon in a hard hand make him jerk out, and continue the air of *CAPRIOLES*.

BALLOTE, in *Botany*. See *Black HOREHOUND*.

BALLOTING, a method of voting at elections, &c. by means of little balls, which are usually of different colours, by the French called *ballotes*; which are put into a box privately.

BALLUSTER, or **BALLISTER**, a small kind of column or pillar, whereof *BALLUSTRADES* are formed.

The word is French, *balustre*, which signifies the same, formed from the Latin *balustrum* or *balustrum*, a place among the ancients where the baths were railed in.

Ballustres are of divers forms, as well as matters, according to different occasions, and different orders of architecture.

BALLUSTER of the Ionic capital, denotes the lateral part of the volute, answering to what Vitruvius calls *pulvinata* on account of its resemblance to a pillow.

BALLUSTRADE, in *Architecture*, an assemblage of one or more rows of ballusters, high enough to rest the elbow on, fixed upon a terrace, or the top of a building, by way of security; sometimes also to make a separation between one part and another, as those around altars, fonts, &c. See *Tab. Archit. fig. 40. (G)*.

BALM, or **BALSAM**. See **BALSAM**.

BALM. See **BAUM**.

BALM of sulphur. See **SULPHUR**.

BALMING. See **EMBALMING**.

BALNEarii servi, in *Antiquity*, servants or attendants belonging to the baths.

Some were appointed to heat them, called *ferricatories*; others were denominated *capsarii*, who kept the cloaths of those that went into them; others *aliptæ*, whose care it was to pull off the hair; others *unctuarii*, who anointed and perfumed the body.

BALNEARIUS fur, in *Antiquity*, a kind of thief who practised stealing the cloaths of persons in the baths; sometimes also called *fur balnearium*.

The crime of those thieves was a kind of sacrilege; for the hot baths were sacred: hence they were more severely punished than common thieves; who stole out of private houses. The latter were acquitted with paying double the value of the thing stolen; whereas the former were punished with death.

BALNEUM, is a word much used by chemists, generally signifying a vessel filled with some matter, as sand, water, or the like, in which another is placed that requires a more gentle heat than the naked fire.

BALNEUM fœni, a hay bath, is when a body is laid to digest in moist hay, whose heat is likewise directed by the application of water.

BALNEUM Mariæ is by some so called, as being supposed to have been first invented by the blessed Virgin; but by others, with more propriety, it is called *balneum maris*, or sea bath, in regard the vessel here floats as it were in a sea. Here the cucurbit is placed in hot water, which warms the matter contained, and disposes it for rising, or exhalation. A sand heat is sometimes also called *balneum fœcum*, or *arenosum*. See **BATH**.

BALNEUM minerale, or mineral bath, is used by some chemists for *aqua regia*.

BALNEUM roris, or *roritum*, is a furnace where the cucurbit, or distilling vessel, is only suspended over the vapour of water, and not in contact with the water itself.

This is also denominated *balneum vaporarium*, or a *vapor-bath*.

BALNEUM ventris equini, or a horse-dung bath, is when a body is laid to digest in horse-dung, the heat whereof is managed by the effusion of hot water.

BALONICH, in the *Materia Medica* of the ancients, a name given by Avicenna, Averrhoes, and others, to a kind of camphor, which they describe as coarse, brown, and of less value than the other sorts. This is probably the same with our rough camphor, as brought over to us from the East Indies.

BALSAM, **BALSAMUM**, properly denotes an oily, resinous, and odorous substance, issuing from incisions in certain plants; of sovereign virtue in the cure of wounds, and divers other disorders. They are liquid, but somewhat thick, and flow spontaneously from certain trees. If pure *balsam* be dropped on a woollen cloth, it may be washed off without leaving the least stain, but adulterated *balsam* sticks to the place. Pure *balsam* coagulates with milk, but adulterated *balsam* will not. True *balsam* dropped into water discovers its genuineness by spreading on the surface, imparting its taste and smell; it is so thick, that the gross parts at the top may be taken off with a needle. These are called natural *balsams*, to distinguish them from compositions of the same name.

Balsams are only *RESINS* in their liquid state which, when combined with any considerable proportion of gum, are

called *gummy RESINS*. They are soluble in viuous spirits and oils, not acted upon by water, nor volatile in the heat of boiling water, fusible in a small degree of heat, and readily inflammable on the contact of any flaming or ignited body.

Balsams by yolk of eggs are rendered soluble in water; more elegantly still by sugar; and most elegantly, as essential oils also are, by the intervention of gums and mucilages; the solutions thus prepared are most permanent. Gum is the medium employed by nature herself to unite the resinous and balsamic with the watery juices of vegetables.

Of themselves they have no smell; but they often retain, or have persevered in them indolently, a part of the odorous principle, and are nevertheless looked upon as pure *RESINS*.

They derive both their liquidity and smell from a greater or less quantity of essential oil, which they contain, and which may be extracted by distillation.

Balsams may even be considered as true *essential OILS*, which have lost some of their odoriferous principle, and of their finest and most volatile part. When they are deprived of their remaining part of volatile oil, their *residua* exactly resemble those which remain after the rectification of *essential OILS*. These *residua* are true *RESINS*, from the analysis of which the same principles are obtained, as from *natural resins*, which are themselves nothing else but *balsams* exhausted by time, or by the action of the air and of the sun, of all their odoriferous and volatile parts. Neumann. Lewis. Macquer.

Balsamic medicines are of a nature somewhat hot and acrid. Under this denomination come what we commonly call cephalic, nervous, apoplectic, and antiparalytic medicines, as also spirituous cordials, and other substances of similar natures and properties. But of all the medicines belonging to the *balsamic* class, the most noted and efficacious are aloes wood, together with its resin and essence; yellow saunders with its essence, reduced to a liquid *balsam*; ambergrise; liquid amber; balm of Gilead; amber; benzoin; storax, with its resin; the ladaniferous shrub, with its resin; the *balsams* of Peru, and Tolu; *balsam* of Casour; and that called the red American *balsam*; the true Peruvian bark; the bitter *ceftus*; Indian bark; cinnamon; cloves; cardamoms; cubebs; mace; nutmegs; savory; thyme; rue; mother of thyme; lavender; our *origanum*, and that of Crete; majoram; our own, and Turkish *baum*; Roman chamomile; Syrian herb mastich; basil; southernwood; spikenard; camel's hay; bay, and myrtle leaves; together with the genuine fragrant and unadulterated oils distilled from them. The compound *balsamics* are, the apoplectic *balsam* of Crolius; the *balsamum cellerise*; that of Scherzerus, and the liquid *balsam* of life; spirit of Peruvian *balsam*; spirit of amber and mastich; the apoplectic water of Sennertus; the *aqua Anhaltina*; true essence of amber, and volatile oily spirits, impregnated with oil of cinnamon, mace, and cedar.

Balsams are of great service in medicine and surgery. To use them, they are commonly liquified with spirit of wine, or oil, and sometimes mixed up with the yolk of an egg. They are to be used cautiously and in moderate doses by young people, and patients of choleric and delicate constitutions, as also in cases where the body abounds with blood and humours.

Balsamics labour under this defect, that they must make a vast progress in most instances, before they can arrive at the intended scene of action; by which means they not only come slowly, and in small quantities, but much altered, and variously modified, by the action of the blood-vessels, and the intermixture of its humours.

In the intentions where *balsamics* are chiefly given, the seat of the disorder is generally in the *viscera*; where a medicine can only arrive by the common conveyance of the blood; and how long, from its being taken into the stomach, must such a medicine be, and how many alterations must it undergo in the divers parts of the body it passes through, before it comes to the place desired? Though the lungs are, by their situation, so near the stomach, a medicine cannot arrive there, till it has taken its course through the lacteals, passed all the meanders of the mesentery, gone up with the chyle into the subclavian vein, and there entered the blood: and, after all, it has only the chance of coming to the part in such a quantity, as, with regard to the whole medicine which entered the blood, bears the same proportion, as the blood in the pulmonary artery bears to all the blood in the other arteries.

Hence nothing is to be expected from *balsamics*, in a short time, or a few days: they must be repeated, and followed, till the animal juices are sufficiently charged therewith, to afford a continual supply.

Add, that *balsamics* generally load and clog the stomach; and hence, have often bad effects. This consideration led the bishop of Cloyne to prefer tar-water to all other *balsamics*.

BALSAM, or *balm of Gilead*, is in the greatest esteem, though there are some who hold that of Peru equal to it in virtue. It is drawn by incision from a tree of the same name growing in Egypt and Judea, but chiefly in Arabia Felix, and which is held so precious, that it makes part of the special revenue of the grand signior, without whose permission none are allowed to be planted or cultivated. See Dr. Lewis's *Mater. Medic.* p. 422.

Its smell is agreeable, and very brisk; its taste bitter, sharp, and astringent; it easily dissolves in the mouth, and leaves no stain on woollen cloth.

At present there are three ways of obtaining it, and according to these there are three kinds of the *balsam*. The first kind is that obtained from the natural cracks, or wounds made in the bark, as by the ancients, which is the best and most precious kind. But there is so little procured this way, that it scarcely supplies the seraglio, and the great officers; and hardly a drop of it is ever sent out of the country. The second kind is called by some the *Constantinople balsam*; this also rarely comes to us, unless in small quantities presented by the great men of the Porte, and is prepared by boiling. They fill large vessels with the young twigs and leaves of the *balsam* shrub; and adding a large quantity of water, they boil them gently. During the boiling, there arises to the surface of the liquor an oily and balsamic matter, which they skim off and preserve for use. After all this fine matter is raised, they increase the fire, and a large quantity of somewhat thicker *balsam* rises more like turpentine; this they also separate, and preserve by itself; and this is principally what is brought into Europe.

It is unquestionably a very noble detergent and balsamic; is of the same use with *capiivi* in gonorrhœas, and is excellent in ulcers of the kidneys and bladder. It is by some esteemed a cure for consumptions; and though it does not absolutely deserve that title, yet with proper management it may do great service in them. Externally it has been always deservedly famous for curing wounds of all kinds; where the wound is indeed a simple solution of continuity, and there is no bruise with it, the cures with *balsams* of this kind are very sudden.

For internal use it may be either given in bolusses, or dropped in sugar; or finally dissolved, by means of the yolk of an egg, into emulsions.

There is likewise a *balsam* of Mecca, which is a dry, white gum, resembling white copperas, especially when old. It is brought from Mecca, by the return of the caravans of pilgrims and Mahometan merchants, who travel thither out of devotion to the birth-place of their prophet. It has all the virtues of the *balm* of Gilead, or Judea; and is probably the same, only hardened, and its colour altered.

BALSAM, *Luccatellus's*, is composed of oil, two parts, and turpentine and wax, each one part; the red sanders only contributing to its colour and smell.

BALSAM of *Peru* is of three kinds; or rather, it is one and the same *balsam*, having three several names, viz. *balsam of incision*, which is a white glutinous resin, oozing at an incision in the tree, and afterwards thickened and hardened. This is excellent for green wounds, and much resembles the *opobalsamum*, excepting in smell, which distinguishes it.—*Dry balsam*, which is distilled from the tips of branches cut off, to which are fastened little vessels to receive the liquor, which at first is like milk, but reddens by being exposed to the sun. Its chief use is in the composition of the *lac virginale*, which is made much better with this, than with *styrax* or *benzoin*.—Lastly, the *balsam of lotion*, which is blackish, and is drawn from the bark, roots, and leaves of the tree, minced and boiled together. This is used in wounds like the white *balsam*; and, on account of its excellent smell, by the perfumers.

The virtues of this *balsam* as a cordial, pectoral, and diuretic, are very great. It is given with success from four to eight drops for a dose, in consumptions, asthmas, nephritic complaints, obstructions of the *viscera*, and suppressions of the *menfes*. It has also externally all the virtues of the *balm* of Gilead, and consolidates wounds in the same remarkable manner. It is best taken dropped on sugar; the yolk of an egg will indeed dissolve it, and it may that way be made into an emulsion, but it is more acrid in that form than when taken singly. It is often made an ingredient in bolusses and electaries; and is in some of the officinal compositions.

BALSAM of *Capahu*, or *Copaiba*, vulgarly *Capiivi*, comes from Brasil, in earthen bottles. There are two sorts, the one bright and thin, the other thick; the first white, of a resinous smell; the other a little more on the yellow: both are admirable for wounds; the Jews use this *balsam* after circumcision to stop the blood.

Many of the Americans call all odoriferous resins, and sweet-scented gums, *copal*; and the word *iba*, or *iva*, is the name for a tree; by which the etymology of *copaiva* easily appears.

It is a great cleanser of the urinary passages; on which

account it obtains much in gonorrhœas, and all obstructions and ulcerations in those parts. It is efficacious in the *fluor albus*, and in gleet. It is also reputed a powerful balsamic, and, as such, used in many distempers of the breast.

But its heat and acrimony render it hurtful in inflammatory cases, *phthisis*, disorders of the kidneys, &c.

The *balsam of Copaiba* is frequently adulterated with oil of sweet almonds, and oil of turpentine; the near resemblance it bears to this last, has occasioned them to be sometimes confounded. They may be distinguished by the consistence as well as by colour; turpentine being thicker, and of a vitreous cast, but the *balsam* whiter, and more inclining to a yellow: add, that it is more odorous, as well as sharper and bitterer to the taste.

Beside the common uses of this *balsam*, the art of the modern chemists has found a new and very profitable one; that is, the debasing and adulterating the dearer essential oils with it, as the smell in its oil is much sweeter than that of turpentine or deal wood.

This *balsam* yields a very large proportion of essential oil, by distillation with water, even to the quantity of five or six ounces from a pound; and the chemists who know this, adulterate their oils, either by mixing them with the oil of *Copaiba*, or more artfully, by putting a proper quantity of this *balsam* with the ingredients into the still, and so drawing off the oil of both mixed intimately together. There seems no easy way of detecting this fraud: the nice use of a hydrostatical balance indeed would do it; and it is worth observing, whether the oils thus adulterated will not, on long keeping, discharge the ink of their written label; as the essential oils, adulterated with the oil of turpentine, are known to do, on account of the acid vapour which continually exhales from that oil. See *COPAIBA*.

BALSAM of *Tolu*, is at first a liquid resin, which, as it grows old, becomes of the colour and consistence of Flanders glue. It comes by incision from some trees growing in New Spain; where the inhabitants receive it in little vessels of black wax: in taste and smell it resembles *balm* of Gilead; as it grows old, it takes the consistence of a dry *balsam*. It is an excellent balsamic, and restorative; and good in all decays, especially of the lungs. It softens and thickens the blood, and cures catarrhs, and coughs, from tickling defluxions, &c. Its healing virtues extend even to the seminal parts, where it is good in old gleet, &c. There is a syrup of it in the shops; but the best form of administering it is in pills, or in a solution of some spirituous *menstruum*.

It takes its denomination from a place called Tolu, situated between Carthage and Nombre de Dios.

BALSAM, *Hungarian balsamum*, is a species of oil, or liquid resin, oozing from a coniferous tree growing on the Carpathian mountains, to which the Hungarians attribute many virtues. Vide *Ephem. Acad. N. C. Cent.* 7. Obs. 2. p. 4.

The virtues of this *balsam*, internally taken, or externally applied, are said to be very great, and not inferior to those of the *oriental balsam*. But whether either deserve the commendation bestowed on them, and how far they excel the common turpentine, is a question that must be left to impartial practitioners.

BALSAM of *liquid amber*, is a clear liquid resin, produced by a tree in New Spain, called by the natives *osofol*; in some degree resembling ambergris in smell, whence its name. This *balsam* is liquid; in which state it is called *oil of liquid amber*, and when old, *balsam of liquid amber*; it comes from both the Spains, in barrels, but the genuine is very rare among us.

BALSAM, *new*, resembles *balsam* of Tolu in smell and colour, and is procured in the manner of oil of bays, from a red fruit in the island of St. Domingo. It is found excellent for wounds and ulcers, especially for fistulas *in ano*.

BALSAM is also applied to a mineral substance, of a fragrant healing quality, extracted from a kind of stones discovered in a mine near Bergamo in Italy. Vide *Phil. Trans.* N^o 79. p. 3059; or, *Abridg.* vol. ii. p. 460.

This is more particularly called, by way of distinction, the *mineral balsam*.

The discoverer was Sig. Castagna. Its chief use is in disorders of the *uterus*; on which account it is in great esteem among the Genoese, to restore women after labour. Some have also found it of great benefit in the *phthisis*. *Phil. Trans.* N^o 127. p. 674.

BALSAM is also applied to certain factitious substances, made by chemists and apothecaries, chiefly of balsamic and healing ingredients, in imitation of the native *balsams*.

These are called, by way of distinction, *factitious*, or, *artificial balsams*.

We have two different compositions of *balsams*, in imitation of the true, or Egyptian *balsam*; one by Matthiolus, the other by Emericus Cordus. Pomet has also given a method of imitating one of the native *balsams*.

BALSAMS, *artificial*, are, by some, divided into simple and

compound: to the class of *simple* belong the rectified oils of wax, turpentine, linseed, *hypericum*, roses, *solanum*, and *trifoliatum odoratum*; to which Boerhaave adds fresh butter.

BALSAMS compound, are numerous; the dispensatory writers furnish a great number of forms, as magisterial chalybeat, paralytic, nephritic, and polychrest *balsams*: red, green, Spanish, and Samaritan *balsams*; *balsams* of *Arceus*, of amber, of pitch, &c.

Besides these, chemists and alchemists speak of *balsams* of *antimony*, of *life*, &c. See some remarks on the use of *balsams* in the cure of *consumptions*, Lond. Med. Observ. &c. vol. iv. p. 231. by Dr. Fothergill, who is of opinion that all medicines possessed of heating, stimulating qualities, are in general improper in the treatment of this disorder.

BALSAM of antimony, a famous medicine described by Basil Valentine in his *Currus antimonii triumphalis*. This author has related many incredible things in its praise; but Kerkring, in his commentaries on that work, declares, that all he has said of it, is short of its real praise; and that, in particular, cancers were to be cured by it; himself having, as he informs us, performed a perfect cure on a breast condemned to be cut off, by anointing it with this *balsam*, and giving the common internals.

BALSAM of life. The first medicine known by this pompous name, was the preparation of antimony, so highly extolled by Basil Valentine, and, after him, by Kerkring. These gentlemen are very cautious of giving the processes for this and the like medicines, in intelligible terms; but they acknowledge, that it contains all the virtues of antimony, and all that can be done by the spagyric art.

The famous Frederick Hoffman speaks of a *balsam of life*, of his own invention, to which he ascribes great virtues; but we know not if ever he published the process for making it. That given in the Strasburg and Ratisbon dispensatories, under the name of *Balsamum vitæ Hoffmanni*, is taken from the notes on Poterius, and is not the same with that *balsam* which the late learned Fred. Hoffman prepared in his own house.

BALSAM is also applied to certain preparations of spirit of wine, with balsamic and aromatic spices, fragrant resins, and the like. These are otherwise called *elixirs*. Among these the *elixir balsamicum Hoffmanni*, otherwise called his *balsamum vitæ*, is famous; but its preparation seems not known.

BALSAMS, odoriferous, are a fragrant kind of unguents, generally of a thick consistence, composed of some fatty, dense juice, joined with some distilled oils of divers kinds. These are also called *sweet-scented* or *apoplectic balsams*. These *balsams* are prepared as rich perfumes, to raise the languid spirits; and the noblest and richest of the essential oils should therefore be used in them. The oils principally directed by Boerhaave to this purpose, are those of *baum*, *calamus aromaticus*, cinnamon, cedar, citron, cloves, jasmine, lavender, white lilies, marjoram, mace, nutmeg, *origanum*, oranges, both those of China and Seville, roses, *rhodium*, and yellow sanders; to which may be added, the natural *balsams* of Peru and Gilead; these two being spontaneously fragrant without distillation.

BALSAMS, distilled, are only etherial oils distilled in spirit of wine.

BALSAMS, unguentaceous, are, properly, unguents, composed of divers resins, gums, and oils, fused into one mass with spirit of wine, oil of turpentine, or the like; intended to cleanse, preserve from putrefaction, heal, mitigate, resolve, &c.

BALSAM is also used in *Pharmacy*, as the name of one of the forms of medicines; of a consistence somewhat greater than that of oil, but less than that of an unguent.

BALSAMUM samech, of Paracelsus, is a salt of tartar dulcified by distilling spirit of wine from it, till the salt be sufficiently saturated with its sulphur, and till it suffer the liquor to be drawn off, as strong as when it was poured on.

BALSAM of sulphur, is a solution of the flowers of sulphur in some oil: it is made by boiling the two together over a soft fire the space of an hour, or till the sulphur be totally incorporated with the oil into a red *balsam*.

The *balsams* of sulphur are named from the particular oils which enter into their composition. Thus if it be made with the essential oil of turpentine, it is called *terebinthinated balsam of sulphur*; if made with the essential oil of aniseed, it is called the *balsam of sulphur with oil of aniseed*; these are the two most in use. When it is made with the oil of nuts, it is called *Rulland's balsam of sulphur*. It is recommended both for external and internal cases, as being warm and mollifying in cases of wounds, sanious ulcers, fistulas, &c. and curative even of ulcers of the lungs.

Helmont, its inventor, extols it for all diseases of the breast; yet Boerhaave rejects all internal use of it, as too hot and acrimonious. Bartholin also observes, that it sometimes causes a cardialgy.

BALSAM of Saturn, is a salt, or sugar of lead, dissolved in

oil or spirit of turpentine, juniper, or the like, digested till the matter hath acquired a red tincture. This is found to resist the putrefaction of humours, and is good to cleanse and cicatrize ulcers.

BALSAM or BALM, among *Alchemists*, sometimes denotes the spirits of common salt extracted in a particular manner. The preparation is thus: they dissolve the salt, and place the solution of it, well clarified, in horse-dung, to putrefy, for the space of two or three months, and then distill it strongly with a sand heat; upon which there arises a precious unctuousity, wherein things the most corruptible being steeped, are said to remain entire, eternally.

It is said, that it was by this means some of the ancients preserved dead bodies entire, without reducing them to mummy: and particularly that of the woman mentioned by Volaterranus to be found in a *mausoleum* near Albano, in the time of pope Alexander VI. which was by his order thrown secretly into the Tiber, to prevent idolatry; she being found as fresh as when alive, though she had been dead 1300 years.

We read of a *balsam* of this kind, called

BALSAM, dead, a liquor prepared with myrrh and aloes, dissolved in a spirit of wine, chiefly used for drying and absorbing the humours of dead bodies.

BALSAM of the philosophers, *balsamum philosophorum*, is one of those ænigmatical terms, whereby they express *aurum potable*.

BALSAM is also sometimes used, in *Ecclesiastical Writers*, for the sacred chrysm.

This is otherwise denominated *balsamelaum*.

BALSAMUM traumaticum, vulnerary balsam, a form of medicine prescribed in the London Dispensatory, intended to supply the place of the tincture commonly called the Friar's *balsam*, so famous for curing fresh wounds. It is made thus: take of benjamin three ounces, strained borax two ounces, balsam of Tolu one ounce, Succotorine aloes half an ounce, rectified spirit of wine a quart: digest them together, till as much as may be of the gums are dissolved, and then strain off the spirit.

BALSAM apple, male, momordica, in *Botany*, a genus of the *monoecia syngenesia* class. Its characters are these: it hath male and female flowers upon the same plant; and the male flowers have an open concave empalement of one leaf. It has three short awl-shaped stamina, which are compressed in a body, and have a reflected line containing the *farina*. The female flowers have the same empalement and petal as the male, but sit upon the germen: these have three short filaments, without summits. The germen supports one taper trifid style, crowned by three oblong, gibbous stigmas, and afterwards turns to an oblong fruit, opening with an elasticity, having three membranaceous cells filled with compressed seeds. Linnæus enumerates eight, and Miller four species, one of which is known by the name of the wild, or spurting cucumber, from its casting out its seeds, together with the viscid juice in which they are lodged, with a violent force, if touched when ripe; and from hence it has sometimes obtained the name of *noli me tangere*, or *touch me not*.

This plant grows naturally in some of the warm parts of Europe; but in England it is cultivated in gardens, for the fruit, which is used in medicine, or rather the *fecula* of the juice of the fruit, which is the *elaterium* of the shops.

BALSAM-tree. See *TURPENTINE-tree*.

BALSAMATION, BALSAMATIO, is used by some writers, for the art or act of *EMBALMING* dead bodies.

Dr. Hook speaks of an universal *balsamation*, or method of preserving all kinds of bodies from corruption, invented by Dr. Elthor.

BALSAMELÆON, in the *Materia Medica*, a name given by some authors to the balm of Gilead, or true *balsamum Judaicum*.

BALSAMIC, a term in physic, signifying that property in a medicine whereby it is rendered soft, gently attenuating, and somewhat agglutinant; and is often applied to things healing and vulnerary.

In this sense, physicians speak of the *balsamic* virtues of iron; hence also the denomination, *balsamic styptic*, given to Dr. Eaton's liquor. Mem. Acad. Scienc. 1713. p. 247. Phil. Trans. N^o 283. p. 110.

BALSAMICS are medicines endowed with a balsamic, that is a restoring, healing, and cleansing power.

The chief remedies in the class of *balsamics*, are the native balsams which give the denomination to all the rest.

BALSAMICS are divided into emollients, restoratives, vulneraries, and detergents.

BALSAMICS, again, are either internal or external; hot and acrid, or mild and temperate. The acrimonious kind are dangerous internally, and not to be given without the greatest caution, where there is any disposition to inflammation or fever; as in *phthises*, vomicas, gonorrhœas, urinous disorders, stone, *cephalæa*, &c.

BALSAMINA scandens, a name given to the large-fruited white briony of Ceylon.

BALSA-

BALSAMINE, *female*, **BALSAMINA**, or *balsam*, in *Botany*, the name given by Tournefort to a genus of plants, called by Linnæus *impatiens*, and belonging to the class of *syngenesia monogamia*; the characters of which are these: the flower has a two-leaved small empalement; it hath five petals, which are unequal, and shaped like a lip-flower; it hath a *nectarium* at the bottom of the flower, shaped like a hood or cowl, which is oblique to the mouth, rising on the outside, whose base ends in a tail or spur, and five short stamina, which are incurved; in the bottom is situated an oval, sharp pointed germen, which afterward becomes a *capsula* with one cell, opening with an elasticity in five valves, which twist spirally, and contain several roundish seeds fixed to a column. Linnæus describes seven, and Miller three species. The varieties of this plant, kept in the gardens, are all raised from seeds sown on hot beds in the spring, and afterwards planted out into pots and borders; though there are two or three of the hardier kinds, as the common white, red, and purple kinds, which will come up in common ground, without any artificial heat, and will be stronger, and flower better so than if raised on hot-beds. But the fine double large kind, or immortal eagle-flower, as it is called, requires to be set on a fresh hot-bed, after it has been raised on one, in order to bring it forward; else it does not get into flower till late in the year, and will not ripen its seeds. There are two kinds of this beautiful species; one brought from the West Indies, known by the name of the *cock's spur*: this produces large and strong plants, but flowers very late. The other is from China, and is what is most commonly called the *immortal eagle-flower*, and is one of the finest annual plants we have, producing very large double flowers, and continuing a long time in flower, if sheltered from violent winds and rain. This produces seeds very well with us; but these are apt to degenerate, after a few years, into single flowers.

When the young plants are raised in a hot-bed, and are to be planted out into pots, such are always to be preferred as have stalks finely spotted with red; for these always produce red and double flowers. Miller.

BALSAMITA, a name given by some to a species of **TANZY**.

BALTAGI, among the Turks, porters, and hewers of wood, in the court of the grand signior; who also mount on horseback, when the emperor rides out. Part of them also who, for that purpose, must be castrated, keep watch at the gates of the first and second courts of the seraglio. These last are called *capigi*, and their commander *capigi pascha*.

BALTHEUS Orionis, *belt of Orion*, in *Astronomy*, a part of the constellation of **ORION**, consisting of three bright stars of the second magnitude, placed nearly in a right line in Orion's girdle.

BAMBELE, in *Zoology*. See **RUTILUS**.

BAMBO, in *Commerce*, an East India measure, containing five English pints.

BAMBOE, in *Natural History*. See **REED**.

The Indian *bamboe* is the largest kind of cane that is known. It is of an extraordinary height and bigness, when it bears no blossom: each cane is often, toward the bottom, of the size of a man's thigh, decreasing gradually to the top, where it bears a blossom or flower like our reeds in their proper season. The *bamboe* grows in all the maritime countries in the East Indies.

With these canes of *bamboe* the Indians build their houses, and make all sorts of furniture in a very ingenious manner. The wood of these canes is so hard and strong, that they serve very well to make piles for supporting their little houses built over rivers, which have a gentle course. They also make with this wood all sorts of utensils for their kitchens and tables. They serve to make the sticks, or poles, with which the slaves carry those sort of litters called *palanquins*, which are so common in all the East. They likewise make of them a kind of pails, in which the water keeps extremely cool. The small shoots of them serve to make walking canes.

A decoction is made of the leaves, of use for dispersing coagulated blood; and of the pithy part in the middle they also make a medicine against the strangury.

BAMBOO habit, a Chinese invention, by which a person who cannot swim, may easily keep himself above water. Four *bamboos*, two before, and two behind their bodies, are placed horizontally, and project about twenty-eight inches. They are crossed on each side by two others, and the whole properly secured, leaving a space for their body, it is put over their heads, and tied secure in two minutes. Its shape as here represented.



BAN, a sort of smooth fine muslin, which the English import from the East Indies. The piece is a yard broad, and runs about twenty yards and a half.

BAN and **BANS**. See **BANN** and **BANNS**.

BAN, *Arriere*. See **ARRIERE**.

BANANA, a name used by many authors for the **MUSA**, or plantain-tree, of the common kind; but more frequently, with us, understood to mean another species of the same genus, which the Portuguese call *pacocirca*, and we particularly, the *banana* tree.

The difference between the two is this: the *musa* has a green stalk, and a long, crooked, angular fruit, resembling a crooked cucumber; the *banana*, a spotted stalk, and a round fruit.

The fruit of this tree is said to be nourishing, to excite urine, and to be a provocative to venery.

The abbé Poyart describes two trees under the name of *bananas*, which he met with in Africa. The one, which is rather a plant than a tree, rises to the height of between twelve and fifteen feet, on a stalk or trunk of eight or ten inches in diameter. The fruit shoots forth from the trunk in a cluster, containing between one and two hundred *bananas*, each an inch thick, and eight or nine inches in length. As soon as one cluster is produced the plant dies, and several new plants spring up in the room of the old one. The trunk of the tree is encompassed with several sprigs, of the rind of which the negroes make cords. The leaves of this plant are seven or eight feet long, and twenty inches broad; as strong as parchment, and are used for umbrellas, and other purposes. The other tree is the *fig-bananas*, or fig-tree of Adam, and differs from the former only in the nature and qualities of its fruit. The produce of the former is a kind of bread, which is dry and mealy; that of the latter a delicious fruit, which is soft and moist. *Histoire de Loango*, &c. vol. i. 1776. Paris.

BANC, **BANCUS**, or **BANK**, in *Law*, denotes a seat, or bench of judgment. See **COURT**.

BANCI, *jus*, or the privilege of having a bench, was anciently only allowed to the king's judges, *qui summum administrant justitiam*. Inferior courts, as courts baron, hundred courts, &c. were not allowed that prerogative; and even at this day the hundred court at Freibridge in Norfolk is held under an oak at Gey-wood; and that of Woolfry, in Herefordshire, under an oak, near Ashton in that county, called Hundred-oak.

BAND, in a general sense, some small, narrow ligament, wherewith a thing is tied, or fastened.

We say, a *slay-band*, a *brow-band*, a *hat-band*, &c.

BAND, in *Architecture*, denotes any flat, low member, or moulding.

This amounts to the same with what is otherwise called *face*, from the Latin *fascia*, which Vitruvius uses for the same thing, and sometimes *fillet*, *plinth*, &c.

BANDS of *columns*, properly denote a kind of embossments surrounding shafts of rustic columns, at certain distances, by way of decoration.

These are sometimes plain, sometimes picked or vermiculated, and sometimes carved with decorations of low relief, which are different in every different *band*.

Columns enriched with these *bands*, are sometimes called *banded columns*.

BAND, in *Surgery*, denotes a fillet, swath, or piece of linen cloth, wherewith either to cover or surround certain parts, that stand in need of assistance.

Bands are the same with what are otherwise called *rollers*.

A *band* or *roller*, when applied, becomes a **BANDAGE**.

BAND, *bandum*, is used, in *Middle Age Writers*, for a flag or banner.

BAND also gives the denomination to a military order in Spain, instituted by Alphonfus XI. king of Castile, in the year 1332.

It takes its name from the *banda*. *band*, or red ribband, which comes across over the right shoulder, and under the left arm, of the knight.

This order is for none but the younger sons of nobles; the eldest sons of grandees are excluded; and, before admittance, it is requisite to have served at least ten years, either in the army, or at court. They are bound to take up arms for the catholic faith against the infidels.

The king himself is grand-master of the order.

BAND of *soldiers*, so many as fight under the same flag, or ensign.

Thus Romulus called those who fought under the same manipule (a handful of hay being then used for a flag) *manipulus militum*.

Formerly *bands* especially denoted bodies of foot; and the French still call their infantry *bandes Françaises*.

BAND of *pensioners*, is still retained, to denote a company of gentlemen, who receive a yearly allowance of 100*l.* for attending the king on solemn occasions.

BANDS, *trained*. See **TRAINED bands**.

BAND, in matters of artillery, denotes a hoop of iron used about the carriage of a gun.

Such

Such are the nave *bands*, which are iron hoops binding the nave at both ends.

BANDS of a saddle, denote two flat narrow pieces of iron, nailed on each side the bows of the saddle, to retain those bows in the situation which makes the form of a saddle.

BAND, to put a bow in the, is to nail down the two ends of each band to each side of the bow.

Besides the two great *bands*, the fore-bow has a small one, called the *withers-band*, and the hinder-bow another to strengthen it.

BANDAGE, in Surgery, the application of a band, swath, roller, or fillet, to a part of the body; or the act of rolling or tying a swath or band, round a part affected, and the parts adjacent, with compresses, plasters, and the like.

Of *bandages* there are two sorts; whereof one sort are remedies of themselves. — The other, being intended only to keep the medicaments on the part, are called more particularly *contentive bandages*.

Bandages are a very necessary part of the *apparatus* in dressing and binding up of wounds. They are not only of greater service than compresses and plasters, in securing the other dressings, but are also of excellent use in restraining dangerous hæmorrhages, and in joining fractured or dislocated bones.

Almost all *bandages*, used in dressing of wounds, ulcers, or fractured or dislocated bones, should be made of clean linen cloth, softened by wearing, but strong.

They are to be made of a proper length and breadth for the occasion; and, that they may be strong, examine the course of the threads, and tear the cloth lengthways. Darns, seams, and large hems in the cloth, are, as much as possible, to be avoided, that no inconvenience may be brought on by the roughness and irregularity of the roller.

There are different sorts of *bandages*, for different uses. Some are common; others are proper. These last are only to be applied to particular parts; the others may be applied to any.

Bandages may be distinguished also into *simple* and *compound*; the *simple* are those which are formed of one entire piece of linen; the *compound*, of several pieces sewed together, in different manners.

The most simple of all *bandages*, is that usually not rolled up, but left loose, and used in phlebotomy.

The next to this, is that called the *single-headed bandage*, which is rolled up at one end only. Next to that, the *double-headed bandage*, or that rolled up at both ends.

After these come those *bandages*, which are made out of one piece of linen, but are divided at both ends, almost as far as the middle; these are usually called, by the surgeons, *four-headed bandages*.

Another sort is somewhat shorter, and narrower, than the last described, and is divided at one end, and perforated at the other. It is usually employed in dressings to the penis, or to one of the fingers.

Another kind is, from its use, called the *uniting bandage*; it is a double-headed *bandage*, divided about the middle, and serves to unite the wounds that are made lengthways, without requiring the suture.

There is also another *bandage*, provided with an opening in the middle, through which the head may easily pass; the extreme parts of the *bandage* hanging, one over the breast, the other over the back. The chief use of this *bandage* consists in this, that, in dressing wounds of the *thorax* or *abdomen*, it is capable of supporting another *bandage*, something wider, made of a cloth four or six times doubled and bound round the breast or belly.

There remains still to be considered, a compound *bandage* made of two pieces of cloth, almost in form of the letter T. The upper part of this is to be brought round the belly, and fastened by the knot; but the lower part passes under the body, between the thighs, and, being, brought up again, is fastened to the upper part upon the back. This *bandage* plainly appears to be designed for the security of such dressings, as shall be thought proper to be applied to the anus, or parts of generation. Some, from the inventor, call this *Helioidorus's bandage*. Others, from its shape, denominate it the T *bandage*; and, from the division that is frequently made at the lower part of it, it is sometimes called the double T.

As to *bandages* for the head, notwithstanding that surgeons have formerly invented different kinds of them, for every wound that could be inflicted on that part, yet there is but one form that seems necessary; and this alone will answer all the ends that can be proposed from this kind of application. It is made in the following manner: take a handkerchief, napkin, or any square piece of linen; double it up in a triangular form, and apply it as we frequently do in hot weather, when we lay aside the usual coverings of the head.

But there is another method of *bandage* in use, called *creeping bandages*, and, in the French schools, *rampants*. These creeping, or, as we sometimes call them, *serpentine ban-*

dages, are used to secure cataplasms, or compresses, upon a diseased part.

The place of beginning and ending these *bandages* is also to be determined. When the arm is to be dressed, the beginning is formed by two or three circular windings on the wrist, ascending, by loose spires, up to the cubit or shoulder, as the nature of the case shall require. But when the beginning is to be on the foot, it is to be formed by three or four circular windings of the *bandage*, round the *tarfus*, and *metatarfus*; then proceeding, in a serpentine course, up to the knee; or, if the case requires it, up to the head of the thigh, and then, as it sometimes happens, descending again.

We should not omit to mention, that the beginning of the *bandage* is sometimes applied to the diseased part, as in several kinds of fractures; sometimes near it, above it, or below it; and sometimes at a great distance from it, according to the disposition of the wound. On the contrary, the extremity of the *bandage* is scarce ever fastened on the diseased part, but rather on a sound one, to avoid giving pain.

Besides the double and four-headed *bandages*, surgeons sometimes make use of the *eighteen-headed bandage*. Its figure may be learnt from Heister's Surgery, Tab. IX. fig. 4.

BANDAGE, knotted, a *bandage* for the head, called *knotted*, from its many crossings on the temples; and *stellar*, or *solar*, from its directions in radii. It is a very useful *bandage*, when the temporal artery is divided, either in *arteriotomy*, or by an accidental wound, and hardly ever failing of success in suppressing the hæmorrhage. For the application vide Heist. Surg. p. 3. c. 2. § 7.

BANDAGE, incarnative, is the same as the *uniting bandage*. Vide Heister's Surgery, p. 3. c. 2.

BANDAGES, *expulsive*, such as are used to reduce, and prevent the enlargement of tumors. They are frequently applied with this intention, to swelled legs, and also to discharge the offensive matter in *fistulæ* and sinuous ulcers. Vide Heister's Surgery.

BANDAGE, *retentive*, is proper for the neck, as it serves to keep on the dressings, and topical remedies, applied to the neck after bleeding, &c. This *bandage* is generally composed of two simple bands, one of which is about a Paris ell, and the other an ell and a half in length; the first being of a thumb's breadth, and the last of three fingers. As to the application, vide Heister's Surgery.

BANDAGE for Tracheotomy. Vide Heister's Surgery, p. 2. c. 3.

BANDAGE, *Arnaud's*, is a *bandage* contrived by Mr. Arnaud of Paris, for *fistulæ* and abscesses of the anus, and is, by Garengeot, highly commended. But Heister thinks, that the common T *bandage* has the same advantages, provided the scapulary be made strong.

Few of the common *bandages* are capable of restraining a profuse hæmorrhage, after cutting for the *fistula* of the anus, or for the stone. What Heister has contrived for this purpose, may be seen in his Surgery, p. 3. c. 5.

Besides Heister, there are many other writers on *bandages*. That author, in his introduction, § 28. mentions Galen, translated by Vido Vidius, with figures; Verdus on *bandages*, in French: and Solingen: but he thinks the best writers of all, are Le Clerc, in his *Appareil commode*, and Bassius, in High Dutch. For other *bandages*, as the *spica*, *scapulary*, &c. see them in their alphabetical places.

There is a dissertation on the manner of stopping blood in hæmorrhages, with the description of a machine, or *bandage*, for consolidating vessels after amputations, by compression only, by M. Petit, in the Mem. of the A. D. S. an. 1751. p. 85. See also observations on a new *bandage*, by Helvetius, and on a compressive *bandage* for the cure of the lachrymal tumor. Ibid. an. 1752. Hist. 153, and an. 1745. p. 152.

BANDALEER, or **BANDELEER**, a large leathern belt, thrown over the right shoulder, and hanging down under the left arm; worn by the ancient musqueteers both for the sustaining of their fire-arms, and for the carriage of their musquet-charges; which being put up in the little wooden cases, coated with leather, were hung, to the number of twelve, to each *bandaleer*.

The word is originally French, *bandouiller*, formed apparently from *bandoulier*, a kind of banditti particularly infesting the Pyreneans, who were formerly distinguished by this piece of furniture; and were themselves so denominated, *quasi ban de volieres*, a knot of robbers.

The French soldiery still retain the *bandaleer*; their horse, their musqueteers, and common guards, wearing it indifferently; excepting for some difference in its garniture.

BANDELET, or **BANDLET**, in Architecture, any little band, or flat moulding, encompassing a column, like a ring; as that which crowns the Doric architrave. See Tab. Archit. fig. 25. N° 1. and 11.

It is also called *tænia*, which Vitruvius uses for the same thing; sometimes *fillet*, *diadema*, &c.

It is sometimes used for the three parts which compose the architrave, called by Vitruvius. *fascia*; and which are sometimes also denominated *bands* or *plut-bands*.

BANDERET, the name appropriated to the commanders of the militia of the canton of Bern.

BANDEROLL, a little flag, in form of a guidon, extended more in length than breadth, used to be hung out on the masts of vessels, &c.

BANDITTI, from the Italian *bandito*, persons proscribed, or, as we call it, outlawed; sometimes denominated *banniti* or *foris banniti*.

BANDITTI or **BANDITI**, is also a denomination given to highwaymen, and robbers, who infest the roads in troops, especially in Italy and France.

The term is also applied to a sort of freebooters, who pillage in the islands of the Archipelago.

BANDOLEERS, from the French *bandouliers*, in the *Military Art*, denotes small wooden cases covered with leather; each of which contains a sufficient charge of powder for a musket.

BANDORE, the name of a musical instrument with strings, resembling a lute, and said to be invented in the fourth year of queen Elizabeth, by John Rose, a citizen of London. See a figure of it in Hawkins's History of Music, vol. iii. p. 345.

BANDY-legs, from the French *bander*, to *bend*, a distortion of the legs, when they turn either inward or outward, on either side; arising from some defect in the birth, or imprudence of the nurse, endeavouring to make a child stand or walk before its legs are strong enough to sustain the weight of his body.

Beside the use of emollients, it is proper to apply a kind of strong boots proportioned to the limbs.

BANE-berry. See *HERB Christopher*.

BANGLE ears, an imperfection in a horse's ears, remedied in the following manner: place his ears in such a situation as they are wanted to stand; bind them with two small boards, so fast as not to stir; and then clip away the empty wrinkled skin close by the head.

BANGUE, a species of opiate, in great use throughout the East for drowning cares, and inspiring joy.

This, by the Persians, is called *beng*; by the Arabs, *esrar*, corruptly *asseral* and *assarith*; by the Turks, *bengitic*, and vulgarly *mastack*; by the European naturalists, *bangue* or *bange*.

The Indians, says Acotta, eat the seed and leaves to increase their vigour, and to excite an appetite to their food. The nobles, and chief military officers, when they are disposed to forget their toil, and to sleep in perfect ease and security, take of the powder of the seed and leaves, as much as they think sufficient; and thereto add an *arcea*, or green Indian hazel-nut; with as much opium as they think fit, and eat them all together with sugar. If they desire to be entertained with variety of scenes, and images of things in their sleep, they add some of the choicest camphor, cloves, nutmegs, and mace. If they have a mind to be merry, witty, and to indulge their amours, they add ambergris and musk, and make them all into an electary with sugar. It is by many affirmed that the seed and leaves promote lust; whence says J. Bauhine, it appears that this herb has no affinity with hemp, though it be very much like it; since hemp, according to Dioscorides, is of a hot and dry nature, and extinguishes amorous desires.

Ray, from whom this account is taken, says, he learned from sir Hans Sloane, that it is a different plant from hemp. It grows in Indostan, and other parts of the East Indies, where it is principally in use.

Bangue, in reality, is a *succedaneum* to wine, and obtains in those countries where Mahometanism is established; which prohibiting the use of that liquor absolutely, the poor muflemen are forced to have recourse to *succedanea*, to rouse their spirits. The principal are *opium*, and this *bangue*.

BANIAN-days, in *Marine Language*, a cant term among sailors, to signify those days in which they have no flesh meat. It seems to be derived from the practice of the people mentioned in the following article.

BANIANS, a religious sect in the country of the Moguls, who believe a *metempsychosis*, and will therefore eat no living creature, nor even kill noxious animals, but endeavour to release them, if they see them in the hands of others.

The *Banians* are said to be so fearful of having communication with other nations, that they break their cups, if one of a different religion have drank out of them, or even touched them: and empty the water out of a pond where he has washed himself. It is added, that if they happen to touch one another, they must wash and purify themselves before they eat, or enter their own houses. They carry, hanging at their necks, a stone called *tamberan*, as big as an egg, and perforated in the middle, through which run three strings: the stone, they say, represents their great god, and upon this account they have great respect shewn them by all the Indians.

The proper *Banians* are called, in the *SHASTER*, or book

of their law, by the name of *shuddry*, under which are comprehended all who live after the manner of merchants, or that deal and transact for others, as brokers; exclusive of the mechanics, or artificers, who make another cast, called *wyse*. These *Banians* have no peculiar sect or religion, unless it be, that two of the eight general precepts given by the legislator, *Bremaw*, to the Indian nation, are, on account of the profession of the *Banians*, supposed more immediately to relate to them, viz. those which enjoin veracity in their words and dealings, and avoiding all practices of circumvention in buying and selling.

The *Banians* and the Chinese, are the greatest traders in the Indies, to whom must also be added the Jews and Armenians who are greatly dispersed over those parts. But the most considerable trade is carried on by the *Banians*, in the whole peninsula on this side the Ganges. They are extremely skilful and cunning in commerce. Most of them follow brokerage, and most of the brokers of the English, Dutch, and French companies are of that nation. For the rest, they are very honest, and have almost constantly in their hands the stock and cash of those companies.

They are likewise bankers; and there are few places in the East Indies for which they cannot furnish bills of exchange. They have also a sort of standing cash or bank where persons may deposit their money, and take it out again whenever they please.

The form of contract, in buying and selling, is remarkable; being done in the profoundest silence, only by touching each others fingers: the buyer loosening his *pamerin*, or girdle, spreads it on his knee; and both he and the seller having their hands underneath, by the intercourse of the fingers, mark the price of pounds, shillings, &c. demanded, offered, and at length agreed on. When the seller takes the buyer's whole hand, it denotes a thousand and, as many times as he squeezes it, as many thousand pagods, or roupees, according to the species in question, are demanded: when he only takes the five fingers, it denotes five hundred, and when only one, one hundred; taking only half a finger, to the second joint, denotes fifty; the small end of the finger, to the first joint, stands for ten. See *CEURAWATH*.

BANILLIA, in the *Materia Medica*, a name used by some for the *vanillia*, or *vanilloes*, used in making the scented chocolate.

BANISHMENT, **EXILE**, among us, is of two kinds: the one voluntary, and upon oath; the other by compulsion, for some offence or crime.

The former, properly called *abjuration*, is now ceased; the latter is chiefly enjoined by judgment of parliament. Yet outlawing and transportation may also be considered as a species of exile.

By Magna Charta, none shall be outlawed or banished his country, but by lawful judgment of his peers, or according to the law of the land. 9 Hen. III. cap. 29. And by the common law no person shall be banished but by authority of parliament; or in case of **ABJURATION** for felony, &c. But this is taken away by statute, 3 Inst. 115. Stat. 21. Jac. I. cap. 28.

BANISTERIA, in *Botany*, a genus of plants belonging to the *decandria trigynia* class of Linnæus; the characters of which are these. The flower hath five petals, which are shaped like those of the papilionaceous tribe, but spread open; having in some species one, in others two, and in some several nectarious glands, with ten short stamina. There are in some species three, and in others but one germen, which afterwards become so many winged fruit, like those of the maple; each containing a single seed. Linnæus enumerates seven species of this genus.

These plants are all of them natives of warm countries, and therefore cannot be preserved in England, unless in a bark stove.

BANK, in *Commerce*, is a denomination given to certain societies, or communities, who take on them the charge of the money of private persons to improve it, or to keep it secure. The word *bank*, in this sense, comes from the Italian *banca*, formed of the Spanish *banco*, a bench, whereon the ancient money-changers sat in the public markets; or, as others think, a table whereon they told their money; for the Spanish *banco* signifies a table, as well as a bench; as among the Greeks the word *τραπέζα* signified a *bench*, as well as a *table*; whence the word *τραπέζιτης* for a *bencher*.

It cannot be doubted but that the beginning of traffic was by exchanging one commodity for another, as men could best suit each others occasions. But the necessities of men being so various and different, in respect to the quantity and quality of requisites, money was instituted as the most convenient medium for commerce; whereby people might procure whatsoever they stood in need of, in quantities according to their exigencies.

This changed the term of *battering* into that of *buying* and *selling*; yet all trading at length results into a general *barter*. For he who sells any thing to receive money for it, purchases what he requires with the same money. Money then becoming the principal engine for circulating the

bulk of commerce, its application to trade is proper to be considered.

Money is used in the minuter kinds of dealings, as retailing, &c. when it is commuted for all kinds of labour, and to furnish the necessary provisions for daily use. This requires its being divided into the smallest denominations of the pieces, as into shillings and pence: so that this way of dealing is not capable of being transacted by bills and assignments.

Money is also employed in the more extensive and wholesale way of trade, wherein large sums are negotiated; and this occasions frequent payments from one tradesman to another. In which payments, although strictly speaking ready cash be required, as often as contracts are made, yet as commerce in general consists in the mutual dealings and transactions of many traders, it may often so fall out, by means of interchangeable debts and credits, that divers traders may satisfy each other's occasions, without making any payments in specie, by transferring their debts to each other.

But when such mutual conveniences do not occur, traders usually receive their money in specie, and so pay it from one to the other. Yet this way of payment is attended with many inconveniences, as the trouble in counting the money, hazard in securing it from the attempts of robbers, and loss from trusting it with unfaithful servants: for the prevention of all which, cities of large commerce have very naturally introduced the use of *banks*.

A *bank* then may be properly defined a common repository, where many persons agree to keep their cash, to be always ready at their call, or direction.

There are several of these *banks* established in the several principal trading cities in Europe; as in Venice, Genoa, London, Amsterdam, Hamburgh, Paris, &c. But of all others that of Venice is the most considerable, as being the most ancient, and that whereon the others are modelled.

BANK is also applied, in a more particular manner, to societies instituted for lending money on pledges. Of these there are several in Holland, particularly at Amsterdam, where it is called the *bank van leening*, or *bank of loan*. Private persons are here furnished with money, on the deposit of effects as security, and on payment of a certain interest, regulated by the burgo-masters. This *bank* is otherwise called the *Lombard huis*, or *Lombard-house*, or simply *Lombard*; which is the name it is most commonly known by, in most of the towns in Holland.

BANK, or *BANCO*, of Venice, commonly called *banco del guira*, was established in the middle of the twelfth century, and is properly a board of public credit and interest; or a general and perpetual purse for all merchants and traders; established by a solemn edict of the commonwealth, which enacts, that all payments of wholesale merchandize, and letters of exchange, shall be in *banco*, or *bank* notes; and that all debtors and creditors shall be obliged, the one to carry their money to the *bank*, the other to receive their payments at *banco*; so that payments are performed by a simple transfer from the one to the other: he who was before creditor on the *bank* books, becoming debtor as soon as he has resigned his right to another, who is entered down as creditor in his place; so that the parties only change name, without any effective payment being made. Indeed there are sometimes actual payments made, especially in matters of retail, and when foreigners are disposed to have ready money to carry off in specie; or when particular traders choose to have a stock by them to negotiate in bills of exchange, &c. The necessity of these effective payments has given occasion to the opening a fund of ready money: which is found so far from diminishing the stock, that this liberty of withdrawing money at pleasure rather augments it. By means of this *bank*, the republic, without encroaching on the freedom of commerce, or without paying any interest, is mistress of 5,000,000 ducats, to which the capital of the *bank* is limited, to be in readiness on any pressing occasion; the republic being security for the capital.

BANK of England was first established in the year 1694, partly for the convenience of commerce, and partly also for the emolument of the proprietors. The scheme was projected by Mr. W. Patterson, a merchant, and debated for a long while in the privy council, till at length, by an act of 5 and 6 William and Mary, cap. 20, it was enacted, that their majesties might grant a commission to take particular subscriptions for 1,200,000*l.* of any persons, natives or foreigners, whom their majesties were hereby empowered to incorporate, with a yearly allowance of 100,000*l.* viz. 96,000*l.* or 8 per cent. for interest till redeemed, and 4000*l.* to be allowed the intended *bank* for management. The corporation was to have the name of the governor and company of the *bank* of England; their said fund to be redeemable upon a year's notice, after the first of August, 1705, and payment of the principal, and then the corporation to cease. The company was enabled

by this act to purchase lands, &c. unlimitedly, and to enjoy the other usual powers of corporations; their stock was to be transferable. They were restricted from borrowing more than 1,200,000*l.* except on parliament funds, and from trading in any merchandize, except in bills of exchange, and in bullion, and in the sale of such goods as were the produce of lands purchased by the corporation: and all bills obligatory under the seal of the said corporation, were made assignable by indorsement. The charter of incorporation was executed July 27, 1694; which directs, that there be a governor, deputy-governor, and twenty-four directors; and specifies the qualifications of voters and of directors, together with other regulations, which have been farther amended and enlarged by subsequent statutes.

The business of the *bank* is, for the most part, that of dealing in bullion of gold and silver, discounting bills, advancing money to the public on the credit of acts of parliament, circulating their own notes, &c. and exchequer bills for the government; beside the management of those funds which are immediately under its care, and which constitute a principal part of the *national DEBT*.

BANK, agents of. See *AGENT*.

BANK bills. See *BILL*.

BANK, days in. See *DAY*.

BANK of France was first projected by Mr. Law, a native of Scotland, with a view of paying off the public debts of France, by drawing its creditors into the newly projected Mississippi and India companies, and erected in the year 1716. It was taken into the king's hands in 1718, and denominated the *Royal Bank*; and by its union with both the companies above mentioned, formed a bubble, which occasioned great confusion and distress in the year 1720.

BANK, million, derives its name from king William's *million* lottery in the year 1695; the proprietors agreed in partnership to purchase tickets in this lottery. They afterwards purchased many reversions of the 14 per cent. annuities, and admitted many proprietors of annuities to purchase their joint stock, which amounted and still amounts to 500,000*l.* They are a partnership by deed enrolled in chancery, in the year 1721. They divided 5 per cent. till Lady-day, 1728, when they reduced their annual dividend to 4 per cent. and it was again raised to 5 per cent. which is still continued.

BANK of Scotland was erected by act of parliament in 1695. Its capital stock is 101,000*l.* sterling.

BANK, royal, of Scotland, was incorporated by charter of king George I in the year 1727. Its capital is 151,000*l.* sterling; and the public revenues of Scotland are paid into this *bank*.

BANK, or BENCH, in Law. See *BANC*.

BANK, foot. See *BANQUETTE*.

BANK, in Natural History, denotes an elevation of the ground, or bottom of the sea, so as sometimes to surmount the surface of the water, or, at least, to leave the water so shallow, as usually not to allow a vessel to remain afloat over it.

In this sense, *bank* amounts to much the same with flat, shoal, &c.

There are *banks* of sand, and others of stone, called also shelves or rocks. In the north sea, they also speak of *banks* of ice, which are large pieces of that matter floating. Vapours at sea occasion sometimes such a *deceptio visus*, that mariners imagine they see land with trees, &c. They call such deception fog-banks. See a remarkable deception of this kind related in Dr. Haworth's Account of the Voyages to the Southern Hemisphere, vol. i. p. 10. A long narrow *bank* is sometimes called a *rib*.

The *bank* absolutely so called, or the *main bank*, or *great bank*, denotes that of Newfoundland, the scene of the cod-fishery.

It is called the *great bank*, not only by reason of its vast extent, being, according to the English computation, two hundred miles long, and, according to the French, one hundred leagues, or three hundred miles; but also on account of several lesser *banks* near it, where cod are also caught. These last the French call *banquereaux*.

This is one of those *banks* which have water enough to float a ship, and which, on this account, are not dangerous.

Banks are usually distinguished by a buoy, post, or the like. On charts, sand-banks are usually marked by little dots, and banks of stone by crosses. The colours of the buoys are also varied accordingly; sand-banks being denoted by light-coloured buoys, and rocks by black ones.

In large rivers, as the Elbe, &c. sand-banks, by high tides and inundations, are liable to change places; care is therefore taken to shift the buoys from time to time, to shew the true channel of the river.

An exact knowledge of the *banks*, their extent, and the depth of water on them, makes the most essential part of the science of a pilot, and a master of a ship: if the vessel be large, and draw much water, great attention will be necessary to keep clear of the *banks*: on the contrary, if it be

be small, the same *banks* afford a sure *assylum*, where it may brave the largest and stoutest vessels, which dare not follow it here. By means of this barrier, many a small craft has escaped its enemy.

BANK, in vessels which go with oars, is used for the bench where the rowers are seated; popularly called, by our seamen the *thought*.

In this sense we read of *banks* of galleys, of galeasses, of galliots, of brigantines, and the like.

The Venetian gondolas have no *banks*; for the watermen row standing.

The common galleys have twenty-five *banks*, that is, twenty-five on each side, in all fifty *banks*, with one oar to each *bank*, and four or five men to each oar. The galeasses have thirty-two *banks* on a side, and six or seven rowers to a *bank*. See *DOUBLE-banked*.

BANK also denotes an elevation of earth, stones, stakes, or other materials in form of a wall, or causeway, to stop the waters, and prevent inundations.

These, on other occasions, are denominated *dams*, and *seawalls*, &c. and by the ancients *aggeres*: those on the coasts of Holland are more particularly denominated *dykes*. The best *bank*, in the opinion of Dr. Hales, is that contrived by Dr. Wark, of Scotland. A quantity of furze is fixed to the bottom of the channel of such a breadth as is proportioned to the force which it is to resist. The sand, or slime, will soon settle in the furze, and when this is covered, another bed of furze is to be laid on as before, and so on till the *bank* is raised to a sufficient height.

BANK is also used in several games, for the stock or fund of him who undertakes the game.

BANK at basset, a sum of money laid down by the *tailleur*, before the gamblers, to answer all the winning cards that shall turn up in his course of dealing. Yet it is to be observed, that what the *bankers* gain *per cent.* of all the money adventured at pharo, is greater than that at basset; it being two pounds nineteen shillings and ten pence *per cent.* in the first, and but fifteen shillings and three pence in the second. Vide De Moiv. Doctr. Chanc. p. 93.

BANKER, in *Commerce*. The history of private *banks* is as follows. The royal mint in the Tower of London had for some years, before the year 1640, been made use of as a kind of *bank*, or deposit, for merchants to lodge their cash in. But king Charles the First having in that year made free with their money, the mint lost its credit. After this, the merchants and traders of London generally trusted their cash with their servants, until the breaking out of the civil war, when it was very customary for their apprentices and clerks to leave their masters and go into the army. Whereupon in such unsettled times, merchants not daring longer to confide in their apprentices, began first, about the year 1645, to lodge their necessary cash in goldsmiths hands, both to receive and pay for them; until which time the whole and proper business of London goldsmiths was to buy and sell plate, and foreign coins of gold and silver, to melt and coin them, to coin some at the mint, and with the rest to supply the refiners, plate-makers, and merchants, as they found the price to vary. This account of the matter we have from a scarce and most curious small pamphlet, published in 1676, entitled the *Mystery of the new-fashioned Goldsmiths, or Bankers discovered*, in only eight quarto pages.

Bankers on their first establishment allowed to those who entrusted their money in their hands a moderate interest for the same, and hereby their business was very considerably increased, and rose to great reputation in the year 1667, when the Dutch burnt our ships at Chatham; but this event caused a *run* on the *bankers*, which hurt their credit; and in the year 1672 king Charles II. shut up the *exchequer*, and seized the money which the *bankers* had lent him at 8 *per cent.* interest, the whole sum amounting to 1,328,526*l.* The king was afterwards necessitated to pay 6 *per cent.* interest for this debt out of his hereditary excise, but the principal was never paid. However, the parliament of 12 William, cap. 12. provided for a large arrear of interest, and settled an interest of 3 *per cent.* for the future. The debt was hereby made redeemable, on paying one moiety of the principal sum, viz. 664,263*l.* farther confirmed by an act of 2 and 3 Anne, cap. 15. which moiety now became the proper debt of the public; and being reduced from 6 to 5 *per cent.* in 1717, was finally subscribed into the South-sea capital stock in the year 1720.

Bankers now allow no interest, and by investing a certain proportion of it in the funds, or laying it out on other sufficient security, and trafficking with it in the stocks, in discounts, &c. reap very considerable advantage from it; and by negotiating bills, &c. on the part of their creditors, greatly contribute to the convenience and dispatch of business.

In Italy the employment of a *banker*, especially in republics, does not derogate from nobility; and hence it is, that most of the cadets, or younger sons of persons of condition, undertake it for the support of their family.

The ancient *bankers* were called *argentarii*, and *nummularii*. Their chief business was to put out the money of private persons to interest; they had their boards and benches for this purpose in all the markets and public places, where they took in the money from some to lend it to others.

The Romans had two kinds of *bankers*, though their office was much more extensive than that of the *bankers* among us, theirs being that of public officers, in whom were united the functions of a broker, agent, *banker*, and notary; managing the exchange, taking in money, assisting in buying and selling, and drawing the writing necessary on all these occasions.

BANKERS in the court of Rome, are persons authorized, exclusive of all others, to solicit and procure by their correspondents at Rome, all bulls, dispensations, and other acts dispatched at the papal datary, or in the legateship of Avignon; they are dispersed in all the cities of France, where there is a parliament, or a presidial; and were erected in a regular and hereditary office, by an edict in 1673.

They owe their origin to the Guelphs, who took shelter at Avignon, and in other cities within the obedience of the pope, in the time of the civil wars in Italy. The favour they were in with the pontiffs, for having espoused the papal cause, occasioned their being employed in procuring expeditions of the court of Rome. But the heavy extortions they practised towards their clients, soon rendered them odious, and occasioned several denominations of reproach, as *coarcini*, *caturcini*, *caurfini*, *corfini*, &c. from the city Cahors, the native place of pope John XXII. in whose pontificate they were in their highest power.

BANKER, in *Bricklaying*, a piece of timber whereon they cut the bricks.

The *banker* is six feet long or more, according to the number of men to work at it, and nine or ten inches square; it is to be laid on two piers of timber, three feet high from the floor they stand on.

BANKER, in *Sea Language*, signifies a vessel employed in the cod-fishery on the banks of Newfoundland.

BANKING, the making of *banks* to oppose the force of the sea, rivers, or the like, and secure the land from being overflowed thereby.

With respect to the water which is to be kept out, this is called *banking*; with respect to the land, which is hereby to be defended, *imbanking*.

BANKING, in a salt-work, the raising a fence against the sea, whereby its waters may be kept out, excepting so much as is necessary for the preparation of the salt.

BANKRUPT, a dealer, who having gotten other men's goods, or money, in his hands, absconds to defraud his creditors; or being so reduced or involved, that he can conduct his business no longer, is desirous of being legally discharged from farther demands and trouble.

The word is formed from the ancient Latin *bancus*, a bench, or table, and *ruptus*, broken.

Bank, we have elsewhere observed, originally signified a bench, which the first bankers had in the public places, in markets, fairs, &c. on which they told their money, wrote their bills of exchange, &c. Hence, when a *banker* failed, they broke his bank, to advertise the public, that the person to whom the bank belonged, was no longer in a condition to continue his business. As this practice was very frequent in Italy, it is said, the term *bankrupt* is derived from the Italian *banco rotto*, broken bench.

Cowel rather chuses to deduce the word from the French *banque*, table, and *route*, vestigium, trace, by metaphor from the sign left in the ground, of a table once fastened to it, and now gone. On this principle he traces the origin of *bankrupts* from the ancient Roman *mensarii*, or *argentarii*, who had their *tabernæ* or *mensæ* in certain public places; and who, when they fled, or made off with the money that had been trusted to them, left only the sign or shadow of their former station behind them.

And it is observable, that the title of the first English statute concerning this offence, 34 Hen. VIII. cap. 4. "against such persons as do make *bankrupt*," is a literal translation of the French idiom, *qui font banque route*.

By stat. 1 Jac. I. cap. 15. a *bankrupt* is thus described.

All and every person who shall use the trade of merchandise by way of bargaining, exchange, bartering; or otherwise in gross, or by seeking his or her living by buying and selling, who shall depart his house, or absent himself, or suffer himself to be arrested for any debt, or other thing, not grown due for money delivered, wares sold, or other good consideration; or shall suffer himself to be outlawed, or go to prison, or fraudulently procure himself to be arrested, or his money or his goods attached; or make any fraudulent conveyance of his land, goods, or chattels, whereby his creditors may be defeated in the recovery of their just debts; or being arrested for debt, shall lie in prison six months or more, upon such arrest or detention, shall be adjudged a *bankrupt*.

There are several subsequent statutes relating to *bankrupts*, viz. 21 Jac. I. cap. 19.—4 Anne, cap. 17.—5 Anne, cap.

cap. 22.—7 Geo. I. cap. 31.—5 Geo. II. cap. 30. See ASSIGNEES, CERTIFICATE, PETITION, DIVIDEND, SUPERSEDING, &c.

In some places *bankrupts* are condemned to wear a green cap; at Lucca, an orange cap.

BANKRUPTCY, the failure, absconding, and relinquishing of traffic in a merchant, a banker, or any other trader. The French make this difference between a *bankruptcy* and a *failure*; that the first is supposed voluntary and fraudulent, and the latter constrained and necessary, by means of accidents, &c.

A failing, breaking, or stopping of payment, diminishes the merchant's credit; but does not note him with infamy, as *bankruptcy* often does.

When a merchant, &c. fails to appear at the exchange, &c. without apparent reason, it is called a *failing of presence*; the *bankruptcy* becomes open from the day he absconds, or when the seal is affixed to his effects.

BANKRUPTCY, *commission of*. See COMMISSION.

BANLEUGA, or **BANNILEUGA**, or **BANLIEU**, in *Middle Age Writers*, the territory within which the jurisdiction of municipal magistrates, or ordinary judges of a city, town, or the like is confined.

It is thus called, because within this tract they may make their proclamations, prohibitions, and other acts of justice and policy, comprised under the name of **BAN**, or **BAN-NUM**.

BANN, or **BAN**, **BANNUM**, or **BANNUS**, in the *Feudal Law*, a solemn proclamation, or publication of any thing.

The origin of the word is uncertain: some deduce it from the British *ban*, *clamour*, *noise*; others from the Saxon *pan*, a thing spread; whence *ban*, and *band*, used for a flag. Bracton mentions *bannus regis* for a proclamation of silence anciently made by the court, before the encounter of the champions in a combat.

BANN is also used for a solemn convocation of the nobility of a province, to attend the king in his army, conformably to their several tenures.

Bann, in this sense, differs from *rear-bann*; as the former respects those who hold mediately of him. But the words are now confounded; and *bann*, and *rear-bann*, denote a summons to all the feudal tenants, mediate and immediate, to go to war in the king's service.

BANN also denotes the assembly, or body of nobility and gentry thus convoked.

In this sense, they say, the *bann*, and *rear-bann* is long in getting into the field; the *bann* and *rear-bann* was assembled, &c.

The French nobility appear to have served the king, in the way of *bann* and *rear-bann*, from the beginning of the monarchy; though the usage was not regularly settled till the time of the investiture of feuds.

BANN is more particularly used to denote a proscription or banishment, for a crime proved; because anciently published by sound of trumpet: or, as Vossius thinks, because those who did not appear at the above mentioned summons were punished by proscription.

Hence, to put a prince under the *bann of the empire*, is to declare him divested of all his dignities.

The sentence only denotes an interdict of all intercourse, and offices of humanity, with the offender, the form of which seems taken from that of the Romans, who banished persons, by forbidding them the use of fire and water.

Sometimes also cities are put under the imperial *bann*; that is, stripped of their rights and privileges.

BANN also denotes a pecuniary mulct, or penalty, laid on a delinquent for offending against a *bann*.

BANNS of marriage, are certain solemn notices of matrimonial contracts made, in the parish-church, before the marriage; that if there be any objections to either party as to prior engagements, &c. there may be an opportunity of making them. The publication of *banns* (popularly called *asking in the church*) was intended as an expedient to prevent clandestine marriages: but a licence or dispensation is now easily procured, so that their use is defeated.—By the laws of the church, *banns* are to be published thrice, on three distant days, in the places where the parties live, on pain of nullity of marriage; and excommunications are threatened against those, who knowing impediments conceal them. But see 26 Geo. II. cap. 33. and MARRIAGE. The use of matrimonial *banns* is said to have been first introduced in the Gallican church, though something like it obtained even in the primitive times; and it is this Tertullian is supposed to mean by *trinundina promulgatio*.

BANN is also used for a solemn anathema, or excommunication, attended with curses, &c.

In this sense, we read of *papal banns*, &c.

BANN of God, *bannus Dei*, or the judgment of God. Spelman takes it for excommunication.

BANN is also used for a prohibition.

In which sense, the *bann* of harvest, or vintage, &c. in the French customs, imports a prohibition to reap, or gather the grapes without the leave of the lord.

The former is now taken away, and the peasant may reap his corn when he pleases; but the latter still remains, persons not being allowed to open the vintage till publication is made by the officers of the place for that purpose.

BANN-vin, in the French *Customs*, a privilege enjoyed by lords, of selling the wine of their own growth, during a certain time, exclusive of all other persons within the compass of their fees or lordships.

The same right, in some places, extends also to other liquors; and even to hogs, cows, and other animals.

BANNALIS mola, or *bannal-mill*, a kind of feudal service, whereby the tenants of a certain district are obliged to carry their corn to be ground at a certain mill, and to be baked at a certain oven, for the benefit of the lord.

BANNER properly denotes a square flag, fastened like a cornet to a lance.

Menage derives the word from the Latin *bandum*, a *band*, or *flag*; and supposes *banniere* to have been first written for *bandiere*; which is confirmed by this, that we meet with the word *banderia*, used, in the same sense, by Latin writers of the barbarous age.

A *banner* differed from a *penon*, or *guidon*, which had a long tail or train; the cutting off which, in the ceremony of creating a **BANNERET**, converted it into a *banner*.

Most of the ancient lords are represented, on their seals, with *banners* in their hand; in which guise they entered the list in tournaments.

Arms BANNER-wise, or *en banniere*, are those borne square; still used in Bretagne, to denote families descended from **BANNERETS**. Favyn supposes the usage to have been brought thither from England.

It was reputed more honourable for a person to bear his arms in a *banner* than in an *escutcheon*.

BANNER is also used to denote the flag under which all the tenants of the same fief were to muster themselves, when their service was required in the army.

BANNER is also used for the chief flag, or standard of a prince, lord, baron, or the like.

BANNER, *the, of France*, was the largest and richest of all the flags borne by the ancient kings, in their great military expeditions. St. Martin's cap was in use six hundred years as the *banner of France*; it was made of taffety, painted with the image of that saint, and laid one or two days on his tomb to prepare it for use. This was succeeded by the famous **AURIFLAMMA**, or *oriflamme*. Though some make a difference between the *banner of France* and the *oriflamme*; making it the distinguishing character of the former, to be hung out at the window, wherever the king was; whereas the latter was only used in extraordinary wars.

About the year 1100 was introduced a more pompous *apparatus*; the mode of which was borrowed from Italy; the *banner royal* was fastened to the top of a mast, or some tall tree planted on a scaffold, borne on a chariot drawn by oxen, covered with velvet housings, decorated with devices, or cyphers of the reigning prince. At the foot of the tree was a priest, who said mass early every morning. Ten knights mounted guard on the scaffold, night and day, and as many trumpets at the foot of the tree, never ceased flourishing to animate the troops. This cumbersome machine, the mode of which was brought from Italy, continued in use about a hundred and thirty years. Its post was in the centre of the army. And here it was the chief feats were performed, to carry off and defend the royal *banner*: for there was no victory without it; nor was an army reputed vanquished, till they had lost this *banner*.

BANNER is also used, in *Middle Age Writers*, for any flag or ensign.

But the word is out of use in this sense, except in speaking of former times, or foreign nations. In the Levant they still say the English *banner*, the Venetian *banner*, &c. The French also retain the denomination *banner*, in speaking of ecclesiastical processions; where the people, bearing each a cross, march under a *banner*, representing the church militant; to denote themselves soldiers of the church.

BANNERS of the Romans. See SIGNA.

BANNERETS, an ancient order of knights, or feudal lords, who, possessing several large fees, led their vassals to battle, under their own flag, or banner, when summoned thereto by the king.

The word seems formed from *banner*, a square flag, or from *band*, which anciently also denoted a flag.—*Bannerets* are also called in ancient writers, *milites vexilliferi*, and *vexillarii*, *bannerarii*, *bannarii*, *banderisii*, &c.

Anciently there were two kinds of knights, *great* and *little*; the first whereof were called **BANNERETS**, the second **BACHELORS**; the first composed the upper; the second, the middle nobility.

The *banneret* was a dignitary allowed to march under his own flag, whereas the *bachelarius eques* followed that of another.

To be qualified for a *banneret*, one must be a gentleman of family,

family, and must have a power to raise a certain number of armed men; with estate enough to subsist at least twenty-eight or thirty men. This must have been very considerable in those days, because each man, besides his servant, had two horsemen to wait on him, armed, the one with a cross-bow, the other with a bow and hatchet.

As he was not allowed to be a baron who had not above thirteen knights-fees, so he was not admitted to be a *banneret*, if he had less than ten.

Banneret, according to Spelman, was a middle order between a baron, and a simple knight; called sometimes also *vexillarius minor*, to distinguish him from the greater, that is, from the baron, to whom alone properly belonged the *jus vexilli*, or privilege of the square flag.

Hence the *banneret* was also called *bannereitus*, *quasi baro minor*, a word frequently used by English writers in the same sense, as *banneret* was by the French; though neither of them occur before the time of Edward II.

Some will have *bannerets* to have originally been persons who had some portion of a barony assigned them; and enjoyed it under the title of *baro proximus*, and that with the same prerogatives as the baron himself.

Some again find the origin of *bannerets* in France; others in Brittany; others in England. These last attribute the institution of *bannerets* to Conan, lieutenant of Maximus, who commanded the Roman legions in England under the empire of Gratian, in 383. This general, say they, revolting, divided England into forty cantons, and in these cantons distributed forty knights, to whom he gave a power of assembling on occasion, under their several banners, as many of the effective men as were found in their respective districts: whence they are called *bannerets*.

However this be, it appears from Froissart, &c. that anciently such of the military men as were rich enough to raise and subsist a company of armed men, and had a right to do so, were called *bannerets*. Not, however, that these qualifications rendered them knights, but only *bannerets*; the appellation of knight being only added thereto, because they were simple knights before.

Bannerets were second to none but knights of the Garter; they were reputed the next degree below the nobility; and were allowed to bear arms with supporters, which none else may, under the degree of a baron. In France, it is said, the dignity was hereditary; but in England it died with the person that gained it. The order dwindled on the institution of *baronets* by king James I. and at length became extinct. The last person created *banneret* was sir John Smith, made so after Edghill-fight, for rescuing the standard of king Charles I.

The form of the *banneret's* creation was this: on a day of battle, the candidate presented his flag to the king or general, who, cutting off the train, or skirt thereof, and making it a square, returned it again, the proper banner of *bannerets*; who are hence sometimes called *knights of the square flag*.

There seems to have been *bannerets* created, either in a different manner, or by others than the sovereign; since king James, in the patent of baronets, gives them precedence to all knights *bannerets*, except such as are created by the king himself in the field; which implies, either that there are some of this order created out of the field, or by inferior persons.

BANNERET is also the name of an officer, or magistrate of Rome, towards the close of the fourteenth century.

The people of that city, and throughout the territory of the church, during the disputes of the antipopes, had formed a kind of republican government; where the whole power was lodged in the hands of a magistrate, called *senator*, and twelve heads of quarters, called *bannerets*, by reason of the banners which each raised in his district.

BANNIMUS, q. d. *we banish*, from the obsolete *bannio*, the form of expulsion of any member from the university of Oxford, by affixing the sentence up in some public place, as a denunciation or promulgation of it.

BANNOCK, in *Food*, is an oat-cake kneaded only with water, and baked in the embers. These are common in Lancashire, and some other counties.

BANNUS, or **BANUS**, a title anciently given to the governor or viceroy of Croatia, Dalmatia, and Sclavonia.

BANNUS episcopalis, was a mulct paid to the bishop by those guilty of sacrilege, and other crimes.

BANNUM capitis, was a mulct paid in cattle.

BANOY, the name given, by the people of the Philippine islands, to a kind of hawk, somewhat larger than our sparrow-hawk, and of a yellowish colour on the back and wings, and white under the belly. It is the most common of all the kinds of hawk in that part of the world, and is a very voracious animal.

BANQUET, in the *Manege*, denotes that small part of the branch of a bridle under the eye, which, being rounded like a small rod, gathers and joins the extremities of the bit to the branch, in such a manner, that the *banquet* is not seen, but covered by the cap, or that part of the bit next the branch.

BANQUET-line, is an imaginary line drawn by the bit-makers along the *banquet*, in forging a bit, and prolonged upwards and downwards, to adjust the designed force or weakness of the branch, in order to make it stiff, or easy. For the branch will be hard and strong if the sevil-hole be on the outside of the *banquet*, with respect to the neck; and it will be weak, and easy, if the sevil-hole be on the inside of the line, taking the centre from the neck.

BANQUETING-room, or *house*. See **XENIA**, **SALOON**, &c.

The ancient Romans supped in the *atrium*, or vestibule, of their houses; but, in after-times, magnificent saloons, or *banqueting-rooms*, were built, for the more commodious and splendid entertainment of their guests. Lucullus had several of these, each distinguished by the name of some god; and there was a particular rate of expence appropriated to each. Plutarch relates with what magnificence he entertained Cicero and Pompey, who went with design to surprize him, by telling only a slave who waited, that the cloth should be laid in the Apollo. The emperor Claudius, among others, had a splendid *banqueting-room*, named Mercury. But every thing of this kind was outdone by the lustre of that celebrated *banqueting-house* of Nero, called *domus aurea*; which, by the circular motion of its partitions, and cielings, imitated the revolution of the heavens, and represented the different seasons of the year; which changed at every service, and showered down flowers, essences, and perfumes, on the guests. Heliogabulus, nevertheless, is said to have improved as much upon Nero, as the latter had done on Lucullus. Senec. Ep. 90.

BANQUETTE, in *Fortification*, is a little foot-bank, or an elevation of earth forming a path which runs along the inside of a parapet; by which the musqueteers get up, to discover the counterscarp, or to fire on the enemies in the moat, or in the covert-way.

The *banquette* is generally between two and three feet high, and three feet broad, and four feet and a half lower than the parapet, having two or three steps to mount it by.—Where the parapet is very high, they make a double *banquette* one over the other.

BANSTICKLE, in *Ichthyology*, a name given by us to the **CASTEROSTEUS**.

The *banstickle* is otherwise called *prickle-bag*, or *prickle-back*.

BANTAM-work, a kind of Indian painting, and carving on wood, resembling Japan work, only more gay, and decorated with a great variety of gaudy colours.

Bantam-work is of less value among connoisseurs, though sometimes preferred, by the unskilful, to the true Japan work. Formerly it was in greater use, and esteem, than at present; and the imitation of it much practised by our jappanners.

There are two sorts of *Bantamas* as well as of Japan work; as, in the latter, some are flat, lying even with the black, and others high, or embossed; so, in *Bantam-work*, some is flat, and others in-cut, or carved into the wood, as we find in many large screens; with this difference, that the Japan artists work chiefly in gold and other metals, and the *Bantam* generally in colours, with a small sprinkling of gold here and there.

For the flat *Bantam-work*, it is done in colours, mixed with gum-water, proper for the thing designed to be imitated. For the carved, or in-cut kind, the method of performing it is thus described by an ingenious artist. 1. The wood is to be primed with whiting and size, so often till the primer lie near a quarter of an inch thick; then it is to be water plained, i. e. rubbed with a fine wet cloth, and, some time after, brushed very smooth, the blacks laid on, varnished up with a good body, and polished well, though with a gentle hand. This done, the design is to be traced out with vermilion, and gum-water, exactly in the manner wherein it is intended to be cut; the figures, trees, buildings, &c. in their due proportions. Then the graver is applied, with other tools of proper shapes, differing according to the workman's fancy. With these he cuts deep or shallow, as is found convenient, but never deeper than the whiting lies; the wood being never to feel the edge of the instrument. Lines, or parts of the black, are still to be left, for the draperies and other out-lines, and for the distinction of one thing from another; the rule being to cut where the white is, and leave the black untouched. The carving being finished, they then use the pencil, with which the colours are laid into the cut-work. After this, the gold is to be laid in those places which the design requires; for which purpose, a strong, thick gum-arabic water is taken, and laid with a pencil on the work; and, while this remains wet, leaf-gold is cut with a sharp smooth-edged knife, in little pieces, shaped to the bigness and figure of the places where they are to be laid. These being taken up with a little cotton, they dab them with the same close to the gum-water, which affords a rich lustre. The work thus finished, they clear up the black with oil, taking care not to touch the colours. The European workmen, in lieu of leaf-gold, ordinarily use brass-dust, which is less bright and beautiful. Park. Treat. of Japan.

B A P

BAOBAB, in *Natural History*, the name of an African fruit described by Prosper Alpinus. It is of the size of a lemon, but it resembles a gourd, and contains several black seeds, whose extremities are a little crooked. Its substance also much resembles that of the gourd; and, when first pulled off, is moist, red, and of a grateful acid taste. The people of Æthiopia, where it is plentiful, are very fond of it, in the scorching heats of summer; and the richer sort add sugar to it, to correct its acidity. It is a great cooler, and very agreeably quenches thirst; and has also some medicinal use, as it is good in contagious and pestilential fevers. The people of Cairo, where the fresh fruit is not to be had, use its pulp dried and powdered; and it is so used at Senegal in pestilential fevers, the dysentery, and bloody flux. The dose is a drachm, taken either in common water, or in an infusion of the plantain.

The *baobab* tree has been lately very minutely and accurately described by Mr. Adanson, in the Memoirs of the Academy of Sciences at Paris. It is found at Senegal in Africa; and its bulk is so enormous, that it has more the appearance of a forest than of a single tree. Its trunk, which seldom exceeds twelve feet in height, measures between seventy and eighty feet in circumference, and is crowned with a number of branches, remarkable for their thickness and their length, which is from fifty to sixty feet. They mostly shoot out in an horizontal direction, and give to the trunk the appearance of an hemisphere from sixty to seventy feet high, and about a hundred and forty feet in diameter. The bark is an inch thick, of an ash-coloured grey, greasy to the touch, bright and very smooth; the outside is covered with a varnish, and the inside is green, speckled with red; the wood is white and soft; the leaves are oval, pointed at the end, and about five inches long, and two and a half broad: seven of these are generally attached to one pedicle. The tree produces flowers much larger than any hitherto known; the calyx of the flower consists only of one piece, the lower part of which forms a short tube, which spreads into the shape of a faucer, having its edge divided into five equal parts of a triangular figure. The petals are five in number, of the same length with the calyx. From the same centre, and within the petal, rises a cone, which spreads into about seven hundred filaments, each having a small substance in form of a kidney at the end of it, the convex part of which opens into two cells, which shed a dust, consisting of small white transparent particles. The pistil rises from the centre of the calyx, and consists of an ovary, a stylus, and several stigmata, in number from ten to fourteen. The ovary becomes a very considerable fruit. The tree flowers in July, and the fruit ripens in October and November. The bark and leaves are dried, and powdered by the negroes of Senegal, and used like pepper and salt. Mr. Adanson used it as a preservative from the epidemic fever of the country, and found it of great benefit in promoting perspiration, and attempering the excessive heat of the blood. The woody bark of the fruit, and the fruit itself, supply the negroes with an excellent soap, which they prepare by drawing a ley from the ashes, and boiling it with palm-oil that begins to be rancid. The decaying trunks are hollowed out into burying places for persons most esteemed by the negroes; such as poets, musicians, and buffoons; and their bodies shut up in these trunks become perfectly dry, without rotting, and form a kind of mummies, without the help of embalment. The African *baobab* has been sometimes confounded with the American **CALABASH**.

BAPHE, in the *Writings of the Ancients*, a word used to express that fine red colour, with which they used to illuminate the capital letters in manuscripts, at the beginning of chapters. It is also called, by some, *encaustum sacra*, and, by others, *coccus* and *cinnabaris*. It was a very elegant colour, and is said to have been prepared of the purple colour taken from the *murex*, and some other ingredients. It was called *encaustum* from its resembling very much the fine bright red used in enamels.

BAPTÆ, in *Antiquity*, an effeminate voluptuous kind of priests at Athens, belonging to the goddesses Cotytus; thus called, from their stated dippings and washings, by way of purification. It seems, they were to be made very clean and pure, that they might wallow, and defile themselves, with the less reserve; for their rites were performed in the night, and consisted chiefly of lascivious dances.

Eupolis having composed a comedy to expose them, entitled *βαπτæ*, they threw him into the sea, to be revenged; and the same fate is also said to have befallen Cratinus, another Athenian poet, who had written a comedy against the *baptæ*, under the same title.

Others deduce the denomination *baptæ*, from the practice of dying and painting their bodies, especially their eyebrows, and officiating at the service of their deity with the parade and demureness of women. Juvenal describes them in this light. Sat. ii. ver. 91.

BAPTES, in *Natural History*, a name given by the ancients to a fossil substance used in medicine; they have left us

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but very short descriptions of it. Pliny only tells us, that it was soft, and of an agreeable smell. Hence Agricola judges, that it was probably one of the bitumens.

BAPTISECULA, in *Botany*, a name given by some authors to the blue corn-flower, called the *CYANTS*, or blue-bottle.

BAPTISM, in *Theology*; formed from the Greek *βαπτισμα*, of *βαπτω*, *I dip or plunge*, a rite or ceremony by which persons are initiated into the profession of the Christian religion.

The Jews practised a ceremony, which they called *baptism*, after circumcision on their proselytes, long before the coming of Jesus Christ.—In the primitive times this ceremony was performed by immersion, as it is to this day in the oriental churches, according to the original signification of the word. The practice of the western churches is, to sprinkle the water on the head or face of the person to be baptized, except in the church of Milan, in whose ritual it is ordered, that the head of the infant be plunged three times into the water; the minister at the same time pronouncing the words “*I baptize thee in the name of the Father, the Son, and the Holy Ghost*,” importing that by this ceremony the person baptized is received among the professors of that religion, which God, the Father of all, revealed to mankind by the ministry of his Son, and confirmed by the miracles of his Spirit.—A triple immersion was first used, and continued for a long time: this was to signify either the three days that our Saviour lay in the grave, or the three persons in the Trinity. But it was afterwards laid aside, because the Arians used it: it was then thought proper to plunge but once.—Some are of opinion, that sprinkling in *baptism* was begun in cold countries. It was introduced into England about the beginning of the ninth century. At the council of Celchyth, in 816, it was ordered, that the priest should not only sprinkle the holy water upon the head of the infant, but likewise plunge it in the basin.—There are abundance of ceremonies delivered by ecclesiastical writers, as used in *baptism*, which are now disused; as the giving milk and honey to the baptized, in the East; wine and milk in the West, &c. The quakers disallow the perpetuity of *baptism* in the Christian church. See **QUAKERS**.

It was also wholly rejected by the Valentinians, Manichees, Paulicians, and many other sects.

Several of the Socinians have maintained, that *baptism* was only to be used by those who are converted to Christianity from a different profession; and that though the children of such proselytes were to be baptized with their parents, all who descended from them were to be considered as baptized in them; and they urge the practice of proselyte *baptism* among the Jews in support of this opinion.

Theological authors distinguish three kinds of *baptism*; 1. *Water baptism*, which is that above mentioned. 2. *Baptism of fire*, which is the perfect love of God, joined with an earnest desire to be baptized; called also the *baptism of the Holy Ghost*: on occasion this may supply the place of *water baptism*. 3. *Baptism of blood*; which is the martyrdom of a catechumen.

Baptism, in the primitive times, was only administered at Easter and Whitsuntide, except in cases of necessity. The catechumens were not forward in coming to *baptism*: St. Ambrose was not baptized before he was elected bishop of Milan; and some of the fathers not till the time of their death. Some deferred it out of a tender conscience; and others out of too much attachment to the world; it being the prevailing opinion of the primitive times, that *baptism*, whenever conferred, washed away all antecedent stains and sins. Divers of the fathers rallied this superstitious delicacy to such a degree, that they introduced a different extreme; the ridiculous zeal of some people carrying them to baptize even the dead, by proxy.

The opinion of the necessity of *baptism* in order to salvation, is grounded on those two sayings of our Saviour: *He that believeth, and is baptized, shall be saved*; and, *Except a man be born of water, and of the spirit, he cannot enter into the kingdom of God*.

Mr. Dodwell maintains that the ordinance of *baptism*, if administered by persons duly ordained, conveys an immortalizing spirit; whereas persons dying unbaptized are not immortal. See **PÆDO-BAPTIST**.

BAPTISM of the dead, a custom which anciently prevailed among some people in Africa, of giving *baptism* to the dead. The third council of Carthage, speaks of it, as a thing that ignorant Christians were fond of. Gregory Nazianzen also takes notice of the same superstitious opinion prevailing among some who delayed to be baptized. In his address to this kind of men, he asks, whether they staid to be baptized after death? Philastrius also notes it as the general error of the Montanists or Cataphrygians, that they baptized men after death.

The practice seems to be grounded on a vain opinion, that when men had neglected to receive *baptism* in their life-time, some compensation might be made for this default, by receiving it after death.

BAPTISM

BAPTISM of the dead, was also a sort of vicarious baptism, formerly in use, where a person dying without baptism, another was baptized in his stead; a practice founded on 1 Cor. xv. 29. concerning the sense of which passage critics have been much divided. Several catholics understand it of the baptism of tears, penance, and prayers, which the living undergo for the dead, and alledge it as the proof of the belief of purgatory in the apostle's days. See Heinſius's Exerc. ad Nov. Test. lib. vii. cap. 13.

BAPTISM, *Lay*, seems to have been allowed in the rubric of the English liturgy, till the time of king James I. though there were great disputes among the bishops at the Hampton-court conference, whether the words of the liturgy imported such allowance or not. The bishop of Worcester allowed them to be doubtful; but that the contrary practice of the church, which censured women for conferring baptism, shewed, that the compilers of the book did not intend them as a permission: they had indeed propounded them ambiguously, because otherwise, perhaps, the book would not have passed the parliament. The archbishop of Canterbury insisted, that the administration of private baptism by women and laymen, was not allowed in the practice of the church, but, on the contrary, censured by the bishops in their visitations. He even added, that the words of the liturgy do not infer any such meaning. To which king James excepted; urging and pressing the words of the book, that they could not but intend a permission of women, and private persons to baptize.

At present, the English divines condemn it as invalid; and Burnet, bishop of Sarum, was severely handled by some of them, for asserting, that faith in the Trinity gives every man a right to baptize. Collins's Disc. on Free-Think. p. 73.

BAPTISM, *Clinic*. See CLINIC.

BAPTISM, is also applied, abusively, to certain ceremonies used in giving names to many inanimate things.

BAPTISM, in *Sea-Language*, is a ceremony in long voyages aboard merchant-ships; practised both on persons and vessels which pass the tropic, or line, for the first time. That of vessels is simple, and consists only in the washing them throughout with sea-water; that of passengers is ludicrous: but neither the one nor the other is done without making the crew drunk; the seamen, on christening the ship, pretending to a right of cutting off the beak-head, unless redeemed by the master or captain.

BAPTISM of bells, see BELL.

BAPTISMAL font, see BAPTISTERY.

BAPTISMAL presents are in use in Germany, made by the sponsors to the infant, consisting of money, plate, or even sometimes fiefs of lands; which, by the laws of the country, are to be kept for the child till of age, the parents having only the trust, not the right of disposing of them.

An anonymous author has published a discourse express on this occasion, entitled, De Pecunia Lustrica.

BAPTISMAL vow, or covenant, a profession of obedience to the laws of Christ, which persons, in the ancient church, made before baptism.

It was made by turning to the East, but for what mystical reasons is not well agreed.

BAPTISTERY, in *Ecclesiastical Writers*, a place or edifice where water is preserved for persons to be baptized in.

Anciently, in the churches which baptized by immersion, the baptistery was a kind of pond where the catechumens were plunged; though in many places the next river served for a baptistery, which was the case in the time of Justin Martyr, and of Tertullian. And the baptisteries continued separate from the church till the sixth century.

In after-times, the baptistery was a little building adjoining to the church, purposely appointed for the administration of this ceremony.

There were several fonts and altars in each baptistery, because then they baptized a number at once, all of whom received the eucharist immediately after.

At first, these baptisteries were only in the great cities, where bishops resided, who alone had the right of baptizing; but they afterwards allowed parishes to have fonts, for the more commodious administration of baptism. This right was confined to parishes alone; and if any monasteries were found with baptismal fonts, it was because they had baptismal churches in another place: though the bishops sometimes granted them to monks, upon condition that they would have a secular priest along with them to take care of the people; but they afterwards found means to throw off the priest, and make themselves masters of the church, and attach it, with its baptismal fonts, to their own monastery.

BAPTISTERY is also used for a baptismal or parochial church.

BAPTISTERY is also used, by the *Armenians*, for the feast of Epiphany, when the anniversary of Christ's baptism is celebrated.

BAPTISTERY is also used for a church-book, wherein the prayers and ceremonies of baptism were particularly described. Some take the baptisterium to have contained the order of all the sacraments, except the eucharist.

BAPTISTS, in *Ecclesiastical History*, from βαπτίζω, *I baptize*, a denomination of Christians, distinguished from other Christians by their particular opinions respecting the mode and the subjects of baptism.

Instead of administering the ordinance by sprinkling or pouring water, they maintain that it ought to be administered only by immersion. Such, they insist, is the meaning of the word βαπτίζω; so that a command to baptize is a command to immerse. Thus it was understood by those who first administered it. John the Baptist, and the apostles of Christ, administered it in Jordan and other rivers, and places where there was much water. Both the administrators and the subjects are described as going down into, and coming up again out of the water. And the baptized are said to be buried in baptism, and to be raised again: which language could not, they say, be properly adopted on supposition of the ordinance's being administered in any other manner than by immersion. Thus also, they affirm, it was in general administered in the primitive church. Thus it is now administered in the Russian and Greek church: and thus it is, at this day, directed to be administered in the church of England, to all who are thought capable of submitting to it in this manner. With regard to the subjects of baptism, the baptists say, that this ordinance ought not to be administered to children or infants at all, nor to grown up persons in general; but to adults only of a certain character and description. Our Saviour's commission to his apostles, by which Christian baptism was instituted, is to go and teach all nations, baptizing them: that is, say they, not to baptize all they meet with; but first to instruct them—to teach all nations, or to preach the gospel to every creature—and whoever receives it, him to baptize in the name of the Father, and of the Son, and of the Holy Ghost. To such persons, and to such only, baptism appears to have been administered by the apostles, and the immediate disciples of Christ. They are described as repenting of their sins, as believing in Christ, and as having gladly received the word. Without these qualifications, Peter acquaints those who were converted by his sermon, that he could not have admitted them to baptism. Philip holds the same language in his discourse with the eunuch. And Paul treats Lydia, the jailor, and others, in the same manner. Without these qualifications, Christians in general think it wrong to admit persons to the Lord's supper; and, for the same reasons, without these qualifications, at least a profession of them, the baptists think it wrong to admit any to baptism. Wherefore they withhold it, not only from the impenitently vicious and profane, and from infidels who have no faith, but also from infants and children, who have no knowledge, and are incapable of every action civil and religious. They farther insist, that all positive institutions depend entirely upon the will and declaration of the institutor; and that therefore reasoning by analogy from previous abrogated rites is to be rejected, and the express commands of Christ respecting the mode and subjects of baptism, ought to be our only rule.

The baptists in England form one of the three denominations of Protestant Dissenters. They separate from the establishment for the same reasons as their brethren of the other denominations do, with whom they are united; and from additional motives derived from their particular tenets respecting baptism. The constitution of their churches, and their modes of worship, are congregational or independent: in the exercises of which they are protected, in common with other dissenters, by the act of toleration. Before this act, they were liable to pains and penalties as nonconformists, and often for their peculiar sentiments as baptists. A proclamation was issued out against them, and some of them were burnt in Smithfield in 1538. They bore a considerable share in the persecutions of the last, and of the preceding centuries; and, as it should seem, in those of some centuries before; for there were several among the Lollards and the followers of Wickliff, who disapproved of infant-baptism. There were many of this persuasion among the protestants and reformers abroad. In Holland, Germany, and the North, they went by the names of ANABAPTISTS and MENNONITES; and, in Piedmont and the South, they were found among the ALBIGENSES and WALDENSES. See the Histories of the Reformation, and the above articles in this Dictionary.

The baptists subsist under two denominations, viz. the Particular or Calvinistical, and the General or Arminian. The former is by far the most numerous. Some of both denominations allow of mixed communion, others disallow it: and some of them observe the seventh day of the week as the sabbath, apprehending the law that enjoined it,

It, not to have been repealed by Christ or his apostles. But a difference of opinion respecting these and other matters, is not peculiar to the *baptists*: it is common to all Christians, and to all bodies of men who think and judge for themselves. See *PÆDOBAPTISTS*, under which article an account will be given of the principal arguments in favour of infant baptism.

BAR, in *Architecture*, a long slender piece of wood or iron, used to keep things close and fast together. In this sense, we speak of *bars* of windows, of doors, and the like.

BARs of iron are made of the metal of the sows and pigs, as they come from the furnaces.

These pass through two forges, called the *finery* and the *chaufery*; where, undergoing five several heats, they are formed into bars. Phil. Trans. N^o 138. p. 954. See *IRON* and *FORGE*.

BAR, in a court of justice, denotes an inclosure made with a strong partition of timber, three or four feet high, where the counsel are placed to plead causes.

This the French call *barre d' audience*, and in some places *auditoire*. It answers to what, among the Romans, was denominated *causidica*.

It is called *bar*, because inclosed with a barrier, called also in Latin writers *cancelli* and *caulæ*, by a metaphor taken from sheep-folds.

The denomination **BAR** is also given to the benches, where the lawyers or advocates are seated.—The appellation arose hence, that anciently there was a *bar*, or barrier, to separate the counsellors and pleaders from the attorneys and others.

Hence our lawyers who are called to the *bar*, or licensed to plead, in other countries called *licentiati*, are termed *barristers*.

BAR, or **BARRE**, **BARRA**, in *Common Law*, denotes a peremptory exception against a demand or plaint.

The author of the *Terms of the Law* defines *bar*, a plea brought by the defendant in an action, whereby the action of the plaintiff is destroyed for ever.—But the modern writers extend the use of the word farther, dividing *bars* into *perpetual* and *temporary*.

BAR, *perpetual*, is that which overthrows the action for ever.

BAR, *temporary*, or *bar pro tempore*, is that which is allowed good for the present, but may fail, or be set aside hereafter.

BAR, in *Geography*, is used for a heap of sand or mud, or a chain of rocks, which block up the mouth of a river, or port, so that there is no entrance except at high water.

The *bar* of Siam is a remarkable bank of mud, gathered in the mouth of the river, which allows not above thirteen feet of water, when the tide is highest.

BAR of a port, in *Marine Fortification*, see *BOOM*.

BARS, in the *Manege*, denote the ridges or upper part of the gums, between the tusks and grinders of a horse; the under and outward sides retaining the name *gums*.

The *bars* should be sharp-ridged and lean; for since all the subjection a horse suffers, proceeds from those parts, if they have not those qualities, they will be very little, or not at all sensible; so that the horse can never have a good mouth; for if the *bars* be flat, round, and insensible, the bit will not have its effect; and consequently, such a horse can be no more governed by his bridle, than if one took hold of his tail.

To BAR or strike a vein, among *Farriers*, an operation performed on the veins of a horse's legs, or other parts of his body, in order to stop the course, and lessen the quantity of malignant humours prevailing there.

It is thus performed: the farrier opens the skin, after disengaging the vein, ties it above and below, and then strikes between the two ligatures.

BARS, in *Music*, denote strokes drawn perpendicularly across the lines of a piece of music, including between each two, a certain quantity or measure of time, which is various as the time is triple or common.

The use of *bars* in music is a modern invention. They cannot be traced higher than the year 1574, and seem not to have been in general use till the year 1653; so that probably this improvement is owing to Mr. Henry Lawes, who published his *Airs and Dialogues* in that year.

In common time, between each two *bars*, is included the measure of four crotchets; in triple time, three crotchets. Their principle use is, to regulate the beating, or measure of the musical time in a concert. See *TIME*.

BAR, **BARR**, or **BARRE**, in *Heraldry*, denotes an ordinary nearly resembling the *FESS*; from which it only differs by its narrowness, and by this, that the *bar* may be placed in any part of the field, whereas the *fess* is confined to a single place.

The *bar* itself has its diminutives, which are the *closet* and *barrulet*.

The *bar* of legitimate cadets proceeds from right to left; that of bastards from left to right.

BAR-gemel, denotes a double *bar*, or where the *bars* are placed in couples, at a small distance, and more than two in the field, in even number.

BAR, among *Printers*, denotes a piece of iron with a wooden handle, whereby the screw of the press is turned in printing.

BAR-master, in *Mining*, he who keeps the gage, or dish, to measure all miners ore; he, or his servant, being always to be present when it is measured.

BAR-shot, see *SHOT*.

BARACK, or **BARRACK**, **BARAQUE**, a hut, or little lodge for soldiers in a camp.

The word comes from the Spanish *barracas*, little cabins, which fishermen make on the sea-shore.

Those for the horse were formerly called *baracks*; and those for the foot *huts*; but *barack* is now used indifferently for both.

Baracks are generally made by fixing four forked poles in the ground, and laying four others across them; afterwards they build up the walls with fods, wattles, or what the place affords; and the top is planked, thatched, or covered with turf, as they have convenience.

When the army is in winter quarters, the soldiers usually build *baracks*; in the summer they are content with their tents.

BARACKS is also more generally applied to buildings to lodge soldiers in fortified towns, or others: Thus we say the *baracks* of the Savoy, of Dublin, &c.

Baracks, when damp, are greatly prejudicial to the health of the soldiers lodged in them; occasioning dysenteries, intermitting fevers, coughs, rheumatic pains, &c. For which reason quarter-masters ought to be careful in examining every *barack*, offered by the magistrates of a place; rejecting all ground-floors in houses that have either been uninhabited, or have any signs of moisture.

BARALIPTON, a term in *Logic*, denoting the first indirect *MODE* of the first *FIGURE* of syllogisms.

A syllogism in *baralipon* is, when the two first propositions thereof are universal affirmatives, and the third a particular affirmative; the middle term being the subject of the first, and the attribute of the second.—For example:

BA Every evil ought to be feared:

RA Every violent passion is an evil:

LIP Therefore something that ought to be feared is a violent passion.

See letters *A* and *I*, and *SYLLOGISM*.

BARALLOTS, **BARALOTTI**, the name of a sect at Bologna in Italy, who had all things in common, even their wives and children.—They gave, it is said, into all manner of debauchery, and were also termed *compliers*.

BARANGI, officers among the Greeks of the lower empire, whose business it was to keep the keys of the city-gates where the emperor resided.

Codinus says, *barangi* were those who stood guard at the door of the emperor's bed-chamber and dining-room.

Codinus and Curopalata observe, that the name is English, formed from *bar*, to shut; and that the *barangi* were Englishmen, by country; Anglo-Danes, who, being driven out of England, were received into the service of the emperor of Constantinople, and made guards or protectors of his person. Whence they are called in Latin, by Cujacius, *protectores*; by others, *securigeri*, as being armed with a battle-ax, *securis*. Codinus adds, that they still spoke the English tongue. Anna Comnena says, the *barangi* came from the island Thule; by which is, doubtless, meant our island. Yet Nicetas makes them Germans; a mistake easy to be made at that distance, considering the relation the Anglo-Saxons bore to Germany. There were *barangi* as early as the emperor Michael Paphlagonius, in the year 1035, as appears from Cedrenus; but they were then only common soldiers, not a life-guard.

Their commander was called *αρχαγγελος*, as importing a person who always followed the emperor.

BARA-picklet, bread made of fine flour kneaded with barm, which makes it very light and spongy: *bara* being the Welch for bread.

BARATHRUM, from *βαραθρον*, signifying the same, among the *Ancient Athenians*, a deep pit into which condemned criminals were cast headlong.

The *barathrum* was a dark noisome hole, having sharp spikes at the top, to prevent any escape, and others at the bottom, to pierce and lacerate the offender.

From its depth and capaciousness, the name came to be used proverbially for a miser, or a glutton, always craving. In which sense, the word *barathro* is used among the Latin poets.

BARATHRUM is also used, in *Physiology*, to denote certain baleful caverns, inaccessible on account of their fetid, or poisonous fumes.

These amount to the same with what others call *fossæ charoniae*.

BARATRY, or **BARETRY**, in *Law*, signifies the moving and maintaining suits in disturbance of the peace; and the taking and detaining houses, lands, &c. by false inventions. The word *baratterre* in French signifies *misdemeanor*, *fraud*, *deceit*: it is derived from the old word *barat*,

barat, which signifies any imposition; whence also they said *baratter*, to impose on any one. 8 Rep. 31.

BARATRY, in a *Marine Sense*, is the master of a ship, or the mariners cheating the owners or insurers, whether it be done by running away with the ship, sinking her; deserting her, or embezzling the cargo.

Baratry of mariners is so epidemical on ship-board, that it is rare if the master, be his industry ever so great; can prevent it, by reason of the encouragement one knavish sailor gives another; yet the law, in such cases, imputes the offences of the mariners to the negligence of the master, and from him the merchant is to seek for remedy for all goods or merchandise lost, embezzled, or otherwise damaged.

By the French ordonnances, insurers are not obliged to make good the loss or damage accruing to a vessel, or its lading, by the fault of the master or crew, unless, by the forms of the policy, they be made accountable for the *baratry* of the patron. A master who, without necessity, takes up money on the body, provision, or tackling of a ship, or sells the effects on board, or, in his account of average, sets down fictitious expences, shall pay the value, be declared unworthy of being master, and banished the port where he ordinarily resided. In some cases, he is also subject to corporal punishment, and even to death, where it appears he willingly threw away the ship.

BARATRY is also used for bribery or corruption in a judge, giving a false sentence for money.

BARATRY is also used, in *Middle Age Writers*, for fraud or deceit in making of contracts, sales, or the like.

BARB is used for the *Barbary pigeon*, called also by Moore the *columba Numidica*.

This is but a small pigeon, and has a very short beak like a bulfinch, with a small water, and a naked circle of tuberosed red flesh round the eyes; the iris of the eye is of a pearl-colour, and the broader and redder this circle round them is, the more the pigeon is valued; but this is always narrow while they are young, and does not arrive at its full breadth till they are four years old. Some of this species have a tuft of feathers behind their head, and others not. The red circle round their eyes grows pale and whitish, if they become sick; but always recovers its redness as they grow well: their proper colour is black, or dun. There are likewise pied ones; but they are of a mixed breed, and not so valuable.

BARBA Aron, in *Botany*, a name given by some authors to the common great house-leek.

BARBA Capra, in *Botany*, see **SPIRÆA**.

Of this genus Mr. Tournefort allows only one species, the common *barba capra*, or, as it is called by some, *drymopogon*.

BARBA Jovis, in *Botany*, the name of a species of *anthyllis*. See **LADY'S finger**.

BARBACAN, or **BARBICAN**, properly denotes an outer defence, a fortification to a city, or castle; used especially as a fence to the gates, or walls.

In which sense, *barbacan* amounts to the same with what is otherwise called, *antemurale*, *promurale*, *murus exterior*, or *outer wall*.

BARBACAN is also used for a fort at the entrance of a bridge or in the outlet of a city, having a double wall with towers. Such is that at one end of the wooden bridge at Rouen, which is still called by some *Barbacana*.

BARBACAN is also used for an aperture in the walls of a city, through which to fire with musquets on the enemy. See **EMBRASURE**.

BARBACAN, in *Architecture*, denotes a long narrow canal or opening, left in the walls for water to come in and go out at, when edifices are raised in places liable to be overflowed; or to drain off the water from a terrace, or the like.

BARBADOES cherry, see **CHERRY**.

BARBADOES flower-fence, *princiaria*, in *Botany*, a genus of the *decandria monogynia* class. Its characters are these: the empalement of the flower is composed of five oblong concave leaves, which fall off. The flower has five unequal petals, four of them nearly equal and roundish, but the fifth larger, deformed and indented. It hath ten long, bristly, rising stigmas, terminated by oblong summits; and an awl-shaped declining *germen*, which sits upon the style, and is crowned by an acute stigma. The *germen* afterward becomes an oblong compressed pod, with several transverse partitions, in each of which is lodged a single flatish seed.

This plant grows naturally in both Indies. It is planted in hedges, to divide the lands in Barbadoes, from whence it had the title of *flower-fence*; it is also called Spanish *earnation* by some of the inhabitants of the British islands.

These plants must constantly remain in the bark-stove, where in warm weather they should have a large share of air; but they must not be exposed to cold; if damp seize their top, it very often kills the plants; or at least occa-

sions the loss of their heads. With proper management, they will grow much taller here than they usually do in Barbadoes, but their stems will not be larger than a man's finger, which is occasioned by their being drawn up by the glasses of the stove.

BARBADOES tar, *petroleum Barbadosense*, is a bitumen of a reddish black colour, and thick consistence, approaching to that of common tar. It is found in several of the American islands, and particularly in *Barbadoes*; where is greatly esteemed as a sudorific, in disorders of the breath, and as an external discutient and anti-paralytic. It is less inflammable than the other **PETROLÆA**, and leaves on being burnt a considerable quantity of ashes. The oil obtained from it in distillation, and a balsam prepared by boiling it with one fourth its weight of flowers of sulphur, are directed by the London college to be kept in the thops. Lewis's Mat. Med.

BARBARA, in *Logic*, the first mode of the first figure of syllogisms.

A syllogism in *barbara*, is that whereof all the propositions are universal and affirmative; the middle term being the subject in the first proposition, and attribute or predicate in the second.—For example:

BAR *Whoever suffers a man to starve, whom he ought to sustain, is a murderer:*

BA *Whoever is rich, and refuses to give alms, suffers those to starve, whom he ought to sustain:*

RA *Therefore, whoever is rich, and refuses to give alms, is a murderer.*

BARBARIAN, a name given by the ancient Greeks to all those who were not of their own country, or who did not speak the Greek language.—In which sense the word signified with them, no more than *foreigner*, and did not carry that odium with it as it does now.

Strabo derives the word *βαρβαρος* from *βαρβαρίζειν*, *balbutire*, because foreigners coming to Athens used to stammer, or speak coarsely: others derive it from *βαρβαρ*, a word that foreigners frequently stumbled on, which yet had no meaning.

BARBARICARII, in *Antiquity*, a kind of artists, who, with threads of divers colours, expressed the figures of men, animals, and other things; or, as others describe them, those whose business was to gild, and decorate shields and helmets with gold and silver.

The *barbaricarii* were so called, because they learned this kind of painting from the Phrygians, who were particularly denominated *barbarians*, in regard of their opposition to the Greeks; though the name is sometimes also written *branbaricarii*.

BARBARICARII seem also to have been used for soldiers or officers, who wore masks and vizards thus adorned with gold and silver.

BARBARICUM, in *Ancient Writers*, is used for a military shout, raised by the soldiers on point of engagement.

This is called *barbaricum* from the barbarians, in whose armies this method of shouting much obtained.

The same appellation was given to a war, or expedition undertaken against the barbarians.—*Quousque ad ipsum tempus quo barbaricum extortum est inter hos & nos.*

BARBARICUM was also used for an armoury, or magazine, wherein the Greek emperors kept the spoils, and donaries, taken from the barbarians in the time of war or peace.

BARBARICUM is also an appellation given by the modern Greeks to rhubarb.

It is thus called from the *Sinus Barbaricus*, by the way of which this root was first brought to them.

BARBARISM, in *Grammar*, denotes an offence against the purity of style or language.

A *barbarism* differs, according to Isidore, from a *barbarous term*, as the former, for instance, is Latin, though corrupt or misused; whereas the latter, which this writer calls *barbarologia*, is a word merely foreign, intruded into Latin speech.

In general, under *barbarisms* are comprehended things written, spoken, declined, or conjugated wrong; or used in a wrong quantity, or in an unusual sense; as when a word is used which is foreign to the language, and not received by the better and purer sort of writers therein. Such are *liper* for *liber*, *syllaba* for *syllaba*, *patri* for *patris*, *lexi* for *legi*, *bannus* for *proscriptio*, &c.

Barbarism is often charged; with great justice, on modern writers in the learned languages. The Latin books of late ages are full of Anglicisms, Gallicisms, Germanicisms, &c. according to the country of the author. But what shall we say to Casp. Scioppius, who accuses Cicero himself of *barbarisms* in his own language?

There are great disputes among critics concerning *barbarisms* in the New Testament.

Divers pious persons are startled at the apprehension of any thing like a *barbarism* in the inspired books, as supposing it an objection to the inspiration of them; yet this

does not hinder but many of the Jews, after Abarbanel and others, still maintain *barbarisms* in the Old Testament; in which they are seconded by M. Simon, Le Clerc, and others. Divers of the prophets are said to have been unacquainted with the language they wrote in, particularly Jeremiah.

BARBARISM, *barbaries*, is also used for that rudeness of mind, wherein the understanding is neither furnished with useful principles, nor the will with good inclinations.

BARBAROUS, in a general sense, something that partakes of the quality of BARBARISM.

In this sense we say a *barbarous* nation, age, writer, word, or the like.

Barbarous Latin words are innumerable; the schoolmen are full of them: the chemists, physicians, lawyers, can scarce write intelligibly without them. Du-Cange has given two large volumes in folio of *barbarous* Latin words, and as many of *barbarous* Greek words.

The modern or vulgar Greek is sometimes called *barbarous* Greek, *barbaro-Greca*, or *Greco-barbara-lingua*. Langius has published *Philologia Barbaro-Greca*, *Grammatica Barbaro-Greca*, or *Glossarium Barbaro-Grecum*.

BARBATED leaf, in *Botany*, is a leaf terminated by a bunch of strong hairs.

BARBATINA, or SEMEN *contra*, a seed which is efficacious in extirpating worms from the human body, to which children are chiefly liable: it comes from Persia, and from the borders of Muscovy.

This seed, to be good, ought to be plump, of an agreeable scent, and very green: special care must be taken that it be not dyed green, and that the seed of southernwood be not sold instead of it.

BARBATULA, in *Ichthyology*, a species of the COBITIS.

BARBATUS *Piscis*, in *Ichthyology*, a name given by Salvian, and some others, to the SILURUS, called in English, the *sheat-fish*; the *glanus* of Pliny, and the ancients. This Artedi describes under the name of the *silurus* with four *cirri*, or beards, at the mouth. By this it is distinguished from the fish called the *lake*, or *alkussa*, which, though a genuine species of *silurus*, has only one beard.

BARBE, or BARB, in *Commerce*, a kind of horse brought from Barbary, much esteemed for its beauty, vigour, and swiftness.

Barbs are usually of a slender make, and their legs far apart. It is a maxim, that *barbs* grow ripe, but never old; because they retain their vigour to the last, which makes them prized for stallions: their mettle, according to the duke of Newcastle, never ceases but with their lives. It is said, they were anciently wild, and ran at large in the deserts of Arabia; and that it was in the time of the Cheq Ishmael, that they first began to tame them. It is said, there are *barbs* in Africa, that will outrun ostriches: such are ordinarily sold, according to Dapper for 1000 ducats, or 100 camels. They are fed very sparingly, Dapper says with camels milk. It is added, that in Barbary they preserve the genealogy of their *barbs* with as much care as the Europeans do those of their noble families; and that to sell them, they always produce their titles of nobility.

The race of horses is much degenerated in Numidia; the Arabs having been discouraged from keeping it up, by the Turkish officers, who were sure to be masters of them. At present, the Tingitanians, and Egyptians, have the reputation of preserving the best breed, both for size and beauty.

The smallest of these last are usually sixteen hands high, and all of them shaped, according to their phrase, like the antelope.

The good qualities of a Barbary horse (besides the supposed one of never lying down, and of standing still when the rider drops his bridle) are to have a long walk, and to stop short, if required, in a full career.

The *barb* is very lazy and negligent in all his motions; he will stumble in walking upon the smoothest ground; his trot is like that of a cow, and his gallop very low, and very easy to himself: this sort of horse is, however, for the most part, sinewy, nervous, and excellently winded; he is therefore good for a course, if not over-weighted. The *mountain barbs* are accounted the best, because they are the largest and strongest: they belong to the Allarbes, who value themselves much upon them, and are as fond of them as other nations are; for which reason it is not easy to get at any of them. The common *barbs* are not uncommon among our people of fashion. They may usually be bought in Provence and Languedoc in France, at a moderate price, and many of the English have them from thence.

Barbs, among us, fall short of that swiftness attributed to them in their native country. This may be accounted for, partly from the smallness and lightness of their riders, and partly from their not being loaded with heavy saddles and bridles, as in Europe, nor even with shoes. An

Arab saddle is only a cloth girt round with a pair of light stirrups, and a sort of pommel to sustain them.

Bastard-BARBS, those descending from the English mares, covered by *barb*-stallions, are, by experience, constantly found both better shaped and fitter for the saddle, and stronger for service than their fires. Phil. Trans. N^o 105.

BARBE, or BARBET, in the *Military Art* — To fire *en BARBE*, is to fire the cannon over the parapet, instead of through the embrasures; in which case the parapet must not be more than three feet and a half high.

BARBE, or BARDE, is also an old term for the armour of the horses of the ancient knight, and soldiers, who were accoutred at all points.

Della Crusca says, the *barde* is an armour of iron or leather, wherewith the neck, breast, and shoulders of the horse are covered.

BARBEL, in *Heraldry*, is understood of a cock, when his comb and wattles are of a different colour from the rest of the body. In which case, he is said to be *barbed and crested*.

A cross BARBED, *croix barbeé*, is that whose extremities are fashioned like the barb of an iron spear, or instruments used for striking fish, &c.

BARBEL, in *Ichthyology*, see BARBUS.

BRABELICOTÆ, an ancient sect of Gnostics, spoke of by Theodoret. The doctrine of the *Barbelicotæ* was, that one of the æons, possessed of immortality, had commerce with a virgin spirit named *Barbeloth*, who demanded of him, first prescience, then incorruptibility, and lastly eternal life; all which were granted to her: that being one day in a gayer humour than ordinary, she conceived, and afterwards brought forth light, which being perfected by the unction of the spirit, was called *Christ*: the child Christ desired to have understanding, *ver*, and obtained it: after which, understanding, reason, incorruptibility, and Christ, united together; and from their union arose autogenes, *αυτογενής*. To these fables they add divers others. They were also denominated *Barbariani*.

BARBERRY-tree, *berberis*, or *pipperidge-bush*, in *Botany*, a genus of plants, belonging to the class of *hexandria monogynia*, the characters of which are these: the flower hath a coloured empalement, composed of six concave leaves; the flower is of six leaves, which are roundish and concave. It hath two coloured nectariums, fastened to the base of each petal; and six stamina, with two summits fastened on each side their apex. The germen is cylindrical, and afterward becomes an obtuse cylindrical umbilicated berry, having a puncture and one cell, inclosing two cylindrical seeds. There are three species; the common *barberry*; the Canada *barberry*, with very broad leaves; and the *barberry* with a single flower on each foot-stalk.

The common *barberry*-bush grows naturally in the hedges in many parts of England, but is also cultivated in gardens for its fruit, which is pickled and used for garnishing dishes. The flowers come out from the wings of the leaves, in small ramose bunches, like those of the currant-bush, which are yellow; these are succeeded by oval fruit, which are first green, but when ripe turn to a fine red colour. The flowers appear in May, and the fruit ripens in September.

The box-leaved sort is at present very rare in England, and while young the plants are somewhat tender, so have frequently been killed by severe frost. This never rises higher than four or five feet in England.

The *barberry* is a shrub, whose berries, as well as bark, are of medicinal use; known also by the name of *oxyacantha Galeni*.

Its berry is red, and oblong, of an agreeable, cooling, astringent taste, chiefly used in the way of conserve; under which form it quenches thirst, strengthens the stomach, and is good against diarrhoeas and dysenteries. We also read of syrup, essential salt, and lozenges, made of the juice of the *barberry*.

The bark, on the contrary, is opening and deterfive; and, though rarely found in dispensatory compositions, is much used in common prescriptions, as well as in medicated ales, against the jaundice, and other distempers from obstructions and foulnesses of the viscera.

The only official preparation from this tree, is the conserve of the fruit.

BARBET, in *Natural History*, a name given by M. Reaumur, and other of the French writers, to a peculiar species of the worms which feed on the *pucerons*.

This worm is more particularly called *barbet blanc*, as also *herisson blanc*, or *white hedgehog*, from its being covered with oblong white tufts of filaments, which stand in the manner of the quills of a hedgehog or porcupine.

This creature is of the size of a small fly without its wings; but this tufted covering so much increases the bigness, that it appears of the size of a fly of the largest kind.

The *barbet* lives about a fortnight in that form, and then becomes

becomes a chrysalis; from which after a month, there comes out a small beetle, of the size of our cow-lady, but of a flatter figure, and, in general, of a dusky brown colour.

BARBICAN, see BARBACAN.

BARBICANAGE, *barbicanagium*, in our *Old Writers*, money given for the maintenance of a *barbican*, or watch-tower; or a tribute towards repairing or building a bulwark.

BARBILLONS, in the *Natural History of Insects*, are certain bodies, usually two in number, placed under the creature's head, and moveable at pleasure, somewhat resembling hands or fingers placed on a short or broken arm.

The word is a diminutive of the French *barbe*, beard.

BARBING is sometimes used in *Ancient Statutes* for sheering. Cloth is not to be exported till it be *barbed*, rowed, and shorn. 3 Hen. VII. c. 11.

BARBITOS, or BARBITON, an ancient instrument of music, mounted with three, others say seven strings, much used by Sappho and Alcæus; whence it is also denominated *Leiboum*.

The *barbitos* is said to have differed from the lyre and *cithara*; but wherein the precise difference lay, does not appear. Strabo makes it the same with the *sambuca*. It is represented as yielding a grave, deep sound, and, on that account, peculiarly fitted for Doric compositions. Anacreon is said to be the inventor of the *barbiton*.

BARBLE, or BARBEL, in *Ichthyology*, see BARBUS.

BARBLES, in the *Manege*, knots of superfluous flesh growing in the channels of a horse's mouth; that is, in the intervals, which separate the bars, and obstruct his eating. These are also called *barbes*: and obtain in black cattle as well as horses.

For the cure, they cast the beast, take out his tongue, and clip off the *barbles* with a pair of scissors, or cut them with a sharp knife; others choose to burn them off with a hot iron.

BARBONI, in *Ichthyology*, a name given by many to the MULLUS BARBATUS, a fish greatly esteemed at table, and caught in the Mediterranean, and some other seas.

BARBOTINE, a seed, otherwise called *semen fantonicum*, and *semen contra vermes*, in English, WORMSEED.

BARBULÆ, in *Botany*, a name given by Pliny to the SEMI-FLOSCULI.

BARBUS, in *Ichthyology*, the fish called in English the *barbel*, and by some writers in natural history, *mustus fluviatilis*, a species of the CYPRINUS.

The *barbel* is a fish commonly known, and so called, on account of the barb or beard under its nose, or chaps. It is of the leather-mouthed kind.

This is but a moderately well tasted fish. The male is esteemed better than the female; but neither of them is very much valued. The worst season for them is April. They usually swim together in great shoals, and love to be among weeds, where there is a hard gravelly bottom. In summer they frequent the strongest and swiftest currents of the water; as deep bridges, weirs, and the like places, and are apt to get in among the piles, weeds, and other shelter; but in winter, they retire into the deepest and stillest waters.

The time for taking this fish is very early in the morning, or late in the evening: the place should be baited with chopped worms some time before; and no bait is so good for the hook as the spawn of the salmon, or some other fish: in defect of these, lob-worms will do; but they must be very clean and nice, and the hook carefully covered, otherwise he will not touch them. Old cheese steeped in honey is also a very fine bait. The best season for angling for this fish is from May to August.

BARBYLA, in *Botany*, a name by which Theocritus, and other of the early writers, have called the common damask prune.

BARCALAO, a Spanish word, which the French pronounce *baccala*, or *baccaliau*. By this last name the Basques most commonly call the fish which we style cod; and those people call also the island which we call Newfoundland, the isle of *Baccaliau* (*Cod Island*), because of the great plenty of cod caught there. There is, however, a league to the west of that large island, another small one, which is more particularly called *Baccaliau*.

BARCALON, an appellation given to the chief minister of the emperor of Siam, to whom belongs the care of trade both within the kingdom and out of it, the superintendency of the royal magazines, the receipt of the revenues, and the management of foreign affairs.

BARCA-LONGA, a large Spanish fishing-boat, navigated with lug-sails, and having two or three masts. These are very common in the Mediterranean.

BARCES, or BERCHES, were formerly a kind of ship-guns, not unlike sakers, only shorter, thicker in metal, and wider bored.

BARCONE, a short broad vessel, of a middle size, used in the Mediterranean sea for the carriage of corn, wood, salt, and other provisions, from one place to another.

BARD is used, in the *Culinary Art*, for a broad slice of bacon used to cover fowls before they are roasted, baked, or otherwise dressed.

BARDANA, in *Botany*, see BURDOCK.

BARDARIOTÆ, in *Antiquity*, were a kind of ancient guard attending the Greek emperors, armed with rods, where-with they kept off the people from crowding too near the prince, when on horseback.

Their captain, or commander, was denominated *primivergius*.

The word was probably formed from the *bardæ* or housings on their horses.

BARDED, in *Heraldry*, is used in speaking of a horse that is caparisoned.

He bears fable, a *cavalier d'or*, the horse *barded*, argent.

BARDELLE, in the *Manege*, denotes a saddle made in form of a great saddle, but only of cloth stuffed with straw, and tied tight down with packthread, without either leather, wood, or iron. *Bardelles* are not used in France; but in Italy they trot their colts with such saddles; and those who ride them are called *cavalcadours*, or *scozone*.

BARDE, see BARBE.

BARDESANISTS, a sect thus denominated from their leader, Bardesanes, a Syrian of Edeffa, in Mesopotamia, in the second century.

He adopted the oriental philosophy concerning the two principles; maintaining, that the supreme God is free from all evil and imperfection, and that he created the world and its inhabitants pure and incorrupt: that in process of time the prince of darkness, who is the fountain of all evil and misery, enticed men to sin; in consequence of which, the supreme God permitted them to be divested of those ethereal bodies with which he had endued them, and to fall into sluggish and gross bodies formed by the evil principle: and that Jesus descended from heaven, clothed not with a real but aerial body, in order to recover mankind from that body of corruption which they now carry about them; and that he will raise the obedient to mansions of felicity, clothed with aerial vehicles, or celestial bodies.

Serunzius has given the history of the *Bardesanists*.

BARDS, BARDI, ancient poets among the Gauls and Britons who described and sung in verse, the brave actions of the great men of their nation; with design to inculcate and recommend virtue, and even sometimes to put an end to the difference between armies at the point of engagement.

Bochart derives the word from *parat*, to sing. Camden agrees with Festus, that *bardus* originally signifies a singer: and adds, that the word is pure British. Others derive the word from *Bardus*, a druid, the son of Dryis, and the fifth king of the Celtæ.

The *bards* differed from the *druids*, in that the latter were priests and teachers of the nation, but the former only poets and writers.

Larrey, Bodin, and Pasquier, indeed will have the *bards* to have been priests, as well as philosophers: and Cluverius, orators too: but without much foundation in antiquity.—Strabo divides the sects of philosophers among the Gauls and Britons into three, viz. the druids, *bards*, and evates. The *bards*, adds he, are the singers and poets; the evates, the priests and natural philosophers; and the druids, to natural philosophy add also the moral. Hornius however reduces them to two sects, viz. *bards* and druids; others to one, and make a druid a general name, comprehending all the others. Cluverius will have it, that there were *bards* also among the ancient Germans; because Tacitus makes mention of their songs and poems, which contained their history.

Almost all history, Celtic and Chaldean as well as Greek and Roman, had its foundation in poetry. Whether we shall find the rules of their prosody to agree with those laid down by captain Middleton in his *Hardometh*, or Art of Welch Poetry, we know not: but how methodically they ordered their *tybwyths* or tribes, Syllas, Taylor, and Rowland have at large informed us.

It was customary to sing these compositions in the presence of their nobles, and at their chief festivals and solemnities.

Among the ancient British *bards*, the most celebrated is the great Merlyn, whose true name, according to Lhuyd, in *Merdbym*. The genealogical sonnets of the Irish *bards* are still the chief foundations of the ancient history of Ireland. In the Highlands of Scotland there are considerable remains of many of the compositions of their old *bards* still preserved. But the most genuine, entire, and valuable remains of the works of the ancient *bards*, and perhaps the noblest specimen of uncultivated genius, are the poems of Ossian the son of Fingal, a king of the Highlands of Scotland, who flourished in the second or third century; lately collected by Mr. Macpherson, and by him translated from the Erse or Galic language into English.

BARE,

BARE, in a general sense, signifies not covered. Hence we say *bare-headed*, *bare-footed*, &c.

The Roman women, in times of public distress and mourning, went *bare-headed*, with their hair loose.

Among both Greeks, Romans, and Barbarians, we find a feast called *nudipedalia*, at which persons were to attend *bare-footed*.

The Abyssinians never enter their churches but *bare-footed*; not on account of Moses, who was commanded to put off his shoes on Mount Sinai, but in reverence of the place; as is also done by them in entering the palaces of kings and great men.

Sagittarius has a dissertation express on those who went *bare-footed* among the ancients, *De Nudipedalibus Veterum*; wherein he treats of such as went *bare-footed* in journeys or otherwise, either out of choice, or necessity: also of *bare-footed* religious mourners and penitents, who went *bare-footed*; and, lastly, of the *leviri*.

BARE, in respect of *Manufacture*. A cloth is said to be *bare* or naked, when the nap is too short, as having been shorn too near, or not being sufficiently covered with wool by the teazel.

BARE is also used for a sort of bowling-ground, not covered with green sward.

BARE-foot CARMELITES, and *Augustines*, are religious of the order of St. Carmel and St. Augustin, who go without shoes, like the Capuchins.

There are also *bare-foot* Fathers of Mercy. Formerly there were *bare-foot* Dominicans, and *bare-foot* nuns of the order of St. Augustin.

BARE-footed Trinitarians, see **TRINITARIAN**.

BARE-pump, see **PUMP**.

BAR-FEE, a fee of 20 pence, which every person acquitted of felony pays the gaoler.

BARGAIN, a **CONTRACT** either for the sale, purchase, or exchange of a thing.

The word is formed from the French *barguigner*, to barter, or haggle.

He that sells is the *bargainor*, and he that buys the *bargainee*.

BARGAIN and Sale, in *Law*, is properly a **CONTRACT** made of manors, lands, and other things, transferring the property thereof from the *bargainor* to the *bargainee*, for a consideration in money.

It is a good contract for land, and the fee passes, though it be not said in the deed, to have and to hold to him and his heirs, and though there be no livery and seisin given by the *vendor*, so it be by deed indented, sealed, and inrolled, either in the county where the land lies, or in one of the king's courts of record at Westminster, within six months after the date of the deed.

This manner of conveying lands was created and established by the 27 Hen. VIII. cap. 10. which executes all uses raised; and as this introduced a more secret way of conveying than was known to the policy of the common law, therefore the inrolment of the deed of *bargain and sale* was made necessary by the 16th chapter of that statute.

BARGAINS, in *Commerce*, are of divers kinds: *verbal*, those made only by word of mouth, and giving earnest; *written*, those where the terms are entered in form on paper, &c.

At Amsterdam they distinguish three kinds of *bargains*.

BARGAINS, *conditional*, for goods which the seller has not yet in his possession; but which he knows have been bought for him by his correspondents abroad, and which he obliges himself to deliver to the buyer, on their arrival, at the price and the conditions agreed on.

BARGAIN, *firm*, that wherein the seller obliges himself to deliver to the buyer a certain quantity of goods, at the price and in the time agreed on.

BARGAINS, *optional*, those wherein a dealer obliges him self, in consideration of a *premium* received in hand, either to deliver or take a certain quantity of goods at a fixed price, and within a time limited; but with a liberty, nevertheless, of not delivering or not receiving them, if they think proper, upon forfeiture of their *premium*.

BARGAINS, *forehand*, are those wherein goods are bought or sold in order, to be delivered at a certain time afterwards, some part of the price being advanced.

BARGE, a kind of state, or pleasure-boat, or large luggage-boat, used chiefly in the navigation of rivers, which lead to great cities.

Barges are of various kinds, and acquire various names, according to the variety of their uses and structures: as,

<i>A company's barge,</i>	<i>A Severn barge,</i>
<i>A row barge,</i>	<i>A Ware barge,</i>
<i>A royal barge,</i>	<i>A light horseman,</i>
<i>A sand barge,</i>	<i>A West-country barge.</i>

A *barge* differs from a *bark*, as being smaller, and used only on rivers; whereas the latter goes out to sea.

There are also *barges* belonging to men of war, serving to carry generals, admirals, and chief commanders.

BARGE-course is used by workmen, to signify a part of the

tiling, which projects over the gable of a building, and is made up with mortar.

BARGE, in *Ornithology*, a name used by some authors for the *godwit*, or as it is called in some places, the *stone-plover*, the *MEGOCERPHALUS*.

BARGH, is used in some places of England for a steep horse-way up a hill.

It seems to come from the German *bargh*, a hill.

BARGH-master, **BARMER**, or **BAR-master**, in the *Royal Mines*, the steward or judge of the **BARGHMOTE**.

The word is formed of the German *berg-meister*, q. d. *master of the mines*.

The *bar-master* is to keep two great courts of barmote yearly, and every week a small one, as occasion requires.

BARGHMOTE, or **BARMOTE**, a court which takes cognizance of causes and disputes between miners.

Some suppose it thus called from a *bar*, at which the suitors appear; others, with more probability, derive the word from the German *berg*, a mine.

By the custom of the mines, no person is to sue any miner for ore-debt, or for ore, or for any ground in variance, but only in the court of *barmote*, on penalty of forfeiting the debt, and paying the charges at law.

BARILLARIUS, an ancient officer in monasteries and great households, who had the care of the casks and vessels of wine, &c. in the cellars.

BARILLIA, or **BARIGLIA**, in the *Glass Trade*, a sort of pot-ashes imported from Spain, inferior in goodness to that of the Levant, called *polverine* when loose, small, and in powder, and *rochetta* when in hard, rocky lumps. The frit made of these makes fine and clear crystal glass, especially that from the *rochetta*, or the *polverine* in lumps; but the *barillia* of Spain, though it be usually fatter, yet makes not a glass so white, but usually inclining a little to a bluish colour.

BARING of trees, in *Agriculture, see **ABLAQUEATION**.*

BARITONO, in *Music*, denotes a voice of low pitch, between a tenor and bass.

BARK, the exterior part of trees, serving them for a skin, or covering.

In *Writers of the Last Age*, this is sometimes also called *bast*. Vid. 15 Car. II. c. 2.

The *bark* of trees in general is of a spongy texture; and, by many little fibres which pass through the capillary tubes, whereof the wood consists, it communicates with the pith; so that the proper nutriment of the tree, being imbibed by the roots, and carried up through the fine arterial vessels of the tree by the warmth of the soil, &c. to the top of the plant, is usually supposed to be there condensed by the cold air, and in that form returns by its own gravity down the vessels, which do the office of veins, lying between the wood and inner *bark*; leaving as it passes by, such parts of its juice as the texture of the *bark* will receive, and requires for its support. See **CIRCULATION of sap**.

That soft whitish rind or substance between the inner *bark* and the wood, which Mr. Bradley thinks to do the office of veins, some account a third *bark*, only differing from the others in that its fibres are closer; it is this contains the liquid sap, gums, &c. found in plants in the spring and summer months. It hardens by little and little, by means of the sap it transmits, and is converted imperceptibly into the woody part of the tree. There are few trees without it; yet it is still found in less quantity as the tree is more exposed to the sun: that of the oak is ordinarily about an inch thick. It is here that the corruption of trees generally begins: whence those who fell and cut out trees, ought always to take care to leave as little of it on as possible.

The *bark* of roots is sometimes yellow, as in dock; sometimes red, as in bistort: but ofteneft white. It is derived from the seed itself, being only the extension of the *parenchyma* of the radicle. It is variously sized, being sometimes very thin, as in the Jerusalem archich oak, and in most trees. Sometimes it is thicker, and makes the greater part of the substance of the root, as in asparagus and dandelion. In beet-root, the *bark* scarce exceeds a good thick skin; whereas in a carrot, it is half the semi-diameter of the root, being in some places above an inch over. This too is found common to the generality of roots, that their *barks* are proportionably thicker at bottom than at top.

The inner part of the *bark*, we have observed, annually lignifies, or turns to wood: the *bark* of a tree is found each year to divide and distribute itself two contrary ways: the outer part gives towards the skin, till it becomes skin itself, and at length falls off, like the scales or dandruff of our body, or the *exuviae* of serpents; while the inmost portion is yearly distributed and added to the wood.

The *bark* is found truly continuous to the body of a tree, as the skin of our body is to the flesh; contrary to the common opinion, which imports, that the *bark* only surrounds

surrounds the tree, as a scabbard does a sword, or a glove the hand; which seems confirmed by the easy slipping of the bark of willow, and most other trees, when full of sap, from the wood. Their continuity is effected by means of the *parenchyma*, which is one entire body, running from the bark into the wood, and thus uniting both together. The reason why the bark slips so easily from the wood is, that most of the parenchymous parts are young vessels, formed every year successively between the wood and the bark, and are much in the condition of the tender vessels or fibres of the embryos in a womb, or egg; a thousand of which are broke with the smallest force. That trees only live by the ascent of the sap in or between the bark and the wood, and that if a circle be drawn round any tree (except, perhaps, ash, by incision to the timber, how thin soever the knife be, provided no part of the thickness of the bark remain uncut, the tree will die from that part upwards, has been the standing doctrine of naturalists of all ages, and is delivered for fact by Pliny, and others. Dr. Plott asserts this to be a popular error from the instance of a large old elm in Magdalen-college grove, quite disbarked around, at most places two feet, at some four feet, from the ground, which yet grew and flourished many years, as well as any tree in the grove. Besides, it was entirely without pith, being hollow within as a drum: and the same is confirmed from the history of the elm in the Thuilleries, related by M. Parent, which lived, and put out leaves, though entirely stripped of bark from top to bottom. Add, that the plane and cork trees divest themselves yearly of all their old bark, and acquire a new one, as snakes do their skins: and in the change from one to the other, it is evidently not by the bark that they are nourished. Some infer from hence, that the bark never feeds the wood. Dr. Plott is more reserved in his conclusion, arguing only, that hence it seems to follow, that there must be other vessels, besides the sap-vessels of the bark, capable of the office of conveying sap. It is probable when the ordinary conveyance fails, some of the woody part, which had all once been sap-vessels, resumes its ancient office; or, as the author last mentioned conjectures, they still so far retain their office of conveying sap, as to keep a tree alive, though not to augment it; which may, perhaps, be one different use of those sap-vessels in the wood from those in the bark, the former being sufficient for the continuation of a tree, and the latter serving only for its augmentation. Plin. Hist. Nat. lib. xvii. c. 24. Phil. Transf. N° 43. Hist. Acad. Scien. 1709, and 1711. Plott's Nat. Hist. Oxf. c. vi. § 65.

Mr. Brotherton has given some new experiments, which seem to decide the controversy, and shew, that the bark, is not the vehicle of vegetation: he hacked a crab-tree round with a hatchet, so as, besides cutting off the bark, to cut pretty deep into the wood, for the breadth of about four inches; yet the same year it was observed to increase very considerably in thickness above the said hacking, and to shoot in length of wood about one foot: the next year it also grew considerably, and shot in length five inches; the third year it died to the very root. The like was found in another tree, part of whose bark was eat off by the canker: the lower part stood without increase, and by degrees the wood rotted: the upper part increased to the third year, and then died also.

The same author found, that, in the branches of Scotch fir, the joints above the rings barked would grow much bigger in three years, than in five if the rings were not cut off. A ring of bark three inches broad being cut off a Scotch fir, near the bottom of the stem, below the uppermost knot or joint, was found to grow and shoot out at its top half a yard, and all the parts above the ring to increase in thickness the same year, much more than they would have done, had not the section been made; but all the part of the stem between the ring and the next knot below it grew not at all: the part below the ring next under that increased somewhat, though less than it would have done, if the bark had not been cut off. The second year the increase was also considerable; but the third it died. Phil. Transf. N° 187.

M. Magnol mentions an olive-tree, from which a circular ring of bark, being cut away, the tree that year bore, above the place of incision, double the quantity of flowers and fruit which it used to bear. Mr. Reneaume relates a fact near a-kin to this. In the country about Aix and Marseilles, when an olive-tree grows old, and almost ready for felling, they have a method of making it first yield all the fruit which it is capable of producing, by cutting a circular ring of bark, an inch broad, from one of its young branches, and in its place putting an equal ring of bark taken from the branch of a young bearing olive-tree; the effect of this engraftment is, that the branches of the old tree bear plentifully the ensuing year and those of the young one die away. Hist. Acad. Sc. 1711.

From the whole, Mr. Brotherton concludes, that the sap, most of it, if not all, ascends in the vessels of the woody part, and not by the bark, nor between the bark and the wood. Phil. Transf. N° 187. p. 312.

Mr. Leewenhoeck, on the other hand, has given several experiments and observations with the microscope to shew, that the bark of trees is produced from the wood, and not the wood from the bark. Philos. Transact. N° 202.

It is very remarkable, that trees stripped in the time of the sap, and suffered to die, afford timber heavier, made uniformly dense, stronger, and fitter for service, than if the tree had been cut down in its healthy state. Something of a like nature has been observed by Vitruvius and Evelyn. Mem. Acad. Scienc. 1738.

As animals are furnished with a *panniculus adiposus*, usually replete with fat, which invests and covers all the fleshy parts, and screens them from external cold, plants are encompassed with a bark replete with fatty juices, by means whereof the cold is kept out, and, in winter-time, the *spiculae* of ice prevented from fixing and freezing the juices in the vessels: whence it is, that some sort of trees remain ever green the year round; because their barks contain more oil than can be spent and exhaled by the sun, &c. Ray's Wild. of God, &c. part i. p. 103.

Boerhaave mentions eight different species of juices lodged in the bark, viz. the watery sap or chyle, an oil, balsm pitch, resin, colophony, gum, and gummous resin.

The bark has its peculiar diseases, and is infected with insects peculiar to it. Mofs is a disease of the bark. Wounds of the bark often prove mortal. See CANKER.

Of the bark of willows and linden trees is ordinarily made a kind of ropes. The Siamese make their cordage of the bark of the cocoa tree, which is also the case in most of the Asiatic and African nations. In reality, flax and hemp, with all their toughness, are only the sap-vessels, or ligenous fibres of the bark of those plants.

There are a great many kinds of barks in use in the several arts: some in *Medicine*, as the *QUINQUINA*, or *JESUIT'S bark*, *macer*, *chacarilla*, &c. others in *Dying*, as the bark of the alder; others in *Spicery*, as *CINNAMON*, *caссия lignea*, &c. the bark of oak in *Tanning*; others on other occasions, as *cork*; that of a kind of birch is used by the Indians for canoes capable of holding twenty-four persons.

The ancients wrote their books on barks, especially those of the ash, and *tilia* or lime-tree; not on the exterior or outer bark, but on the inner and finer, called *philyra*; which are of so durable a texture, that there are manuscripts on it, still extant, a thousand years old.

In the East Indies they manufacture the barks of a certain tree into a kind of stuff or cloth. It is spun and dressed much after the manner of hemp. The long filaments separated from it, upon beating and steeping it in water, compose a thread, of a middle kind between silk and common thread; neither so soft nor bright as silk, nor so hard or flat as hemp. See Neuman's Works, p. 428. note.

Some of these stuffs are pure bark, and are called *pinasses*, *biambonnes*, &c. In others they mix silk with the bark, and call them *ginghams* and *nillas*: the *fountalungees* too are part silk, part bark, and are only distinguished by being striped.

Bark also makes a good manure, especially that of oak, which is rich in salt; but the better sort is reserved for tanning.

BARK, Indian, *Thuris cortex*, a medicinal bark, brought from the East, rolled up like cinnamon, of a rusty colour, a warm aromatic, bitter taste, and pleasant smell; sometimes used in fumigation against fits of the mother.

BARK-mills, see **MILL**.

BARK, grafting in, see **ENGRAFTING**.

BARK, in Navigation, denotes a little vessel for the sea, usually with pointed or triangular sails, in number two, or three at the most. The term is usually appropriated by seamen to those small ships which carry three masts without a mizen top-sail. Our northern mariners in the coal-trade, apply the term to a broad-sterned ship, which carries no ornamental figure on the stem or prow.

The word is derived by some from the Latin *barca*; Fournier, from *Barce*, a city in Africa; and Toletanus, from *Barcelona*.

Some authors use the word *bark* for any vessel that has no masts.—Of barks, there are various kinds: as;

<i>A bilander,</i>	<i>A skuit,</i>
<i>A saik</i>	<i>A snaul,</i>
<i>A sette,</i>	<i>A jnouke.</i>

BARK, armed, a kind of fire-ship filled with soldiers, used both for making sallies, and to attack galleries, and bar the passage over them.

BARK, long, is a small vessel without deck, longer and lower than the common barks, being sharp before, and commonly

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commonly going both with sails and oars. It is built after the manner of a sloop, and in many places is called a *double sloop*.

BARKS, water, are little vessels used in Holland for the carriage of fresh-water to places where it is wanting, as well as for the fetching sea-water to make salt of. They have a deck, and are filled with water up to the deck.

BARK-binding, a distemper incident to trees, cured by flitting the *bark*, or cutting it along the grain, viz. in apple-trees by cutting straight down.

BARK-galling, is when trees are galled by thorns, or by being bound to stakes, &c. It is cured by clay laid on the galled place, and bound on with hay.

BARKARY denotes a tan-house, or place to keep *bark* in, especially for tanners.

It is otherwise called a *heath-house* in old writers.

BARKING of trees is the peeling off or stripping the bark from the wood.

The month of May is the season for *barking of trees*, because then the sap loosens the bark from the wood; which it is very hard to effect in any other time, unless the season be very wet; heat and dryness being always opposite thereto.

Maliciously *barking* of apple-trees, or other fruit-trees, is made felony by 37 Hen. VIII. c. 6.

By the French laws, all dealers are forbid to *bark* their wood while growing, on the penalty of 500 livres.

This law was the result of ignorance; it being now found, that *barking* of trees, and letting them die, increases the force of timber.

BARKING is also a name given to the cry of dogs and foxes.

The term is also applied to certain quaint noises, made by sick persons in some diseases.

In cynic spasms, and epileptic fits, the patient sometimes snarls, howls, and *barks*, with all the notes of a dog. But it is in the *hydrophobia* that barking has been oftenest observed: persons seized with this, are apt to rave, bite, snarl, and make a harsh noise in their throats, which is called *barking*.—Vide Phil. Trans. N° 280. N° 323. N° 207. and N° 242.

BARLAAMITES, in *Church History*, the followers of a Calabrian monk, afterwards bishop of Emont, the great opponent of Greg. Palama and the Hesychastæ. Fabr. Bib. Græc.

The *Barlaamites* are the same with those otherwise denominated *Acindynites*.

BARLERIA, in *Botany*, a genus of plants, of the *didynamia angiospermia* class; called by the inhabitants of Jamaica, *snap-dragon*. The characters are, that the flower is nearly of the lip-kind, of one leaf, funnel-shaped, and divided into five parts at the top; that it hath four slender *stamina*, two short, and two longer; that an oval *germen* is placed in the centre, which afterwards becomes an oblong membranaceous vessel, with two cells, which is very elastic, containing two roundish compressed seeds. There are four species.

BARLEY, in *Botany*, a gramineous, frumentaceous herb, whose seeds are of the larger sort, being covered with a husk, growing in a spike, and the grains bearded.

Barley, through neglect and poverty, is said to degenerate into oats and darnel. Dr. Plott speaks of *barley* and rye growing in the same ear alternately.

The principal use of *barley* among us is for making beer, in order to which it is first malted.

Barley has also its medicinal virtues, in which it resembles oats: the wort of malt is an excellent antiscorbutic.

All the sorts of *barley* are sown in the spring of the year, in dry weather; in some very dry light land, it is sown early in March, but in strong clayey soils, it is not sown till April, and sometimes not until the beginning of May; but when it is sown so late, if the season does not prove favourable, it is very late in autumn before it is fit to mow; unless it be the rath ripe sort, which is often ripe in nine weeks from the time of sowing. Some have steeped the seed, before it is sown.

Some people sow *barley* upon land where wheat grew the former year; but where this is practised, the ground should be plowed the beginning of October in a dry time, laying it in small ridges, that the frost may mellow it the better; which will improve the land greatly: and if it can be ploughed again in January, or the beginning of February, it will break and prepare the ground better. In March it should be ploughed again deeper, and be laid even where it is not very wet: but in strong wet land the ground should be laid round and the furrows be made deep to receive the wet. When this is finished, the common method is to sow the *barley*-seed with a broad cast at two sowings, the first being harrowed in once, the

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second is harrowed until the seed be buried. The common allowance of seed is four bushels to an acre.

After the *barley* is sown and harrowed in, the ground should be rolled after the first shower of rain, to break the clods and lay the earth smooth; which will render it better to mow the *barley*, and also cause the earth to lie closer to the roots of the corn, which will be of great service to it in dry weather.

Where *barley* is sown upon new broken up land, the usual method is to plough up the land in March, and let it lie fallow until June, at which time it is ploughed again, and sown with turneps, which are eaten by sheep in winter, by whose dung the land is greatly improved; and then in March following the ground is ploughed again, and sown with *barley* as before.

There are many people who sow clover with their *barley*; and some have sown lucern with it; but neither of these methods is to be commended: for where there is a good crop of *barley*, the clover or lucern will be so weak as not to pay for standing. The better way is to sow the *barley* alone, and then the land will be at liberty for any other crop when the *barley* is taken off the ground. The clover has been sometimes sown a month after the *barley*, and found to answer very well.

When the *barley* has been up three weeks or a month, it will be a very good method to roll it with a heavy roller, which will press the earth close to the roots, and keep the sun from penetrating the ground in dry seasons: and this rolling it before it stalks will cause it to send out a greater number of stalks; so that if the plants should be thin, this will cause them to spread so as to fill the ground, and likewise strengthen the stalks.

The time for cutting of *barley* is when the red colour of the ears is off, when the straw turns yellow, and when the ears begin to hang down. In the north of England they always reap their *barley*, and make it up into sheaves, as is practised here for wheat; by which method they do not lose near so much corn, and it is also more convenient for stacking; but this method cannot be so well practised where there are many weeds among the corn, which is too frequently the case in the rich lands near London, especially in moist seasons. Therefore when this is the case, the *barley* must lie on the sward until the weeds are dead, but as it is apt to sprout in wet weather, it must be shook up and turned every fair day after rain to prevent it. When it is carried it should be thoroughly dry, for if it be stacked wet, it will turn musty; and if too green, it is subject to burn in the mow.

The common produce of *barley* is two and a half, or three quarters, on an acre; but a much greater produce is sometimes found. Laws relating to *barley*, see HORDEUM.

PEARL BARLEY, and French **BARLEY**; these are *barley* freed of the husk by a mill: the distinction between the two being, that the *pearl barley* is reduced to the size of small shot, all but the very heart of the grain being ground away.

BARLEY-water is a decoction of either of these, reputed soft and lubricating, of frequent use in physic.

This well known decoction is a very useful drink in many disorders; and is recommended, with nitre, by some authors of reputation, in slow fevers.

There is a dissertation of Hoffman's *De cura avenacea*.

BARLEY corn is used to denote a long measure, containing in length the third part of an inch, and in breadth the eighth.

The French carpenters also use *barley-corn*, *grain d'orge*, as equivalent to the line, or the twelfth part of an inch.

BARLEY-corn, *grain d'orge*, is also used, in *Building*, for a little cavity between the mouldings of joiners work, serving to separate or keep them asunder; thus called because made with a kind of plane of the same name.

BARLEY-sugar, see SUGAR.

BARM, otherwise called **YEAST**; the head or workings producing by the fermentation of ale or beer. It is the froth that forms on the surface of beer or wine of grains during their fermentation; which, mixing with dough, raises it more quickly and better than **LEAVEN**, and makes the lightest bread.

BARMINE denotes such mine or ore as is adjudged at a COURT of BARGHMOTE.

BARN, in *Husbandry*, a covered place or house, with air-holes in the sides, for laying up any sort of grain, hay, or straw.

BARNABITES, an order of religious, thus called from the church of St. Barnabas at Milan, where they were first established: and not, as some have imagined, because St. Barnabas was their patron: in reality, St. Paul is the patron of the *Barnabites*.

The *Barnabites* are regular priests of the congregation of St. Paul. Their habit is black, and the same with what they

they wore when first established, in 1533, by the express bulls of pope Clement VII. and afterwards confirmed by Paul. III. Their office is to instruct, catechize, and serve in mission.

BARNACLE, in *Natural History*, a bird of the goose kind, frequent in the Western isles of Scotland; concerning whose origin and species many fables have been advanced.

The word is also written *bernacle*, agreeably to its supposed etymon, from the Saxon, *bearn*, a child.

Several authors have represented the *barnacle* as the produce of a marine animal, or shell-fish: but the latter naturalists, on better grounds, refer it to the natural manner of generation of the feathered kind: making it a real goose, produced like others *ab ovo*. See a description and draught of it in Sir Rob. Sibbald's Nat. Hist. Scot.

The *barnacle* is the same with what is otherwise called the *Soland goose*, in Latin *anser Scoticus*; some will have it the same with the French *macreuse*, or *macrout*; and others with the *diable de mer*, but erroneously: Dr. Robinson assigns the difference, making the *barnacle* to be of the goose, the *macreuse* of the duck, and the *diable de mer* of the moor-hen kind.—The same author shews, that the *macreuse* is no other than the *scoter*, or *anas niger minor*, described by Mr. Ray and Mr. Willughby, contrary to the opinion of Mr. Cattier, who took it for the greater *coot* of Bellonius; and also of others, who mistook it for the *puffin* of the Scillies, and Isle of Man; and of others, with whom it passed for a sort of *columbus*, or *doucker*. See Ray Syn. Meth. Avium. p. 141.

BARNACLE is also a name given to a kind of shell-fish, which is found cleaving to the bottoms and sides of ships in certain seas; sometimes also to the fins and tails of whales, and the like.

In this sense, *barnacle* is the same with what is called by sailors *clam*; by naturalists, *concha anatifera*.

There are divers species of shell-fishes included under the denomination *barnacles*: some reduce them to two, viz. the *balanus* and *pinna marina*.

See an account of several rare species of *barnacles*, by John Ellis, Esq. Phil. Transf. vol. I. part ii. N^o 113.

BARNACLES, in *Farriery*, also denote an instrument which farriers apply to horses' noses, when they will not stand quietly to be shod, blooded, dressed, or the like. They are also called *horse-twitchers*, or *brakes*.

Barnacles differ from pinchers, as the latter have handles whereby to hold them; whereas the former are fastened to the nose with a lace or cord.

There is another meaner sort of *barnacles*, used in defect of the former, called *roller barnacles*, or *wood twitchers*, which are only two rollers of wood bound together, with the horse's nose between them.

BARNFIARD, in *Ornithology*, the name of a bird usually seen at sea, and looked on as a foreteller of bad weather. It is about the size of a sparrow, its neck and back are black, and its breast and belly grey; its feet are red, and its bill black and somewhat broad. It skims very nimbly along the surface of the water.

BAROCO, in *Logic*, denotes the fourth mode of the second figure of syllogisms.

A syllogism in *baroco* has the first proposition universal and affirmative, but the second and third particular and negative; and the middle term, the attribute in the two first.

—For example:

BA	Every virtue is attended with discretion:
RO	Some kinds of zeal are not attended with discretion:
CO	Therefore some kinds of zeal are not virtues.
BAR	Nullus homo non est bipes:
OC	Non omne animal est bipes:
O	Non omne animal est homo.

BAROMETER, a machine for measuring the weight of the atmosphere, and the variations therein, in order chiefly to determine the changes of weather and the heights of mountains, &c. to which use it was first applied by M. Pascal, in less than four years after the invention of it.

The word is compounded of *βαρος*, weight, and *μετρον*, measure.

The *barometer* is frequently confounded with the *baroscope*, though somewhat improperly; the latter, in strictness, being a machine that barely shews an alteration in the weight of the atmosphere: but it is one thing to know that the air is heavier at one time than another, and another to measure how much that difference is: which is the business of the *barometer*.

The *barometer* is founded on the Torricellian experiment, as it is called from its inventor TORRICELLI, in 1643: which is no more than a glass tube filled with mercury,

hermetically sealed at one end; the other open and immersed in a basin of stagnant mercury. Now, as the weight of the atmosphere diminishes, the mercury in the tube will here descend; on the contrary, as it increases, the mercury will again ascend: the column of mercury suspended in the tube being always equal to the weight of the incumbent atmosphere.

BAROMETER, common, the construction of it.—A glass tube A B Tab. Pneumatics, fig. 1.) hermetically sealed in A, having its diameter about one tenth of an inch, and its length, at least, thirty-one inches, is filled with mercury so justly, as not to have any air over it, nor any bubbles adhering to the sides of the tube; which is best done by means of a glass funnel, with a capillary tube. If a small bubble of air be moved backwards and forwards in the tube, it will help to clear the mercury, which will appear, when pure, like a polished rod of steel. The orifice of the tube, filled after this manner, so as to overflow, is then closely pressed by the finger, so as to exclude any air between it and the mercury, and thus immersed in a vessel, of a convenient diameter, so, however, as not to touch the bottom: at the distance of twenty-eight inches from the surface of the mercury are fixed two plates, CE, and DF, divided into three inches, and these again subdivided into any number of small parts. Lastly, the tube is inclosed in a wooden frame, to prevent its being broken; the basin, though open to the air, secured, from dust; and the *barometer* is complete.

As the common *barometer* is the best, and most to be depended upon in accurate observations, it may be proper to add some directions for preparing it; they are collected from the publications of Muschenbroek, Desaguliers, and De Luc on this subject. It appears from many experiments, that the mercury stands higher in tubes of a larger, than in those of a narrower bore; and therefore when observations are made with different *barometers*, some regard should be paid to the difference of their diameters, and it would be desirable to have them constructed of tubes of the same diameter. The bore of the tube should be large, in order to prevent the effects of the attraction of cohesion; not less than one fourth of an inch; but if they are one third of an inch diameter, they are better. If a cistern be used as a reservoir for the stagnant mercury, it should be large in proportion to the diameter of the tube, at least ten times greater. The tube should be preserved free from dust till it is used; and for this purpose it may be hermetically sealed at both ends, and one end may be opened with a file, when it is filled. If this precaution has not been observed, the inside should be well cleansed, by washing it with alcohol highly rectified, and rubbing it with a little piston of shammy leather fastened to a wire. The mercury should be pure; and may be purged of its air, by previously boiling it in a glazed earthen pipkin covered close; and when the tube has been uniformly heated and rendered electrical by rubbing it, the hot mercury should be poured into it in a regular current, through a glass funnel with a long capillary tube, so that the air may not have room to pass between the parts of the quicksilver. M. de Luc directs, as Mr. Orme had practised many years ago in the construction of his improved *diagonal barometers*, that the mercury should be boiled in the tube, as the most effectual method of purging it of its air and moisture. The process is briefly this: he chooses a tube of $2\frac{1}{2}$ lines or 3 lines bore, and not exceeding half a line in thickness; he fills it with mercury within two inches of the top, and holds it with the sealed end lowest in an inclined position over a chafing-dish of burning charcoal, presenting first the sealed end to the fire, and moving it obliquely over the chafing-dish. As the mercury is heated, the air-bubbles appear like so many studs on the inner surface of the tube, and gradually running into one another, ascend towards the higher parts of the tube, and at length escape. The mercury is hereby freed from all the heterogeneous particles contained in it, together with their surrounding atmospheres, and the air which lines the inside of the tube, which cannot be easily expelled in any other way, is discharged; when this last mentioned stratum of air is thus expelled, the tube may be afterwards emptied, and filled even with cold mercury, and will be found nearly as free from air as before. The mercury in the tubes thus prepared by a determinate quantity of heat, will rise higher than in those of the common sort, and the *barometers* will more nearly correspond with each other; whereas there will be a difference of six or eight lines in the ascent of the mercury in common *barometers*.

Barometers of this kind rose uniformly in a heated room; whilst the mercury in those that had been prepared in the common way descended, and in different proportions. When the room cooled, the former descended uniformly, and corresponded with each other; the latter rose with

the same irregularity with which they had before descended, nor were they found, at the close of the experiment, to stand at the same relative heights as they did at the beginning of it. The reason of which is obvious, from the effects of heat on the air remaining in unequal quantities in the tubes in the one case, and on the purer mercury in the other.

Mr. De Luc has also contrived to estimate the effects of heat on the quicksilver in the *barometer*, when it is used for accurate observations, by means of a thermometer; the scale of which is divided in such a manner as to indicate, with little labour of calculation, the correction to be made on account of heat. As an increase of heat that is sufficient to raise the mercury in the thermometer from the freezing to the boiling point, will lengthen the column of mercury in the *barometer* six lines, he divides each line in the scale of the *barometer* into four parts, each of which may be easily subdivided into four lesser parts, or sixteenths of a line. The scale of the thermometer marking the interval between the freezing and boiling points, and answering to the six lines of the *barometer*, is divided into ninety-six equal parts; each of which will correspond to the sixteenth of a line in the motion of the mercury in the *barometer* dilated by heat. M. De Luc prepared two *barometers* with their respective thermometers graduated in the manner above explained; he placed one pair in the cellar of one house, and the other pair in the upper room of another house in a lower situation, so as to be exactly on a level with the cellar; he found that the thermometer in the room rose nine degrees, and the *barometer* $\frac{1}{16}$ of a line higher than those in the cellar; whence he thence, that, without allowing for the effect of heat, the difference in the heights of these two *barometers* would have indicated a difference of about 45 feet in the heights of these two places, though they were exactly on the same level. See ATMOSPHERE.

M. Prins, an artist in Holland, has made an improvement in the reservoir of the simple *barometer*, by means of which, the mercury contained in it is constantly kept at the same level; but the construction is difficult, and therefore it has not been generally adopted. De Luc's *Recherches*, &c. vol. i. p. 35.

The *barometer* has been rendered more convenient for carriage, and less expensive, by bending the lower end of the tube in form of a syphon, and leaving the mercury in the recurved part open to the pressure of the atmosphere: and *barometers* of this construction are preferred by M. De Luc, as being the most favourable for indicating the real weight of the atmosphere, and corresponding invariably with each other. But he acknowledges, that this is not so convenient for a stationary *barometer*, and for the common purposes of a weather-glass. The scale is hereby diminished one half, and therefore this part was afterwards made considerably larger in diameter than the tube, so that the variations in the tube might be attended with no sensible variations in this part.

Many attempts have been made to render the changes in the *barometer* more sensible, and so to measure the atmosphere more accurately; which has given rise to a great number of *barometers* of different structures.—Hence the *wheel barometer*, *diagonal barometer*, *horizontal barometer*, *pendant barometer*, &c.

Des Cartes suggested the first method of increasing the sensibility of the *barometer*, though he did not live to execute it. He proposed a tube AB (fig. 2.) about twenty-seven inches long, terminating in a cylindric vessel CD: one half of which vessel, connected above with a long tube of a very small bore, sealed at top, and exhausted of its air, was to be filled with water extending up into the small tube; the other part of the vessel, and the lower part of the tube, were to be filled with mercury. Whenever the mercury rose in the cylinder, it would force up a proportional quantity of water into the narrow tube, where it would have a considerably larger range than that of the mercury in the cylinder: neglecting the weight of pressure of the water, the motion of the water and of the mercury would be in the inverse ratio of the squares of the diameters of the vessels containing them. But the water presses on the mercury according to its height; and therefore if the whole range of the mercury in the cylinder, or in a common *barometer*, were supposed to be two inches, the specific gravity of water to that of mercury as 1 to 14, and the difference between the diameters of the cylinder and tube a *maximum* or infinite, then the entire scale of variation in this instrument would be twenty-eight inches; or the extent of this scale would be to that of the common *barometer* in the inverse ratio of the specific gravity of water to that of mercury. It is evident that, in practice, it would be somewhat less than twenty-eight inches. Huygens constructed a *barometer* of this kind.

But here, though the column suspended was larger, and consequently the variation greater, yet the air imprisoned in the water getting loose by degrees, filled the void space in the top, and so ruined the machine.

Huygens then bethought himself of placing the mercury at top, and the water at bottom, in the manner following: ADG (fig. 3.) is a bent tube hermetically sealed in A, and open in G; the cylindric vessels BC and FE are equal, and about twenty-nine inches apart; the diameter of the tube is about a line, that of each vessel fifteen lines, and the depth of the vessels is about ten; the tube is filled with mercury (the common *barometer* standing about twenty-nine inches) which will be suspended between the middle of the vessel FE, and that of the vessel BC; the remaining space to A being void both of mercury and air; lastly, common water, tinged with a sixth part of *aqua regis* to prevent its freezing, is poured into the tube FG till it rises a foot above the mercury in DF.

When the mercury rising above the level of that contained in FE, through the tube AD, becomes a balance to the weight of the atmosphere: as the atmosphere increases, the column of mercury will increase, consequently the water will descend; as the atmosphere again grows lighter, the column of mercury will descend, and the water ascend. This *barometer*, therefore, which is nearly the same with that of Dr. Hooke, will discover much minuter alterations in the air than the common one: for, instead of two inches, the fluid will here vary two feet; and by enlarging the diameters of the cylinders, that variation may be still increased: but it has this inconvenience, that the water will evaporate, and so render the alterations precarious; though the evaporations be, in some measure, prevented by a drop of oil of sweet almonds swimming at top: the column of water will likewise be sensibly affected by heat and cold.—On account of these and such defects, others have had recourse to a

BAROMETER, *horizontal*, or *rectangular*, ABCD; (fig. 4.), the tube whereof is bent in form of a square BCD; at top of its perpendicular leg it is joined to a vessel or cistern AB; and its variations accounted on the horizontal leg CD

Now here the interval, or space of variation, may be made of any extent at pleasure, and so the minutest change in the air become sensible. For the diameter of the tube CD being given, it is easy to find the diameter of the vessel AB, so as that the scale of descent in the tube DC shall have any given proportion to the scale of ascent in the vessel AB; the rule being, that the diameter of the vessel is to that of the tube in a subduplicate reciprocal ratio of their scales.

The diameters then of CD and AB being given, together with the scale of ascent of the mercury in the vessel, the scale of mercury in the tube is found thus: as the square of the diameter of the tube is to the square of the diameter of the vessel, so, reciprocally, is the scale of mercury in the vessel, to the scale of mercury in the tube.

Cassini was the first inventor of this kind of *barometer*, though the same construction has been thought of, and first published by M. J. Bernoulli, in the year, 1710.

This and the preceding contrivance of Huygens are founded on a theorem in hydrostatics; viz. that fluids, having the same base, gravitate according to their perpendicular altitude, not according to the quantity of their matter; whence the same weight of the atmosphere supports the quicksilver that fills the tube ACD, and the cistern B, as would support the mercury in the tube alone.

This last, however, with its excellencies, has great defects: for, by reason of the attraction between the parts of the glass and of the mercury (which Dr. Jurin has shewn to be considerable), with the length of the scale (consequently the quantity of motion,) and the attrition against its sides, especially in sudden rises and descents, the mercury breaks, some parts of it are left behind, and the equability of its rise and fall ruined.—Some therefore prefer the

BAROMETER, *diagonal*, of sir Samuel Moreland, where the space of variation is considerably larger than in the common one, and yet the rise and fall more regular than in the others.—Its foundation is this; that in a Torricellian tube BC (fig. 5.) inclined at any angle to the horizon, the cylinder of mercury equivalent to the weight of the atmosphere, is to a cylinder of mercury equivalent to the same in a vertical tube, as the length of the tube BC to the perpendicular height DC.

Hence, if the height DC be subtriple, subquadruple, &c. of the length of the tube, the changes in the diagonal *barometer* will be triple or quadruple, &c. of the changes in the common *barometer*. This *barometer* will scarce allow its tube to be inclined to the horizon at a

less angle than 45° , without undergoing the inconvenience of the horizontal one.

Mr. Ormè, in order to obviate some of the objections to which the *diagonal* construction of the *barometer* is liable, purified the quicksilver from its dross and earthy particles by distillation; and when the tube was filled with a certain quantity of mercury, discharged the remaining air by an intense heat sufficient to make the mercury boil; and he continued this operation for four hours. In the process, an innumerable quantity of small particles were emitted, and when no more bubbles rose in the tube, the mercury appeared extremely bright, but sunk lower in the tube than when it was first put in, by two inches. Phil. Trans. abr. vol. viii. p. 455.

BAROMETER, wheel. This was a contrivance of Dr. Hook, in 1668, to make the alterations in the air more sensible; the foundation of this is the *common vertical barometer*, with the addition of a couple of weights A and B (fig. 5.) hanging in a pulley, the one of them playing at liberty in the air, the other resting on the surface of the mercury in the tube, and rising and falling with it.

Thus is the motion of the mercury communicated, by means of the pulley, to an index which turns round a graduated circle; and thus the three inches of vertical ascent are here improved to five, or six, or more, at pleasure.

But the friction of the parts, in the pulley and index, is so considerable, that unless the machine be made with a great deal of accuracy, it does not answer.

An instrument of this kind, with considerable improvements, has been constructed by Mr. Fitzgerald, F. R. S. It is furnished with two pulleys that move on friction-wheels; each of which turns an index on the centre of a graduated circle. The smaller circle is four inches in diameter, and divided into three equal parts, each of which is again subdivided decimally; and the changes corresponding to the rise or fall of the mercury from 28 to 31 inches, are marked on the margin of it, as they are on the scales of common *barometers*. The larger circle is divided into 300 equal parts; and being about 30 inches in circumference, the index belonging to it will mark distinctly the 600th part of an inch in the rise or fall of the mercury. On the centre of this circle two registers are fixed, which are placed along the index when the instrument is adjusted; one of them is carried round with the index, and left behind on its return; so that their distance will determine the limits of the variation from one observation to another. Phil. Trans. vol. lii. part i. N^o 29. Ibid. vol. ix. N^o 10.

BAROMETER, pendant, invented by M. Amontons, in 1695, is a machine rather pretty and curious, than useful. It consists of a conical tube, placed vertically, its upper and smaller extreme hermetically sealed; it has no vessel or cistern, its conical figure supplying that defect: for when filled, like the rest, there will be as much mercury sustained as is equivalent to the weight of the atmosphere; and as that varies, the same mercury takes up a different part of the tube, and so becomes of a different weight.

Thus, when the weight of the atmosphere is increased, the mercury is driven up into a narrower part of the tube; by which means its column is lengthened, and, for the reason just given, its weight increased. Again, the atmosphere decreasing, the mercury sinks into a wider part of the tube; by which means its column is again shortened, and its pressure accordingly weakened. Thus, the same mercury is still a balance to the atmosphere under all its variations.

The inconvenience in this *barometer* is, that to prevent the mercury and air from changing places, the bore of the tube must be very small; which smallness of the bore renders the friction so sensible, as to impede its playing.

BAROMETER, marine, is likewise a contrivance of Dr. Hook, in 1700, to be used at sea, where the motion of the waves renders the others impracticable. It is nothing more than a double thermometer, or a couple of tubes half filled with spirit of wine; the one hermetically sealed at both ends, with a quantity of common air enclosed; the other sealed at one end, and open at the other.

Now the air, we know, is able to act on the spirit of wine, and raise it, two ways; the one by its gravity, as in the Torricellian tube; the other by its heat, as in the thermometer. If then the two tubes be graduated, so as to agree with each other at the time when the air is enclosed, it will easily follow, that, wherever the two agree afterwards, the pressure of the atmosphere is the same as at the time when the air was inclosed. If in the thermometer open to the air the liquor stand higher, considering withal how much the other is risen or fallen from the other cause of heat or cold, the air is heavier; on the

contrary, when it is lower, compared with the other, the air is lighter than at the time when the instrument was graduated.

Here the spaces answering to an inch of mercury will be greater or less, according to the quantity of the air enclosed, and the smallness of the tubes; and they may be increased, almost, in any proportion.

But it must be remembered, that the density and rarity of the air, on which this machine is founded, do not only depend on the weight of the atmosphere, but also on the action of heat and cold.—This, therefore, can never be a just *barometer*; but may properly enough be called a *manoscope*, or instrument to shew the density of the air. See MANOMETER.

Nevertheless, the instrument is said to be of good use in giving notice of all bad weather at sea, as also of veerable winds, and of the neighbourhood of ice. Phil. Trans. N^o 429. p. 133.

Mr. Nairne, an ingenious artist in London, constructed a *marine barometer* for capt. Phipps, in his voyage to the north pole; the upper part of which was a glass tube about three tenths of an inch in diameter, and four inches long, to which another glass tube was joined with a bore about $\frac{1}{4}$ th of an inch diameter. These two glass tubes formed the tube of this *barometer*, which was filled with mercury, and inverted into a cistern of the same. The instrument was fixed in gimbals, and kept in a perpendicular position by a weight fastened to the bottom of it, and was not liable to the inconvenience attending the common *barometer* at sea. Voyage to the North Pole, p. 123.

M. Paffement, another ingenious artist at Paris, accommodates the *barometer* to nautical uses, by twisting the middle part of the common *barometer* into a spiral, consisting of two revolutions; by this contrivance, the impulses which the mercury receives from the motions of the ship, are destroyed by being transmitted in contrary directions. De Luc's Recherches, &c. vol. i. p. 34.

BAROMETER, statical, or BAROSCOPE, used by Mr. Boyle, Otto de Gueric, &c. is fallacious, and liable to be acted on by a double cause: it consists of a large glass bubble, balanced by a brass weight, in a nice pair of scales: for these two bodies being of equal gravity, but unequal bulk, if the medium in which they equiponderate be changed, there will follow a change of their weight; so that if the air grows heavier, the greater body, being lighter in specie, will lose more of its weight than the lesser and more compact; but if the medium grow lighter, then the bigger body will outweigh the less. See Collect. Acad. P. Etr. tom. ii. p. 41.

The most accurate *barometer* yet invented, seems to be that of Mr. Caswell; the structure whereof he describes as follows: suppose A B C D (fig. 6.) a bucket of water, wherein is the *barometer x r e z y o s m*, consisting of a body *x r s m*, and a tube *e z y o*. The body and tube are both concave cylinders, communicating with each other, made of tin, or rather glass. The bottom of the tube, z, y, has a lead weight to sink it, so that the top of the body may just swim even with the surface of the water, by the addition of some grain weights at the top. The water, when the instrument is forced with its mouth downwards, gets up into the tube to the height y o. There is added on the top a small concave cylinder, which we call the *pipe*, to distinguish it from the other at bottom, which we call the *tube*: this pipe is to sustain the instrument from sinking to the bottom, m d is a wire, m S and d e two threads oblique to the surface of the water, performing the office of diagonals. Now, while the instrument sinks more or less, by the alteration of the gravity of the air; there, where the surface of the water cuts the thread, is formed a small bubble, which ascends up the thread, as the mercury of the common *barometer* ascends, and *vice versa*.

This instrument, as appears from a calculation which the author gives, shews the alterations in the air more accurately than the common *barometer*, by no less than 1200 times. He observes, that the bubble is seldom known to stand still a minute; that a small blast of wind that cannot be heard in a chamber, will make it sink sensibly; and that a cloud always makes it descend, &c.

Mr. Rowning has contrived a compound *barometer*, in which the scale of variation shall bear any proportion to that of the common one. A B C (Tab. Pneumatic, fig. 7.) is a compound tube hermetically sealed at A, and open at C; empty from A to D, filled with mercury from thence to B, and from thence to E with water. It appears from the nature of a syphon, that if H, B, G be in the same horizontal line, the column of mercury D H will be in equilibrio with the column of water G E, and a column of air of the same base, and will therefore vary with the sum of the variations of

these. He has subjoined a calculation, whence it appears, that if the tubes A F and F C are of an equal bore, the variation in this is less than that of the common *barometer* in the proportion of 7 to 13; but if the diameter of A F be that of F C as 5 to 1, the variations will be to those in the common *barometer* as 175 to 1, but if the proportion of the diameters be greater, the variations will be infinite in respect to those of the common *barometer*. Rowning's Nat. Phil. part ii. diff. 4.

Whilst some have endeavoured to enlarge the variations of the *barometer*, others have endeavoured to make it more convenient, by reducing the length of the tube. M. Amontons, in 1688, first proposed this alteration in the structure of *barometers*, by joining several tubes to one another, alternately filled with mercury and with air, or some other fluid; and the number of these tubes may be increased at pleasure: but the contrivance is more ingenious than useful.

M. Mairan's reduced *barometer*, which is only three inches long, serves the purpose of a *manometer* in discovering the dilatations of the air in the receiver of an air-pump; and instruments of this kind are now generally applied to this use. See AIR-pump.

BAROMETER, *portable*, is so contrived, that it may be carried from one place to another without being disordered. The tube is tied up in a leathern bag not quite full of mercury; which being pressed by the air, forces the mercury into the tube, and keeps it suspended at its proper height. This bag is commonly inclosed in a box, through the bottom of which passes a screw: by means of this screw the mercury may be forced up to the top of the tube, and prevented from breaking the tube by dashing against the top of it when the instrument is removed from one station to another. A contrivance of this sort we are indebted for to Mr. Patrick. But the *portable barometer* has received various improvements since: however, the most complete of this kind is described, together with the apparatus belonging to it, the method of construction and use, and the advantages attending it, by M. De Luc, and illustrated by drawings, in his *Recherches*, &c. vol. ii. p. 5, &c.

BAROMETER, *phenomena of*.—The *phenomena* of the *barometer* are various; the causes assigned for them, by several authors, are widely different; nor is its use, in predicting the weather, yet perfectly ascertained. On the top of Snowdon-hill, 1240 yards high, Dr. Halley found the mercury to be lower, by three inches eight tenths, than at the foot thereof; whence it appears, that at every 30 yards the mercury sinks one tenth of an inch. Mr. Derham, from some experiments he made at the top and bottom of the Monument, allows 32 yards perpendicular ascent to a fall of the mercury of one tenth of an inch: whence we have not only a foundation for determining the height of the atmosphere; which, on this foundation (were it equally dense every where), would not be found more than 5 miles and one tenth; but also a very accurate method of measuring the height of mountains. Thus, if on the surface of the earth the mercury be at 30 inches, at 1000 feet high it would be at 28.91 inches; at 2000 feet, 27.86; at 3000, 26.85; at 4000, 25.87; at 5000, 24.93; at 1 mile, 24.67; at 2 miles, 20.29; at 5 miles, 11.28; at 10 miles, 4.24; at 15 miles, 1.60; at 20 miles, 0.95; at 30 miles, 0.08; at 40 miles, 0.012: though it must be observed, this is on a supposition that the ATMOSPHERE is equally heavy every where.

Dr. Nettleton made several experiments in the neighbourhood of Halifax, in order to ascertain the elevations answering to given heights of the *barometer*. The following table shews the result:

	Altitude of γ .		Difference for $\frac{1}{10}$ of an inch.
	Height.	Bottom. Top.	
Tower of Halifax,	102	29.78 - 29.66	0.12 - 85
Coal-mine,	140	29.48 - 29.32	0.16 - 87
Another ditto,	236	29.50 - 29.23	0.27 - 87
A small hill,	312	29.81 - 29.45	0.36 - 86
Halifax hill,	507	30.00 - 29.45	0.55 - 91

Whence by the theorem, demonstrated under the article ATMOSPHERE, viz. that the elevations are as the logarithms of the height of the mercury reciprocally; supposing 30 inches the standard latitude, and 85 feet the elevation, corresponding to one tenth of an inch, he made the following proportion: as the logarithm of $\frac{1}{29.9}$ is to 85, so is the logarithm of $\frac{1}{29.5}$ to the elevation which will make the mercury to fall half an inch; and so for any other. In this way he computed the following tables:

A TABLE shewing the Number of feet ascending, required to make the Mercury fall to any given Height in the Tube from 30 to 26 Inches. As also the Number of Feet descending, required to make the Mercury rise from 30 to 31 Inches.

Inches.	Dec.	Feet.	Dec.	Feet.
31.0	84.79	28.4	1305.2	
30.9	752.53	28.	1485.13	
30.8	670.01	28.	1575.26	
30.7	587.21	27.1	1665.70	
30.6	504.15	28.0	1756.47	
30.5	420.82	27.9	1847.55	
30.4	337.21	27.8	1938.97	
30.3	253.32	27.7	2030.72	
30.2	169.10	27.6	2122.80	
30.1	84.72	27.5	2215.21	
30.0	00.00	27.4	2307.95	
29.9	85.00	27.3	2401.02	
29.8	170.29	27.2	2494.44	
29.7	255.87	27.1	2588.20	
29.6	341.73	27.0	2682.33	
29.5	427.89	26.9	2776.80	
29.4	514.34	26.8	2871.62	
29.3	601.08	26.7	2966.79	
29.2	688.11	26.6	3062.32	
29.1	775.14	26.5	3158.21	
29.0	862.08	26.4	3254.46	
28.9	951.01	26.3	3351.07	
28.8	1039.25	26.2	3448.05	
28.7	1127.80	26.1	3545.41	
28.6	1216.66	26.0	3643.14	
28.5	1305.83			

A TABLE shewing the Number of Feet required to make the Mercury fall one tenth of an Inch from any given Height in the Tube from 31 to 26 Inches.

Inches.	Dec.	Feet.	Dec.	Feet.
31.0	82.26	28.5	89.49	
30.9	82.53	28.4	89.81	
30.8	82.79	28.3	90.13	
30.	83.06	28.2	90.45	
30.6	83.33	28.1	90.76	
30.5	83.61	28.0	91.09	
30.4	83.89	27.9	91.42	
30.3	84.16	27.8	91.75	
30.2	84.44	27.7	92.08	
30.1	84.72	27.6	92.41	
30.0	85.0	27.5	92.74	
29.9	85.29	27.4	93.07	
29.8	85.58	27.3	93.41	
29.7	85.86	27.2	93.76	
29.6	86.16	27.1	94.12	
29.5	86.45	27.	94.47	
29.4	86.74	26.9	94.82	
29.3	87.03	26.8	95.17	
29.2	87.33	26.7	95.53	
29.1	87.63	26.6	95.89	
29.0	87.93	26.5	96.25	
28.9	88.24	26.4	96.61	
28.8	88.55	26.3	96.98	
28.7	88.89	26.2	97.36	
28.6	89.17	26.1	97.73	
		26.0	98.10	

M. De Luc has given an historical and critical detail of the various attempts that have been made at different times for applying the motion of the mercury in the *barometer* to the measurement of accessible heights, beginning with the first trials proposed by Pascal and Des Cartes, and concluding with the more accurate experiments of M. Bouguer, and the other French academicians, in Peru. He has added a table, exhibiting in French measure, the heights of the atmosphere corresponding to those of the mercury in the *barometer*, calculated on the principles and rules of Mariotte, Halley, Maraldi, Scheuchzer, J. Cassini, D. Bernouilli, Horrebow, and Bouguer, from 28 inches, the height observed by the French academicians on the sea-shore of Peru, to 15 inches 10 lines, the height of the mercury observed by M. de la Condamine on the top of Coraçon, one of the Cordeliere mountains. The height of this hill above the level of the sea was found by geometrical measure, to be 14820 feet. The *barometrical* height deduced from the principles of Mariotte, is 12087 feet 2 inches; from a rule afterwards proposed by him, 13167 feet 4 inches; from Halley's rule, 14486 feet 1 inch; from Maraldi's, 19491 feet; from the principles of J. Scheuchzer, 12386 feet 5 inches; from the rule of J. Cassini, 16090 feet; from the hypothesis of D. Bernouilli, 16905 feet 3 inches; from Horrebow's rule, 14334 feet 4 inches; and from Bouguer's, 14359 feet 11 inches. De Luc's *Recherches*, &c. vol. i. p. 184.

The greatest height the mercury has been known to stand at in the *barometer*, at London, is 30 inches three eighths, its least 28 inches; its greatest height at the observatory of Paris has been found 28 inches four-tenths, and its least 26 inches four-tenths of the Paris foot, which exceeds the London foot by $\frac{1}{10}$; with these observations agree others, made at Hall, in Saxony, by Wolfius. At Algiers it rises to 30 inches two tenths or three tenths, with a northerly wind, though attended with the greatest rains and tempests. Shaw's Trav. p. 218.

The greatest height observed by Sir George Shuckburgh, Dec. 26th, 1778, in London, was 30.948 inches; and this, he says, is the greatest height, which, as far as he has been able to collect, it has ever been seen to stand at in any country, where observations have been made and recorded since the first invention of this instrument. Phil. Transf. vol. lxxix. part ii. p. 370.

It is true, there is an experiment wherein the height of the mercury is found surprisingly to exceed these numbers; mercury perfectly purged being suspended in a tube, in the Torricellian way, at the height of 75 inches; though by the least shake it falls down to the ordinary height. See an account of this *phenomenon* under the word TORRICELLIAN. The *phenomena* of the *barometer*, Mr. Boyle observes, are so very precarious, that it is exceedingly difficult to form any general, certain rules about the rise and fall thereof. Even that which seems to hold most universally, viz. that when high winds blow, the mercury is the lower, sometimes fails.

Dr. Halley

Dr. Halley gives us the following observations: that in calm weather, when the air is inclined to rain, the mercury is commonly low: in serene good settled weather, high.

That on great winds, though unaccompanied with rain, the mercury is the lowest of all, with regard to the point of the compass the wind blows on. That, *ceteris paribus* the greatest heights of the mercury are on easterly and north-easterly winds. That after great storms of wind, when the mercury has been low, it rises again very fast. That in calm frosty weather it stands high.

That the more northerly places find greater alterations than the more southern: and that within the tropics and near them, there is little or no variation of the height of the mercury at all.

For instance, at Naples it hardly ever exceeds an inch; whereas, at Upminster it is 25 inches, at Peterburgh 331. Phil. Trans. N^o 434. p. 407.

Dr. Beal, who adopted the opinion of M. Pascal, observes that, *ceteris paribus*, the mercury is higher in cold weather than in warm; and, usually, in the morning and evening higher than at mid-day.

That, in settled and fair weather, the mercury is higher than either a little before or after, or in the rain; and that it generally descends lower after rain than it was before it. And he ascribes these effects to the vapours with which the air is charged in the former case, and which are dispersed by the falling rain in the latter. If it chance to rise higher after rain, it is generally followed by a settled serenity.

That there are frequently great changes in the air, without any perceptible alteration in the *barometer*.

For the use of *BAROMETERS*, an ingenious author observes, that, by their means, we may regain the knowledge which still resides in brutes, and which we forfeited by not continuing in the open air, as they generally do; and, by our intemperance, corrupting the *crasis* of our organs of sense.

The following are Mr. Patrick's observations on the rising and falling of the mercury: they are very just, and are to be accounted for on the same principles with those of Dr. Halley.

1. The rising of the mercury presages, in general, fair weather; and its falling, foul weather; as rain, snow, high winds, and storms.
2. In very hot weather, the fall of the mercury indicates thunder.
3. In winter, the rising presages frost; and in frosty weather, if the mercury falls three or four divisions, there will certainly follow a thaw: but in continued frost, if the mercury rises, it will certainly snow.
4. When foul weather happens soon after the falling of the mercury, expect but little of it: and on the contrary expect but little fair weather when it proves fair shortly after the mercury has risen.
5. In foul weather, when the mercury rises much and high, and so continues for two or three days before the foul weather is quite over, then expect a continuance of fair weather to follow.
6. In fair weather, when the mercury falls much and low, and thus continues for two or three days before the rain comes; then expect a great deal of wet, and probably high winds.
7. The unsettled motion of the mercury, denotes uncertain and changeable weather.
8. You are not so strictly to observe the words engraved on the plates (though for the most part it will agree with them), as the mercury's rising and falling; for if it stands at much rain, and then rises up to changeable, it presages fair weather, although not to continue so long as it would have done, if the mercury were higher: and so on the contrary, if the mercury stood at fair, and falls to changeable, it presages foul weather, though not so much of it, as if it had sunk down lower.

From these observations it appears, that it is not so much the height of the mercury in the tube that indicates the weather, as the motion of it up and down: wherefore, in order to pass a right judgment of what weather is to be expected, we ought to know whether the mercury is exactly rising or falling, to which end the following rules are of use:

1. If the surface of the mercury is convex, standing higher in the middle of the tube than at the sides, it is generally a sign that the mercury is then rising.
2. If the surface of the mercury is concave, or hollow in the middle, it is sinking. And,
3. If it is plain or level, or rather if it is a little convex, the mercury is stationary; for mercury being put into a glass tube, especially a small one, will naturally have its surface a little convex; because the particles of mercury attract each other more forcibly than they are attracted by glass. Farther,
4. If the glass be small, shake the tube; and if the air be grown heavier, the mercury will rise about half the tenth of an inch higher than it stood before; if it is grown

lighter, it will sink so much. This proceeds from the mercury sticking to the sides of the tube, which prevents the free motion of it, until it is disengaged by the shock. Therefore, when an observation is to be made by such a tube, it ought always to be shaken first; for sometimes the mercury will not vary of its own accord, until the weather it ought to have indicated be present.

Cause of the phenomena of the BAROMETER. Those which have been enumerated, are the chief *phenomena* of the *barometer*; to account for which, the *hypotheses* that have been framed are almost infinite. Indeed, as the weight of the atmosphere is generally allowed to be the foundation of the *barometer*, so is it generally granted, that the alterations in the weight of the air are the occasions of those in the *barometer*; and yet even this does not obtain universally. Dr. Lister, for instance, accounts for the changes in the *barometer* from the alterations of heat and cold. This, he says, he has often observed, that in storms, &c. when the mercury is at the lowest, it breaks, and emits small particles, which he calls a kind of *fretting*; and argues, that in all times of its descent, it is more or less on the fret. In this disorder, he thinks, its parts are contracted, and brought closer together; and, for that reason, descend: besides, in the *fretting* they let go little particles of air, before enclosed in them; and these rising into the top of the tube, the mercury must sink, both from the column's being shortened by their escape, and by their lying upon it. Mercury, therefore, he adds, rises either in very hot or very cold weather, between the tropics, &c. as being then in its natural state; and, again, in the intermediate degrees of heat and cold it falls, as being contracted, and, as it were, convulsed, and drawn together. Phil. Trans. N^o 165.—But his account, however ingenious, yet comes far short of accounting for the *phenomena*; nay, in some respects it contradicts them.

The changes in the weight of the atmosphere, therefore, must be laid down as the cause of those in the *barometer*; but then, for the cause of that cause, or whence those alterations arise in the atmosphere, will be no easy matter to determine; there being, perhaps, no one principle in nature that will account for such a variety of appearances and those too so irregular. It is probable, the winds, as driven this or that way, have a great share in them; some share too, vapours and exhalations, rising from the earth, may have; some, the changes in the air of the neighbouring regions; and some, the flux and reflux occasioned in the air by the moon, though this is too inconsiderable to be regarded, as it is not perceptible by the nicest *barometer*.

Dr. Halley thinks the winds and exhalations sufficient; and on this ground, gives us a very probable *rationale* of the *barometer*. The substance of what may be said on that head, is as follows.

1st, then, The winds must necessarily alter the weight of the air in any particular country: and that, either by bringing together and accumulating a greater quantity of air, and so loading the atmosphere of any place; which will be the case, as often as two winds blow at the same time, from opposite points towards the same point: or by sweeping away a part of the air, and removing some of the load, and thus giving room for the atmosphere to expand itself; which will be the case, when two winds blow at the same time, and from the same point, opposite ways: or, lastly, by cutting off the perpendicular pressure of the atmosphere; which happens, as often as any single wind blows briskly any way; it being found, by experiment, that a strong blast of wind, even made by art, will render the atmosphere lighter; and accordingly, the mercury, in a tube under which it passes, as well as in another at a distance from it, will subside considerably. See Phil. Trans. N^o 292.

2dly, The cold nitrous particles, and even air itself condensed in the northern parts, and driven elsewhere, must load the atmosphere, and increase its pressure.

3dly, Heavy dry exhalations from the earth, must increase the weight of the atmosphere, and heighten its elastic force, as we find the specific gravity of menstruums increased by dissolved salts, and metals.

4thly, The air being rendered heavier from these and the like causes, is thereby the more able to support the vapours; which being likewise intimately mixed with it, and swimming every where equably through it, make the weather serene and fair: again, the air being made lighter, from the contrary causes, it becomes unable to support the vapours wherewith it is replete; these, therefore, precipitating, are gathered into clouds; and those, in their progress, coalesce into drops of rain.

These things observed, it appears pretty evident, that the same causes which increase the weight of the air, and make it more able to support the mercury in the *barometer*, do likewise occasion a serene sky, and a dry season; and the same causes which render the air lighter, and less able to support the mercury, do likewise generate clouds and rain. Hence. 1st. When the air is lightest, and the mercury in

the *barometer* is lowest, the clouds are very low, and move swiftly; and when, after rain, the clouds break, and a calm sky again shines forth, being purged of the vapours, it appears exceedingly bright and transparent, and affords an easy prospect of remote objects.

2dly, When the air is heavier, and the mercury stands higher in the tube, the weather is calm, though somewhat less clear, by reason the vapours are dispersed every where equally; if any clouds now appear, they are very high, and move slowly; and when the air is heaviest of all, the earth is frequently found enveloped in pretty thick clouds, which appear to be formed out of the grosser exhalations, and which the air is then able to sustain, though a lighter atmosphere could not.

3dly, Hence it is, that with us the mercury stands highest in the coldest seasons, and when the wind blows from the north or north-east corner: for, in that case, there are two winds blowing towards us at the same time, and from opposite corners; there being a constant west wind found in the Atlantic ocean, at the latitude corresponding to ours. To which we may add, that in a north wind, the cold condensed air of the northern parts is brought hither.

4thly, Hence, in the northern regions, the variation of the mercury is more sensible than in the southern ones; the winds being found both more strong, more frequent, more various, and more opposite to each other in the former, than the latter.

Lastly, Hence it is, that between the tropics, the variation of the mercury is scarce sensible; the winds there being extremely gentle, and usually blowing the same way.

But this account, however well adapted to many of the particular cases of the *barometer*, seems to come short of some of the principal and most obvious ones: and is, besides, liable to several objections.

For, 1st, If the wind were the sole agent in effecting these alterations, we should have no alterations without a sensible wind, nor any wind without some alteration of the mercury: both which are contrary to experience.

2dly, If two winds be supposed blowing from the same place, viz. London, opposite ways, viz. N. E. and S. W. there will be two others, blowing from opposite points, viz. N. W. and S. E. to the same place; which two last will balance the first, and bring as much air towards the point, as the others swept from it. Or thus, in proportion as the air is carried off N. E. and S. W. the adjacent air will crowd in from the other points, and form a couple of new currents in the direction N. W. and S. E. to fill up the vacancy, and restore the equilibrium. This is a necessary consequence from the laws of fluids.

3dly, If the wind were the sole agent, the alterations in the height of the mercury would only be relative, or topical; there would be still the same quantity supported at several places taken collectively: thus, what a tube at London lost, another at Paris, or at Pisa, or at Zurich, &c. would at the same time gain. But we find the very contrary true in fact; for, from all the observations hitherto made, the *barometers* in several parts of the globe rise and fall together; so that it must be some alteration in the absolute weight of the atmosphere that accounts for the rise and fall of the mercury.

Lastly, setting aside all objections, these popular phenomena, the mercury's fall before, and rise after rain, seem to be inexplicable on the ground of this hypothesis: for suppose two contrary winds sweeping the air from over London, we know that few, if any, of the winds reach above a mile high; all, therefore, they can do, will be to cut off a certain part of the column of air over London: if the consequence of this be the fall of the mercury, yet there is no apparent reason for the rain's following it. The vapours indeed may be let lower, but it will only be till they come into an air of the same specific gravity with themselves; and there they will stick as before.

M. Leibnitz endeavours to supply the defects of this hypothesis with a new one of his own. He asserts, that a body immersed in a fluid only weighs with that fluid while it is sustained thereby; so that when it ceases to be sustained, i. e. when let fall, its weight ceases to make a part of that of the fluid, which by this means become lighter. Thus, adds he, the watery vapours, while sustained in the air, increase its weight; but when let fall, they cease to weigh along with it. Thus the weight of the air is diminished; and thus the mercury falls, and rain ensues.

But M. Leibnitz's principle, notwithstanding the experiment he brings to confirm, is false, as has been evidently made appear by a counter experiment of Dr. Desaguliers. For a body, whether specifically equal, or lighter, or heavier, than a fluid, while it is immersed in it, whether it be at rest, or in motion, adds to the fluid a weight equivalent to that of an equal bulk of the fluid; as follows from that law in hydrostatics, that fluids gravitate according to their perpendicular altitudes.—However, were M. Leibnitz's principle true, yet it is defective; and that in the same respect with Dr. Halley's; nor would it account for

the phenomena more than the other. For, supposing the vapours by being condensed, to be put in a motion downwards, and so ceasing to gravitate with the atmosphere; they will therefore fall, till they reach a part of the atmosphere of the same specific gravity with themselves; and there they will hang as before. If the mercury fall, it will only be during the time of that descent; for these once fixed, the former gravity is retrieved; or, were it not retrieved, yet no rain would succeed the fall of the mercury. If it might be allowed to add any thing after such great men, it should be as follows.—Suppose any number of watery vesicles floating in any part of the atmosphere, over any determinate portion of the globe; for instance, over A B. fig. 21. if the upper vesicles be condensed by the cold of the superior regions, their specific gravity will be increased, and they will descend; the horizontal class 1; v. gr. to 2, 2 to 3, &c. where meeting with other vesicles, not yet precipitated, they will coalesce, or run into larger vesicles, by the known laws of attraction. Or, if we rather choose to have the wind act, let it drive either horizontally, or obliquely: in the former case, the vesicles, class 8, will be driven against 9; those against 10, &c. or the oblique class A 7, driven against 5, 8 against 4, &c. by which means likewise, will the particles coalesce, and form new and larger vesicles, as before; so that their number, which before was, suppose a million, will now be reduced, v. gr. to a hundred thousand.

But by the same coalition whereby their number is diminished, their specific gravity, if we may so call it, is increased, i. e. they come to have more matter in the same space, or under an equal surface; as may be easily proved from principles of geometry: for in augmenting the mass of any homogeneous body, the increase of surface does not keep pace with that of the solidity; but that of the former is as the square of the diameter, and that of the latter as the cube of the same.

But since the same quantity of matter is now in a less space, or under less dimensions, it will lose less of its weight by the resistance of the medium. This is evident; for a body immersed in a fluid loses nothing of its weight but by the friction of its parts against those of the fluid; but the friction is evidently as the surface; therefore, when the surface is lessened, the resistance must be so too. Consequently, the vesicles, whose gravity before the coalition was equal to the resistance of the medium, now that resistance is diminished, will descend; and that with a velocity in the ratio of the increase of the mass to the increase of the surface.

In their descent, as they arrive at denser parts of the atmosphere, v. gr. at 4, 5, &c. their mass and surface again will be increased by new coalitions; and thus, by constant fresh accessions, more than equal to the constant resistances, they will be enabled to pursue their journey through all the stages of the air, till they reach the earth; their masses exceedingly magnified, and in the form of rain.

Now that the vapours have got down, let us consider how the *barometer* must have been affected during their passage. Before any of the vesicles began to subside, either from the action of the cold, or of the wind, they all floated in the portion of the atmosphere A B C D, and all gravitated towards the centre E. Here now, each respectively residing in a part of the medium of the same specific gravity with itself, will lose as much of its weight, as is equal to that of a part of the medium of the same bulk with itself, i. e. each will lose all its weight. But, then, whatever weight each loses, it communicates to the medium, which now presses on the surface of the earth A B, with its own weight, and that of the vesicles, conjointly. Suppose, then, this united pressure keeps up the mercury in the *barometer* at thirty inches: by the coalition of the vesicles from the causes aforesaid, their surfaces, and consequently their friction, are lessened; therefore, they will communicate less of their weight to the air, i. e. less than the whole; and consequently they will descend with the excess, i. e. with a velocity equal to the remainder, as before observed. Now, as the vesicles can act no otherwise on the surface of the earth A B, but by the mediation of the interjacent air, in proportion as their action on the medium is less, their action on the earth will be less. It is also evident, that the surface of the earth A B must be now less pressed than before; and that in proportion as the vesicles reserve more of their weight uncommunicated to the medium, to promote their own descent, i. e. in proportion to the velocity of the falling vesicles; which is, again, in proportion to their bulks. Thus, as the vesicles descend, the bulks continually increasing, the friction, and therefore the pressure on the earth, and, lastly, the height of the mercury, will continually decrease, during the whole time of the fall.—Hence we see, both why the vesicles, when once beginning to fall, persevere; why the mercury begins to fall at the same time; and why it continues and ceases to fall together with them; which were the great desiderata in the philosophy of the *barometer*.

There

There is one objection that evidently lies against this theory, viz. that the vesicles being put in motion, and striking against the particles of the *medium* and one another with some moment, will meet with a considerable resistance from the *vis inertiae* thereof; by which means their descent will be retarded, and the pressure of the atmosphere retrieved; the impetus of the moving vesicles being supposed to compensate for their loss of surface. Thus a heavy body sustained in a fluid by a hair, and moved up and down therein, presses more on the bottom than when held at rest; which additional pressure will be the greater as the velocity of the falling vesicles is greater; a greater impulse being required to break through the *vis inertiae* of the contiguous particles in a less time than in a larger.

But we have both reason and experiment against this objection; for the velocity of the vesicles, in these circumstances, must necessarily be very small, and their impulse inconsiderable; besides, the *vis inertiae* of the air must be exceedingly weak, by reason of its extreme subtilty; and it must be a very improper vehicle to convey an impulse to a distance by reasons of its elasticity; we also find, that a piece of lead, which is a ponderous body, falling with great moment, gravitates considerably less, in its descent through water, which is a gross unelastic medium, than when sustained at rest therein: in which the several experiments of Reaumur, Ramazzini, and Desaguliers, all agree.

M. de Luc supposes, that the changes observed in the weight of the atmosphere are principally produced by the presence or absence of vapours floating in it. Others have attributed the effect to vapours, but have given a different explication of it. It is his opinion, that vapours diminish the specific gravity, and consequently the absolute weight of those columns of the atmosphere into which they are received, which, notwithstanding this admixture, remain of an equal height with the adjoining columns that consist of pure or dry air. He afterwards more largely explains and vindicates this theory, and applies it to the solution of the principal phenomena of the *barometer*, connected with, or produced by the varying density and weight of the atmosphere.

See a summary of the numerous hypotheses that have been framed for explaining the variations of the *barometer*, by Pascal, Beal, Wallis, Garcin, Garden, Lister, Halley, Garsten, de la Hire, Mariotte, Le Cat, Woodward, Leibnitz, de Mairan, Hamberger, D. Bernouilli, and Muschenbroeck, in M. de Luc's *Recherches sur les Modifications de l'Atmosphere*, vol. i. ch. 3. See on the subject of this article, both volumes of that excellent work, *passim*.

BAROMETERS, *Animal*, see SEA-ANEMONIES.

BAROMETRICAL observations, make a branch or species of those called meteorological observations.

Modern philosophers speak much of the importance of *barometrical* observations. Dr. Wallis, Dr. Beal, Cruquius, de la Hire, and others, have published collections of *barometrical* observations, made at Oxford, Leyden, Delft, Paris, Zurich, in China, &c. Phil. Trans. N^o 55. N^o 249. N^o 256. N^o 381. &c.

Dr. Jurin, has published an invitatory paper, for making *barometrical* observations by joint consent. Phil. Trans. N^o 379. p. 423.

BAROMETRICAL phosphorus. See PHOSPHORUS.

BARON, a person who holds a barony.

Baron, is a term whose origin and primary import are much contested. Some will have it originally denote a *man*, *avnp*; some a *hero*, or *valiant man*; some a *libertinus*, or *freeman*; some a *great or rich man*; some a *vassal* or *liege-man*.—Menage derives it from the Latin *baro*, which we find used in the pure age of that language for *vir*, a *stout* or *valiant man*; whence, according to this author, it was that those placed next the king in battles were called *barones*, as being the bravest men in the army; and as princes frequently rewarded the bravery and fidelity of those about them with fees, the word came to be used for any noble person who holds a fee immediately of the king.—Isidore and after him Camden, take the word, in its original sense, to signify a *mercenary soldier*. Messieurs of the Port Royal derive it from *βαρος*, weight, or authority. Cicero uses the word *baro*, for a stupid brutal man; and the old Germans make mention of *buffeting a baron*, i. e. a *villain*; as the Italians still use the word *barone*, to signify a *beggar*.—M. De Marca derives *baron* from the German *bar*, *man*, or *freeman*; others derive it from the old Gaulish, Celtic, and Hebrew languages: but the most probable opinion is, that it comes from the Spanish *varo*, a *stout*, *noble person*; whence wives come to call their husbands, and princes their tenants, *barons*. In the Salic law, as well as the laws of the Lombards, the word *baron* signifies a *man* in the general; and the old glossary of Philomenes translates *baron* by *avnp*, *man*.

BARON is more particular used, among, us, for a lord, or peer of the lowest class; or a degree of nobility next below that of a viscount, and above that of a knight, or a baronet.

low that of a viscount, and above that of a knight, or a baronet.

Barons are lords of parliament, and peers of the realm, and enjoy all the privileges of such.—They are not girt with a sword at their creation, nor had they any CORONETS till the reign of king Charles II. who gave them a circle of gold with six pearls set close to the rim.

In ancient records, the word *barons* included all the nobility of England, because regularly all noblemen were *barons*, though they had also a higher dignity.—And therefore the charter of king Edward I. which is an exposition of what relates to *barons* in *Magna Charta*, concludes *testibus archiepiscopis, episcopis, baronibus, &c.* And the great council of the nobility, when they consisted, besides earls and *barons*, of dukes, marquises, &c. were comprehended under the name *de la council de baronage*.

BARONS by ancient tenure were those who held by certain territories of the king, who still reserved the tenure in chief to himself. We also read of *barons by temporal tenure*; who are such as hold honours, castles, manors, as heads of their *barony*, that is, by grand fergeanty; by which tenure they were anciently summoned to parliament. But at present a *baron*, by tenure is no lord of parliament, till he be called thither by writ.

The *barons* by tenure, after the Conquest were divided into *maiores* and *minores*, and were summoned accordingly to parliament; the *maiores*, or greater *barons*, by immediate writ from the king; the *minores* or lesser *barons*, by general writ from the high sheriff, at the king's command.

The ancients distinguished the greater *barons* from the less by attributing high, and even sovereign jurisdiction, to the former, and only inferior jurisdiction over smaller matters to the latter.

BARONS of the exchequer are judges, four in number, one of whom is called the chief *baron*, and the other three puisne *barons*, to whom the administration of justice is committed in causes between the king and his subjects, touching matters belonging to the exchequer, and the king's revenue. They are called *barons*, because *barons* of the realm were used to be employed in that office.

Their office is also to look to the accounts of the king; to which end they have auditors under them; as well as to decide causes relating to the revenue, brought by any means into the exchequer: so that, of late, they have been constantly persons learned in the law; whereas formerly they were *maiores & discretiores in regno, sive de clero essent, sive de curia*. See COURT of Exchequer.

BARONS of the cinque ports, are members of the house of commons, elected by the five ports, two for each port. See CINQUE Ports.

Those who have been mayors of Corfe-Castle, in Dorsetshire, are also denominated *barons*.—As were formerly, likewise, the chief citizens of London.

BARON is also used for the husband, in relation to the wife; which two, in law, are called *baron* and *feme*. See HUSBAND and WIFE.

BARON and feme, in Heraldry, is when the coats of arms of a man and his wife are borne *per pale* in the same escutcheon: the man's being always on the *dexter* side, and the woman's on the *sinister*.—But here the wife is supposed not an heiress; for then her coat must be borne by the husband on an in-escutcheon, or escutcheon of pretence.

BARON, court. See COURT.

BARON, prender de. See PRENDER.

BARONET, among Modern Writers, denotes a dignity, or degree of honour, next beneath a baron, and above a knight; having precedency of all knights, excepting those of the Garter.

The dignity of *baronet* is given by patent, and is the lowest degree of honour that is hereditary. The order was founded by king James I. at the suggestion of sir Robert Cotton, in 1611, when two hundred *baronets* were created at once; to which number, by the patent, they were always to be restrained. Though, it is said, there are now four times that number.

They had several considerable privileges given them, with an *habendum* to them and their heirs male. They were allowed to charge their coat with the arms of Ulster, which are, in a field argent, a hand gules; and that upon condition of their defending the province of Ulster, in Ireland, against the rebels, who then harrassed it extremely: to which end they were each to raise and keep up thirty soldiers, at their own expence, for three years together; or to pay into the exchequer a sum sufficient to do it; which at 8*d.* per day per head, was 1095*l.*

Baronets take place according to the dates of their patents, by the terms of which no honour is to be erected between *barons* and *baronets*.

The title *Sir* is granted them by a peculiar clause in their patents, though they be not dubbed knights.—But both a *baronet*, and his eldest son, being of full age, may claim knighthood.

BARONIE coput. See CAPUT.

B A R

BARONY, BARONIA, or BARONAGIUM, the lordship, or fee of a baron, either temporal or spiritual.

In which sense *barony* amounts to the same with what is otherwise called *honour*.

A *barony* may be considered as a lordship held by some service in chief of the king, coinciding with what is otherwise called *grand serjeanty*.

Baronies, in their first creation, moved from the king himself, the chief lord of the whole realm, and could be holden immediately of no other lord. For example: the king enfeoffed a man of a great seigneurie in land, to hold to the person enfeoffed and his heirs, of the king and his heirs, by baronial service, to wit, by the service of twenty, forty, sixty knights, or of such other number of knights, either more or fewer, as the king by his enfeoffment limited or appointed.—In the ages next after the Conquest, when a great lord was enfeoffed by the king of a large seigneurie, such seigneurie was called a *barony*; but, more commonly, an *honour*: as, the *honour* of Gloucester, the *honour* of Walingford, the *honour* of Lancaster, the *honour* of Richmond, and the like. There were in England certain *honours*, which were often called by Norman or other foreign names, that is to say, sometimes by the English, and sometimes by the foreign name. This happened when the same person was lord of an *honour* in Normandy, or some other foreign country, and also of an *honour* in England. For example, William de Forz, de Force, or de Fortibus, was lord of the *honour* of Albermarle in Normandy, he was also lord of two *honours* in England, to wit, the *honour* of Holderneffe, and the *honour* of Skipton in Cravene. These *honours* in England were sometimes called by the Norman name, the *honour* of Albermarle, or the *honour* of the earl of Albermarle. In like manner, the earl of Britannie was lord of the *honour* of Britannie in France, and also of the *honour* of Richmond in England: the *honour* of Richmond was sometimes called by the foreign name, the *honour* of Britannie, or the *honour* of the earl of Britannie. This serveth to explain the terms, *honour* of Albermarle in England, *honour* Albermarlie, or *comitis Albermarlie in Anglia*, *ho* or *Britannie*, or *comitis Britannie in Anglia*, the *honour* of Britannie, or the earl of Britannie in England. Not that Albermarle or Britannie were in England, but that the same person respectively was lord of each of the said *honours* abroad, and of each of the said *honours* in England. The *baronies* belonging to bishops are by some called *regalia*, as being held solely on the king's liberality. These do not consist in one *barony* alone, but in many; for, *tot erant baronia, quot majora pradia*.

A *barony*, according to Bracton, is a right indivisible: wherefore, if an inheritance to be divided among the coparceners, though some capital messuages may be divided, yet if the capital messuage be the head of a county, or *barony*, it may not be parcelled; and the reason is, lest, by this division, many of the rights of counties and *baronies* by degrees come to nothing, to the prejudice of the realm; which is said to be composed of counties and *baronies*.

BAROPTIS, or BAROPTINUS LAPIS, a name given by the ancient naturalists to a species of stone, supposed to have wonderful virtues against venomous bites, externally applied. Pliny has left us but a very short description of it: he says, it was black in colour, but variegated with large spots of red and white.

BAROSCOPE, a machine contrived to shew the alteration in the weight of the atmosphere. See **BAROMETER**.

The word is derived from *βαρος*, *onus*, and *σκοπεω*, *video*.

BARQUETTE, or BARCHETTA, in the Mediterranean, denotes a lesser sort of barks, used for the service of gallies much as boats and shallops are for other ships, as to fetch provisions, water, carry persons ashore, and the like.

BARR. See **BAR**.

BARR, BARRA, or BARRO, in *Commerce*, denotes a Portuguese long measure, used in the mensuration of cloths, stuffs, and the like: six whereof are equivalent to ten *cavidos* or *cabidos*; each *cavido* equal to $\frac{4}{5}$ of a Paris ell.

BARRA, the *Spanish*, is the same with the yard of Seville.

BARR of Valencia is equal to $\frac{10}{11}$ of the Paris ell.

BARR of Castile is equal to $\frac{5}{7}$ of the Paris ell.

BARR of Arragon is equal to $\frac{2}{3}$ of the Paris ell. Savar. Dict. Com. p. 273.

BARR is also used by the Portuguese in the East Indies for a weight, more frequently called **BAHAR**.

BAR-dice, a species of false dice so formed as that they will not easily lie on certain sides, or turn up certain points.

Bar-dice stand opposed to flat dice, which come up on certain points oftener than they should do.

BARRACKS. See **BARACKS**.

BARRACOL, in *Ichthyology*, a name given by Artedi, from the Venetians, to express the species of ray-fish, called by Bellonius and Gesner *miraletus*, and by others *raia oculata lavit*.

The specific name of Artedi carries in it a much better character of the fish; he calls it the **RAY**, with a smooth back

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and belly, and with the eyes surrounded with a series of spines, and three other rows of them on the tail.

BARRAGAN, or BARRACAN, in *Commerce*, a kind of stuff belonging to the class of camblets, only of a grain much coarser than the rest, manufactured in divers parts of France and Flanders, chiefly at Abbeville, Amiens, Rouen, and Lille, and now in England.

The word is barbarous Latin, formed, as some suppose, from *barra*, q. d. *barrarum formam referens*. Du-Cange.

The chief use of *barragans*, called also by the French *bauracans*, is for furtouts, or upper garments against the rain, being, when good, of so close a grain, that the water will not soak through, but only run upon them.

For the woof, its thread is single, twisted, and fine spun; that of the warp is double or triple, i. e. composed of two or three threads well twisted together. The usual matter it is made of, is wool; though there are some made at Rouen, where the warp is hemp, and the woof wool. Some *barragans*, again, are made of wool, dyed before it comes to the loom; others are woven white, and dyed afterwards, red, black, blue, brown, &c. They are not fulled, but only boiled two or three times in fair water, when they come from the loom; then calendered to make them smooth and even; and lastly, made into rolls called pieces of *barragan*.

BARRATI, barred, an appellation given to the Carmelites after they were obliged to lay aside the white cap, and wear cowls striped black and white.

BARRATRY is used for bribery or corruption in a judge, giving a false sentence for money.

BARRATRY is also used, in *Middle Age Writers*, for fraud or deceit in making of contracts, sales, or the like. See **BARATRY**.

BARRE. See **BAR**.

BARREL, an oblong vessel, of a spheroidal, or rather a cylindrical figure, used for the holding divers sorts of goods both liquid and dry.

Barrels are of divers uses in artillery, as for powder, small shot, flints, sulphur, salt-petre, rosin, pitch, quick-match, and many other things.

Barrels filled with earth serve to make a parapet to cover the men, like gabions and canvas bags.

BARRELS, fire, are casks of divers capacities, filled with bombs, grenadoes, fire pots, mixed with great quantities of tow soaked in petrol, turpentine, pitch, &c. used by the besieged to defend breaches. These are sometimes also called *thundering barrels*, being to be rolled down on the enemy on their entering the breach.

BARREL is also used for a certain quantity, or weight of several merchandizes; which is various as the commodities vary.

The English *barrel*, wine measure, contains the eighth part of a tun, the fourth part of a pipe, and the moiety of a hogshead, that is, thirty one gallons and a half; of beer it contains thirty-six gallons; and of ale thirty two gallons.

The *barrel* of beer, vinegar, or liquid preparing for vinegar, is to contain 34 gallons, according to the standard of the ale quart. 10 and 11 W. III. cap. 21.

The *barrel* of herrings is to contain 32 gallons, wine measure; being about 28 gallons, old standard: usually amounting to about 1000 full herrings, 13 Eliz. cap. 11.

The *barrel* of salmon is to contain 42 gallons, 5 G. cap. 18.—And the *barrel* of eels, the same, 22 Ed. IV. cap. 2.

The *barrel* of soap is to contain 256 pounds, 10 A. cap. 19.

The *barrel* or *barille* of Florence is a liquid measure containing 20 flasks, flasks, or one third of a star or stao.

The *barrel, barique* of Paris, contains 210 pints, or 26 septiers and a half; four *bariques* make three muids, or one tun.

BARREL, in *Anatomy*, denotes a pretty large cavity situated behind the drum of the **EAR**, lined with a membrane, in which there are several veins and arteries. It is said to be full of a purulent matter in children; and, in its cavity there are four small bones, viz. the *malleolus*, the *incus*, the *stapes*, and the *os orbiculare*.

BARREL of a clock, is a cylindrical part, about which the string is wound, answering to what in watches is properly called the *fusée*.

BARREL of a jack, is the cylindrical part whereon the line is wound.

BARREL of a pump, is the wooden tube, which makes the body of the engine, and wherein the piston moves.

BARRELLING, the art of putting up certain commodities in casks or barrels.

Gun-powder for the land service is often *barrelled* double, the barrel it is put in being enclosed in another barrel, partly to prevent the powder catching moisture in the subterraneous places it is kept in, and partly to enable it the better to bear the motion and jolting of carriages, when it is to be conveyed to another place.

BARRELLING of herrings imports the cutting off their heads as they are thrown into the busses, and afterwards pulling out

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out the guts, salting them, and putting them up in barrels. There are two sorts of *barrelled herrings*; one wherein they are laid orderly, layer over layer, called by some *packed herrings*; the other wherein they are thrown at random, called *herring in wrack*.

The difference arises thus: as fast as the fishermen catch the herrings, they throw them on the deck of the vessel; where having gutted and salted them, they throw them at random into the barrel, to be carried home: this is the *herring in wrack*.

When arrived ashore, they take the fish out of these barrels, cast them into a tub, and salting them anew, range them handiomey in their barrels again, laying salt over them, to preserve them: these are the *packed herrings*. And in this state it is they are usually sold.

BARREN ground, is that which being sowed produces no crop, or, at most, so slender a crop, that it will not defray the charge of its tillage.

BARREN money is used, in the *Civil Law*. for that which is not put out to interest.

BARREN corn, the name given to a distemper in corn by M. Aimen, who first observed it. It is most common in wheat and rye; the ears of which are long, lean, and white; in some the stamina are dry, transparent, and horned: the female organs are small, whiter, and less velvety than in healthy ears; in others the filaments are smaller, the apices are void of farina, and the stigmata badly unfolded. It is owing either to the too sudden growth of the corn; to frost, or to hot gleams of sun-shine after hard showers; and sometimes, though very rarely, to insects. Count Ginnani imputes this disease of corn to the faultiness of the soil; and he recommends particular attention to the amendment of it by such means as are best suitable to its nature; and he also directs to change the seed every year.

BARREN springs, a name given by husbandmen to those whose waters are injurious to land. Such are most of those that flow from coal-mines, or through beds of sulphureous minerals.

BARRENNESS. See **STERILITY**.

BARRENWORT, **EPIMEDIUM**, in *Botany*, a genus of the *tetrandria monogynia* class. Its characters are these: the flower hath a three-leaved empalement, which falls off; it hath four obtuse petals, and four nectariums, which are cup-shaped, and as large as the petals; with four stamina, and an oblong germen, which afterward becomes an oblong pod, with one cell, enclosing many oblong seeds. The root and leaves are the parts used in medicine. The leaves triturated, and made into a cataplasm with oil, and so applied to the breasts, prevent their farther growth; the root causes barrenness. The leaves triturated, and drank to the quantity of five drams, in urine, for five days together, after the menstrual purgation, Dioscorides says, effectually prevent conception.

BARRICADE, or **BARRICADO**, a military term for a fence or retrenchment, hastily made with vessels, or baskets of earth, carts, trees, palisades, or the like, to preserve an army from the enemy's shot, or assault.

The most usual matter of *barricades* is pales, or stakes which are crossed with battoons, and shod with iron at the feet; usually set up in passages, or breaches, to keep back as well the horse as foot.

BARRICADE, in the *Marine*, is a strong wooden rail, supported by pillars, and extending, as a fence, across the foremost part of the quarter-deck. In ships of war, the intervals between the pillars are commonly filled with cork, junks of old cable, or plaited cordage. About a foot above the rail, there extends a double rope-netting, supported by cranes of iron; and between the two parts of the netting are stuffed hammocks, filled with the seamen's bedding, to intercept small shot fired by swivel-guns and muskets, in time of battle.

BARRIER, a kind of fence made at a passage, retrenchment, gate, &c. to stop up the entry thereof. See **DEFENCE**. It is usually made of great stakes, about four or five feet high, placed at the distance of eight or ten feet from one another, with overthwart rafters; serving to stop either horse or foot that would rush in.—In the middle is a moveable bar of wood, which opens and shuts at pleasure.

BARRIERS have been likewise used to signify a martial exercise of men, armed, and fighting together with short swords, with certain rails, or bars, whereby they were enclosed from the spectators.

BARRIERS, or **BARRIERES**. Thus they call in the chief cities of France, and particularly at Paris, the places where the custom-houses are established; and where the officers receive the duties of importation, according to the tariff settled by the king's council. They are called *barriers* because the passages, through which the carriages and merchandises liable to pay duties are to pass, are shut up with a wooden bar, which turns upon a hinge, and is opened and shut at the will of the custom-house officers. There are at Paris sixty of these *barriers*, all placed at the entrance of the suburbs.

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BARRING a vein, an operation performed by farriers on the veins of horses legs, and of other parts, in order to stop the course, and lessen the quantity, of the malignant humours which prevail there.

It is done by opening the skin above the part, and, after disengaging it, and tying it both above and below, striking between the two ligatures.

When horses have got traverse mules, or kiked heels, and rat-tails, or arrests in the hinder legs, it is common to **BARR a vein**.

BARRISTER, a person qualified and impowered to plead, and defend the causes of clients in the courts of justice. The word is formed from *bar*, *barra*, a name given the place where they stand to plead.

Barriers, in the English law, amount to the same with *licentiates*, and *advocates*, in other countries and courts, where the civil, &c. laws obtain.

Anciently they were denominated among us, *apprentices of the law*, *apprentici juris*; now usually *counsellors at law*.

They seem to have been first appointed by an ordinance of king Edward I. in parliament, in the twentieth year of his reign.

To pass *barristers*, they were formerly obliged to study eight years, now only seven, and sometimes fewer. The exercise required was twelve grand moots, performed in the inns of chancery in time of the grand readings, and twenty-four petty moots at the inns of chancery in term-time, before the readers of the respective inns of chancery.

Barristers, according to Fortescue, might be called to the state and degree of *serjeants*, when they were of sixteen years standing.

Utter barristers, according to some, are pleaders without the bar; they are thus called to distinguish them from benchers, or those who have been readers, who are admitted to plead within the bar; hence called *inner barristers*, 5 El. cap. 1.

BARRIUS, in *Antiquity*, a military shout, raised by the Roman soldiers at the first charge on the enemy.

BARROW, in the English *Topography*, denotes a large hillock or mount of earth raised or cast up by art; supposed to have been one of the Roman *tumuli*, or sepulchres.

Dr. Plott takes notice of two sorts of *barrows* in Oxfordshire; one placed on the military ways, the other in the fields, meadows, woods, &c.

The former were doubtless of Roman erection; the latter more probably erected by the Britons or Danes.

Some of these *barrows* appear rude, and erected only of earth: others are more regular, trenched round; some with two or three circumvallations, and surmounted with monumental stones Plott's Nat. Hist. Oxford. ch. 10. §48.

They are to be met with in several parts of England: those in Wiltshire are well known. We have an examination of the *barrows* in Cornwall by Dr. Williams, in the Phil. Transf. N° 458. from whose observations we find that these barrows are composed of foreign or adventitious earth; that is, such as does not rise on the place, but is fetched from some distance.

It has been thought, that these *barrows* were erected for sepulchres; and this conjecture seems well confirmed by the urn found in one of them. This urn is made of burnt or calcined earth, very hard, and very black in the inside; it has four small handles, and in it were found seven quarts of burnt bones and ashes.

That it was the ancient practice to burn the dead, is well known; and from these *barrows* it appears, how the nations, that practised this way of burial, expressed their regard for the dead. It was by erecting over their ashes these *barrows*, or *tumuli*, composed of earth and stone brought from distant places; and the *barrow* was generally in proportion to the greatness, rank, and power of the deceased person. Each soldier or friend might bring some of the earth or stones from distant places where they lived, and thus compose the *tumulus*. Many passages might be quoted from ancient authors to this purpose. Phil. Transf. loc. cit. See an account of the numerous *tumuli*, or *barrows*, discovered in the southern part of Siberia, in the *Archæologia*, vol. ii.

BARROWS, in the *Salt Works*, are cases made with flat cleft wickers, in the shape almost of a sugar-loaf, with the bottom uppermost, wherein the salt is put, as it comes, and set to drain. Phil. Transf. N° 53. p. 1065. Hought. Collect. N° 211. p. 81.

BARROWISTS, in *Ecclesiastical History*. See **BROWNISTS**.

BARRULET, in *Heraldry*, is the half of the closet, or the quarter of the bar.

BARRY, in *Heraldry*.—When an escutcheon is divided barways into an even number of partitions, and consists of two or more tinctures, interchangeably disposed, it is expressed in blazon by the word *barry*, and the number of pieces is to be specified.—E. gr. *barry* of so many pieces. If the divisions be odd the field must be first named, and the number of bars expressed.

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BARRY-BENDY is when an escutcheon is divided evenly both bar and bend-ways, by lines drawn transverse and diagonal, interchangeably varying the tinctures of which it consists.—Thus, he bears *barry-bendy, or and sable*.—See *Tab. Herald. fig. 4.*

BARRY-PILY is when a coat is divided; as represented in *Tab. Herald. fig. 5.* which is blazoned; *barry pily* of eight pieces.

BARRY, counter. See **COUNTER.**

BARSANIANI, in *Church History*, a sect who held all the errors of the Severians and Theodosians.

BARSE, in *Ichthyology*, an English name from the common **PEARCH**, a well known fresh-water fish. It is also the name now in use for the same fish in the Saxon language, and is one of the many Saxon words we have yet retained.

BARTERING, the act of trucking or **EXCHANGING** one commodity for another of like value.

The word comes from the Spanish *baratar*, to *deceive*, or *circumvent* in bargaining; perhaps because those who deal this way usually endeavour to over-reach one another.

This is also called *bartry*, 13 Eliz. cap. 7.

In order to solve all questions that occur under this article, find the value of that commodity, the quantity of which is given, and then find how much of the other commodity will amount to that sum at the rate proposed.

BARTHOLEMEW's Hospital. See **HOSPITAL.**

BARTON, in Devonshire and the West of England, is used for the demesne lands of a manor. Also for the manor-house.—And, in some places, for out-houses, fold-yards, &c.

BARTRAMIA in *Botany*, a genus of the *decandria monogynia* class of plants; the calyx of which is a perianthium, cut into five parts; the corolla consists of five wedge-shaped petals; the fruit is globular, and the seeds are four in number, convex on one side, and angular on the other.

BARTSIA, in *Botany*, the name of a genus of plants of the *didynamia angiospermia* class, which seems of a middle nature between the *euphrasia*, *pedicularis*, and *rhinanthus*. The characters are these: the perianthium consists of one leaf, and is tubular and permanent; it is bifid at the extremity, and the segments are emarginated, and are coloured at the points; the flower consists of one petal, and is of the ringent kind; the upper lip is erect, narrow, undivided, and longer than the cup; the stamina are four ceraceous filaments of the length of the upper lip of the flower, but two of them are shorter than the others; the antheræ are oblong, and stand close together, under the top of the upper lip of the flower; the germen of the pistil is oval; the style is capillary, and longer than the stamina; and the stigma is obtuse and nutant; the fruit is an oval capsule, of a compressed shape, and pointed, is composed of two valves, and divided by a membrane into two cells within; the seeds are numerous, and small.

BARULES, in *Church History*, a sect which maintained that the Son of God had only a phantom of a body; that souls were created before the world, and that they lived all at one time.

BARUTH, an Indian measure, containing seventeen gantans; it ought to weigh about three pounds, and a half, avoirdupois.

BARYPYCNI, βαρυπυκνοι, in the *Ancient Music*, was a name given to such chords as formed the gravest notes of the several **SPISSA**. There were five *barypycni* in the scale. See **PYCNI**.

BARYTONUM, from *Barus*, grave, and *tonos*, accent, in the Greek *Grammar*, denotes a verb, which having no accent marked on the last syllable, a grave accent is to be understood.

In the Italian music, *barytono* answers to our common pitch of *bass*.

BAS relief. See **Basso rilievo**.

BASAAL, in *Botany*, the name of an Indian tree growing about Cochin. Ray's *Hist.*

BASALT, artificial or black porcelain, a composition, having nearly the same properties with the natural *basalt*, invented by Messrs. Wedgwood and Bentley, and applied to various purposes in their manufactures.

BASALTES, a kind of stone, described by the ancient naturalists, as of the hardness and colour of iron. See *Tab. Fossils, Class 5.*

Pliny, and others after him, write the word *basaltes*; Salmasius corrects it, *basalites*. Its specific gravity is to that of water, as 3000 or upwards to 1000.

The largest block of this stone that ever was seen, Pliny, says, was placed by Vespasian in the temple of Peace: in it was represented the figure of Nilus, with sixteen children playing about it, denoting so many cubits of its rise: he adds, that the statue of Memnon, in the temple of Serapis at Thebes, which resounded at the rising of the sun,

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was also made of this stone. How this miraculous kind of resonance was caused seems indicated by Juvenal, Sat. xv. ver. 5.

—*Dimidia magica resonant ubi Memnone chorda*—

Most of the antique Egyptian figures remaining are also apparently of the same stone.

Some of the ancients call it *lapis Lydius*, from Lydia, the place where it was found in most abundance; and among the moderns it is denominated the **TOUCH-STONE**, as being used for the trial of gold and silver.

It is hard, heavy, close, black, and resists the file; and had its name from *basal*, iron; or βασαλιζω, *diligenter examino*.

—Dalechampius says, there are stones of the same kind near Gallon, in Normandy; others are brought from Ethiopia and Germany.—The **GIANTS Causeway** in Ireland is composed of the *basaltes*.

The descriptions the ancients have agreed to give of the *basaltes*, as carefully collected by De Boet, afford us a very just and accurate account of the **Giants Causeway**, though that author had never seen or heard of it, the appearance of this marble in all parts of the world being the same, and these accounts plainly evincing, that the immense pile of the *basaltes* in Ireland is no miracle, nor work of art, but, perhaps, the noblest collection of that body which the world has to shew.

The origin and formation of this marble has much puzzled the world; but we may consider, that many of the known fossil bodies have a property, like salts, of arranging themselves into different figures at the time of their first coalescence into a mass. This is from the same laws in nature with that of salts; and we are well assured by daily experience, that crystal and spar, according to this natural determination, ever form regularly angular figures, when all the proper accidents have concurred to their concretion. The most common figures of crystals are the hexangular columns; and those of spar, either trigonal columns, or parallelepipeds. The combinations and mixtures of these, in different degrees, may naturally produce mixed figures, according to these degrees; and a third substance, though in it self not disposed by nature to assume or arrange itself into any particular figure, if mixed with these, may be able to spread, extend, and enlarge the figures they concreate into, or otherwise alter them.

This substance has been referred by some authors, in imitation of the ancients, to the genus of marbles; though differing from them in many essential qualities. The *basaltes* is vitreous, analagous in substance to the horny stones. It resists aqua fortis, and the chissel, and only yields to a violent fire, and the engraver's wheel. When wrought in this manner it acquires the polish of the ancient *basaltes*; named by the Italians *marmo paragone*. M. Desmaust, having accurately examined the *basaltes*, which are found in great quantities at Auvergne, attributes their origin to the matter of volcanos refrigerated from fusion; and he was naturally led to this hypothesis, by discovering that they were placed on beds of *lavas*, and *scoriae*, close to the opening of an extinguished volcano. M. Raspe has adopted this hypothesis, and confirmed it by his own observations on the *basalt* hills, in the neighbourhood of Cassel, and in other places; this substance being generally found near the lavas of volcanos; and the whole island of Sicily, chiefly on the side of mount *Ætna*, abounding with it. This opinion is farther supported by the vitreous substance of these stones; the want of marine bodies, and from the circumstance attending some melted metals, which when hardened, appear in crystallizations not unlike those of watery congelations. Hist. del' Acad. Roy. des Sciences, at Paris, for 1771. Phil. Trans. vol. lxi. N° 54. Ferber's Travels through Italy, translated by Mr. Raspe, 1778. See **Irish TOUCHSTONE**.

BASANITES, in *Natural History*, a name given by many authors to the **TOUCHSTONE**, used for trying gold, &c. Pliny speaks of a *basanites* which yielded a bloody juice, and was good against diseases of the liver.

BASANUS, in *Natural History*. See **TOUCHSTONE**.

BASARUCO, in *Commerce*, a small base coin in the East Indies, being made only of very bad tin. Of this coin there are two sorts, good and bad; the value of the base sort is $\frac{1}{2}$ lower than that of the good. Three *basarucos* are equal to two *rees* of Portugal.

BASCANIA, in *Antiquity*, ridiculous or grotesque figures hang up by the ancient smiths before their furnaces, to divert envy.

BASE, BASIS, in *Architecture*, denotes the lower part of a column, or pedestal.

The *base* is also sometimes called *spira*, from *spira*, the folds of a serpent laid at rest, which makes a figure not unlike it.—See *Tab. Archit. fig. 24, 25, 26, 27, 28.*

BASE of a column is that part between the shaft and the pedestal, if there be any pedestal; or, if there be none, between the shaft and the plinth, or zocle.

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The *base* is supposed to be the foot of the column; or as some will have it, it is that to a column, which a shoe is to a man. The members, or ornaments whereof it is composed, are supposed, by some, to have been originally intended to represent the iron circles wherewith the feet of trees and posts, which supported the ancient houses, were girt, in order to strengthen them.

The *base* is different in the different orders. — The *BASE, Tuscan*, is the most simple of all others; consisting only of a single tore besides the plinth. — See *Tab. Archit. fig. 24.*

BASE, Doric, has an astragal more than the Tuscan; though that was introduced by the moderns. See *fig. 25.*

BASE, Ionic, has a large tore over two slender scotias, separated by two astragals; though in the most ancient monuments of this order there are no *bases* at all; which the architects are at a loss to account for. See *fig. 26.*

BASE, Corinthian, has two tores, two scotias, and a fillet. — See *fig. 27.*

BASE, Composite, has an astragal less than the Corinthian. See *fig. 28.* See the measures of the parts of the *base* in these several orders, under *COLUMN.*

BASE, Attic, or *Atticurgic*, so called, because first used by the Athenians, has two tores, and a scotia.

BASE rudentée is that which has its tores cut like cables.

BASE, in *Fortification*, denotes the external side of the polygon; or that imaginary line which is drawn from the flanked angle of a bastion to that which is opposite thereto.

BASE, in *Gunnery*, see *CANNON.*

BASE, line of the, see *LINE.*

BASE of a figure, in *Geometry*, denotes the lowest part of its perimeter.

In which sense, the *base* stands opposed to the *vertex*, which denotes the highest part.

BASE of a triangle, any side thereof is occasionally so called; though properly it is the lowest side, or that which lies parallel to the horizon.

Thus, the line AB is the *base* of the triangle ABC, *Tab. III. Geom. fig. 68.* Not but, on other occasions, the lines AC, or BC in the triangle, may be made the *base*.

In a rectangled triangle, the *base* is properly that side opposite to the right angle, i. e. the hypotenuse.

BASE of a solid figure, is its lowest side, or that whereon it stands.

Thus the circular plane DFE is the *base* of the cylinder ABDE. *Tab. Geom. fig. 17.*

BASE of a conic section, is a right line in the hyperbola and parabola, formed by the common intersection of the secant plane, and the *base* of the cone.

BASE, altern, see *ALTERN.*

BASE, distinct, in *Optics*, see *DISTINCT.*

BASE of the heart, in *Anatomy*, denotes the broader or upper part of that viscus, to the sides of which the two auricles are affixed. — See *Tab. Anat. (Splanchn.) fig. 12. litt. aa, and cc.*

This is sometimes also called the vertex or head, *κεφαλή*; in opposition to which, the lesser or narrower part is called *apex* or *mucro*, the point or tip of the heart, Some also give the denomination *base*, to the root of the *os hyoides*.

BASE, or *BASIS*, in *Chemistry*; any body which is dissolved by another body which it receives and fixes, and with which it forms a compound, may be called the *basis* of the compound. Thus, for example, the *bases* of neutral salts are the alkaline, earthy, and metallic matters, which are saturated by the several acids, and form with them these neutral salts. It is proper for the conveniency of chemical language to retain this manner of expression; but these *bases* must not be considered as inactive, and only yielding to the action of the acids which they fix, and to which they give a body and consistence. In every combination and solution, the several bodies which unite are equally active, their action being reciprocal. They dissolve each other; so that it is as proper to say (as Mr. Gellert observes) that a metal or an earth dissolves an acid, as that an acid dissolves a metal or an earth; though this latter mode of expression is most common. Probably the dissolving power which the more weighty and fixed bodies have, is really much stronger than that of bodies less weighty and fixed. It certainly is so, if the tendency to unite be only the effect of the general attraction, or the gravitation of all particles of matter to each other. See *COMBINATION and SOLUTION*

BASIS, in *Pharmacy*, is that ingredient on which most stress is laid, for effecting the purpose of any compound medicine.

BASE, in *Music*, see *BASS.*

BASE, in *Law*. — *Base estate* is that estate which *base* tenants have in their lands.

BASE fee denotes a tenure in fee at the will of the lord. By which it stands distinguished from socage, or free tenure. See *FEE.*

BASE court, is any court not of record. — Such, e. gr. is the court-baron.

BASE tenure, bassa tenura, denotes holding by villenage, or other customary service; as distinguished from the higher tenures in capite, or the military service.

BASE rocket, RESEDA, in *Botany*, see *ROCKET.*

BASE knights, bas chevaliers, denote the inferior order of knights, as distinguished from barons and bannerets, who were the chief or superior knights.

BASE point, in *Heraldry*, see *POINT* and *ESCUTCHEON.*

BASE ring of a cannon, is the great ring next behind the touch-hole.

BASELS, BASELLI, in our *Old Writers*, a kind of coin abolished by king Henry II. 1158.

BASELLA, in *Botany*, climbing nightshade, from Malabar, a genus of the *pentandria trigynia* class. The characters are these: the flower hath no empalement; it is shaped like a pitcher, closed toward the brim; it hath five stamina fastened to the petal, the globular germen, which is situated in the centre, supports three slender styles, crowned by oblong stigmas; the petal of the flower remains, and encloses a roundish fleshy berry, including one round seed. There are two species.

From the berries of the first sort, a beautiful colour is drawn; but when used for painting, it did not last, but changed to a pale colour; it is probable, however, that some method might be found to fix it, as it is said that the juice of these berries is used for staining callicoës in India.

BASELLA, is sometimes used for the *cuscuta*, or *DODDER.*

BASEMENT, in *Architecture*, a continued base, extended a considerable length, as around a house, a room, or other piece of building.

This is also called, by ancient architects, *stereobata*; by the French *embasement*, or *soubasement*; sometimes *socle continu*, when it is without either base or cornice.

BASHARIANS, a sect of Mahometans, being a branch or subdivision of the *Motaxalites*.

The *Basharians* are those who maintain the tenets of Bashar Ebn Motamer, a principal man among the *Motaxalites*, who varied, in some points, from the general tenets of the sect, as extending man's free agency to a great length, even to the making him independent. He asserted, that God is not always obliged to do that which is best; for that, if he pleased, he could make all men true believers. Accordingly he taught, that God might doom an infant to eternal punishment; but taught at the same time, that he would be unjust in so doing. Vide Sale's Prelim. Disc. to the Koran.

BASHAW, PASCHA, or PACHA, a Turkish governor of a province, city or other district.

We say, the *bashaw* of Babylon, the *bashaw* of Anatolia, the *bashaw* of Bender, &c.

All Egypt is, on the part of the grand seignior, governed by a *bashaw*, who has in reality but little power; but seems principally to be meant for the means of communicating to his divan of *beys*, and to the divans of the several military *ogiacs*, that is, their bodies, the orders of the grand seignior, and to see that they be executed by the proper officers.

If he farms the country of the grand seignior, the fines that are paid, when any life drops upon the lands, belong to him; for originally all the lands of Egypt belonged to the grand seignior; and the Porte still looks on them as its own: but the grand seignior's power being now lost, they all go to the next heir; who must, however, be invested by the *bashaw*, and is glad to compound for a small sum. The nature of the *bashaw's* office requires him to be ever attempting means to cut off such as are too aspiring, or engaged in designs that may be any way prejudicial to the Porte. This often occasions his own deposition; but he is unconcerned about that, as his person is always sacred; and his losing his post is only a step to higher preferment.

Bashaws include *beglerbegs*, and sometimes *sangiacbegs*; though a distinction is sometimes made, and the name *bashaw* is appropriated to the middle sort or such as have two ensigns or horse-tails carried before them. — Those who have the honour of three tails, are called *beglerbegs*; and those who have only one, *sangiacbegs*.

The appellation of *bashaw* is also given by way of courtesy at Constantinople, to the lords about the grand seignior's court the officers in the army, and almost every person of any figure.

A *bashaw* is made with the solemnity of carrying a flag or banner before him, accompanied with music and songs by the *mirialem*, an officer on purpose for the investiture of *bashaws*.

Bashaw, used absolutely, denotes the prime vizier; the rest of the denomination being distinguished by the addition of the province, city, or the like, which they have the command of; as the *bashaw* of Egypt, of Palestine, &c. The *bashaws* are the emperor's sponges. We find loud complaints among Christians of their avarice and extortions.

As they buy their governments, every this is venal with them.

When glutted with wealth, the emperor frequently makes them a present of a bow-string, and becomes heir to all their spoil. *Tonan. Voyag. tom. i. & ii.*

There are also *sub-bashaws*, or deputy-governors under the first. *Phil. Transf. N^o 218.*

BASHAW, *captain*, is the title of the Turkish high-admiral. **BASIA ultima**, see **ULTIMA**.

BASIATRAHAGI, in *Botany*, a name used by some for the common *polygonum*, or knot-grass.

BASIL, among *Joiners*, denotes the angle to which the edge of an iron tool is ground.

To work on soft wood they usually make their *bafil* 12 degrees, for hard wood 18; it being observed, that the more acute or thin the *bafil* is, the better and smoother it cuts; and the more obtuse, the stronger and fitter it is for service.

BASIL, *order of St.* is the most ancient of all the religious orders; it takes its name from St. Basil, bishop of Cæsarea, in Cappadocia, about the middle of the fourth century; who is supposed to have been the author of the rules observed by this order, though some dispute it.—The order of St. *Bafil* was anciently very famous in the East. The order of St. *Bafil* still continues in Greece. The habit of the monks is black, and plain, consisting of a long cassock, and a great gown with large sleeves: on their head they wear a hood, which reaches to the shoulders: they wear no linen; sleep without sheets, in straw; eat no flesh; fast often; and till the ground with their own hands.

This order was introduced in the West in 1057, and was reformed in 1579, by pope Gregory XIII. who united the religious of this order in Italy, Spain, and Sicily, into one congregation; of which the monastery of St. Saviour, at Messina, is the chief, and enjoys pre-eminence over the rest. Each community has its particular rule, besides the rule of St. *Bafil*, which is very general, and prescribes little more than the common duties of a Christian life.

BASIL, in *Botany*, *ocymum*, a genus of the *didynamia gymnospermia* class of plants, the characters of which are these: the empalement of the flower is short, permanent, of one leaf, divided into two lips; the flower is of the lip kind, of one petal inverted; the rising lip is broad and cut into four obtuse equal parts; the reflexed lip is long, narrow, and sawed; it hath four stamina on the lower lip, which are reflexed; two of which are a little longer than the other, terminated by half moon-shaped summits; the germen is divided into four parts, which afterward become four naked seeds enclosed in the empalement. There are seven species.

Bafil, though it has a fragrant, and, to most, a pleasant smell, is but little used in physic. The ancients condemned the inward use of it, as hurtful to the sight. Schroder says it cleanses the lungs of phlegm, and provokes the menses. It has an ingredient in the *aqua bryonia composita*, or hysteric water.

BASIL, *field*, see **CLINOPODIUM**.

BASIL, *American field*, see **MONARDA**.

BASIL, *Syrian field*, *Ziziphora*, in *Botany*, a genus of the *diandria monogynia* class. The characters are these: the flower hath a long, rough cylindrical empalement, which is slightly cut into five parts at the brim; and the flower is of the labiated kind, having a long cylindrical tube; the upper lip is oval, reflexed, and entire; and the under lip, or beard, is divided into three equal segments, it has two spreading stamina, terminated by oblong summits, and a quadrifid germen, supporting a bristly style, crowned by a sharp-pointed inflexed stigma; the germen turns to four oblong seeds, which ripen in the empalement. There are three species.

BASIL *stone*, and *wild*, see **THYMUS**.

BASILARE *os*, in *Anatomy*, a barbarous denomination given to the *os SPHENOIDES*, on account of its being situated at the bottom or *basis* of the skull; or because a great part of the brain rests hereon, as on its *basis*.

Arteria BASILARIS. See **VERTEBRAL Artery**.

BASILEUS, *βασιλευς*, a title assumed by the emperors of Constantinople, exclusive of all other princes, to whom they give the title *rex*, *king*.

The same quality was afterwards given by them to the kings of Bulgaria, and to Charlemagne, from the successors of which last they endeavoured to wrest it back again.

The title *basileus* has been since assumed by other kings, particularly the kings of England, *Ego Edgar totius Anglæ basileus confirmavi*.

Hence also the queen of England was intitled *Basilea* and *Basilissa*.

BASILEUS, in *Ornithology*, a name by which several of the old authors called the *regulus cristatus*; or golden-crowned wren.

BASILIANs, see **BOGOMILI**.

BASILIC, or **BASILICA**, in the *Ancient Architecture*, denotes a kind of public hall, or court of judicature, where the

princes or magistrates sat to administer justice. See *fig. 40. Tab. Architect.* The figure is drawn to introduce several rules and decorations, which could not be so well explained as by representing them in their proper order, and exhibiting their use, and the manner in which they may be applied.

The word is originally Greek, *βασιλικη*, q. d. *royal house*, or *palace*.

The *basilics* consisted of a great hall, with ailes, porticos, tribunes, and tribunals. With us Westminster-hall is properly a *basilic*; but architects have taken the liberty to extend its meaning farther; and *basilic* is now used as a name for any spacious building, as hall, church, &c. When applied to a church, it conveyed the idea of great magnificence.

The bankers too had one part of the *basilica* allotted for their residence. The scholars went also thither to make their declamations, according to the testimony of Quintilian.

The Roman *basilicæ* were covered, by which they were distinguished from the *fora*, which were public places open to the air.

In after-times the denomination *basilicæ* was also given to other buildings of public use, as town-houses, exchanges, burses, and the like.

The first *basilica* was built at Rome by Cato the elder; whence it was called *Porcia*; the second was called *Optimia*; the third was that of Paulus, built with a great expence, and with much magnificence, whence it was called by some *regia Pauli*: another was built by Julius Cæsar, called *basilica Julia*; of which Vitruvius tells us he had the direction.

There were others also, to the number of eighteen or twenty. The *basilica Julia* not only served for the hearing of causes, but for the reception and audience of foreign ambassadors. It was supported by a hundred marble pillars in four rows, and enriched with decorations of gold and precious stones. In it were thirteen tribunals or judgment seats, where the prætors sat to dispatch causes.

BASILIC, **BASILICA**, is also used, in *Ecclesiastical Writers*, for a church.

In which sense, this name frequently occurs in St. Ambrose, St. Austin, St. Jerom, Sidonius Apollinaris, and other writers of the fourth and fifth centuries.

M. Perrault says, that *basilics* differed from *temples*, in that the columns of temples were without side, and those of *basilics* within.

Some will have the ancient churches to have been called *basilicæ*, because generally built in the fashion of the Roman halls, called by that name: others, because divers churches were formed of those halls. In reality, on the conversion of Constantine, many of the ancient *basilicæ* were given to the church, and turned to another use, viz. for Christian assemblies to meet in, as may be collected from that passage to Ausonius, where speaking to the emperor Gratian, he tells him, the *basilicæ*, which heretofore were wont to be filled with men of business, were now thronged with votaries praying for his safety. By which he must needs mean, that the Roman halls or courts were turned into Christian churches: and hence, we conceive, the name *basilicæ* came to be a general name for churches in after-ages.

BASILIC is chiefly applied, in modern times, to churches of royal foundation; as those of St John de Lateran, and St. Peter of the Vatican, at Rome, founded by the emperor Constantine.

BASILIC appears also to have been given in later ages to churches before consecration.

BASILICS were also little chapels built by the ancient Franks over the tombs of their great men, so called, as resembling the figure of the sacred *basilicæ* or churches.

Persons of inferior condition had only *tumbæ*, or *porticuli*, erected over them. By an article in the Salic law, he that robbed a *tumba* or *porticulus*, was to be fined fifteen *solidi*; but he that robbed a *basilica*, thirty *solidi*.

BASILICA, or **BASILICUS**, in *Anatomy*, the name of a vein, arising from the axillary branch, and running the whole length of the arm. See *Tab. Anat. (Angeiol.) fig. 6. lit. a.* The *basilica* is one of the veins opened in bleeding in the arm.

BASILICS, **BASILICA**, a collection of the Roman laws, translated into Greek by order of the emperors Basil and Leo, and which were of force in the eastern empire till its dissolution.

The *basilics* comprehend the institutes, digests, code, and novels, and some edicts of Justinian, and other emperors. The collection consisted of sixty books, for which reason it was called *εξηκονταβιβλος*. It is supposed to be chiefly the work of the emperor Leo the Philosopher, who denominated it from his father Basilus Macedo, who first began it in 867. It was published by Leo, with additions, in 880; and thirty years after, corrected and improved by his son Constantine Porphyrogenitus. Of these sixty books there are

are now remaining only forty-one; the other nineteen are, in some measure, supplied by Fabrottus, from the *Synopsis Basilicon*, &c.

BASILICI, βασιλικοί, in the Greek Empire, was a denomination given to the prince's mandatories; or those who carried his orders and commands.

BASILICON, or **BASILICUM**, in Pharmacy, is the denomination of an official unguent or plaster; called also *tetrapharmicum*, as being composed of four simples, viz. resin, wax, pitch, and oil-olive. See **UNGUENTUM**.

BASILICUS, or **BASILICA**, in Astronomy, is the name of a fixed star of the first magnitude, in the constellation Leo; called also **REGULUS**, and **COR LEONIS**.

BASILIDIANS, the followers of Basilides, an Egyptian, who lived near the beginning of the second century. In general, the *Basilidians*, held much the same opinion with the *Valentinians*, another branch of the *GNOSTICS*.

BASILISCUS, in Ornithology, a name given by some of the old authors to the *regulus cristatus*, or golden-crowned wren. This name is a diminutive of the word *basileus*, king, another of its names, given it because of its golden crown.

BASILISCUS, **BASILISC**, or **BASILISK**, is also used to denote a very dangerous sort of serpent, which kills, as it is said, by its breath or sight only.

The generation of the *basilisk* is not less marvellous, being said to be produced from a cock's egg, brooded on by a serpent. These, and other things equally ridiculous, are related by Matthiolus, Galen, Dioscorides, Pliny, and Erasistratus. Kirchmayer and Vander Wiel have given the history of the *basilisk*, and detected the folly and imposture of the traditions concerning it.

We find the *basilisk* mentioned in the Bible; but the Hebrew word *pethen*, which is translated *basilisc*, signifies an *asp*, as the best interpreters agree. Calmet.

The *basilisc*, in the Linnæan System, is a species of the **LACERTA**.

BASILISC is also mystically used by the alchemists, to denote the sublimate mercury of the philosophers.

BASILISC also denotes a great piece of ordnance; thus denominated from its resemblance to the supposed serpent of that name.

The *basilisc* throws an iron ball of two hundred pounds weight. It was much talked of in the time of Solyman, emperor of the Turks, in the wars in Hungary; but seems now out of use.

Maffeus speaks of *basiliscs* made of brass, which were drawn each by a hundred yoke of oxen.

Modern writers also give the name *basilisc* to a much smaller and fizeable piece of ordnance, which the Dutch make fifteen feet long, and the French only ten. It carries forty-eight pounds.

BASIOGLOSSUM, or rather **BASIGLOSSUM**, in Anatomy, a pair of muscles, which arise fleshy from the basis of the *os hyoides*, and are inserted into the root of the tongue: serving to draw the tongue towards the bottom of the mouth. The word comes from the Greek *βασίς*, foundation, and *γλῶσσα*, a tongue.

The *par basioglossum* is otherwise denominated, from its figure, *par hypsiloideum*.

Some have denied the existence of the *par basioglossum*, particularly Fallopius and Mr. Cowper; though this last, on farther enquiry, found some fibres, which, by their contrary order to those of the *genioglossum*, induced him to allow the *basioglossum*. Heister only makes the *basioglossum* a part of the *ceratoglossum*.

The *basioglossum*, with the *genioglossum*, *ceratoglossum*, and *styloglossum*, form the body of the **TONGUE**.

BASIS, in the Ancient Music and Poetry, denotes the equality of sounds proceeding in the same tenor.

In which sense, *basis* stands contradistinguished from *arsis*, or elevation, as well as from *thesis*, or depression.

BASIS, in Oratory, denotes the fourth member of a complete exordium, being that which succeeds the *apodosis*, and prepares the way for the proposition.

BASIUM. Chemists use the word *basium*, which literally in Latin signifies a kiss, for an extemporaneous tincture of iron and copper, invented by Cloßæus.

BASKET, a kind of vessel made of osier, wicker, rushes, or the like, of different figures and sizes, according to the use it is intended for.

Baskets have their uses not only in the oeconomic, but military affairs; at sieges, they make use of a small basket filled with earth and ranged on the top of the parapet.

They are about a foot and a half high, as much in diameter at top, and eight or ten inches at bottom; so that being set together, they leave a sort of embrasures at the bottom, through which the soldiers fire, without exposing themselves.

BASKET also imports a kind of measure or quantity of certain commodities.

BASKET, *corbeille*, in Architecture, a kind of vase, or figure-piece of sculpture, in form of a basket, filled with flowers or fruits, serving to terminate some decoration.

BASKET-fish, in Natural History, a name given by the English in North America to a very remarkable fish, sometimes caught in the seas thereabout, though not frequent any where.

Mr. Hooke, to whom it was referred by the Royal Society to name it, has called it *Piscis echinostellaris visciformis*, the body of it resembling an egg-fish, or *echinus marinus*, and the arms a star-fish; and finally, the dividing of the branches being more like that of the branches of mistletoe than any other natural production we are acquainted with.

This fish spreads itself from a pentagonal mouth-piece, or root, in the centre of which the mouth is placed, into five main limbs or branches; and each of these, at its first issuing out of the body, is divided into two: this makes ten. Each of these ten again divides into two; which makes twenty, and so on, each dividing to the fourteenth time; at which place they make more than fourscore thousand limbs. These are too small to be traced farther by the eye, or preserved in carriage: but it is very probable that even these were again divided, perhaps, several times.

The branches between the joints are not all equally of a length, though, for the most part, they are pretty nearly so. The arms or branches are never very strong; but, when they are dry, they are greatly more brittle than before, the least force imaginable destroying them.

The shoals of Nantucket, an island on the coast of New-England, at times furnish the fishermen with this creature; but it is remarkable, that they are never seen there, unless when taken by hooks in fishing for other fish. They clasp the hook-bait fast, and encircle it with all their arms, coming up, when drawn by it, in form of a wicker basket; whence the name: but, when they have been some time out of the water, they become flat.

The use of the numerous arms of this fish is plainly to catch its prey. It probably extends them to their full length while under the water, and then clasps hold of any thing fit for food that chances to swim over them. The fishermen have sometimes found the arms containing small mackrel, or pieces of larger. Phil. Trans. N^o 57 and 74. It is evident from the description, that this fish is of the *stella arborefcens*, or branched star-fish kind; but whether the same with the commonly known kind, called the *caput medusæ*, is not evident from this description. The body of this fish, by what is related of its protuberance, and resemblance to the *echini marini*, may probably be the *asteropodium*, in its fossil state.

BASKET salt. This is a brine salt, made from the water of our salt springs in Cheshire, and elsewhere, differing from the common brine salt in the fineness of the grain, and in its whiteness and purity.

In the preparing of this kind of salt, some use resin, and other additions, to break the grain, and make it small: others effect this by keeping up a very brisk fire under it, and stirring it all the while; but the most approved method is only to take out of this kind the third draught of every pan that is working for the common brine salt, and to do this before the granules or crystals are perfectly formed. By this means the salt is very fine; and when it has been hard pressed down into small wicker baskets, it is dried at the stove in them, and so kept for sale.

BASON, *pelvis*, in Anatomy, a round cavity in form of a tunnel, situate between the anterior ventricles of the brain, descending from its base, and ending in the point at the *glandula pituitaria*.

It is formed of the *pia mater*, and receives the *pituita* which comes from the brain, and passes through the pituitary gland, and from thence into the veins.

That capacity is also called *pelvis*, or *bason*, which is formed by the *ossa ilia* and *sacrum* and contains the bladder of urine, the *matrix*, and the intestines.

BASONS of a balance, two pieces of brass, or other matter, fastened to the extremities of the strings; the one to hold the weight, the other the thing to be weighed.

BASON, or *dish*, among Glass Grinders.—These artificers use various kinds of *basons*, of copper, iron, &c. and of various forms, some deeper, others shallower, according to the focus of the glasses that are to be ground. In these *basons* it is, that convex glasses are formed, as concave ones are formed on spheres or bowls.

Glasses are worked in *basons* two ways.—In the first, the *bason* is fitted to the arbor, or tree of a lath, and the glass (fixed with cement to a handle of wood) presented and held fast in the right hand within the *bason*, while the proper motion is given by the foot of the *bason*. In the other the *bason* is fixed to a stand or block, and the glass with its wooden handle moved.

The moveable *basons* are very small, seldom exceeding five or six inches in diameter; the others are larger, sometimes above ten feet in diameter.

After the glass has been ground in the *bason*, it is brought smoother with grease and emery: and polished first with tripoli, and finished with paper cemented to the bottom of the *bason*.

BASON,

BASON, among *Hatters*, is a large, round shell, or case, ordinarily of iron, placed over a furnace; wherein the matter of the hat is moulded into form.

The hatters have also *basons* for the brims of hats, usually of lead, having an aperture in the middle, of a diameter sufficient for the largest block to go through.

BASON is also used on various occasions for a small reservoir of water: as the *bason* of a *jet d'eau*, or fountain; the *bason* of a port, of a bath, &c. which last Vitruvius calls *labrum*. *Basons* are made either with clay, cement, or lead; but they are most usually made with clay. In the making them this way, the diameter must be made four feet longer on each side than the *bason* is to be. This will be taken up by the walls of clay. For the same reason, it must be dug two feet deeper than the intended depth of the water; because it is to be laid over eighteen inches thick with clay, and six inches with gravel and paving. The wall is to be made with shards, rubbish, or flints, with the natural earth for mortar; and the clay must be well worked, and trod firmly down with the naked feet.

The way of making them with cement is, to allow one foot nine inches every way for the work; then cut the banks perpendicularly, and raise a wall of masonry a foot thick, made of pebble stones, or the like, laid in mortar of lime and sand: the bottom is then to be covered to the same thickness; and then the solid lining of the cement is to be backed up against the walls, and over the bottom. This is to be made of small flints in beds of mortar made of lime and cement. When this solid is eight inches thick, it must be plastered over the whole surface with cement well sifted, before it be mixed with the lime; and with this it is to be wrought over smooth with a trowel. The proportion of this cement should be two-thirds of the cement, or powdered tile, to one third of lime; and this cement has the property of hardening so under water, that it will become like stone or marble, and it will not be subject to decay for a long time.

After the finishing, the *bason* should, for four or five days, be anointed over very often with oil, or bullocks blood, to keep it from flaking or cracking in the drying; and after this, the water should be let in as soon as may be. The leaded *basons* are made with walls a foot thick, and a bottom of half a foot. These must be of rubble stones cemented with plaister; for the lime will injure and eat the lead. The sheets of lead are to be spread over these walls and bottom, and seamed with folder. These *basons*, however, are but little in use now, from the expence of making them, and the danger of the lead being stolen. The waste pipes of fountains ought always to be made large enough for fear of choaking. When the waste water is to be carried off into common sewers, it may be carried away in drains, or earthen pipes; but when it is to serve for *basons* that lie below it, it is to be conveyed in leaden ones. Miller.

There are divers sorts of *basons*; as

BASON figured, that whose plan or circumference makes several turns and returns, either straight, circular, or the like. Such are most of the *basons* of fountains at Rome.

BASON with a balustrade, that whose cavity is surrounded with a balustrade of stone, marble, brass, or the like.

BASON with a trench, or *bassin a rigole*, that whose border being of marble, or other stone, has a trench cut in it, from whence, at certain distances, springs out a thread of water, which lines the trench, and forms a kind of nape or gargle around the balustrade. Such is that of the fountain of the rock of the Belvidere at Rome.

BASON en coquille, that shaped like a shell.

BASON is likewise used for a DOCK.

BASON of the sea. See SEA.

BASON, sale by the, at Amsterdam, is used for the public sales made under the direction of the *ven du meester*; thus called, by reason that, before adjudging the lot or commodity to the last bidder, they usually strike a brass *bason*, to give notice of it.

BASS, in *Music*, that part of the concert which is the most heard, which consists of the gravest, deepest, and longest sounds; or which is played on the largest pipes or strings of a common instrument, or an instrument larger than ordinary, for the purpose.

It is called *bass*, from the Italian *basso*, of the Latin *basis*, as being the foundation of the harmony.

Musicians hold the *bass* the principal part of a concert, and the foundation of the composition; though some will have the *treble* the chief part; which others only make a circumstance, or ornament.

The ingenious Dr. Franklin, in his very curious letter to lord Kaimes on this subject, declares it to be his opinion that the *bass* is unnecessary to some tunes, and gives some reasons in support of it, which the curious may see there. Experiments, Observations, &c. 4to. 5th. ed. p. 489.

Rousseau appears to be of the same opinion. See Dict. de Musique, an. 1768.

Bass, counter, is a second *bass*, where there are several in the same concert.

Bass, thorough, is that which proceeds, without interruption, from the beginning of a musical composition to the end. By which it stands contradistinguished from the *singing bass*, and the *basses of violins*, which make pauses from time to time. The *thorough-bass* is the harmony made by *bass* viols, theorbos, or the like, continuing to play, both while the voices sing, and the other instruments perform their part; and also filling the intervals when any of those stop. M. Broflard observes the *thorough-bass* to be a part of the modern music, first invented in 1600, by an Italian, called Ludovico Viadana.

It is commonly distinguished from the other *basses* by figures over the notes, directing what chords are to be played to them; which figures are proper only for the organ, harpsichord, spinet, and theorbo lute.—But it is to be observed a *thoroughbass* is not always figured, though it ought to be so.

Bass, fundamental. See FUNDAMENTAL and KEY.

Bass, among *Gardeners*, a soft kind of sedge or rush, used in binding plants, &c.

BASSAD, or **BESD**, an Arabian name for the purple *fucus* of the Greeks, used by the women to paint their cheeks, and by the dyers of cloths. It has been so far misunderstood by late authors as to be interpreted by the word coral; but the error of this is evident, since CORAL has none of these properties. See MARGIAN.

BASSANUS, in *Ornithology*, a species of the PELICAN.

BASSE, in *Ichthyology*, the English name of the *sea-wolf*, the *lupus piscis* of authors. The Greeks have called this *labrax*; and some of the later writers, as Paulus Jovius, and others, *spigola*. It is properly a species of perch, and is distinguished by Artedi by the name of the perch with thirteen rays in the second fin of the back, and fourteen in the *pinna auri*. See PEARCH and LUPUS *Marinus*.

BASSE-cour, in *Building*, a court separated from the principal one, and destined for the stables, coach-houses, and livery servants.

BASSE-cour of a country-seat, is the yard, or place where the cattle, fowls, &c. are kept.

That where strange creatures of divers sorts are kept for curiosity, is called by the French *menagerie*. The Romans gave the name of *vivarium* to that place, where beasts were kept for the public shews.

BASSE, in *Middle Age Writers*, denotes a collar for cart-horses, made of flags.

Hence also the round, matted cushions of flags, used for kneeling in churches, is called *basse*; in Kent, a *trush*.

BASSET, or **BASSETTE**, a game with cards, said to have been invented by a noble Venetian, for which he was banished. It was first introduced into France by signior Justiniani, ambassador of Venice, in 1674. Severe laws were made against it by Louis XIV. to elude which they disguised *basset* under the name of *pour & contre*, that is, *for and against*, which occasioned new arrets and prohibitions of Parliament. The parties concerned in it are, a dealer or banker, his assistant, who supervises the losing cards, and the punter, or any one who plays against the banker. Besides these, there are other terms used in this game, as,

1. The *fussè*, or *face*, which is the first card turned up by the *tailleur* belonging to the pack; by which he gains half the value of the money laid down on every card of that sort by the punters.

2. The *couch*, or first money which every punter puts on each card; each person that plays, having a book of thirteen several cards before him, on which he may lay his money, more or less, at discretion.

3. The *paroli*, which is, when a punter having won the first stake, and having a mind to pursue his good fortune, crooks the corner of his card, and lets his prize lie, aiming at a *sept et le va*.

4. The *masse*, when having won the first stake, the punter is willing to venture more money on the same card.

5. The *pay*, when the punter having won the first stake, be it a shilling, half-crown, guinea, or whatever he laid down on his card, and not caring to hazard the *paroli*, leaves off, or goes the *pay*; in which case, if the card turn up wrong, he loses nothing, having won the *couch* before; whereas, if it turn right, he, by this adventure, wins double the money staked.

6. The *alpieu*, much the same with *paroli*, and used when a *couch* is won by turning up, or crooking the corner of the winning card.

7. *Sept et le va*, the first great chance or prize, when the punter having won the *couch*, makes a *paroli*, and goes on to a second chance; so that if his winning card turns up again, it comes to *sept et le va*, which is seven times as much as he laid down on his card.

8. *Quinze et le va* is the next higher prize, when the punter having won the former, is resolved to push his fortune, and lay

lay his money a second time on the same card, by crooking another corner; in which case, if it come up, he wins fifteen times the money he laid down.

9. *Trent et le va* is the next higher prize, when the punter crooking the fourth corner of his winning card, if it turn up, wins thirty-three times the money he first staked.

10. *Saixant et le va* is the highest prize, and entitles the winner to sixty-seven times his first money; which, if it were considerable, stands a chance to break the bank: but the bank stands many chances first of breaking the punter. This cannot be won, but by the *tailleur's* dealing the cards over again.

The rules of the game of *basset* are as follow:

The banker holds a pack of fifty-two cards, and having shuffled them, he turns the whole pack at once, so as to discover the last card; after which he lays down all the cards by couples.

The punter has his book of thirteen cards in his hand, from the king to the ace; out of these he takes one card, or more at pleasure, upon which he lays a stake.

The punter may, at his choice, either lay down his stake before the pack is turned, or immediately after it is turned, or after any number of couples are down.

Supposing the punter to lay down his stake after the pack is turned, and calling 1, 2, 3, 4, 5, &c. the places of those cards which follow the card in view, either immediately after the pack is turned, or after any number of couples are drawn. Then

If the card, upon which the punter has laid a stake, comes out in any odd place, except the first, he wins a stake equal to his own.

If the card, upon which the punter has laid a stake, comes out in any even place, except the second, he loses his stake.

If the card of the punter comes out in the first place, he neither wins nor loses, but takes his own stake again.

If the card of the punter comes out in the second place, he does not lose his whole stake, but only one half; and this is the case in which the punter is said to be *faced*.

When the punter chooses to come in after any number of couples are down, if his card happen to be but once in the pack, and is the last of all, there is an exception from the general rule; for though it comes out in an odd place, which should entitle him to win a stake equal to his own, yet he neither wins nor loses from that circumstance, but takes back his own stake.

This game has been the object of mathematical calculations. Mr. DeMoivre solves this problem; to estimate at *basset* the loss of the punter under any circumstance of cards remaining in the stock when he lays his stake, and of any number of times that his card is repeated in the stock. From this solution he has formed a table, shewing the several losses of the punter in whatsoever circumstances he may happen to be. See Doctr. of Chances, p. 63.

From this table it appears, 1. That the fewer the cards are in the stock, the greater is the loss of the punter. 2. That the least loss of the punter, under the same circumstances of cards remaining in the stock, is when his card is but twice in it; the next greater when but three times; still greater when four times; and the greatest when but once. The gain of the banker upon all the money adventured at *basset*, is 15s. 3d. per cent. De Moivre, Doctr. of Chances, p. 69. edit. 3.

BASSETING, in the *Coal Mines*, denotes the rise of the vein or coals towards the surface of the earth, till it come within two or three feet of the surface itself.

This is also called by the workmen *cropping*, and stands opposed to *dipping*, which is the descent of the vein to such a depth that it is rarely, if ever, followed to the end.

BASSIA, in *Botany*, a genus of the *dodecandria monogynia* class.

BASSON, or **BASSOON**, a musical instrument of the wind kind, blown with a reed, and furnished with eleven holes; serving for the *bass* in concerts of hautboys, &c.

To make it more portable, it divides into two parts, whence it also bears the denomination *fagot*. Its diameter at bottom is nine inches, and its holes are stopped like those of large flutes. — A good *bassoon* is said to be worth four or five hundred pistoles.

BASSO rilievo, or **Bas relief**, a piece of sculpture, the figures whereof do not project far, or stand out from the ground, with their full proportion.

Mr. Hellot, in the Mem. Acad. des Scienc. an. 1745, communicates a method of making raised figures of gold, on works of gold or silver, found among the papers of Mr. du Fay, who had seen several trials of it. See the process in the memoir above referred to, and in the Commerc. Phil. Techn. 4to. p. 80.

M. Felebien distinguishes three kinds of *relievos*: in the first, the front figures appear almost with their full *relievo*, called *alto rilievo*; in the second, they do but stand out one half, called *mezzo rilievo*; and in the third, much less,

which is the proper *basso rilievo*, as in coins, vases, &c. See **RELIEVO**.

Basso relievos make part of the furniture of antiquaries: Those of the Trajan and Antonine columns have been copied by Bartoli, and explained by Bellori, &c. Those of the arch of Severus by Suarezius.

Some have also made maps of prospects of countries in *basso rilievo*. Phil. Trans. N^o 6. p. 99.

Basso & alto, in *Law*. See **ALTO**.

BASS-VIOL, a musical instrument of the same form with that of the violin, except that it is much larger. — It is struck like that, with a bow; and has strings, and eight stops; divided by half stops or semi-tones.

The sound it yields is much more grave, sweet and agreeable, than that of the **VIOLIN**, and of a much nobler effect in a concert.

BASTAGARII, in *Antiquity*, a college or company at Rome, who carried the fiscal species out of the provinces to Rome or Constantinople.

The directors of these were called *præpositi bastagarum*.

The word is derived from *bastaga*, which properly imports the office of carriage or conveyance, from *basazeiv*, *portare*, to carry.

The denomination *bastagarii* has also been given to those who carry the images of saints at processions. Du-Cange.

BASTARD, a natural child, or one born out of lawful wedlock.

The word is of Saxon etymology, and is compounded of *bæse*, vile, or ignoble; and *stari*, or *stear*, original.

A *bastard* differs from one born in adultery, or incest, in that the parents of the former are free, or allowed to marry, which those of the latter are not.

The *bastards*, or natural sons of a king in France, are princes when owned; those of a prince, or nobleman, are gentlemen; but those of a gentleman are only piebeians, and pay taxes accordingly.

By the French laws, *bastards* cannot inherit before they are legitimated; nor have heirs, except their own children begot in wedlock: for want of these, their inheritance devolves on the king.

By the Roman law, the mother inherited from her *bastard* child, and *vice versa*: but there was a great difference between *bastards*, *nothi*, and those they called *spurious*. The law did not own the latter, nor allow them sustenance, because they were born in common and uncertain prostitution. *Is non habet patrem, cui pater est populus*. The former sort, born in concubinage, which resembles marriage, inherited from their mothers, and had a right to demand sustenance of their natural fathers. They were looked upon as domestic creditors, that ought to be treated the more favourably, for being the innocent product of their parents crimes. Solon would have it, that the parents should be deprived of their paternal authority over their *bastards*, because, as they were only parents for pleasure, that ought to be their only reward.

Anciently, in Rome, natural children were quite excluded from inheriting after their fathers *ab intestato*: but they might be appointed heirs in general. The emperors Arcadius and Honorius made a restriction, and when there were legitimate children, the *bastards* should only come in for a twelfth, to be shared with their mother. Justinian afterwards ordered, that they might come in for half; and succeed *ab intestat*. for a sixth, when there were legitimates.

Bastards might be legitimated by subsequent marriage, or by the emperor's letters. Only the king in France, and the king and parliament in England, can give *bastards* a right of legitimacy, and a power to inherit. The emperor Anastasius allowed fathers to legitimate their *bastards* by adoption alone: but this was abolished by Justin and Justinian, lest by this indulgence they should authorize concubinage. The pope has sometimes legitimated *bastards*. Nay, the holy see has on some occasions dispensed not only with illegitimates, but with the offspring of adultery, as to spiritual considerations, in allowing of their promotion to episcopacy.

Bastards not legitimated may dispose of their goods by donation when alive, or by will afterwards. These legitimated by subsequent marriage are in the same state, and enjoy the same right with those born in wedlock: but those who are legitimated by the king's letters, are not esteemed legitimate, or capable of inheriting, but with regard to such of their parents as have consented to their legitimation. Pope Clement VII. by his bull, forbade a priest to resign his benefice to his *bastard*.

An attempt was once made to introduce the civil law here in this respect, by declaring children legitimated by a subsequent marriage; but it was rejected; and it was upon this occasion that the barons of England made that famous answer, *Nolumus leges Angliæ mutari*.

A *bastard's* arms should be crossed with a bar, fillet, or traverse, from the left to the right. They were not formerly

allowed to carry the arms of their father, and therefore they invented arms for themselves, and this is still done by the natural sons of a king.

Bastards cannot be admitted to simple benefices, or the lowest orders, or to more than a simple benefice, without orders from the pope: nor are they allowed to bear office without the prince's letters. But this doctrine seems now obsolete.

A *bastard* by the law of England cannot inherit land as heir to his father, being *nullius filius*; nor can any person inherit land as heir to him, but one that is heir of his body. If a child be begotten by him who doth marry the woman after the child's birth, yet it is in judgment of the law a *bastard*, though the church holds it legitimate.—If one marry a woman, and die before night, and never bed her, and she have a child after, it is yet accounted his child, and legitimate.—If a man or woman marry again, and have issue by the second wife or husband, while the first is living, such issue is a *bastard*.—If a woman elope with a stranger, and have a child by him, her husband being within the four seas, this is legitimate, and shall inherit the husband's lands. But this notion is not now adhered to; for though the husband and wife are both in England, if there be sufficient proof that he had no access to her, the child will be a *bastard*.—He that gets a *bastard* in the hundred of Middleton, in Kent, forfeits all his goods and chattels to the king. By stat. 18 Eliz. cap. 3. two justices may take order for the punishment of the mother and reputed father of a *bastard*: and by stat. 7 Jac. I. cap. 4. the penalty of commitment to the house of correction is inflicted on the woman only. But it seems that in both cases the penalty can only be inflicted, when the child becomes chargeable to the parish. By 6 Geo. II. cap. 31. the reputed father may be apprehended by warrant of a justice, on the oath of the pregnant woman, and committed, unless he gives security to indemnify the parish to which the child belongs. But by stat. 18 Eliz. the woman is not compellable to answer any questions relative to her pregnancy, till one month after her delivery.

If a *bastard* be got under the umbrage of a certain oak in Knowlwood in Staffordshire, belonging to the manor of Tersey Castle, no punishment can be inflicted; nor can the lord, nor the bishop take cognizance of it. Plot's Hist. Stafford. p. 279.

BASTARD, in the *Sea Language*, is used for a large sail of a galley, which will make way with a slack wind.

BASTARD is also used adjectively, or in composition with divers other words, to denote things of inferior or diminutive value.

In this sense we meet with *bastard coral*, *bastard-alabaster*, *bastard-arnianthus*, &c.

BASTARD-saffron is the same with what is otherwise called *saf-flower*, sometimes *scarlet flower*, as being used in dying scarlets.

BASTARD-scarlet is a name given to red dyed with bale madder, as coming nearest the Bow-dye, or new scarlet.

BASTARD, in respect of artillery, is applied to those pieces, which are of an unusual or illegitimate make or proportion. These are of two kinds, long and short, according as the defect is on the redundant or defective side.

The long *bastards*, again, are either common or uncommon. To the common kind belong the double culverin extraordinary, half culverin extraordinary, quarter culverin extraordinary, falcon extraordinary, &c.

The ordinary *bastard* culverin carries a ball of eight pounds.

BASTARDS are also an appellation given to a kind of faction or troop of banditti, who rose in Guienne, about the beginning of the fourteenth century, and joining with some English parties, ravaged the country, and set fire to the city of Xaintes.

Mezeray supposes them to have consisted of the natural sons of the nobility of Guienne, who being excluded the right of inheriting from their fathers, put themselves at the head of robbers and plunderers, to maintain themselves.

BASTARDY is a defect of birth objected to one born out of wedlock.

BASTARDY, *right of*, *droit de batardise*, in the French Laws, is a right, in virtue whereof the effects of bastards dying intestate, devolve to the king, or the lord.

BASTARD diseases, &c. See **SPURIOUS**.

BASTARD dittany, &c. See **DITTANY**.

BASTERNA, a kind of vehicle, or chariot; used by the ancient Roman ladies.

Papias thinks, that *basterna* was first written for *vesterna*: Rosweild says, it should be *via sterna*, which he concludes from Isidore, who says, *basterna*, *via sterna*. But the word seems better derived from the Greek βασιλῶν πορτο, I carry.

Salmasius observes, that the *basterna* succeeded the *lectica*, or *litter*; from which it differed very little, except that the *litter* was borne on the shoulders of slaves, and the *basterna* borne or drawn by beasts. Casaubon says it was borne by mules. F. Daniel, Mabillon, &c. assert it was

drawn by oxen, to go the more gently; and Gregory de Tours gives an instance of its being drawn by wild bulls. The inside they called the *cavea*, or *cage*: it had soft cushions or beds, besides glasses on each side like our chariots.

The mode of *basternas* passed from Italy into Gaul, and thence into other countries; and to this we owe our chariots; which, though we call them *currus*, yet have they no conformity to the ancient *currus*, but are in effect *basternas* improved.

The *basterna* appears also to have been used in war, for carrying of baggage.

BASTILE denotes a small antique castle, fortified with turrets. Such is the *bastile* of Paris, which seems the only castle that has retained the name: it was begun to be built in 1369, by order of Charles V. and finished in 1383, under the reign of his successor.—Its chief use is for the custody of state prisoners.

BASTION, in the *Modern Fortification*, a huge mass of earth usually faced with sods, sometimes with brick, rarely with stone, standing out from a rampart, whereof it is a principal part.

This answers to what in the ancient fortification is called *propugnaculum*, or a *bulwark*.

Bastions, some say, were first introduced by Zisca the Bohemian: others attribute the invention of them to Achmet Bashaw, in the year 1480, mentioning the fortification of Otranto as the first instance in which they were used. However, they were well known soon after the year 1500; for Tartalea gives a plan of Turin, which had been completely fortified for some time with four *bastions*, in his *Questi & Inventioni diverse*, published in 1546. The first *bastions*, such as those of Turin and of Antwerp, which was fortified about the year 1540, were small, and removed at a great distance from each other: but they were made much larger, and brought nearer to each other in the citadel of Antwerp, erected under the direction of the duke d'Alva, about the year 1566.

A *bastion* consists of two faces, and two flanks, and an opening towards the centre of the place, called the **GORGE**.

—The faces are the lines BC and CS (*Tab. Fortificat. fig. 1.*) including the angle of the *bastion*. See **FACE**.—

The flanks are the lines BA, SD.

The union of the two faces makes the outmost or salient angle, called also the *angle of the bastion*, BCS.

The union of the two faces to the two flanks makes the side-angles, called the *shoulders*, or *epaules of the bastion*.

And the union of the two other ends of the flanks to the two curtains, the angles of the flanks of the *bastion*.—See *Tab. Fortific. fig. 21. lit. o o. &c. p p p.*

The foundation of the *bastion*, i. e. of a work consisting of flanks and faces, is that great rule in fortification, viz. that every part of a work must be seen and defended, from some other part: mere angles therefore are not sufficient, but flanks and faces are indispensibly requisite.—Thus,

if the *bastion* consists of flanks and faces, as ABCSD, *fig. 1.* all the points may be defended from the flanks; there being none, v. gr. in the face BC, but what may be defended from the opposite flank EL, nor any in the curtain AE, but may be defended from the adjacent flanks BA and EL; nor in any one flank BA, but may be defended from the other EL.

For the proportions of the faces, they are not to be less than 40 toises, nor more than 60: or differing little from 100 yards.

The flanks of *bastions* are better as they are longer, provided they stand at the same angle under the line of defence: hence the flank must stand at right angles to the line of defence. Indeed, in the ancient fortification, the flank is made perpendicular to the curtain, so as to have the angle out of the enemies eye; but this is now provided for, by withdrawing the lower part of the flank two or three perches, towards the capital line: which part, thus withdrawn, is better, if made concave, than rectilinear; and if double, with a ditch between, than if single.

The business of disposing the flanks of *bastions* makes the principal part of the art of fortification; it is that on which the defence principally depends, and which has introduced the various forms and manners of fortifying.

If the angle of the *bastion* be less than sixty degrees, it will be too small to give room for guns; and besides, so acute as to be easily beaten down by the enemies guns: to which may be added, that it will either render the line of defence too long, or the flanks too short: it must therefore be more than sixty degrees; but whether or no it should be a right angle, some intermediate angle between sixty and ninety, or even whether or no it should exceed a right angle, is still disputed; though those are generally preferred, which are not much less than 90°, and not exceeding 120° or 130°. Hence it follows, that a triangle can never be fortified, in regard either some or all of the angles will be either sixty degrees, or less than sixty.

Bastions are of divers kinds, *solid*, *void*, *flat*, *cut*, &c.

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BASTIONS *solid*, are those that are filled up entirely, and have the earth equal to the height of the rampart, without any void space towards the centre.

BASTIONS, *void*, or *hollow*, are those surrounded with a rampart and parapet, only ranging round their flanks and faces, so as to leave a void space towards the centre; where the ground is so low, that if the rampart be taken, no retrenchment can be made in the centre, but what will lie under the fire of the besieged.

BASTION, *flat*, is a *bastion* built on a right line in the middle of the curtain, when it is too long to be defended by the *bastion* at its extremes.

BASTION, *cut*, is that whose point is cut off, and in lieu thereof has a re-entering angle, or an angle inwards with two points outward; this is sometimes also called, *bastion with a tenaille*; and is used either when, without such a contrivance, the angle would be too acute, or when water, or some other impediment, hinders the carrying on the *bastion* to its full extent.

BASTION, *composed*, is when the two sides of the interior polygon are very unequal, which makes the gorges also unequal.

BASTION, *regular*, is that which has its due proportion of faces, flanks, and gorges; the faces being of an equal length, the flanks the same, and the two angles of the shoulder equal.

BASTION, *irregular*, is where this proportion and equality is not observed.

BASTION, *deformed*, is where the irregularity of the lines and angles makes the *bastion* out of shape, as when it wants one of its demi-gorges; one side of the interior polygon being too short.

BASTION, *demi*, is that which hath but one face, and one flank: called also an *epaulement*.
To fortify the angle of a place that is too acute, they cut off the point, and make two *demi-bastions*, which form a *tenaille*, or a re-entering angle.—Their chief use is before a hornwork, or crownwork.

BASTION, *double*, is that, which on the plane of the great *bastion*, has another *bastion* built higher, somewhat after the manner of a cavalier; leaving twelve or eighteen feet between the parapet of the lower, and the foot of the higher.

BASTION, *capital of a*. See CAPITAL.

BASTION, *gorge of a*. See GORGE.

BASTION, *distance of the*. See DISTANCE.

BASTION *company in France*. See COMPANY.

BASTON, in *Law*, is used for one of the wardens of the Fleet's men, who attends the king's court with a red staff, for taking such to ward as are committed by the court, and likewise attends on such prisoners as are suffered to go at large by licence.
The word is French, literally signifying a *staff*, and technically a *verge*, or *mace*.

BASTON, or **BATOON**, in *Architecture*, denotes a mould in the base of a column, otherwise called a *tore*.—See *Tab. Archit. fig. 3*.

BASTON, or **BATOON**, in *Heraldry*, a kind of bend, which has only one fourth of the usual breadth.
The *baston* does not go from side to side of the escutcheon, as the bend or scarf does, but is broken off short, in form of a truncheon: its use in English coats of arms is a mark of bastardy: but French heralds introduce it in arms as a difference, a mark of consanguinity.

BASTON also signifies the earl marshal's staff.

BASTONADO, **BASTONADE**, the punishment of beating or drubbing a criminal with a stick.
The word is formed of the French *baston*, a *stick* or *staff*.
The *bastonade* is a punishment used both among the ancient Greeks, Romans, and Jews, and still obtains among the Turks.
The Romans called it *fustigatio*, *fustium admonitio*, or *fustibus cædi*, which differed from the *flagellatio*, as the former was done with a stick, the latter with a rod or scourge. The fustigation was a lighter punishment, and inflicted on freemen; the flagellation a severer, and reserved for slaves. It was also called *tympanum*, because the patient here was beat with sticks, like a drum.
The penalty is much in use in the East to this day. The method there practised is thus: the criminal being laid on his belly, his feet are raised, and tied to a stake, held fast by officers for the purpose; in which posture he is beaten by a cudgel on the soles of his feet, back, chin, &c. to the number of one or more hundred blows. Calmet. Dict. Bib. tom. i. p. 260.

BASTONIER, or **BATONIER**, in the French *Law*, an ancient advocate, elected yearly according to seniority, to be the head or master of the community of advocates and attorneys. He is president of the board held for maintenance of the order, and discipline of the *palais*. To him also belongs the commission of the inferior judges, when put under interdict, so long as the interdiction lasts.

BASTONIER is also used for him who keeps the staff of a community, and carries or follows it in processions.

BAT, in *Zoology*, a genus of quadrupeds, of the order of *feræ*, the characters of which are these. The fore-teeth of the upper-jaw are six in number, acute, and distant from each other; the fore-teeth of the lower-jaw are also six, and acute, but contiguous; the canine teeth are two, both above and below, on each side; the feet have each five toes; the fore-feet have the toes connected by a membrane, and expanded into a kind of wings, whereby it flies: whence this animal has been generally, but with the utmost impropriety, ranged among birds.
The *bat*, called also by us *lapwing*, and *flittermouse*, by the Latins *despertilio*, seems a medium between the quadruped and the feathered kinds; but it partakes most of the former tribe; agreeing only with the birds in the sternum, and the position of its liver; and with the quadrupeds in the kidneys, bladder, teeth, *penis*, testicles, diaphragm, and lungs. In reality, it only appears to be a bird by its flying. They lay themselves up in winter in the driest apartments of caves; where planting their talons to the roof, they cover their bodies with their wings, and so hanging perpendicularly in great numbers, but so as not to touch each other, they sleep for some months.
Travellers speak of a sort of *bats* in Golconda, bigger than hens.

In Brasil there is a large species of this animal, which if men lie asleep with their legs naked, will, it is said, make a wound in them so gently, as not to awake them, but so deep, that they will suck the blood at it, and leave the person in some danger of bleeding to death. Piso. Hist. Brasil.

BAT, in *Commerce*, a small base silver-coin, current in divers parts of Germany and Switzerland at different prices.
The *bat* or *fladermouse*, at Nuremburg, is equal to four croitzers; at Zurich, to $\frac{1}{8}$ of the French crown; at Basil, Schaffhausen, &c. to $\frac{1}{7}$; and at Bern and Friburg to $\frac{1}{3}$ of the same crown. These last are called *short bats*.

BATARDIERE, a place in a garden, prepared for the planting of fruit-trees in, which being transplanted thither from the nursery, are to be placed in espaliers, or elsewhere, to supply the place of dead trees.

BATATAS. See POTATO.

BACHELOR. See BACHELOR.

BACHELOR's Buttons, in *Botany*. See CAMPION.

BACHELOR's Pear, a name given to a species of NIGHT-SHADE.

BATEMAN's Drops, in *Pharmacy*, are the anodyne balsam made with a weaker spirit, so that a larger dose can be taken: they are tinged with aniseed.

BATENKETOS, a star about the third magnitude, in the constellation of CETUS.

BAT-FOWLING, a method of catching birds in the night, by lighting some straw, or torches, near the place where they are at roost: for, upon beating them up they fly to the flames, where, being amazed, they are easily caught in nets, or beat down with bushes fixed to the end of poles, &c.

BATH, **BALNEUM**, a convenient receptacle of water for persons to wash, or plunge in, either for health or pleasure.
Baths are either *natural* or *artificial*. *Natural*, again, are either *hot* or *cold*.

BATHS, *hot*, called by the ancients *thermæ*, owe their origin partly to the admixture of sulphureous particles, while the water is passing through its subterraneous canals, or rather while it creeps through beds and mines of sulphur, &c. and partly to the fumes and vapours exhaling through the pores of the earth where sulphur is, either pure or impure, as in coals, amber, &c.—Though in most hot baths there are likewise mixed particles of iron, alum, nitre, and other mineral bodies, which gave them an acid astringent taste.
The chief hot *baths* in our country are those at Bath and Bristol, in Somersetshire; and those others at Buxton and Matlock in Derbyshire; which latter, however, are rather warm or tepid than hot.
In the city of Bath there are four hot *baths*: one triangular, called the *cross bath*, from a cross that formerly stood in the midst of it; the heat of which is more gentle than that of the others, because it has fewer springs.—The second is the *hot bath*, which heretofore was much hotter than the rest, when it was not so large as it now is.—The other two are the *king's* and *queen's bath*, divided only by a wall; the last having no spring, but receiving the water from the *king's bath*, which is about sixty feet square, and has in the middle of it many hot springs, which render its healing quality more effectual.—Each of these is furnished with a pump to throw out water upon the diseased, where that is required.
It has been thought by many, that the practice of drinking our Bath waters in Somersetshire is not very ancient, and that their ancient use was in bathing; but Dr. Friend endeavours to shew the internal use of those waters to have been very early. Dr. Guidot, in whose time this usage

revived, and who has given us the best historical narrative of these waters, goes no higher for their internal use than the latter end of the sixteenth century. But they appear to have been in use in the thirteenth century: Gilbert, surnamed Anglicus, who, according to Bayle, lived in 1210, in the reign of king John, or more probably in that of Edward I. mentions a person cured of a leucophlegmacy, attended with a swelling, &c. by the sulphureous *baths*; which Dr. Friend understands of the Bath waters; and that the cure was wrought by drinking, not bathing, which had been improper in such a case.

Dr. Musgrave makes it probable, that they were resorted to in the time of Geta; there being still the remains of a statue erected to that general, in gratitude for some benefactions which he had conferred on the place. Some pretend that these waters were in use 800 years before Christ. Phil. Trans. N^o 49. 346.

See the uses of Bath waters, and their difference from those of Bristol, under the head *Bristol-WATER*.

The waters abound with a mineral sulphur: they are hot, of a blueish colour, and strong scent, and send forth thin vapours.—They do not pass through the body like most other mineral waters; though, if salt be added, they purge presently. On settlement they afford a black mud, which is used by way of cataplasms in aches; of more service to some than the waters themselves: the like they deposit on distillation, and no other.

Dr. Astruc found the colour of the salt drawn from the *king's* and *hot bath* to be yellow; and that from the *cross bath*, white; whence he concludes, that the *cross bath* has more alum and nitre than the *hotter*, which abounds more with sulphur; and yet the *cross bath* is found to loosen shrunk sinews, by which it should seem to abound less with alum: it is harsher to the taste than the others, and soaks the hands more.—The *cross bath* preys on silver, and all of them on iron, but none on brass.

The two stated seasons for drinking the Bath waters are spring and fall; though they may be used whenever they are found necessary. The heat of these waters, and their milky detergent quality, are ascribed to a mixture and fermentation of two different kinds of water, distilling from Clarton Down, and Lansdown: of which the former has springs that are sulphureous, or bituminous, mixed with nitre; and the latter such as are tinged with iron ore. Besides, the adjacent country abounds with mines of coal, which all naturalists agree to be sulphureous and bituminous.—It is from the combination of sulphur, iron, and sea salt, that Bath water is so useful, whenever the vital heat requires an increase. Nothing but iron can make such a quick improvement, as this water does in decayed constitutions; and it is the soapiness of it, from the union of its sulphur and iron, that relaxes, so as to give vent to gouty, and other peccant matters, by perspiration. More than two pints per day can never be required, and they may be drank at three or four times. In all internal disorders, where iron and sulphur are prescribed, the internal use of this water is effectual: and by merely bathing in it, much relief is obtained in a great variety of disorders. The virtues of many of our mineral waters have been very justly ascribed to the fixed air with which they abound; and some have ascribed those of the Bath waters to the same principle. But Dr. Priestley found upon trial, that the quantity of fixed air contained in them is so small as to render it very improbable that their virtues should be at all owing to it. And Dr. Falconer observes, that these waters do not so properly contain fixed air, as a calcareous earth; which though it contain fixed air, may not part with it in the stomach, unless it meet with some acid to decompose it. By some accurate observations that were made on the heat of Bath and Bristol water, by Mr. Canton, it appears, that a Fahrenheit's thermometer held in the stream from the common pump of the *king's bath* after pumping about $\frac{1}{4}$ of an hour, was raised to 112° . The stream from the common pump of the *hot bath* raised it to $114^{\circ}\frac{1}{2}$. At the pump of the *cross bath* it stood at 110° ; the heat of the shaded air at noon being 66° , and of common water exposed to it 61° . And the Bristol water raised the thermometer to 76° , whilst in common water, exposed to the shaded air, it stood at 62° . Phil. Trans. vol. lvii. N^o 22.

Buxton water has been observed to raise the thermometer to 80° , and that of Matlock to 66° or 68° . See *WATERS*. The use of hot *baths*, it is observed, increase the weight of the body for the present, but cause a plentiful perspiration afterwards; though not so great as set down by Dr. Keill, who makes it amount to $1\frac{1}{2}$ pound in an hour's time.—By Mr. Martin's experiment at Buxton, it was only 5 ounces in one hour, and from 8 to 12 ounces in an hour and an half. Phil. Trans. N^o 407. p. 27.

The use of these *baths* is found beneficial in diseases of the head, as pallsies, &c. in cuticular diseases, as leprosy, &c. obstructions and constipations of the bowels, the scurvy and stone, and in most diseases of women and children.—The

baths have performed many cures, and are commonly used as a last remedy in obstinate chronic diseases; where they succeed well, if they agree with the constitution of the patient: but whether they will agree or not, cannot be known without trial.

BATHS, cold, were long banished out of medicine, though the ancients had them in the greatest esteem; but the improvements accruing to physic from geometry and mechanics, have brought them into use again; and the present age can boast abundance of noble cures performed by them, and such as were long attempted in vain by the most powerful medicines. The *cold bath* is found one of the most universal and innocent remedies yet discovered. It is serviceable in most chronic distempers; and is reckoned so safe, that physicians sometimes prescribe it in a beginning *phthisis*, or consumption, when the lungs are but slightly affected.

The effect of cold-bathing is attributed not only to its chillness, and constringing power, but in some measure to the weight of the water.—For, supposing a person immersed two feet, and the area of his skin to be fifteen feet, he sustains a weight of water, added to that of the air, $= 2280$ lb. For 2, the number of cubical feet of water pressing upon a foot square of the skin $\times 76$, the number of pounds in a cubical foot of water, is $= 152$: which $\times 15$, the supposed number of square feet on the surface of the body, is $= 2280$ lb. troy.—Besides the water in bathing enters the body, and mixes with the blood, and dilutes this as well as the other juices.

The rise and progress of *cold-bathing*, and the cures effected thereby, are described at large in Sir J. Floyer's, and Dr. Baynard's History of Cold Bathing.

In tender constitutions, and some diseases, a moderate *warm bath* should be used before the *cold bath*, the approach to which ought to be gradual. People of rigid fibres, and unsound *viscera*, are injured by the *cold bath*; fat people are little benefited by it; and in general, nobody ought to go into it before a gentle glow be excited by moderate exercise, when the stomach is most empty; and such evacuations as the patient's constitution require, ought to precede the use of it; which is beneficial, and may safely be continued, when an universal glow succeeds the coming out of it. The *cold bath* is hurtful, and ought to be discontinued, when the patient continues to be cold and numb after coming out of it, notwithstanding all precautions to prevent it. Even where immersion in the *cold bath* is strengthening, a continuance in it is weakening, and in proportion to its duration.

BATHS, artificial, are various, according to the various occasions; some aqueous, others vaporous, others dry, &c.

BATHS, aqueous, are those prepared from common plants, and other substances of emollient, resolvent, and nervous kinds. *Aqueous baths* sometimes consist of milk and emollient herbs, with rose-water, &c. when the design is to humectate; at other times of bran and water, when the design is only to cleanse: sometimes again they are made of a decoction of roots and plants, with an addition of spirit of wine, when a person bathes for a great pain or tumor, &c.

BATHS, in vapour, the fume or steam of some decoction is received upon the body to promote a perspiration.—These are also by some called *Balnea Laconica*.

Vapour baths are, when the patient is not plunged into what is prepared for the *bath*, but only receives its steam upon those parts of his body which require it: as in some distempers of the fundament and womb, where the patient sits and receives the fumes of some proper fomentation, &c. To these may be added the *bagnio*, where people are made to sweat by the heat of a room, and pouring on of hot water; after which they generally go into a *hot bath*, or *BAGNIO*.

BATHS, dry, are those made of ashes, salt, sand, shreds of leather, and the like.

The ancients had divers ways of sweating by a dry heat; as by the means of a hot sand, stove-rooms, or artificial bagnios, and certain natural hot steams of the earth, received under a proper arch, or hot-house, as we learn from Celsus. They had also another kind of *bath* by insolation, where the body was exposed to the sun for some time, in order to draw forth the superfluous moisture from the inward parts; and to this day it is a practice in some nations to cover the body over with horse-dung, especially in chronical diseases, to digest and breathe out the humour that causes the distemper. In New England they make a kind of stoves of turf, wherein the sick are shut up to bathe or sweat. Phil. Trans. N^o 384. p. 130. The same name is sometimes also given to another kind of *baths*, made of kindled coals, or burning spirit of wine; the patient being placed in a convenient close chair for the reception of the fume, which rises and provokes sweat in a plentiful manner: care is here taken to keep the head out, and to secure respiration.

This *bath* has been found very effectual in removing old obstinate pains in the limbs, and venereal complaints; and

and will often complete a cure left unperformed by salivation.

Some authors speak of *bloody baths*, *balnea sanguinolenta*, prepared especially of the blood of infants, anciently supposed to be a kind of specific for the leprosy.

BATHS, *metalline*, those made of water impregnated with the *scoriae* of metals. The most common and useful of this kind are those prepared with the *scoriae* of iron, which abound with the earthy, saline, and sulphureous substance of the metal; and these are of excellent service for strengthening and bracing up the part to which they are applied, and recovering weak and decayed limbs; stopping various kinds of bleeding; and restoring the menstrual and hæmorrhoidal flux, where obstructed; inasmuch that they may well be substituted for the natural iron *baths*.

Adjacent to the smelting huts where metals are run from their ore, are to be found large quantities of the slag of copper, antimony, and cobalt, which abounding with sulphur, vitriolic salt, and an earthy principle, make serviceable *baths* for strengthening the lost tone of the fibres, and relaxing them when they are too stiff. These *baths* have likewise a deterfivè and cleansing virtue; so that, with prudence, and due regard to circumstances, they may be used on many occasions. The way of making these artificial *baths* is, either to take the slags as they come hot from the furnace, or else to heat them afresh, and throw them into hot water; which is afterwards to be used either in the way of *bath*, or fomentation, occasionally. There are other artificial *baths*, prepared of alum and quick-lime by boiling them together in fine rain-water. Such *baths* are highly serviceable in paralytic disorders, and weakness of the limbs.

The *pepper bath*, or *peffer wasser* on the Alps, is one of the most celebrated in Europe, and has been the subject of treatises express, besides what has been said of it occasionally by Scheuchzer, and others. It was first discovered in the year 1240, and is of the periodical kind. The water breaks forth in a dreadful place, scarce accessible to the sun-beams, or indeed to men, unless of the greatest boldness, and such as are not in the least subject to dizziness. These *baths* have this singularity above all others, that they commonly break forth in May, and that with a sort of impetuosity, bringing with them beech leaves, crabs, or other wood-fruit; and that their course desists in September or October.

Scheuchzer professes himself of opinion, that these waters are not impregnated with any minerals, or, if they do contain any, that their virtues in curing distempers and preserving health, do not proceed from them. They are exceeding clear, destitute of colour, taste, or smell. Phil. Trans. N^o 316. p. 151.

BATHS, **BALNEA**, in *Architecture*, denote large pompous buildings among the ancients, erected for the sake of bathing. *Baths* made a part of the ancient *gymnasia*, though they were frequented more for the sake of pleasure than health.

The most magnificent *baths* were those of Titus, Paulus Æmilius, and Dioclesian, of which there are some ruins still remaining. It is said, that at Rome there were 856 public *baths*. Fabricius adds, that the excessive luxury of the Romans appeared in nothing more visible than in their *baths*. Seneca complains, that the *baths* of plebeians were filled from silver pumps; and that the freed-men trod on gems. Macrobius tells us of one Sergius Oratus, a voluptuary, who had *pendant baths* hanging in the air. According to Dion, Mæcenas was the first who made a *bath* at Rome: yet there are instances of public *baths* prior to this; but they were of cold water, small, and poorly decorated.

Agrippa, in his ædilate, built one hundred and sixty places for bathing, where the citizens might be accommodated, either with hot or cold, *gratis*. After this example, Nero, Vespasian, Titus, Domitian, Severus, Gordian, Aurelian, Maximian, Dioclesian, and most of the emperors who studied to gain the affections of the people, erected *baths* laid with the richest marble, and wrought according to the rules of the most delicate architecture. Plin. Hist. Nat. lib. xxxv. c. 13. Mem. Acad. R. Inscr. tom. ii. p. 417. The rich had *baths* at home, and frequently very magnificent ones, especially after the time that the practice of pillaging the provinces had begun; but they only used them on extraordinary occasions. The great men, and even emperors themselves, sometimes bathed in public with the rest of the people. Alexander Severus was the first who allowed the public *baths* to be opened in the night-time during the heats of summer.

The Greek *baths* were usually annexed to the *palestræ* or *gymnasia*, of which they were considered as a part. These *baths* consisted of seven different apartments, usually separated from each other, and intermixed with other buildings belonging to the other sorts of exercises. These were, first, the *cold bath*, *frigida lavatio*; secondly, the *elaotbesium*, or room where they were anointed with oil;

thirdly, the *frigidarium*, or cooling room; fourthly, the *propnigium*, or entrance of the *hypocaustum*, or stove; fifthly, the vaulted room for sweating in, or *vapour bath*, called *concamerata sudatio*, or *tepidarium*; sixthly, the *laconicum*, or dry stove; seventhly, the *hot baths*, called *calida lavatio*. Potter, Archæol. Gr. lib. iv. cap. 19.

As for the *baths* separate from the *palestræ*, they appear to have been usually double, one for men, the other for women; but so near, that the same furnace heated both. The middle part was possessed by a large basin, that received water by several pipes, and was surrounded by a balustrade, behind which there was an area for the reception of those who waited to use the *bath*. They were vaulted over, and only received light from the top.

In the Roman *baths*, the first part that appeared was a large basin, called *καλυμνηθρα* in Greek, and *natatio* or *piscina* in Latin. In the middle was the *hypocaustum*, which had a row of four apartments on each side, called *balnearia*: these were the stove, the *bath*, cold *bath*, and *tepidarium*. The two stoves, called *laconicum* and *tepidarium*, were circular and joined together. Their floor was hollow and suspended, in order to receive the heat of a large furnace, which was communicated to the stoves, through the vacuities of their floor. This furnace also heated another room called *vasarium*, in which were three large brazen vessels called *milliaria*, respectively containing hot, warm, and cold water; which were so disposed that the water might be made to pass by syphons and pipes out of one or other of them into the *bath*, in order to adjust its temperature. The description is given by Vitruvius: At three in the afternoon, which is what Pliny calls *hora octava & nona*, the Romans all repaired to the *baths*, either the public or the private ones: this was called the *bath-hour*, *hora balnei*, which in winter was at nine, in summer at eight. The public *baths* were all opened by the sound of a bell, and always at the same hour.

Those who came too late, stood a chance for bathing in cold water.

They began with hot water, after which, as the pores were now opened, and might give room for too plentiful a perspiration, they thought it necessary for their health to close them again, either with the cold *bath*, or at least with a sprinkling of cold water. During the *bath*, the body was scraped with a kind of knives, or small strigils, such as are still found in the cabinets of the curious. After bathing succeeded unction and perfuming, from which they went fresh to supper.

The Romans, when they found their stomachs overcharged with meat, went to the *bath*, as we learn from Juvenal, who inveighs against those, who having gorged themselves with eating, were forced to go into the *baths*, to give themselves relief. They found also that a *bath* was good to refresh themselves after some considerable fatigue or travel, as Celsus tells us; which makes Plautus say, that all the *baths* in this world were not sufficient to remove the weariness he felt.

After Pompey's time, the humour of bathing was carried to great excess, by which many were ruined, several having brought themselves to such a pitch, that they could not bear food without bathing first. The emperor Titus is said to have lost his life thereby. Hence Pliny inveighs severely against those physicians, who held, that hot *baths* digested the food. The emperor Hadrian first laid a restraint on the immoderate humour of bathing, by a public edict, prohibiting all persons to bathe before the eighth hour.

BATHS of Agrippa, *thermæ Agrippinæ*, were built of brick, but painted in enamel: those of Nero, *thermæ Neronianæ* were not only furnished with fresh water, but even had the sea brought into them: those of Caracalla were adorned with two hundred marble columns, and furnished with sixteen hundred seats of the same matter. Lipsius assures us they were so large, that eighteen hundred persons might conveniently bathe in them at the same time. But the baths of Dioclesian, *thermæ Dioclesianæ*, surpassed all the rest in magnificence. One hundred and forty thousand men were employed many years in building them. Great part of these, as well as those of Caracalla, are still standing; and, with the vast high arches the beautiful and stately pillars, the extraordinary plenty of foreign marble, the curious vaulting of the roofs, the prodigious number of spacious apartments, and a thousand other ornaments, make one of the greatest curiosities of modern Rome. Kennet Rom. Ant. p. ii. lib. i. c. 7. and Schott. Itin. Ital. p. 132.

BATH, in *Chemistry*; several matters employed to transmit heat are called *baths*, but the substances most frequently used by chemists for this purpose, are *water* and *sand*.

When water is employed, it is called **BALNEUM Mariæ**, or *water bath*; which is very much used, being very convenient for many operations: and may be employed successfully for all degrees of heat inferior to that of boiling water. See Col. Acad. Part. Etr. tom. vi. p. 377.—As water, when exposed to fire in any vessel from which it can evaporate, does only receive a determinate degree of

heat, which always remains the same when once it has arrived to the boiling heat, it follows, that by the *water bath*, a degree of heat always equal may be transmitted with certainty. Farther, this degree of heat being incapable of burning, or of communicating an empyreumatic quality to matters susceptible of it, the *water bath* has also the advantage of not exposing substances to this inconvenience. When vessels in which DISTILLATIONS and DIGESTIONS are made, are placed in *sand*, then a *SAND bath* is formed. This intermediate substance of sand is very convenient to moderate the too great activity of the naked fire, and to transmit any degree of heat, from the weakest to a red heat. As this *bath* is attended with less trouble, and requires less apparatus than the *water bath*, it is much used in laboratories. Nothing is requisite for the *sand bath*, but an earthen or iron vessel filled with fine sand, which is fitted into a furnace, and capable of containing the cucurbits, retorts, matrasles, or other vessels containing the matter to be operated upon.

Ancient chemists had all a tincture more or less of *AL-CHEMY*; they were therefore much more careful and laborious in their operations, and used many different *baths* in order to apply precisely the proper degree of heat. They used the vapour of water, ashes, dung, the substance remaining after the squeezing of grapes, and whatever else they imagined most proper for their purpose. Hence the names of *ash bath*, *bath of a horse's belly*, *dung bath*, *mercurial bath*, *vapour bath*, &c. See *Commerc. Phil. Techn.* 4to. p. 31.—But an intelligent experienced artist may very well perform all the chemical operations which do not require a naked fire, by means of the *water* and *sand baths*; as they are the most convenient, they are the only *baths* now generally used. Macquer.

BATH is also used by *Chemists*, to signify the fusion of metallic matter in certain operations. In *REFINING* or *cupelling*, for example, the metals are said to be *in bath* when they are melted. When gold is purified by antimony, this semi-metal melted is called by some, the *BATH of gold*; alchemists, who consider gold as the king of metals, call antimony the *bath of the king only*, because in fact gold only can resist the action of antimony. Macquer. See *BALNEUM*.

BATH in *Jewish Antiquity*, is also the name of a liquid measure, containing the tenth part of an omer. Some distinguish five kinds of *baths*; viz the greater *bath*, containing 80 pounds of water, or, according to Josephus, 1440 Roman ounces; the second *bath*, containing 100 ounces; the third, 66 $\frac{2}{3}$ ounces; the fourth, containing 25 ounces; and the fifth, 6 $\frac{2}{3}$ ounces of water. Beverin. *Sync. de Mens.* p. ii. p. 127.

Some have estimated the sacred *bath* at half as much again as the common *bath*; but there is no sufficient reason for this distinction. Calmet.

BATH, *knights of the*, a military order in England instituted by Richard II. who ordained that there should be no more than four; however, his successor, Henry IV. increased them to forty-six. Their motto was *Tres in uno*, signifying the three theological virtues.

It was the custom to bathe before they received the golden spurs; but this was only observed at first, being afterwards gradually dropped: however, it was this occasioned the denomination of *knights of the Bath*.

The order of *knight of the Bath* is scarce ever conferred but at the coronation of kings, or the inauguration of a prince of Wales, or duke of York. They wear a red ribband belt-wise; to which is affixed the badge of the order, viz. a sceptre, rose, thistle, and three imperial crowns joined within a circle; upon which circle is the motto in pure gold. Each knight wears a silver star of eight points upon the left breast of his upper garment.

Camden and others say, Henry IV. was the institutor, in 1399, and upon this occasion: that prince, being in the *bath*, was told by some knight, that two widows came to demand justice of him; when his majesty leaping out of the *bath*, cried, He ought to prefer doing justice to his subjects to the pleasure of the *bath*; and thereupon created *knights of the Bath*.

Some authors, however, will have the order of the *Bath* to have been on foot long before Henry IV. even as early as the Saxon times: at least, it is certain, the *bath* has been used long before, in the creation of knights, in France; though there was no order of knights under this name.

The order of the *Bath*, after remaining many years extinct, was revived under king George I. by a solemn creation of a great number of knights.

BATH metal, is a preparation of copper with zinc, which gives a more beautiful colour than the calamine used in the preparation of the common brass. See *Prince's METAL*.

BATH Kol, in *Jewish Antiquity*, a species of revelation by a voice or echo from heaven.

The word signifies in the Hebrew original, *daughter voice*, or *daughter of a voice*; for it may be interpreted both ways. It seems to have been thus called with respect to the ora-

cular voice delivered from the mercy-seat, when God was consulted by *urim* and *thummim*: this latter was the grand and primary voice of revelation; the former, of secondary dignity, and inferior to it as the daughter to the mother. Prideaux, *Connect.* p. ii. l. 5. p. 462.

The Jewish writers speak of three kinds of revelation among them; the first by *urim* and *thummim*, which obtained from the erecting of the tabernacle to the building of the temple; the second by the spirit of prophecy, which prevailed from the beginning of the world to the death of Malachi; the third, the *bath kol*, or *filia vocis*, which took place when the spirit of prophecy wholly ceased in Israel; and was, says Grotius, the sole oracle which remained during the time of the second temple. Godw. Moses and Aaron, lib. iv. c. 8. Lightfoot's Works, tom. i. p. 485. Grot. in John, xii. 28.

Danzius has a dissertation on the iniquity and imposture of the *bath kol*; *De filia vocis nefanda, divinæ æmula*.

BATHING, the act of using or applying a bath; that is, of immersing the body, or part of it in water, or other fluid. See *BATH*.

Bathing, on a religious account, is more properly called *ABLUTION*, or *BAPTISM*.

Bathing, is a practice of antiquity. The Greeks, as early as the heroic age, are said to have bathed themselves in the sea, in rivers, &c. We even find mention in Homer of hot *baths* in the Trojan times; but these seem to have been very rare, and only used on extraordinary occasions. Athenæus speaks of hot baths as unusual even in his age. In reality, public *baths* appear to have been discouraged, and even prohibited, by the ancient Greeks, who were contented to wash themselves at home in a sort of *bathing* tubs. Pott. *Archæol.* tom. ii. lib. iv. c. 19. The method of *bathing* among the ancient Greeks was, by heating water in a large vessel with three feet, and thence pouring it on the head and shoulders of the person seated in a tub for that purpose, who, at coming out, was anointed with oil. Burret, in *Hist. Acad. Inscr.* tom. i. p. 117.

The Romans were also long before they came into the use of *baths*: the very name of which, *thermæ*, shews they borrowed it from the Greeks. As the ancient Romans were chiefly employed in agriculture, their custom was, every evening, after work, to wash their arms and legs, that they might sit down to supper with more decency: for it is to be observed, the use of linen was then unknown, and the people of that age went with their arms and legs bare, and consequently exposed to dust and filth. But this was not all; for every ninth day, when they repaired to the city, either to the *nundina*, or to attend at the assemblies of the people, they bathed all over in the Tiber, or some other river which happened to be nearest them. This seems to have been all the bathing known till the time of Pompey, when the custom began of *bathing* every day. Mercurial. de Art. Gymn. lib. i. c. 10. Mem. Acad. Inscr. tom. ii. p. 414.

The Celtic nations were not without the use of *bathing*: the ancient Germans bathed every day, in winter in warm water, and in summer in cold. This is what Tacitus seems to suggest, *statim somno—lavantur. sæpius calida, aut apud quos plurimum hiems occupat.* De Mor. Ger. cap. 22. *Bathing*, among the ancients, made a part of diet, and was used as familiarly as eating, or sleep: on which footing it still remains among the Turks, where there are public baths in every town, and even village. But among us, it is become only a part of medicine, and rarely practised but under the direction of physicians. Great distinction is now made between those who are fit, and those unfit, to undergo the operation, and many rules and prescriptions given for the more successful use of it.

Bathing is either cold, or hot, or warm, simple, or mixed, according to the temperature and conditions of the fluids.

Bathing in waters too hot, heats and expands the blood and humours to excess: whence palpitations of the heart, pains in the head, faintness, &c. The mischief is still greater if the body be full of blood, or turgid with ill juices. The waters used for *bathing* are either pure and simple, or such as abound with heterogeneous parts of different kinds. Those fittest for medicinal purposes are the purest, lightest, simplest, and most free from all participations of mineral or metallic parts.

Bathing is not to be practised without great care and precaution, in melancholic, cedematous, or paralytic cases. As to the *phibisis*, authors are divided: some absolutely reject the use of baths for this disorder; others allow it, provided the water be only of a moderate degree of warmth, and the body be previously prepared by laxatives and venæsection. Different baths have different effects, according to the ingredients of their waters: those of the vitriolic kind are said to fix the morbid matter in arthritic disorders and render them still more obstinate. They are also less proper where the body is foul, and the *viscera* weak or obstructed, being apt to render such patients hydropic.

Sulphureous and aluminous *baths* are commended against an incontinency of urine; but prove hurtful to cachectic habits.

The Caroline *baths* have this quality beyond other hot waters, that they do not soften the body, but rather by reason of the copious earthy and astringent matter they contain, bind up the parts, strengthen those which are weak, block up the pores, and thus produce a contrary effect to other hot springs.

Hence they are prejudicial to people of a tender and delicate habit, when the body is foul, or affected with spasmodic, hypochondriac, or colic disorders, and in many other cases. They are of use where the limbs are to be strengthened, the ligaments and tendons to be gently excited to motion, and the body to be dried.

The usefulness and mischievousness of *bathing* form a complicated consideration, only to be decided by taking the nation, climate, habit, the time of the day, season of the year, disorder, &c. of the person, and the particular qualities and ingredients of the water into consideration. In general, hot or warm *bathing* tends to relax the skin, promote perspiration, cleanse the body, dilute the blood, and carry off cuticular foulnesses by the pores. To conceive the manner of its operation, it is to be observed, that when the body is plunged in a pure, light, and simple warm water, it must necessarily undergo the following changes.

1. The heat necessarily rarefies and expands the blood and all the juices, and thus dilates the whole system of the vessels; the consequence of which is, that the pulse, or contractive strokes of the arteries, increases; whence the blood circulates with greater force, and the external parts of the body become red, and begin to sweat.

2. By the gravity of the water, the body, plunged therein, is greatly altered; as its surface, in that case, sustains a violent pressure, which squeezes the blood forcibly in upon the *viscera*. See BATH. But the additional pressure in common cold *bathing* is very inconsiderable, and therefore the contraction of the fibres is principally owing to the stimulus of cold. Thus, whilst the vessels are compressed from without, and dilated from within, the intestine motion of the constituent parts of the blood is increased, and consequently the viscid juices are thus dissolved, obstructions overcome, and the humours are better fitted to pass through all the secretory and excretory ducts.

Thence, as by the water's gravity the parts are compressed from without, and the blood driven plentifully upon the heart, the lungs, the brain, and the larger vessels, we see why, if the *bath* be too hot, it causes palpitations of the heart, oppressions in the *viscera*, or sometimes fainting; and again, why, when the body is foul, or full of bad juices, it produces continued fevers, or inveterate intermittents, if the first passages abound with crudities.

These ill effects are more frequently observed from the hot springs which have also an astringent quality, as the violent hot Caroline spring evidently has.

3. Another change ensues upon the body from the moisture of the bath, which, assisted with a temperate heat, procures a great suppleness of the skin and fibres; inasmuch that, upon coming out of the water, the whole habit of the body swells considerably, is loosened in its texture, and opened in its pores and vessels; whilst the blood and juices have a more free passage to the surface. Hence it is, that if a person go directly out of the warm bath to bed, he presently begins to sweat plentifully, which is the best effect that can proceed from *bathing*, and of great service in the cure of diseases.

Bathing is found more especially beneficial to those of a moist habit, and who have store of humours in their vessels and pores, as it colligates the humours and promotes their discharge.

In the summer it serves to cleanse the skin from sweat, and keep the pores open; in winter to promote perspiration. It is used with good effect in many chronic disorders, in atrophies, the stone, &c. It is a good palliative in the *coryza*; but useless in the jaundice, and hurtful in the *ascites* and *sciatica*, and generally to all in a time of plague. By its promoting perspiration, it becomes noxious to persons of a dry constitution, as it exiccates too fast; more especially to persons hectically inclined, as by means thereof the humours, already too prone to colligation, are still more resolved.

Cold *bathing* was in high esteem among the ancient physicians for the cure of diseases, as appears from Strabo, Pliny, Hippocrates, and Oribasius. Whence frequent exhortations to washing in the sea, and plunging into cold water.

Hot *bathing* first, and then using the cold *bath* immediately afterwards, is said to be good for the scurvy, at least for that kind so common in cold countries. This is confirmed by the practice of the Russians, and other northern nations.

In violent pains, hot and cold *bathing* produce the same

effects, and in the same way, in one respect, viz. alluaging the pain, by taking off the attention from it. When one is much pained, withdrawing the action of the nerves corresponding to the affected part, employing many nerves, and some of them violently, another way, will seldom fail of giving ease. One pain is often a cure for another. Applying garlic to a distant part, burning and blistering, cure altogether in this way.

The efficacy of hot and cold *bathing* is acknowledged in many cases. How they act, seems a question not yet fully decided in the writings of physicians.

BATHING a hawk or falcon is, when being weaned from her ramage fooleries, and also hired, rewarded, and thoroughly reclaimed, she is offered some water to bathe herself in, in a basin, where she may stand up to the thighs, choosing a temperate clear day for that purpose. By the use of *bathing* she gains strength, with a sharp appetite, and so grows bold.

BATHING, among the Cophts and Æthiopians, denotes the day of Christ's baptism, reputed the 6th of January; when, from an opinion of an extraordinary sanctity in the waters on that day, they not only, by ancient custom, baptised their catechumens, but were re-baptised themselves. The water of this day they carry home to keep: and Chrysostom assures us, that it had been often known to remain sweet, uncorrupted for two or three years. Orat. 74.

BATHING tub, in the Roman baths. There are two kinds of *bathing tubs*, the one fixed, and the other moveable: among the latter, some were contrived on purpose to be suspended in the air, whereby, to the pleasure of *bathing* was added that of being swung or rocked by the motion given to the *bathing tub*. Burette, in Hist. Acad. Inscript. tom. i. p. 122.

BATHMUS, βαθος, from βαω, I move, an appellation given to such cavities of bones as receive the prominences of other bones into them.

BATHRUM, a name given by ancient surgeons to a kind of stool or bench proper for the reduction of dislocated bones. This is called βελτον Ἱπποκράτειον, or the Hippocratic stool. Its description and use are represented at large by Scultetus, Arm. Chir. p. i.

BATHYCHRUS color, in Painting, a term used by the Greeks to express what the Romans call *austerus color*. Such a colour was coarse and dull, and wanted the life of the florid colours. See EVANTHI colores.

BATILLUS, a musical instrument made of metal, in the form of a staff, furnished with metalline rings, which being struck, yielded a kind of harmonical sounds; used by the Armenians in their church-service.

BATIS, in Botany, a name by which Pliny and some other authors call the sea-plant which we know by the name of *Samphire*, and eat as a pickle.

In the Linnæan system, it is a genus of the *dioecia tetrandria* class.

BATIS, in Ichthyology, see BATOS, and RAIA.

BATISTE, in Commerce, a fine white kind of linen cloth, manufactured in Flanders and Picardy.

There are three kinds of *batiste*: the first very thin; the second less thin; and the third much thicker, called Holland *batiste*, as coming very near the goodness of Hollands.

The chief use of *batiste* is for neck-cloths, head-cloths, surplices, &c.

BATMAN, a weight in Turkey, consisting of six okes.

Forty of these *batmans* make a camel's load, and amount to about seven hundred and twenty pounds English weight.

Batman, or *battament*, is a weight used in Turkey and Persia. The Turkish *batman* is of two kinds; the larger containing six okes, or *ocquos*, at three pounds three quarters Paris weight the *ocquo*; so that the *batman* amounts to about twenty-two Paris pounds and an half; the smaller, composed likewise of six *ocquos*, at fifteen ounces the *ocquo*, amounting to five pounds ten ounces. The Persian *batman* is likewise of two kinds: one called the *king's weight*, *batman de chahi*, or *cheray*, used for weighing most of the necessities of life, equivalent to about twelve pounds and an half Paris weight; the other called *batman of Tauris*, equal to six pounds four ounces Paris or Amsterdam weight.

These, at least, are the proportions given by Tavernier. Chardin rates the Persian *batmans* somewhat lower, viz. the former at twelve pounds twelve ounces; and the latter at five pounds fourteen ounces.

BATON, or BATON, in Heraldry. See BASTON.

BATON, in Botany, a name by which some authors call the true turpentine-tree.

BATOONS of St. Paul, BASTONCINI di San Paolo, in Natural History, a name given by some of the Italian writers, as Augustino Scilla, and others, to the *lapides Judaici*, or other spines of *echini*. These are found in vast abundance in the island of Malta; and as every thing there is commemorated with some title, with St. Paul at

the end of it, these are called *baculi Sti. Pauli*, or *St. Paul's batons*.

BAIOS, in *Ichthyology*, the name given by Aristotle, and all the old writers, to the skate, or flaire. They have generally called the male *BATOS*, and the female *BATIS*. It is a species of the *RAIA*, and is distinguished by Artedi by the name of the variegated ray, with the middle of the back smooth, and with one row of spines on the tail. Albertus calls it the *rayte*, and *rubus*.

BETRACHIAS lapis, the *frog-stone*, a name applied by different writers to two very different substances; some understanding by it lumps of common flint, which have accidentally formed themselves into this figure; and others, those pieces of amber which contain either a whole frog, or any part of one.

BATRACHITES, among *Ancient Naturalists*, a kind of gem found in Egypt, denominated from its resemblance in colour to a frog.

The word is formed from *βατραχος*, *rana*, a frog.

Pliny speaks of three stones under this denomination; *unam ranae similem colore, alteram ebori* (or rather, according to Hardouin's correction, *ebeni*), *tertiam rubentis e nigro*.

The *batrachites* differed from the modern *BUFONITES*, which does not appear to have been known to the ancients.

BATRACHOMYOMACHIA, *Battle of the Frogs and the Mice*; the title of a burlesque poem, usually ascribed to Homer.

The word comes from the Greek *βατραχος*, frog, *μυς*, mouse, and *μαχια*, pugna.

The subject of the war is the death of *Psycharpax*, a mouse, son of *Toxartes*, who being mounted on the back of *Phygnathus*, a frog, on a voyage to his palace, to which he had been invited, was seized with fear when he saw himself in the middle of the pond, so that he tumbled off, and was drowned. *Phygnathus* being suspected to have shaken him off with design, the mice demanded satisfaction, and unanimously declared war against the frogs. Stephens, Nunnsius, and other modern authors, take the poem not to be Homer's; but several of the ancients seem of another opinion; and Statius, who wrote under Domitian, makes no doubt of it. See *Fabric. Bibl. Græc. lib. ii. c. i. § 3*.

BATRACHOSALIS, in *Ichthyology*, a name given by many of the Greek authors to the *LOPHIUS*, or *rana piscatrix* of authors.

BATRACHUS, a species of the *SILURUS*.

BATTABLE, ground, denotes land lying between England and Scotland, heretofore in question to which it belonged, when they were two distinct kingdoms.

The word imports as much as *litigious*, or *disputable ground*; from *battre*, to beat or fight.

BATTALIA, an army ranged in order of battle, or ready for engagement.

In this sense, we meet with the depth of a *battalia*; to march in *battalia*, with the baggage in the middle; to break the *battalia*, &c. In the Roman *battalia*, the *HASTATI* made the front.

BATTALION, in the *Military Art*, a little body of infantry ranged in form of battle, and ready to engage.

The word comes from *battel*, an engagement of two armies, &c. and that from *battualia*, the place where two men fight; or from *battalia*, the exercise of people who learn to fight.

A *battalion* usually contains from five to eight hundred men, of which one third were formerly pikes in the middle, and the other two thirds musquets posted on the wings: they are now armed with firelocks and bayonets. The *battalion* is divided into thirteen companies, one of which is grenadiers, but the number of men it consists of is not determined.

Battalions are usually drawn up with three men in file, or one before another.—Some regiments consist but of one *battalion*, which is too few: others more numerous are divided into four or five, which are too many.

M. De Folard decries the modern method of ranging *battalions* so shallow which renders them weak, and unable to support each other: so that they are easily penetrated or broken: an essential fault in the modern tactics. The real strength of a corps, according to this author, consists in its thickness, or the depth of its files, and their connection and closeness. This depth renders the flanks almost as strong as the front. He adds, that it may be laid down as a maxim, that every *battalion* ranged deep, and with a small front, will beat another stronger than itself, ranged according to the usual method. Polyb. tom. i. p. 7. But this opinion of Folard has not been adopted in modern practice; and his theory has been vigorously attacked by two French officers in the service of the States-General. They admit the superior strength of his column to that of a modern *battalion*, if the action were to be decided with pikes and swords; but where fire-arms must be used, M. Folard's column is so very ill disposed for this purpose, that it must infallibly be destroyed.

BATTALION, round, is that in which the soldiers are ranged in concentric circles. This was much used by the Romans, and called *in orbem*. Cæsar, in his Commentaries, has given many instances of this kind of arrangement.

BATTALION, square, is that, where the number of men in file is equal to the number of men in rank. To form any number of men, e. g. 500, into a *square battalion*, extract the nearest square root of 500; which is in integers 22; and that will give the number of men for rank and file. There will be a remainder of 16 men, who may be disposed of, as the commander thinks best.

M. Folard shews at large, in his book *De la Calonne*, the weakness of the *square battalion*. Both the full and the hollow square, according to him, are equally bad.

BATTALION, triangular, is a body of troops disposed of in the form of a triangle; in which the ranks form an arithmetical progression.

BATTALION, doubling a, is a motion of the soldiers, whereby two ranks, or two files are put into one.

BATTALION, angle of a, see *ANGLE*.

BATTALION, raising a, see *FRAISING*.

BATTERDEAUX, in *Bridge-building*, see *COFFER-dams*.

BAITEN, a name which the workmen give to a scantling of wooden stuff from two to four inches broad, and about an inch thick; the length being pretty considerable, but undetermined.

The term is chiefly used in speaking of doors, &c. which are not framed of whole deal, &c. with stiles, rails, and pannels like wainscoat, but are made to appear as if they were, by means of these pieces, or *battens*, bradded on the plain board round the edges, and sometimes cross them, and up and down.

Hence *batten* doors, or windows, are such as seem to be wainscoat ones, but are not. These are said to be either *single* or *double*, as the *battens* are fitted on to one side, or to both.

BATTENS of the hatches, in *Sea-language*, are nailed along the tarpaulings, and serve to keep their edges close down to the hatches, in order to prevent the water which washes over the deck from penetrating into the lower apartments of the ship.

BATTERING-RAM, see *ARIES*.

BATTERING-rams, in *Heraldry*, a bearing or coat of arms, resembling the military engine of the same name.

BATTERING, the attacking a place, work, or the like, with heavy artillery. See *BATTERY*.

To **BATTER** in breach, *battre en breche*, is to play furiously on a work, as the angle of a half moon, in order to demolish and make a gap or *BREACH* in it.

In this, they observe never to fire a single piece against the top of the wall; but all towards the bottom: three, four, five, or six feet from the ground: they also fire *par camarade*, all together, till they perceive the earth fall from behind the lining of the rampart.

BATTERING-pieces, or pieces of *battery*, see *CANNON*.

BATTERY, in the *Military Art*, denotes an eminence cast up, whereon to plant artillery, that it may play to better advantage. It consists of an empalement or breast work, of about eight feet high, and eighteen or twenty thick.—See *Tab. Fortif. fig. 21. n. 33. and fig. 23*.

The word is French, formed of *battre*, to beat, strike.

In all *batteries*, the open space left to put the muzzles of the great guns out at, are called *embrasures*; and the distances between the *embrasures*, *merlons*.—The guns are generally about fifteen or sixteen feet distant from one another, that the parapet may be strong, and the gunners may have room to work.

There are also *batteries of mortars*, the same with those of cannon, except that they have no *embrasures*: and the slope of the breast-work is made inwards, contrary to that of other parapets, having their platforms about six feet square, and eight feet asunder.

The *battery* of a camp is usually surrounded with a trench and pallisades at the bottom, as also with a parapet on the top, having as many holes as there are pieces of artillery, and two redoubts on the wings, or certain places of arms, capable of covering the troops, which are appointed for their defence. See *EMBRASURES*, *MAGAZINES*, *MERLONS*, *PARAPET*, *PLATFORMS*, *TRENCHES*, &c.

BATTERY, open, is nothing more than a number of cannon, generally field-pieces, ranged in a row a-breast of one another, on some small natural elevation of the ground, or an artificial bank of about a yard or two high.

BATTERY, covered, is when the cannon and gunners are covered by a bank made of brush-wood, faggots, and earth; of about eighteen or twenty feet thick, and seven or eight feet high.

The cannon used in such *batteries* are generally from nine to eighteen pounders; sometimes twenty-four pounders are used in them.

BATTERY, sunk or buried, is that whose platform is sunk or let down into the ground, with trenches cut into the earth again the muzzles of the guns, to serve for *embrasures*.

This

This fort, which the French call *batterie en terre*, and *raimante*, is generally used upon the first making approaches, to beat down the parapet of the place.

BATTERIES, *cross*, are two batteries at a considerable distance from each other, which play athwart one another at the same time, and upon the same point, forming right angles; where, what one bullet shakes, the other beats down.

BATTERY *d' enfilade*, is one which sweeps the whole length of a straight line, a street, &c.

BATTERY *en echarpe*, is that which plays obliquely.

BATTERY *de revers*, or *murdering battery*, is one that plays on the back of any place: and being placed on an eminence, sees into it.

BATTERY, *joint*, or *par camarade*, or *cameretta*, is when several guns play at the same time upon one place.

BATTERY *en rouage*, is that used to dismount the enemy's cannon.

BATTERY *d' ricochet*, is adapted to the method of *ricochet* firing, first invented and practised by Vauban, at the siege of Aeth, in 1692: the guns are loaded with small charges, and are elevated, so as to fire over the parapet; and the shot is hereby made to roll along the opposite rampart. This method of firing with guns has since been applied to mortars and howitzes with great success.

BATTERY *coffer*, is that where the sides of the wall and merlons only are formed of fascines, and all the cavities or included spaces filled with earth.

BATTERY, *gabion*, see **GABIONS**.

BATTERY, in *Law*, denotes an act that tends to the breach of the peace of the realm, by unlawfully striking, beating, or offering other violence to another person.

Battery is frequently confounded with *assault*, though in law they are different offences; because, in the trespass for *assault* and *battery*, one may be found guilty of the *assault*, yet not convicted of the *battery*: there may therefore be *assault* without *battery*; but *battery* always implies an *assault*. A person guilty of *battery* against a clergyman, is liable to three kinds of prosecution for the same offence: an indictment for breach of peace, a civil action for damages, and a suit in the ecclesiastical court.

BATTERY is sometimes used in speaking of the fabric of metalline utensils.

In this sense, *battery*-works include pots, saucepans, kettles, and the like vessels, which, though cast at first, are to be afterwards hammered or beaten into form.

Some make *battery* for the kitchen, *batterie de cuisine*, comprehend all utensils for the service of the kitchen, whether of iron, brass, copper, or other matters. Others take the term in a narrower sense, and restrain it to utensils of brass or copper.

A society for the mineral and *battery*-work of England, was incorporated by queen Elizabeth.

BATTERY, in *Electricity*, is a combination of coated surfaces of glass, so connected together, that they may be charged at once, and discharged by a common conductor. Mr. Galath, a German electrician, was the first who contrived to increase the shock, by charging several phials at the same time. Dr. Franklin, after he had analyzed the Leyden phial, and found that it lost at one surface the electric fire which it received at the other, constructed a *battery*, consisting of eleven panes of large sash-glass, coated on each side, and connected in such a manner that the whole might be charged together, and with the same labour as one single pane; and by bringing all the giving sides into contact with one wire, and all the receiving sides with another, he contrived to unite the force of all the plates, and to discharge them at once. But the most complete *battery* that has yet been constructed, is described by Dr. Priestley, of which he says, that after long use he sees no reason for wishing the least alteration in any part of it. This *battery* (see *Plate of Electricity*, fig. 1.) consists of 64 jars, each ten inches long, and 2½ inches in diameter, coated within 1½ inch of the top; and contains in the whole 32 square feet. The wire of each jar has a piece of very small wire twisted about the lower end of it, to touch the inside coating in several places; and it is put through a pretty large piece of cork, within the jar, to prevent any part of it from touching the side, which would tend to promote a spontaneous discharge. Each wire is turned round, so as to make a hole at the upper end; and through these holes a pretty thick brass rod with knobs passes, one rod serving for one row of the jars. The communication between these rods is made by laying over them all a thick chain. When part only of the *battery* is used, the chain is laid over as many rods as will furnish the required number of rows of jars. The bottom of the box, in which the jars stand, is covered with a plate of tin, and a bent wire touching the plate passes through the box, and appears on the outside. To this wire any conductor designed to communicate with the outside of the *battery* is fastened, as the small wire in the figure, and the discharge is made by bringing the brass knob to any of the knobs of the *battery*. When a

very great force is required, the quantity of coated surface may be increased, or two or more *batteries* may be used. Franklin's Exp. and Obs. ed. 1769. p. 28. Priestley's Hist. &c. of Electricity, ed. 1775. vol. ii. p. 99.

BATTEURS *d' estrade*, scouts, or horsemen, sent out before, and on the wings of an army, two or three miles, to make discoveries; of which they are to give an account to the general.

BATTIFOLIUM, or **BATTIFOLLUM**, a kind of tower or defence, frequently mentioned by Latin historians of the middle age. It seems to have been wood, and to have been erected on sudden and hasty occasions.

BATTLE, an action which passes between two armies ranged in order of *battle*, and who engage in a country sufficiently open for them to encounter in front, and at the same time; or, at least, for the greater part of the line to engage, while the remainder remains in sight, by reason of some difficulty, which hinders it from entering so readily into action, with a front equal to that which may be opposed to it by the enemy.

Other great actions, though generally of a longer duration, and even frequently attended with greater slaughter, are only called *fight*s, by the French *combats*. Feuq. Mem. c. 80.

A *battle* lost, almost always draws with it the loss of the artillery of the army, and frequently also that of the baggage: consequently, as the army beaten cannot again look the enemy in the face till it have repaired those losses, it is forced to leave the enemy a long time master of the country, and at liberty to execute all its schemes.—Whereas a great fight lost is rarely attended with a loss of all the artillery, and scarce ever of the baggage, because the two armies not meeting in front, they can only have suffered in the part that has been engaged. Feuq. loc. cit.

An ingenious modern author remarks, that it is not, usually, the real loss sustained in a *battle* (that is, of some thousands of men) that proves so fatal to a state; but it is the imaginary loss, and discouragement, which deprives it of the use of those very powers which fortune had left it. Confid. sur les Caus. de la Grand. des Rom. c. iv. p. 39.

Drawing up an army for BATTLE, is called *embattelling*; the rules and methods for which are furnished by the science called by the ancients *tactics*.

BATTLE, *order of*, the disposition of the squadrons and battalions of an army in one or more lines, according to the conditions of the ground, either in order to engage the enemy, or to be reviewed by the general.

BATTLE, *field of*, the ground on which the two armies engage. The Greeks notified the place of their *battles* and victories by adding the word *Nun*; whence Nicodemia, Nicopolis, Thessalonica, &c. The ancient Britons did the like, by adding the word *Mais*; whence Maifseveith, Malmaisbury, &c. The English by the word *field*.

The Romans had their particular days, called *præliares dies*, wherein alone it was lawful to join *battle*; and others wherein it was unlawful, called *dies atri*.

The Athenians, by the ancient laws of their country, were not to draw out their forces for *battle* till after the seventh day of the month. And Lucian relates of the Lacedæmonians, that by the laws of Lycurgus, they were not to fight before full moon. Among the Germans, it was reputed an impiety to fight in the wane of the moon; and Cæsar tells us, that Ariovistus was beaten by him, because contrary to the laws of his country, he had fought when the moon was in her wane. The German soldiers were intimidated with the apprehension, and afforded Cæsar an easy victory; *acie commissa impeditos religione hoste vicit*. De Bell. Gall. lib. ii.

It is well known that Jerusalem was taken by Pompey in an attack on the sabbath-day, when, by the Jewish superstitious notions, they were not allowed to fight, or even to defend themselves. Dion, lib. vii.

The Romans did not carry their superstition so far; their *atri dies* were only observed in respect of attacking: no day was too holy for them to defend themselves in. Macrobian. Saturn. lib. i. c. 16.

Among the ancients, we find frequent instances of *battles* in the night: it was by the moon-light that Pompey beat Mithridates; and Scipio, Asdrubal and Syphax. Flor. lib. iii.

BATTLE *array*, denotes the order in which an army is drawn up at a review, or for engagement: more frequently called *line of battle*.

BATTLE, *pitched or set*, that wherein both armies have room and time to arrange themselves in good order.

The first *pitched battle* of which we have any distinct account, is that between Croesus and Cyrus, described by Xenophon, concerning which we have a dissertation by M. Freret, wherein several points of the ancient tactics are well explained. Cyropæd. lib. vi. and vii. Mem. Acad. Infer. tom. ix. p. 209.

In modern war, we find few *pitched or set battles*: the

chief view of the great commanders of late days is rather to harrafs or starve the enemy by frequent alarms, cutting off his provisions, carrying off his baggage, seizing his posts, &c. than to join issue with him, and put the whole on the event of a day; a *battle* generally deciding the fate of a campaign, sometimes of a whole war. Hence it is a rule, never to venture a general *battle*, unless either you fight to advantage, or be forced to it.

Joining or giving *battle* should always be by design: a general should never suffer himself to be forced to fight.

Reasons for giving *battle* are, superiority in the number or quality of forces; necessity of putting a speedy end to the war; different views or interests of the commanders of the enemy's army; their negligence in encamping or marching; necessity of relieving a place besieged; the disposition of an army, which must be ruined, unless prevented by the success of a *battle*; the certainty of succours coming to the enemy, which will render him superior; some preceding advantage, which, though not decisive, has given the enemy a considerable check. For avoiding it, the reasons are, having less to hope for from a victory, than to fear from a defeat; expecting farther succour, or the junction of a separate corps; finding the enemy advantageously posted, or a prospect of dissipating his army by temporizing and avoiding *battle*. Means for execution are, to form the order of *battle* suitable to the quantity and quality of the forces whereof the army is composed, and the ground wherein it is expected to find the enemy; distributing the posts to the general officers; giving copies of the order of *battle* to all those who have command in it; distributing a sufficient number of charges to the men, and having fresh munition and arms ready behind those who have a long fire to sustain; letting the army have time to rest and refresh themselves before the *battle*; being sufficiently provided with medicines and surgeons; being absolutely free from the incumbrance of the heavy baggage; inspiring the army with the desire of fighting, hopes of victory, and promises of plunder; and not neglecting the advantages of wind and sun. The stratagem of the Arabs deserve mention. They used to turn loose a number of camels loaded with sand and dust-bags full of holes, to the windward of the enemy, who by this means were covered and suffocated with a cloud of dust. Vide Phil. Trans. No. 219. p. 137.

On the day of *battle*, the means of execution are, taking the advantages of the ground, observing the order of *battle* before concerted, changing it where found necessary, and giving notice thereof to those concerned; distributing the artillery in the line according to the ground; watching for all advantages to be taken, by opening and strengthening the wings; giving the word before marching to the enemy; taking care to observe the right and left, and the distance between the lines: if the army march in front, to make frequent halts, to give time for the line to recover its order, and to the artillery to fire and load again; above all, forbidding the soldiers from firing, to receive the enemy's fire, and not to charge till after drawing their fire from them, is a capital point; it being certain, that when troops, who have parted with their fire, see others advance, and going to pour in their fire upon them, they will immediately give way. But when both sides pursue the same maxim, the best expedient seems to be, to march up close to the enemy, before they give their fire, and having fired, to prevent the enemy from giving theirs by falling upon them with their bayonet on the muzzle of the muskets the instant you have fired, which may be done under cover of the smoke, before they can perceive it. Bland's Milit. Discip. c. 9. art. 2.

If the army, by its march, cannot come at the enemy in front, it must approach in a sufficient number of columns to be in order of *battle*, out of distance of being charged in columns. The artillery is still to accompany the first line in the order wherein it was distributed, if the ground will allow, and the rest of the army to follow this motion, still observing the distance between the two lines as at first appointed, to prevent confusion. If the victory continue to declare in his favour, and he has the good fortune to overthrow the second line, more care still is to be taken to prevent the troops from separating, lest they be charged and put into disorder by the first line of the enemy, who may be rallied behind their second line. The routed troops must still be pursued in a body, and in lines. No battalion ought ever to advance before the line in pursuit, for fear of being flanked, till the disorder be general: afterwards, the number of those detached for the pursuit is to be increased, without ever suffering a man to quit his flag without being commanded. On this occasion, the general is to make use of the reserved body, and of fresh troops, who have not engaged, to pursue the enemy, to prevent their rallying, and to take prisoners, which the troops must never be suffered to meddle with during the *battle*, not so much as to look on the plunder of the field, till the victory be abso-

lutely assured, and the enemy so broken, and at such a distance, that there is no danger of his turning back on the bodies detached to pursue them: after which, during the rest of the day, the victorious troops may be suffered to reap the plunder of the field of *battle*. If the first line give way, or be put into disorder by the enemy, the battalions are to retire through the intervals left between those of the second line, behind which they are to stop and rally. Great care is to be here taken by the officers, that, instead of retiring through the intervals, they do not run directly into the battalions, and either carry them off with them, or put them into such confusion, that the enemy be upon them before they have proper time to repair the disorder.

On the first line's giving way, the second should march up briskly to their relief, and attack the enemy, before they have time to repair the disorder, which the action and the pursuit must of course have thrown them into; by doing which, they may easily retrieve what is lost, and defeat and render useless the enemy's first line, which had been considerably weakened and disordered by the former attack. This is the more easy to be effected, as the enemy's first fire is spent, which is that which does most execution; the other, from the great hurry of loading, being of little consequence, in comparison with the first. The great mischief is, that the second line seeing the first give way, are usually struck with a panic, which magnifies the enemy; so that by the time they approach near, they either betake themselves to flight, or make but a faint resistance.

In case fortune declare on the enemy's side, the great business of the general is to prevent a total rout. His capacity and experience are to shew him the moment which precedes the loss of a *battle*, that he may take the necessary precautions to diminish the disorder of a flight, either by the vigorous efforts of a body of troops unshattered, in order to give time to the rest to rally, and thus secure a retreat; or by seizing some post behind, whither he may retire with safety; or a defile, behind which he may rally and re-assemble his scattered troops. As the loss of the field of *battle* frequently carries with it that of the baggage and artillery, he is to remain no longer in this first place than while he can re-assemble his army; after which he is to lead it into some secure camp, where he may recover his losses, send for fresh cannon, troops, &c. If the loss be considerable enough to hazard some considerable town, he is to throw into it the best of his infantry left, and endeavour still to keep the field with the cavalry, to harrafs the enemy, in case he attempts a siege; or to oblige him to keep the army together, and prevent his dividing into several bodies, if his design be only to penetrate farther, and ravage the country. Bland.

The ancients never joined *battle* without much ceremony and preparation; as taking auguries, offering sacrifices, haranguing the soldiers, giving the word, or a *tessera*, &c. The signals of *battle* were founding the *classicum*, or general charge, and displaying a peculiar flag, called by Plutarch a purple robe. To which may be added, singing pæans, raising military shouts, and the like.

BATTLE was also formerly used for a body of forces drawn up in order of *battle*.

This amounts to the same with what is otherwise called BATTALION.

In this sense, we meet with the length or depth of the *battle*; the front, rear, and flanks of the *battle*.

BATTLE, *length of the*, is the number of men in a rank, or the space from the left flank to the right flank.

BATTLE, *depth of the*, is the extent of a file, or the number of men from the front to the rear.

A Roman legion, ranged in order of *battle*, consisted of *hastati*, placed in the front; of *principes*, who were all old experienced soldiers, placed behind the former; and of *triarii*, heavy-armed, with large bucklers behind the *principes*. The *hastati* were ranked close; the ranks of the *principes* were much opener, so that they could receive the *hastati*; and those of the *triarii* opener still, insomuch that they could receive both the *principes* and the *hastati* within them, without any disorder, and still facing the enemy. When therefore the *hastati* found themselves unable to stand the enemy's charge, they retired gently within the *principes*, where, joining with them, they renewed the combat. If these found themselves too weak to sustain the enemy, both retired among the *triarii*, where rallying, they formed a new corps, and charged with more vigour than ever. If these failed, the *battle* was lost; the Romans had no farther resource. Macchiav. Art. de Guer. lib. iii. c. 1.

The moderns are unacquainted with this method of inserting or embatteling one company into another; without which, the former cannot be well succoured or defended, and their places taken by others; which was a thing the Romans practised with great exactness.

As to the *velites*, and, in later times, the archers and slingers,

slingers, they were not drawn up in this regular manner, but disposed of either before the front of the *hastati*, or scattered up and down among the void spaces of the *hastati*, or sometimes placed in two bodies in the wings. These always began the combat, skirmishing in flying parties with the foremost troops of the enemy. If they were repulsed, which was usually the case, they fell back to the flanks of the army, or retired again in the rear. When they retired, the *hastati* advanced to the charge.

As to the cavalry, it was posted at the two corners of the army, like the wings on a body, and fought sometimes on foot, sometimes on horseback. The auxiliary forces composed the two points of the *battle*, and covered the whole body of the Romans.

Other less usual forms of *battle* among the Romans were, the *cuneus*, or wedge; *globus*, or round form; *forfex*, or pair of sheers; *turris*, or an oblong square figure; *ferra*, or saw. Kennet. Rom. Ant. Not. p. ii. lib. iv. c. 10.

The Greeks were inferior to the Romans in marshalling their armies for *battle*, as they drew up their whole army in a front, and trusted the success of the day to a single force. Pott. Archæol. tom. ii. lib. iii. c. 9.

They had three forms of *battle*, for the horse, viz. the square, the wedge, and the rhombus, or diamond form. The first held best for the defensive; the two latter for the offensive: the wedge being preferred as bringing most hands to fight. Ælian. Tact. c. 18.

BATTLE, in a *Naval Sense*, denotes an engagement between two fleets, squadrons, or even single ships.

This is more frequently distinguished by the name of sea-fight.

Of late times, fleets are ranged in line of *battle*, like land armies, and fight much after the same order; to the expediency of which, some objections may be made.

The ancients had divers forms of sea-battles; as the half-moon, circle, and forceps. In all these, not only the ships engaged each other, and by their beaks and prows, and sometimes their sterns, endeavoured to dash in pieces, or overset and sink each other, but the soldiers also annoyed the enemy with darts and slings, and, on their nearer approach, with swords and spears, boarding each other by laying bridges between the ships.

By way of preparation, they took down their sails, and lowered their masts, and secured whatever might expose them to the wind, choosing rather to be governed by their oars.

It is observable, that the ancient and usual way of fighting in our fleets was board and board, yard-arm and yard-arm, through and through; and not at a distance in a line or half-moon, as is now done: which practice our old sailors say they were strangers to.—For this reason our guns are shorter, and of larger bore, than those of the French, which are adapted to the method of fighting in line of battle; as being longer, and carrying farther. So that we engage with them in this way at a disadvantage. It has been often found that their balls will fly over our ships, before ours can reach them by a mile. Dennis Ess. on Navy, sect. 2.—See **SIGNAL**.

BATTLE, *line of*, see **LINE**.

BATTLE, *square*, see **Square BATTALION**.

BATTLE, *attainder by*, see **ATTAINDER**.

BATTLE, in *Middle Age Writers*, properly denotes a combat or duel decreed by order of a court of justice, for the decision of a cause, where otherwise sufficient proof could not be had. See **JUDICIUM DEI**, **ORDEAL**, and **PURGATION**.

It was anciently allowed of in our law, and may still be demanded at the election of the appellee (particular cases only excepted), where the defendant in appeal of murder or felony, may fight with the appellant, and make proof thereby whether he be culpable or innocent of the crime. Glanv. lib. xiv. c. 1. If the appellee be so far vanquished, that he cannot or will not fight any longer, he may be adjudged to be hanged immediately: but if he can maintain the fight until the stars appear, he shall have judgment to be quit of the appeal. 2 Hawk. P. C. 426. The trial by wager *battle* may still be demanded by the tenant, or defendant in a writ of right. Blackstone's Comm. vol. iii. p. 337. vol. iv. p. 340, &c. See **DUEL**.

BATTLE royal, in *Cock fighting*, denotes a fight between three, five, or seven cocks all together; so as that the cock which stands longest gets the day.

BATTLE ax. The *battle ax* was originally called *securis Danica* because first introduced into England by the Danes; but being adopted into these countries, we find it called in later writers, *securis Angla*, and *securis Scotica*, the English and Scottish axes. The grandees wore them enriched with gold, and beset with pearls. They were of that kind called *bipennes*, and have since generally degenerated into halberds or partisans, though we find them

still retained, under their old denomination, by the band of gentlemen pensioners. Du-Cange.

BATTLEMENTS, in the *Military Art*, indentures, or notches in the top of a wall, parapet, or other building, in form of embrasures, for the sake of looking through them, &c. much affected in the old fortification.

BATTOLOGY, from *βατλος*, *battus*, *babbler*, and *λεγω*, *I speak*, in *Grammar*, a multiplying of words without occasion, or a needless and superfluous repetition of the same words, or things.

BATTOON, or **BATOON**, see **BASTON**.

BATTERY, a name given by the *Hans Towns* to their magazines or factories abroad.

The chief of these *batteries* are those at Archangel, Novogrod, Berghem, Lisbon, Venice, and Antwerp.

BATTUS, an order of penitents at Avignon, and in Provence, whose piety carries them to exercise severe discipline upon themselves, both in public and private.

BATTUTA, in the *Italian Music*, the motion of the hand or foot in keeping or beating time.

Among Italian musicians, we frequently find the words, *a battuta*, which import, *in measure*, or beating each time equally. This usually occurs after what they call *recitativo*, which is rather declaiming than singing, and in which little or no measure is observed. *A battuta*, then, denotes, that they are to begin again to mark or beat the time equally.

BATUDA, a method of fishing mentioned in some *Middle Age Writers*, wherein the fish are driven by beating the water with poles, till flocking into one place, they are the sooner caught.

BATZ, or **BATZEN**, a copper coin mixed with some silver, and current at different rates, according to the quantity of alloy, in many parts of Germany and Switzerland.

B. AV. See **CHARACTER**.

BAUDEKIN, **BALDICUM**, and **BALDAKINUM**, in our *Old Writers*, is used for a cloth of *baudekin*, or gold; or tissue, upon which figures in silk, &c. were embroidered. But some writers account it only cloth of silk.

BAUGE, a drugget manufactured in Burgundy, with thread, spun thick, and coarse wool.

BAUHINIA, in *Botany*, the name of a genus of plants of the *decandria monogynia* class, so called from the two *Bauhines*, famous for their botanical writings; *mountain ebony*. The characters are these: the flower is composed of five petals; and hath ten *stamina*; the oblong *germen* sits upon the foot-stalk, which afterward becomes a long taper pod, enclosing a row of roundish compressed seeds. There are ten species.

All these plants are natives of the warm countries, and will not thrive in England, unless kept in a warm stove. They are propagated by seeds, which must be procured from the countries where they grow naturally, for they do not naturally perfect their seeds in England.

BAVINS, in *War*, brush faggots, made with the brush at length. See **FASCINES**.

BAUM, *melissa*, in *Botany*, a genus of the *didynamia gymnospermia* class of plants. The characters are these: the flower is of the lip kind, having a cylindrical tube, the chaps gaping, the upper lips erect, forked, and indented at the end. The under lip is trifid; it hath four awl-shaped *stamina*, two of which are as long as the petal, the others but half so long. It hath a quadrifid *germen*, which afterward turns to four naked seeds, sitting in the empalement. There are eight species.

The common *baum* grows naturally on the mountains near Geneva, and in some parts of Italy; but is cultivated here in gardens as a medicinal and culinary herb. It has a perennial root, the stalks are square, branching, and it rises from two to three feet high, garnished with leaves set by pairs, indented about the edges, the lower ones standing upon somewhat longish foot-stalks; the flowers grow in loose bunches at the wings of the stalk in whorls, standing upon single foot-stalks: they are of the lip-kind; the upper lip stands erect, and is forked; the under-lip is divided into three parts; the middle one is roundish, and indented at the top; the flowers are white, and the whole plant has a pleasant scent somewhat like lemons.

This plant is easily propagated by parting the root; for which the best time is in October, that the off-sets may have time to get root before the frosts come on. They should be planted two feet asunder in beds of common garden earth, in which they will soon spread and meet together. The only culture required is to keep the plants clean from weeds, and to cut off the decayed stalks in autumn, stirring the ground between them.

Baum is greatly esteemed among the common people, as good in disorders of the head and stomach; but is less regarded in the shops. It is however reputed good in hypochondriac and hysteric disorders, and by outward application to ease the stinging of bees and wasps. It is most conveniently taken by way of infusion, like tea; and the green herb, contrary to the general rule in regard to other

Other plants, is much better than the dry. The only official preparation of *baum* is the simple water.

Hoffman has contrived a process for obtaining the virtues of this plant, which affords its principles better than any other, and gives two medicines to the physician, unknown before, but of great value.

This method might be pursued with the same success in other cases; and many plants, not sufficiently esteemed at present, might thus afford useful preparations.

He took a large quantity of the leaves of *baum*, fresh picked from the stalks, and filling a glass vessel more than half full with them, fixing the stopper carefully in, he put the vessel into a dung-hill, where he let it remain three months. At the end of this time he took it out, and found the whole reduced to a kind of poultice. This being distilled in a retort, yielded first an empyreumatic liquor, but afterwards, when the fire was increased, a black and stinking oil came over, in form of thin *laminæ*, spreading itself over the surface of the liquor. There remained at the bottom of the retort a black and burnt mass, resembling a coal, which being thrown on burning charcoal, had very much the smell of the common tobacco.

In this first distillation no volatile salt appeared, but the empyreumatic liquor being examined, was found very sharp and acrid on the tongue, and of a sharp and pungent smell. Spirit of vitriol being mixed with it, it afforded no effervescence; but on the mixing it with spirit of hartshorn, spirit of urine, or the like, a small ebullition always was produced, though it lasted but a few moments.

This liquor rectified by a second distillation, affords the volatile salt of *baum*, which is a fine white and pellucid substance, adhering to the neck of the glass, in form of fine white and striated crystal; and a yellow ætherial oil, of a very penetrating smell, and sharp taste, becomes separated by the same rectification. These are both found to be very great medicines, the salt as a sudorific, and the oil as a high cordial, a carminative, and a deobstruent.

Of the *ENS PRIMUM* of *baum*, we meet with high commendations in Mr. Boyle.

Bastard BAUM, see *MELITTIS*.

Shrubby BAUM, see *MOLUCCA*.

Turkey BAUM, see *DRAGON'S head*.

BAVOSA, in *Ichthyology*, a name given by the Italians to a species of the ray fish, called by the modern authors *levirata*, and *raia oxyrinchus*, and by the earlier authors, *raja bbs*, *bos marinus*, and *leioraja*. It is distinguished by Artedi by the name of the variegated ray, with ten prickly tubercles on the middle of the back. See *PHOLIS*.

BAURAC, an ancient name for nitre, but in some places used in a restrained sense, as not signifying every thing that was called by that name, but only one of two different salts that were confusedly called nitre.

The Arabians give the name *baurach* to *tincal* or *tincal*, which when refined is called *BORAX*, but when it is rough, in little crystalline masses like the small crystals of *sal gem*, mixed with earth or other impurities, it is always distinguished by the name of *TINCAL*. Neumann, p. 227.

BAWD, a person who keeps a place of prostitution, or makes a trade of debauching women, and procuring or conducting criminal intrigues.

Some think the word is derived from the old French *baude*, bold or impudent; though Verstegan has a conjecture which would carry it higher, viz. from *bathe*, anciently written *bade*.

In which sense, *bawd* originally imported no more than bath-holder, as if bagnios had anciently been the chief scenes of such prostitution.

The Romans had their male as well as female *bawds*; the former denominated *lenones* and *proagogi*, among us *panders*; the latter, *lenæ*.

By a law of Constantine, *bawds* were to be punished by pouring melted lead down their throats.

By the common law of England, a person may be indicted for keeping a bawdy-house, and punished by fine and imprisonment: and haunters of bawdy-houses bound to their good behaviour.

But it does not appear that the offence of being a *bawd* is indictable; though that of keeping a bawdy-house is. See *STEWs*.

BAWLING, among *Hunters*, is spoke of the dogs, when they are too busy before they find the scent good.

BAXTERIANS, in *Ecclesiastical History*. See *PREDESTINARIANS*.

BAY, *laurus*, in *Botany*, a genus of the *enneandria monogynia* class. Its characters are these; it is male and female in different plants; but the male flowers have no empalement. They have nine *stamina*, which are shorter than the petal, standing by threes, terminated by slender summits. The female flowers have no empalements; they

have one petal, which is cut into six segments at the top. In the bottom is situated an oval *germen*; and there are two globular glands, standing upon very short foot-stalks, fixed to the base of the petal. The *germen* becomes an oval berry with one cell, enclosing one seed of the same form. They are all propagated by sowing the berries, or by laying down the tender branches, which will take root in one year's time, and may then be transplanted into beds for a year or two, or even placed at once where they are to remain. They must be trained up straight, by tying them to stakes, and their under-shoots pruned off, to make them advance in height. These trees are proper to plant on the warm sides of hills, where they may be sheltered from the north and north-east winds. In open situations, the *bay-tree* will sometimes indeed lose all its verdure in severe frosts, and appear dead, and many trees have on this occasion been dug up and burnt; but this is a rash and very wrong practice; for usually, if they are suffered to remain, they shoot freely again, and after another season, are found as lively as ever.

Alexandria BAY, see *BUTCHER'S broom*.—*Cherry BAY*, see *LAUREL*.—*Dwarf BAY*, see *SPURGE laurel*.—*Indian BAY*, see *MYRTLE*.—*Loblolly BAY*, see *GORDONIA*.—*Plum BAY*, see *GUAIAVA*.—*Rose BAY*, see *OLEANDER*.—*Sweet flowering BAY*, see *Laurel-leaved TULIP-tree*.

BAY, in *Geography*, denotes a little gulf, or an arm of the sea, stretching up into the land; being larger in the middle within, than at its entrance, which is called the *mouth of the bay*.

BAY likewise signifies a pen, or pond-head, made up a great height, to keep in a store of water for driving the wheels of a forge or furnace of an iron-mill, by the stream that comes thence through a passage, or flood-gate, called the *pen-flock*.

BAY, among *Huntsmen*. Deer, &c. are said to *bay*, or *be at bay*, when, after being hard run, they turn head against the hounds.

BAY, among *Farmers*, is that part of the barn where the mow is placed.

BAY colour, denotes a kind of red inclining to chestnut, chiefly used in speaking of horses.

In this sense, the word *bay* is formed from the Latin *baius*, or *badius*, and that from the Greek *βαῖος*, a palm-branch, so that *badius* or *bay* properly denotes *color phœniceus*. Hence also, among the ancients, those now called *bay horses*, were denominated *equi palmati*.

We have divers sorts and degrees of *bays*; as a light *bay*, a dappled *bay*, &c.

All *bay horses* are said to have black manes, which distinguish them from *forrels*, which have red or white manes.

Bay is one of the best colours, and *bay horses* are commonly good.

BAY, in *Building*, denotes any kind of opening in walls; as a door, window, or even chimney.

BAY à miroir, in the *Manege*, the same as *DAPPLE bay*.

BAY salt, see *SALT*.

BAY windows, are the same with what we otherwise call *bow windows*.

BAY yard, is a denomination sometimes used promiscuously with *woollen yarn*. 10 and 11 W. III. c. 10. 5 G. II. c. 21. See *YARN*, &c.

BAYARD, or *BAIARD*, in some *Old Writers*, is an appellation for a horse.

Hence the phrases, *blind bayard*, *bayard's watering*, *bayard's green*, &c.

BAYONET, a short broad dagger, made lancet-fashion, and having, instead of an hilt, an iron handle and ring, to fix it to the end of a musquet, so as not to hinder its firing or charging.

Bayonets are of great service to the dragoons and fusileers, after they have spent all their powder and ball.

This instrument is also used in hunting the boar or bear; for this purpose it is made larger than for the military use.

The origin of the word is unknown; probably it came from the city Bayonne, where this weapon is said to have been first employed; or perhaps from its being invented by some engineer of that place.

BAYS, in *Commerce*, a kind of coarse, open, woollen stuff, having a long knap; sometimes frized on one side, and sometimes not frized, according to the uses it is intended for.

This stuff is without wale, being wrought on a loom with two treddles, like flannel.—The manufacture of *bays* is very considerable in England, particularly about Colchester; and in Flanders, about Lille and Tournay, &c. Formerly the French, as well as Italians, were furnished with *bays* from England; but of late the French workmen have undertaken to counterfeit them, and set up manufactures of their own; and that with success; especially at Nismes, Montpellier, &c.

The export of *bays* is very considerable in Spain, Portugal, and Italy. Their chief use is for the religious, and for linings in the army: the looking-glass makers also use them behind their glasses, to preserve the tin or quicksilver; and the case-makers to line their cases.

The breadth of *bays* is commonly a yard and half, yard and three quarters, or two yards; by forty-two, or forty-eight in length: those of a yard and three quarters are most proper for the Spanish trade.

BAZA, or **BAZAT**, in *Commerce*, fine spun cotton, which comes from Jerusalem, whence it is also called Jerusalem COTTON.

BAZAR, or **BASAR**, a denomination among the Turks and Persians, given to a kind of exchanges or places where their finest stuffs and other wares are sold.

These are also called *bezeffins*.

The word *bazar* seems of Arabic origin, where it denotes *sale*, or exchange of goods.

Some of the eastern *bazars* are open, like the market-places in Europe, and serve for the same uses, more particularly for the sale of the more bulky and less valuable commodities. Others are covered with lofty ceilings, or even domes pierced to give light; and it is in these the jewellers, goldsmiths, and other dealers in the richer wares, have their shops.

The *bazar* or *maidan* of Ispahan is one of the finest places in all Persia, and even surpasses all the exchanges in Europe; yet, notwithstanding its magnificence, it is excelled by the *bazir* of Tauris, which is the largest that is known, having several times held thirty thousand men ranged in order of battle.

At Constantinople there is the old and the new *bazar*, which are large, square buildings, covered with domes, and sustained by arches and pilasters; the former chiefly for arms, harnesses, and the like; the latter for goldsmiths, jewellers, furriers, and all sorts of manufactures.

BAZGENDGES, in *Natural History*, the name of a substance used by the Turks, and other eastern nations, in their scarlet dying: they mix it for this purpose with cochineal and tartar, the proportions being two ounces of the *bazgendges* to one ounce of cochineal.

The *bazgendges* seem to be no other than the horns of the turpentine tree in the eastern parts of the world; and it is not only in Syria that they are found, but China also affords them. Many things of this kind were sent over to M. Geoffroy at Paris from China, as the substances used in the scarlet dying of that country, and they all proved wholly the same with the Syrian and Turkish *bazgendges*, and with the common turpentine horns. The lentisk or mastic tree is also frequently found producing many horns of a like kind with these, and of the same origin, all being owing to the *puceons*, which make their way into the leaves, and breed their young there. Reumur's Hist of Insects, vol. vi. p. 37.

BAZOCHÉ, or **BASOCHÉ**, a royal kind of jurisdiction exercised among the clerks of the palais, or courts of justice at Paris.

It is administered in the name and by the authority of the king of *Bazoché*, *roi de la Bazoché*, by virtue of an ancient grant of the kings of France, the elder among the clerks are the officers; and he who presides is the chancellor.

This court only takes cognisance of causes among the clerks, or between clerks and artificers for goods bought, or work done. The freedom they took with private characters in their inquisition and remonstrances, has occasioned several *arrets* to restrain their power, and prohibit their holding pleas without leave.

A collection of statutes, ordonnances, regulations, monuments, and prerogatives of the kingdom of *Bazoché*, were published at Paris in 1654, 8vo.

BDELLIUM, *βδέλλιον*, an aromatic gum, brought from the Levant, of some use, both as a medicine and a perfume.

The word is supposed to have been formed of the Hebrew *בדולח*, *bedollach*, which the English translators render by the appellation *bdellium*. It is also written *bedellium*, *bedello*, *ptellium*, *petalium*, *megaliu*, and *telinum*.

There is much uncertainty concerning both the plant and the place of its production, which is supposed to be in Africa. We find mention of the name both among the ancient naturalists, and in Scripture; but it is doubtful whether any of these be the same with the modern kind. As for the Scripture *bdellium* we know very little of it. Moses describes *manna* as of the colour of *bdellium*; and Josephus explains the passage, by saying it is the gum of a tree resembling the olive tree; and that the manna wherewith the Jews were fed in the desert resembled this drug.—But Scaliger and others set aside this explanation, and own they do not know what the *bdellium* mentioned in Scripture is.

The gum of this name among the moderns is somewhat bitterish to the taste, looks transparent when broken, and, if rubbed, seems a fattish substance.

It is thought to facilitate digestion, to discuss and promote perspiration, and to be good in coughs, and many disorders of the breast; but its chief use now in composition is in discutient plasters, cerates, and unguents; in which it is much commended for reducing of ruptures, and softening any indurations of the nervous parts. Junker and Lemery.

The *pilulæ de bdellio majores*, described by Messue, are used by some against the piles, and excesses of the *menfes*. Hermannus also praises the oil of *bdellium* against obstructions of the womb. Fumigations of the same gum, *suffitus ex bdellio*, received by the *anus*, are also ordered by some to stop immoderate fluxes of the hæmorrhoids. It is one of the weakest deobstruent gums, and is now rarely used. From one ounce of this gum resin, may be extracted by water six drams and two scruples; or by spirit two drams.

BEACON, a SIGNAL for the better securing the kingdom from foreign invasion.

On certain eminent places of the country are placed long poles erect, whereon are fastened pitch-barrels to be fired by night, and smoke made by day, to give notice, in a few hours to the whole kingdom, of an approaching invasion.—These are commonly called *beacons*; whence also comes *beaconage*.

BEACONS are also marks and signs for the sea; erected on the coasts by the masters, &c. of the Trinity house, who are empowered to do this by act of parliament, 8 El. c. 13. If any person shall destroy or remove any sea-mark, he shall forfeit 100*l.* and in case of inability to pay it, be *ipso facto* outlawed.

BEACONAGE, money paid towards the maintenance of a *beacon*.

The word is derived from the Saxon *beacnian*, *to nod*, or *shew by a sign*: hence also the word *beckon*.

BEAD, in *Architecture*, denotes a round moulding, carved in short embossments, like beads in necklaces.

Sometimes also an astragal is carved *bead fashion*.

There is also a sort of *beads plain*, frequently set on the edge of each *fascia* of an architrave; sometimes also on the lining-board of a door-case; and on the upper end of skirted-boards.

BEAD, in *Affaying*, the small lump or mass of pure metal separated from the *scoria*, and seen distinct and pure in the middle of the coppel while in the fire.

Thus, in separating silver from its ore by means of lead, the silver remains in form of a *bead*, when the lead, that had before assisted in the operation, is reduced to *scoria*. In this process, the *bead* of silver must be taken out of the coppel as soon as it is seen pure and fine, lest growing cold, it should be conglutinated to the coppel or litharge. This *bead*, when rightly made, is always porous underneath. Cramer.

BEADS are more particularly used among us for a sort of glass necklace, made in imitation of the colour and figure of pearl.

BEADS are also used in speaking of those glass globules vended to the savages on the coast of Africa, thus denominated, because they are strung together for the convenience of traffic.

The common black glass of which *beads* are made for necklaces, &c. is coloured with manganese only; one part of manganese is sufficient to give a black colour to near twenty of glass. Lewis's Comm. Phil. p. 422.

BEADS, in a religious sense, see **CHAPLET**.

BEAD-roll, among the Romish priests, a list or catalogue of such persons, for the rest of whose souls they are obliged to rehearse a certain number of prayers, &c. which are told by means of their *beads*.

BEAD-makers, called by the French *paternostriers*, are those employed in the making, stringing, and selling of *beads*.

At Paris there are three companies of *paternostriers*, or *bead makers*; one who make them of glass or crystal; another in wood and horn; and a third in amber, coral, jet, &c.

BEAD proof, or *double proof*, terms used by our distillers, to express that sort of **PROOF** of the standard strength of spirituous liquors, which consist in their having, when shaken in a phial, or poured from on high into a glass, a crown of bubbles, which stand on the surface some time after. This is esteemed a proof that the spirit consists of equal parts of rectified spirits and phlegm.

This is a fallacious rule as to the degree of strength in the liquor; because any thing that will increase the tenacity of the spirit, will give it this proof, though it be under the due strength. Our malt distillers spoil the greater part of their goods, by leaving too much of the stinking oil of the malt in their spirit, in order to give it this proof, when somewhat under the standard strength.

But this is a great deceit on the purchasers of malt spirits, as they have them by this means not only weaker than they ought to be, but stinking with an oil, which they are not easily cleared of afterwards.

On the other hand, the dealers in brandy, who usually have the art of sophisticating it to a great nicety, are in the right when they buy it by the strongest *bead proof*, as the grand mark of the best; for being a proof of the brandy containing a large quantity of its oil, it is, at the same time, a token of its high flavour, and of its being capable of bearing a very large addition of the common spirits of our own produce, without betraying their flavour or losing its own.

We value the French brandy for the quantity of this essential oil of the grape which it contains, and that with good reason; as it is with us principally used for drinking as an agreeably flavoured cordial: but the French themselves, when they want it for any curious purposes, are as careful in the rectification of it, and take as much pains to clear it from this oil, as we do to free our malt spirit from that nauseous and foetid oil, which it originally contains.

No judgment can be formed of brandies by the *bead proof* as to their mixed or adulterated, or their pure state, farther than that they are likely to be most pure when they have the greatest proportion of this oil, in regard to mixtures of other spirits. There are many occasions where we want spirit, merely as spirit, and where any oil, whether sweet or stinking, must be equally improper. Shaw's Ess. on Distillery.

BEAD tree, *azederach*, or *melia*, in *Botany*, a genus of the *decandria monogynia* class. Its characters are these: the flower has five spear-shaped petals which spread open, and a cylindrical *nectarium* of one leaf, indented at the brim in ten parts. It has ten small stamina inserted in the top of the *nectarium*; with a conical *germen*, which turns to a soft globular fruit, including a roundish nut, having five rough furrows and five cells, each containing one oblong seed. There are two species.

BEADLE or **BEDEL**, **BEDELLUS**, signifies a messenger or apparitor of a court, who cites men to appear and answer in the court to what is alledged against them.

BEADLE is also used for an officer in universities, whose place it is to walk before the masters at all public processions, &c. with a mace.

Spelman, Vossius, and Somner derive *beadle* from the Saxon *bidel*, a public crier; in which sense bishops, in some ancient Saxon manuscripts, are called *beadles of God*, *Dei bedelli*. The translator of the Saxon New Testament renders *exaltor* by *bidle*; and the word is used in the same sense in the laws of Scotland.

BEAGLES, a small sort of hounds or hunting dogs.

Beagles are of divers kinds; as the *southern beagle*, something less and shorter, but thicker than the deep-mouthed hound; the *fleet northern*, or *cat beagle*, small, and of a finer shape than the southern, and a harder runner. From the two, by crossing the strains, is bred a third sort held preferable to either.

To these may be added a still smaller sort of *beagles*, scarce bigger than lap-dogs, which make pretty diversion in hunting the coney, or even small hare in dry weather: but otherwise unserviceable, by reason of their size.

BEAK, *rostrum*, in *Ornithology*, the bill of a bird; from the form and structure of which, Linnæus divides this whole family or general class of animals, into six orders. See **BIRD**, and **ORNITHOLOGY**.

BEAK, in *Architecture*, a little fillet left on the edge of a larmier, which forms a canal, and makes a kind of pendant chin, answering to what Vitruvius calls the *mentum*.

BEAK, or **BEAK-head of a ship**, is that part without the ship before the forecastle, which is fastened to the stem, and is supported by the main knee: this is usually carved and painted, and, besides its use, makes the becoming part, or grace of a ship.

The *beak* was anciently made of wood; but fortified with brass, and fastened to the prow, serving to annoy the enemy's vessels. Its invention is attributed to Pisæus, an Italian. The first *beaks* were made long and high; but afterwards a Corinthian, named Aristo, contrived to make them short and strong, and placed so low as to pierce the enemy's vessels under water. By the help of these great havock was made by the Syracusians in the Athenian fleet. Pott. Archæol. lib. iii. c. 17.

BEAK was also used for one of the ancient battalia, or forms of ranging an army for battle, particularly used by the Macedonians.

BEAK is also applied to the slender crooked prominences of divers bodies, bearing some analogy or resemblance to the *beaks* of birds.

In this sense we meet with *beaks* of shoes, *rostra calceorum*, for long peaked toes, in use of old. Du Cange.

Among *Farriers*, *beak* denotes a little horse-shoe, turned up, and fastened in upon the fore part of the hoof.

It is used to keep the shoes fast, and not liable to be struck off by the horse, when by reason of any itch, or being much disturbed by the flies in hot weather, he stamps his feet violently on the ground.

BEAKED, *becqué*, in *Heraldry*, is used when the beak or bill of a fowl is of a different tincture from the body.

In this case, they say *beaked* and membered of such a tincture.

BEAKING, in *Cock-fighting*, expresses the fighting of these birds with their bills, or holding with the bill, and striking with the heels.

BEAM, in *Architecture*, the largest piece of wood in a building; being laid across the walls, and serving to support the principal rafters of the roof.

No house has less than two of these *beams*, viz. one at each head: into these the girders of the garret floor are also framed; and, if the building be of timber, the teazletenons of the posts.

The proportions of *beams* near London are fixed by statute, as follows: a *beam* fifteen feet long must be seven inches on one side its square, and five on the other; if it be sixteen feet long, one side must be eight inches, the other six; if seventeen feet long, one side must be ten inches, the other six: in the country they usually make them stronger. Sir H. Wotton advises these to be of the strongest and most durable timber.

Some of the best authors have considered the force or strength of *beams*, and brought their resistance to a precise calculation; particularly M. Varignon and M. Parent; the system of the latter is as follows.

When, in a *beam* breaking parallel to its base, which is supposed to be a parallelogram, two plans of fibres, which were before contiguous, are separated, there is nothing to be considered in those fibres, but their number, bigness, tension before they broke, and the lever by which they act; all these together make the strength or resistance of the *beam* to be broke.

Suppose then another *beam* of the same wood, where the base is likewise a parallelogram, and of any bigness, with regard to the other, at pleasure; the height or thickness of each of these when laid horizontal, being divided into an indefinite number of equal parts, and their breadth into the same number, in each of their bases will be found an equal number of little quadrangular cells, proportional to the bases whereof they are parts.—These then will represent little bases, or, which is the same thing, the thicknesses of the fibres to be separated by the fracture of each *beam*: and, since the number of cells is equal in each, the ratio of the bases of both *beams* will be that of the resistance of their fibres, both with regard to number and thickness.

Now the two *beams* being supposed of the same wood, the fibres most remote from the points of support, which are those which break the first, must be equally stretched when they break. Thus the fibres, v. gr. of the tenth division, are equally stretched in each case, when the first breaks; and in whatever proportion the tension be supposed, it will still be the same in both cases; so that the doctrine is entirely free, and unembarrassed with any physical system.

Lastly, it is evident, the levers whereby the fibres of the two *beams* act, are represented by the height or depth of their bases; and, of consequence, the whole resistance of each *beam* is the product of its base by its height; or, which is the same thing, it is the square of the height multiplied by the breadth: which holds, not only in case of parallelogrammatic, but also of elliptic bases.

Hence, if the bases of two *beams* be equal, though both their heights and breadths be unequal, their resistance will be as their heights alone; and, by consequence, one and the same *beam* laid on the smallest side of its base will resist more than when laid flat, in proportion as the first situation gives it a greater height than the second: and thus an elliptic base will resist more, when laid on its greatest axis, than when on its smallest.

Since, in *beams* equally long, it is the bases that determine the proportion of their weights or solidities; and since, their bases being equal, their heights may be different; two *beams* of the same weight may have resistances differing to infinity: thus, if in the one the height of the base be conceived infinitely great, and the breadth infinitely small, while in the other the dimensions of the base are infinite; the resistance of the first will be infinitely greater than that of the second, though their solidity and weight be the same. If therefore all required in architecture were to have *beams* capable of supporting vast loads, and at the same time to be of the least weights possible, it is plain they must be cut thin as laths, and laid edgewise.

If the bases of two *beams* be supposed unequal, but the sum of the sides of the two bases equal, v. gr. if they be either 12 and 12, or 11 and 13, or 10 and 14, &c. so that they always make 24; and farther, if they be supposed

posed to be laid edgewise; pursuing the series, it will appear, that in the *beam* of 12 and 12, the resistance will be 1728, and the solidity or weight 144; and that in the last, or 1 and 23, the resistance will be 529, and the weight 23: the first therefore which is square, will have less than half the strength of the last, with regard to its weight.

Hence M. Parent remarks, that the common practice of cutting the *beams* out of trees as square as possible is ill husbandry: he hence takes occasion to determine geometrically, what dimensions the base of a *beam* to be cut out of any tree proposed shall have, in order to its being of the greatest possible strength; or, which is the same thing, a circular base being given, he determines the rectangle of the greatest resistance that can be inscribed; and finds, that the sides must be nearly as 7 to 5, which agrees with observation.

Hitherto the length of the *beams* has been supposed equal; if it be unequal, the bases will resist so much the less, as the *beams* are longer.

To this it may be added, that a *beam* sustained at each end, breaking by a weight suspended from its middle, does not only break at the middle, but also at each extreme; or, if it does not actually break there, at least immediately before the moment of the fracture, which is that of the equilibrium between the resistance and the weight, its fibres are as much stretched at the extremes, as in the middle.—So that of the weight sustained by the middle, there is but one third part which acts at the middle to make the fracture; the other two only acting to induce a fracture in the two extremes.

A *beam* may either be supposed only loaden with its own weight, or with other foreign weights applied at any distance, or else only with those foreign weights. Since, according to M. Parent, the weight of a *beam* is not ordinarily above $\frac{1}{10}$ part of the load given it to sustain, it is evident, that in considering several weights, they must all be reduced by the common rules to one common centre of gravity.

M. Parent has calculated tables of the weights that will be sustained by the middle, in *beams* of various bases and lengths, fitted at each end into walls, on a supposition that a piece of oak of an inch square, and a foot long, retained horizontally by the two extremes, will sustain 315 lb. in its middle before it breaks, which it is found by experience it will. Mem. Acad. R. Scien. an. 1708.

BEAM of a PLOUGH, a name given by our farmers to the great timber of the plough, into which all the other parts of the plough-tail are infixed.

This is usually made of ash, and is straight, and eight feet long in the common plough: but in the four-coultured PLOUGH, it is ten feet long, and its upper part arched. The head of this *beam* lies on the pillow of the PLOUGH, and is raised higher, or sunk lower, as that pillow is elevated or depressed by being slipped along the crow-staves. Near the middle, it has an iron-collar, which receives the tow-chain from the box, and the bridle-chain from the stake or gallows of the plough is fixed in it a little below the collar. Some inches below this, there is a hole, which lets through the coulter; and below that there are two other small ones, through which the heads of the ratches pass. These are the irons which support the sheat, and with it the share. Farther backward still is a larger perforation, through which the body of the sheet passes; and behind that, very near the extremity, is another hole through which the piece called the hinder-sheet passes.

BEAMS of a ship, are the large, main, cross timbers, stretching from side to side, which hold the sides of a ship from falling together, and which also support the decks and orlops of the SHIP.

The main *beam* is that next the main mast; and from it they are reckoned by first, second, and third *beam*. The great *beam* of all is called the *midship beam*. See Tab. Ship, fig. 2. n. 36. 45. 61. 28. 91. 87.

There are usually twenty-four *beams* on the lower deck of a ship of 74 guns, and to the other decks additional ones in proportion, as the ship lengthens above.

On the **BEAM**, in Sea-Language, denotes any distance from the ship on a line with the *beams*, or at right angles with the keel. Any object that lies east or west, when the ship steers northward, is said to be on the starboard or larboard *beam*.

Before the **BEAM**, signifies an arch of the horizon comprehended between the line of the *beam*, and that point of the compass which she stems.

On the **Weather BEAM**, signifies on the weather side of the ship.

Camber BEAM, see CAMBER-beam.

BEAM of an anchor, see ANCHOR.

BEAM of a balance, is that piece of iron or wood, somewhat bigger toward the middle than at the ends, where there are holes through which run the ropes or strings

which hold the scales: the *beam* is divided into two equal parts, by a needle placed over it perpendicularly: and the centre of motion must be placed a little above the centre of gravity, that the *beam* may rest exactly in an horizontal position. See BALANCE.

BEAM, or *roller*, among Weavers, is a long and thick wooden cylinder placed lengthways on the back-part of the loom of those who work with the shuttle. The threads of the warp, of linen or woollen cloth, serges, or other woollen stuffs, are rolled upon the *beam*, and unrolled as the work goes on. That cylinder on which the stuff is rolled as it is weaved is also called the *beam* or *roller*, and is placed on the fore part of the loom.

BEAM, in Heraldry, is used to express the main horn of a hart or buck.

BEAM, among Hunters, denotes the main stem of a deer's head, or that part which bears the antlers, royals, and tops; the little streaks wherein are called circles.

BEAM is also used for a fiery meteor in the shape of a pillar; and for a ray of the sun.

BEAM compasses, see COMPASSES.

BEAM feathers, in Falconry, the longest feathers of a hawk's wing.

BEAM-filling, in Building, the filling up the vacant space between the rising plate and roof, with stones or bricks, laid between the rafters on the raising plate, and plastered on with loam; this is frequent where the garrets are not targeted, or plastered.

BEAM fish, in Ichthyology, a sea monster like a pike; a dreadful enemy to mankind, seizing like a blood hound, and never letting go if he gets fast hold. The teeth of this fish are said to be so venomous; that unless an antidote be immediately applied, the least touch of them is mortal.

BEAM tree, see SERVICE tree.

BEAN, *faba*, in Botany. Linnæus comprehends this genus of plants under *vicia*. The characters are these: the flower is of the butterfly kind; the standard is large, oval, and indented at the end; it hath two oblong erect wings, which enclose the keel, being much longer; the keel is short, swelling, and closely covers the parts of generation: the nine stamina are in three parts, and one stands separate; at the bottom is situated an oblong compressed *germen*, which afterward becomes a long, compressed, leathery pod, having one cell, filled with compressed kidney-shaped seeds.

We have four sorts of *beans* commonly sowed in our gardens. 1. The small Lisbon or Maragan. 2. The Spanish. 3. The Sandwich. And, 4. The Windsor *beans*. The first and second sorts are to be planted in October and November, under warm walls and hedges, where, if they stand through the winter, they produce *beans* early in the spring. They may also be raised very close in beds, and covered with hoops and mats in the winter, and in spring planted out; but there is some hazard in the transplanting, and they will be a fortnight or more later than those which have stood the winter abroad.

The Lisbon *bean* is preferred to the Spanish: and the curious ought to have fresh seed every two years from abroad, for they are apt to degenerate, though not in goodness, yet in their earliness.

The Spanish and Windsor *beans* are not to be planted till after Christmas; but especially the Windsor, which are subject, more than any other kind, to be hurt by the cold. These *beans* should have an open ground, and be planted at the distance of three feet and an half row from row, and five or six inches from one another in the rows. The Sandwich *beans* are hardier than the Windsor, and may be planted to come in between the early crops and them; and though not much regarded at present, they are a very good *bean*.

The first plantation of Windsor *beans* should be made in the middle of January; and after that, a new plantation should be made every three weeks till the middle of May, that there may be a succession of crops.

The Toker *bean* comes about the same time with the Sandwich, and is a great bearer; therefore it is now much planted. The white and black blossom *beans* are also much esteemed; but, unless their seeds are preserved with care, are apt to degenerate. Miller.

There is scarce any plant, whose seed so well serves the purpose of the inquirer into the nature and structure of seeds in general, as the *bean*.

Trials have not long since been made in France to raise garden *beans* in open fields, on the principles of the new husbandry; and the result sufficiently indicated, that with proper care large crops might be raised in this way. The medicinal and dietetic qualities of *beans* are said to be nutritive, but flatulent: the pods yield a water held good against the gripes in children. Some have used the horse *bean* as a succedaneum to coffee; which in principles it much resembles; only that it contains but half the quantity of oil. Mr. Boyle has several experiments,

ments of *beans* treated pneumatically to shew the great plenty of air they afford, on which their flatulency depends. The expansion of *beans* in growing, the same author found so considerable that it would raise a plug clogged with above a hundred pounds weight. Boyle's Works abr. tom. p. 285. tom. ii. p. 615, &c.

Beans with proper management, make one of the finest of all baits for fish. The method of preparing them for this purpose is this: take a new earthen pot glazed on the inside; boil some *beans* in it, suppose a quarter of a peck: they must be boiled in river water, and should be previously steeped in some warm water for six or seven hours. When they are about half boiled, put in three or four ounces of honey, and two or three grains of musk: let them boil a little on, then take them off the fire, and use them in this manner: seek out a clean place, where there are no weeds, that the fish may see and take the *beans* at the bottom of the water. Throw in some *beans* at five or six in the morning, and in the evening for some days. This will draw them together, and they may be taken in a casting net in great numbers.

BEAN-flower, called by the Romans *lomentum*, was of some repute among the ancient ladies as a cosmetic, wherewith to smooth the skin, and take away wrinkles. The ancients made use of *beans* in gathering the votes of the people, and for the election of magistrates. A *white bean* signified absolution, and a black one condemnation.

Beans had a mysterious use in the *lemuralia* and *parentalia*; where the master of the family, after washing, was to throw a sort of *black beans* over his head, still repeating the words, *I redeem myself and family by these beans*. Ovid gives a lively description of the whole ceremony in his Fasti, lib. v. ver. 435.

Abstinence from *beans* is said to have been enjoined by Pythagoras, for which prohibition various reasons have been assigned.

The Egyptian priests held it a crime to look at *beans*, judging the very sight unclean. The *flamen dialis* was not permitted even to mention the name. Lucian introduces the same philosopher in hell, saying, that to eat *beans*, and to eat our father's head, were equal crimes. After all, both the genuineness of the precept, and the reality of any such abstinence among the ancient Pythagoreans have been disputed. Some attribute the precept to Empedocles, a disciple of Pythagoras. Aristoxenus, an ancient writer cited by A. Gellius, introduces Pythagoras saying, that he eat more frequently of *beans* than of any other pulse, on account of their gently loosening the belly.

BEAN stalks. The ashes of *bean stalks* make good and clear glass.

BEAN, Horse. The *horse bean* is the only kind propagated by the plough; it delights chiefly in a stiff and moist clay; three bushels will sow an acre, and this is to be done in February. The common produce is about twenty bushels from an acre. They must lie some time upon the ground after they are cut, before they are carried in. Some farmers sow tares and *horse beans* together, which is a very good way, for the seeds are easily separated by a riddle.

By the new husbandry, less than one bushel of seed will plant an acre of land; and the produce has exceeded that of the old, by more than ten bushels an acre.

BEAN, Bog, menyanthes, in Botany, a plant common in boggy places, but as it is never cultivated, not worthy of farther notice. It is a genus of the *pentandria monogynia* class, with a hairy corolla, a bifid stigma, and a single-celled capsule. Linnæus enumerates three species.

BEAN, Kidney, phaseolus, in Botany, a genus of the *diadelphia decandria* class. The characters are these: the empalement of the flower is of one leaf; the flower is of the butterfly kind, and hath a heart-shaped, obtuse, inclined standard, reflexed on the sides; the wings are oval, the length of the standard with a narrow spiral keel twisted contrary to the sun; it hath ten *stamina*, nine joined in one body, and the other standing separate; and an oblong compressed hairy *germen*, supporting a slender inflexed spiral style, crowned by an obtuse hairy *stigma*; the *germen* afterward becomes a long pod with a thick shell, ending in an obtuse point, enclosing oblong compressed kidney-shaped seeds. Linnæus enumerates fifteen species.

It would be to little purpose to enumerate all the varieties of this plant which have come to our knowledge; since America does annually furnish us with so many new sorts, that there is no knowing what varieties may be produced in England: beside, as they are not likely to be much cultivated here, since some of the old sorts are preferable to any of the new ones, for the use of the kitchen-garden, we need therefore only mention those which are most esteemed for the table.

There are at present three sorts of *kidney beans* chiefly propagated for the table in England. These are, 1. The common white or Dutch *kidney bean*. 2. The smaller *kidney bean*, commonly called the Battersea *kidney bean*. And, 3. The upright sort, called the tree *kidney bean*.

The first was some time ago greatly propagated in England, and is still in Holland: it grows very tall, and requires long stakes and poles to climb on, and its beans are considerably broad; this makes them less saleable in the markets, people supposing them to be old because they are broad; and they are hence grown into disuse, though a much more valuable kind for eating than any other.

The second sort, or Battersea *bean*, is what is more universally cultivated; it never grows very tall, nor rambles far, and the air can easily pass between the rows because of its moderate growth; and this makes it bear plentifully, and ripen well for the table. It is the best tasted *bean*, except the last.

The third, or tree *kidney bean*, is also a plentiful bearer, and never rambles, but grows up in form of a shrub; but its beans are broader than the Battersea kind, and are not so well tasted.

Miller recommends the scarlet blossom *bean* which has been usually cultivated for the beauty of its flowers, as the best sort for the table.

They are all propagated from seeds, which are to be put into the ground the latter end of March or beginning of April for an early crop, but these should have a warm situation and a dry soil; they must also be planted in a dry season. The manner of planting them is to draw lines with a hoe over the bed at two feet and a half distance, into which the seeds are to be dropped at about two inches asunder, and the earth is to be drawn over them with the head of a rake, to cover them about an inch deep. In a week after sowing, the plants will appear, and the earth should be drawn up about their stalks as they rise up; for a few days after this they will require no farther care, except to be kept clear from weeds, and, when the *beans* appear, to have them gathered twice a week; for if the *beans* are suffered to hang on too long, they not only become of no value, but they weaken the plant.

The first crop of *kidney beans* will continue a month in good order: and to supply the table afterwards, there should be fresh sowings in March, April, May, and June, the last of which will continue till the frost come to destroy them. Some raise their early crops on hot-beds; and this is to be done exactly in the same manner as the raising the early CUCUMBER.

BEAN, Kidney, tree, in Botany, see GLYCINE.

BEAN tree, binding, mimosa, see SENSITIVE plant.

BEAN, Molucco, a name given by sir Robert Sibbald in his *Prodromus*, and by Mr. Wallace in his description of the Orkney islands to a sort of fruit frequently cast on shore in the North-west islands of Scotland; especially on the coasts most exposed to the waves of the great ocean.

They are called by some Orkney *beans*, and are not the produce of that island, or indeed of any other part of Europe, but of America.

Sir Hans Sloane procured four species of them little injured by the sea, and found on examination that three of them were the common produce of the island of Jamaica; where he had himself gathered them, and described them in his catalogue and history.

The first sort was a kind of kidney bean, and the plant which produces it is described by sir Hans under the name of the great perennial kidney bean with a great crooked lobe. It is also figured in the Hortus Malabaricus, by the name of *perim kakuvali*, and sir Robert Sibbald also calls it *nux Indica ex qua pyxides pro pulvere sternutatorio parant*. This is a native of the East and West Indies, and is sometimes found thrown on shore in the county of Kerry in Ireland; and in some other places.

A second kind of fruit thrown on shore in the Orkneys, is a very common fruit in Jamaica, known there by the name of the horse-eye bean; it has this name from its resembling the eye of some large animal, by reason of a *hilus* or welt which surrounds it. This is described by many authors, and among the rest by sir Hans Sloane, in his catalogue of Jamaica plants; and is found in many other of the hotter parts, both of the East and West Indies.

A third kind of fruit found on these shores, is that called by the people of Jamaica the ash-coloured nickar-nut; it has this name from its colour, and from its being perfectly round, of a shape of a nickar or marble, such as boys play with. This is also common in the East and West Indies.

A fourth kind is also a Jamaica fruit, with the history of which we are not yet well acquainted; no body has seen it growing, but the fruit itself is preserved in many of the collections of the curious, and has been figured and described by Clusius, and others, under the name of a round exotic fruit rigid with four rising nerves. These are the principal kinds of fruits thus tossed on shore with us; but how the products of Jamaica, or other parts of America, should be brought to the shores of Scotland and Ireland, seems difficult to determine on any certain foundation. It is easy to conceive, that when they grow by the sides of rivers, they may fall off from the trees into them, and be thence conveyed into the sea. It is likewise easy to see, that when they are thus floating on the surface of the sea, they may be carried about by the winds and currents to a considerable distance; but their motion this way must naturally be stopped by the main continent of America, and they must be forced through the gulf of Florida, or the canal of Bahama, going thence constantly east, and into the North American sea. This is easily conceived by a similar fact which happens every day: which is, that a kind of sea lentil, called *sargasso*, which grows very plentifully on the rocks about Jamaica, is washed off from thence, and carried by the winds and currents, which for the most part go impetuously the same way, toward the coast of Florida, and thence into the North American Ocean; and is there found floating on the surface. Thus far it is easy to trace our fruits from their native soil: but how after this they should be forwarded to us is unaccountable, unless we suppose, that as ships when they go south expect a trade easterly wind, and when they come north expect and generally find a westerly wind, for at least two parts in three of the year; so these fruits, being brought north by the current from the gulf of Florida, are put into the way of these westerly winds, and by them conveyed to the coasts of Scotland and Ireland. Philosoph. Transact. N° 222. p. 300.

By the same means that these *beans* came to Scotland, it is reasonable to believe that the same winds and currents brought from America those several things towards the Azores and Porto Santo, which are recorded by Ferdinand Columbus, in the life of his father; which gave this bold adventurer the first notion that there was such a place as America. Among the things he mentions as washed ashore in this manner, was a piece of wood very ingeniously wrought, but evidently without the help of iron tools. This was taken up by a Portuguese pilot, four hundred and fifty leagues from shore, off cape St. Vincent, after a west wind, which had blown violently for many days: after this such another piece of wood was taken up on the shore of Porto Santo, after such another long and violent west wind. Large canes, vastly superior to any of the growth of the then known parts of the world, were also found thrown on the same shores, and the fruits of pines which did not grow in any known part of the world: and finally, the bodies of two men appearing to be of a different nation from any of the known people, and two of the canoes, were driven on shore on the island Flores, one of the Azores. All these things having been found only after strong and continued west winds, it appeared very evident, that there must be land somewhere to the west, where fruits and men were to be found; and that these men had no knowledge of our arts, by their want of iron. From these conjectural conclusions sprung the greatest discovery of modern times.

BEAN *caper*, *zygophyllum*, or *fabago*, in Botany, a genus of the *decandria monogynia* class. Its characters are these: the empalement of the flower is composed of five oval obtuse leaves; the flower has five obtuse petals, which are longer than the empalement, and are indented at their points: it has a closed *nectarium*, which includes the *germen*, composed of several scales or little leaves, to which the bases of the *stamina* are fastened. It has ten awl-shaped *stamina*, terminated by oblong summits and an oblong *germen*, supporting an awl-shaped style, crowned by a single *stigma*. The *germen* becomes an oval five-cornered capsule with five cells, containing several roundish seeds. There are four species.

The Syrians use this plant to kill worms, on account of its bitterness.

BEAN *cod*, a small fishing-vessel or pilot-boat, very common on the sea-coasts and in the rivers of Portugal.

BEAN *trefoil*, see *Shrub TREFOIL*.

BEAN *tree*, *erythrina*, see *CORALLODENDRON*.

BEAN *fly*, in *Natural History*, the name given by authors to a very beautiful fly, of a pale purple colour, frequently found on *bean*-flowers. It is produced from the worm or maggot called by authors *mida*.

BEAN is also used by some *Anatomists* to denote the *glans* of the *penis*, on account of its figure and resemblance to that pulse.

BEAN is also improperly used for a weight, containing the third part of a scruple.

BEAR, *ursus*, in *Physiology*, denotes a well-known quadruped of the cat kind, of some use in medicine, but more in commerce and sport. See *Tab. of Quadrupeds*, &c. fig. 3. *Bear*, in the Linnæan system of *Zoology*, makes a distinct genus of animals of the *feræ* kind: the characters of which are, that the fore-teeth, above and below, are six in number, the upper ones alternately hollow within; the cutting teeth are single and conical; the grinders five or six; the tongue smooth, the nose prominent, and the *penis* large. The common *bear* has a short tail. Under this genus, the author takes in the creature called the *coati mundi*, under the name of *lotor*, or *ursus cauda annulata*. See *RACKOON*.

The *bear* differs, in many respects, from all the other beasts of prey. Its head is much larger than theirs: its skin on the back is extremely hard, tough, and strong; under the belly it is more tender: its hairs are longer, softer, and less rigid than in any other wild beast of prey, and resemble wool in some degree: its skull is much thinner than that of the lion; but its brain more than twice as much in quantity: its eyes are very small, and, what is very remarkable, have a nictitating membrane to cover them on occasion. Its feet have all five toes, as well the hinder as the fore ones: and what is remarkable is, that the large toe, which answers to the thumb with us, is in the place of the little finger. It is a very common creature in Germany, Poland, Lithuania, and many other places. Ray.

The *bear* was formerly an inhabitant of the British island; and was transported from Britain to Rome. *Bear*-baiting was a favourite pastime with our ancestors; an instance of which occurs so lately as the time of queen Elizabeth.

The *bear* is observed to bear some analogy to man; as having hair on both eye-lids, which no other brute has: His structure and anatomy are described by the French academists. Du Hamel Hist. Reg. Acad. Sc. liv. i. § 11. Some distinguish two kinds of *bears*, *terrestrial* and *marine*; the former of which keep to the mountains, whereas the latter come out on the ice as far as the middle of the North Sea. Some of this kind are found in Nova Zembla, of an incredible size.

Each male among the sea *bears* has a seraglio to himself, containing from fifteen to fifty females, which he possesses as his own property.

BEAR, *Polar*. See *POLAR Bear*.

Sea-BEAR. See *SEA-Bear*.

BEAR's *flesh* was much esteemed by the ancients: even at this day, the paw of a *bear* salted and smoked, is served up at the tables of princes.

Bear's *flesh* is reckoned one of the greatest rarities among the Chinese; inasmuch that, as Du-Halde informs us, the emperor will send fifty or a hundred leagues into Tartary, to procure them for a great entertainment.

BEAR's *grease* is esteemed by some a sovereign remedy against cold disorders, especially rheumatisms. Some have also employed it with success in the gout, and against tumors and ulcers.

To be good, it must be newly melted, greyish, glutinous, of a strong disagreeable smell, and a moderate consistence. That which is too white, is adulterated with common tallow.

BEAR's *skin* makes a fur in great esteem, and on which depends a considerable article of commerce, being used in housings, on coach-boxes, &c. In some countries, cloaths are made of it, more especially bags wherein to keep the feet warm in severe colds. Of the skins of *bears* cubs are made gloves, muffs, and the like.

BEAR *garden*, a place where *bears* and other beasts are exposed as a public spectacle to be baited.

BEAR *leading*, to shew tricks, is an ancient practice, which we find prohibited in the canons of the church. Du-Cange.

BEAR *wards*, *usarii*, were a kind of servants in great families among the Romans, who had the care of breeding and feeding those animals. Pitisc. Lex. Ant. tom. ii. p. 1110.

Our nobility had formerly officers of this kind. The annual salary of one of them belonging to the fifth earl of Northumberland was twenty shillings. Northumb. Household Book.

Order of the BEAR, was a military order in Switzerland, erected by the emperor Frederic II. in 1213, by way of acknowledgment for the service the Swiss had done him, and in favour of the abbey of St. Gal. To the collar of the order hung a medal, on which was represented a *bear* raised on an eminence of earth.

BEAR, or **BERE**, is a species of barley cultivated in Scotland and Ireland, and the northern parts of England. It yields a large return, but is not esteemed so good for malting as the common barley.

Ant BEAR, in *Zoology*, see *ANT eater*.

BEAR's ears, in Botany, see AURICULA.

BEAR's ear fanicle, see SANICLE.

BEAR-bind, see CONVULVULUS.

BEAR's breech, ACANTHUS, in Botany, and BRANC urfine; a genus of the *didynamia angiospermia* class. Its characters are these: the empalement of the flower is two-leaved and bifid; the petal has but one lip, which is turned backward, and is divided into three at the end; the capsule has two cells, each containing one seed; it is of the ringent class of flowers, whose seeds are in a capsule. It is in the second division of Linnæus's fourteenth class. There are four species.

The common *acanthus*, whose leaves compose the ornaments of the Corinthian capital, and is used in medicine, grows naturally in Italy, Sicily, and the Levant.

The *farina* of bear's breech, microscopically examined, has the appearance represented in *Tab. of Microscopical Objects, Class 2.*

BEAR's foot, see HELLEBORE.

BEAR, in Astronomy, a name given to two constellations called the Greater and the Lesser Bear; or URSA major and minor.

The pole star is said to be in the tail of the Lesser Bear; this star is never above two degrees distant from the north pole of the world.

BEARD, the HAIR growing on the chin, and adjacent parts of the face; chiefly of adults and males.

Various are the ceremonies and customs the beard has been liable to: Kingdon assures us, that a considerable branch in the religion of the Tartars consists in the management of their beards; and that they waged a long and bloody war with the Persians, and declared them infidels, though, in other respects, of the same faith with themselves, merely because they would not cut their whiskers after the mode or rite of the Tartars.

Athenæus, from Chrysippus, observes that the Greeks always wore their beards till the time of Alexander; and that the first who cut it at Athens ever after bore the addition of *xogons*, *shaven*, on medals. Plutarch adds, that Alexander commanded the Macedonians to be shaven, lest the length of their beards should give a handle to their enemies: however this be, we find Philip, his father, as well as Amyntas and Archelaus, his predecessors, represented on medals without beards. Pliny observes, that the Romans did not begin to shave till the year of Rome 454, when P. Ticinius brought over a flock of barbers from Sicily; he adds, that Scipio Africanus was the first who introduced the mode of shaving every day.

Among that people, it became the custom to have visits made in form at the cutting of the beard for the first time: the first fourteen Roman emperors shaved, till the time of the emperor Adrian, who retained the mode of wearing the beard. Plutarch tells us he did it to hide the scars in his face.

Formerly there was a great deal of ceremony used in blessing the beard; and there are still extant the prayers used in the solemnity of consecrating it to God, when an ecclesiastic was shaven.

Persons of quality had their children shaved the first time by others of the same, or greater quality, who by this means, became god-fathers, or adoptive fathers of the children.

Anciently, indeed, a person became god-father of the child by barely touching his beard; thus historians relate, that one of the articles of the treaty between Alaric and Clovis was, that Alaric should touch the beard of Clovis to become his God-father.

As to ecclesiastics, the discipline has been very different on the article of beards: sometimes they have been enjoined to wear them, from a notion of too much effeminacy in shaving, and that a long beard was more suitable to the ecclesiastic gravity; and sometimes again they were forbid it, as imagining pride to lurk beneath a venerable beard.

The Greek and Romish churches have long disputed together about their beards; since the time of their separation, the Romanists seem to have given more into the practice of shaving, by way of opposition to the Greeks; and have even made some express constitutions *de radendis barbibus*.

The Greeks, on the contrary, espouse very zealously the cause of long beards, and are extremely scandalized at the beardless images of saints in the Roman churches.

By the statutes of some monasteries, it appears, that the lay-monks were to let their beards grow, and the priests among them to shave; and that the beards of all that were received into the monasteries were blessed with a great deal of ceremony.

To let the beard grow is a token of mourning in some countries, and to shave it is so in others. Le Comte ob-

serves, that the Chinese affect long beards extravagantly; but nature has balked them, and only given them very little ones, which, however, they cultivate with great care: the Europeans are strangely envied by them on this account.

The Russians wore their beards till within these few years, when the czar Peter enjoined them all to shave; but, notwithstanding his injunction, he was obliged to keep on foot a number of officers to cut off by violence the beards of such as would not otherwise part with them.

Chrysostom observes, that the kings of Persia had their beards woyen or matted together with gold thread; and some of the first kings of France had, in the same manner, their beards matted and knotted with gold.

Among the Turks, it is more infamous for any one to have his beard cut off, than among us to be publicly whipt, or branded with a hot iron. They who serve in the seraglio have their beards shaven as a token of servitude; and when they are set at liberty, they permit it to grow. With them and the Persians, the beard is a mark of authority and liberty. There are many in that country who would prefer death to this kind of punishment. The Arabs make the preservation of the beard a capital article of religion, because Mahomet never cut his.

The Turkish wives kiss their husbands beards, and children their fathers, as often as they come to salute them. The men kiss one another's beards reciprocally on both sides, when they salute one another in the streets, or come off from any journey.

The Jews wear a beard on their chin, but not on the upper lip or cheeks.

BEARD, touching the, was an action anciently made use of by supplicants, and those who made vows.

BEARD, anointing the, with unguents, is an ancient practice both among the Jews and Romans, and still continues in use among the Turks; where one of the principal ceremonies observed in serious visits, is to throw sweet scented water on the beard of the visitant, and to perfume it afterwards with aloes wood, which sticks to this moisture, and gives it an agreeable smell, &c.

In Middle Age Writers we meet with *adlentare barbam*, used for stroking and combing it to render it soft and flexible.

The Turks, when they comb their beards, hold a handkerchief on their knees, and gather very carefully the hairs that fall; and when they have got together a certain quantity, they fold them up in paper, and carry them to the place where they bury the dead.

BEARD, plucking the, was practised to Cynics by way of contempt.

Some authors also speak of mortgaging the beard, *barbam hypothecare*. Du-Cange.

BEARD, *barba falsa*, was an artificial one. In a general court of Catalonia, held in 1351, it is expressly enjoined, *Ne quis barbam falsam seu fictam audeat deferre vel fabricare*. Du-Cange.

Hottoman has given an elegant dialogue *de barba*, first printed by Plantin in 1586.

BEARD of a muscel, oysters, or the like, denote an assemblage of threads or hairs, by which these animals fasten themselves to stones, &c.

The hairs of this beard terminate in a flat spongy substance, which being applied to the surface of a stone sticks therto, like the wet leather-suckers used by boys.

BEARDS, in the History of Insects, are two small, oblong, fleshy bodies, placed just above the trunk, as in the gnats, and in the moths and butterflies.

BEARD, or under-beard, called also *chuck*, of a horse, is that part under the lower mandible on the outside, and above the chin, which bears the curb of the bridle.

BEARD, old man's, in Botany, see CLEMATIS.

BEARD of a comet, denote the rays which the comet emits towards that part of the heavens to which its proper motion seems to direct it.

In which the beard of the comet is distinguished from the tail, which is understood of the rays emitted towards that part from which its motion seems to carry it. See TAIL.

It is called beard, from some fancied resemblance it bears to the beard of a man.

BEARDED, *barbatus*, denotes a person or thing with a beard, or some resemblance thereof.

In Middle Age Writers, this is sometimes expressed by *malibarbibus*, q. d. *barba in malis seu genis*.

The faces on ancient Greek and Roman medals are generally bearded. Some are denominated *pogonati*, as having long beards, e. gr. the Parthian kings. Others have only a *lanugo* about the chin, as the Seleucid family. Adrian was the first of the Roman emperors who nourished

ished his beard: hence all imperial medals before him are *beardless*; after him, *bearded*.

The medals of gods, and heroes, in vigorous youth, represent them *beardless*, except Jupiter, and a few others.

The Romans paid their worship to a *bearded* Venus, *Veneri barbatae*, supposed to have been of both sexes; a statue of whom was also found in the isle of Cyprus.

The reason of representing the goddess of beauty with a *beard* is variously guessed at by the learned.

BEARDED women have been all observed to want the menstrual discharge; and several instances are given by Hippocrates, and other physicians, of grown women, especially widows, in whom the *menfes* coming to stop, *beards* appeared. Eusebius Nieurembergius mentions a woman, who had a *beard* reaching to her navel. Bartholin speaks of a *bearded* woman at Copenhagen, who partly in virtue thereof, passed for an hermaphrodite.

BEARDED brothers, *fratres barbati*, are more particularly used in *Ecclesiastical Writers* for those otherwise called *fratres conversi* in the order of Grammont and the Cistercians.

They took this denomination because allowed to wear their *beards*, contrary to the rule of the professed monks.

BEARDED husk, among *Florists*, a husk which is hairy on the edges, as is that of the rose, &c.

BEARDING of wool, see **WOOL**.

BEARER, in *Architecture*, a post, or brick wall, trimmed up between the two ends of a piece of timber, to shorten its bearing, or to prevent its bearing with the whole weight at the ends only.

BEARERS, *gestantes*, in *Middle Age Writers*, are sometimes used for a child's gollips, because they hold the infant in their arms, and present him to the priests in the ceremony of baptism. Du-Cange.

BEARERS of a **BILL** of **EXCHANGE**, denote the persons in whose hands it is, and in favour of whom the last order or indorsement was made.

When a bill is said to be *payable to bearer*, it is understood to be payable to him who first offers himself after it becomes due. To be paid a bill of this kind, there needs neither order nor transfer; yet it is good to know to whom it is paid.

BEARERS are more peculiarly used among us for those who carry the dead to their graves.

In a sense somewhat different from this, we also say *pall-bearers*, &c.

The ancients had peculiar orders or officers of *bearers*, called by the Greeks *νομιῶται*; by the Romans, *lecticarii*. The *vespillones*, or *bajuli*, were a lower sort of *bearers*, appointed for persons of inferior rank.

BEARERS, in *Horticulture*, denote the fruit branches, or such as bear fruit.

The *bearers*, or bearing branches of an apple-tree, and the like, are found to be rougher, and fuller of asperities in their bark, than the other branches.

BEARERS, in *Heraldry*, see **SUPPORTERS**.

BEARER, *Cross*, see **CROSS**.

BEARING, in *Geography*, and *Navigation*, the situation of one place from another, with regard to the points of the compass; or the angle which a line drawn through the two places makes the meridians of each.

The *bearings* of places on the ground are usually determined from the magnetic needle: in the managing of these lies the principal part of surveying; since the *bearing* and distance of a second point from the first being found, the place of that second is determined; or the *bearings* of a third point from two others, whose distance from each other is known, being found, the place of the third is determined: instrumentally we mean; for to calculate trigonometrically, there must be more *data*.

Mr. Collins gives the solution of a problem in the *Philosophical Transactions*, where the distances of three objects on the same plane being given, and the *bearings* from a fourth place in the same plain, observed, the distances from the place of observation to the respective objects are required.

BEARING, in the *Sea-Language*.—When a ship sails towards the shore, she is said to *bear in with the land*.—When a ship that was to windward comes under another ship's stern, and so gives her the wind, she is said to *bear under her lee*.—If a ship sails into a harbour with the wind large, or before the wind, she is said to *bear in with the harbour*, &c.

In conding they say, *bear up the helm*, that is, let the ship go more large before the wind—*bear up round*, that is, let the ship go between her two sheets, directly before the wind—*bear a hand*, i. e. make haste.

They also say, a ship *bears*, when, having too slender a quarter, she will sink too deep into the water with an over light freight, and therefore can carry but a small quantity of goods.

To **BEAR** *sail well* is said of a ship, when she is a stiff-guided ship, and will not couch down on a side with a great deal of sail.

When a ship is said to *bear out her ordnance*, it is meant, that her ordnance lie so high, and she will go so upright, that in reasonable fighting weather, she will be able to keep out her lower tire, and not be forced to shut in her ports.

A ship is said to *overbear another*, when it is able, in a great gale of wind, to carry out more sails, viz. a top-sail more, or the like.

BEARING off is also used by *Seamen* generally in business belonging to shipping, for *thrust off*.

Thus, in hoisting any thing into the ship, if it hath hold by any part of the ship or ordnance, or the like, they say, *bear it off from the ship's side*.—So if they would have the breech or mouth of a piece of ordnance, or the like, put from one, they say, *bear off* or *bear about* the breech.

BEARING up, or *bearing away*, is improperly used to denote the act of changing the course of a ship, in order to make her sail before the wind, after she had sailed some time with a side-wind, or close-hauled.

BEARING also expresses the situation of any distant object, estimated from some part of the ship, according to her position. In this sense, the object must be either ahead, astern, abreast, on the bow, or on the quarter.

BEARING of a piece of timber, in *Carpentry*, denotes the space either between the two fixt extremes thereof, when it has no other support; which is called *bearing at length*: or between one extreme, and a post, brick, wall, or the like, trimmed up between the ends to shorten its *bearing*.

Joists are not to *bear* above ten feet length; nor single rafters more than nine feet. 19 Car. II. c. 3.

BEARING of an arch or vault, denotes the effort which the stones make to burst open the piers, or *piedroits*.

This amounts to the same with what the French call *poussée*.

BEARINGS, in *Heraldry*, a term used to express a coat of arms, or the figures of armories, by which the nobility and gentry are distinguished from the vulgar, and from one another. These signs of nobility with us are evidently a copy of the statues and images among the ancient Romans, which they used to expose before their houses on public days, and carried before the body at a funeral of a great person. These statues among them were the resemblances of their noble ancestors. And as our coats of arms evidently were brought up in the place of them, it seems very natural to date the rise and origin of heraldry in England, as now practised, from the time of the subversion of the Roman empire by the Goths and Vandals; who, as they destroyed many liberal arts, so they seem, in return, to have given birth to this of heraldry.

These warlike nations, having subdued the mighty Roman empire, and raised their glory by military service, became very fond of the achievements of their ancestors and great men, and derived their ensigns and titles of honour from what concerned a soldier. They first, therefore, distinguished the whole community into three ranks, which they named, according to the different orders of military men, *miles*, *eques*, and *scutifer*; and their posterity, willing to commemorate their honours, reserved to themselves their several military ensigns; and these became what we call *bearings*, or arms, the marks of gentility, or of houses, some one of which had once deserved an elevation above the common rank of men. While the direct descendant of this honourable person carried his ensigns of honour for his distinction, the collateral branches also were ambitious of preserving the memory of their having belonged to such an honourable house; and therefore assumed the same figure, but with some difference, to distinguish the distance from the original claim. In process of time, other families, who had deserved as well of their prince and country, whether in civil or military affairs, became desirous of the same sort of distinction, by way of perpetual memorial of their services; and upon this occasion many other devices were formed into arms, and continued down to posterity in their several families.

Armorial bearings, in the tenth and eleventh centuries, were single and plain, consisting only of few figures. Charges, differences, quarterings, &c. are the inventions of later times.

BEARING of an organ pipe, denotes an error or variation from the just sound it ought to yield. See **TEMPERATURE**.

BEARING down of the matrix, a disorder in pregnant women, being a sensation of a weight at the bottom of the abdomen, or pressure on the neck of the womb, so as to hinder the person from walking without pain; and sometimes

Sometimes also occasioning difficulty of urine, numbness of the hips, uneasiness in going to stool, and in the end abortion.

BEARING claws, among *cock-fighters*, denote the foremost toes, on which the bird goes; and if they be hurt or gravelled, he cannot fight.

BEARING of a stag, is used in respect of the state of his head, or the croches which he bears on his horns.

If you be asked what a stag *bears*, you are only to reckon the croches, and never to express an odd number: as, if he have four croches on his near-horn, and five on his far, you must say he bears ten; a false right on his near horn: if but four on the near horn, and six on the far horn, you may say he bears twelve; a double false right on the near horn.

BEARN stone, see **PHOSPHORUS**.

BEAST, see **BRUTE**. Authors make this difference between *beasts of the forests* and of *chase*, that the first are *silvestres tantum*, the latter *campestres tantum*. *Beasts of the forest* make their abode all the day time in the great coverts and secret places of the woods; and in the night season, they repair into the lawns, meadows, pastures, and pleasant feeding-places: whence their denomination *silvestres*, q. d. *beasts of the wood*.

Beasts of the chase reside all the day time in the fields, and on the mountains afar off, to prevent surprize; but on night's approach, they feed as the rest in meadows, &c. whence their appellation *campestres*, q. d. *beasts of the field*.

BEASTS of CHASE, in our *Statute-books*, are five; the buck, doe, fox, martin, and roe.

BEASTS of the forest are, the hart, hind, hare, boar, and wolf.

BEASTS and fowls of the warren are, the hare, coney, pheasant, and partridge. See **GAME**.

No other, according to Manwood, are accounted *beasts* or fowls of warren, than hares, coneys, pheasant, and partridges. Lord Coke is of another opinion, distinguishing *beasts* on the warren from fowls of the warren. Under the former, he includes hares, coneys, and roes: the latter he divides into *silvestres*, *campestres*, and *aquaticus*. To the first belong the pheasant, woodcock, &c. to the second the partridge, quail, rail, &c. to the third the mallard, hern, &c. Coke on Littleton, p. 233.

BEAST of burden is understood of all quadrupeds employed in carrying goods on their backs.

BEAST at ombre is, where the player, or person that undertakes the game, loses it to the other two; the penalty of which is a forfeiture equal to the stake played for.

BEAST, la bête, is also the name of a French game at cards.

BEASTS, rother, see **ROTHER**.

BEAT, or UNDULATION, in *Music*, see **UNDULATION**.

BEAT, in Fencing, denotes a blow or stroke given with the sword.

There are two kinds of *beats*; the first performed with the foible of a man's sword on the foible of his adversary's, which in the schools is commonly called *baterie*, from the French *batre*, and is chiefly used in a pursuit, to make an open upon the adversary. The second and best kind of *beat* is performed with the fort of a man's sword upon the foible of his adversary's, not with a spring, as in binding, but with a jerk, or dry *beat*; and is therefore most proper for the parades without or within the sword, because of the rebound a man's sword has thereby from his adversary's, whereby he procures to himself the better and surer opportunity of disposing.

BEAT, in the Manege. A horse is said to *beat the dust*, when, at each stroke or motion he does not take in ground or way enough with his fore-legs.

He is more particularly said to *beat the dust* at *terra à terra* when he does not take in ground enough with his shoulders, making his strokes or motions too short, as if he made them all in one place.

He *beats the dust* at curvets, when he does them too precipitantly, and too low.

He *beats upon a walk*, when he walks too short, and thus rides but little ground, whether it be in straight lines, rounds, or passings.

BEAT upon the hand, in the *Manege*, see **CHACK**.

BEAT of the Drum, in the *Military Art*, is differently performed, according to the purposes designed by it. Notice is hereby given of any sudden change; soldiers are summoned to repair to their arms and quarters; and the various movements before and after, and during the engagement, are denoted by different *beats* of the drum.

The chief *beats* or beatings on the drum are, the *general*, the *assembly*, the *march*, the *reveille*, the *retreat*, &c.

BEATA, see **MASS of the Beata**.

BEATER is applied, in *Matters of Commerce*, to divers sorts of workmen, whose business is to hammer or flatten certain matters, metals, or the like.

In this sense we meet with *plaster-beater*, *cement-beater*, *mortar-beater*, &c.

BEATERS, gold, are artificers, who, by beating gold and silver with a hammer on a marble, in moulds of vellum and bullocks guts, reduce them to thin leaves fit for gilding, or silvering of copper, iron, steel, wood, &c.

Gold-beaters differ from *flutters* of gold and silver, as the former bring their metal into leaves by the hammer; whereas the latter only flatten it by pressing it through a mill, preparatory to beating.

There are also *Tin-BEATERS* employed in the looking-glass trade, whose business is to beat tin on large blocks of marble, till it be reduced to thin leaves, fit to be applied with quicksilver behind **LOOKING-GLASSES**; see **FOLIATING**, and **GOLD-beating**.

BEATER is also used for an instrument wherewith to gravel walks and alleys in gardens even.

It is a piece of wood half a yard long, six inches thick, and eight or nine broad, having a handle fixed obliquely in the middle.

BEATIFIC vision, see **VISION**.

BEATIFICATION, in *Electricity*, a term used by professor Boze to denote an electrical experiment, by which he incircled the head of a person strongly electrified, and standing on a large cake of pitch, with a luminous glory, resembling that with which painters ornament the heads of saints. The secret of this experiment, which occasioned many fruitless and expensive trials to the first electricians in Europe, consisted in the use of a suit of armour, decked with steel, in various figures; and the glory was produced by rays issuing from the edges of the helmet.

BEATIFICATION, in the *Romish Church*, the act whereby the pope declares a person happy, after death.

Beatification differs from *canonization*; in the former, the pope does not act as a judge in determining the state of the *beatified*, but only grants a privilege to certain persons to honour him by a particular religious worship, without incurring the penalty of superstitious worshippers: but, in *canonization*, the pope speaks as a judge, and determines *ex cathedra* upon the state of the *canonized*.

Beatification was introduced, when it was thought proper to delay the canonization of saints, for the greater assurance of the truth and manifestation of the rigorous steps taken in the procedure.

It is remarkable, that particular orders of monks assume to themselves the power of *beatification*.

Thus Octavia Melchiorica was *beatified* with extraordinary ceremonies by the Dominicans, for a legacy of 7000 dollars to the order.

BEATING, among *Sportsmen*, denotes the noise which hares make in **RUTTING-time**.

The hare is said to *beat*, the hart to *bell*, &c.

BEATING, PULSATION, in *Medicine*, is applied to the reciprocal agitation or palpitation of the heart and pulse.

Some physicians distinguish eighty one different kinds of simple *beatings*, and fifteen compound ones. They compute sixty beats in the space of a minute, in a temperate man. But, in fact, we generally find a greater number.

BEATING of the heart. Divers systems have been framed to account for the *beating* of the heart. Some have doubted whether it be mechanical, that is, deducible from any known laws or powers of nature. See Ray's *Wisdom of God*, part. i. p. 48.

BEATING flax, or hemp, is an operation in the dressing of these matters, contrived to render them more soft and pliant.

When hemp has been swingled a second time, and the hurds laid by, they take the strikes, and dividing them into dozens, and half dozens, make them up into large thick rolls, which being broached on long strokes, are set in the chimney corner to dry; after which they lay them in a round trough made for the purpose, and there with beetles beat them well, till they handle, both without and within as pliant as possible, without any hardness or roughness to be felt: that done, they take them from the trough, open and divide the strikes as before, and if any be found not sufficiently beaten, they roll them up, and beat them over as before.

Beating hemp is a punishment inflicted on loose and disorderly persons.

BEATING, in *Book-Binding*, denotes the knocking a book in quires on a marble block, with a heavy broad-faced hammer, after folding, and before binding or stitching it. On the *beating* it properly, the elegance and excellence of the binding, and the easy opening of the book, principally depends.

BEATING, in the *Paper Works*, signifies the *beating* of paper on a stone with a heavy hammer, with a large, smooth head, and short handle, in order to render it more smooth and uniform, and fit for writing.

BEATING the wind, was a practice in use in the ancient method of trial by combat. If either of the combatants did not appear in the field at the time appointed, the other

other was to *beat the wind*, or make so many flourishes with his weapon; by which he was intitled to all the advantages of a conqueror. Du-Cange.

BEATING the hands or feet, by way of praise or approbation. See APPLAUSE.

BEATING time, in *Music*, a method of measuring and marking the time for performers in concert, by a motion of the hand or foot up and down successively, and in equal times.

The general rule is, to contrive the division of the measure so, that every down and up of the *beating* shall end with a particular note, on which very much depends the distinctness, and, as it were, the sense of the melody. Hence the beginning of every time, or beating in the measure, is reckoned the accented part thereof. Malcolm.

Beating time is denoted, in the Italian music, by the term *a battuta*, which is usually put after what they call *recitativo*, where little or no time is observed, to denote, that here they are to begin again to mark or beat the time exactly.

The Romans aimed at somewhat of harmony in the strokes of their oars, and had an officer called *portifculus* in each galley, whose business was to *beat* time to the rowers; sometimes by a pole or mallet, and sometimes by his voice alone.

The ancients marked the rhythm in their musical compositions; but, to make it more observable in the practice, they beat the measure or time, and this in different ways. The most usual consisted in a motion of the foot, which was raised from, and struck alternately against the ground, according to the modern method.

To make the beats or strokes more audible, their feet were generally shod with a sort of sandals, either of wood or iron, called by the Latins *pedicula*, *scabella*, or *scabilla*, because like to little stools, or foot-stools. Sometimes they beat upon sonorous foot-stools, with the foot shod with a wooden or iron sole.

They beat the measure not only with the foot, but also with the right hand, all the fingers whereof they joined together, to strike into the hollow of the left. He who thus marked the rhythm was called *manuductor*. The ancients also beat time or measure with shells, and bones of animals, which they struck one against another, much as the moderns now use castanets, and the like instruments. Burette, Mem. Acad. Inscr. tom. vii. p. 243. 247.

BEATING, in *Navigation*, the operation of making a progress at sea against the wind, in a zigzag line or traverse. See TACKING.

BEATING, *drubbing* or *stripes*, make one of the most ancient, as well as universal species of punishment. Among the Romans it obtained, under the denomination of *verberare*, *fustigare*, *flagellare*, *pulsare*, &c. In the East it still prevails under the name of *BASTONADO*.

Some distinguish between *pulsation* and *verberation*, as if the latter imported a *beating* with pain, the former without; but this distinction is not always kept to.

BEATING, in the English Law. See BATTERY.

BEATING in the flanks, a distemper to which black cattle are subject, and is an indication of a great inflammation in the bowels.

BEATING, in *Husbandry*. See BURNING of Land.

BEATITUDE imports the supreme good, or the highest degree of happiness human nature is susceptible of.

In which sense, it amounts to the same with what we otherwise call *blessedness* and *sovereign felicity*; by the Greeks called *ευδαιμονια*; and by the Latins *summum bonum*, *beatitudo*, and *beatitas*.

BEATITUDE, among *Divines*, denotes the beatific vision, or the fruition of God in a future life to all eternity.

BEATITUDE is also used in speaking of the *theses* contained in Christ's sermon on the mount, whereby he pronounces *blessed the poor in spirit, those that mourn, the meek*, &c.

BEATITUDE was also a title anciently given to all bishops; but of latter days restrained to the pope.

It appears to have been sometimes also given to laymen.

BEATS, in a watch or clock, are the strokes made by the fangs or pallets of the spindle of the balance; or of the pads in a royal pendulum.

To find the *beats* of the balance in any watch, or in one turn of any wheel. Having found the number of turns, which the crown-wheel makes in one turn of the wheel you seek for (by the direction given under the word *TURN*), those turns of the crown-wheel, multiplied by its notches, give half the number of *beats* in that one turn of the wheel: for the balance or swing has two strokes to every tooth of the crown-wheel: inasmuch as each of the two pallets has its blow against each tooth of the crown-wheel: whence it is, that a pendulum which beats seconds, has in its crown-wheel only 30 teeth. To explain this, suppose the numbers of a sixteen hour watch, where-

4)32(8 in the pinion of report is 4, the dial-wheel 32, the great wheel 55, the pinion of the second 5)55(11 wheel 5, &c. The number of the notches in 5)45(9 the crown-wheel 17, being multiplied into 5)40(8 6336 (the product arising from the continual multiplication of the quotients 8, 11, 9, 8) gives

17 107712, for half the number of *beats* in one turn of the dial-wheel; for 8 times 17 is 136, which is half the number of beats in one turn of the contrate-wheel 40, and 9 times 136 is 1224, the half-beats in one turn of the second wheel; and 11 times 1224 is 13464, the half-beats in one turn of the great wheel 55; and 8 times 13464, makes 107712. If you multiply this by the two pallets, i. e. double it, it gives 215424, which is the number of *beats* in one turn of the dial-wheel, or 12 hours.

To know how many *beats* this watch has an hour, divide the *beats* in 12 hours into 12 parts, and it gives 17952; which is called the *train* of the watch, or the *beats* in an hour.—If this be divided into 60 parts, it gives 299, and a little more, for the *beats* in a minute; and so you may proceed to seconds or thirds.

By the *beats* and turns of the fusee, the hours that any watch will go, may be found thus.—As the *beats* of the balance in one hour, are to the *beats* in one turn of the fusee; so is the number of the turns of the fusee 1, to the continuance of the watch's going.—Thus, 20196 : 26928 :: 12 : 16.

To find the *beats* of the balance in one turn of the fusee, say, as the number of turns of the fusee, to the continuance of the watch's going in hours: so are the beats in one hour, to the *beats* of one turn of the fusee; i. e. 12 : 16 :: 20196 : 26928.

To find the *beats* of the balance in an hour, say, as the hours of the watch's going, to the number of turns of the fusee; so are the *beats* in one turn of the fusee, to the *beats* of an hour.—Thus, 16 : 12 :: 26928 : 20196. Derham's Artificial Clock Maker, p. 14, &c. and 22.

BEAVER, **CASTOR**, in the Linnæan System of Zoology, makes a distinct genus of animals, of the order of *glires*, and class of *mammalia*, the characters of which are, that the upper fore-teeth are truncated, and hollowed obliquely, and that the lower are oblique at the apex, with a flat tail, and with feet which have five toes on each, and palms adapted for swimming. Under this genus are comprehended, 1. The *beaver*, properly so called, or *fiber*, with a black, flat, and oval tail, with palmated feet: this species produces the *CASTOREUM*. 2. The *castor*, with a flat lanceolated, or oblong tail, called by Clusius, the exotic water-rat. The *castor*, with a long, flat, lanceolated tail, with cloven feet, called *zibethicus*.

The *beaver*, distinctly so called, has two very different sorts of hair, the one very soft and fine, the other long and thick; the first serves to defend the creature from the cold, the other to receive the mire in which it often wallows, and to prevent its getting to the skin. The teeth of this creature are formed in a very particular manner, and are extremely fit to cut trees, with which they build themselves lodging to defend them from the weather, and to breed their young in. The fore-feet are formed like the human hand, and by this means they are able to carry their materials, and work at their habitations: the hinder feet, which are destined to be of use to them in swimming, are on the contrary webbed like those of a goose. Their address and contrivance in constructing their habitations, would scarcely obtain credit, were they not well attested. See Pennant's Hist. of Quad. vol. ii. p. 384, &c. *Beavers* were formerly found in Great Britain; but the breed has been long extirpated. Giraldus Cambrensis's account of them is the latest in 1188. Itin. 178, 179. The bladders in this animal, destined for receiving the medicinal substance called *castor*, are distinct from the testicles, and are four large ones, placed about the lower part of the *os pubis*; two of these stand above the other two, but closely joined to one another, the two upper being to prepare that matter, and the two other to bring it to the greater perfection and unctuousness, and render it of a stronger scent and deeper colour, as it is always found with this difference in these bags from what it is in the upper ones. The lower bags, for this reason, are of a glandular structure; and under these lower bags there is another long one full of a matter, more yellow and liquid, and seeming more elaborated, than any of the others. This is of a different smell from the former, and more than any thing else resembles the yolk of an egg. It is said that the creature uses this liquor to get itself an appetite, and that it gets it out by squeezing the bag that contains it with its paws. The people of Canada set gins for these creatures, and catch many of them that way; and, knowing how fond they are of this liquor, they always anoint the gins with some of it.

It has been generally said that the testicles of this creature

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ture were fastened to the back-bone, but they are, in reality, not so, but placed on the sides of the *os pubis* about the groin, and are altogether hid, not appearing at all any more than the *penis*, till the skin is removed; and the *penis*, contrary to that of a dog, which goes from the *os pubis* to the navel, descends in this animal downwards to the vent of the excrements, at which hole it terminates.

BEAVER *skin*, the fur or skin of an amphibious animal called the *castor*, or *beaver*, sometimes found in France, Germany, and Poland, but most abundantly in the province of Canada in North America.

Its chief use is in the composition of hats, furs, &c. Besides this, in 1669, an attempt was made to employ it in other merchandizes; accordingly a manufactory was settled in the Fauxbourg S. Antoine near Paris, where they made cloths, flannels, stockings, &c. of *castor*, with a mixture of wool. The manufacture flourished for a while, but soon decayed, it being found by experience that the stuffs lost their dye when wet, and that when dry again they were harsh, and stiff as felts.

The merchants distinguish three kinds of *castor*, though all equally the skins of the same animal; these are *new castor*, *dry castor*, and *fat castor*: *new castor*, called also *winter castor*, and *Muscovite castor*, because ordinarily reserved to send into Muscovy; this is that taken in the winter huntings. This is the best, and most esteemed for rich furs, as having lost none of its hair by moulting. *Dry castor*, or *lean castor*, is the result of the summer huntings; when the beast is moulted, and has lost part of its hair; this being much inferior to the former, is little used in furs, but mostly in hats. *Fat Castor*, usually called *old-coat*, or *coat-beaver*, is that which has contracted a certain fat, unctuous humour, by sweat exhaled from the bodies of the savages, who have wore it for some time; this, though better than the dry, is yet only used for hats.

After the hair is cut off the skin to be used in hats, the pelt or skin itself is used in various works, viz. for the covering of mails and trunks, in slippers, &c.

Beaver is chiefly imported by the Hudson's-bay company, from the northern parts of America; where the animal abounds.

BEAVER is also used to denote a hat made of *beaver's* hair.

BEAUFET, **BUFFET**, or **BUFET**, was anciently a little apartment separated from the rest of a room by slender wooden columns, for the disposing china and glass ware, &c. called also a *cabinet*.

It is now, properly, a large table in a dining-room, called also a *side-board*, for the plate, glasses, bottles, basons, &c. to be placed, as well for the service of the table as for magnificence.

The *buffet*, among the Italians called *credenza*, is inclosed within a ballustrade, elbow-high.

BEAU-MASS. See **MASS.**

BEAU-PLEADER, or **BEW-PLEADER**, a writ on the statute of Marlbridge, whereby it is provided, that no fine shall be taken of any man in any court for *fair-pleading*, i. e. for not pleading aptly, and to the purpose.

BEAUTY is a term whereby we express a certain relation of some object, either to an agreeable sensation, or to an idea of approbation.

When, therefore, I say, a thing is *beautiful*, I either mean that I perceive something that I approve, or that something gives me pleasure: whence it appears, that the idea annexed to the word *beauty* is double; which renders the word equivocal, and this is the source of most of the disputes on the subject of *beauty*.

We must therefore distinguish between *ideas* and *sensations*. Ideas occupy the mind, sensations interest the heart. Though we see nothing in an object to interest us, we may yet discover something in its idea to merit our approbation. Such an object therefore pleases, and does not please, i. e. it pleases the understanding, and not the sense. On the contrary, there are some objects, whose ideas do not offer any thing laudable, which yet excite agreeable sensations. There is therefore *beauty* of two sorts. It is exceeding hard to fix any general characteristic of *beauty*: for, as the ideas and sensations of different persons differ according to the habitudes of the body, and the turn of the mind; so do the relations of objects to those ideas and sensations vary, whence what we call *beauty* results. Hence arise those different opinions of a *beautiful* thought, a *beautiful* woman, a *beautiful* painting, &c. The principles of *beauty*, according to Mr. Hogarth, are fitness, variety, uniformity, simplicity, intricacy, and quantity. Analysis of *Beauty*.

Dr. Hutcheson makes uniformity amidst variety the source of *beauty*; and he refers our ideas of it merely to an implanted sense. Inquiry into the Original of our Ideas of *Beauty* and *Virtue*. See **SENSE**.

M. Perrault distinguishes two kinds of *beauty* in architec-

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ture, which correspond with the two species of *beauty* above; the one, he calls *positive* and *convincing*, such as the richness of the materials, grandeur of the structure, neatness of the workmanship, symmetry, &c. The others he calls *arbitrary*, which depend on the will, and which would admit of having their proportion changed without deformity. These only please by the connection, or association of their ideas with others of a different kind which please themselves; they owe their *beauty* to that prepossession of the mind, whereby a thing, whose value we do know, insinuates an esteem for others which we do not.

Thus, he observes, there are many things in architecture, which reason and good sense would judge deformed, and which, however, custom has not only made tolerable, but even *beautiful*, by their being always joined with other beauties that are positive. Thus, being at first pleased with viewing them in company, and merely on account of their company, at length we become pleased with them alone; and thus we frequently grow fond of faults, and fall in love with **DEFORMITY**.

BECAH, or **BEKAH**, a Jewish coin, being half a **SHEKEL**. In Dr. Arbuthnot's table of reductions, the *bekah* amounts to 13½d. in Dr. Prideaux's computation to 1s. 6d.

Every Israelite paid a hundred *bekahs* a head every year for the support of the temple. Calmet.

BECALMING, in the *Sea Language*, is when any thing keeps the wind off or away from the vessel.

Thus one ship is said to *becalm* another, when she comes up with her on the weather-side: the like is said of the shore, when it keeps the wind away. A ship is likewise said to be *becalmed*, when there is no wind stirring.

BECASSE, in *Natural History*. See **WOODCOCK**.

BECASSINE, in *Zoology*, a name given by many to the *tringa minor*, or, as we commonly call it, the *sand-piper*.

BECCA, in the *Materia Medica of the Ancients*, a name given to a fine kind of resin collected from the turpentine and mastich-trees of Greece and Syria, and mixed together for use. It was much esteemed formerly, and not only used in the country where it was produced, but carried in great quantities to Mecca, and other parts of the Turkish dominions, where it was valued at a very great rate.

BECCA Bunga. See **BROOKLIME**.

BECCIFAGO, in *Zoology*, the name of a small bird, scarce so large as the common linnet, and with a very remarkable short body. Its head, neck, back, wings, and tail, are of a greenish grey, and in some of the birds of a greenish brown. It feeds on vegetables, berries, &c. and is common in the north of England, where it is called the *pettychaps*. Ray.

BECHICS, **BECHICA**, medicines proper for relieving coughs.

The word is formed of the Greek *βηξ*, *βηξω*, a cough. *Bechics* amount to much the same with what we otherwise call *pneumonics*, *thoracics*, **EXPECTORANTS**, and **PECTORALS**.

BECHIC pills. See **PILLS**.

BECK, a little river or brook, called also rivulet, or rill.

According to Verstegan, the original word is *beke*, which properly imports a small stream of water issuing from some bourn or spring.

Hence *bell-becks*, little brooks so called, on account of their ghastlinefs and depth, or rather from their being covered, or much concealed. See **HELL**.

Beck is chiefly used among us in the composition of names of places originally situate on rivulets; hence Welbeck, Bournbeck, &c.

The Germans use *beck* in the same manner.

BECKETS, in the *Marine*, signify large hooks, or circular wreaths of rope, or wooden brackets, used to confine ropes, tackles, oars, or spars, in a convenient place, till they are wanted. And to put the *tacks* and *sheets* in the *beckets*, is to hang up the weather-main and fore-sheet, and the lee-main and fore-tack, to a little knot and eye-becket on the fore-mast, main, and fore-shrouds, when the ship is close-hauled, to prevent them from hanging in the water.

BECTASSE, a sect among the Turks denominated from their founder Bectash, preacher to sultan Amurath.

All the Janizaries belonging to the Porte are of the religion of *Bectasse*, and are said to have derived their origin from the founder of this sect.

BED, a place prepared to stretch and compose the body on, for rest and sleep; made chiefly of feathers inclosed in a ticken case.

We say a feather *bed*, a down *bed*; a standing *bed*, a fettee *bed*, a tent *bed*, a truckle *bed*, &c.

No *beds* are to be fold, except filled with one sort of stuffing only; e. gr. feather *beds* with only dry pulled feathers; and down *beds* with clean down alone. No scalded

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fealded feathers are to be mixed with the former; nor fen down with the latter, on pain of forfeiture; the mixture of fuch things being conceived as contagious for man's body to lie on. Stat. 11. Hen. VII. cap. 19.

Alfo *bed* quilts, matrafles, and cushions ftuffed with horfe-hair, fen-down, goats hair, and neats-hair, which are drefled in lime; and which the heat of man's body will caufe to exhale, and yield a noxious fmell, whereby many of the king's fubjects have been deftroyed, are prohibited by the fame ftatute.

The ancient Romans had various kinds of *beds* for repofe; as their *leſtus cubicularis*, or *chamber-bed*, whereon they fleep; *their table-bed*, or *leſtus diſcubitorius*, whereon they eat (for they always eat lying), there being uſually three perfons to one *bed*, whereof the middle place was accounted the moſt honourable, as well as the *middle-bed*.

—Theſe *beds* were unknown before the ſecond punic war: the Romans, till then, fat down to eat on plain wooden benches. As for the ladies, it did not ſeem at firſt conſiſtent with their modeſty to adopt the mode of lying; accordingly they kept to the old cuſtom all the time of the commonwealth; but, from the firſt Cæſars, they eat on their *beds*. As to the youth, who did not yet put on the *toga virilis*, they were long kept to the ancient diſcipline. When they were admitted to table, they only fat on the edge of the *beds* of their neareſt relations. Never, ſays Suetonius, did the young Cæſars, Caius, and Lucius, eat at the table of Auguſtus; but they were ſet in *imo loco*, or, as Tacitus expreſſes it, *ad leſtiſſima fulcra*. From the greateſt ſimplicity, the Romans, by degrees, carried their dining *beds* to the moſt ſurpriſing magnificence. Pliny affures us, it was no new thing to ſee them covered over with plates of ſilver, aborned with the ſoſteſt mats, and the richeſt counterpanes. Hiſt. Nat. lib. xxxiii. cap. 11.—They had alſo their *leſtus lucubratorius*, whereon they ſtudied; and a *leſtus funebris*, or *emortualis*, whereon the dead were carried to the pile. See FUNERAL.

BED of ſtate. See PARADE.

BED of juſtice, *lit de juſtice*, in the French *Laws*, denotes a throne whereon the king is ſeated in parliament.

In this ſenſe, the king is ſaid to hold his *lit de juſtice*, when he goes to the parliament of Paris, and holds a ſolemn ſeſſion, under a high canopy erected for the purpoſe.

The *bed of juſtice* is only held on affairs relating to the ſtate; on which occaſion, all the officers of the parliament appear in red robes; at other times they wear black ones. Several authors have treated expreſſly on the ceremonies of the *bed of juſtice*.

BED of a great gun, is a piece of plank laid within the cheeks of the carriage, on the middle tranſum, for the breech of the gun to reſt on.

BED or ſtool of a mortar, is a ſolid piece of oak, in form of a parallelopiped, bigger or leſs, according to the dimensions of the mortar, hollowed a little in the middle to receive the breech, and half the trunnions.

On the ſides of the *bed* are fixed the cheeks or brackets by four bolts of iron.

In ſhips, when the decks lie too low from the ports, ſo that the carriages of the pieces, with the trucks, cannot mount the ordnance ſufficiently, but that they lie too near the gun-wale; the method is to make a falſe deck for ſo much as the piece will require for her travelling to raiſe it higher; and this they call a *bed*.

BED, in *Gardening*, a piece of made-ground raiſed above the level of the adjoining ground, uſually ſquare or oblong, and enriched with dung, or other amendments; intended for the raiſing of herbs, flowers, ſeeds, roots, or the like.

BEDS for raiſing melons, muſhrooms, and the like, are commonly denominated *ridges*.

Muſhrooms raiſed on *beds* are not ſo good as thoſe which grow at large in the natural ſoil. See HOT-BED.

BEDS, in ſpeaking of hops, denote the floors whereon they are ſpread to dry.

BED of corn is a heap, flat at top three or four feet high, otherwiſe called a *couch*.

Corn, in granaries, keeps beſt in *beds* or *couches*.

BED-algenſe, a name given by the Arab aſtronomers to a fixed ſtar of the firſt magnitude in the right ſhoulder of ORION.

Bed-algenſe is of a ruddy colour, by which it is eaſily diſtinguiſhed.

BED, in *Masonry*, denotes a COURSE or range of ſtones.

BED, joint of the, is the mortar between two ſtones placed over each other.

BED, in *Sea Language*, a flat, thick piece of timber laid under the quarters of caſks, containing any liquid, and ſtowed in the ſhip's hold.

BED of a river, the bottom of the channel in which the ſtream flows.

BEDS, in ſpeaking of minerals and foſſils, ſignify certain STRATA, or layers of matter diſpoſed over each other.

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BEDS, in the *New Husbandry*, denote the ſpaces occupied by the rows of corn, in contradifinction from the open ſpaces between them, which are called ALLEYS.

BED-CHAMBER.—*Lords or Gentlemen of the BED-CHAMBER*, are perfons of the firſt rank, 14 in number, whoſe office uſed to be, each in his turn, to attend a week in the king's *bed-chamber*, lying by the king on a pallet-bed all night, and to wait on the king when he eats in private. The firſt of theſe is called *groom of the ſtole*. There are alſo twelve grooms of the *bed-chamber*.

BED-MOULDING, or *BEDDING-moulding*, in *Architecture*, is a term uſed by the workmen of thoſe members in a cornice, which are placed below the coronet.

A *bed moulding* uſually conſiſts of theſe four members. an ogee, a liſt, a large boultine, and another liſt under the coronet.

DEDALACH, in the *Materia Medica*, a name given by ſome writers to the gum bdellium; but particularly to that kind of it which was brought from Arabia, and was of a yellowiſh colour, like wax.

BEDAUBE, in *Natural Hiſtory*, a name given by French authors to a ſort of prickly CATERPILLAR found on the elm.

BEDDING, *leſtoria*, in reſpect of horſes and other cattle, denotes ſtraw or litter ſpread under them to lie on.

Bedding, in ſpeaking of a roe, is uſed by ſportsmen, for the lodging of that beaſt.

A roe is ſaid to *bed*; a hart to *harbour*; a fox to *kennel*.

BEDENGIAN, in *Botany*, a name given by Avicenna and Serapion to the *poma amoris*, or *love-apples*, a ſort of fruit uſed in food by the Italians, and ſome other nations, and ſeeming to be the third kind of the *ſtrychnos*, or *ſolanum*, mentioned by Theophrastus. That author firſt deſcribes two kinds of this plant, the one of which occaſioned ſleepy diſorders, and the other threw people who eat of it into madneſs. After theſe, which he properly accounts poiſonous kinds, he mentions a third, which was cultivated in gardens, for the ſake of the fruit, which, he ſays, is large and eſculent. This is certainly the ſame with *bedengian*, or *poma amoris*.

BEDOARA, in *Botany*, a name uſed by the Arabians, and ſome other authors, for the white thorn.

BEDRIP, or *BEDREPE*, or *BEDERAPE*, the cuſtomary ſervice which inferior tenants anciently paid their lord, by cutting down his corn, or doing other work in the field. The word is formed from the Saxon *biddon*, to pray, and *repe*, to reap, or cut corn.

BEDSTRAW, ſee LADY'S *Bedſtraw*.

BEE, in *Phyſiology* and *Husbandry*, a winged favificous inſect, bred from maggots or worms, that are *apoda*, or without feet; remarkable for its ſkill and induſtry in collecting honey and wax from flowers, &c. and on that account frequently preſerved in gardens. In the Linnaean ſyſtem, it is a genus of inſects belonging to the claſs of *hymenoptera*, and comprehending fifty-five different ſpecies. Beſide the common *honey bee*, Mr. Ray reckons nine other ſpecies, which are found wild about the fields. To this ſpecies of *hive-bees* belong the common *working-bee*, the *drones*, and the *queen-bee*.

BEES, age of. The large drones live but a little while, being deſtroyed without mercy by the working *bees*, probably to ſave honey. But there is another ſort of drones, lately diſcovered, no larger than the working *bees*, and not eaſily to be diſtinguiſhed from them, the age of which has not yet been aſcertained. See DRONE.

Writers are not agreed as to the age of the *honey-bees*. Some maintain that they are annual, and others ſuppoſe that they live many years. Many of them, it is well known, die annually of hard labour; and though they may be preſerved by ſucceſſion in hives, or colonies, for ſeveral years, the moſt accurate obſervers are of opinion, that their age is but a year, or, at the longeſt, no more than two ſummers.

BEE, anatomy and ſtructure of. This inſect is divided by two ligaments into three principal parts; viz. the head, the breaſt, and the belly. The head is furniſhed with two eyes of an oblong figure, and black colour, which are guarded by a horny tunicle, not eaſily penetrated. Between the eyes, near the middle of the head, are placed the *antennæ*, or pair of horns, which are the principal inſtruments of feeling, eſpecially in a dark hive. The jaws open to the right and left, and ſerve to carry out of the hives any thing that incommodes or offends them. Theſe are armed with teeth, which they make uſe of in their wars with each other, and the wounds of which are always mortal. The trunk, or tongue, is long and taper, and extremely pliant and flexible, adapted to the purpoſe of penetrating to the bottom of the flowers, and exhauſting them of their mellifluous juice. This part is porous, and compoſed of circular fibres, ſo that it may be contracted and folded up, when it is not uſed; and it is likewise fortified againſt injury by four ſtrong ſcales, two of which ſheathe it, and the other two, which are larger, encompass the whole. Lewenhoek calls this

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part the *wiper*, and Dr. Garden describes it under the name of the *sucker*, or *proboscis*. Phil. Trans. N° 94, and N° 175.

The breast of the *bee* is of a cylindrical, or rather a spheroidal form; on each side of the breast there are two wings, and underneath six legs of unequal length, three on the right, and three on the left, the paws of which are furnished with small hooks, that may be seen with the microscope, whereby they fasten themselves together in living and swarming, and also with a spongy substance, which preserves their claws from injury. The belly of the *bee* is formed by six rings, which are capable of extension or contraction, as occasion requires, and within these plaits they fix and carry their wax. The belly, beside the intestines, contains a bag or bladder, in which are lodged the juices collected from flowers, and out of which it is afterwards discharged, by the two canals through which it was at first conveyed, into the cells of the magazine for winter supply. The sting of the *bee* is a very curious weapon, and, when examined by the microscope, appears of a very surprising structure. It has a horny sheath, or scabbard, which includes two bearded darts. This sheath ends in a sharp point, near the extremity of which a slit opens, through which, at the time of stinging, the two bearded darts are protruded beyond the end of the sheath; one of these is a little longer than the other, and fixes its beard first, and the other instantly following, they penetrate alternately deeper and deeper, taking hold of the flesh with their beards or hooks, till the whole sting is buried in the flesh; and then a venomous juice is injected through the same sheath from a little bag at the root of the sting, which occasions an acute pain, and a swelling of the part, that sometimes continues several days. But this is best prevented by enlarging the wound directly, to give it a discharge. Dr. Derham counted on the sting of a wasp eight beards on the side of each dart, somewhat like the beards of fish-hooks; and the same number are to be counted on the darts of the *bee's* sting. Derham's Phys. Theol. p. 241. Baker's Microsc. &c. p. 210.

When these beards are struck deep in the flesh, if the wounded person starts, or discomposes the *bee* before it can disengage them, the sting is left behind sticking in the wound; but if he hath patience to stand quiet, the *bee* will bring the hooks close to the sides of the darts, and withdraw the weapon; in which case the wound is always much less painful. A wasp is not so liable to leave its sting in the wound as a *bee*; the beards of it being shorter, and the insect more vigorous and nimble in its operations. The *bee* is covered with a fine hair, smooth, and shining like velvet.

BEES, architecture of. See HONEY-combs.

BEES, colonies of. See HIVE.

BEES, generation of. These insects begin to breed in the upper part of the hive, in the empty cells adjoining to those that are filled with honey; and they descend gradually into the lower parts, as the flowers which furnish them with the means of subsistence increase; and the brood is carried to the outermost part of the combs. The queen-*bee* lays an egg, of an oblong figure, and larger at one end than the other, at the bottom of each cell; fixing it to one of the angles by its smaller end, whilst the other end points exactly to the opposite angle. Sometimes more than one egg has been deposited in the same cell; when this is the case, the working *bees* remove the supernumerary eggs, and leave only one in each cell. On the first or second day after the egg is lodged in the cell, the drone *bee* injects a small quantity of whitish liquid, which in about a day is absorbed by the egg. On the third or fourth day is produced a worm or maggot, which, when it is grown so as to touch the opposite angle, coils itself up in the shape of a semicircle, and floats in a proper liquid, whereby it is nourished and enlarged in its dimensions: this liquor is of a whitish colour, of the thickness of cream, and of an insipid taste like flour and water. Naturalists are not agreed as to the origin and qualities of this liquid; some have supposed, that it consists of some generative matter, injected by the honey *bees* into each cell, in order to give fecundity to the egg; but the most probable opinion is, that it is the same with what some writers have called the *bee-bread*; and that it is a mixture of water with the juices of plants and flowers collected merely for the nutrition of the young, whilst they are in their weak and helpless state. Whatever be the nature of this aliment, it is certain that the common working *bees* are very industrious in supplying the worms with a sufficient quantity of it. The worm is fed by the working *bees* for about eight days, till one end touches the other in the form of a ring; and when it begins to find itself uneasy in its first posture, it ceases to eat, and begins to unroll itself, thrusting that end forward towards the mouth of the cell, which is to be the head. The attendant *bees*, observing

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these symptoms of approaching transformation, desist from their labours in carrying proper food, and employ themselves in fastening up the top of the cell with a lid of wax, formed in concentric circles, and by their natural heat in cherishing the brood, and hastening the birth. In this concealed state the worm extends itself at full length, and prepares a web of a sort of silk, in the manner of the silk-worm; this web forms a complete lining for the cell, and affords a convenient receptacle for the transformation of the worm into a nymph, or chrysalis. Some naturalists suppose, that, as each cell is destined to the successive breeding of several worms, the whole web, which is composed of many crusts or doubles, is in reality, a collection of as many webs as there have been worms. M. Maraldi apprehends, that this lining is formed of the skin of the worm thrown off at its entrance into the nymph state; but it is urged, that if the cells are opened when newly covered by the *bees*, the worm within will be found in its own form, and detected in the act of spinning its web; and by mean of glasses it will be found composed of fine threads, regularly woven together, like those of other spinning animals.

In the space of eighteen or twenty days the whole process of transformation is finished, and the *bee* endeavours to discharge itself from confinement, by forcing an aperture with its teeth through the covering of the cell; the passage is gradually dilated; so that one horn first appears, then the head, and afterwards the whole body: this is usually the work of three hours, and sometimes of half a day. The *bee*, after it has disengaged itself, stands on the surface of the comb, till it has acquired its natural complexion, and full maturity and strength, so as to become fit for labour. The rest of the *bees* gather round it in this state, congratulate its birth, and offer it honey out of their own mouths. The *exuvia*, and scattered pieces of wax which are left in the cell, are removed by the working *bees*; and the *matrix* is no sooner cleansed, and fit for new fecundation, but the queen deposits another egg in it; inasmuch that, Mr. Maraldi says, he has seen five *bees* produced in the same cell, in the space of three months. The young *bees* are easily distinguished from the others by their colour: they are grey, instead of the yellow brown of the common *bees*. The reason of this is, that their body is black, and the hairs that grow upon it are white, from the mixture of which seen together, results a grey; but this colour forms itself into a brownish yellow by degrees, the rings of the body becoming more brown, and the hairs more yellow.

The *drones* owe their original to the same cause with the honey-*bees*; they are generated after the same manner, only in different cells designedly prepared for them in the drone comb; of which there is one in each hive, often two, and sometimes three. The circumstances that attend the production of the queen-*bee* are more peculiar. See DRONE and QUEEN-*bee*.

BEES, government of. See QUEEN-*bee*.

BEES, hiving of. See HIVE and HIVING.

BEES, oeconomy of. Naturalists relate wonders on this subject. The moral virtues have been all, at one time or other, attributed to the *bees*; and they have been particularly celebrated for their prudence, industry, mutual affection, unity, loyalty to their sovereign, public spirit, sobriety, and cleanliness. The sagacity of *bees* in foreseeing rain has been often mentioned; but it is very questionable. Though some of the accounts that have been given of these insects are fabulous, yet intimate acquaintance with them in their domestic operations hath furnished many real facts that are as surprising as those which are groundless. It must not however be omitted, that at certain times, when they think their stores will fall short, they make no scruple to throw out of the hives their own offspring; the nymphs, and young *bees* of the drone kind, scarce extricated from their covering, have been carried away, and left to perish. Though they are just in their own kingdom, and to those who may properly be called their fellow-subjects, they rob and plunder strangers and foreigners whenever they have power and opportunity; and they have frequent battles in committing depredations, on neighbouring colonies and hives, or in self-defence, which end fatally to many of their number. But it should be observed that this never happens unless in the spring and autumn, when the weather is warm, and honey scarce, and there are no flowers to produce it. In this case, when they have ranged the fields without success, they endeavour to supply themselves, at the hazard of their lives, from the stocks of other *bees*. However, if the queen of either hive that happens to be engaged is killed, the contest is finished, and both parties unite under the survivor.

The industry and activity of *bees* in their domestic labours afford a very instructive and amusing spectacle; all are busily engaged in their several departments; whilst some are employed in gathering honey and wax, others repair rotten

rotten combs; others carry out the dead, and cleanse the filth; others keep guard, placing themselves in five or six files, eight or ten deep, upon the floor of the hives, so that all the *bees* at entrance must pass between them; some are even said to serve for bridges, or ladders, for others to pass over; and when they are tired with labour they recruit themselves with rest. For this purpose they form smaller or larger clusters in the following manner: each *bee*, with its two fore-legs, lays hold of the hinder legs of the *bee* that is next above it, and thus a chain is made by the successive application of one to another, and the first *bee* supports the weight of all the rest to the bottom of the chain. The larger clusters are only a multiplicity of these chains, of which there are sometimes many hundreds together. The *bees* never lay hold of any part of one another, except the legs. In this way they likewise guard themselves from the effects of cold, and continue for several weeks in a torpid state.

BEEs, preservation of. The preservation of this industrious and useful insect is an object of great importance, and it chiefly depends on supplying them with a sufficient quantity of food, on guarding them from their enemies, and collecting the produce of their labour, without destroying them. Besides the attention which should be paid to the necessities of *bees*, in chusing the situation of an **APIARY**, it may be necessary to feed them towards the close of autumn, and again in the spring, if they appear to have consumed their winter stock. This should be done, especially in cloudy misty weather, when they go little abroad, and when several days of bad weather immediately follow their swarming. Mr. Thorley directs that no hive should be kept which does not weigh twenty pounds; and that the supply should be given in quantities of honey, which is their proper food, not less than a pound and a half, or two pounds, at a time. The honey should be first diluted with water, or small beer, and then poured into an empty comb; a drone comb is the strongest and the best for the purpose; and in the evening, when the *bees* are quiet, the hive should be gently raised on one side, and the comb put under it; the contents will be conveyed away the next day into the several magazines.

Reaumur recommends a plate of liquid honey, unmixed with water, crossed with straws, and covered with a paper full of holes, through which the *bees* will suck the honey, without daubing themselves. But care should be taken that the hive be well guarded from robbers, whenever it is provided with a fresh supply. The winter-quarters of *bees* should likewise be well secured both against the weather, and against other enemies that would annoy them. Mild winters, as well as severe cold, are injurious; sun-shine in winter tempts them to go abroad and exposes them to the fatal effects of sudden changes, either of cold or rain. *Bees*, it has been remarked, are most likely to survive in cold winters, because they are then in a torpid state, and require little nourishment, provided the apiary be well secured from northerly and easterly winds; whereas a small degree of warmth enlivens them, and they consume their winter stock, and are left destitute in a cold, wet spring. When they are chilled, and apparently dying by cold, and the clusters of them are broken, so that they drop down in the hive, they may be recovered by a small degree of heat. Varro and Columella advise hot ashes to be laid about the hives, or sprinkled over clusters of *bees*, which lie seemingly dead at the bottom. But a sufficient warmth may be given them by putting them into a handkerchief, and breathing upon them, or by placing them in the sun-beams, and laying them before the fire. This precaution should be used in time; otherwise, when their vitals are impaired, it is impossible to recover them. However it is much to be wished, that a method could be found of preserving all the hives from injury, without removing them out of the places where they stand during the summer: Reaumur made many attempts for this purpose. Some hives he covered over with straw, by means of sticks fixed around them, and reaching a few inches above the top; but the most successful method was that of preserving them in large tubs with earth or hay; contriving, at the same time, to convey air to them through a square tube of wood, two inches in width, and half an inch in depth, which passed through the side of the tub, and of such a length as to reach the mouth of the hive, and to project three or four inches from the sides of the tub. After all, the common stone covering, which is generally used in England, is sufficient for the purpose.

There are other enemies, beside hunger and cold, against which the proprietors of *bees* should be cautioned. It has been observed already, that different colonies of *bees* sometimes plunder each other; and these rovers make their attacks chiefly in spring and autumn. The most effectual way to guard against their incursions is to lesson the entrance into the hive, so as to leave room only for

two or three *bees* to pass abreast: or to stop up the hives that are attacked till the rovers disappear; or if strangers have gained admittance, the proper inhabitants of the hive may be roused to self-defence by disturbing them with a bunch of stinking madder, fastened to the end of a small stick of a convenient length; thus their resentment will be roused, and they will instantly seize the robbers. This, indeed, is needless, if the queen is safe. However, if the hives that are attacked have but few *bees*, and little honey, it is better to take them than to stand a trial.

Hornets and wasps are also very formidable enemies; their nests should be carefully destroyed. Mice should be guarded against, by diminishing the entrance into the hives as the cold comes on, and the *bees* are less able to defend themselves; and the hives may be placed in such a manner, that it will be impossible for the mice to reach them. Spiders and caterpillars are very destructive to *bees*; a species of the latter, called the wax-worm, or wax-moth, because it feeds on wax, lays its eggs in the hive, which turn to maggots that are very noisome and prejudicial. Hives of *bees* that have swarmed more than once, and such as contain little honey, are most exposed to these insects; for the empty combs serve them for shelter, and the wax supplies them with food. These hives should be cleaned at least once a week; and the stools on which they rest, where the moths are laid by the *bees*, should be cleaned every morning. But they cannot be entirely destroyed, without taking away the infected hive, removing the *bees*, and cleansing it of the moths, before it is restored to its former occupiers. *Bees* are often troubled with lice, which may be destroyed by strewing tobacco over them. The depredations of birds, and particularly of the house-lark and swallow, should be carefully prevented.

These insects are subject to a kind of purging in the spring, which is often very fatal. Madame Vicat, in the Memoires, &c. of the Berne Society for 1764, ascribes this distemper to the honey which the cold has candied in the hive. Columella supposes that it is an annual distemper, occasioned by spurge blossoms and elm seeds; and he advises giving them rosemary and honey, diluted with water. The most effectual cure is that prescribed by Aristomachus, which is the removal of the vitiated combs, or of those in which there are open cells containing candied honey. Others attribute this disease to their feeding on pure honey, and recommend their being fed with a honey-comb taken out of another hive, the cells of which are filled with crude wax, or *bee-bread*. Perhaps the true cause and effectual remedy of this disease are still unknown.

For the method of preserving *bees* in hives and boxes, and of collecting the produce of their labours without destroying them, see **HIVE**, **HONEY**, and **WAX**.

BEEs, sex of. There are in every hive or colony three sorts of *bees*, viz. the sovereign or queen, the working or honey *bees*, and the drones. The working *bees* have generally been supposed to be neutral, or of neither sex; but M. Shirach, in his *Histoire Naturelle de la Reine des Abeilles*, &c. published in 1772, has advanced a new and singular opinion on this subject. He supposes that all the common, or honey-*bees*, are females in disguise; in which the organs that distinguish the sex, and particularly the *ovaria*, are obliterated, or, at least, through their extreme minuteness, they have not yet been observed: and that every one of these *bees*, in the earlier period of its existence, was capable of becoming a queen-*bee*, had it been lodged and fed, and brought up, when in the worm-state, with that design. He adduces a great variety of experiments in confirmation of this hypothesis: in one instance two spoonfuls of common *bees* were shut up in a small box, four inches square, with a piece of brood-comb of the size of a crown-piece, containing worms of three days. This small colony, upon examining it four days afterwards, had completed two royal cells, which was a certain indication that one or more queens was to be produced. He likewise challenges any persons to choose a piece of the common brood-comb, as small as they please, and to destroy all the eggs, worms, and nymphs contained in it, reserving only one worm of their own choice, and leaving it in its cell; and he undertakes by the assistance of the working *bees*, to produce this worm metamorphosed into a queen-*bee*. M. Schirach has more than once fulfilled his engagement. M. Bonnet, the celebrated naturalist of Geneva, was profelyted to this opinion.

The drones have been supposed by many to be the males; and later experiments and discoveries have confirmed this opinion. See **DRONES** and **QUEEN-bee**.

There is in some parts of America a very different species of *bees* from ours; and the manner of erecting their combs, and lodging their honey, is not less different than their form. Their combs are composed of a series of

Small bottles or bladders of wax, of a dusky brown, or blackish colour; and each of these is much of the size and shape of a Spanish olive. They hang together in clusters almost like a bunch of grapes, and are so contrived, that each of them has its aperture, while the *bees* are at work upon it; but as soon as it is filled with honey, this aperture is closed, and the *bees* leave it, and go to work upon another vessel. Their lodgings are usually taken up in the hollow of an old tree, or in some cavity of a rock by the sea-side. They are sagacious in chusing the most secure retreats, because their honey is so delicious a bait, that they are hunted after by many animals; and they have no power of defending themselves, having no stings as our *bees* have. The combs are brittle; and the honey is clear and liquid like rock-water. It is used by the natives rather as a drink with their food, than as honey. They use it also in medicine as a purge, drinking half a pint of it in the morning, fasting. Phil. Trans. N^o 172.

Mr. Dudley speaks of a method of hunting *bees*, for finding their nests, practised of late years in the woods in New England. It consists in catching a *bee*, then letting it fly, and observing the way it steers; this shews the hunter the course or bearing of the nest. To find the distance, he takes an offset of a hundred perches, and lets fly another *bee*, belonging to the same nest; the angle or point where these two courses intersect, is the place of the nest. Phil. Trans. N^o 376. or Abr. vol. vii. part iii. p. 403.

BEEs, *swarming of*. See SWARM.

BEEs, *writers on*. Many authors have written on *bees*. Among the incients, Aristomachus is said to have studied them sixty years; Philliscus retired into a desert wood, that he might have the opportunity of observing them to better advantage; Aristotle made a great number of curious observations on this insect, which Virgil has put into Latin verse: they have been enlarged and confirmed by Pliny and others. Theophrastus has a fragment still extant, *Περὶ μελιτῶν*, concerning *bees*; or as entitled in Laertius, *Περὶ μελιτος*, of honey.

Among the moderns, prince Frederic Cesi, institutor of the Roman Academy of Sciences, wrote expressly on *bees*; but it is not known what became of the MS. no more than of that promised by Swammerdam on the anatomy of the *bee*, the want of which has been much regretted among the French.

Maraldi, and Reaumur, in his Hist. Insect. have largely treated of *bees*.

Among the English, Butler, Gurnay, Mills, Levets, Thorley, Southern, Remnant, Hartlib, Rusden, Warder, White, Wildman, and others, have discoursed expressly on *bees*. Phil. Trans. N^o 257. p. 365.

BEE, in *Astronomy*, see APIS.

BEE is also used figuratively to denote sweetness, industry, &c. Thus Zenophon is called the Attic *bee*, on account of the great sweetness of his style. Antonius got the denomination *melissa*, or *bee*, on account of his collection of common places.

Leo Allatius gave the appellation *apes urbanae* to the illustrious men at Rome from the year 1630 to the year 1632.

BEE-bird. See COLIBRI.

BEE-boxes. See HIVE.

BEEs-bread. See PAIN d'*Abeiles*.

BEE-eater, in *Zoology*. See APIVOROUS *butco*.

BEE-flower, OPHRYS. See TWYBLADE.

BEE-fly. See DRONE-fly.

BEE glue, a soft unctuous matter, employed by *bees* to cement the combs to the HIVES, and to close up the cells.

BEE-hive. See HIVE.

BEE, *humble*. See BOMBYLIUS.

BEECH-tree, *Fagus*, in *Botany*, a tree of the mast-bearing kind, the characters of which are these. It hath male and female flowers on the same tree; the male flowers are collected into globular heads, and have no petals, but have several stamina included in an empalement of one leaf. The female flowers have a one-leaved empalement, cut into four parts, but have no petals; the germen is fixed to the empalement, which afterwards becomes a roundish capsule, armed with soft pines, opening in three cells, each containing a triangular nut. This genus belongs to the *monoecia polyandria* class of plants in the Linnæan system, and comprehends the common CHESNUT-tree. See Tab. X. of *Botany*, Class 19.

This tree will grow to a considerable stature, though the soil be stony and barren; as also upon the declivities of hills, and chalky mountains, where it will resist the winds better than most other sorts of trees: but then the nurseries for the young plants ought to be made on the same soil. For if they are raised in a good ground, and a warm exposure, and afterwards transplanted into a bleak and barren situation, they seldom thrive, which holds

true in most other trees. The nursery therefore ought to be made upon the same soil with the intended plantation; and the plants annually drawn, that the plantation may be extended.

These trees are very proper to form large hedges to surround plantations, or wilderness quarters; and may be kept to a regular figure, if cut twice a year, especially if they shoot strong; in which case, if they are neglected for a season or two, it will be difficult to reduce them again.

The shade of this tree is very injurious to most sorts of plants which grow near it; but is generally believed to be very salubrious to human bodies.

Beech-wood is whitish, hard, and dry. It crackles in the fire, and is used in building and furniture; also to make utensils, as shovels, ladles, bellows, stools, shoes, dishes, trays, trenchers, dresser boards, fellies of carts, &c.

If *beech-timber* be kept altogether under water, it is little inferior to elm; but if kept dry, or partly wet, partly dry, it is liable to the worm.

That of the mountain-*beech* is whitest, and most fit for the turners use; that of the field-*beech* is blacker, but more durable. In turning *beech*, it yields a well-scented effluvia, not unlike roses.

The scale of *beech* wood serves to make scabbards and band boxes. The bark is used as floats for fishers nets, instead of cork. Its shavings are of use for fining wine.

Its ashes, according to Crescentius, with proper mixtures, are excellent to make glass.

Its leaves, gathered about the fall, before they are much frost-bitten, afford the best matresses to lay under quilts, instead of straw, as being very soft, and continuing sweet for seven years. When chewed, they are held good for the gums and teeth.

The stagnant water gathered on the hollow of the *beech-tree*, is said to cure tetter-scabs and scurfs in man and beast by fomentation.

BEECH galls, in *Natural History*, the name of a species of GALLS or protuberances found on the *beech-tree*, and serving for the lodgment of insects.

These galls are found on the leaves of the *beech*, and are sometimes only one upon a leaf, sometimes more; they always grow from the same point, owing, no doubt, to the fly's having laid so many eggs in the same spot.

These galls are of an oblong figure and somewhat flattened. They resemble the stone of a plum in shape, and are so hard that they are not to be broken between the fingers; their substance seems of the same nature with that of a nut-shell. In each gall there is only one cavity, inhabited by a white worm, which in time passes through the nymph state into that of the fly, to which it owed its origin.

BEECH-mast, the fruit of the *beech-tree*. It fattens hogs and deer, and has sometimes supplied men instead of bread. Chios is said to have endured a memorable siege by means of it.

BEECH-oil, an oil drawn from the fruit, or mast, of the *beech-tree*.

The *beech-mast* is a kind of triangular seed in form of a nut, or rather acorn, containing a whitish, oleaginous pith of a very agreeable taste; whereof is made an oil much valued for sallads, &c.

It is very common in Picardy, and other places, where the mast abounds. They draw it cold by expression, after the mast has been shelled and pounded.

An attempt was made, a few years ago, to introduce the manufacture of *beech-oil* in England, and a patent granted to the proprietor, but without success; the country people, it seems, turning this mast to better account in feeding the hogs with it, than in selling to the patentee, and his co-proprietors, for oil.

BEELE, in *Mining*; an instrument used by the workmen to break and pick out the ore from the rocks in which it lies. This instrument is called by the tinmen in Cornwall a *tubber*. It is an iron instrument of eight or ten pounds weight, made sharp, and steeled on both ends, and having a hole in the middle, where the handle is fixed in. When the ore lies in hard rocks, this instrument wears out so fast, that it must have new points made to it every fortnight. The miners who dig up the ore in the mines, are, from the use of this instrument, called *beele-men*; and those who attend them, and whose business it is to take up the matter the others loosen or break up, are, from their instrument, which is a broad and hollow iron shovel, or a wooden one, with a very strong iron lip, called the *shovellers*. In Cornwall, when the ore lies in a hard bed, they allow two shovellers to three *beele-men*; and when it lies in a soft and earthy matter, two *beele-men* and three shovellers are the proportion. Phil. Trans. N^o 69. p. 2104.

BEEMEN, or **SHEEMEN**, in *Astronomy*, seven stars of the fourth magnitude, following each other, in the fourth flexure of the constellation ERIDANUS.

BEER,

B E E

BEER, a popular drink, prepared from MALT and HOPS.

The word is Saxon, formed from the German *bier*, of the Latin *bibere*.

Matthiolus takes the *zythum* and *curmi* of the ancients to be the same with the *beer* and ALE of our days; and thinks the only difference between *zythum* and *curmi* to have consisted in some circumstances of the preparation, which rendered the one stronger than the other.

Tacitus, in speaking of the ancient Germans, as also Dioscorides, Galen, &c. condemns beer, as prejudicial to the head, nerves, and membranous parts, as occasioning a more lasting and more uneasy drunkenness than wine, and as promoting a suppression of urine, and sometimes a leprosy.

Meil. Perrault, Rainfant, and others, defend the modern *beer*; urging, that the hops used with us, and which the ancients were strangers to, having a faculty of purifying the blood, and removing obstructions, serve as a corrective, and free our drink from the inconveniences objected to that of the ancients.

For the manner of preparing *beer*, see HOPS, and BREWING. For its qualities, see MALT-LIQUOR.

In New England they make *beer* from maize, or even the bread made thereof. Some physicians recommend *beer* made of oats and birch-water, as preferable, in nephritic cases, to that made of barley. Phil. Transf. N° 97. p. 6135. N° 138.

Sour or decayed *beer* may be restored divers ways; as by salt made of the ashes of barley-straw, put into the vessel, and stirred; or by three or four handfuls of beech-ashes thrown into the vessel, and stirred; or, where the liquor is not very sour, by a little put in a bag, without stirring; chalk calcined, oyster-shells, egg-shells burnt, sea-shells, crabs eyes, alcalized coral, &c. do the same, as they imbibe the acidity, and unite with it into a sweetness.

Beer, it is said, may be kept from turning sour in summer by hanging into the vessel a bag containing a new-laid egg, prickt full of little pin-holes, some laurel-berries, and a few barley-grains; or by a new-laid egg and walnut-tree leaves. Laurel berries alone, their skin being peeled off, will keep *beer* from deadness; and the throwing FIXT AIR into it will restore it. Glauber commends his sal mirabile and fixed nitre, put in a linen bag, and hung on the top of the cask, so as to reach the liquor, not only for recovering sour *beer*, but preserving and strengthening it.

Beer tasting of the cask, may be freed from it, by putting a handful of wheat in a bag, and hanging it to the vessel. The grounds of *beer* form a very rich manure.

Beer, as a malt liquor, is of so great antiquity in this kingdom, that in the year 1492, we meet with a licence from Henry VII. to a Fleming, to export fifty tons of ale, called *beer*.

BEER-poffet. See ZYTHOGALA.

BEER, eager, is used by callico-printers, chemists, lapidaries, scarlet-dyers, vinegar-merchants, white-lead-men, &c.

BEER-measure. See MEASURE.

BEER-vinegar. See VINEGAR.

BEES-WAX. See WAX.

BEESTINGS, or BREASTINGS, denote the first milk taken from a cow after calving.

The *beestings* are of a thick consistence and yellow colour, seemingly impregnated with sulphur. Dr. Morgan imagines them peculiarly fitted and intended by nature to cleanse the young animal from the recrements gathered in its stomach and intestines during its long habitation in utero. The like quality and virtues he supposes in women's first milk after delivery; and hence infers the necessity of the mother's suckling her own child, rather than committing it to a nurse whose first milk is gone.

BEE, BETA, in Botany, the name of a genus of plants of the *pentandria digynia* class, of which the characters are these. The flower hath a five-leaved empalement, which is permanent, but no petal, and five stamina placed opposite to the leaves of the empalement. The germen is situated below the receptacle, which afterwards becomes a capsule with one cell, having a single seed wrapped up in the empalement. There are three species.

All the species of this plant are propagated by sowing their seeds in February or March in a loose, deep soil, not over-dunged. When they are come up they must be howed out, so as to leave them ten or twelve inches asunder; for, if they have not room, the roots seldom grow large. It is a custom with the gardeners about London to sow carrots on the same ground with their *beets*. The carrots are drawn off in the summer-time, and the *beets* have then sufficient time to grow to their size.

Beets are more used as a pot-herb, and to eat with salt meat, than phylically. They loosen the belly, and attenuate hot colic humours. The juice of the roots is

B E G

sometimes used as an errhine, being snuffed up the nose to clear the head of phlegm, and mucous humours; and by that means to relieve old head-achs.

The *beet* is one of the five emollient herbs.

BEE, hare's, beta leporina, a name given by some of the old Latin writers to a small green plant of an acrid taste.

BEE-fly, a very small fly, found always among the flowers of the *beet*.

BEE-gall-insect. See GALL-insect.

BEE, in Zoology. See SCARABÆUS.

BEE, Capricorn, in Zoology, the English name for the CERAMBYX. The generical characters of these insects are these: they have long and slender bodies; their horns are long and jointed; and they are fond of places in the neighbourhood of rivers. There are six different species of this insect described by Lister, in his treatise de Scarabæus, published at the end of Mr. Ray's History of insects.

BEE, oil, Meloe, in Zoology, the name of a genus of four-winged flies, whose antennæ are slender and filiform; and the exterior wings are dimidiated. It is called in English the *oil-beetle*, as being soft and mucous to the touch. It is black, but not at all glossy, and has been described by authors under the names *scarabæus mollis*, *cantharus unctuosus*, and *proscarabæus*. See SCARABÆUS.

BEE, stinking, Tenebrio, in Zoology, the name of a genus of beetles, the antennæ of which are oblong, slender, and filiform.

It has no interior wings, in which singular deficiency it differs widely from all other beetles, but the form and structure of all its other parts refer it to this class. See SCARABÆUS.

Mouffet has called it the *blatta fætida*. There are several species of it.

BEE, water, Dytiscus, in Zoology, the name of a genus of four-winged flies, the antennæ of which are slender and setaceous. They have likewise feet formed for swimming, and their habitation is generally in the water, whence they have been called in English, *water-beetles*.

BEE, in a mechanical sense, denotes a large wooden instrument, formed after the manner of the mallet, having each face bound with a strong iron hoop, to keep it from spreading, and used for driving piles, stakes, palisades, wedges, and the like.

In this sense, the word is also corruptly written in some places *boyle*. Skinner derives it from the English *beating*. For the military use, *beetles*, called also *stamper*s, are thick round pieces of wood, a foot and a half long, and eight or ten inches in diameter, having a handle of about four feet long. Their use is for beating or settling the earth of a parapet, or about palisades; which is done by lifting up the *beetle* a foot or two, and letting it fall with its own weight.

The name *beetle* is also given to the pavour's rammer, or instrument wherewith the stones are beaten down, and fastened.

BEEVES, a general name for oxen.

BEG, or BEY, is a Turkish title, properly signifying *lord*. The word is also written *begh*, or *beig*, sometimes *bec*, or *bek*, or *bech*; but pronounced BEY.

BEGS, or BEGHS, of Egypt, denote twelve generals, who have the command of the militia, or standing forces of the kingdom, and are to secure the country from the insults of Arabs, as well as to protect the pilgrims in their annual expeditions to Mecca.

The *begs*, several of whom are descended from the ancient race of the Mamalukes, are very rich and powerful, maintaining each five hundred fighting men for their own guard, and the service of the court. On discontents, they have frequently risen in rebellion. They are often at variance with the *bashaw*, whom they have more than once plundered and imprisoned.

BEGGAR. *Beggars* pretending to be blind, lame, &c. found begging in the streets, are to be removed by the constables; and refusing to be removed, shall be whipped, &c. stat. 12. Anne; and our statutes have been formerly so strict for punishing of *beggars*, that in the reign of king Henry VIII. a law was enacted, that sturdy *beggars* convicted of a second offence, should be executed as felons. But this statute was afterwards repealed. See ROGUE and VAGABOND.

BEGGING order. See MENDICANT.

BEGHARDI, BEGUARDI, or BEGGHARDI, called also in Italy *bizochi*, and in France *beguins*, derive their name from the old German word *beggen*, *begguen*, which signifies to seek any thing with zeal and importunity. This was a general appellation given to no less than thirty sects, or orders, that sprung up in Europe in the thirteenth century, which differed widely from each other in their opinions, their discipline, and manner of living. It was at first indiscriminately applied to all persons, who embraced, with resignation and free choice, the horrors of absolute poverty; begging their daily bread from door

to door, and renouncing all their worldly possessions and occupations. It was afterwards restricted to those, who distinguished themselves by an extraordinary appearance of devotion, and was used much in the same sense with the term *Methodist* among us. These persons formed a sort of intermediate order between the monks and citizens, resembling the former in their manner of living, without assuming their name, or contracting their obligations. They were divided into two classes, which derived their different denominations of *perfect* and *imperfect* from the different degrees of austerity that they discovered in their manner of living. The *perfect* lived upon alms, abstained from wedlock, and had no fixed habitations. The *imperfect* conformed to the customs of the rest of their fellow-citizens in these respects. The name was at first honourable, but by degrees it sunk into reproach, being adopted by many, who, under the mask of religion, concealed the most abominable principles, and committed the most enormous crimes.

The *beghards* of Flanders is a denomination, by which certain unmarried persons, both bachelors and widowers, are distinguished, who formed themselves into communities of the same kind with those of the female *beguines*, reserving to themselves the liberty of returning to their former method of life. The first society of those *beghards* was established at Antwerp in the year 1228, and continues still; though the brethren of which it is composed have long since departed from their primitive rule of discipline and manners. The first establishment was succeeded by many others in Germany, France, Holland, and Flanders. These fraternities long enjoyed the toleration of the Roman pontiffs; but most of their convents are now either demolished, or converted to other uses. See BRETHREN of the Free Spirit. Mosheim's Ecc. Hist. vol. iii. p. 86. 8vo. 1758.

BEGINNING of an eclipse. See ECLIPSE.

BEGINNING of the action. SEE ACTION.

BEGLERBEG, a Turkish title for the chief governor of a province, who has under him several *beys* or *sangiacs*, that is, subgovernors.

The word is also written *beylerbey*, *beglerbey*, *beghelerbeghi*, and *beylerbeg*. It is compounded of *begler*, *lords*; the plural of *beg*, *lord*, with the word *beg* subjoined; importing as much as *lord of lords*.

The next to the vizier *azem*, or the first vizier, are the *beglerbegs* in Turkey, who, according to Rycaut, may be compared to archdukes in some other countries, being the next ministers below the prime vizier, and having under their jurisdiction many *sangiacs* or provinces, and their *begs*, *agas*, &c.

To every *beglerbeg* the grand signior gives three ensigns or staves, trimmed with a horse-tail, to distinguish them from the bashaws, who have but two, and from simple *begs*, or *sangiac-begs*, who have but one.

The province or government of a *beglerbeg*, is called *beglerbeglik*, or *beglierbeglik*. These are of two sorts; the first called *basile beglerbeglik*, which have a certain rent assigned out of the cities, countries, and signories allotted to the principality; the second called *salianæ beglerbeglik*, for maintenance of which is annexed a certain salary or rent, collected by the grand signior's officers with the treasure of the empire.

The *beglerbegs* of the first sort are in number twenty-two, viz. those of Anatolia, Caramania, Diarbekir, Damascus, Aleppo, Tripoli, Trebizond, Buda, Temiswar, &c.

The *beglerbegs* of the second sort are in number six, viz. those of Cairo, Babylon, &c.

Five of the *beglerbegs* have the titles of viziers, viz. those of Anatolia, Babylon, Cairo, Romania, and Buda.

The *beglerbegs* appear with great state, and a large retinue, especially in the camp, being obliged to bring a soldier for every five thousand aspers rent which they enjoy.

The *beglerbegs* of Romania brought ten thousand effective men into the field.

BEGLERBEG is also a title given to the chief governors of provinces in the Persian empire, having the command over all kans, sultans, &c. in their respective districts.

BEGONIA, in Botany, the name of a genus of plants of the *polygamia monoecia* class; the characters of which are these: the flowers are of two kinds; the one kind is the barren, or male flower; this is composed of four leaves, some broader, and others narrower; the other kind, which produces the embryo-fruit, is of the roseaceous sort, and is composed of several petals, arranged in a circular form, and placed on a foliated cup, which finally becomes a trigonal alated fruit, divided into three cells, and containing small seeds.

BEGUINS, devout societies of young women, established in several parts of Flanders, Picardy, and Lorrain; who maintained themselves by the work of their own hands; leading a middle kind of life, between the secular and religious, but make no vows. The poor and distressed were

supported by the pious liberality of such opulent persons as were friends to the order.

These societies began at Nieville, in Brabant, A. D. 1226, though others say in the year 1207, and soon spread into France, Germany, Holland, and Flanders, where a considerable number of them still subsist. Their habit was particular, but modest; they lived in common, and had men of great piety for their governors.

BEHEADING, a capital punishment, wherein the head is severed from the body by the stroke of an ax, sword, or other cutting instrument.

Beheading was a military punishment among the Romans, known by the name of *decollatio*. Among them the head was laid on a *cippus* or block, placed in a pit dug for the purpose; in the army, without the *vallum*; in the city, without the walls, at a place near the *porta decumana*. Preparatory to the stroke, the criminal was tied to a stake, and whipped with rods. In the early ages the blow was given with an ax; but in after-times with a sword, which was thought the more reputable manner of dying. The execution was but clumsily performed in the first times; but afterwards they grew more expert, and took the head off clean with one circular stroke.

In England and France, *beheading* is the punishment of nobles; being reputed not to derogate from nobility, as hanging does.

In Scotland they do not behead with an ax, as in England; nor with a sword, as in Holland and France; but with an edged instrument called the MAIDEN.

BEHMISTS, BOHMENISTS, or BOHMISTS, a kind of mystic philosophers and followers of Jacob Behmen, commonly called the Teutonic philosopher.

The *Behmenists* are attached to that motley species of philosophy first introduced by Paracelsus, under the name of THEOSOPHIA.

Behmen, or Bohmen, from whom the sect takes its denomination, was born in 1575, near Gorlitz, and bred up to the trade of a shoe-maker, or taylor, having just learned enough to read and write a little, which he acquired at ten years of age. He derived the greatest part of his mystical doctrine from the writings of Robert Fludd, a native of England. Wood's Athenæ Oxon. vol. i. p. 610.

In 1600 he was seized with a spiritual rapture, and ten years after began to compose a book on the light he then received, entitled *Aurora*, being a mixture of *astrology*, *philosophy*, *chemistry*, and *divinity*, written in a quaint obscure style; seven years after he wrote divers others on the same model; the chief is the *Mysterium Magnum*. He died in 1624. All his works have been published together at Amsterdam in 1682, 8vo. His tenets are, that there is a great darkness among the stars, where the devil holds his principality; that all arts and sciences flow from the fiderial spirit of this world; that the seven liberal arts proceeded from seven spirits of nature; that all human things are composed of the four first properties, bitter, sour, heat, and pain, (Augore).

Quirinus, Kuhlman, Abr. a Frackenberg, and Limmerman, are the most distinguished among the *Behmenists*. Mr. William Law, an English visionary, was an industrious and zealous disciple of Behmen; and he prepared a new edition and translation of his works, which have been published in two vols. 8vo. since his decease.

Gilbert Ischefschius, and Antagnoffus, were great opposers of *Behmenism*.

Dr. Henry More has also a piece express against *Behmenism*; *Censura Philosophiæ Teutonicæ*, printed in his works, p. 520.

BEHEMOTH, a huge animal mentioned in scripture, concerning which interpreters are much divided.

BEHEN. See BEN.

BEIBENIÆ *stellæ*, a name given by some astronomers to the principal fixed stars in each constellation.

The appellation is more particularly given to the stars of the first magnitude, otherwise called the hearts, *corda*, of the several constellations; though some would distinguish between *corda*, and *beibeniæ stellæ*, restraining the former to stars only of the first magnitude, and extending the latter to several of the second, or even third.

Hermes has a treatise express De Stellis Beibeniis, published by Junctinus, in his *Speculum Astrologicum*, and also in his commentaries upon Jo. de Sacrobosco's book De Sphæra.

BEIDEL SAR, in Botany, a name by which some authors call the Syrian DOGS-bane, or *apocynum Syriacum*, a poisonous plant.

BEISSKER, in Ichthyology, a name given by Gefner and others to the fish commonly called *mustela fossilis*; this is a species of the COBITIS, distinguished by Artedi by the name of the bluish COBITIS, with fine black longitudinal lines on each side. Schonefeldt calls this the *pæcilia*, and Johnson the *poscis fossilis*.

BIEZA,

BEIZA, or **BEZIATH**, a Hebrew word, signifying an egg, in Jewish *Antiquity*, a certain measure in use among the Jews; they say that the *beiza* contains the sixth part of a *LOG*. The *beiza* is also a sort of gold coin common among the Persians; it weighs forty *drachmas*, and from this word, not from the city Byzantium, the *bezant* was formed. A *bezant* is worth two *dinars*, and every *dinar* twenty or five and twenty *drachmas*.

BEKKERANISM, or **BEKKERIANISM**, the system or sentiments of Balh. Bekker, who denied that spirits can act or operate on bodies.

The author of this system was a Dutch divine, towards the close of the seventeenth century, strongly impressed with the Cartesian principle, that the essence of spirit consists in thinking; hence he was led to conclude, that spirits cannot act, either on bodies, or on other spirits; and therefore he understood the declarations of Scripture concerning the operation of spirits, in a metaphorical sense. He attributed the possessions recorded in the gospel to bodily diseases, or mental disorders. *Budd. Elem. Phil. Theor. p. 5. cap. 2. § 1—12.* See **DEMONIAC**.

BEL, in *Botany*, the name of a plant called by some the *cucumis capparitis*, or *caper-cucumber*. This plant is very imperfectly described to us; and we find among the Arabian writers, that the fruit was called by this name, as well as the whole plant. Avicenna, who gives the fullest account we have of it, says that it was an Indian plant, resembling in growth the common cucumber-plant, but bearing a fruit like the caper; he tells us that this fruit was the only part of the plant used in medicine, and that it was very hot and bitter, being somewhat like ginger in the fiery heat of the taste, and in qualities hot and dry in the second degree, as they expressed it; or, according to Dioscorides, in the third.

BELATUCADRUS, the name of an ancient British idol, recorded in old inscriptions; and supposed by Selden and Vossius, to be the same with **BELENUS**.

BELAY, on board of ship, signifies the same as *fasten*.—Thus they say, *belay* the sheet, or tack, that is, fasten it to the keel, by winding it several times round a last, &c.

BELCHING. See **RUCTATION**.

BELEMNITES, or **BELENITES**, in *Natural History*, a kind of figured stone, usually hollow, and a little transparent, shaped somewhat like an arrow, formed of small *striae*, or threads, radiating from the axis to the surface of the stone; and which when burnt, or rubbed against another, or scraped with a knife, yields an odour like rasped horn. See its figure represented in *Tab. of Fossils, Class 10*. The word is formed from the Greek *βέλεμνον*, arrow.

The *belemnites* is otherwise denominated *dactylus*, or *dactylus idæus*, on account of its bearing a resemblance to the figure of a finger; by the ancients *lyncurius lapis*, or *lapis lynceis*, as being supposed to be generated of the urine of the *lynx*.

Among us, popularly, it is called the thunderbolt, or thunder-stone, as having been supposed to fall in time of thunder. Dr. Woodward, and a great many other authors, supposed the *belemnites* to be a native fossil in its own proper figure; but it is more probably supposed by others to owe its present form to some animal body; and to be, like the other formed stones, the *echinitæ*, &c. a substance cast in a shell. *Ph. Tr. vol. xlviii. art. 97. and vol. liv. art. 5.* The general distribution of the *belemnites* is into three kinds; viz. the cylindric, conic, and fusiform, of which the latter are most rare.

The *belemnites* are all of an alcalious nature, making a strong effervescence with acids. Hence also they become absorbent and resolvent, and, on these accounts, are ranked by physicians among the antinephritic medicines. The German writers speak much of the virtue of this fossil, and it is kept in their shops, and sometimes enters into extemporaneous prescription. They give it in cases of the gravel, and all nephritic complaints; and say, that it has great virtues against the night-mare. With us it is not used at all, except among farriers: but, in all probability, it will answer the purpose of spar in any other form; and spar has at all times been celebrated for its virtues as a lithontriptic, whether given under the form of the *LAPIS JUDÆICUS*, or that of the *OSTRACITES*, or, finally, as dissolved in the water of certain springs, which form incrustations of things that fall into them.

BELENNUS, in *Zoology*, the name of a small anguilliform fish, called by others **BLENNIS**. It is a sea-fish, and very scarce. It approaches much in figure to the English bull-head, or miller's thumb, the *COTTUS* of authors.

BELENUS, in *Mythology, a name which the Gauls gave to the sun, which they also called *Mithra*; and, as some suppose, the same with the *Baal* of Scripture, and the *Belus* of the Assyrians.*

BELFRY, **BELFREDUS**, is used by military writers of the middle age for a sort of tower, erected by besiegers to overlook and command the place besieged.

They were all called *berfredi*, *berfredi*, *verfredi*, and

belfragia. Their structure and use are described in verse by a poet of those days.

Belfry originally denoted a high tower, whereon centinels were placed to watch the avenues of a place, and prevent surprize from parties of the enemies, or to give notice of fires by ringing a bell. *Du-Cange*.

In the cities of Flanders, where there is no *belfry* on purpose, the tower of the chief church serves the same end. The word *belfry* is compounded of the Teutonic *bell* and *freid*, peace, because the bells were hung for preserving the peace.

BELFRY is also used for that part of a steeple wherein the bells were hung.

This is sometimes called by middle age writers *campanile*, *clocaria*, and *tristegum*. *Du-Cange*.

BELFRY is more particularly used for the timber-work, which sustain the bells in a steeple; or that wooden structure, to which the bells in church-steeples are fastened.

BELIDES, in *Antiquity*. See **DANAIDES**.

BELIEF, in its general and natural sense, denotes a persuasion, or a strong assent of the mind to the truth of any proposition.

In which sense, *belief* has no relation to any particular kind of means or arguments, but may be produced by any means whatever.—Thus we are said to believe our senses, to believe our reason, to believe a witness, &c. And hence, in rhetoric, all sorts of proofs, from whatever topics deduced, are called *writes*, because apt to get *belief*, or persuasion, touching the matter in hand.

BELIEF, in its more restrained and technical sense, invented by the schoolmen, denotes that kind of assent which is grounded only on the authority, or testimony, of some person or persons, asserting or attesting the truth of any matter proposed.

In this sense *belief* stands opposed to knowledge and science. We do not say we believe that snow is white, or that the whole is equal to its parts; but we see and know them to be so: that the three angles of a triangle are equal to two right angles, or that all motion is naturally rectilinear, are not said to be things *credible*, but *scientific*; and the comprehension of such truths is not *belief*, but *science*.

But, when a thing propounded to us is neither apparent to our sense, nor evident to our understanding; neither certainly to be collected from any clear and necessary connexion with the cause from whence it proceeds, nor with the effects which it naturally produces; nor is taken up upon any real arguments, or relation thereof to other acknowledged truths: and yet, notwithstanding, appears as true, not by a manifestation, but by an attestation of the truth, and moves us to assent, not of itself, but in virtue of a testimony given to it—this is said to be properly *credible*; and an assent to this is the proper notion of *belief* or **FAITH**.

BELIEVERS, an appellation given towards the close of the first century, to those Christians, who had been admitted into the church by baptism, and instructed in all the mysteries of religion: they had also access to all the parts of divine worship, and were authorised to vote in the ecclesiastical assemblies. They were thus called in contradistinction to the *catechumens*, who had not been baptized, and were debarred from these privileges.

BELINGELA, in *Botany*, a name given by some authors to the *mala insana*, or *mad apples*. See **MAD-apple**.

BELL, a popular machine, ranked by musicians among the number of musical instruments of percussion. See **MUSIC**. The parts of a *bell* are the body or barrel, the *clapper* within side, and the ear or *cannon*, whereby it is hung to a large beam of wood.—Its usual matter is a kind of compound metal, called *bell-metal*. The thickness of its edges is usually $\frac{1}{3}$ of the diameter, and its height twelve times its thickness.—The *bell* sounders have a diapason, or *bell-scale*, wherewith they measure the size, thickness, weight, and tone, of their *bells*.—For the method of casting *bells*, see **FOUNDERY**.

The uses of *bells* are summed up in the Latin distich:

Laudo Deum verum, plebem voco, congrego clerum,

Defunctos ploro, pestem fugo, festa decoro.

The first *bells* are said to have been made about the year 400, at Nola, in Campania, whereof St. Paulinus was bishop; at least it is assured, he was the first who brought them into use in the church. And hence, it is added, they had their Latin names, *Nolæ* and *Campanæ*: but others say, they take these names, not from their being invented in Campania, but because it was here the manner of hanging and balancing them, now in use, was first practised; at least, that they were hung on the model of a sort of balance invented or used in Campania. For in Latin writers we find *Campana statera*, for a steel yard; and in the Greek *καμπανίζειν*, for *ponderare*, to weigh. Polydore Virgil ascribes the invention of church *bells* to pope Sabinian, St. Gregory's successor; but they mistake; for St. Jerom, contemporary with Paulinus, makes men-

tion of one. In effect, pope Sabinian did not invent bells; but he was the first who appointed the canonical hours to be distinguished by them.

We even find mention made of bells in Ovid, Tibullus, Martial, Statius, Manilius, and the Greek authors under the appellations of *tintinnabula*, and *sounding brass*. Suetonius, Dion, Strabo, Polybius, Josephus, and others, mention them under the names of *petasus*, *tintinnabulum*, *æramentum*, *crotalum*, *signum*, &c. But these appear to have been no more than baubles, and little like the huge bells in use among us.

Hieronymus Magius, who has a treatise on bells (written, when in chains, in Turkey, and which is accounted very remarkable, purely from his memory, without the assistance of any books) makes large bells a modern invention. Indeed, we do not hear any before the sixth century: in 1610, we are told, Lupus, bishop of Orleans, being at Sens, then besieged by the army of Clotharius, frightened away the besiegers by ringing the bells of St. Stephen's. —The first large bells in England are mentioned by Bede towards the latter end of that century. They seem to have been pretty common in the year 816. The Greeks are usually said to have been unacquainted with them till the ninth century, when their construction was first taught them by a Venetian.

Indeed it is not true, that the use of bells was entirely unknown in the ancient eastern churches, and that they called the people to church, as at present, with wooden mallets. Leo Allatius, in his Dissertation on the Greek Temples, proves the contrary from several ancient writers. It is his opinion that bells first began to be disused among them, after the taking of Constantinople by the Turks; who, it seems, prohibited them, lest their sound should disturb the repose of souls, which, according to them, wandered in the air. He adds, that they still retain the use of bells in places remote from the intercourse of the Turks; particularly, very ancient ones in mount Athos. F. Simon thinks the Turks rather prohibited the Christians the use of bells out of political than religious reasons; inasmuch as the ringing of bells might serve as a signal for the execution of revolts, &c.

The city of Bourdeaux was deprived of its bells for rebellion; and, when it was offered to have them restored, the people refused it, after having tasted the ease and convenience of being freed from the constant din and jangling of bells.

Matthew Paris observes, that anciently the use of bells was prohibited in the time of mourning; though, at present, they make one of the principal ceremonies of mourning. Mabillon adds, that it was an ancient custom to ring the bells for persons about to expire, to advertise the people to pray for them; whence our *passing-bells*.

Lobineau observes, that the custom of ringing bells at the approach of thunder, is of some antiquity; but that the design was not so much to shake the air, and so dissipate the thunder, as to call the people to church, to pray that the parish might be preserved from mischief by it.

The custom of christening, or blessing bells, is very ancient. Some say it was introduced by pope John XIII. in 972, but it is evidently of an older standing; there being an express prohibition of the practice in a capitular of Charlemagne in 789. See Hospinian de Origine Templorum, p. 113. where there is a particular account of all the ridiculous ceremonies practised about bells. — See Dr. Franklin's Observations on consecrated Bells, and the Form in consecrating them, Experiments, Observations, &c. p. 448. ed. 1769.

Nankin, a city of China, was anciently famous for the largeness of its bells; but their enormous weight having brought down the tower, in which they were hung, the whole building fell to ruin, and the bells have ever since been disregarded. — One of these bells is near twelve English feet high, the diameter seven and a half, and its circumference twenty-three; its figure almost cylindric, except for a swelling in the middle, and the thickness of the metal about the edges, seven inches. — From the dimensions of this bell, its weight is computed at 50000 pounds, which is more than double the weight of that at Erfort, said by father Kircher to be the greatest bell in the world. — These bells were cast by the first emperor of the preceding dynasty, about three hundred years ago. They have each their name, the hanger *tchoui*, the eater *che*, the sleeper *choui*, the will *fi*. — Father le Comte adds, that there are seven other bells in Pekin, cast in the reign of Youlo, each of which weighs 120,000 pounds. But the sounds even of their biggest bells are very poor; being struck with a wooden instead of an iron clapper.

The Egyptians have none but wooden bells, except one brought by the Franks into the monastery of St. Anthony. The sound of a bell arises from a vibratory motion of the parts thereof, much like that of a musical chord. The stroke of the clapper, it is evident, must change the figure of the bell, and of round make it oval: but the metal hav-

ing a great degree of elasticity, that part which the stroke drove farthest from the centre will fly back again, and this even somewhat nearer to the centre than before: so that the two points, which before were the extremes of the longer diameter, now become those of the shorter. Thus, the circumference of the bell undergoes alternate changes of figure, and by means thereof gives that tremulous motion to the air, wherein sound consists.

M. Perrault maintains, that the sound of the same bell or chord, is a compound of the sound of the several parts thereof; so that where the parts are homogeneous, and the dimensions of the figure uniform, there is such a perfect mixture of all these sounds, as constitutes one uniform, smooth, even sound: and the contrary circumstances produce harshness. This he proves from the bells differing in tune according to the part you strike; and yet strike it any where, there is a motion of all the parts. He therefore considers bells as composed of an infinite number of rings; which, according to their different dimensions, have different tones, as chords of different lengths have; and, when struck, the vibrations of the parts immediately struck determine the tone; being supported by a sufficient number of consonant tones in the other parts. Mr. Hawksbee, and others, have found by experiment, that the sound of a bell struck under water, is a fourth deeper than in the air: though Mersenne says, it is of the same pitch in both elements.

Bells are observed to be heard farther, placed on plains, than on hills; and still farther, on valleys, than on plains: the reason of which it will not be difficult to assign, if it be considered, that the higher the sonorous body is, the rarer is its medium; consequently, the less impulse it receives, and the less proper vehicle it has to convey it to a distance. There is a curious observation in a paper of M. Reaumur's in the Memoirs of the Paris Academy, relating to the shape most proper for bells, to give them the loudest and clearest sound. He observes, that as pots, and other vessels more immediately necessary for the service of life, were doubtless made before bells, it probably happened, that the observing these vessels to have a sound when struck, gave occasion to making bells, intended only for sound, in that form: but that it does not appear that this is the most eligible figure; for lead, a metal which is, in its common state, not at all sonorous, yet becomes greatly so on its being cast into a particular form, and that very different from the common shape of bells. In melting lead for the common occasions of casting in small quantities, it is usually done in an iron ladle; and as the whole is seldom poured out, the remainder, which falls to the bottom of the ladle, cools into a mass of the shape of that bottom. This is consequently a segment of a sphere, thickest in the middle, and thinner towards the edges: nor is the ladle any necessary part of the operation, since if a mass of lead be cast in that form in a mould of earth or sand, in any of these cases it is found to be very sonorous. Now, if this shape alone can give sound to a metal which in other forms is perfectly mute, how much more must it necessarily give it to other metals naturally sonorous in whatever form. It should seem, that bells would much better perform their office in this than any other form, and that it must particularly be a thing of great advantage to the small bells of common house-clocks, which are required to have a shrill note, and yet are not allowed any great size. M. Reaumur very judiciously observes, that had our forefathers had opportunities of being acquainted with the sound of metals in this shape, we should probably have had all our bells at present of this form. Mem. Acad. Par. 1726.

BELL, bearing the, see RACING.

BELLS, foundry of. See FOUNDRY.

BELL, diving. See DIVING.

BELLS, electrical, are used in a variety of entertaining experiments by electricians. The apparatus, which is originally of German invention, consists of three small bells suspended from a narrow plate of metal (*Plate Electricity*, fig. 2.) the two outermost by chains, and that in the middle, from which a chain passes to the floor, by a silken string. Two small nobs of brass are also hung by silken strings, one on each side of the bell in the middle, which serve for clappers. When this apparatus is connected with an electrified conductor, the outermost bells suspended by the chains will be charged, attract the clappers, and be struck by them. The clappers becoming electrified likewise will be repelled by these bells, and attracted by the middle bell; and discharge themselves upon it by means of the chain extending to the floor. After this, they will be again attracted by the outermost bells, and thus by striking the bells alternately, occasion a ringing, which may be continued at pleasure. Flashes of light will be seen in the dark between the bells and the clappers; and if the electrification be strong, the discharge will be made without actual contact, and the ringing will cease. An apparatus of this kind, connected with

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with one of those CONDUCTORS that are erected for securing buildings from lightning, will serve to give notice of the approach and passage of an electrical cloud.

BELL, in *Chemistry*, denotes a glass vessel placed over some matter in a state of exhalation, either to collect the vapour, or gather the flowers.

Chemical bells are a sort of receptacles chiefly used in preparing the oil or spirit of sulphur, for gathering and condensing fumes into a liquor.

BELL, in *Building*, is used to denote the body of the Corinthian and Composite capital, by reason of its resemblance to the figure of a bell inverted.

In this sense, *bell* is the same with what we otherwise call *vase* and *tambour*, sometimes also *corbeil*.

The naked of the *bell* is always to be even and perpendicular with the bottom of the flutings of the column.

BELL flower, in *Botany*. See CAMPANULA.

BELLS, hair, in *Botany*. See HYACINTH.

BELL-metal is a composition of tin and copper melted together in due proportion: which has this property, that it is more sonorous than any of the ingredients taken apart. The ordinary proportion is about twenty-two or twenty-three pounds of tin to one hundred weight of copper; though the proportion varies according to the size of the bells; a greater quantity of copper being used in the greater bells than in the smaller ones. Some add lead and brass, others zinc or spelter, to the composition.

It has long been observed, that though tin is specifically lighter than copper, yet the gravity of the compound *bell-metal* is greater than that of copper itself. Notice has been frequently taken of this not uncommon phenomenon in chemistry, from which it appears that Archimedes's proposition and tables, calculated upon that principle, for determining the proportion of two metals in any given compound, by hydrostatical experiments, are less to be depended upon than has hitherto been supposed. Some also speak of a native mineral under the denomination *bell-metal*, or *belmettel*, from which Becher affirms he procured zaffer and smalt.

BELL-animal, a name given by the writers on microscopical discoveries to a very small animal found at the roots of the common duckweed. The bodies of these animals are shaped like *bells*, and they have very long and slender tails, by which they fasten themselves to the roots of these little plants. They are usually found in great numbers together, in a sort of clusters or bunches; and all of the same bunch have always the same motion, very frequently contracting themselves, and afterwards expanding all together to the full length of their tails. They usually contract instantaneously; but are more slow in the expanding themselves again. Baker's Microf. p. 90.

BELL-muschus, in *Botany*, a name given by some authors to the plant called *bamia moschata*, and mosch-feed.

BELL-pepper, in *Botany*. See CAPSICUM.

BELL-polype, in *Zoology*, a particular species of POLYPE, the extremities of whose branches resemble *bells*. See Tab. of Microscopical Objects, Class 1.

BELL-weed, an English name used by some authors for the *jacea nigra*, or common knap-weed, called also by many English writers MATFELON.

BELLADONA lily. See AMARYLLIS.

BELLADONA, in *Botany*, a name given by the Italians to the deadly NIGHTSHADE, because the ladies make a cosmetic of the juice, or distilled water, which they use to make their complexion fair and white. Ray.

Others derive the name from the intoxicating quality of this plant: *Quod insomnis pulchras ostendat virgines feminasque*. Bod. Comment. in Theophrast. 1078.

BELLATRIX, in *Astronomy*, a ruddy, glittering star of the second magnitude, in the left shoulder of ORION.

It takes its name from *bellum*, as being anciently supposed to have great influence in kindling wars, and forming warriors.

BELLE de nuit, in *Botany*, a name which the French give to the flower of the JALAP.

BELLICA column, in *Antiquity*, a column near the temple of Bellona, from which the consuls or sceiales cast javelins towards the enemy's country, by way of declaration of war.

BELLICULI, or **BELLIRICI Marini**, among *Naturalists*, denote a species of sea-shells of an umbilical figure, sometimes of a white colour, spotted with yellow; and sometimes of a yellow, streaked with black lines, after the snail-fashion.

BELLING of hops, denotes their opening and expanding to their customary shape, supposed to bear some relation to that of a bell.

Hops blow towards the end of July, and *bell* the latter end of August or the beginning of September.

BELLIS, in *Botany*. See DAISY.

BELLON, or **BELLAND**, in *Medicine*, a distemper very common in Derbyshire, and other counties, where they smelt lead-ore; to which beasts, and even poultry, as well as men, are subject; and for this reason, a certain

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space round the smelting houses is called *bellon-ground*, where it is dangerous for any animal to feed. This disorder is attended with languors, weakness, and intolerable pains, sensation of gripings in the belly, and generally costiveness. It frequently proves fatal.

The method of cure which has been found most successful in this distemper, is, to give *cremor*, or crystals of tartar, in small doses, and to repeat them frequently, as two or three times a day.

BELLONA, in *Mythology*; a *bello*, the goddess of war, sister to Mars. Before her temple the herald set a spear on a pillar, when any war was proclaimed.

BELLONARII, in *Antiquity*, priests of Bellona, the goddess of war and battles.

The *Bellonarii* cut and mangled their bodies with knives and daggers in a cruel manner, to pacify the deity. In this they are singular, that they offered their own blood, not that of other creatures, in sacrifice. In the fury and enthusiasm wherewith they were seized on these occasions, they ran about raging, uttering prophecies, and foretelling blood and slaughter, devastations of cities, revolutions of state, and the like; whence Martial calls them *turba entheata Bellonæ*. Lactant. Inst. lib. i. cap. 1. Lucian. lib. i. Tertull. Apol. cap. 9. Minut. Felix. p. 298. In after-times they seem to have abated much of their zeal and transport, and to have turned the whole into a kind of farce, contenting themselves with making signs and appearances of cutting and wounds. Lampridius tells us, the emperor Commodus, out of a spirit of cruelty, turned the farce again into a tragedy, obliging them actually to cut and mangle their bodies. Lamp. in Com. mod. cap. 9.

BELLONIA, so called after the name of M. Bellon, a physician of Caen, in *Botany*, a genus of the *pentandria monogynia* class. The characters of this plant are, that the flower is wheel-shaped, of one leaf with a short tube, but spread open above, and cut into five obtuse segments; that it hath five stamina which close together; that the germen is situated under the receptacle of the flower, which afterward becomes an open turbinated seed vessel, ending in a point, having one cell filled with small round seeds.

We have but one species of this plant, viz. shrubby *bellonia*, with a rough balm leaf. This plant is very common in several of the warm islands in America.

BELLOWING, among *Sportsmen*, is used for the noise which roes make in RUTTING-time.

BELLOWS, a machine used to give a brisk agitation to the air, by enlarging and contracting its capacity, and thus expiring and inspiring the air by turns.

Bellows are of various kinds, as *domestic bellows*, *enamellers bellows*, *smiths bellows*, &c.

There are some *bellows* triangular, which only move on one side: others called *lantern bellows*, from their resembling a paper lantern: these move every way, and yet still continue parallel.

Mr. Triewald, engineer to his Swedish majesty, has contrived a kind of *water-bellows*.—This is not the first time that water has been employed to blow the fire. The same it done at Tivoli, and other parts of Italy, where the contrivances for this purpose are called *fossi d'acqua*.—Phil. Trans. N^o 448. p. 234.

Mr. Sterling has given the description of a *water-bellows*, or machine to blow fire by the fall of water. Phil. Trans. N^o 475. § 19. Dr. Lewis's Com. Ph. Techn. p. 269, &c. Where may be seen an account of *bellows*, and of *BLOWING machines*, of various constructions, for all kinds of furnaces; and many curious and important remarks on the various quantity of air afforded by them, &c.

The action and effect of *bellows* of every kind, whether leathern or wooden, wrought by water or men, depend on this, that the air which enters them, and which they contain when raised, is again compressed into a narrower space when they are closed. And, as the air, like all other fluids, run to that place where it meets the least resistance, the air must of consequence fly out of the pipe or aperture with a velocity proportional to the force whereby the air is compressed, and must of consequence blow stronger or weaker, as the velocity with which the top and bottom of the *bellows* meet is greater or lesser. The blast also will last in proportion to the quantity of air that was drawn into the *bellows* through the valve or wind-clap.

The *Hessian bellows* are a contrivance for driving air into a mine for the respiration of the miners. This M. Papin improved, changing its cylindrical form into a spiral one; and, with this, working it only with his foot, he could make a wind to raise two pound weight.

Anarcharis the Scythian is recorded as the inventor of *bellows*. Strabo, lib. vii. p. 209.

The action of *bellows* bears a near affinity to that of the lungs; and what we call blowing in the latter, affords a good

good illustration of what is called respiring in the former. There are *bellows* made wholly of wood, without any leather upon them; one of which is preserved in the repository of the Royal Society; and Dr. Plot describes another used in the copper-works at Ellaston in Staffordshire. Nat. Hist. Staff. chap. 4. sect. 18.

We are also told of a new sort of *bellows* to work in vacuo. Some have even pretended to effect a perpetual motion by a new contrived *bellows*. Boyle's Works, abr. tom. ii. p. 503. Phil. Trans. N° 182.

Smiths and founders *bellows*, whether single or double, are wrought by means of a rocker, with a string or chain fastened thereto, which the workman pulls. The *bellows*-pipe is fitted into that of the tewel. One of the boards is fixed, so as not to play at all. By drawing down the handle of the rocker, the moveable board rises, and by means of a weight on the top of the upper board, sinks again.

The *bellows* of forges and furnaces of mines usually receive their motion from the wheels of a water-mill. Others, as the *bellows* of enamellers, are wrought by means of one or more steps or treddles under the workman's feet.

Acosta says, that the metal of the Peruvian mines of Porco is easily refined with *bellows*; but that of the mines of Potosi cannot be fused with them, but only by the breath of their small furnaces built upon the sides of mountains, and directed where the wind lies.

The *bellows* of an organ are six feet long, and four broad; each having an aperture of four inches, that the valve may play easy. There should likewise be a valve at the nose of the *bellows*, that one may not take the air from the other. To blow an organ of sixteen feet, there are required four pair of these *bellows*.

The *bellows* of organs are wrought by a man called the blower; and, in small organs, by the foot of the player.

BELLOWS, *Bone*, *φυστήρες ορεωται*, occur in Herodotus for those applied by the Scythians to the genitals of mares, in order to distend the uterus, and, by this compression, make them yield a greater quantity of milk.

BELLOWS, *Hydrostatic*, see HYDROSTATIC.

BELLUÆ, in *Zoology*, the sixth order of the *mammalia*; the character of which is, that their fore-teeth are obtusely truncated, their feet hoofed, their walk heavy, and their food vegetables. The genera of the *horse*, *hippopotamus*, *hog*, and *rhinoceros*, belonging to this order.

BELLUGA *stone*, in *Natural History*, the name of a *calculus* or stone found in the *belluga*, a large fish, accounted a species of sturgeon, and called by Artedi *accipenser tuberculis carens*.

The fish is much like the sturgeon in shape; but its snout is shorter and thicker. Of its row or spawn is made caviar; and some of them are so large as to yield two hundred weight of it. The fish is very common and very large in the Volga, near the city of Astracan. It has been caught there thirty-six feet long, and eighteen thick. It is also found in the Don, and other rivers, and in the Baltic and Caspian seas. See ACCIPENSER.

It is not certainly known in what part of this fish the stone is found. It is found in both sexes, but most frequently in the male; and is found in fish of all ages and sizes. It is far from being common, however; for in a thousand fishes, there sometimes is not found one stone. It is hence evident, that these stones are no natural part of the fish; but are mere morbid concretions, like the bezoar stones in the animal which produces them, or like the stones in human bladders. The situation or the parts in which it is found, and other circumstances, may allot it its particular appearances.

This stone is of various shapes and sizes; but its most usual figure is either globular or oval. It is of a yellowish-white colour, and of a smooth and naturally polished surface; and it is found from the size of a pigeon's egg to that of a goose. They are usually compact, ponderous, and solid, not friable, but requiring a strong blow to break them. They yield easily to the saw: but this defaces their internal texture, which is naturally very elegant and regular. The stones consist of several concentric coats, firmly adhering to one another, formed about a nucleus, which generally appears to be some heterogeneous substance.

But another very obvious circumstance there is in its structure, which makes it greatly different from all other stones of this kind, that is, its radiated structure, it being composed of a number of regular and even *striae* running from the centre to the circumference, representing, both in colour and form, the flakes of the *terra foliata tartari*, or the striated *spicula* of antimony.

If the stone be scraped to powder, and sprinkled upon a hot iron, it gives a faint urinous smell, and calcines into a light, insipid, greyish earth.

The people about the Volga esteem it greatly, and account it to have great virtues; they say it promotes deli-

very: and give it constantly in cases of the stone, and disorders of the urinary parts. Its dose is from ten grains to a dram. Phil. Trans. vol. xlv. part ii. N° 4.

BELLULA *bos*, in *Ichthyology*, a name given by Paulus Jovius to that species of the ray fish, which was called by the old Greek and Latin writers *bos marinus*, and by the latter authors *raja oxyrinchus*. It is distinguished by Artedi by the name of the variegated ray, with ten prickly tubercles on the middle of the back.

BELLY, in a general sense, denotes the whole ABDOMEN, or that region of the body contained between the *septum transversum*, the *hypochondria*, and *pubes*.

BELLY is also used, in a more confined sense, for the intestines alone, as containing the *feces*.

In this sense we speak of the looseness or costiveness of the belly, &c.

BELLY is also sometimes used for a pregnant woman.

In this sense we are to understand the phrase among *Civil Lawyers*, to put the belly in possession of an estate.

BELLY is also used in speaking of the bodies of beasts. Thus, we say a light belly, meaning a slender or lank one: a cow-belly, that where the ribs being unable to hold the viscera, they press downwards, and bulge disagreeably.

Feeding horses with grass, or much hay, and few oats, makes them grow cow-bellied. It is a maxim, that horses which are light bellied, and fiery, soon destroy themselves.

The belly of a horse should be of an ordinary bigness, except in draught horses, where the larger the better, provided it be round, and well inclosed within the ribs; rather extending upon the sides than downwards. Those horses are apt to be cow-bellied, which, having straight ribs, are great feeders.

The belly is sometimes also denominated the body, chest, gut, or flank.

A horse is said to be thick-bellied, well-bodied or flanked, when he has large, long, and well-made ribs, neither too narrow nor too flat. A horse again is said to have no belly, or body, or to be thin-flanked, when his ribs are too narrow or short, and the flank turns up; so that his body looks flankless, like a greyhound. Such horses are called by the French *estracés*, and generally prove fine and tender, not fit for travelling or fatigue, unless they feed very heartily. Coach-horses are rejected when they are not well-bellied, or well-bodied, but narrow or thin-gutted, seeming to have the skin of their flanks stretched on their ribs. But a hunter is not the worse liked for being light-bellied. Horses pained, or weak in their hind-quarters, are commonly light-bellied. Such as have painful scratches in their hind-legs are found to lose their bellies extremely.

BELLY of a MUSCLE, in *Anatomy*, denotes the body thereof; as contradistinguished from the two extremities, or tendons. From the conditions of this, muscles are divided into monogastric, or single-bellied; and diagastric, or double-bellied. Phil. Trans. N° 258.

Lower will have all the muscles to be digastric, or double-bellied; in which he is seconded by Hoffman, and others.

BELLY-ach weed, a name given in America to a species of the *jatropha*. See CASSADA.

BELLY, *Dragon's*, *venter draconis*, is used by some *Astronomers* to denote the point in a planet's orbit, wherein it has its greatest latitude, or is farther distant from the ecliptic; more frequently called its limit.

BELOAR, a name given by some to a stone, otherwise called WIDURIS.

BELOMANCY, BELOMANTIA, a kind of divination by means of arrows, practised in the East, but chiefly among the Arabians.

The word is of Greek origin; compounded of *βέλος*, arrow, and *μαντεία*, divination.

Belomancy has been performed in different ways: one was, to mark a parcel of arrows, and put eleven, or more of them, into a bag; these were afterwards drawn out, according as they were marked, or not, they judged of future events.

Another way was, to have three arrows, upon one of which was written, *God orders it me*; on another, *God forbids it me*; and upon the third, nothing at all. These were put into a quiver, out of which they drew one of the three at random; if it happened to be that with the first inscription; the thing they consulted about was to be done; if it chanced to be that with the second inscription, it was let alone; and if it proved to be that without inscription, they drew over again.

Belomancy is an ancient practice, and probably that which Ezekiel mentions, chap. xxi. ver. 21. At least St. Jerom understands it so, and observes that the practice was frequent among the Assyrians and Babylonians. Something like it is also mentioned in Hosea, chap. iv. only that *slaves* are there mentioned instead of *arrows*, which is rather *rhabdomancy* than *belomancy*.—Grotius, as well

well as Jerom, confounds the two together, and shews that they prevailed much among the Magi, Chaldeans, and Scythians; whence they passed to the Slavonians, and thence to the Germans, who, as Tacitus observes, made use of *belomancy*.

BELONE, in *Ichthyology*, a name by which some of the naturalists have called the *Acus Oppiani*, called in English the horn-fish, or gar-fish, a species of the *ESOX*. The name is retained by Linnæus.

BELSEBUL, a species of the *simia*, with a bearded black tail.

BELT, **BALTHEUS**, properly denotes a kind of military girdle, usually of leather, wherewith the sword or other weapons are sustained.

Belts are known among the ancient and middle-age writers by divers names, as *Zorn*, *ζωνα*, *zona*, *cingulum*, *reminiculum*, *rinca*, or *ringa*, and *baldrellus*.

The *belt* was an essential piece of the ancient armour; in-somuch that we sometimes find it used to denote the whole armour. Pott. Arch. Græc. tom. ii. lib. iii. cap. 4. In later ages, the *belt* was given to a person when he was raised to knighthood; whence it has also been used as a badge or mark of the knightly order.

The denomination *belt* is also applied to a sort of **BANDAGES** in use among surgeons, &c.

Thus we meet with quicksilver *belts*, used for the itch. A later writer describes a *belt* for keeping the belly tight, and discharging the water in the operation of **TAPPING**. Medic. Ess. Edinb. tom. i. p. 218.

BELT, or **BELTIS**, in *Ecclesiastical Writers of the Middle Age*, denotes a sort of string of beads.

BELT is also a frequent disease in sheep, cured by cutting their tails off, and laying the fore bare; then casting mould on it, and applying tar and goose-grease.

BELTS, *Fasciæ*, in *Astronomy*, two zones or girdles surrounding Jupiter's body, more lucid than the rest, and terminated by parallel lines; being sometimes broader, and sometimes narrower, nor constantly taking up the same places in his disk.

Dark spots have been frequently observed on Jupiter's *belts*. Cassini has also discovered a permanent one in the most northern part of the most southern *belt*: by this he has determined the length of Jupiter's day; that is, the time of his revolution on his axis, which is finished in 9 hours 56 minutes. Phil. Trans. N° 10. and vol. lxiii. part i. N° 11. p. 73.

Some astronomers take the *belts* to be seas, which alternately cover, and leave bare large countries of the Jovial world. The spots are by these writers conjectured to be gulfs in those seas, perhaps as big as our ocean, and sometimes full, sometimes dry. M. Azout rather imagined the spots to be protuberances of the *belts*. Hist. Acad. Sc. 1708. 1692. Phil. Trans. N° 34. 1. 15.

But the generality of astronomers take the spots, we mean the transparent and moveable ones, for the shadows of Jupiter's satellites.

The *belts* of Jupiter were first observed, and described by Huygens, in his Syst. Saturnin. p. 7.

Cassini also speaks of *belts* of Saturn; being three dark, straight, parallel bands, or *fasciæ*, on the disk of that planet.

Saturn's *belts* do not appear to be inherent on his globe, as those of Jupiter are; but rather to be large dark rings at a distance from the planet, and surrounding his body. Some imagine them to be clouds in his atmosphere. The middlemost seems to be the shadow of Saturn's ring. Hist. Acad. Sc. 1715.

BELTS, in *Navigation*, denote certain streights near the Sound, through which ships must pass going between the Baltic and the German ocean.

The *Belts* belong to the king of Denmark, who exacts a toll of all ships which pass them excepting the Swedes, who are exempt from it.

BELVIDERE, an Italian term, denoting a fine prospect. The name is more peculiarly given to a pavilion on the top of a building, or an eminence in manner of a platform in a garden, sustained by a terrace-wall, or a massive of turf, contrived for the sake of commanding a large or beautiful prospect.

BELVIDERE, in *Botany*, a species of the **CHENOPODIUM**.

BELULCUM, a chirurgical instrument of various figures, contrived for extracting darts, arrows, or the like, from wounds.

Hence also the denomination *belulcum*; quasi το βελος εννοον.

BELUS, in *Mythology*, the principal deity of the Babylonians; and if, as some suppose, the tower of Babel was his temple, one of the most ancient among the pagans. The kings of Babylon amassed immense treasures in this place, which were pillaged by Xerxes on his return from the expedition into Greece. Herod. lib. i.

BEMA βημα. in *Antiquity*, denotes a step or pace.

The *bema* made a kind of itinerary measure among the

Greeks, whose length was equivalent to one cubit, and two thirds, or ten palms.

Whence also the term βηματισμ, to measure a road.

BEMA, in *Ecclesiastical Writers*, denotes the altar-part, or sanctuary, in the ancient churches.

In which sense, *bema* made the third or innermost part of the church, answering to the chancel among us.

BEMA was also used for the bishop's chair, seat, or throne, placed in the sanctuary. It was called *bema* from the steps by which it was to be ascended.

BEMA was also used for the reader's desk.

This in the Greek church was denominated βημα γυναικων, in the Latin church **AMBO**.

BEMA is more peculiarly used for the *Manichees* altar, which was in a different place from that of the catholics.

BEMA was also a denomination given by this sect to the anniversary of the day when *Manes* was killed, which with them was a solemn feast, and day of rejoicing.

One of the chief ceremonies of the feast consisted in setting out and adorning their *bema*, or altar, with great magnificence.

BEMELRE, in *Ornithology*, a name by which the Portuguese in the Brasils call a greenish black-bird of the starling kind, common there, and more generally known by its Brazilian name **PITANGUA-GUACU**.

BEMILUCIUS, in *Mythology*, a surname of Jupiter, represented young and beardless.

BEN, or **BEHEN**, in *Pharmacy*, denotes a medicinal root, celebrated, especially among the Arabs, for its aromatic, cardiac, and alexiterial virtues.

There are two kinds of *bens*, viz. the *white ben*, which is insipid, making little impression on the tongue, besides that of a little bitterness which it leaves behind it, and supposed by some modern botanists to be the same with our *lychnis terrestris*, by others called the *papaver spumeum*. *Red ben*, is fibrous, brown without, and reddish within; supposed to be the root of a species of *limonium*, or *sea-LAVENDER*. They are both brought from the Levant, and have much the same virtues, being substituted for each other; they must be chosen dry, and of an aromatic astringent taste.

BEN, or **BEN-nut**, a fruit about the size of a filbert, the product of a middle-sized tree, said to resemble the birch, and to grow spontaneously in the East Indies, and in America. It is the *guilandina moringa* of Linnæus; and the same, the wood of which is called the *lignum nephriticum*. Lemery, in his Dictionnaire des Drogues, mentions several kinds of this fruit. It is called *glans unguentaria*, because it yields an oil by expression, which is used by perfumers in perfuming other oils, and never turns rancid; as being a detergent, it is thought proper in cutaneous diseases, &c. Geoffroy.

To impregnate oil of *ben* with the odour of flowers, dip some fine carded cotton in the oil, and put it in the bottom of some proper vessel; on this spread a thick layer of fresh flowers, and above them more cotton dipped in oil, and thus alternately *stratum super stratum*, till the vessel be full; and then by **DIGESTION**, during twenty-four hours in a *water-BATH*, the oil will receive the odour of the flowers. As the oil of *ben* does not become rancid, at least for years, it is the best *menstruum* for extracting the odoriferous parts of roses, jonquils, and many other flowers, which yield little or no essential oil by *distillation*, but impart their fragrance to expressed oil.

BENÆ lapis, in the *Natural History of the Ancients*, the name given by the earliest writers to that fossil body, afterwards called **THRACIUS lapis**.

BENCH. See **BANC**, **BANK**, &c.

BENCH, *King's*. See **COURT of King's Bench**.

BENCH, *free*. See **FREE-bench**.

BENCH-widow. See **WIDOW**.

BENCHERS, in an *INN of court*, the seigniors of the house, who have the government and direction thereof; and out of whom is yearly chosen a treasurer, &c.

BEND, in *Heraldry*, an ordinary or bearing, formed by two lines drawn diagonally, or athwart, from the dexter chief of the shield to the sinister base; being supposed to represent a shoulder-belt, or scarf, worn over the shoulder.—See *Tab. Herald. fig. 7*.

The *bend* is one of the ten honourable ordinaries, containing a third part of the field when charged, and a fifth when plain.—It is sometimes indented, ingrailed, &c.

Heralds speak of a *bend dexter*, and a *bend sinister*.

A *bend* is subdivided into a *benlet*, or *bandelet*, which is the sixth part of the field; a *garter*, which is the moiety of a *bend*; a *cost*, which is the fourth part of a *bend*; and a *ribband*, which is the moiety of a *cost*.

BEND dexter, is that properly and absolutely called a *bend*, as above defined.—The word *dexter* is usually annexed to prevent mistakes, and distinguish it from the

BEND sinister, which is the same with what is otherwise called after the French heralds, a **BAR**, *barre*.

The *bend sinister* is subdivided into the *scarf*, or *searp*, and the *batoon*: which latter is the fourth part of the *bend*,

and the most usual mark of illegitimacy; but then it never extends itself quite athwart the shield, but is cut off a little at each end. See **BASTON**, and *fig. 6*.
When two straight lines drawn within the *bend* run nearly parallel to the outward edges of it, this is called *voiding*; and he that bears it, is said to *bear a bend voided*.

Party per BEND, dexter. See **PARTI**.

Point in BEND. See **POINT**.

BENDIDIA, *Bendideia*, in *Antiquity*, solemn feasts held by the Athenians on the twenty-first day of the month *Tragelion*, in honour of the goddess *Diana*.

The word is formed of *Bendis*, a denomination of *Diana*, according to *Strabo*, or of the moon, according to *Suidas*, which amounts to the same.

The *bendidia* were held in the *Piræus*, and bore some resemblance to the *BACCHANALIA*.

BENDING. *M. Bernouilli* has a discourse on the *bending* of springs, or elastic bodies. *M. Amontons* gives several experiments concerning the bending of ropes. The friction of a rope *bent*, or wound round an immoveable cylinder, is sufficient, with a very small power, to sustain very great weights. *Mem. Acad. Sc.* 1703. 1705. 1699. Divers methods have been contrived for *bending* timber, in order to supply crooked planks, and pieces for building ships: *M. Daleme* ingeniously enough proposed to have the young trees bent, while growing in the forest. The method of *bending* planks by a sand-heat, now used in the king's yards at *Deptford*, was invented by captain *Cumberland*. *Phil. Trans. N° 371. p. 75*.

The *bending* of boards, and other pieces of timber for curved works in joinery, is effected by holding them to the fire, then giving them the figure required, and keeping them in this figure by tools for the purpose.

A method has been lately invented and practised for *bending* pieces of timber, so as to make the wheels of carriages without joints. See **WHEELS**.

BENDING, in the *Sea Language*.—They say, *bend the cable*, when it is to be made fast to the ring of the anchor.—To *bend two cables*, signifies to tie them together with a knot, which, though less sure than splicing, is sooner done.

To *unbend the cable*, is to loosen it from the ring of the anchor; which is done when a ship designs to be long at sea.

To *bend a main sail*, is to make it fast to the yard in its proper place.

BENDS, in a ship, are the same with *wailes*, or *wales*, which are the outermost timbers of a ship, on which men set their feet in climbing up.

They are reckoned from the water, the *first*, *second*, and *third bend*: they help much to strengthen the ship, and have the beams, knees, and foothooks bolted into them.

BENDY, *BANDE*, in *Blazonry*, denotes an escutcheon's being divided bend-wise into an even number of partitions, varying of metal and colour.—If they be odd, the field must first be named, and then the number of bends. In England, the number is always made even; in other countries this is not regarded.

The say *bendy* of four, *bendy* of six, &c.

Barry-BENDY. See **BARRY**.

Counter-BENDY. See **COUNTER**.

Paly-BENDY. See **PALY**.

BENE. See *DE Bene Essè*.

BENEAPED, in the *Sea Language*, is said of a ship, when the water does not flow high enough to bring her off the ground, out of the dock, or over the bar.

BENEDICTE is a name given to the hymn, or song of the three children in the fiery furnace; by reason of its beginning with the words *benedicite omnia opera Dominum*.

The use of the *benedicite* is very ancient; it appearing to have been sung in all the Christian churches, as early as *St. Chrysostom's* time.

BENEDICTINS, or **BENEDICTIN order**, is an order of monks, who profess to follow the rule of *St. Benedict*, or *Benet*, of *Nursia*, who was born about the year 480. The *Benedictins* are those properly called *monachi*, monks; the other orders are better denominated *friers*, or *religious*.

In the canon law, the *Benedictins* are called *Black Monks*, being distinguished from the other orders by the colour of their habit; and not by the name of their patriarch, *St. Benedict*.—Among us they were formerly also denominated *Black Friers*.

The *Benedictins* wear a loose black gown, with large wide sleeves, and a capuche on their heads, ending in a point behind.

The list of saints of the *Benedictin* order is very ample; but they are accused by *Baronius*, and many other writers, of putting many in the list who were never of the order.

For six hundred years after the erection of the *Benedictin* order, most of the European monks were followers of this rule: whatever other names they went by, *Carthusians*, *Cistercians*, *Grandimontenses*, *Premonstratenses*,

Cluniacs, &c. they were but different branches of the *Benedictins*, till about the year 1220, when the *Dominicans* and *Franciscans* took new rules.

Hospinian reckons no less than twenty-three religious orders that sprang from this one.

According to the *Benedictin* computation, there have been of this order 24 popes, 200 cardinals, 7000 archbishops, 15000 bishops, 15,700 abbots, 4000 saints, 40,000 confessors, above 3000 martyrs and apostles, who have converted 30 provinces to the Christian faith, besides emperors, kings, &c.

The *Benedictins*, though but one order, are divided into several congregations, which have their peculiar customs and observances different from the rest.

Each of these are subdivided into provinces, which have their general chapters. This order is said to have been brought into England about the year 596.

The English congregation, which had subsisted from the time of the mission of *St. Austin*, was destroyed under *Henry VIII.* and by degrees reduced to one single man; father *Buckley*, who in 1607, procured a re-establishment of the congregation, at *Doway*, in the Netherlands, where it still subsists in a kind of dependency on that of *St. Valladolid* in Spain.

At the general chapters they chuse provincials, with their assistants, for each of the provinces of *Canterbury* and *York*, who have jurisdiction over the missionaries employed therein. They are governed by a president-general, and three **DEFINITORS**, chosen every three years.

At their admission they make a fourth vow, viz. that they will go to the mission in England, and return when their superiors think fit.

BENEDICTIN nuns, are religious women who embrace the rule of *St. Benedict*.

BENEDICTION, in a general sense, the act of blessing, or giving praise to God, or returning thanks for his favours.

Hence also *benediction* is still applied to the act of saying grace before or after meals.

Neither the ancient Jews, nor Christians, ever eat without a short prayer.

The Jews are obliged to rehearse a hundred *benedictions* per day; of which, eighty are to be spoken in the morning. *Vitring. de Synag. Vet. lib. iii.*

Rabbi Nehemiah Baruch, in 1688, published a discourse on the manner wherein the sacerdotal *benediction* is to be pronounced. In the Synagogue of *Ferrara*, it is rather sung than spoken.

The custom of receiving *benediction*, by bowing the head before the bishops, is very ancient, and was so universal, that emperors themselves did not decline this mark of submission.

Under the name *benediction*, the Hebrews also frequently understand the presents which friends make to one another, in all probability because they are generally attended with blessings and compliments, both from those who give, and those who receive them.

BENEDICTION, *nuptial*, the external ceremony performed by the priest in the office of matrimony.

The *nuptial benediction* is not essential to, but the confirmation of a marriage in the civil law.

BENEDICTION, *beatic*, *benedictio beatica*, is the *vivaticum* given to dying persons.

The pope begins all his bulls with this form: *Salutem & apostolicam benedictionem*.

BENEDICTION, *regular*, that conferred by abbots on their monks, or by a senior monk on a junior.

BENEDICTIONE privati, to be deprived of benediction, was a kind of punishment inflicted on monks, whereby, when the rest received the abbot's blessing, the offenders were dismissed without it.

BENEDICTION is also used for an ecclesiastical ceremony, whereby a thing is rendered sacred, or venerable.

In this sense *benediction* differs from consecration, as in the latter unction is applied, which is not in the former. Thus the chalice is consecrated, and the pix blessed, as the former, not the latter is anointed; though in the common usage these two words are applied promiscuously.

The spirit of piety, or rather of superstition, has introduced into the Romish church *benedictions* for almost every thing.—We read of forms of *benediction* for wax candles, for boughs, for ashes, for church-vessels, and ornaments; for flags or ensigns, arms, first-fruits, houses, ships, paschal-eggs, *cilicium*, or the hair-cloth of penitents, church-yards, &c.

BENEDICTION of arms was a sort of public consecration of the weapons, and ensigns, before the entering on a war, by a formula of words, and ceremonies appointed for that purpose.

BENEDICTIONALIS liber, an ancient church book, containing the forms of the divers sorts of *benedictions* given by bishops, priests, &c.

Such

Such was the *benedictionalis liber* of Gregory the Great, described by Lambecius.

BENEDICTUM, an epithet formerly given to lenient, or gentle operating medicines; more especially rhubarb.

In this sense we find, in some dispensatory writers, *benedictum laxativum*, used for lenitive electary. Though in others, *benedicta laxativa*, or the *blessed laxative*, denotes another easy purge, made up of turbith, *diagrydium*, sparges, hermodactyls, anise-seeds, fennel-seeds, *sal-gemma*, and honey.

Schroder also gives the appellation *aqua benedicta* to his emetic; and Mynsicht does the same to his *aqua serpylli*, or water of wild thyme.

Some have called the philosopher's stone *lapis benedictus*.

BENEDICTUM vinum. See VINUM.

BENEDICTUS, carduus. See THISTLE.

BENEDITTO sacco. See SAN BENITO.

BENEFICE, BENEFICIUM, in an ecclesiastical sense, a church endowed with a revenue for the performance of divine service; or the revenue itself, assigned to an ecclesiastical person for life, in return for his performing the service of the church.

All church preferments, except bishoprics, are called *benefices*; and all *benefices* are, by the canonists, sometimes called *dignities*: but we now ordinarily distinguish between *benefice* and *dignity*, by applying the word *dignity* to bishoprics, deanries, archdeaconries, and prebends; and *benefice* to parsonages, vicarages, and donatives.

The term *benefice* comes to us from the old Romans who used to distribute part of the lands they had conquered on the frontiers of the empire to their soldiers; those who enjoyed such rewards, were called *beneficarii*, and the lands themselves *beneficia*, as being held on the pure *benefice* and liberality of the sovereign. These *benefices* at first were given for life only; but afterwards they became hereditary and patrimonial.

From the Romans, both the name and the thing passed into France and England, with this difference, as Mr. Blount observes, that *benefices* were not given as mere gratuities for past services, but as warrants for future ones, and were accordingly held by the tenure of serving, on occasion, in the wars, &c. So that what was before a *benefice*, became now converted into a FEE, and SERVICE.

There is an obvious reference in the term *benefice* to the feudal system, which was incorporated in all the governments of Europe. As the lands of all private proprietors were holden of the prince, and because they were originally gratuitous donations, denominated *beneficia*, the pope assumed the privilege of a feudal lord, and claimed the authority of distributing the preferments of the church at pleasure; and hence the care of the souls of a parish came to be called a *benefice*. Blackstone's Comm. vol. iv. p. 106. ed 1769.

Hence, doubtless, came the term *benefice* to be applied to church livings; for, beside that the ecclesiastics held for life like the soldiers, the riches of the church arose from the beneficence of princes.

As to the origin of ecclesiastical *benefices*, it is hard to determine when the revenues of the church were first divided: it is certain, till the fourth century, all the revenues were in the hands of the bishops, who distributed them by their œconomy; they consisted principally in alms, and voluntary contributions.—As the church came to have lands, parts thereof were assigned for the subsistence of the clerks, and called *benefices*; of which we find some traces in the fifth and sixth century: but then there does not appear to have been any certain partition, nor any precise quota allotted to each particular; but the allotments were absolutely discretionary till about the twelfth century.

At first, each was contented with a single *benefice*, but pluralities were, by degrees, introduced, on pretence of equity: for, a single *benefice* being sometimes scarce thought a competency, the priest was allowed two: as his quality, or occasions, increased, so the number of *benefices* that were to support him were increased too. Hence some, affecting to equal princes in quality, pretend to revenues answerable to it.

The canonists distinguish three ways of vacating a *benefice*, viz. *de jure*, *de facto*, and by the sentence of a judge.—A *benefice* is vacated *de jure*, when the person enjoying it is guilty of certain crimes, expressed in laws, as heresy, simony, &c.—A *benefice* is vacated *de facto*, as well as *de jure*, by the natural death, or the resignation of the incumbent: which resignation may be either express, or tacit; as when he engages in a state, &c. inconsistent with it; as among the Romanists, by marrying, entering a religious order, or the like.—A *benefice* becomes vacant by the sentence of a judge, by way of punishment for certain crimes, as concubinage, perjury, forcery, &c. See DEGRADATION.

Benefices are divided by the canonists into *simple*, and *sac-cerdotal*: in the first, there is no obligation but to read

prayers, sing, &c. Such are canonries, chaplainships, chantries, &c.—The second are charged with a cure of souls, or the direction and guidance of consciences. Such are the vicarages, rectories, &c.

The Romanists, again, distinguish *benefices* into *regular* and *secular*.

Regular or *titular* **BENEFICES**, are those held by a religious, or a regular, who has made profession of some religious order. Such are abbey, priories conventual, &c.

Or rather, *regular benefice* is that which cannot be conferred on any but a religious; either by its foundation, by the institution of some superior, or by prescription. For prescription, forty years possession by a religious, makes the *benefice* regular.

Secular **BENEFICES**, are those which are only to be given to secular priests, i. e. to such as live in the world, and are not engaged in any monastic order.

All *benefices* are reputed secular, till the contrary is made appear. They are called *secular benefices*, because held by seculars. Of which kind are almost all cures.

Some *benefices* regular in themselves, have been secularised by the pope's bull. See **REGULAR** and **SECULAR**.

A **BENEFICE**, in *commendam*, is that, the direction and management whereof, upon a vacancy, is given, or recommended to an ecclesiastic for a certain time, till it may be conveniently provided for. See **COMMENDAM**.

BENEFICES, Consistorial, in the *French Customs*, are those of royal foundation, which were elective before the concordat, and are now nominated by the king of France.

They are called *consistorial*, because, on the king's nomination, they are to be proposed in the papal consistory, that is, in the congregation of cardinals, where the pope presides.

To this class belong archbishoprics, bishoprics, and abbey. These *benefices* were formerly elective; but by the concordat, which abolished all elections, they are to be conferred by the pope, on the king's nomination. Annates are to be paid, and the pope's bulls obtained, for *consistorial benefices*.

BENEFICES, Non-consistorial, are either elective, or collative, or in patronage.

BENEFICES, Elective, are those which are to be filled or supplied in the way of election; only this election to be confirmed by the proper superior.

BENEFICES, Collative, are those in the free disposal of the collator, and which need no confirmation; provided the party have the qualifications required.

BENEFICES in patronage, are those which the collator is obliged to confer upon those presented by the patron.

BENEFICES vacant in curia, are those, whose incumbents or beneficiaries die *in curia*, that is, within ten leagues round Rome.

BENEFICE, manual, is that depending on an abbey, and served by a religious sent thither, who is removeable at pleasure by the superior.

We also meet with *manual benefices*, *beneficia manualia*, used for those, where the daily allowances of provisions were only distributed to the residents.

These are also denominated *viſual benefices*, *beneficia viſualia*.

Possession of a BENEFICE; see **POSSESSION**.

BENEFICIARII, in *Roman Antiquity*, denote soldiers who attended the chief officers of the army, being exempted from other duty.

Beneficarii were also soldiers discharged from the military service or duty, and provided with *beneficia* to subsist on.

These were probably the same with the former, and both might be comprised in the same definition. They were old, experienced soldiers, who having served out their legal time, or received a discharge, as a particular mark of honour were invited again to the service, where they were held in great esteem, exempted from all military drudgery, and appointed to guard the standard, &c.

These, when thus recalled to service, were also denominated *evocati*; and before their recall, *emeriti*.

BENEFICIARII was also used for those raised to a higher rank by the favour of the tribunes, or other magistrates. The word *beneficiarius* frequently occurs in the Roman inscriptions found in Britain, where *consulis* is always joined with it; but besides *beneficiarius consulis*, we find in Gruter *beneficiarius tribuni, pretorii, legati, præfecti, proconsulis*, &c.

BENEFICIARY, in a general sense, something that relates to **BENEFICES**.

Rebuffe has collected six volumes on *beneficiary* matters.

F. Paul has also a treatise on them.

BENEFICIARY, beneficiarius, is more particularly used for a benefited person, or him who receives and enjoys one or more *benefices*.

BENEFICIARY is more particularly used, among *Roman Writers*, for a person exempt from public offices.

In which sense, **BENEFICIARI** stand contradistinguished from *municipes*.

BENEFICIARY is also used, in *Middle Age Writers*, for a feudatory or vassal.

BENEFICIARY is also used for a clerk or officer, who kept the account of the *beneficia*, and made the writings necessary thereto.

The same denomination was also given to the officers who collected the rents and duties belonging to the *fiscus*.

BENEFICIO; see **DEPRIVATION à beneficio**.

Suspensio à BENEFICIO; see **SUSPENSION**.

Primo BENEFICIO ecclesiastico habendo; see **PRIMO**.

BENEFIT is used for a privilege granted to some person, as of an immunity, or the like.

BENEFIT of cession, in the *French Law*, is when a debtor is admitted to surrender all his effects to his creditors, and in consequence thereof set at liberty.

BENEFIT of age, in France, is when a minor obtains the king's letters, whereby he is emancipated, and empowered to manage his own income from eighteen years to his full majority.

BENEFIT of Clergy; see **CLERGY**.

BENENAIM, **BENENATH**, **BENENASCH**, or **BENENAT**, in *Astronomy*, the outermost star, of the second magnitude, in the tail of the *URSA major*.

This is sometimes also called *alalicta*.

BENEVOLENCE, *Universal*, in *Ethics*, denotes a hearty desire of the good of mankind, evidencing itself, as ability and opportunity offer, in the cheerful and diligent practice of whatever may promote the well-being of all. Some have traced the origin of this affection in self-love: others again in some **INSTINCT** or determination of our nature, antecedent to all reason from interest, which influences us to the love of others, and they have accordingly made it the foundation of universal **VIRTUE**: others more properly ascribe it to the *intelligent* constitution of human nature, and observe, that it arises not from instinct, but from the natures and necessity of things. Hutcheson's *Inquiry concerning Moral Good and Evil*. Price's *Review*, &c. chap. iii.

BENEVOLENCE is used, both in our statutes and chronicles, for a voluntary gratuity given by the subjects to their sovereign, to which each person contributes in proportion to his estate: and as *benevolences* had been extorted under many succeeding princes, without a real and voluntary consent, it was made an article in the petition of right, 3 Car. I. that no man shall be compelled to yield any gift, loan, or *benevolence*, &c. without common consent by act of parliament.

In this sense, *benevolence* amounts to much the same with what in other nations is called *subsidiium charitativum*, given sometimes by tenants to their lords, by the clergy to their bishops, &c.—In France it is called *free gift*, excepting that this latter is restrained to the act of the clergy.

Among us, there are several statutes against charging the people with *benevolences*; see 1 Rich. III. c. 2. 13 Car. II. stat. 1. c. 4.

BENJAMIN, in *Pharmacy*, a resin. See *Asa dulcis*, and **BENZOIN**.

BENJAMIN tree, in *Botany*, a species of the **BAY**.

BENISH Days, among the Egyptians, a term for three days of the week, which are days of less ceremony in religion than the other four, and have their name from the *benish*, a garment of common use, not of ceremony.

In Cairo, on Sundays, Tuesdays, and Thursdays, they go to the bashaw's divan; and these are the general days of business. Fridays they stay at home, and go to their *mosques* at noon; but though this is their day of devotion, they never abstain from business. The three other days of the week are the *benish* days, in which they throw off all business and ceremony, and go to their little summer-houses in the country.

BENLOJA, in *Ichthyology*, the name by which the Swedes call that species of *CYPRINUS*, which we call the *bleak*. It is the *ALBURNUS* of authors.

BENNET Herb, in *Botany*; see **HERB Bennet**.

BENZOIN, a medicinal kind of resin, imported from the islands Siam and Sumatra, and several other parts of the East Indies.

Benzoin is the same with what is popularly called *benjamin* or *benjoin*, sometimes also *asa dulcis*.

It is procured by a wound, or incision made in a tree, whose leaves resemble those of the lemon-tree, the *croton bentzoi* of Linnaeus. The *benzoin* tree is plentiful in Virginia and Carolina, and has been brought from thence into England, where it grows with vigour in the open ground. The bark and leaves yield with rectified spirit a resin like *benzoin*, though this tree discharges none naturally in our climate nor in America. It is of a

yellowish colour, of an agreeable scent, and melts easily. There are three sorts of *benzoin*. The first is called *amygdaloides*, because of its being interspersed with several white spots, which resemble broken almonds: this comes from Siam, and is esteemed the best. The second is black, and very odoriferous; it drops from young trees, and comes from Sumatra; it is called *benzoinum de Boninas*. The third sort is also black, but less odoriferous; this is found on the islands of Java and Sumatra. See Geoffroy, p. 354.

Benzoin is used in physic, as a pectoral, and anti-asthmatic; and thrown on live coals, it serves to perfume houses, &c.

Some recommend *benzoin* dissolved in spirit of wine as a cephalic. It makes a tincture, commended for taking away freckles. It also enters the composition of some plasters, as a discutient and strengthener.

Pharmaceutic writers speak of a water and tincture of *benzoin*, drawn with the spirit of wine, said to be good against asthmas, &c. Flowers of *benzoin*, procured by sublimation, are esteemed a powerful pectoral, and, snuffed up the nose, are said to be a powerful errhine. Spirit of *benzoin* is used as a diuretic; and oil of *benzoin* is accounted a good vulnerary.

If two or three pounds of *benzoin* be distilled dry in a retort, with a mixture of little sand, there will arise spirit, oil, and flowers. This spirit being separated from the rest by filtration, and mixed with *sal ammoniac*, two parts of the spirit of *benzoin* to one part of the other, though both are separately clear and colourless, the mixture will become red. Phil. Trans. N^o 225.

The principal use of this fragrant resin, is in perfumes, and as a cosmetic for softening and smoothing the skin. For this last purpose it is dissolved in spirit of wine, with an addition sometimes of storax, and the solution mixed with water, makes a white liquor, which is called *VIRGIN's milk*.

BER, in *Botany*, a name used by some authors for the Indian *jube*; that species of the *jube*-tree, on which the gum *lacca* of the shops is usually found.

BERBENGINE, a name given by the *Arabian Physicians* to the *pomum amoris*, or *love-apple*, a kind of esculent nightshade; and by some to a tree producing the nut *metel*, because of its likeness to the plant which produces the *melongena* in the shape of its leaves.

BERBERI, in *Medicine*; see **PALSY**.

BERBERIS; see **BARBERRY-tree**.

BERCARIA, **BERQUERIA**, or **BERKERIA**, in *Middle Age Writers*, denotes a sheep-fold, sheep-cote, sheep pen, or other inclosure, for the safe keeping of a flock of sheep. The word is abbreviated from *berbicaria*; of *berbex*, deformed from *vervex*. Hence also a shepherd was denominated *berbicularius*, and *berquarius*.

BERCHEROIT, or **BERKCOITS**, a weight used at Archangel, and in all the Russian dominions. It is equal to about 364 pounds English avoirdupois.

BERDASH, in *Antiquity*, was a name formerly used in England for a certain kind of neck-dress; and hence a person who made or sold such neck-cloths was called a *berdasher*, from which is derived our word **HABERDASHER**.

BERDIN, in *Natural History*, a name given the **PATELLA**, or limpet, in Normandy, and other places. In some it is pronounced *berlin*.

BERENGARIANS, a religious sect, adhering to the opinions of Berengarius, archdeacon of Anjou, who, in the latter part of the eleventh century, a considerable time before Luther, opposed the doctrine of transubstantiation, and the real presence, strenuously maintained by Lanfranc and Anselm.

He is farther charged by the Romanists with decrying marriage, and maintaining the common use of all sorts of women, and asserting infant-baptism of no effect.

His followers were divided on the head of the eucharist: though they all agreed, that the bread and wine were not essentially changed, yet some allowed, that the body and blood of Christ were contained in them, though concealed under an impanation, which was the opinion of Berengarius himself: others denied any change at all, and resolved the whole into figure; others again allowed a change in part; and others an entire change with this restriction, that to those who presented themselves unworthily it was changed back again. See Mosheim's *Ecc. Hist.* vol. ii. p. 321, &c.

Mabillon has a dissertation express on the manifold condemnations of Berengarius, his retractions, relapses, and repentance.

BERENICE's Hair; see **COMA Berenices**.

BEREWICHA, or **BEREWICA**, in our *Old Writers*, denotes a village or hamlet belonging to some town or manor, situate at a distance therefrom.

The word frequently occurs in *Doomsday-book*: *Iste sunt berewichæ ejusdem manerii*.

BERFISCH, in *Ichthyology*, a name given by the Germans to the common **PEARCH**, or *perca*.

BERG-gruen, in *Natural History*, the name of an earth used in painting, and properly called *green ochre*, though not known among the colour men under that name. It is found in many parts of Germany, Italy, and England, commonly in the neighbourhood of copper-mines, from particles of which metal it receives its colour. The characters by which the native kind is known from other green earths, are these: it is a dense, compact substance, considerably heavy, and of a pale, but not disagreeable green; of a rough and uneven, but not dusty surface, and somewhat unctuous to the touch. It adheres firmly to the tongue: does not break easily between the fingers: nor at all stain the hands. It is of a brackish disagreeable taste, and does not ferment with acids.

BERGAMOT gives the denomination to a kind of essence, drawn from a fruit, produced by ingrafting the lemon-tree on the *bergamot* pear-stock. It is properly the oily fluid of the peels of these lemons, expressed by the fingers.

There is likewise a kind of snuff of the same name, which is only clean tobacco, with a little of the essence rubbed into it.

BERGAMOT is also the denomination of a coarse tapestry, manufactured with flocks of silks, wool, cotton, hemp, ox, cow, or goat's hair, and supposed to be invented by the people of Bergamo in Italy.

BERGANDER, in *Ornithology*, a name by which some have called the shell-drake, or burrough-duck, a very beautiful species of duck, common on the coasts of Lancashire; but not much esteemed for eating, called **TADORNA**.

BERGHMOT, or **BERGHMOTE**, vulgarly **BARMOTE**, a court held on a hill for deciding pleas and controversies among the Derbyshire miners.

The word is formed from the Saxon *berg*, *mons*; and *mote*, *conventus*, *assembly*, or *meeting*.

BERIBERI, the name of a disease among the Indians, being a species of **PALSY**.

BERICARIA, **BERCARIA**, or **BERQUARIA**, a sheep-down, or ground whereon to feed sheep.

BERITH, a simple mentioned in Scripture, used for cleansing or taking out spots. Jerem. chap. ii. ver. 22. Some will have it to be the *kali*, or salt-wort, from the ashes of which soap is made; and in our version it is rendered *soap*: others, after Rudbeck, make it to be the dye of the purple fish.

BERLIN, a sort of vehicle, of the chariot kind; taking its name from the city of Berlin, in Germany: though some attribute the invention of it to the Italians, and derive the word from *berlina*, a name given by them to a sort of stage, whereon persons are exposed to public shame.

The *berlin* is a very convenient machine to travel in, being lighter, and less apt to be overturned, than a chariot. The body of it is hung high, on shafts, by leathern braces; there being a kind of stirrup, or footstool, for the convenience of getting into it: instead of side windows, some have screens to let down in bad weather, and draw up in good weather.

BERLIN, in *Natural History*; see **LIMPET**.

BERLUCCIO, in *Ornithology*, the name of a small bird of the *hortulanus* kind, and much resembling the *yellow-hammer*; but something smaller, and longer bodied.

BERME, in *Fortification*, a small space of ground, four or five feet wide, left without the rampart, between its foot and the side of the moat, to receive the earth that rolls down from the rampart, and prevent its falling into, and filling up the moat.

This is also called *lisiere*, *relais*, *retraite*, *pas de souris*, *fore-land*, &c.

Sometimes for greater security, the *berme* is palisadoed.

BERMUDIANA, in *Botany*; see **SISYRINCHIUM**.

BERNACLE, in *Ornithology*; see **BARNACLE**.

BERNARD the *hermit*, in *Ichthyology*; see **SQUILL**.

BERNARDINS, or **BERNARDITES**, the name of a religious order, differing very little from the **CISTERCIANS**. Their usual habit is a white gown, with a black scapulary; but when they officiate, they put on a large white cowl with great sleeves, and a hood of the same colour.

BERNHARDIA, in *Botany*, a name given by Houston to a genus of plants, characterised by Linnæus under the name of **CROTON**.

BERNICLE, in *Natural History*, the name of a species of shell-fish, called by authors *CONCHA anatifera*.

This is composed of five shells or valves, and agrees, according to Lister, with the *pholas*, as well in the disposition as in the number of the valves. List. Hist. Nat. p. 360.

BERNICLE is also a name given by the people of many parts of France to the *patella*, or **LIMPET**.

BEROE, in *Natural History*, is a marine animal found on

our coasts, of a gelatinous transparent nature, and of an oval or spherical form, about half an inch to an inch diameter, divided like a melon into longitudinal ribs; each of which is furnished with rows of minute fins, by means of which this animal, like the *animalia infusoria*, can swim in all directions with great swiftness. The excellent Linnæus, says Mr. Ellis (who gives the above mentioned description of this animal), has joined the *beroe* to the *volvax*, one of the *animalia infusoria*.

BERRY, *bacca*, a grain, fruit, or seed, produced by several herbs, trees, and shrubs, thence called **BACCIFEROUS**, for the conservation, and reproduction of their kind.

Some define *berries* as a fruit smaller than apples, growing in bunches, but not so thick or close as grapes. Others a soft, fleshy, succulent fruit, having stones or kernels within them.

Such are the fruits of laurels, olives, currants, and the like.

Berries are of various sizes, forms; properties, and uses, according to the plants whereon they grow—Some are used in medicine, as juniper *berries*, buckthorn *berries*, &c.—Others in dying, as French or yellow *berries*, &c. The yellow *berry* wath may be thus prepared: take a pound of the French *berries*, and put them to a gallon of water, with half an ounce of alum; boil them an hour in a pewter vessel, and filter off the fluid; put them again into the boiler, and evaporate the fluid till the colour appear of the required strength.

BERRY likewise denotes a pulpy *pericarpium*, without valves; in which the seeds are naked.

BERRY, *Avignon*; see **AVIGNON**.

BERRY, *Ale*; see **ALE**.

BERS, in *Ancient Medicine*, an electary used by the Egyptians to excite deliriums.

BERSARII, in *Writers of the Middle Age*, a kind of hunters or sportsmen, who pursued wild beasts in forests and chaces.

The word seems derived from the barbarous Latin *bersare*, to shoot with a bow. On which principle, it should properly denote archers only, or bowmen. Or it might be derived from *bersa*, the fence or pales of a park. In which view, it should primarily import those who hunt or poach in parks or forests.

Hincmar speaks of a kind of inferior officers in the court of Charlemagne, under the denomination of *bersarii*, *veltrarii*, and *beverarii*. Spelman takes the first to denote those who hunted the wolf; the second, those who had the superintendency of the hounds for that use; and the third, those who hunted the beaver.

BERSE, in *Botany*, the name given by the French writers to the *sphondylium*, or *cow-PAARSNEP*, a species of umbelliferous plants common in our meadows, and known by its large rough leaves and remarkable height.

BERTH, in the *Sea-Language*, denotes a convenient distance or room to moor a ship in.

To take a good **BERTH**, signifies to go some distance to sea-board off any point, rock, or other thing which the seamen would go clear of.

BERTHING, in the *Sea-Language*, denotes the raising or bringing up of ship-sides. Thus they say, a clincher hath her sides *berthed* up before any beam is put into her.

BERTONA, **BERTONIA**, **BERTHONA**, **BERTON**, or **BARTON**, properly denotes that part of a country farm where the barns and other inferior offices stand, and wherein the cattle are foddered, and other business is managed.

BERTON is also used to signify a farm, as distinct from a manor. Du-Cange.

In some parts of the West of England, they call a great farm a *berton*; and a small one a *living*.

Hence also *bertonarii* was anciently used for those we now call farmers, or tenants of *bertons*.

BERULA, in *Botany*, a name given by some authors to the common upright water-parlnep, or *sum erectum umbellatum*. See **SKIRRET**.

BERUS, a species of the **COLUBER**.

BERY, **BERIA**, or **BERIE**, in *Middle Age Writers*, denote a flat, wide campaign.

In which sense, the word differs from *bury* or *borough*, a town, though usually confounded with it by glossographers. Hence *Beria* S. *Edmundi*, mentioned by Matt. Paris under the year 1174, is not to be understood of the town, but of the adjoining plain.—And hence the denomination *berry-field*, and *berry-meadow*, is still retained to divers flat and wide meads, and open grounds. Hence also *berras affartare* is to dry or plow up heaths or downs. And hence our warrens are called *coney-beries*.

Bery is either used separately, or in composition with the names of divers places; as *Mixbery*, *Acornbery*, &c.

BERYL, or **BERYLL**, *βερύλλος*, in the *Ancient Physiology*, denotes a transparent stone, or gem, brought from India;

of a light, or pale green colour; infomuch that some have represented it as of two colours, the one green, the other pale.

The *beryl* of the ancients is the same with what in latter times has been denominated *AQUA marina*, by reason of its glaucous, or sea-green colour.

The *beryl* differs from the *chrysoberyl*, which is somewhat paler, and partakes more of the yellow; and from the *chrysophrasus*, which partakes more of the green.

Some authors take the *beryl* to be the diamond of the ancients.

The *beryl* is sometimes found in pieces large enough to form fine vases. It is said there are many of these in Cambaya, Martaban, Pegu, and Ceylon.

The *beryl*, in its finest state, approaches to the hardness of the garnet; but it is often much softer, and consequently of the less value. There is, however, a common error which gives our jewellers an idea of this, and other of our gems, being much softer than they really are, which is, the mistaking of the common tinged crystals frequent in mines and called by authors *pseudo-beryllus*, &c. for the genuine gems of those names. It is easy to conceive these cannot be any harder, and it is natural enough to suspect they cannot be so hard as crystal in its common colourless state.

The *beryl* parts with its colour in a very small fire; but is when colourless, greatly inferior to the amethyst or sapphire. It is found in great abundance in the island of Ceylon, and in many other parts of the East Indies, as also in America: many of them are found also in Silesia, and some other parts of Europe; but in this, as in all other gems, the oriental are vastly superior to those of any other part of the world in hardness, as well as in lustre, and the beauty of their colour.

Goræus gives a list of eight sorts of *beryls*, distinguished only by the diversity of their colour.

Mr. Boyle also speaks of a white kind of *beryl*.

BERYL is also a name given by several of our jewellers to a species of brown sprig crystal, with a remarkably long pyramid.

This is the brightest of all the brown crystals, and is essentially different from the species commonly known by that name. It is found in Italy, and some parts of Germany. The Italians call it, by way of eminence, the *beryl crystal*; but our jewellers drop the word crystal, and call it simply the *beryl*. Hence any tolerably clear brown crystal was some time ago cut, to supply its place; and good brown crystal was generally accounted the *beryl* of the ancients.

BERYL, *beryllus*, is also a name given to a kind of crystal looking-glass, superstitiously consecrated to the purposes of conjuring and divination.

Hence also the term *berillystica*, used for the mysterious art of seeing future or distant events in such glasses.

BERYTIUM, in the *Ancient Physic*, an ophthalmic medicine or collyrium, invented by Berytius against the severest epiphoras.

The same denomination is also given to a sort of pastil, of use in dysenteries.

BES, or **BESSIS**, an ancient Roman weight, containing two thirds of the *As*; that is, eight *uncia*.

The *bes* originally weighed two asses; whence the origin of the word *quasi binus as*. Though Scaliger conjectures it to have been formed from *dues*; as *bellum* from *duellum*, or *bonum* from *duonum*.

BES was also used in the mensuration of lands, to denote two thirds of a *jugerum*, or acre.

BESAILE, in the *Common Law*, a writ that lies where the great-grandfather or great-grandmother was seized the day that he or she died of any lands or tenements in fee-simple; and after his or her death, a stranger entered the same upon him, and keeps out the heir.

The word is French, *besaile*, or *bisayeul*, a great-grandfather.

BESANT, or **BEZANT**, **BISANT**, or **BYZANT**, a sort of coin, struck at Byzantium, in the time of the Christian emperors.

The *besant* was pure gold, or twenty-four carats fine: but writers are not generally agreed with respect to its value.

Hence also the gold offered by the king at the altar, on festivals, is still called *besant*, or *bisant*.

Thirteen *besants*, or *bisantins*, are presented at the mass at the coronation of the kings of France. Henry II. had that number coined on purpose.

BESANTS, or **BEZANTS**, in *Heraldry*, are representations of round, flat pieces of money or bullion, without stamp or impress, introduced into coat-armour by those who were at the holy war.

Besants are ever of metal, and when blazoned, should be expressly said to be of *or*, or *argent*. The English heraldry knows only the gold; but foreigners have also the silver kind.

When a field or charge contains above eight *bezants*, so

placed as to fill the same equally on all sides, and representing a promiscuous strewing of pieces over the whole, some blazon the field or charge *bezanted*, *bezantée*: but if there be ten, twelve, fifteen, or more, confined to any particular form or position, the number and form must be particularly mentioned. Coat's Dict. Her. p. 49.

Cross BESANTED, *bezantée*, denotes a cross made up of *besants*, or pieces of money.

This amounts to the same with what Upton calls a *cross talented*, *crux talentata*, or made up of talents.

BESBASE, in the *Materia Medica*, a name given by the Arabian writers Serapion and Avicenna to mace; but as the names *macis* and *macir* are very much alike in sound, though different in sense, they have confounded these two things under the same term *besbase*; the one meaning the covering of the nutmeg, and the other the bark of a tree used as an astringent; so that this word *besbase* is to be understood as meaning the one or the other of these according to the virtues ascribed to it.

BESD, a term often used by Arabian writers for the plant called **MARGIAN**.

BESLERIA, in *Botany*, the name given by Plumier, and afterwards by Linnæus, to a genus of the *didynamia angiospermia* class of plants; the characters of which are these: the flower is of the lip kind, and of one leaf; it hath four *stamina* in the tube of the flower, two of which are longer than the other; with an oval *germen*, which afterward becomes an oval berry, with one cell filled with small seeds. There are three species which grow naturally in the warm parts of America, but are too tender to live in this country, without artificial heat.

BESORCH, a coin of tin, or of some alloyed metal, current at Ormus, at the rate of about $\frac{2}{3}$ parts of a farthing sterling.

BESSIS *centesima*, denotes two thirds of centesimal interest, or usury at eight per cent.

BESTAIL, or **BESTIAL**, in *Ancient Statutes*, is used for **CATTLE**. 5 Ed. III. c. 2.

BESTARCHA, a dignity in the courts of the emperors of Constantinople, supposed to answer to that of the *master of the wardrobe* among us.

The word *bestarcha* seems to have been formed from *vestarcha*, by a change of the *v* into *b*.

BESTIARI, among the *Ancient Romans*, those who were hired to combat with beasts, or those who were exposed to them, by sentence of law.

We usually distinguish two kinds of *bestiarii*: the first were those condemned to the beasts; either as being enemies taken prisoners, or as being slaves, and guilty of some enormous crime.—These were all exposed naked, and without defence to the beasts; nor did it aught avail to conquer and kill the beast, fresh ones being continually let loose on them, till they were dead. But it seldom happened, that two were required for the same man; on the contrary, one beast frequently dispatched several men. Cicero mentions a lion, which alone dispatched two hundred *bestiarii*.—Those who succeeded the first were called *εφεδροι*, and the last *ερχαλι*; among the Romans, *meridiani*.

The Christians were *bestiarii* of this kind, even some of them who were Roman citizens; though it was the legal right of such to be exempt from it.

The second kind of *bestiarii*, Seneca observes, consisted of young men, who, to become expert in managing their arms, fought sometimes against beasts, and sometimes against one another; and of braveoes, who, to shew their courage and dexterity, exposed themselves to this dangerous combat. Augustus encouraged this practice in young men of the first rank; Nero exposed himself to it; and it was for the killing beasts in the amphitheatre, that Commodus acquired the title of the *Roman Hercules*.

Vigenero to these adds two kinds of *bestiarii* more: the first were those who made a trade of it, and fought for money; the second was where several *bestiarii*, armed, were let loose at once, against a number of beasts.

BETA, in *Botany*, the **BEEET**.

BETEL, in *Botany*, an Indian plant in great use and esteem throughout the East, where it makes a considerable article of commerce.

The *betel* bears some resemblance to the pepper-tree. Its leaves are like those of ivy, only softer, and full of red juice, which, among the Orientals, is reputed of wonderful virtue for fortifying the teeth, and rendering the breath sweet. The Indians are continually chewing these leaves, which renders their lips so red, and teeth black, a colour by them vastly preferred to the whiteness affected by the Europeans.

The consumption of *betel* leaves is incredible, no body, rich or poor, being without their box of *betel*, which they present to each other by way of civility, as we do snuff. In many places they chew the *areca* nut, either alone or mixt with the *betel* leaf and lime, and the leaves of this plant

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plant are sometimes chewed alone; but they are too sharp, and usually injure the teeth, and it is not uncommon to find men of twenty-five wholly toothless in this part of the world, merely from their having chewed this plant to an excessive degree. The prepared *betel* is a very common present among the poorer sort; and, on taking leave of a friend, it is always the custom to make him a present of a purse of the leaves prepared for use. When the poorer sort are to appear before the rich, they always chew a large quantity of *betel*, to give them a sweet breath; and the women, on certain occasions, never fail to take largely of it as a provocative. On all visits, the company is regaled with prepared *betel*. The principal time of using it is after dinner, at which time they say, it prevents sickness at the stomach; and they never abstain from it, except on the solemn occasions of the funerals of their relations, and their days of fasting. Moderately used, it strengthens the gums, corroborates the heart and stomach, discusses flatulencies, and purges both the stomach and brain. If chewed after breakfast, it makes the breath sweet for the whole day. The Portuguese women are as fond of the *betel* as the Indians themselves, and cannot live a day without it.

BETELGEULE, or **BEDELGAEZE**, a fixt star of the first magnitude in **ORION**'s hind-shoulder.

BETH, in *Literary History*, makes the title of a multitude of books in the Hebrew language; e. gr. *beth avoth*, or *the house of the fathers*; *beth Elohim*, or *the house of God*; *beth Israel*, or *the house of Israel*, &c.

BETHLEHEM star, in *Botany*; see **STAR** of *Bethlehem*.

BETHLEHEMITES, or **BETHLEMITES**, in *Church History*, a sort of monks introduced into England in the year 1257, habited like the Dominicans, except that, on their breast, they wore a star with five rays, in memory of the star or comet which appeared over Bethlehem at the nativity of our Saviour. They were celled at Cambridge, and had only one house in England.

There is also an order of *Bethlemites* still subsisting in Peru, who have convents at Lima; one called of the incurables, the other of our Lady of mount Carmel.

These *Bethlemites* came originally from the city of Guatemala in Mexico, where they were instituted by the venerable Peter Joseph of Betaneur, for the service of the poor. Innocent XI. in 1687, approved the institute. They have already nine convents in Peru.

The *Bethlemites*, though outwardly of great simplicity, pass for the most refined politicians; inasmuch as to be called the quintessence of the Carmelites and Jesuits. They are all friars. For their almoner they choose a secular priest, whom they hire, and who has no vote in the chapter.

BETON, a name given by the French engineers to a kind of mortar, which they use in raising the foundations of masonry under water. It consists of twelve parts of pozzolana, or Dutch terrass, six of good sand, nine of unslaked lime, thirteen of stone splinters about the size of an egg, and three of tile dust, or cinders, or scales of iron out of a forge; this being well worked together, is left to stand for about twenty-four hours, or till it becomes so hard as not to be separated without a pick-ax.

BETONY, **BETONICA**, in *Botany*, a genus of plants, of the *didynamia gymnospermia* class; the characters of which are these: the flower is of one leaf, of the lip kind, with a cylindrical incurved tube; the upper lip is roundish, plain, erect, and entire; the lower lip is cut into three parts. It hath four *stamina*, two long, and two shorter, which incline to the upper lip. The *germen* is quadripartite, which afterward becomes four naked oval seeds, lodged in the empalement. Linnæus enumerates four and Miller seven species.

The officinal *betony* has been celebrated for abundance of medicinal virtues, but does not promise to have any considerable activity. Its principal use is in herb snuffs, and as a substitute for tea. Its root, like the root of hellebore, operates both upwards and downwards.

Betony is esteemed a good cephalic, vulnerary, cardiac, diuretic, and dryer. Some also make *betony* a good splenic, hepatic, thoracic, uterine, &c.

The Italians, when they would praise any body, say, *tu hai piu di virtu che non ha betonica*; that is, *you have more virtues than betony*; and proverbially desire, *vende la tunica & compra la betonica*; that is, *sell your coat and buy betony*.

Ant. Musa, physician of the emperor Augustus, wrote a treatise express, *De Betonica*, still extant; wherein he commends it greatly as a vulnerary, especially in wounds of the head, and enumerates its uses in the cure of no less than forty-seven diseases.

Betony is chiefly administered in the way of decoction, sometimes of smok, sometimes as an ingredient of a cerat or plaster, hence called *emplastrum de betonica*. Some also give its juice, boiled to the consistence of honey, mixt with a little balsam of Peru, as a pectoral healer.

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Foreign dispensaries also give the preparations of a *betony* water, a syrup, conserve, and extract of *betony*.

BETONY, *Water*, in *Botany*; see **FIG-wort**.

BETONICA *Pauli*, in *Botany*, a name given by many to some of the species of the *veronica*, or **SPEEDWELL**.

BETROTHMENT, a mutual promise or compact between two parties for a future marriage.

The word imports as much as giving one's troth; that is, true faith, or promise.

Betrothment amounts to the same with what is called by civilians and canonists *sponsalia*, or *espousals*; sometimes *desponsation*; and by the French *fiançailles*.

Betrothment is either solemn, made in the face of the church, or private, made before witnesses out of the church. To *betroth* by giving *arrhæ*, or earnest, is called by *Middle Age Writers*, *subbarrare*.

The nuns of the *Annunciada* hold an annual feast, in honour of the desponsation, or *betrothment* of the Virgin Mary to Joseph.

BETULA, in *Botany*, the **BIRCH**.

BEVEL, in *Masonry*, and among *Joiners*, a kind of square, one leg whereof is frequently straight, and the other crooked, according to the sweep of an arch, or vault; being withal moveable, on a point, or centre, so that it may be set to any angle.

The make and use of the *bevel* are pretty much the same as those of the common square and mitre, except that these latter are fixed; the first at an angle of ninety degrees, and the second at forty-five; whereas the *bevel*, being moveable, may, in some measure, supply the office of both, and yet, which it is chiefly intended for, supply the deficiencies of both, serving to set off, or transfer angles, either greater or less than ninety, or forty-five degrees.

Bricklayers have also a *bevel*, by which they cut the under sides of the bricks of arches straight or circular, to such oblique angles, as the arches require, and also for other uses.

BEVEL, *Graduated*, is that which has about the centre of one of its arms a semicircle graven, and divided into 180 degrees, whose diameter stands square with the sides of the same arm; so that the end of the other arm, being divided at right angles, almost to the centre, shews by its motion the number of degrees contained in the angle to be measured.

This is also called *recipiangle*, and *pantameter*.

BEVEL angle is used among the workmen, to denote any other angle beside those of ninety or forty-five degrees.

BEVELLING, in *Ship-building*, the art of hewing timber with a proper and regular curve, according to a mould which is laid on one side of its surface.

BEVERAGE, in a general sense, signifies drink. Hence nectar is said to be the *beverage* of the gods. In *Writers of the Middle Age*, *beverage*, *beveragium*, or *biberagium*, denotes money given to an artificer, or other person, to drink, over and above his hire or wages. Du-Cange.

BEVILE, in *Heraldry*, denotes a thing broken, or opening like a carpenter's rule.—Thus he beareth argent a chief *bevile* vert, by the name of *Beverlis*. Vide *Tab. Herald. fig. 8*.

BEWITS, in *Falconry*, denotes pieces of leather to which a hawk's bells are fastened, and buttoned to his legs.

BEXUQUILLO, in the *Materia Medica*, a name given to the white *ipecacuanha*, which the Spaniards bring from Peru, as the Portuguese do the brown from Brasil.

BEY, or **BEG**, denotes a governor of a country, or town, in the Turkish empire.

The Turks write the word *begh*, or *bek*, but they pronounce it *bey*: properly it signifies *lord*, but is particularly applied to a *lord of a banner*, whom in the same language they call *sangiakbeg*, or *bey*; *sangiak*, which among them signifies *banner*, or *standard*, being the badge of him who commands in an important place of some province, having under him a considerable number of spahis, or horse.

Each province in Turkey is divided into seven of these *sangiaks*, or banners, each of which qualifies a *bey*; and these are all commanded by the governor of the province, whom they also call *beghiler-beghi*, or *beyler-bey*, i. e. *lord of the lords* or *beys* of the province.

These *beys* are, in a great measure, the same that *bannerets* formerly were in England.

BEY, of Tunis, denotes a *prince*, or *king* thereof; answering to what at Algiers is called the *dey*.

In the kingdom of Algiers, each province is governed by a *bey*, or vice-roy; who is appointed and removed at pleasure by the *dey*; but has a despotic power within his jurisdiction; and at the season for collecting the tribute from the Arabs, is assisted by a body of troops from Algiers.

BEZANT; see **BESANT**.

BEZANTLER, among *Sportsmen*, that branch of a deer's horn next below the brow antler.

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BEZOAR, or **BEZOARD**, primarily denotes an antidote, or counter-poison.

The word is formed from the Persian *pa-zabar*, which denotes the same; *pa* signifying *against*; and *zabar*, *poison*.

In this sense the name is applied to divers chemical compositions of that intention; as the *mineral*, *solar*, and *jovial bezoards*.

Some have also given the appellation *animal bezoard*, to a powder, made of the heart and liver of vipers, pulverized together.

BEZOAR, or **BEZOARD**, in a more proper sense, denotes a medicinal stone, brought from the East or West Indies, composed of several coats, or *laminae*, laid one over another, like an onion, generated in the stomach of an animal of the goat kind, and esteemed a powerful antidote and cardiac. See *ÆGAGROPILUS*.

This is sometimes also called the *true bezoar*; and is of two kinds *oriental* and *occidental*.

BEZOAR, *Oriental*, is in the most esteem, and is brought from several parts of the East Indies, chiefly Golconda and Cananor: it is there found mingled with the dung of an animal of the goat kind, called *pazan*; in the belly whereof this stone is found.

There is generally, if not always, some foreign body in the centre of the *bezoar*, around which, as a *nucleus*, the bezoartic coats, or *strata*, are ranged; as straws, hair, marcasites, pebbles, talc, sand, &c. and stones like cherry-stones; but the common *nucleus* is the pod of a fruit much like that of the *ACACIA vera Egyptiaca*; though at first sight it resembles a *caffia*, or tamarind-stone. This fruit being taken into the stomach, causes, by its astringency, a condensation of the liquors it there meets with, from which in time arises the *bezoar*. Phil. Trans. N° 282. p. 1284.

In some of the stones also found on this *nucleus*, the outer membrane of the bean having perished, and the bean shrunk in drying, there remains a vacuity between it, and the next coat of the *bezoar*; so that it rattles within it, when shaken, in the manner of an *ætites*.

The formation of the *bezoar* seems to be this, that the undigested matter, be it what it will, remaining in the stomach of the animal, irritates the glands, and makes them discharge their contents, which, mixing with the juices of the stomach, impregnated with the virtues of the aromatic plant on which the animal feeds; these may together collect, and harden by degrees about this substance. In fine, their coats surrounding one another; the consequence of which must be, that the whole *bezoar* must be of the shape of the accidental matter, on which it was formed. If it be a straw, the *bezoar* will be long; if a small pebble, the *bezoar* will exactly be of its shape, however irregular that be; and, if a kidney bean, there will be seen on the *bezoar* the several lineaments of that fruit. Mem. Acad. Paris 1711.

The stones produced by each animal may be felt and numbered on the outside, by which in trade the price of the animal is regulated.

Bezoar ordinarily grows to the bigness of an acorn, sometimes to that of a pigeon's egg: it is composed of several shining skins, or coats, like an onion, sometimes of a blood colour, sometimes a greenish yellow, a brownish red, and honey colour.—The number of *bezours* produced by each animal is various, some yielding one, two, &c. to six, and others none at all.

The larger the stone, the more valuable it is held; its price increasing like that of the diamond.—A stone of one ounce is sold in the Indies for 100 livres, and one of four ounces and a quarter for 2000 livres.

The genuine *bezoar* stones are so scarce even in the Indies, that few, if any of them, are brought into Europe. The greater number are no other than artificial compounds made there. These, which are supposed to be genuine, Mr. Neumann observes, are compounded of plaster of Paris, chalk, or other earths, impregnated with a vegetable green tincture: those which are acknowledged to be counterfeit, are formed chiefly of resinous substances, and are distinguishable by their liquefying in the fire, and dissolving in spirit of wine. He never could discover in either of these any mark of an animal nature. Chemical Works, by Dr. Lewis, p. 533, &c.

Oriental bezoar must be chosen glossy, of a smell like that of ambergrise, smooth to the touch, and in large pieces; its figure is indifferent, its colour usually olive.

Bezoar is easily sophisticated; but the deceit is as easily discovered. The methods of proving it are, 1st, To steep it three or four hours in luke-warm water; if the water be not tinged, nor the *bezoar* lose of its weight, it is pure. 2dly, To try it with a sharp, red-hot iron; if it enters the stone, and the heat makes it fry and shrivel, it is factitious. 3dly, To rub it over a paper smeared with chalk, or quick-lime; if it leave a yellow taint

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on the former, or a green one on the latter, it is good.

We are, however, told of *artificial bezours* in the isle of Ormus, made so dexterously, as not to be discernible from the *natural*, unless they be first broken. *Bezoar* is said to be adulterated among us with powders, rosin, and mucilage. Le Mort describes a factitious *bezoar*, resembling the native one, and shews how it may be prepared, from the magistrery of alexipharmic herbs.

The true oriental *bezours* were, about eighty years ago, so common in Cananor, that those of the bigness of a pigeon's egg were frequently brought to market at six or seven reals a piece, and those of the bigness of a hen's egg at twelve reals. The method of trying the genuineness of the *bezoar* by water, was first brought into use in that place.

Bezoar is given in vertigoes, epilepsies, palpitations of the heart, jaundice, colic, and so many other diseases, that were its real virtues answerable to its reputed ones, it were doubtless a *panacea*. Indeed, its rarity, and the peculiar manner of its formation, have contributed as much to its reputation, as any intrinsic worth. At present it begins to be prized less, and a great many able physicians regard it, as of no use or efficacy at all.

BEZOAR, *Occidental*, is heavier, more brittle, of a dirtier green colour, as also less glossy, and generally held much inferior in virtue to the oriental kind.—It is said to be found in the belly of several animals, especially in Peru; as the *guanacos*, *jachos*, *vicunnas*, and *taraguas*; the *bezoar* of which last is the most esteemed, this animal being much like the goat that produces the oriental. But that of the first is more common, viz. the *guanacos*, a creature about the size of a horse, by some described as a species between a camel and a wild goat.

In some, this stone is of the bigness of a nut, in others of a pullet's egg: in some it is oval, in others flat, in others round; it is usually of an ash-colour, sometimes dusky; and formed of scales, like the oriental, but much thicker: it is smooth and even without-side, but when broken, looks as if it had been sublimated, by reason of the little shining needles whereof it appears to be composed.

This kind of *bezoar*, Mr. Neumann apprehends, is more likely to be an animal production than the former, as it yields in distillation some small portion of volatile urinous matter. Chem. Works, p. 537.

BEZOAR, in a more extensive sense, includes all animal substances formed *stratum super stratum*, in the stomachs or intestines of animals. Geoffr. in Mem. Acad. Scienc. 1712. p. 268.

In which sense, pearls, the stones found in *castoreum*, &c. belong to the class of *bezours*. Fonten. Hist. Acad. Scienc. 1717, p. 32.

Human *bezours* are stony substances found in the intestines of several persons, formed from the stones of plums, or other fruits, retained in the *cacum*, or other guts, and growing coated over; of which we have an instance given by Dr. Cole, Philos. Transact. N° 235. p. 30.

To this kind also belong the *hippolithos*, or *bezoar equinum*, a sort of stone sometimes voided by these creatures by siege. Ibid. N° 250. p. 99.

BEZOAR, *German*, which some call *cow's egg*, is said to be found in the stomach of some cows, but more frequently in that of the *chamois*, a sort of *rupicapra*, or wild goat.

These *bezours* are supposed to be nothing else but the hair of those animals, which being occasionally licked off by the tongue, is swallowed down, and being impregnated with the *saliva*, &c. is condensed into balls.

Some of them weigh eighteen ounces; but they are not much esteemed, though they are used in some medicines, and by the painters in miniature, to make a yellow colour.

Besides these, there are other kinds, viz.

The *Hog* or *Boar* **BEZOAR**, called by the Dutch, *pedro de porco*; and by the Portuguese, who first brought it into Europe, *pedro de vaparis*, found in the gall-bladder of a boar in the East Indies.

In figure and size it resembles a filberd, though more irregular; its colour not fixed, but most commonly white, with a taint of green; it is smooth and shining; and is valued at ten times its weight in gold.

The Indians attribute infinite virtues to this *bezoar*: they call it *massica de soho*, and prefer it to the goat *bezoar*; not so much on account of its being supposed the best preservative in the world against poisons, as on account of its being sovereign in the cure of the *mordaxè*, a disease they are very liable to, and which is not less dangerous than the plague in Europe. Other properties which they ascribe to it are, that it is admirable against malignant fevers, small-pox, and most diseases of women not with child; experience shewing, that it promotes

notes abortion in those who are, if they use it indistinctly. To use it, they infuse it in water, or wine, till it has communicated a little bitterness to it. To facilitate the infusion, and at the same time preserve so precious a stone, they usually set it in a gold case pierced with holes.

The *Porcupine* and *Monkey* BEZOARS only differ from those of the hog, in that they are found in the gall-bladders of those animals; unless we say with Tavernier that these two which he calls *Malacca-stones*, are not taken from the gall bladders, but from the heads, of the monkey and porcupine, and that they are held in such esteem by the natives of Malacca, that they never part with them, unless as presents to ambassadors, or the greatest princes of the East.

The *bezoar* of the ape, and that of the porcupine, called *piedra del porco*, have been valued most. Single stones have been sold for sixty and eighty pounds sterling. Neumann.

Some add, that they are likewise found in Siam.—Indeed, the form, colour, and properties of these three *bezoars* are so near akin, that it is more than probable, they are all the same stone under three different names.

The *cow bezoar*, in the Chinese cabinet, in the repository of the Royal Society, though composed of *laminae* or coats, is apparently factitious, because it melts, when applied to the candle. Sloane, Phil. Trans. N^o 250. p. 70.

The forms in which *bezoars* appear, when genuine, are very different; the most frequent figure is round, but many are oblong; some of the shape of a kidney, and some perfectly irregular: they are of a greenish, or olive colour, and are spotted with pale, or whitish spots in different places; when tried by burning, they are found to be easily inflammable, and to contain a volatile salt, and an oil; and the *residuum* much resembles the *caput mortuum* left in the retort, after the distillation of different animal substances; a gentle heat will often make the several beds or *laminae*, of which a *bezoar* is composed, separate from one another. If *bezoar* stones are put to infuse in spirit of wine, or in common water, both liquors will thoroughly penetrate their substance, but neither will receive any change from them.

BEZOAR *goat*, in *Zoology*, a name used for the Indian ANTELOPE, on account of the *bezoar* stone found in its stomach.

BEZOAR is also applied to a kind of fossil figured stone, formed like the animal *bezoar* of several coats, or *strata*, ranged round some extraneous body, which forms a *nucleus*, and is supposed to have the same virtues with the other. Mem. Acad. Scienc. an. 1710. p. 316.

It is found in Italy, especially Sicily; and in France, especially Languedoc. We have also instances of it in England. Woodw. Nat. Hist. Eng. Foss. tom. ii. p. 9

The fossil, or mineral *bezoar*, is a crustated ferruginous body.

The Sicilian *bezoar*, or *bezoar minerale Siculum*, is by some, with Boccone, taken for a species of *geodes*, from which Dr. Woodward distinguishes it, as well as from the *enhydros* and *aites*, in that it has properly no cavity with matter in it, as those bodies have. Phil. Trans. N^o 331. p. 406. and N^o 249. p. 54.

Boccone mentions *nuclei* of different matters, as flints, gravel, wood, metal, coal, &c. M. Geoffroy even found rock crystal in the middle of a mineral of this species, called *priapolites*.

BEZOARDIC is applied to certain medicinal powders, stones, &c. wherein *bezoar* is an ingredient.

To the class of *bezoardic* powders belong, the Gascoyn's, and countess of Kent's powders, and others formed thereof. Among *bezoardic* stones is found the *lapis de Goa*, or *Goa stone*. We also meet with *bezoardic* tinctures given in fevers, &c.

BEZOARDIC is more generally applied to all medicines endowed with a powerful alexiterial virtue, used for expelling poisons, and other malignities.

In this sense, *bezoardics* are either simple or compound, and derived either from the vegetable or animal kingdoms. The chief in the vegetable kind is the root of *anthora*, or *contrayerva*; and in the animal kingdom, hartshorn, or, according to some, the unicorn's horn.

Among the compound kind, the *tinctura bezoardica Michaelis* is in much repute, at least abroad. Salt of hartshorn is by some called *bezoar septentrionalis*. Willius has a poem on the use and abuse of the northern *bezoar*.

BEZOARDICA *terra*, a name used by some authors for a medical earth dug in the pope's territories, and more frequently called *TERRA noceriana*.

BEZOARDICUM *Minerale*, or *Mineral BEZOAR*, is a preparation of antimony corrected with spirit of nitre, and softened by repeated lotions, which carry off the purgative virtue, and substitute a diaphoretic one; by which it promotes sweat, like the stone of that name. See *Butler of ANTIMONY*.

It appears to have been the invention of Basil Valentine, though later chemists have given other processes for preparing it. It is much adulterated, by adding to it half, or two thirds, the quantity of *sal ammoniac*.

Sylvius first ventured to introduce it into medicine, and frequently gave it with very bad success. Yet many are to this day persuaded with him, that it is possessed of wonderful antidotal virtues, as being obtained innocent and harmless from that violent poison, butter of antimony; whence they conclude, it must needs have a magnetical power of attracting to itself, like the *bezoar* stone, all the poison in the body.

Boerhaave, however, contests all its virtues, chiefly from the manner of preparing it. The acid of the antimony, he argues, being driven away by the violence of the fire, nothing remains but the sluggish and calcined metalline part, which, though dignified with the name of *mineral bezoar*, is destitute of all medicinal virtues, and only serves to oppress the body by its gravity, being perfectly indigestible therein. Meth. Chym. P. iii. p. 318.

From the *bezoar mineral*, mixed with other metals in various ways, with or without detonation, arise other compound *bezoardics*, which is a common appellation in Germany, &c. for all medicines supposed to be of alexipharmic powers. Neumann, p. 533.

BEZOARDICUM *solare*, a name given by the chemists to a preparation of gold. It is made by dissolving plates of gold in the *spiritus nitri bezoardicus*, and fixing it by pouring it on butter of antimony. It is said to be a great sudorific, and of great use in the pox, the plague, the gout, the dropsy, fevers, and obstructions of the spleen. Its dose is from three to eight grains.

BEZOARDICUM *Veneris*, *bezoar* of copper, a name given by the chemists to a preparation of copper, made by extracting a tincture from the filings of copper, with rectified butter of antimony, and fixing it according to art with spirit of nitre. It is given by some in leprosy, and diseases of the head and brain. Its dose is six grains. Externally it is of use in old ulcers, fistulas, and impetigoes.

BEZOARDICUM *Saturni*, *bezoar* of lead, the name given by the chemists to a preparation of lead; it is made by extracting a tincture from glass of lead, prepared from red lead and flints, and mixing this with unrectified butter of antimony, and fixing it by means of spirit of nitre. It is esteemed an anti-hysterical, and is said to be good in disorders of the spleen; the dose is six grains.

BEZOARDICUM *Joviale*, or *BEZOAR of Jupiter*, is a regulus made by melting three ounces of regulus of antimony, and two of black-tin, powdered and mixed with six ounces of corrosive sublimate, and distilled off in a kind of butter, and that dissolved in spirit of nitre, and the solution distilled three times; the *bezoar* remaining at the bottom is to be powdered, washed, and mingled with spirit of wine, till it grow insipid. See ANTIHECTICUM *Poterii*.

BEZOARDICUM *lunale*, or of silver, is made by mixing rectified butter of antimony with fine silver, dissolved in spirit of nitre; upon which, a powder falls to the bottom, which is the *bezoar*.

It is esteemed a specific in epilepsies, convulsions, and apoplexies; and is said to be anodyne and sudorific, and of great use against the erysipelas. The dose is from six to ten grains.

BEZOARDICUM *martiale*, is a dissolution of *crocus Martis* by reverberation in butter of antimony, with spirit of nitre poured on it: commended by some against hysterical, hypochondriacal, and icterical disorders.

BEZOLA, in *Ichthyology*, the name of a truttaceous fish of the *albula* kind, and called by Gesner the *albula cœrula*. It resembles the herring in shape, is of a dusky bluish colour, and does not essentially differ from the *LAVARETUS*.

BIA, a name given by the Siamese, to a sort of little white shells brought from the Maldivé islands, and used throughout most part of the East Indies for small money. Nine of these are equal in value to the French *denier*.

These are otherwise called *coris*, or *cowries*.

BIÆUM, from *bia*, *opposition*, in *Rhetoric*, denotes a kind of counter-argument, whereby something alledged for the adversary is retorted against him, and made to conclude a different way; for instance, *Occidisti, quia adstitisti interfecto*.—*Immo quia adstiti interfecto, non occidi; nam si id esset, in fugam me conjecissem*, "You killed the person, because you were found standing by his body." (*Biaum*.) "Rather I did not kill him, because I was found standing by his body; since, in the other case, I should have fled away."

BIÆUM, in the *Grecian Laws*, was an action brought against those who ravished women, or used violence to any man's person. Potter, *Archæol. lib. i. c. 24*.

BIÆUM also denotes a kind of saline or sea-wine, used by the ancient Greeks in various disorders. It was made of grapes gathered a little before ripe, and dried in the sun; then pressed, the juice put up in casks, and mixed

with a large proportion of sea-water; though Dioscorides seems to describe it as made of grapes steeped in sea-water, and then pressed. Gorr. Def. Med. p. 75.

BIAFORA, in the *Customs of the Middle Age*, a form of cry, or alarm to arms; on the hearing whereof, the inhabitants of towns or villages were to issue forth, and attend their prince. The word seems originally from Gascony; and the Italians even now, on a sudden insurrection of the people, commonly cry, *Via fora*, by an usual change of the letter B into V.

BIARCHUS, an officer in the court of the emperors of Constantinople, intrusted with the care and inspection of the provisions of the soldiery.

The word is formed from βίος, *annonæ*, *vituals*, and αρχη, *chief*.

The *biarchus* was the same with what the Latins call *præfectus annonæ*. His function was called *biarchia*; by the Latins, *præfecturæ cibariæ*. He belonged to the *scholia agentium in rebus*. See **AGENTES**.

BIARUM, in *Botany*, a name by which the people of Egypt at this time call the root of the **NILUFAR**, or *faba Egyptia*, growing on the Nile.

BIAS, or **BIASS**, the tendency or propensity of a thing towards one side more than the other; particularly the deviation of a body, or a plane, from its rectilinear course, or its level. See **INCLINATION**.

The word is French, *biais*, which signifies the same. Menage deduces this farther from the Italian *biaco*; and that again from the Latin *obliquus*.

BIAS of a bowl, is a piece of lead put into one side, to load and make it incline towards that side.

BIATHANATI, βιαθανατοις, from βία, *violence*, and θανατος, *death*; the same with *suicides*, or those who kill themselves. Dr. Donne, dean of St. Paul's, has a work under the title of *Bithanatos*; wherein he undertakes to prove this position, or paradox; "That suicide is not so naturally sin, as that it may never be otherwise." Lond. 4to. 1644.

BIBIO, the *wine-fly*, in the *History of Insects*, a very small fly, found frequently among empty wine-casks. It is produced from a small, oblong, red worm, very common in the sediments of wine. See **WINE-FLY**.

BIBITORY Muscæ; see **ADDUCTOR Oculi**.

BIBLE, a book, by way of eminence so called, containing the Scriptures, i. e. the writings of the Old and New Testament.

The word *Bible* comes from the Greek βιβλία, or βιβλιον, used to denote any book; but, by way of eminence, applied to the book of Scripture. βιβλιον again comes from βιβλος, the Egyptian reed, from which the ancient paper was procured. See **BIBLUS**.

The *Bible* is known by various other appellations, as the *sacred books*, the *inspired writings*, *holy writ*, *sacred text*, &c. By the Jews it is called *mikra*, that is, *lecture*, of *reading*; by the Christians usually *scripture*, q. d. *writing*; sometimes also the *book of God*, the *canon*, *rule of faith*, &c.

Bibles are distinguished, according to their language, into Hebrew, Greek, Latin, Chaldee, Syriac, Arabic, Coptic, &c. Some account of each, and their several editions, &c. we shall here subjoin.

The list of the books contained in the *Bible* is called the **CANON** of scripture.

The books of the *Bible* are said to be *canonical*, by way of contradistinction from others called *deutero-canonical*, *apocryphal*, *pseudo-apocryphal*, &c.

For the authors of the *Bible*, the names of most of them are prefixed to the books supposed to be written by them; as the Pentateuch by Moses; Joshua, by the general of that name, &c. though many objections have been made to divers of them.

Aben Ezra, followed by Hobbes, Pereyra, Spinosa, and some others, deny the five first books to have been written by Moses. F. Simon in particular asserts, that the books, as we now have them, are not the originals written by the inspired pen-men, but abridgments of them, made in after-times by a kind of college or order of public actuaries or scribes appointed for that end.

The original language of the Old Testament was doubtless the old Hebrew, at least the greatest part; for all the books do not appear to have been written in the same. Some chapters of Esdras and Daniel are judged to have been composed in Chaldaic; and other chapters of this latter writer, as also the apocryphal books of Maccabees, of Wisdom, &c. in Greek; Tobit and Ecclesiastes either in Greek, or Syriac. Du Pin, Diff. Prel. § 3. Calmet's Dict. Bib. tom. i. p. 293.

As for the New Testament, it was written in Greek, except the Gospel of St. Matthew, which is thought by many to have been composed in the later Hebrew, that is the Syriac. Some will have Mark's Gospel to have been written in Latin; and the Epistle to the Hebrews in Hebrew. Calmet.

Divers of the ancient *Bible* books appear to have been irrecoverably lost, whether it be that the copies of them

perished, or that Esdras threw them out of his canon. Hence it is, that in the books still extant, we find divers citations of, and references to others, which are now no more; as the book of Jasher, the book of the wars of the Lord, annals of the kings of Judah and Israel, part of Solomon's three thousand Proverbs, and his thousand and five Songs, besides his books on plants, animals, fishes, insects, &c. To which may be added, a book of Jeremiah, wherein he enjoined the captives who went to Babylon to take the sacred fire and conceal it; also the precepts which that prophet gave the Jews to preserve themselves from idolatry, and his lamentations on the death of king Josiah.

In the time of Josiah, through the impiety of the two preceding reigns of Manasseh and Ammon, the book of the law was so totally lost, that, besides a copy of it, found by Hilkiah in the temple, none other appears to have been known; at least, the surprise which Hilkiah shewed at the finding of it, and the grief which Josiah expressed at the hearing of it read, shew that neither of them had ever seen it before. 2 Kings, chap. xxii. ver. 8—13. 2 Chron. chap. xxxiv.

Copies were now made and dispersed; yet, within a few years after, the authentic copy preserved in the temple, was burnt, with the temple, by the Babylonians. It was restored again after the return of the Jews from the Babylonian captivity by Nehemiah, or rather by Ezra; some say, by divine inspiration; others, with greater probability, by collecting the fragments and copies which were still remaining, comparing them together, and, out of them all, framing one complete copy, where the readings were adjusted, and the several books ranged in their proper order. Plidd. Conn. P. i. lib. v. Du Pin, Diff. Prel.

Ezra made additions in several parts of the book, among which is to be reckoned the last chapter of Deuteronomy, wherein Moses seems to give an account of his own death and burial, and of the succession of Joshua after him. To the same cause are to be attributed many other interpolations in the *Bible*, which created difficulties and objections to the authenticity of the sacred text, no ways to be solved without allowing them. Prideaux. The present Samaritan and Jewish copies of the *Bible* differ in many respects, chiefly in the chronology of the patriarchs, where the Samaritan comes nearer to the Septuagint. Other variations may be resolved into the errors of transcribers, interpolations for explication's sake, and, perhaps, the designed corruption of the Samaritan.

The books of the *Bible* are divided by the Jews into three classes, viz. the law, the prophets, and the hagiographers; a division which they are supposed to borrow from Ezra himself.

The Jews, at first, were very reserved in communicating their scripture to strangers: despising and shunning the Gentiles, they would not disclose to them any of the treasures concealed in the *Bible*. We may add, that the people bordering on the Jews, as the Egyptians, Phœnicians, Arabs, &c. were not very curious to know the laws or history of a people, whom in their turn they hated and despised. Their first acquaintance with these books was not till after the several captivities of the Jews, when the singularity of the Hebrew laws and ceremonies induced several to desire a more particular knowledge of them. Josephus seems surprised to find such slight foot-steps of the scripture-history interspersed in the Egyptian, Chaldean, Phœnician, and Grecian history; and accounts for it hence, that the sacred books were not as yet translated into Greek or other languages, and consequently not known to the writers of those nations. Contra Appion. p. 1038. Calmet.

The first version of the *Bible* was that of the **SEPTUAGINT** into Greek, in the time of Ptolemy Philadelphus; though some maintain that the whole was not then translated, but only the Pentateuch; between which and the other books in the version called of the Seventy, the critics find a great diversity in point of style and expression, as well as of accuracy.

Divers kinds of books have been composed on the *Bible*, either to explain the sense, or make its doctrine more obvious, to facilitate the remembrance of it, or to establish particular opinions from it; as introductions, apparatuses, summaries, manuals, histories, expositions, commentaries, harmonies, &c.

BIBLES, *Hebrew*, are either manuscript or printed.—The best *manuscript Bibles* are those copied by the Jews of Spain. Those copied by the Jews of Germany are less exact, but more common. The two kinds are easily distinguished from each other; the former being in beautiful characters, like the Hebrew *Bibles* of Bomberg, Stephens, and Plantin; the latter in characters, like those of Munster and Gryphius.—F. Simon observes, that the oldest manuscript Hebrew *Bibles* are not above six or seven hundred years old; nor does rabbi Menaham, who

quotes

quotes a vast number of them, pretend that any of them exceed six hundred years.

Dr. Kennicott, in his *Dissertatio Generalis*, prefixed to his *Hebrew Bible*, p. 21. observes, that the most ancient MSS. were written between the years 900 and 1100: but though these that are the most ancient are not more than 800 or 900 years old, they were transcribed from others of a much more ancient date. The MS. preserved in the Bodleian library is not less than 800 years old. Another MS. not less ancient is preserved in the Cæsarian library at Vienna.

The most ancient *printed Hebrew Bibles* are those published by the Jews of Italy, especially of Pesaro and Bressa. Those of Portugal also printed some parts of the *Bible* at Lisbon, before their expulsion.—This may be observed in the general, that the best *Hebrew Bibles* are those printed under the inspection of the Jews; there being so many *minutiae* to be observed, that it is scarce possible for any other to succeed in it.

The Complutensian *Bible* was printed in 1515. See *BIBLES, Greek*.

In the beginning of the sixteenth century Dan. Bomberg printed several *Hebrew Bibles* in folio and quarto at Venice, most of which are esteemed both by the Jews and Christians: the first in 1517, which is the least exact, and generally goes by the name of Felix Pratensis, the person who revised it. This edition contains the Hebrew text, the targum, and the commentaries of several rabbins. In 1528, the same Bomberg printed the folio *Bible* of rabbi Benchajim, with his preface, the masoretical divisions, a preface of Aben Ezra, a double *masora*, and several various readings. The third edition was printed in 1618; it is the same with the second, but much more correct. From the former editions it was, that Buxtorf, the father, printed his rabbinical *Hebrew Bible* at Basil, in 1618; which, though there are many faults in it, is more correct than any of the former. In 1623 appeared at Venice a new edition of the rabbinical *Bible* by Leo of Modena, a rabbin of that city, who pretended to have corrected a great number of faults in the former edition; but, besides that it is much inferior to the other *Hebrew Bibles* of Venice, with regard to paper and print, it has passed through the hands of the inquisitors, who have altered many passages in the commentaries of the rabbins.

As to *Hebrew Bibles* in 4to. that of R. Stephens is esteemed for the beauty of the characters; but it is very incorrect. Plantin also printed several beautiful *Hebrew Bibles* at Antwerp: one, in eight columns, with a preface by Arius Montanus in 1571, which far exceeds the Complutensian in paper and print, and contents; this is called the *Royal Bible*, because it was printed at the expence of Philip II. of Spain: another at Geneva, in 1619; besides many more of different sizes, with and without points. Manassah Ben Israel, a learned Portuguese Jew, published two editions of the *Hebrew Bible* at Amsterdam; the one in 4to. in 1635; the other in 8vo. in 1639: the first has two columns, and for that reason is commodious for the reader. In 1639, R. Jac. Lombroso published a new edition in 4to. at Venice, with small literal notes at the bottom of each page, where he explains the Hebrew words by Spanish words. This *Bible* is much esteemed by the Jews at Constantinople: in the text they have distinguished between words where the point *camets* is to be read with a *camets-katuph*, that is, by *o* and not an *a*.

Of all the editions of the *Hebrew Bible* in 8vo. the most beautiful and correct are the two of Jo. Athias, a Jew of Amsterdam. The first, of 1661, is the best paper; but that of 1667, is the most exact: that, however, published since at Amsterdam by Vander Hooght, in 1705, is preferable to any of them.

After Athias, three Hebraizing protestants engaged in revising and publishing the *Hebrew Bible*; viz. Clodius, Jablonki, and Opius.—Clodius's edition was published at Frankfort, in 1677, in 4to. At the bottom of the page it has the various readings of the former editions; but the author does not appear sufficiently versed in the accenting, especially in the poetical books; besides, as it was not published under his eye, many faults have crept in. That of Jablonki in 1699, in 4to. at Berlin, is very beautiful as to letter and print: but, though the editor pretends he made use of the editions of Athias and Clodius, some critics find it scarce in any thing different from the 4to edition of Bomberg.—That of Opius is also in 4to. at Keil, in 1709; the character is large and good, but the paper bad: it is done with a great deal of care; but the editor made use of no manuscripts but those of the German libraries; neglecting the French ones, which is an omission common to all three.—They have this advantage, however, that besides the divisions used by the Jews, both general and particular, into *parafkes* and *pejukim*, they have also those of the Christians, or of the *Latin Bibles*, into chapters and verses; the *keri ketib*, or

various readings, Latin summaries, &c. which made them of considerable use, with respect to the Latin editions, and the concordances. See *CHAPTERS*.

The little *Bible* of R. Stephens, in 16to. is very much prized for the beauty of the character. Care, however, must be taken; there being another edition of Geneva, exceedingly like it, excepting, that the print is worse, and the text less correct.—To these may be added some other *Hebrew Bibles* without points, in 8vo. and 24to. which are much coveted by the Jews; not that they are more exact, but more portable than the rest; and are used in their synagogues and schools: of these there are two beautiful editions, the one of Plantin, in 8vo. with two columns, and the other in 24to, reprinted by Raphalengius at Leyden, in 1610. There is also an edition of them by Laurens at Amsterdam, in 1631, in a larger character; and another in 12mo. at Frankfort, in 1694, full of faults, with a preface of M. Leusden at the head of it.

Houbigant published an elegant edition of the *Hebrew Bible* at Paris, in 1753, contained in four volumes, folio. The text is that of Van der Hooght, without points, to which he has added marginal notes, supplying the variations of the Samaritan copy. Dr. Kennicott, after almost twenty years laborious collation of near seven hundred copies, manuscript and printed, either of the whole, or of particular parts of the *Bible*, did, in 1776, publish the first volume of his *Hebrew Bible*, in folio. The text is that of Everard Van der Hooght, already mentioned; differing from it only in the disposition of the poetical parts, which Dr. Kennicott has printed in hemistichs, into which they naturally divide themselves; however the words follow one another in the same order as they do in the edition of Van der Hooght. This edition is printed on an excellent type; the Samaritan text, according to the copy in the London Polyglot, is exhibited in a column parallel with the Hebrew text; those parts of it only being introduced, in which it differs from the Hebrew. The numerous variations both of the Samaritan manuscripts from the printed copy of the Samaritan text, and of the Hebrew manuscripts from the printed text of Van der Hooght, are placed separately at the bottom of the page, and marked with numbers referring to the copies from which they are taken. The editor regrets, that the *Dissertatio Generalis*, which would help much to enrich this article, is not to be published till the second volume is ready.

BIBLES, Greek.—There is a great number of editions of the *Bible* in Greek; but they may be all reduced to three or four principal ones, viz. that of Complutum, or Alcalá de Henares, that of Venice, that of Rome, and that of Oxford.—The first was published in 1515, by cardinal Ximenes, and inserted in the *Polyglot Bible*, usually called the *Complutensian Bible*: this edition is not just, the Greek of the Seventy being altered in many places according to the Hebrew text.—It has, however, been reprinted in the *Polyglot Bible* of Antwerp, in that of Paris, and in the 4to. *Bible*, commonly called, *Vatablus's Bible*.

The second *Greek Bible* is that of Venice, printed by Aldus, in 1518. Here the Greek text of the Septuagint is reprinted just as it stood in the manuscript, full of faults of the copyists, but easily amended.—This edition was reprinted at Strasburg, in 1526, at Basil, in 1545, at Frankfort, in 1597, and other places; with some alterations to bring it nearer the Hebrew. The most commodious is that of Frankfort; there being added to this little *scholia*, which shew the different interpretations of the old Greek translators: the author of this collection has not added his name; but it is commonly ascribed to Junius.

The third *Greek Bible* is that of Rome, or the Vatican, in 1587, with *Greek scholia* collected from the manuscripts in the Roman libraries by Pet. Morin. It was first set on foot by cardinal Montalbo, afterwards pope Sixtus Quintus. This fine edition has been reprinted at Paris in 1628, by J. Morin, priest of the Oratory, who has added the Latin translation, which in the Roman was printed separately, with *scholia*.—The Greek edition of Rome has been printed in the *Polyglot Bible* of London; to which are added, at bottom, the various readings of the Alexandrian manuscript. This has been also reprinted in England in 4to. and 12mo. with some alterations. It has been again published at Franeker in 1709, by Bos, who has added all the various readings he could find.

The fourth *Greek Bible* is that done from the Alexandrian manuscript, begun at Oxford by Dr. Grabe in 1707. In this the Alexandrian manuscript is not printed such as it is, but such as it was thought it should be; i. e. it is altered wherever there appeared any fault of the copyists, or any word inserted from any particular dialect: this some think an excellence, but others a fault; urging, that the manuscript should have been given absolutely and entirely of itself, and all conjectures, as to the

the readings, should have been thrown into the notes. See SEPTUAGINT.

BIBLES, Latin, how numerous soever, may be all reduced to three classes; the ancient **VULGATE**, called also *Ita-lica*, translated from the Greek *Septuagint*: the *modern VULGATE*, the greatest part of which is done from the Hebrew text; and the *new Latin translations*, done also from the Hebrew text in the sixteenth century.—We have nothing remaining of the *ancient Vulgate*, used in the primitive times in the Western churches, but the Psalms, Wisdom, and Ecclesiastes. Nobilius has endeavoured to retrieve it from the works of the ancient Latin fathers; but it was impossible to do it exactly, because most of the fathers did not keep close to it in their citations.

As to the *modern VULGATE*, there are a vast number of editions very different from each other. Cardinal Ximenes has inserted one in the *Bible of Complutum*, corrected and altered in many places. R. Stephens, and the doctors of Louvain, have taken great pains in correcting the modern Vulgate.

The best edition of Stephens's Latin *Bible* is that of 1540, reprinted in 1545, in which are added, on the margin, the various readings of several Latin manuscripts, which he had consulted. The doctors of Louvain revised the modern Vulgate after R. Stephens; and added the various readings of several Latin manuscripts. The best of the Louvain editions are those, at the end of which are added the critical notes of Francis Lucas of Bruges.

All these reformations of the Latin *Bible* were made before the time of pope Sixtus V. and Clement VIII. since which, people have not dared to make any alterations, excepting in comments, and separate notes. The correction of Clement VIII. in 1592, is now the standard throughout all the Romish churches: that pontiff made two reformations; but it is the first of them that is followed. From this the *Bibles* of Plantin were done, and from those of Plantin all the rest; so that the common *Bibles* have none of the after-corrections of the same Clement VIII.—It is a heavy charge that lies on the editions of pope Clement, viz. that they have some new texts added, and many old ones altered, to countenance and confirm what they call the Catholic doctrine; witness that celebrated passage of St. John, *tres sunt*, &c.

There are a great number of Latin *Bibles* of the third class, comprehending the versions from the originals of the sacred books made within these two hundred years.—The first is that of Santes Pagninus, a Dominican, under the patronage of pope Leo X. printed at Lyons in 4to. in 1527, much esteemed by the Jews. This the author improved in a second edition. In 1542, there was a beautiful edition of the same at Lyons in folio, with *scholia*, published under the name of Michael Villanovanus, i. e. Michael Servetus, author of the *scholia*. Those of Zurich have likewise published an edition of Pagninus's *Bible* in 4to. And R. Stephens reprinted it in folio, with the Vulgate, in 1557, pretending to give it more correct than the former editions. There is also another edition in 1586, in four columns, under the name of *Vatablus*: and we find it again in the Hamburg edition of the *Bible* in four languages.

In the number of Latin *Bibles* is also usually ranked the version of the same Pagninus corrected, or rather rendered literal, by Arias Montanus; which correction being approved of, by the doctors of Louvain, &c. was inserted in the *Polyglot Bible* of Philip II. and since in that of London. There have been various editions of this in folio, quarto, and octavo; to which have been added the Hebrew text of the Old Testament, and the Greek of the New. The best of them all is the first, which is in folio, 1571.

Since the Reformation, there have been several Latin versions of the *Bible* from the originals, by protestants. The most esteemed are those of Munster, Leo Juda, Castalio, and Tremellius: the three last whereof have been reprinted various times. Munster published his version at Basil in 1534, which he afterwards revised; he published a correct edition in 1546.—Castalio's fine Latin pleases most people; but there are some who think it too much affected; the best edition thereof is that in 1573. Leo Juda's version, altered a little by the divines of Salamanca, was added to the ancient Latin edition, as published by R. Stephens with notes, under the name of *Vatablus's Bible*, in 1545. It was condemned by the Parisian divines, but printed with some alterations by the Spanish divines of Salamanca. That of Junius and Tremellius is preferred especially by the Calvinists, and has undergone a great number of editions.

One may add a fourth class of Latin *Bibles* comprehending the *Vulgate* edition corrected from the originals. The *Bible* of Ilidorus Clarus is of this number: that author, not being contented with restoring the ancient Latin copy, has corrected the translator in a great number of places, which he thought ill rendered. Some protestants have

followed the same method; and, among others, Andrew and Luke Osiander, who have each published a new edition of the *vulgate*, corrected from the originals.

BIBLES, Oriental.—At the head of the Oriental versions of the *Bible* must be placed the Samaritan; as being the most ancient of all, though neither its age nor author have been yet ascertained, and admitting no more for holy Scripture but the Pentateuch, or five books of Moses.—This translation is made from the Samaritan Hebrew text, which is a little different from the Hebrew text of the Jews. This version has never been printed alone; nor any where but in the *Polyglots* of London and Paris.

BIBLES, Chaldee, are only the glosses or expositions made by the Jews in the time when they spoke the Chaldee tongue. These they call by the name of *Targumim* or *paraphrases*, as not being any strict versions of the Scripture. They have been inserted entire in the large Hebrew *Bibles* of Venice and Basil; but are read more commodiously in the *Polyglot*, being there attended with a Latin translation.

BIBLES, Syriac.—There are extant two versions of the Old Testament in the Syriac language: one from the *Septuagint*, which is ancient, and made probably about the time of Constantine; the other called *antiqua & simplex*, made from the Hebrew, as some suppose, about the time of the apostles. This version is printed in the *Polyglots* of London and Paris.

In the year 1562, Widmanstadius printed the whole New Testament in Syriac, at Vienna, in a beautiful character: after him there were several other editions; and it was inserted in the *Bible* of Philip II. with a Latin translation. Gabriel Sionita also published a beautiful Syriac edition of the Psalms, at Paris, in 1525, with a Latin interpretation.

BIBLES, Arabic.—In the year 1516, Aug. Justinian, bishop of Nebio, printed at Genoa an Arabic version of the Psalter, with the Hebrew text, and Chaldee paraphrase, adding Latin interpretations. There are also Arabic versions of the whole Scriptures in the *Polyglots* of London and Paris; and we have an edition of the Old Testament entire, printed at Rome in 1671, by order of the congregation *de propaganda fide*; but it is of little esteem, as having been altered agreeably to the *Vulgate* edition. The Arabic *Bibles* among us are not the same with those used with the Christians in the East.—Some learned men take the Arabic version of the Old Testament, printed in the *Polyglots* to be that of Saadiah, who lived about the year 900; at least in the main. Their reason is, that Aben Ezra, a great antagonist of Saadiah, quotes some passages of his version, which are the same with those in the Arabic version of the *Polyglots*; yet others are of opinion, that Saadiah's version is not extant. In 1622, Erpenius printed an Arabic Pentateuch, called also the Pentateuch of Mauritania, as being made by the Jews of Barbary, and for their use. This version is very literal, and esteemed very exact. The four evangelists have also been published in Arabic, with a Latin version, at Rome in 1591, folio. These have been since reprinted in the *Polyglots* of London and Paris, with some little alteration of Gabriel Sionita. Erpenius published an Arabic New Testament, entire, as he found it in his manuscript copy, at Leyden, in 1616.

There are some other Arabic versions of late date mentioned by Walton in his *Prolegomena*; particularly a version of the Psalms preserved in Sion College, London, and another of the prophets, at Oxford; neither of which have been published.

BIBLES, Cophtic.—There are several manuscript copies of the Cophtic *Bible* in some of the great libraries, especially in that of the French king.

Dr. Wilkins published the Cophtic New Testament in 4to. in the year 1716, and the Pentateuch also in 4to. in 1731, with Latin translations. He reckons these versions to have been made in the end of the second, or the beginning of the third century.

BIBLES, Ethiopic.—The Ethiopians have also translated the *Bible* into their language.—There have been printed separately the Psalms, Canticles, some chapters of Genesis, Ruth, Joel, Jonah, Zephaniah, Malachi, and the New Testament; all of which have been since reprinted in the *Polyglot* of London.—As to the Ethiopic New Testament, which was first printed at Rome in 1548, it is a very inaccurate work, and is reprinted in the English *Polyglot* with all its faults.

BIBLES, Armenian.—There is a very ancient Armenian version of the whole *Bible*, done from the Greek of the Seventy, by some of their doctors about the time of St. Chrysostom. This was first printed entire in 1664, by one of their bishops at Amsterdam in 4to. with the New Testament in 8vo.

BIBLES, Persian.—Some of the fathers seem to say, that all the Scripture was formerly translated into the language of the Persians; but we have nothing now remaining of the ancient version, which was, certainly, done from the *Septuagint*. The Persian Pentateuch printed in the London

don *Polyglot* is, without doubt, the work of Rabbi Jacob, a Persian Jew. It was published by the Jews at Constantinople, in the year 1551. In the same *Polyglot* we have likewise the four Evangelists in Persian, with a Latin translation; but this appears very modern, incorrect, and of little use. Walton says this version was written above four hundred years ago. Another version of the Gospels was published at Cambridge by Wheloc in the last century: there are also two Persian versions of the Psalms made in the last century from the vulgar Latin.

BIBLES, Gothic.—It is generally said, that Ulphilas, a Gothic bishop, who lived in the fourth century, made a version of the whole *Bible*, excepting the book of Kings, for the use of his countrymen. That book he omitted, because of the frequent mention of the wars therein; as fearing to inspire too much of the military genius into that people. We have nothing remaining of this version but the four Evangelists, printed in 4to. at Dort, in 1665, from a very ancient MS.

BIBLES, Muscovite.—An entire *Bible*, in the Slavonic tongue, was printed at Ostravia in Volhinia, in the year 1581, and this is what we commonly call the *Muscovite Bible*. It was printed at the expence of Con. Basil, duke of Ostravia, for the common service of all Christians, who spake the Slavonic language, whereof the Muscovitish is a dialect.

BIBLES, Spanish.—There are two translations of the *Bible* into this language; one done by the Jews, and first printed at Ferrara, in 1553, the other by Cassiodore, printed at Basil in 1569. A corrected edition of it was printed at Amsterdam in 1692.

BIBLES, Italian.—There are four Italian versions: the first towards the close of the thirteenth century, by James de Voragine, archbishop of Genoa; the second by Brucciolus, in 1530; the third by Malermi, printed at Venice in 1541; and the fourth by Diodati, a Protestant, which is much esteemed, and has been often printed.

BIBLES, French.—There are nine French versions. There are also Dutch, Flemish, Polish, Hungarian, and Croatian versions. Luther, with the assistance of Melancthon, and others of his disciples, translated the *Bible* into the German tongue in 1524, and the publication of it very much contributed to the progress of the Reformation.

BIBLES, Saxon.—The whole scripture is said by some to have been translated into the Anglo-Saxon by Bede, about the year 701; though others contend he only translated the Gospels.

We have certain books or parts of the *Bible* by several other translators; as, 1. The Psalms, by Adelm bishop of Shireborn, contemporary with Bede; though by others this version is attributed to king Alfred, who lived two hundred years after. Another version of the Psalms in Anglo-Saxon was published by Spelman in 1640. 2. The Evangelists, still extant, done from the ancient Vulgate, before it was revised by St. Jerom, by an author unknown, and published by Matth. Parker in 1571. An old Saxon version of several books of the *Bible*, made by Elfric abbot of Malmesbury, several fragments of which were published by Will. Lilly in 1638, the genuine copy by Edm. Thwaites in 1699, at Oxford.

BIBLES, Indian.—A translation of the *Bible* into the North American Indian language, by Elliot, was published in 4to. at Cambridge, in 1685.

BIBLES, English.—The first English *Bible* we read of was that translated by J. Wickliffe about the year 1360; but never printed, though there are MS. copies of it in several of the public libraries. J. de Trevisa, who died about the year 1398, is also said to have translated the whole *Bible*; but whether any copies of it are remaining, does not appear.

BIBLE, Tindal's.—The first printed *Bible* in our language was that translated by Will. Tindal, assisted by Miles Coverdale, printed abroad in 1526; but most of the copies were bought up and burnt by bishop Tunstal and sir Thomas More. It only contained the New Testament, and was revised and republished by the same person in 1530. The prologues and prefaces added to it, reflect on the bishops and clergy; but this edition was also suppressed, and the copies burnt.

In 1532, Tindal and his associates finished the whole *Bible*, except the Apocrypha, and printed it abroad: but while he was afterwards preparing for a second edition, he was taken up, and burnt for heresy in Flanders.

BIBLE, Matthews's.—On Tindal's death, his work was carried on by Coverdale and John Rogers, superintendant of an English church in Germany, and the first martyr in the reign of queen Mary, who translated the Apocrypha, and revised Tindal's translation, comparing it with the Hebrew, Greek, Latin, and German, and adding prefaces and notes from Luther's *Bible*. He dedicated the whole to Henry VIII. in 1537, under the

borrowed name of Thomas Matthews: whence this has been usually called *Matthews's Bible*. It was printed at Hamburg, and licence obtained for publishing it in England by the favour of archbishop Cranmer, and the bishops Latimer and Shaxton.

BIBLE, Cranmer's.—The first *Bible* printed by authority in England, and publicly set up in churches, was the same Tindal's version, revised, compared with the Hebrew, and in many places amended, by Miles Coverdale, afterwards bishop of Exeter; and examined after him by archbishop Cranmer, who added a preface to it: whence this was called *Cranmer's Bible*. It was printed by Grafton, of the largest volume, and published in 1540; and, by a royal proclamation, every parish was obliged to set one of the copies in their church, under the penalty of forty shillings a month; yet two years after, the popish bishops obtained its suppression of the king. It was restored under Edward VI. suppressed again under queen Mary, and restored again in the first year of queen Elizabeth; and a new edition of it given in 1562.

BIBLE, Geneva.—Some English exiles at Geneva, in queen Mary's reign, Coverdale, Goodman, Gilbie, Sampson, Cole, Whittingham, and Knox, made a new translation, printed there in 1560; the New Testament having been printed in 1557; hence called the *Geneva Bible*, containing the variations of readings, marginal annotations, &c. on account of which it was much valued by the puritan party in that and the following reigns.

BIBLE, Bishop's.—Archbishop Parker resolved on a new translation for the public use of the church, and engaged the bishops and other learned men to take each a share or portion. These being afterwards joined together, and printed, with short annotations, in 1568, in a large folio, made what was afterwards called the *Great English Bible*, and commonly the *Bishop's Bible*. The following year it was also published in 8vo. in a small but fine black letter: and here the chapters were divided into verses; but without any breaks for them, in which the method of the *Geneva Bible* was followed, which was the first English *Bible* where any distinction of verses was made. It was afterwards printed in large folio, with corrections, and several *prolegomena*, in 1572; this is called *Matthew Parker's Bible*. The initial letters of each translator's name were put at the end of his part, e. gr. at the end of the Pentateuch, W. E. for William Exon; that is, William bishop of Exeter, whose allotment ended there: at the end of Samuel, R. M. for Richard Menevensis, or bishop of St. David's, to whom the second allotment fell: and the like of the rest. The archbishop oversaw, directed, examined, and finished the whole. This translation was used in the churches for forty years, though the *Geneva Bible* was more read in private houses, being printed above thirty times in as many years. King James bore it an inveterate hatred on account of the notes, which, at the Hampton-court conference, he charged as patial, untrue, seditious, &c. The *Bishop's Bible* too had its faults; the king frankly owned he had yet seen no good translation of the *Bible* in English; but he thought that of Geneva the worst of all.

BIBLE, Rhemish.—After the translation of the *Bible* by the bishops, two other private versions had been made of the New Testament; the first by Laur. Thompson, made from Beza's Latin edition, together with the notes of Beza, published in 1582, in 4to. and afterwards in 1589, varying very little from the *Geneva Bible*; the second by the papists at Rheims in 1584, called the *Rhemish Bible*, or *Rhemish translation*. These finding it impossible to keep the people from having the scriptures in the vulgar tongue, resolved to give a version of their own, as favourable to their cause as might be. It was printed on a large paper, with a fair letter and margin. One complaint against it was its retaining a multitude of Hebrew and Greek words untranslated, for want, as the editors express it, of proper and adequate terms in the English to render them by; as the words *axymes*, *tunike*, *rational*, *holocaust*, *prapuce*, *pasche*, &c. However, many of the copies were seized by the queen's searchers, and confiscated; and Th. Cartwright was solicited by secretary Walsingham to refute it; but, after a good progress made therein, archbishop Whitgift prohibited his farther proceeding therein, as judging it improper the doctrine of the church of England should be committed to the defence of a puritan, and appointed Dr. Fulke in his place, who refuted the Rheims with great spirit and learning. Cartwright's refutation was also afterwards published in 1618, under archbishop Abbot. About thirty years after their New Testament, the Roman catholics published a translation of the Old, at Doway, 1609 and 1610, from the Vulgate, with annotations; so that the English Roman catholics have now the whole *Bible* in their mother-tongue; though, it is to be observed, they are forbidden to read it without a licence from their superiors.

BIBLE, king James's.—The last English *Bible* was that which proceeded from the Hampton-court conference in 1603, where many exemptions being made to the Bishop's *Bible*, king James gave order for a new one; not, as the preface expresses it, for a translation altogether new, nor yet to make of a bad one a good one, but to make a good one better, or of many good ones one best. Fifty-four learned persons were appointed for this office by the king, as appears by his letter to the archbishop, dated in 1604; which being three years before the translation was entered upon, it is probable seven of them were either dead, or had declined the task, since Fuller's list of the translators makes but forty-seven; who being ranged under six divisions, entered on their province in 1607. It was published in 1613, with a dedication to James, and a learned preface, and is commonly called *King James's Bible*. After this, all the other versions dropped, and fell into disuse, except the Epistles and Gospels in the Common Prayer Book, which were still continued, according to the bishops translation, till the alteration of the liturgy in 1661, and the Psalms and Hymns, which are to this day continued as in the old version.

There was a Welch translation of the *Bible* made from the original in the time of queen Elizabeth, in consequence of a bill brought into the house of commons for this purpose in 1563. It was printed in folio in 1588. Another version, which is the standard translation for that language, was printed in 1620. It is called Parry's *Bible*. An impression of this was printed in 1690, called Bishop Lloyd's *Bible*. These were in folio: the first 8vo. impression of the Welch *Bible* was made in 1630. There is also a version of the *Bible* in the Irish language.

BIBLIA, or **BIBLIA petraria**, in a military sense, denotes a machine used by the ancients for throwing stones or darts.

BIBLIOGRAPHIA, a branch of **ARCHÆOGRAPHIA**, employed in the judging and perusing of ancient manuscripts, whether written in books, paper, or parchment.

The sense of it is now extended, and it signifies a work, intended to give information concerning the first, or best editions of books; and the ways of selecting and distinguishing them properly. In short, it is used for a *notitia* or description of printed books, either in the order of the alphabet, of the times when printed, or of the subject-matters.

In which sense, *bibliographia* amounts to much the same with what is otherwise called **BIBLIOTHECA**.

Literary journals afford also a kind of *bibliographia*.

BIBLIOMANCY, a kind of divination performed by means of the **BIBLE**.

This amounts to much the same with what is otherwise called *sortes biblicæ*, or *sortes sanctorum*.

It consisted in taking passages of scripture at hazard, and drawing indications thence concerning things future; as in Augustin's *tolle & lege*. It was much used at the consecration of bishops.

F. J. Davidius, a Jesuit, has published a *bibliomancy*, under the borrowed name of *Veridicus Christianus*.

BIBLIOMANIA, an extravagant passion for books, to a degree of madness; or a desire of accumulating them beyond all reason and necessity.

BIBLIOTHECA, from βιβλος *book*, and θησαυρον, *repository*, from τιθημι, *I lay up*, properly signifies a **LIBRARY**, or repository of books.

It is also used for a compilation of all that has been written on a certain subject; or a digestion of all the authors who have treated of it.

In this sense, we have historical *bibliothecæ*, as that of Diodorus Siculus; mythological *bibliothecæ*, as that of Apollodorus; theological and sacred *bibliothecæ*, as those of Ravanellus, &c.

It is also used for a catalogue of the books in a library: such are the *bibliotheca Cossiniana*, *bibliotheca Cordesiana*, *bibliotheca Thuanæa*, *bibliotheca Bignoniana*, *bibliotheca du Boisiana*, &c.

L'Abbe has published a *bibliotheca* of *bibliothecæ*, or a catalogue of the names of those who have written *bibliothecæ*, which has since been continued, and improved under another title by Tessier, from 800 writers to the number of no less than 2500. Schrammius has also published a *programma* on the writers of theological *bibliothecæ*.

BIBLIOTHECA is a name given to the books of the Old and New Testament, in respect of their excellency, and sufficiency for the uses of the Christian life; and it is also a title given to divers journals, or periodical accounts in French of new books.

BIBLIOTHECA patrum, or *of the fathers*, is a collection of the writings of the lesser fathers, printed in one or more volumes. The first of this kind was published at Paris by Marg. de la Bigne in 1576.

BIBLIOTHECARIAN, a library-keeper, otherwise called **LIBRARIAN**.

The word is also used for the author of a **BIBLIOTHECA**, or a catalogue of books.

In this sense, P. L'Abbe has given a *bibliotheca*, or catalogue of *bibliothecarians*. Gesner, Lipenius, Struvius, Fabricius, &c. are celebrated *bibliothecarians*.

BIBLISTS, *biblistæ*, an appellation given by some Romish writers to those who profess to adhere to scripture alone as the sole rule of faith, exclusive of all tradition, and the supposed authority of the church.

In which sense, all protestants are, or ought to be, **BIBLISTS**.

Biblists, among Christians, answer nearly to **CARAITES** or **TEXTUARIES** among the Jews. The Christian doctors were divided, towards the close of the twelfth century, into two classes; viz. the *biblici*, and the scholastics: the former were called *doctors of the sacred page*, because they explained the doctrines of Christianity in their manner by the sacred writings; however, their reputation declined, and the scholastic theology prevailed in all the European colleges till the time of Luther.

BIBLUS, in *Botany*, an aquatic plant in Egypt, called also **PAPYRUS**; of the skin whereof the ancient Egyptians made their **PAPER**.

Hence also the Greeks gave the denomination βιβλος, to books made hereof.

BICAUDA, from *bis*, *double*, and *cauda*, *tail*, in *Ichthyology*, the name of a fish of the *xiphiæ* or *sword-fish* kind. It is five feet long, or more, and a foot and half broad at the breast, tapering gradually towards the tail. It is covered with a thick and rough skin, and is brown on the back and sides; and has there several short bony prickles: its belly is white its fins are all of a brownish grey, and the back one has several beautiful black spots. It is a very well-tasted fish.

BICAUDALIS, in *Anatomy*, an appellation given by some to a muscle of the external ear, on account of its having two tails; but which is subject to great variety, having sometimes only one, and sometimes three tails: in which cases, it is called *intricalis* and *tricaudalis*.

BICE, or **BISE**, among *Painters*, a blue colour, prepared from the **LAPIS ARMENUS**, formerly brought from Armenia, but now from the silver mines in Germany. Phil. Trans. N° 179. p. 26.

The word comes from the barbarous Latin *bifus*, or *bifus*; and that, perhaps, from the French, *bit*, *grey*, *gris*; whence *bifuspanis*. Vide Du-Cange, Gloss. Lat. tom. i. p. 565. Skin. Etym. in voc.

Bice bears the best body of all bright blues, used in common work; but it is the palest in colour. It works indifferently well; but inclines a little to be sandy, and therefore requires good grinding on a very hard stone, and should be washed before it is used. It lies best near the eye of any blue now in use, except **ULTRAMARINE**. We have also a green *bice*, made of the blue, with the addition of orpiment.

BICEPS, from *bis*, and *caput*, *head*, in *Anatomy*, is a name common to several muscles, which are separated into two distinct portions called *heads*.—Such is the

BICEPS cubiti, or *humeri*, a muscle of the arm, one of whose heads arises from the upper edge of the cavity of the head of the *scapula*, and is round and tendinous, and enclosed in the channel in the head of the *humerus*: the other arising from the *processus coracoides*, is broad and tendinous; and both unite about the middle and fore-part of the arm, and make one belly, which is inserted by a strong and round tendon into the tuberosity at the upper end of the *radius*.—See *Tab. Anat. (Myol.) fig. 1. n. 24. fig. 2. n. 20. fig. 6. n. 15.*

Some of the fibres of the tendon form a large and thin *aponeurosis*, which covers all the muscles of the *radius* and fingers externally.—Care ought to be taken in blood-letting, not to cut-across, but according to the length of the fibres of this *aponeurosis*.—This muscle, with the **BRACHIÆUS internus**, bends the arm.

BICEPS externus, is called also **GEMELLUS**.

BICEPS tibiæ, or *femoris*, a muscle made up of two portions, one long, the other short, and ending in one common tendon. Both portions are fleshy, and considerably thick, and are situated on the back and outside of the thigh, between the buttock and the ham. The great portion is fixed above by a strong tendon, in the posterior and lower part of the tuberosity of the *ischium*, under the insertion of the inferior *gemellus*, and close behind that of the *seminervosus*: from thence it runs down towards the lower extremity of the thigh, where it meets the other portion, and joins with it, forming a common tendon. The small portion is fixed by fleshy fibres to the outside of the *linea aspera*, below its middle, and to the *fascia lata*, where it forms a *septum* between the *triceps* and *vastus externus*: from thence the fibres run down a little way, and then meeting the great portion, a common tendon is formed between them. This strong tendon runs down to the outer and back-part of the knee,

and is inserted in the lateral ligament of the joint, and in the head of the *fibula*, by two very short tendinous branches. It sometimes sends off a tendinous expansion, which is often unskilfully cut off with the fat. As they run down they become contiguous, and afterwards closely united by one common broad tendon.

Both the fleshy bodies of the *biceps* contribute to the formation of the *aponeurosis*, each of the two portions, of which the common tendon is made up, furnishing a series of tendinous fibres, which covering the fore-side of the true tendon, unite near the internal condyle by a particular kind of inter-texture, and thus form the *aponeurosis*. Winslow,

Its use is to help to bend the *tibia*, and it is likewise employed in turning the leg, together with the foot and toes, outward, when we sit down.—See *Tab. Anat. (Myl.) fig. 6. n. 40.*

BICHET, a corn measure, containing about a Paris *minot*, chiefly used in Burgundy and the Lyonnais.

BICHET denotes also a certain quantity of land, as much as may be sown by a *bichet* of corn.

BICINIUM, from *bis*, and *cano*, *I sing*, in *Church Music*, the singing of two, either together or alternately.

In which sense the word stands opposed to *MONODY*.

BICKERN of an *ANVIL*, the pike or beak-iron.

BICLINIUM, from *bis*, and *κλινν*, *bed*; in *Antiquity*, two beds about a table; or, as some say, rather a *BED* whereon two persons lay to eat.

BICORNES, from *bis*, and *cornu*, *horn*, in *Botany*, plants whose *antheræ* have the appearance of two horns. The term likewise expresses an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus.

BICORNE *os*, or *two-horned bone*, in *Anatomy*, the same with the *os HYOIDES*.

BICORNIS, in *Anatomy*, an extensor muscle of the arm, otherwise denominated *RADIUS externus*, and *EXTENSOR carpi radialis*.

BICORNIS pollicis manus, is the proper extensor muscle of the thumb: sometimes also, from the number of its horns, called *tricornis*.

It takes its rise from the posterior and middle part of the *radius* and *ulna*, and is inserted in the first, second, and third phalanx.

BICORPORA *signa*, from *bis*, and *corpus*, *body*, those signs of the zodiac which have two bodies, or consist of two figures.

Such are *gemini*, or the twins; also *pisces*, and *sagittarius*, consisting of a man and a horse.

BICUIBA, in *Botany*, the name of an Indian nut, used for relieving colics; and from which an oil is extracted for the cure of cancers.

BIDAL, or **BIDALE**, in our *Ancient Customs*, denotes the invitation of friends to drink ale at some poor man's house, who, in consideration hereof, expects some contribution for his relief.

This custom still obtains in the West of England, and is mentioned in some of our ancient statutes. 26 Hen. VIII. c. 6.

BIDALDI, an ancient kind of foot-soldiers mentioned by the French historians, armed with two darts.

Hence the origin of the word, which seems to be a corruption for *bidardi*, or *à binis dardis*. They are also called *bidarii*, *bidaus*, *bideaux*, *bidauts*, and *pitauts*.

BIDDING, is used for proclaiming or notifying; also for offering a price for goods put up by auction.

BIDDING of the *beads*, a charge or warning which the parish-priest gave to his parishioners at certain special times, to say so many *pater-nosters*, &c. on their beads.

BIDENS, in *Botany*, see *Water-hemp* *AGRIMONY*.

BIDENTAL, in *Antiquity*, a place struck with a thunderbolt, and on that account consecrated to the gods, and forbidden to be trod on. *Bidental* only differed from *puteal*, as in the latter the thunderbolt, was supposed to be hidden, or buried with ceremony under the ground. The fall of lightning or a thunderbolt, on any place, was judged by the Romans an indication that Jupiter demanded it for himself. Hence they surrounded it with a wall, rail, stakes, or even a rope; and expiated it, by the sacrifice of a *bidens*, or sheep of two years old. Festus represents the *bidental* as a temple, where sheep of two years old were offered in sacrifice. But by temple he here means no more than a place inclosed, and consecrated to the gods.

BIDENTALES, priests among the ancient Romans, instituted for the performance of the ceremonies of a *bidental*.

The *bidentales* constituted a college, or decury, who had the service and procuration, or interpretation of thunder and lightning.

The first and principal part of their office was, the sacrificing a sheep of two years old, which in their language was called *bidens*, as having only two teeth, one on each side; or rather from *bidennis*, anciently written for *bien-nis*, *two years old*.

BIDENTES, in *Middle Age Writers*, denotes two yearlings or sheep of the second year.

The wool of these *bidentes*, or two year old sheep, being the first sheering, was sometimes claimed as a heriot to the king, on the death of an abbot.

Among the ancient Romans, the word was extended farther to any sort of beasts used for victuals, especially those of that age whence we meet with *fues bidentes*.

BIDET, a nag, or little horse, formerly allowed each trooper, and dragoon, for his baggage, and other occasions.

Bidets are grown into disuse, on account of the expences thereof, and the disorders frequently arising from those who attended on them, &c.

BIDIÆI, an order of magistrates at Sparta; five in number, whose business was to superintend the *ephebi*, and be present at their exercises, wrestlings, &c.

BIDON, a liquid measure of about five quarts English measure; seldom used except among ship's crews.

BIER, a kind of wooden carriage, in which the bodies of the dead are borne to their grave. See *BURIAL*.

The word comes from the French *biere*, which signifies the same. It is called in Latin *feretrum*, a *ferendo*.

Among the Romans, the common *bier*, whereupon the poorer sort were carried, was called *sandapila*; that used for the richer sort, *lectica*, *lectica funebris*, sometimes *lectus*. The former was only a sort of wooden chest, *vilis arca*, which was burnt with the body: the latter was enriched and gilded for pomp. It was carried bare, or uncovered, when the person died a natural and easy death; when he was much disfigured or distorted, it was veiled or covered over.

BIER, is more peculiarly used for that whereon the bodies of saints are placed in the church to rest, and exposed to the veneration of the devout.

BIFARIA folia, in *Botany*, are such as point two ways.

BIFFA, in *Middle Age Writers*, a machine for casting stones and darts, having a moveable counterpoise, which turned round its yard.

BIFID leaf, in *Botany*, a leaf cloven into two parts.

BIFOLIUM, in *Botany*, see *TWYBLADE*.

BIFRONS, a person double-fronted, or two-faced.

BIFRONS is more peculiarly an appellation of Janus, who was represented by the ancients with two faces, as being supposed to look both backwards and forwards: though other reasons for it are recited by Plutarch. Sometimes he was painted with four faces, *quadrifrons*, as respecting the four seasons.

BIGA, a chariot for racing, drawn by two horses a-breast. The word ought rather to be written *bigæ*, in the plural; q. d. *bijugæ*, two horses being joined by a *jugum*, or yoke.

Bigæ stands contradistinguished from *trigæ*, *quadrigæ*, &c. *Bigæ* are of very ancient standing: all the heroes in Homer, Hesiod, Virgil, &c. fought in them.

The invention of *bigæ*, is attributed by Pliny to the Phrygians; by Isidore, to Cyrestenes of Sicyon, who first yoked two horses together.

Bigæ were the *CHARIOTS* first used in the *CIRCENSIAN* games; then *trigæ*, and afterwards *quadrigæ*.

The moon, night, and the morning, are by mythologists supposed to be carried in *bigæ*, the sun in *quadrigæ*.

STATUES in *bigæ* were at first only allowed to the gods, then to conquerors in the Grecian games; under the Roman emperors, the like statues, with *bigæ*, were decreed and granted to great and well-deserving men, as a kind of half triumph, being erected in most public places of the city.

Figures of *bigæ* were also struck on their coins, and are termed *BIGATI*.

The drivers of *bigæ* were called *bigarii*; a marble bust of one *Florus a bigarius* is still seen at Rome.

BIGA, or **BIGATA**, in *Writers of the Middle and Barbarous Age*, a cart with two wheels, drawn often with one horse. It was more frequently called *birota*.

BIGAMY, a double marriage, or the possession of two wives at the same time.

Among the ancient Romans, those convicted of *bigamy* were branded with a note of ignominy; and, in France, they were anciently punished with death. See *POLYGAMY*.

BIGAMY, in the *Canon Law*, is also where a person either marries two women successively; or only marries one woman who had been married before. Each of which the canonists account impediments to be a clerk, or to hold a bishoprick without a dispensation: a point of discipline founded on that of St. Paul; *Let a bishop be the husband of one wife*, 1 Tim. chap. iii. ver. 2. Apost. Const. 17, 18.

Bigamy they make of two kinds: *real*, as where the party actually marries twice; and *interpretative*, where he marries a widow, or woman defiled before, which is esteemed a kind of second marriage.

The Romanists make a third kind of *bigamy*, by interpretation; as, when a person in holy orders, or that has taken on him some monastic order, marries.—This the bishop can dispense withal, at least on some occasions.

There is also a kind of *spiritual bigamy*; as when a person holds two incompatible benefices, v. gr. two bishopricks, two vicarages; two canories *sub eodem tetto*, &c.

BIGATI, in *Antiquity*, a kind of ancient Roman silver coins, on one side whereof was represented a *biga*, or chariot drawn by two horses.

The *bigatus* was properly the Roman *denarius*, whose impression, during the times of the commonwealth, was a chariot driven by Victory, and drawn either by two horses, or four, according to which it was either denominated *bigatus*, or *quadrigatus*.

Bigati therefore were of different values, according to the species of *denarii*, &c.

Several of those called consular medals are also *bigati*.

In lieu of horses, the chariot is represented on some *bigati*, as drawn by two deers, especially in the medals of the family of Axia: on those of the family Crepercia, by two *hippopotami*, who draw, or rather bear Neptune on their tails.

BIGGEL, in *Natural History*, a quadruped much about the colour and bigness of a rein-deer; its head is said to be like that of a horse; its mane like that of an ass, with black cloven feet, and two black horns on his head.

This animal is found in the East Indies, according to Mandelsloe, in Harris's Collection of Voyages.

BIGHT, in the *Sea-language*, denotes any part of a rope, as it is taken compassing, coiled up; or the double part of a rope, when it is folded, in contradistinction to the end. It signifies also a small bay between two points of land.

BIGNONIA, in *Botany*, TRUMPET-flower.

BIGOT, a person foolishly obstinate, or perversely attached to an opinion.

The word comes from the German *bey*, and *Gott*, or the English *by-God*.

Camden relates, that the Normans were first called, *Bigots*, on occasion of their duke Rollo; who receiving Gissa, daughter of king Charles, in marriage, and with her the investiture of the dukedom, refused to kiss the king's foot in token of subjection; unless he would hold it out for that purpose; and being urged to it by those present, answered hastily, *No by God*; whereupon the king, turning about, called him *Bigot*; which name passed from him to his people.

BIGOT, in Italian *bigontia*, is used to denote a Venetian liquid measure, containing the fourth part of the *amphora*, or half the *boot*.

BIGOURNEAU, in *Natural History*, a name given by Bellonius to that genus of *cochleæ*, called the semi-circular mouthed, or semi-lunar kind, including the *NERITA*.

BIJUGUM folium, in *Botany*, denotes a winged leaf, bearing two pair of *foliola*.

BIL, in *Ichthyography*, a name given in some parts of England to a particular species of cod-fish, called by Willughby *afellus luscus*. It is distinguished from the cod by its smallness, by its being shorter and broader in its shape, by the paleness of its colour, and largeness of its scales; though it agrees with it, in having a beard under the chin.

BILANCIIS deferendis, a writ directed to a corporation, for the carrying of weights to such a haven, there to weigh the wool, which persons by our ancient laws were licensed to transport.

BILANDER, in *Navigation*, a small merchant-ship with two masts; distinguished from other vessels of the same kind by the form of the main-sail. Few vessels are now rigged in the manner of *bilanders*; the name has been variously applied in different countries.

BILARIUS PORUS, **BILARY pore**, or *hepatic duct*, a considerable appendage of the liver, formed from the concurrence of a multitude of small ramifications springing from the glands of the liver, which unite into several trunks equal in magnitude to the branches of the hepatic arteries; and accompany them branch for branch through the whole substance of the liver; being wrapped up in the same *capsula* with the *porta*. See *Tab. Anat. (Splanchn.) fig. 5. lit. ff.*

These branches are about the size of a wheat-straw, the biggest large enough to admit the little finger; and are distinguishable from the *porta* by their contents, being always full of bile. Besides the *capsula* common to these and the *porta*, each has a thick white coat proper to itself, like the muscous coat of an artery.

On the concave side of the liver the several ramifications meet, and form one trunk, or channel, properly called the *biliary pore*, about the bigness of a goose quill, which descending about two inches, meets with the cystic duct, and together with it forms what we call the *ductus com-*

munis; which descending in a right line, about four inches, discharges itself into the *duodenum*, by an oblique insertion, oftentimes at the same aperture with the pancreatic duct.

The *porus bilarius* communicates with the gall-bladder, by a duct first described by Dr. Glisson, and afterwards by Blasius and Perrault, who gave it the name of the *cyst-hepatic duct*. Verheyen, in oxen, found two, three, or four of these *cyst-hepatic ducts*; and the like has been observed in a dog, and a man.

BILATERAL COGNATION, denotes kindship, or kindred, on both sides; that of the father as well as mother.

Such is the relation of brothers, sisters. *Bilateral* stands contradistinguished to *unilateral*.

BILBERRY, in *Botany*, WHORTLE-BERRY.

BILBOWS, in *Sea-phrases*, a punishment answering to the stocks at land.

BILCOCK, in *Ornithology*, a name given by some to the water-rail, a bird of the moor-hen kind, but smaller than the common moor-hen. See *ROLLUS*.

BILDGE, or *BILGE* of a ship, denotes the bottom of her floor; or the breadth of that part which she rests on, when she is a-ground.

BILDGE-water, is that which, by reason of the flatness of the ship's bottom, lies on her floor, and cannot go to the well of the pump.

The Dutch, whose ships are often of this form, use a sort of pumps called *bildge-pumps*, or, as we call them, *burr-pumps*, to carry off the *bildge-water*.

When a ship strikes on a rock, they also say, she is *bilged*, or *bulged*.

BILE, **BILIS**, a yellow bitter juice, separated from the blood in the liver, collected in the *porus bilarius*, and gall-bladder and thence discharged by the common duct into the *duodenum*.

The word *bile* comes from the Latin *bilis*, which some derive farther, from the Greek *βίαι*, *violence*; because bilious people are inclined to anger: others derive it from the Latin *bullire*, *to boil*.

Bile is of two kinds; *hepatic*, and *cystic*.—The first, most properly called *bile*, is separated immediately from the glands of the liver into the *porus bilarius*.—The second, more properly called *gall*, is separated likewise from the glands of the liver into the gall-bladder, by roots or ducts proper to itself. See *GALL*.

The *cystic bile* is thicker, of a deeper yellow, and bitter; though it has varied in colour and taste in different subjects, and different circumstances: is not evacuated continually, but only when its receptacle is replete; in which case, the contraction of the irritated fibres propels it into the *duodenum*.—The *hepatic bile* is greener, thinner, more mild and pellucid, resembling lymph, sub-alcaline, and rather oily, and is continually oozing out; being expelled by the sole action of the neighbouring parts. The *cystic bile* resists acids, and, mixed with other fluids, gives them the like property: it absterges like soap, and renders oils capable of mixing with water; it resolves and attenuates resins, gums, and other tenacious bodies, rendering them homogeneous to itself. It is neither alcalious nor acid, but seems a concretion of oil, salt, and spirits diluted with water. By a chemical analysis, Dr. Drake observes it affords some sulphur, or oil, some volatile salt, a good deal of fixt salt (in which particular it differs from all other animal liquors), and a moderate quantity of *caput mortuum*, or earth: the basis is phlegm.

Dr. Maclurg observes, that the mixture of the mineral acids with the *bile* produces a fine green colour, which he attributes to the union of the phlogiston of the *bile* with the acid: and that the action of the concentrated mineral acids upon the *bile*, whereby they change and decompose it, depends on their violent attraction for the principle of inflammability: and that the menstruum which extracts the colour of the *bile*, extracts at the same time its bitterness; so that it no longer exhibits the phenomena depending on its phlogiston. The vegetable acids do not decompose the *bile*, which, he supposes, is owing to their weaker attraction of the phlogiston. As the brown colour of the *cystic bile* is restored by the addition of an alkali, he infers, that this colour depends on an alkaline nature acquired by the *bile* during its stagnation in the gall-bladder. He concludes also, that there is fixed air in the *bile*, because the caustic alkali, dissolving its coagulum, becomes mild, and capable of effervescence. From other experiments he infers, that the antiseptic principle of the *bile* cannot reside in the part to which it owes its coagulability, and which is exactly analogous to the lymph of the blood; but that it is probably connected with its bitterness, and that both are qualities of the colouring matter. Of all the animal fluids, Dr. Maclurg thinks, that the milk and the *bile* are most analogous to one another, and to the BLOOD. See Maclurg's Exp. on the Human Bile.

The

The principal use and effect of the *bile* is, by mixing with the chyle and *feces*, to attenuate, resolve, absterge, and stimulate the *fibrae motrices* of the intestines; as also to mix together things very different, to bruise and blunt those that are sharp and saline, to divide those that are coagulated, to open the passages for the chyle, to excite appetite, to act the part of a ferment, and to assimilate crude things to things concocted. These effects the *cystic bile* has in a greater, the *hepatic* in a lesser degree.

Dr. Quincy thinks the principal use of both sorts of *bile* is to sheathe and blunt the ACIDS of the chyle, entangling them with its sulphur, so as to prevent their being sufficiently diluted by the pancreatic juice to enter the lacteals: which seems confirmed by this; that, notwithstanding the great quantity of acid salts in the aliment in the stomach, there are never any found in the chyle after it has passed the *duodenum*, and being impregnated with the *bile* continually issuing out of the *porus BILARIUS*. See ACID, and BLOOD.

Borelli asserts, that part of the *bile* discharged into the intestines re-enters the meseraic veins, and, mixing with the blood of the *vena porta*, is again percolated through the liver; and Boerhaave seems of the same opinion: on which footing the *bile* has its circulation, as well as the BLOOD.

Some will have the *cystic bile* brought to its receptacle three different ways, and that it is even composed of three different kinds of *bile*, whence its different properties. Though Boerhaave takes those properties rather to result from its stagnating in the gall-bladder; and, with Malpighi, thinks the bitter part may probably become so in the glands between the coats of the gall-bladder, which are furnished from the cystic arteries; whence it proceeds bitter, and mixes with the rest in the bladder.

The influence of *bile* upon the animal œconomy is allowed to be very great. By its fermentative quality, it promotes digestion: in which respect, it differs widely from vegetable bitters, which are retarders of fermentation. However, in one thing it agrees with them, viz, as a corrector of acidities.

Bile speedily corrupts, but not to such an high or offensive degree as the blood or fibrous parts of the body. To this corruption of the *bile*, as one cause, Dr. Pringle attributes the paroxysms in bilious fevers: nay, all bilious disorders, as the *cholera morbus*, dysentery, &c. are thought to be chiefly owing to a redundancy or corruption of the *bile*. Hence, the reason why these disorders are most frequent in hot countries, and in armies when much exposed to the sun, is, that the *bile*, if not more abundant, is, in such circumstances, more corrupted than usual.

The *bile* is a juice of great importance, with regard to the good or ill habitude of the animal. Dr. Woodward has traced its effects throughout the body very minutely, and makes no scruple to ascribe most of the diseases thereof to some disorder of the *bile*. This he takes to be the chief spring in the animal machine, and from this accounts for most of the phenomena of a body, whether healthy or diseased: and yet the ancients generally took it to be no more than an excrement, for which they could not find any use.

Many of the moderns, from the small quantity of *bile* secreted, have been led into a mistake, that this secretion is not the sole end of so considerable a *viscus* as the liver.

Dr. Keill observes, that in a dog, whose common duct was near as big as that of a man, he gathered at the rate of about two drachms an hour; though, in a human body, there is reason to think the quantity secreted to be greater.

The *bile* is a part found in all animals; even pigeons, &c. which have no gall-bladder, yet have *bile*: their liver being found very bitter. Mr. Sauvry observes, that the *bile* becomes one of the principal causes of THIRST, by mixing with the salival juice.

Sometimes the *bile* from yellow becomes greenish, like verdigrise, and frequently pale, like the yolks of eggs, and that without any other apparent cause than a little motion, a convulsion, or a violent passion of the mind. This occasions many and terrible diseases; as nausea, an abhorrence of food, anxiety, sighing, cardialgias, wind, diarrhoeas, dysenteries, acute diseases, fevers, and convulsions.

Sometimes it becomes black, and takes the name of *choler*: in this case it sometimes tastes like a very sharp vinegar; sometimes like putrefied blood; gnawing, burning, dissolving, consuming, occasioning inflammations, gangrenes, mortifications, violent pains, and terrible fermentations.

Of *ATRA bilis*, or *black bile*, Boerhaave distinguishes three kinds: first, the mildest, arising from the matter of the blood, put in too great a motion, which hence

takes the name of *adust*: the second is an aggravation of the first, arising from the same causes only heightened: the third is a corrupt, parched *bile*, which if it arose from a greenish or palish sort, is still worse.

Too great an evacuation of the *bile*, either upwards or downwards, robs the chylefaction of its main instrument: hence it prevents digestion, secretion, excretion of the *feces*, and produces an acid temperature, coldness, weakness, paleness, swoonings, &c. When the stomach is full, the *cystic bile* is more copiously discharged into the *duodenum*; when it is empty, the *hepatic bile* is more freely secreted in the gall bladder. If the *bile*, when prepared, be prevented its discharge into the intestines, it produces a JAUNDICE, and an overflowing of the GALL.

BILE, secretion of the.—For the manner in which the *bile* is separated in the liver, there are various opinions. Some maintain, that the pores of the secretory glandules of the liver have a certain configuration and magnitude, to which the particles of the *bile* floating in the blood being just answerable, both in bulk and figure, are admitted in, and all the rest excluded. Others, with Sylvius and Lister, not allowing any difference in the configuration, as knowing that the pores of all the vessels are circular, and that particles of all kinds will be admitted, if small enough, have recourse to a ferment, which they suppose to reside in the liver, by means whereof the particles of the blood, in their passage through the secretory ducts, assume the form of *bile*. But, as this is little else than begging the question, others have recourse to another hypothesis; maintaining, that the fluids contained in the blood of the *vena porta*, while that enters the substance of the liver in its way to the extremities of the *vena cava*, indifferently apply to the apertures of the secretory tubes contiguous to the extreme branches of the *porta*, which are wide enough, and to the roots of the *cava*, which are not wide enough, to receive them; by which means, being separated from the society and the intestine motion of the other and essential part of the blood, and being no longer agitated by the vital action of the blood-vessels, and becoming exposed to the actions of the biliary vessels, they constitute a new humour, distinct from the blood, called *bile*, &c. Dr. Keill accounts for the secretion of the *bile* from the strong attraction between the particles whereof it is composed. He observes that the heart and liver being so near each other, were the coeliac artery to have carried all the blood to the liver, considering the velocity of the blood, so viscid a secretion as the *bile* could never have been effected. Nature, therefore, forms a vein for the purpose; viz. the *porta*; and by it sends the blood from the branches of the mesenteric and coeliac arteries to the liver; by which the blood is brought a great way about, passing through the intestines, stomach, spleen, and *pancreas*, before it arrives at the liver: thus its velocity is exceedingly diminished, and the particles that are to form the *bile* have a sufficient time to attract one another, and unite, before they come to their secreting vessels. But, as if this diminution of velocity were not sufficient for the purpose, nature has gone farther, having made the cavities of all the arteries increase as they divide: thus the sum of the branches, arising from the *aorta*, is to the *aorta* itself, as 102740 to 100000. And yet, as if that proportion were too little for the present purpose, nature has here taken a farther step, and increased the branches springing from the mesenteric artery in a greater ratio. Thus, in a body which he examined, he found the sum of the branches more than double that of the trunk; and therefore the velocity of the blood, in the former, must be less than half that of the latter. He farther shews, from a just calculation, that the time the blood now takes, in its passage from the *aorta* to the liver, is at least twenty-six minutes: whereas, had an artery gone directly from the *aorta* to the liver, it would have passed in little more than half a second; viz. 2437 times in the space it now takes up in its passage. Whence it appears, that the blood was not in a state fit to yield *bile*, had it gone directly from the *aorta* to the liver; and that a longer time, and more languid motion, was necessary, to have the bilious particles in a readiness to be separated. He adds, that did the humours exist in the glands the same as they are found after secretion, nature would not, on this occasion, have been at so much expence to retard the blood's velocity: besides, that the *bile* has another advantage from the use of the *porta*: for, by running through so many parts before it reaches the liver, it leaves behind it most of its *lymph*a; by which means the particles being brought nearer each other, are, by their mutual attraction, sooner united. But it has been objected, that this account is too systematical. See GALL, SECRETION, &c.

BILIARY concretions, found in the passage of the *bile*, or in the gall-bladder, commonly called gall-stones, are not of a cretaceous nature, but are merely *coagula* of the

bile formed by an acid; which, being allowed to stagnate, acquire a stony hardness.

BILGE, see BILDGE.

BILIMBI, in *Natural History*, the name of an East India tree, very famous throughout that part of the world for its uses in medicine. European botanists have called it *MALUS Indica fructu pentagona*, or the Indian apple-tree, with the five-cornered fruit.

It seldom grows to above twelve feet high, and is not commonly wild, even in the East Indies, but is carefully cultivated in gardens, where it flowers all the year round. The juice of the root is drank as a cure for fevers. The leaves boiled, and made into a cataplasm with rice, are famed in all sorts of tumors, and the juice of the fruit is used in almost all external heats, dipping linen rags in it, and applying them to the parts. It is drank, mixed with arrack, to cure diarrhoeas; and the dried leaves, mixed with betel leaves, and given in arrack, are said to promote delivery. The fruit is pleasant to the taste when fully ripe, and is commonly eaten; when smaller, and unripe, it makes a very pleasant pickle.

BILINGUIS, in *Law*, see *MEDIETAS Linguae*.

BILINGUIS properly denotes a person, who has two TONGUES in his mouth; an instance of which is given by *Dokæus*. It is also used for a person who speaks two languages.

BILIOUS complexion, see COMPLEXION, and TEMPERAMENT.

BILIOUS colic, see COLIC.

BILIOUS FEVER, a term used by medical writers to express such fevers as arise from an immediate effusion of the bile. These often arise from violent fits of anger in the patient. Of this nature are the *cholericæ febris*, and *causus*.

Dr. Pringle, in his *Observations on the Diseases of the Army*, remarks, that the *bilious* or putrid fever is epidemic in camps, especially in low and marshy countries, where the air being full of moist and putrid effluvia, tends to relax the fibres and promote putrefaction. As to the symptoms of the *bilious* fever, it always begins with chillness and lassitude, pains of the head and bones, and a disorder at the stomach. At night the fever runs high; the heat and thirst are great; the tongue is parched; the head aches violently; the person gets no rest, and often becomes delirious; but generally in the morning an imperfect sweat brings on a remission of all the symptoms. In the evening the paroxysm returns, but without any cold fit, and is commonly worse than the former: on the second morning it remits as before. These periods go on, daily, till the fever changes insensibly, either into a confirmed, or into an intermitting state. Sometimes loose stools carry off the fit, and supply the place of sweats: however, though it resembles an ague in many particulars, yet it is rare to meet with a real ague in the camp, unless the person has been ill of it before he took the field. The remissions usually appear from the beginning, especially if the patient has been plentifully blooded: but sometimes there are no remissions for the last two or three days. Hæmorrhages of the nose happen frequently in the height of the paroxysm, and always bring on the remission sooner, and make it fuller. Vomiting or purging have the like effects. The fits are seldom preceded by shiverings, or any sense of cold after the first attack; the pulse is always full and quick during the paroxysms, and in the remissions it still indicates some degree of fever. The blood is florid, the *crassamentum* is firm, in large quantity, and sinks in the *serum*. Whilst the weather continues warm, the *bilious* symptoms are most frequent, but as winter approaches, the INFLAMMATORY ones prevail.

The doctor enumerates other symptoms, as crudeness of the urine, *bilious* stools, costiveness, &c. and farther observes, that the infantry are more liable to it than the cavalry.

As to the cure of the *camp-fever*, before it becomes continued, it depends upon the proper use of evacuations, the neutral salts, and the bark. Bleeding he judges indispensable; which he would have repeated once or oftener, according to the urgency of the symptoms. After bleeding it will be necessary to give an emetic, the best time for doing which is in the remission of the fever, and rather sooner after a paroxysm than before one. He adds, however, that vomits do harm when the stomach is anywise inflamed; in which case they ought never to be given. *Ipecacuanha* is the safest and easiest, but antimonials make the most efficacious vomit. If the body remains costive, it is necessary to open it with some lenient physic; and especially if the bowels are affected with pains, or a *teneismus*. He likewise recommends salt of wormwood, lemon juice, *spiritus Mindereri*, and the bark; which last ought not to be given till the urine breaks, and the intermissions take place. Bleeding and purging are also necessary before the bark ought to be

given: it answers best in substance administered in Rhenish wine, after standing a night in infusion.

If after remissions or intermissions, the disease changes into a continued fever, bleeding becomes necessary, unless other symptoms forbid it; but whether there be room for bleeding or no, blisters are not only useful, but the best remedy. To these may be joined the neutral salts and diaphoretic powders. But, though a sweat be the proper crisis, it ought never to be promoted by *theriacæ*, or the like hot medicines; unless the pulse should sink, and the *petechiæ* or other bad symptoms appear: in which case the warmer alexipharmics are necessary, as the disease has changed into a MALIGNANT FEVER. See *Malignant catarrhal FEVER*.

BILL, in *Husbandry*, denotes an edge-tool, of the ax kind, with a hooked point, fitted to a handle, and used to lop boughs of trees, &c. When short, it is called a *hand-bill*; when long, a *hedge-bill*.

BILL, in *Commerce*, denotes a security for money under the hand and sometimes seal of the debtor, without any condition, or forfeiture, in case of non-performance.—In which it is distinguished from a bond or obligation.

It has been usually defined a writing, wherein one man is bound to another to pay a sum of money, on a day that is future, or presently on demand, according to the agreement of the parties at the time when it is drawn, and the dealings between them.

BILL, in *Law*, denotes a declaration in writing, expressing a wrong, or grievance, which the complainant hath suffered by the party complained of; or else some offence committed by him against some law or statute of the realm. This *bill* is commonly addressed to the lord chancellor, especially for unconscionable wrongs done sometimes to others having jurisdiction, according as the law they are grounded on directs.—It contains the fact complained of, the damages sustained, and the petition of process against the defendant for redress.

BILL, in PARLIAMENT, denotes a paper containing propositions offered to the houses, to be passed by them, and then to be presented to the king to pass into an act or law.

BILL of attainder, see ATTAINDER.

BILL of appeal, see APPEAL.

BILL of EXCHANGE, a short note, or writing, ordering the payment of a sum of money in one place, to some person assigned by the drawer, or remitter, in consideration of the like value paid to him in another place. See REMITTANCE.

The whole estate and effects of merchants often consist in *bills of exchange*.

A *bill of exchange* is an instrument so noble and excellent, that though it want those formalities required by the common law; as seal, delivery, and witnesses; and so cannot be deemed a specialty; yet it is superior to any bond or specialty by the respect that is paid it, and the punctuality and preciseness of the payment.

There is some dispute about the nature and sanction of a *bill of exchange*: some take it to be a contract of permutation, or exchange; but the more general opinion is, that it is a mere contract of buying and selling; that the money given the person who draws the bill is the price of sale; and that paid at the appointed place, the thing bought and sold.

Bills of exchange were unknown in the ancient Roman commerce, as well as jurisprudence. According to the common opinion, they are the invention of the Jews: who, being banished France, for some enormous crimes charged on them, retired into Lombardy, about the twelfth century, and found means to withdraw their effects, which they had lodged in the hands of friends, by secret letters and *bills* conceived in short precise terms, like the modern *bills of exchange*; and this, by the assistance of merchants and travellers.—The faction of the Gibellins, being expelled Italy by the Guelphs, retired to Amsterdam, and used the same means, for the recovery of their effects in Italy, as the Jews had done; hence the Dutch merchants took the hint of negotiating *bills of exchange*; and soon spread the practice throughout all Europe.—The same Gibellins are said to be the inventors of the *rechange*, on account of damages and interests, when *bills of exchange* which they call *polizzo di cambio*, are not paid, but returned on protest. See RE-EXCHANGE.

That which constitutes the form and essence of a *bill of exchange*, is, the cession, or transferring of a sum of money made by the drawer, to him on whose account it is drawn, to be received of his correspondent in another place; which cession, or transfer, is made, in the mercantile terms, for *value received*, i. e. for a like sum given by the person for whose sake the *bill* is drawn, to the drawer, in money, merchandize, or other effects.

There are therefore three things necessary to constitute a *bill of exchange*: 1st, That it be drawn in one city on another,

another. 2dly, That there be three persons concerned; the drawer, the presenter, or the person for whom it is drawn, and the ACCEPTOR, or he on whom it is drawn. 3dly, That it makes mention, that the value which the drawer has received, is either in *bills of exchange*, in money, merchandize, or other effects, which are to be expressed; otherwise it is no *bill of exchange*.

When a *bill of exchange* is expressed to be *value in itself*, it is not supposed the drawer has received the sum; but the person for whom it is drawn, stands debtor to him for it.—When a *bill of exchange* bears, *for which sum I promise to furnish bills of exchange* to such a place, the person for whom the bill is drawn may compel him to give the bills, or to return the money.

Bills of exchange may be divided into *inland* and *outland*. *Outland* or *foreign bills* are those made for money taken up in some other country, and to be paid in England; or *vice versa*.—*Inland bills* are those made for money taken up in one part of the kingdom, and to be paid in another.—By the stat. 9 and 10 Will. III. these latter are made equally binding with the former: and the method of protesting such *bills* is farther regulated by 3 and 4 Anne. See NOTE.

BILLS, *Lumbard*, are instruments of an uncommon kind and figure, used in Italy and Flanders, and of late also in France; consisting of a piece of parchment, cut to an acute angle about an inch broad at top, and terminating in a point at bottom; chiefly given, where private persons are concerned in the fitting out a ship for any long voyage.

The manner is this: the party who is desirous to be concerned in the cargo or venture, carries his money to the merchant, who fits out the ship, where it is entered down in a register; at the same time the merchant writes down on a piece of parchment, upwards of an inch broad, and seven or eight inches long, the name of the lender, and the sum lent, which being cut diagonally, or from corner to corner, each party retains his half. On the return of the vessel, the lender brings his moiety to the merchant, which being compared with the other, he receives his dividend accordingly. Much the same is practised in Holland by those who lend money on pledges: the name of the borrower, and the sum, are written on a like slip of parchment, which is cut in two, and half given to the borrower, and the other half flitted to the pledge: that, upon comparing them together again, the borrower may receive his goods on paying the money stipulated.

BILL, to note a, see NOTE.

BIL, to protest a, see PROTEST.

BILLS, *bank*, are notes or obligations signed on behalf of the company of the BANK, by one of their cashiers for value received. See NOTE.

BILL of *parcels*, an account of the particular sorts and prices of goods bought, given by the seller to the buyer.

BILL of *lading*, an instrument signed by the master of a ship, acknowledging the receipt of a merchant's goods, and obliging himself to deliver them at the place to which they are consigned, in good condition.

Of such *bills* there are usually three: the *first*, the merchant keeps; the *second*, is sent to the factor to whom the goods are consigned; and the *third*, is kept by the master of the ship.

BILL of *sale*, is when a person, wanting a sum of money, delivers goods as a security to the lender, to whom he gives this *bill*, empowering him to sell the said goods, in case the sum borrowed is not repaid, with interest, at the time appointed.

BILL of *store*, a kind of licence granted at the custom-house to merchants, to carry such stores and provisions as are necessary for their voyage, custom-free.

BILL of *sufferance*, a licence granted at the custom-house to a merchant, to suffer him to trade from one English port to another, without paying custom.

BILL of *entry*, an account of goods entered at the custom-house, both inward and outward; wherein is expressed, the merchant importing or exporting, the quantity of goods, and the sorts, and from whence imported, or to what place exported.

BILLS of *mortality*, are weekly lists compiled by the parish-clerks in and about London, containing the numbers of such as die of each disease, as well as of those that are born every week. See MORTALITY.

BILL, in *Physiology*, is a cartilaginous substance covered with a skin or *cutis*, which forms the beak, or *rostrum*, of a BIRD.

The bill does the office of teeth in some birds; also of weapons of offence. In the parrot kind it is hooked, and serves to climb, and catch hold of boughs. The upper *bill* of this bird is filled with rows of cross bars; and the under *bill*, which is much shorter, shuts within the upper, and draws against the roof of the mouth; by which means a kind of mastication is effected, before the meat passes into the craw. The PHOENICOPTER'S

bill is a true *hyperbola*, pointed at the end like a sword; and what is remarkable, the upper *bill* of this bird moves in eating, the lower being fixed, which is the contrary of what is found in all other kinds. The wood-pecker's *bill* is strong, and sharp enough to dig holes, and build in the heart of the hardest timber. See PHOENICOPTERUS and PICUS. Phil. Transf. N° 211, p. 155. N° 350, p. 509.

In the island of Fero, a fixed reward is given for the *bills* of ravenous birds: all watermen are obliged to bring a certain number yearly to the country courts, at the feast of St. Olaus; when they are thrown into a heap, and burnt in triumph. Plott gives divers instances of monstrous irregularities in the *bills* of birds; particularly of a raven, whose mandibles crossed each other, the lower chap turning upwards, and the upper downwards. Plott's Nat. Hist. Stafford. ch. vii. § 4.

BILL, *crow's*, among *Chemists*, the beginning of the fanciful process of the philosopher's stone, discovered by the blackness of the matter, called also the *crow's head*.

BILLA VERA, *the bill is true*. The grand jury indorsing a *bill* whereby any crime punishable in that court, is presented to them, with the words *bill a vero*, signify thereby, that the presenter has furnished his presentment with probable evidence, and worthy of farther consideration; whereupon the party presented is said to stand *indicted* of the crime, and bound to make answer thereto, either by confessing or traversing the indictment.

BILLARD, in *Ichthyology*, an English name for the young of the coal-fish, or rowling pollack, up to a certain size, as the cod to a certain size is called a *codling*. Willoughby.

BILLES, in *Traffic*, a name given first by the French, and afterwards by other nations, to the masses of raw steel, or such as has been tempered for sale, and is ready to be wrought into tools, &c. This in working loses its temper, but recovers it again by plunging it into cold water.

BILLET, in *Heraldry*, a bearing in form of a long square. See Tab. Herald. fig. 9.

Billets are said to be couched, or inverted, when their longest side is parallel to the top of the shield, and the shortest perpendicular.

They are supposed to represent pieces of cloth of gold or silver, longer than broad, placed at a distance by way of ornament, on cloaths, and afterwards translated to their coat-armour; though Guillim takes the *billet* to represent a letter sealed up.

A coat is said to be *billeted*, when it is charged with *billets*; thus, he bears *argent-billette* a cross engrailed gules by the name of *Heath*. Bloom says, the number of the *billets* must be expressed when they are not above ten.

BILLET, *Billette*, in the *French Customs*, a little sign in form of a cask, hung up at places where toll is to be paid, to advertise passengers and carriages, that before they advance farther, the dues are to be paid to the king, or the lord who is charged with the care of repairing the high ways.

BILLETS for *fuel*, are to be three feet long, and the band twenty-four inches round.

BILLETING of *soldiers*, is the lodging or quartering of them in the houses of the inhabitants of a place.

BILLETINS. See BROTHERS of Charity.

BILLIARDS, an ingenious kind of game played with two small ivory balls, on an oblong table, covered with green cloth, and placed exactly level, which balls are driven by sticks made on purpose, alternately against each other, with a view to push the passive ball into hazards, or holes, on the edges and corners, according to certain laws, or conditions of the game.

The word comes from the French *billiard*, of *bille*, the ball made use of; and that from the Latin *pila*, a ball.


BILLON, **BILLIO**, in *Coinage*, a kind of base metal, either of gold or silver, in whose mixture copper predominates. The word is French, formed according to Menage, from the Latin *bullus*, or *bullo*, *bullion*.—We do not find it is naturalized among us; but the necessity we are frequently under of using it in the course of this work, required its being explained.

According to M. Bouterroue, *billon of gold* is any gold beneath standard, or twenty-one carats; and *billon of silver*, all below ten penny-weights. But, according to others, and among the rest, M. Boizard, gold and silver beneath the standard, as far as twelve carats, and six penny-weights, are properly base gold and silver, and all under those *billon of gold*, and *billon of silver*, in regard copper is the prevailing metal.

BILOCULAR, in *Botany*, a term applied to a CAPSULE having two cells.

BILUR, in *Natural History*, a name given by many of the Arabian writers to a gem, which though they often mention, yet they have no where given us a description of. Some have imagined it the *onyx*, and others the *beryl*; but it appears more probable to have been a species of crystal; probably the pebble-crystal of the East Indies, which is considerably finer than the common sprig-crystal,

tal, and is often fold under the name of the white sapphire; though considerably inferior, both in lustre and hardness, to the true white sapphire.

BIMEDIAL, in *Mathematics*. When two medial lines, as A B and B C, commensurable only in power, and containing a rational rect-angle, are compounded; the whole A  C shall be irrational, with respect to either of the two, and is called a *first bimedral line*. Eucl. lib. x. prop. 38.

BINACLE. See **BITTACLE**.

BINARY number, that composed of two units. See **NUMBER**.

BINARY arithmetic, a method of computation, first proposed by M. Leibnitz; wherein, in lieu of the ten figures in the common arithmetic and the progression from 10 to 10, he has only two figures, and uses the simple progression from two to two.

Jos. Pelican, of Prague, has more largely explained the principles and practice of the *binary arithmetic*, in a book entitled, *Arithmetica perfectus, qui tria numerare nescit*. 1712.

All his characters used in this arithmetic are 0 and 1; and the cypher, here, multiplies every thing by 2, as in the common arithmetic by 10. Thus, 1 is one; 10, two; 11, three; 100 four; 101, five; 110, six; 111, seven; 1000, eight; 1001, nine; 1010, ten, &c. which is founded on the same principles with the common arithmetic.

Hence immediately appears the reason of the celebrated property of the duplicate geometrical proportion in whole numbers; viz. that one number of each degree being had, we may thence compose all the other whole numbers above the double of the highest degree. It beings here, v. gr. as if one should say 111 is the sum of

4, 2, and 1, which property may serve assayers to weigh all kinds of masses with a little weight; and may be used in coins, to give several values with small pieces. This method of expressing numbers once established, all the operations will be easy: in multiplication particularly, there will be no need for a table, or getting any thing by heart.

The author, however, does not recommend this method for common use, because of the great number of figures required to express a number; adding, that if the common progression were from 12 to 12, or from 16 to 16, it would be still more expeditious: but its use is in discovering the properties of numbers, in constructing tables, &c.

What makes the *binary arithmetic* the more remarkable is, that it appears to have been the same with that used 4000 years ago among the Chinese, and left in *anigma* by Fohi, the founder of their empire, as well as of their sciences.

M. Lagni has proposed a new system of logarithms, on the plan of the *binary arithmetic*; which he finds shorter, more easy and natural, than the common ones.

BINARY measure, in *Musick*, is that which is beaten equally: or where the time of rising is equal to that of falling. See **TIME** and **MEASURE**.

BINATED leaf, in *Botany*, a digitate leaf, consisting of two *foliola*.

BIND-weed. See **CONVOLVULUS**, and **BRYONY**.

BIND-weed, rough. See **SMILAX**.

BIND-weed, sea. See **SOLDANEL**.

BINDER-ooze, the weakest kind of *tan-ooze*. See **TANNING**.

BINDING joists, in *Architecture*, are those joists in a floor, into which the trimmers of stair-cases, or well-holes of the stairs, and chimney-ways, are framed: they ought to be stronger than common joists.

BINDING, in the *Art of Defence*, a method of securing or crossing the adversary's sword with a pressure, accompanied with a spring from the wrist. See **BEATING**.

Unless a man, by some kind of cross, secure, as it were, or render his adversary's sword incapable to find him during the time of his performing a lesson upon him, it is impossible for him to be certain but that he may receive from his adversary, either a fortuitous *contretemps*, or an exchanged thrust, before the recovery of his body, or going off after a thrust.

The great objection made by some people, particularly those time-catchers, against the frequent use of *binding*, is, that when a man, in performing it, cleaves too much to his adversary's sword, he is liable to his adversary's slipping of him, and consequently of receiving either a plain thrust, or one from a feint.

BINDING is a term in *Falconry*, which implies tiling, or when a hawk seizes.

BINDING books. See **BOOK-binding**.

BINN, *binna*, a sort of chest or cupboard, wherein to lock up bread, meat, or other provisions.

The word is also used for a place boarded up to put corn in.

BINN, or **BIN**. The pease and oatmeal, used at sea, are apt to spoil in casks. Dr. Hales proposes to prevent this, by putting them into large *binns*, with false bottoms of hair cloths laid on bars, whereby fresh air may be blown upwards through them, at proper times, with small **VENTILATORS**.

BINOCLE, or **BINOCULAR telescope**, from *binus*, *double*, and *oculus*, *eye*, that to which both the eyes may be applied, and consequently the same object be observed at the same time by both.

It consists of two tubes, with two sets of glasses of the same power, and adjusted to the same axis; and some have pretended that it represents objects much larger and clearer, than a single, or **MONOCULAR** glass.

But this is only an illusion, occasioned by the stronger impression, which two equal images alike illuminated make upon the eye. This method of construction was invented by father Rheita, and brought into use by father Cherubin of Orleans. There are also microscopes of the same kind, but very seldom used.

BINOMINAL, or **BINOMIAL**, from *bis*, *twice*, and *nomen*, *name*, in *Algebra*, a root consisting of two parts, or members, connected by the sign + or -.

Thus $a + b$ and $5 - 3$ are *binomials*, consisting of the sums and difference of those quantities; though the latter is usually called **RESIDUAL**.

The powers of a *binomial* are found by a continual multiplication of it by itself, as often as unit is contained in the index of the power required. Those of a *residual*, $a - b$, are obtained in the same manner, only with this difference in the result, that the terms in which the exponent of b is an odd number, will be negative.

If a root have three parts, as $a + b + c$, it is called a **TRINOMIAL**; if more, a **MULTINOMIAL**.

BINOMIAL, *impossible*, in *Algebra*, is used for a *binomial*, one of the terms of which is an impossible quantity. Thus, $a + \sqrt{-bb}$, is an *impossible binomial*.

BINOMIAL surd is used for a *binomial*, the terms of which are surds; as $\sqrt{a} + \sqrt{b}$, or $a^m + b^n$, if m and n be fractions. The term *binomial surd*, is also applied to any quantity having a rational part and a surd part, as $25 + \sqrt{968}$.

For the extraction of roots of *binomial surds*, see Newton's *Arithmetica Universalis*, and Mac Laurin's *Algebra*, p. 114—130.

BINOMIAL curve is used for a curve, the ordinate of which is expressed by a *binomial*. Thus if the ordinate of a curve be

$y = a + e + f x^2$, the curve is called a *binomial curve*. Stirling, *Method. differ.* p. 58.

BINOMIAL theorem is often used to signify sir Isaac Newton's theorem for raising a *binomial* to any power, or for extracting any **ROOT** of a *binomial*.

This *theorem* may be investigated and explained in the following manner: whatever power of $a \mp b$ be required, it is obvious, from a continued multiplication of this quantity into itself, that the index of a in the first term is equal to the index of the power required; and that the indices of a decrease by the same difference, viz. unit, so as to become 0 in the last term; the quantity being $a^0 = 1$. Those of b increase; in the first term it has 0 for its index, in the second 1, &c. and in the last term its index is the same with that of a in the first; and the sum of the indices of both quantities in every term is the same, or equal to the index of the power required. The coefficient for any term is easily found; that of the first term being unit, by multiplying the coefficient of the preceding term by the index of a in the same term, and dividing the product by the index of b in the given term, and continuing the operation, till the number of coefficients after the first be equal to the number of units in the index of the power required. Whence it appears that the coefficients increase, till the indices of the two quantities are equal, in a power denominated by an even number; and in a power denominated by an odd number those of the two middle terms are the same; and then the remaining coefficients decrease in the same order. Thus, if $a \mp b$ is to be raised to a power denoted by m , $(a \mp b)^m$ will be equal to $a^m \mp$

$$m a^{m-1} b + m \times \frac{m-1}{2} \times a^{m-2} b^2 \mp m \times \frac{m-1}{2} \times \frac{m-2}{3} \times$$

$$a^{m-3} b^3 + m \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-3}{4} \times a^{m-4} b^4, \&c. \text{ The}$$

same *theorem* may be easily applied to the *evolution* of powers, or the *extraction* of any root; the index in this case being a fraction whose denominator is equal to the index of the root required. E. gr. $\sqrt{a \mp b} = a^{\frac{1}{2}} \mp b^{\frac{1}{2}}$

$$= a^{\frac{1}{2}} \mp \frac{1}{2} \times a^{1-\frac{1}{2}} b^{\frac{1}{2}} + \frac{\frac{1}{2}-1}{2} \times a^{\frac{1}{2}-2} b^2 \mp \frac{\frac{1}{2}-1}{2} \times$$

$$\frac{\frac{1}{2}-2}{3} \times a^{\frac{1}{2}-3} b^3, \&c. = a^{\frac{1}{2}} \mp \frac{1}{2} \times a^{-\frac{1}{2}} b + \frac{1}{2} \times -\frac{1}{4} \times$$

$$a - \frac{1}{2}b + \frac{1}{4} \times -\frac{1}{4} \times -\frac{1}{2} \times a - \frac{1}{2}b^3, \&c. = a \frac{1}{2} + \frac{1}{2}a - \frac{1}{2}b$$

$$-\frac{1}{4} \times a - \frac{1}{2}b^2 + \frac{1}{16} \times a - \frac{1}{2}b^3, \&c. = a \frac{1}{2} + \frac{b}{2a \frac{1}{2}} - \frac{b^2}{8a^{\frac{3}{2}} + 16a^{\frac{5}{2}}}$$

&c. See ROOT, REVERSION, SERIES, &c.

BINOMIUS, from *bis* and *nomen*, name, in *Middle Age Writers*, denotes a person with two names.

Most Christians anciently were *binomii*, as having had other names in their heathen state, which they changed at their conversion. Besides, it was an ancient custom for parents to give names to their children immediately after they were born, and sometimes other different ones afterwards at their baptism; one of which frequently became a *cognomen*, or surname. In reality it was a constant practice to assume a new name at baptism, as the religious still do in the Romish church, on their reception into the monastic state; or the Jewish proselytes at their circumcision.

BIOCOLYTÆ, in the *Byzantine Empire*, an order of officers appointed to prevent the violences frequently committed by the soldiers.

The word is compounded of *βία*, *vis*, violence, and *κωλυω*, *I hinder*; and should rather be written *biacolytæ*.

The *biacolytæ* appear to have been much the same with the French archers of the Marshalsea. They were suppressed by the emperor Justinian.

BIOGRAPHER, an author who writes a history, or life, of one or more persons.—Such were Plutarch, Corn. Nepos, &c.

The word is formed from the Greek *βίος*, *life*, and *γραφω*, *scribo*, *I describe*.

BIOGRAPHY, the art of describing or writing lives.

Biography is a branch or species of history more entertaining, as well as more useful in many respects, than general history, as it represents great men more distinctly, unincumbered with a croud of other actors, and descending into the detail of a man's actions and characters, gives more light into human nature, as well as excites us more to imitation. See an excellent paper on *biography* in the *Idler*, and in the *Annual Register*, vol. i. p. 436. an. 1759.

BIOLYCHNIUM, a substantial fire, flame, or HEAT, which some physicians suppose actually lodged, or inherent in the heart, and remaining there as long as life lasts. The word *biolychnium* is compounded of the Greek *βίος*, *life*, and *λυχνος*, *light*.

Some will have it to have been the human soul, others the animal spirits, and others the Deity, that did the office of a *biolychnium*, and was the spring of all the actions and motions of the body. See BLOOD, &c.

Casp. Hoffman, and Conringius have written treatises expressing on the ancient doctrine of the lamp of light, or innate heat.

BIOLYCHNIUM is also a denomination of a peculiar kind of vital balsam, prepared from human blood; the process of which is described by Beguinus. J. Ern. Burgravius has a treatise expressing on it.

BIOTA, in *Zoology*, a name introduced by Dr. Hill for the POLYPE.

It is of a cylindric figure, but variable; the *tentacula* are arranged in a single series round the aperture of the mouth, at the extremity of the body. There are several species of this animal.

Linnæus calls this creature *hydra*, no doubt from the reproduction or repullulation of the parts, when cut off; and this name, *biota*, is likewise given it on the same account, being derived from *βίος*, *life*.

BIOTHANATI, from *βία*, violence, and *θανατος*, death, in some *Medical Writers*, denote those who die a violent death.

The word is also written, and with more propriety, *biathanati*; sometimes *biathananti*.

In a more particular sense, it denotes those who kill themselves, more properly called *autothanati*. See MURDER. In this sense it is, that the word is used both by Greek and Latin writers. By the ancient discipline of the church, they were punished by denying them burial, and refusing all commemoration of them in the prayers and offices of the church.

BIOTHANATI, supposed by some to be derived from *βίος*, *life*, and *θανατος*, *death*, and alluding to the belief of a future life after death, was also a name of reproach given by the heathens to the primitive Christians, for their constancy, and forwardness to lay down their lives in martyrdom.

BIOTHANOTOS is also used in some writers of the barbarous age for wicked, damnable, or accursed. Du-Cange.

BIOUAC, **BIVOUAC**, or **BIOVAC**, in the *Military Art*, a nightly guard performed by the whole army, when there is an apprehension of danger from the enemy.

The word is formed, by corruption, from the German *weyacht*, a double watch or guard.

BIPARTIENT, in *Arithmetic*, is a number that divides another into two equal parts without a remainder. Thus 2 is a *bipartient* to 4, &c.

BIPARTITE leaf, in *Botany*, signifies a leaf divided into two segments.

BIPARTITION signifies such dividing.

BIPENNIS, in *Roman Antiquity*, a two-edged ax, used anciently by the Amazons in fight: as also by the seamen, to cut asunder the ropes and cordage of the enemy's vessels. The *bipennis* was a weapon chiefly of the oriental nations; made like a double ax, or two axes, joined back to back, with a short handle. Some compare it to a figure of a pen, and suppose it hence to have acquired the name *bipennis*; the tube or barrel of the pen representing the handle, and the point or nib the head. Modern writers usually compare it to our HALBERD, or *partizan*; from which it differed in that it had no point, and that its shaft or handle was much shorter.

BIQUADRATE, or **BIQUADRATIC**, is the next POWER above the cube, or the square multiplied by itself.

BIQUADRATIC equation, in *Algebra*, an equation raised to the fourth power; or where the unknown quantity of one of the terms has four dimensions: thus $x^4 + ax^3 + bx + cx + d = 0$ is a *biquadratic* equation. See EQUATION.

BIQUADRATIC parabola, in *Geometry*, a curve line of the third order, having two infinite legs tending the same way. See PARABOLA.

BIQUADRATIC power of any number, is the fourth power, or squared square, of that number: thus 16 is the *biquadratic* power of 2; for $2 \times 2 = 4$, and $4 \times 4 = 16$.

BIQUADRATIC root of any number, is the square root of the square root of that number: thus the *biquadratic* root of 81 is 3; for the square root of 81 is 9, and the square root of 9 is 3.

BIQUALAR, in the *Customs of the Algerines*, a cook of the divan.

The janizaries, whom the Algerines call *oldachis*, after serving a certain time as common soldiers, are preferred to be *bigualars*, or cooks of the divan, which is the first step towards arriving at higher preferments. *Bigualars* have the care of furnishing the officers and commanders of the Algerine soldiery with meat and drink in the camp, in garrison, &c. From *bigualars* they are made *odobachis*; that is, corporals of companies, or commanders of squadrons.

BIQUINTILE, an ASPECT of the planets, when they are 144 degrees distant from each other. It is thus called, because they are distant from one another by twice the fifth part of 360 degrees.

BIRABETANE, in the *Botanical Writings of the Ancients*, a name given to *verbena*, or vervain, and to other herbs used in sacrifices. It is only the word *hierobotane*, as altered by the *Æolic* manner of writing and speaking it. *Hierobotane* is the common Greek name of vervain, and other sacrificial herbs, and it is probable that the Latin name *verbena* came from the *Æolic* manner of speaking this word. All those herbs, which were laid upon the altars on solemn occasions, such as making of peace, and other solemn contracts, and were to be taken up by the contracting parties as part of the ceremony, were called by the Greeks *hierobotanæ*, that is, *sacred plants*, and *verbenæ*; but as the plant we now particularly know by the name *verbena* was more frequent in use than any other on this occasion, it was afterwards distinguished by that name.

BIRAO, in *Botany*, the name given by the inhabitants of the Philippine islands to a plant more commonly known among botanical writers by the name TUGUS, and supposed by Camelli, who carefully observed it on the spot, to be the true AMOMUM of the ancient Greeks.

BIRCH-tree, *Betula*, in *Botany*, a genus of trees of the *monœcia tetrandria* class; the characters of which are these: it hath male and female flowers, at separate distances on the same tree; the male flowers collected in a cylindrical catkin. The flower is composed of three equal florets, fixed to the empalement by a single scale, having four small stamina. The female flowers grow in a catkin, in the same manner as the male, which are heart-shaped. They have no visible petals, but a short oval germen. It hath no *pericarpium*, but the seeds are included in the scales of the catkin, which are oval and winged. There are four species.

The first is the common *birch-tree*, which is so well known as to need no description. This is not much esteemed for its wood, but however may be cultivated to advantage upon barren land, where better trees will not thrive; for there is no ground so bad but this tree will thrive in it; it will grow in moist springy land, or in dry gravel or sand, where there is little surface. So that upon ground which produced nothing but moss, these trees have succeeded so well, as to be fit to cut in ten years after planting, when they have been sold for near 10 l. an acre standing; and the after-produce has been considerably increased. Many woods near London, which were chiefly

flocked with these trees, having been of late years grubbed up, the value of these plantations has advanced in proportion. Persons therefore who are possessed of poor land, cannot employ it better than by planting it with these trees, especially as the expence of doing it is not great. The best method of cultivating this tree, is to procure young plants from the woods, where they grow naturally; but where no young plants are near, they may be raised from seeds, which should be carefully gathered in autumn, as soon as the scales under which they are lodged begin to ripen, otherwise they will soon fall out and be lost; and being small, should not be buried deep in the ground. Autumn is the best season for sowing them; and in a shady situation they will thrive better than when exposed to the full sun.

The seeds of *birch* are so disposed for germination, that they will even grow on the body of the mother tree when falling, and being incased on it, adhere so strongly, as never to separate from it; but increasing yearly, form those crowded bushes, like birds nests, often seen on *birch* trees. If the plants take kindly to the ground, they will be fit to cut in about two years; after which they may be out every seventh or eighth year, when designed for the broom-makers only; but when they are intended for hoops, they should not be cut oftener than every twelfth year.

Broom-makers are constant customers for *birch*, in all places within twenty-miles of London, or where it is near water carriage; in other parts the hoop benders are the purchasers. But the larger trees are often bought by the turners; and the wood is used for making ox-yokes, and other instruments of husbandry. In some of the northern parts of Europe, the wood of this tree is greatly used for making carriages and wheels, being hard, and of long duration. In France it is generally used for making wooden shoes, and it is good fuel. In some places these trees are tapped in the spring, and the sap drawn to make *birch* wine, which has been recommended for the stone and gravel, as is also the sap unfermented. In Sweden the houses are covered with it, where it lasts many years. It frequently happens that the wood is entirely rotten, while the bark is perfectly sound and good. The piercing and bleeding of *birch* is performed thus: about the beginning of March, when the buds begin to be proud and turgid, and before they expand to leaves, with a chissel and a mallet cut a slit almost as deep as the pith, under some branch of a well-spreading *birch*; cut it oblique, and not long-ways, as a surgeon does a vein; and insert a small stone or chip, to keep the lips of the wound a little open; lastly, to this orifice fasten a bottle, or other convenient vessel, appendant, into which will exsist a limpid and clear water, retaining an obscure smack both of the taste and odour of the tree. The wonder is, that, in the space of twelve or fourteen days, as much juice will be gathered, as will outweigh the whole tree, body and roots. Phil. Transf. N° 43. p. 854. N° 44. p. 880. N° 46. p. 917 and 963.

The liquor or juice, thus procured, is used, in some northern countries, as a preservative against the stone. Van Helmot extols a drink prepared with this juice, daucus-seeds, and brook-lime. Mr. Boyle tells us, he has seen extraordinary medicinal effects of the juice itself, even when the other remedies failed; so that he usually provided a quantity of it every spring. He says, it may easily be preserved, by pouring a little oil on the top of it, or by distillation; but that the best way is, to impregnate it with the fumes of sulphur. Phil. Works abr. vol. i. p. 51. and vol. iii. p. 338.

The juice is used both to make wine of, and for brewing; being here employed in lieu of water, a barrel of malt will afford as much, and as good ale, as four with common water. Phil. Transf. N° 46. p. 963.

A great difference is found between the efficacy of that liquor which distils from the bold, or parts of the tree nearer to the root, and that which weeps out from the more sublime branches; the former being more crude and watery, the latter purer, and more refined. Evel. Sylv. cap. 16. § 3. p. 71.

BIRCH-tree of America. See MASTIC-tree.

BIRCH-bark being bituminous, and consequently warm and emollient, is used in fumigations to correct a distempered air.

The inner silken bark was anciently used for writing-tables, before the invention of paper; though Ray rather assigns the office of paper to the cuticle, or outer skin, which peels off yearly. And with the outward, thicker, and coarser part are houses in Russia, Poland, and other northern tracts, covered, instead of slates and tyle. Hist. Plant.

The Indians make pinnaces with white cedar; which they cover with large flakes of *birch*-bark, sewing them with thread of spruce-roots, and pitching them; as the ancient Britons did with the willow. Pliny speaks of a bitumen actually procured from the *birch*-tree. Hist. Nat. lib. xvi. c. 18.

BIRCH, *fungus* of, an excrescence growing on its trunk: it is altringent, and good against hæmorrhages; when boiled, beaten, and dried in an oven, it makes excellent spunk, or touchwood.

BIRCH-leaves are of use in the dropfy, itch, &c. either internally or externally applied.

BIRCH-twigs serve to make rods and brooms; smeared with bird-lime they are used by fowlers, to say nothing of the ancient fasces carried by lictors.

BIRCH-wine is made by fermenting the vernal juice: formerly it was in great repute against all nephritic disorders, but is left out in the modern London practice.

The preparation of *birch*-wine is well and amply described in a book intituled, Vinetum Britannicum. Phil. Transf. N° 123. p. 574.

BIRD, *Avis*, in *Natural History*. The characters of this class of animals are, that they have a body covered with feathers, two legs, two wings, and a hard or bony bill; and that the females are oviparous.

Linnaeus, from the consideration of the different shapes and structure of their beaks, has distributed *birds*, which form the second class of animals, into six orders, viz. *accipitres*, *picae*, *anseræ*, *grallæ*, *gallinæ*, and *passeræ*, comprehending 921 known species. Systema. Nat. ed. 13. tom. i.

The history and description of *birds* make a particular branch of science called ORNITHOLOGY.

Birds are variously divided and denominated by naturalists from the places of their abode, their food and manner of living, make of their bills, wings, feet, &c.

Birds are usually divided into *terrestrial*, and *aquatic*.

BIRDS, *terrestrial*, comprehending the *rapacious*, *picae*, the *gallinaceous*, the *columbine*, and the *passerine*, are subdivided into those which have *crooked beaks* and *talons*, and those whose beaks and claws are *straighter*.

Of *birds* with *crooked beaks* and *talons*, some are *carnivorous* and *rapacious*, called *birds of prey*, others are *frugivorous*, called by the general name of *parrots*.

Of *birds of prey*, some prey in the day-time, and are called *diurnal*; others in the night, and are called *nocturnal birds*. *Diurnal birds of prey* are either of a *greater* or a *lesser* size.—The *greater* are either of a more bold and generous nature, as the eagle-kind, or of a more cowardly and sluggish, as the vulture.

Concerning the *carnivorous* or *rapacious birds*, it is observed, 1. That though Aristotle says they fly solitary, yet that holds not in all; seeing that vultures have been seen to fly in troops fifty or sixty together.

2. That the females of the ravenous *birds* are bigger, stronger, and of greater courage, than the males; nature seeming to have been so provident as to furnish these females with such advantages, upon the account that they must provide food not only for themselves, but also for their young ones. Phil. Transf. N° 120. N° 483.

The *lesser* diurnal *birds of prey* are either of a generous and docile, or of a cowardly, sluggish, and untractable nature. The *generous* and *docile* are the hawk-kind, which are wont to be reclaimed and manned for fowling. These by the falconers are distinguished into *long-winged*, as the *falcon*, *lanner*, *sacre*, *gerfalcon*, *kestrel*, &c. whose wings reach almost as far as the end of their train; and *short-winged*, as the *goshawk* and *sparrow-hawk*, whose wings, when closed, fall much short of the end of their trains.

The *cowardly* and *sluggish* are neglected by our falconers, and so live at large.—Of these also there is a *greater* sort, as the *buzzard* kind; to which may be added, the *ring-tail* and *kite*; and a *lesser*, as the *butcher kind*, or *shrike*, about the bigness of a *black-bird*.

Of *birds of prey* with *crooked beaks* and *talons*, others are *nocturnal*, as the *owl* kind, which prey by night; and these are either horned or eared, as the eagle-owl, horn-owl, &c. or without horns or ears, as the brown owl, white owl, grey owl, howlet, fern-owl, or goat-fucker, &c. *Frugivorous land-birds*, with *crooked beaks* and *talons*, are distinguished into three sorts, according to their bigness; the *greater* size being called *maccaws*, and *cockatoons*; the *middle-sized*, and most common, *parrots*, and *poppinjays*; and the *least* sort *parrakeets*: these all make use of their beak in climbing, and move the upper jaw. *Land-birds*, which have their bills and claws more straight, are distinguished into three sizes; the greatest kind are such as by reason of the bulk of their bodies, and smallness of their wings, cannot fly at all; such are the *ostrich*, the *casowary*, and the *dodo*.

The *middle-sized* are divided into such as have either *large* and *long*, or *smaller* and *shorter* bills.

Of those with *large*, *thick*, *strong*, and *long* bills, some feed promiscuously on flesh, insects, and fruits, as the *crow* kind, which are wholly black; and the *pye-kind*, which are party-coloured, as the *magpye*, *jay*, &c. others feed on fish only, as the *king's-fisher*; and others on insects only, as the *wood-pecker*.

For those which have a smaller and shorter bill, their flesh

BIRDS.

FALCON Gentil

EAGLE



Fig. 1.

GUINEA Hen



Fig. 2.



Fig. 3.

CARACARA



Fig. 4.



BUTCHER Bird

Fig. 5.

DODO



Fig. 6.



GRUS Balearica

Fig. 7.

CORACIAS



Fig. 8.



CORVUS Aquaticus

Fig. 9.

BIRDS. *Tab. II.*

Solan GOOSE Fig. 11.

FLAMINGO

Fig. 10.



DEMOISELLE

Fig. 12.



Ring DOVE

Fig. 13.



ARACARI

Fig. 14.



Tippet GREBE

Fig. 16.



Crested GREBE

Fig. 15.



GRUS

Fig. 17.



HIMANTOPUS

Fig. 19.



HERON

Fig. 18.



CASSOWARY

Fig. 20.



HOBBY

Fig. 21.



HOOPOE

Fig. 22.



BIRDS. Tab. III.

HUMMING Birds

Fig. 23



Nat. Size

JAY

Fig. 24.



COCK of the Mountain

Fig. 25



GROUS

Fig. 26.



KINGFISHER

Fig. 27.



BUSTARD

Fig. 28



Fig. 29

M E R U L A



Ring OUZELL

Fig. 30



MERLIN

Fig. 32



ATINGA Fig. 31



MEROPS

Fig. 33.



MITU-Porangu

Fig. 34.



SCURVOGEL

Fig. 35.



CROSS Bill

Fig. 36.



OSTRICH

Fig. 39.



SERINUS

Fig. 37



ORIOLE Fig. 38.



BIRDS Tab. IV.

Rose colour'd OUZELL



Fig. 40

Horn OWL



Fig. 41.

Lesser Reed SPARROW



Fig. 42.

Bird of PARADISE



Fig. 43

PASSER Indicus



Fig. 44.

CHARADRIUS

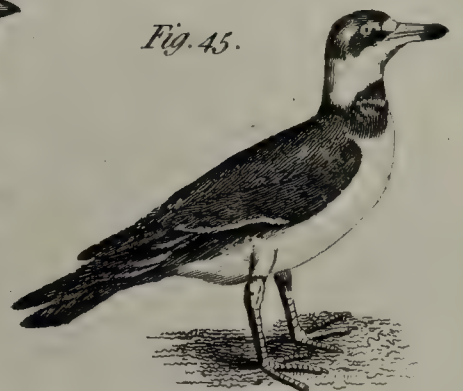


Fig. 45.

PENGUIN



Fig. 46.

DIVER Fig. 47.



RECURVIROSTRA



Fig. 48.

BRENT GOOSE Fig. 49.



CLANGULA DUCK



Fig. 50.

RED SHANK



Fig. 51.

ROLLER



Fig. 52.

ROLLER or CHATTERER



Fig. 53.

B I R D S *Tab. V.*

Nº 54. Soco



Nº 55. SPOON-bill



Nº 56. TAMATIA



Nº 57. TOUCAN



Nº 58. TROPIC-bird



Nº 59. VULTURE



Nº 60. WHEAT-ear



Nº 61. WIMBREL



Nº 63. WRY-NECK



Nº 62. WOOD-PECKER



is either white, as the poultry kind; or blackish, as the pigeon and thrush-kind.

The least-sized kind of land birds, with straight bills and claws, are called *small birds*. Small birds are subdivided into those with *slender bills*, as the lark, swallow, martin, &c. *thick and short bills*, as the bull-finch, house-sparrow, linnet, &c. those with a hard protuberance on the upper chap or bill, as the bunting, yellow-hammer, reed-sparrow, &c. Among birds which have straight beaks and claws, Mr. Willughby observes, that the *casowary* (as well as the *pelican*) is without a tongue; swallowing not only bits of iron, as the *ostriches*, but also red-hot coals; yet, not digesting the iron, but voiding it whole, as the *ostrich* also does.

BIRDS, aquatic, or water-fowl, comprehending the cloven-footed, the fin-footed, and web-footed, are distinguished into such as walk in the waters, and such as swim in them.

Aquatics which walk, are all cloven-footed, and generally have long legs, and those naked, or bare of feathers, a good way above the knee, that they may the more conveniently wade in waters.—Of these authors reckon two kinds; a greater and a lesser.—To the greater belong the crane, jabiru, &c.—The lesser are either piscivorous, as the heron, spoon-bill, stork, &c. or mudsuckers, and insectivorous. Of aquatic birds, some have slender-bills, sharp-pointed, as the greatest gull, diver, grey gull, &c. others toothed bills, as the goosander, &c. others broad bills, as the swan, booper, goose, duck, &c.

Of insectivorous water-fowl, some have very long bills; others middle-sized ones, as the sea pye, and red-shank; others short bills, as the lapwing and plover.

Of those with long bills, some have them crooked, as the curlew and wimbrel; and others straight, as the woodcock and godwit.

Note, those are reckoned short bills, which exceed not an inch and a half; middle-sized bills, to two inches and an half; and long bills above two inches and a half.

Of aquatics, which swim in the water, some are *fistipedes*, cloven-footed, as the rail, plover, &c. some are fin-footed, *pinnati*, as the coot and grebe, &c. but most are whole-footed, or web-footed, *palmipedes*.

Of these, some few have very long legs, as the *flamant*, the *avosetta*, and *corirra*; but the generality are short-legged.

Of the short-legged, whole-footed aquatics, some have but three toes on each foot, as the penguin, razor-bill, &c. but generally they have four toes on each foot, and these either all connected together by intervening membranes, as in the pelican, soland-geese, &c. or more usually with the back-toe loose.

This last kind are either narrow-billed, or broad-billed.—Those with narrow bills have them either blunt or hooked at the tip, or sharp-pointed and straighter.

Of the former sort some are serrate, as in the diver-kind; and some not toothed, as in the puffin.

Of those with sharp-pointed and straighter bills, some have long wings, as the gull-kind, and some shorter, as those diving birds called *douckers*.

Those with broad bills may be divided into the *goose-kind*, which are larger; and the *duck-kind*, which are smaller; and these latter into sea-ducks, and river, or plash-ducks. In flat-billed birds, as ducks, there are three pair of nerves, which come down between the eyes into the upper bill, whereby they are enabled to smell, and find out their food in the mire, water, and the like. The like has also been discovered in several round-billed birds; but much smaller, and scarce discernible, except in the rook, where they are conspicuous enough; and it is remarkable that these, more than any other round-billed birds, seem to grope for their meat in cow-dung and the like. In the lower bill there are also nerves, which have much the same situation with those in the flat-billed kind; but very small, and scarce discernible. Phil. Trans. N° 206. p. 990. Most water-fowls have a short tail; and none of this kind have their feet disposed like parrots and woodpeckers, which have two toes forward, and two backward; whereas none of these have more than one back-toe, and some have none at all.

The structure and œconomy of birds are, in many respects, different from those of their fellow-biped, man, and of their fellow-brutes, the quadrupeds, having some parts which those want, and being without others which they have, besides great variations in the contrivance of parts which are common to both; all wisely adapted to their different conditions and manners of life.

Among the parts peculiar to birds, are first, the bill, which serves them both in lieu of lips and teeth; where-with the rapacious tear their meat, the granivorous crack their seeds, and separating the pulp with the tongue, throw out the husk. Drake's Anthropol. lib. i. cap. 14.

Secondly, a horny nictitating membrane, to draw over and cover their eyes, and save them from the annoyance of thorns and bushes, much like that which frogs are furnished with to secure their eyes from mud and dirt.

See Derham's Phys. Theol. & Niewent. Rel. Philos. § 18.

To which may, thirdly, be added, feathers and wings for clothing and flight.

The parts which physiologists have generally supposed not to be found in birds are, 1. Teeth and lips, as already mentioned. 2. Lacteal vessels. But Mr. Hewson observes, that the difficulty of discovering the lacteals of birds is owing to the transparency of the chyle which they contain, and the want of mesenteric glands. The lymphatic system in birds, he says, may be divided, as it is in quadrupeds, into two branches, viz. the lacteals and lymphatics, and their trunk, or thoracic duct. The lacteals are the lymphatics of the intestines, and, like the other lymphatics, carry a transparent lymph; and, instead of one thoracic duct, there are two, of which one goes to each jugular vein. The lymphatics in the necks of fowls were discovered by Mr. J. Hunter many years ago. We may infer from hence, that absorption is not carried on even in birds by the common veins. See an account of the lymphatic system in birds by Mr. Hewson, Phil. Trans. vol. lviii. N° 34. 1768. 3. Kidneys, and a bladder of urine, which they can be without, as they have but little moisture in their bodies, do but rarely drink, and this only to moisten their food. 4. A septum transversum, the want of which is supplied by a peculiar disposition of the lungs.

Lastly, Pliny says they always want an *epiploon*; but in two eagles, and other birds dissected by the royal academists at Paris, there were membranes like *epiploons* found.

Some authors also speak of ducts which pass immediately from a sort of kidneys to the extremity of the rectum of birds, whereby a white, liquid kind of excrement is discharged, being first mixed with the grosser faeces. Gentzen's Phys. Hypoth. p. ii. cap. 5, &c.

Variations in the parts of birds from those of men and quadrupeds, are, 1. In the ear where the cavities and the drum are of a peculiar make. Phil. Trans. N° 199. The ears of birds differ much from those of men or beasts; there is almost a direct passage from one ear to the other of birds; so that prick but the small membrane called the drum in either ear, and water poured in at the one ear will run out at the other. But this is not all: what is much more remarkable, they have no *cochlea*; but instead thereof, there is a small twisted passage that opens into a large cavity running betwixt two sculls, and passes all round the head; the upper scull is supported by many hundreds of small thread-like pillars or fibres, which, as it is supposed, have another use also, to break the sound from making any confused echo, and to make it one and distinct.

This passage, observed betwixt the two sculls, is much larger in singing birds than in others that do not sing; so very remarkable, that any person that has but been shewn this, may easily judge by the head, what bird is a singing bird, or has aptitude thereto, though he never saw the bird before, nor knew what bird it were. Phil. Trans. N° 206. p. 995.

2. In the division of the aorta.

3. In the spinal marrow, which is divided into two in the middle of the back, with a ventricle between the two. Phil. Trans. N° 180. p. 374.

4. In the bones, which are all hollow and fistular, to make the body lighter and more buoyant. Niewent. Relig. Philos. cont. 22. § 12. p. 335, seq.

Both in the bones, and in the fleshy parts, there are receptacles of air communicating with the lungs. Phil. Trans. vol. lxiv. N° 29.

5. In the heart, which has a fleshy valve at the mouth of the *vena cava*. See Pitfield's Nat. Hist. of Anim.

6. In the lungs, which are strongly conjoined to the back, for greater convenience of flight. Vater Phys. Exp. p. 806, &c.

7. In the stomach, of which birds have two or three, to supply the want of mastication. See Grew's Comp. Anat. The digestion of birds is very strong, especially in hens, ducks and pigeons, whose stomachs have been found to act even on glass bullets. Boyle's Phil. Works abr. tom. ii. p. 183.

8. In the legs and feet, which, in some species of birds, are made to hold or cling fast by; in others to wade in the mud without sinking. Niewent. Relig. Phil. p. 341. The posture and action of birds in standing and walking, are shewn by Borelli to be very different from those of man, though both be bipeds; particularly as to contrivance, whereby birds are enabled to stand better on one foot. See Phil. Trans. N° 144. p. 63. N° 92. p. 6004.

9. In their tails, which are made to poise their bodies in flight. Ibid. sect. 20. p. 343.

10. In the pectoral muscles, which, in birds, are the strongest of all, as serving for the motion of the wings which, in long or swift flights, require great strength, where-

whereas, in man, the crural muscles are strongest; so that, if he would fly, it must rather be by the action of his legs than his arms. Phil. Trans. N° 220.

Their whole structure is admirably accommodated to flight, especially that of the *pelican*, which, beside all other apparatus for this purpose, has a quantity of air lodged in the *vesiculae* of the skin, which it takes in at every inspiration, and expels again at expiration, whereby its bulk is considerably enlarged, without any sensible increase of weight. Hist. Acad. Sc. an. 1693, p. 259, &c. 11. In the brain, which is different from that both of man and quadrupeds, being adapted rather to the exercise of the locomotive faculty than for imagination and memory.

However, the sagacity of *birds* in building, and placing their nests out of the reach of enemies, and in avoiding noxious plants, is prodigious. It is said they will not so much as touch or perch on such plants, being warned of the danger by the smell or *effluvia* of the plant. Boyle's Phil. Works abr. tom. ii. p. 183. and p. 437.

12. In the bronchial ducts, which are extended to the very bottom of the cavity of the *abdomen*, that the air received into them, may the better fill and enlarge the *thorax*, whereby they are rendered much lighter than if their bodies were solid, like other animals. Acad. des Sc. an. 1693. p. 259.

13. In the ovaries, which, in *birds*, are single, and only furnished with single tubes, whereby to convey the eggs to the *uterus*; the whole fastened to their back. Acad. des Scienc. 1693. 36.

Many methods have been used by naturalists for preserving dead *birds* from corruption, in their natural form and colour. Some have taken off the skin, with all the feathers upon it, from the body and thighs, leaving the legs and wings, with the whole neck with the bill, and filled it with some soft stuff, such as hay, wool, or flax. Others have put them into vessels full of spirit of wine, or strong brandy; against which it has been objected that spirituous liquors change the colours of the feathers; but M. Reaumur concludes from many experiments, that this objection is groundless; and he has given several minute directions for preserving and conveying them in this way. Others again, especially in countries where spices are cheap, have embalmed dead *birds*: Reaumur observes, that powdered alum or lime will serve the same purpose. Another method, which has been sometimes practised, is that of drying *birds* for preservation in a heated oven. The same ingenious naturalist informs us, that quadrupeds, fishes, reptiles, and insects, may be preserved in the same manner with birds. Phil. Trans. vol. xlv. p. 304, &c. See farther on this subject, *ibid.* vol. xl. N° 16, and N° 26.

BIRDS, *fectless*, *apodes*, a fictitious denomination given by some of the ancients to the *birds* of paradise, from a mistaken notion that they had no feet, and could not walk, but only fly.

These are placed in contradistinction to the *ostriches*, which could only walk, not fly.

BIRDS, *subterranean*, those which reside in caves and holes under ground; as some species of owls, bats, &c.

To this class may also be referred those vast quantities of *ducks*, which break out of the caves adjoining to the Zurichner sea in time of thunder, in such numbers as to cover the lake. Phil. Trans. N° 191, p. 420.

BIRDS, *singing*, are the *nightingale*, *blackbird*, *starling*, *thrush*, *linnet*, *lark*, *throatle*, *Canary-bird*, *bullfinch*, *goldfinch*, &c. See some very curious experiments, and observations on the singing of *birds*, Phil. Trans. vol. lxiii. part ii. N° 31. Their first sound is called *chirp*, which is a single sound repeated at short intervals; the next *call*, which is a repetition of one and the same note; and the third sound is called *recording*, which a young *bird* continues to do for ten or eleven months, till he is able to execute every part of his song; and when he is perfect in his lesson, he is said to *sing his song round*. Their notes are no more innate, than language in man; they all sing in the same key. The honourable author, Daines Barrington, has there attempted to reduce their comparative merits to a scale; and to explain how they first came to have particular notes. See *SONG of Birds*.

BIRDS, *migratory*, the same with *birds* of *PASSAGE*, and *MIGRATION*. Phil. Trans. vol. lxii. N° 20.

BIRDS, *decoy*, those trained up to call and allure others into the fowler's nets, snares, lime-twigs, or the like.

BIRDS, *message*, *aves internunciae*, those employed to convey letters or other dispatches, either for the sake of expedition or safety. See *CARRIER-pigeon*.

BIRD, *mocking*, in Virginia, a *bird* which imitates the voices of men, and the notes of all other *birds*, by way of disguise, and thus eludes and escapes the fowler. Trev. Dict. Univ. tom. iv. p. 264. See *Mock-bird*.

We have one *mocking bird* in England, which is the *sky-lark*.

BIRD, *humming*, the American *tomineus*, denominated from the noise it makes in flight. It is said to be the smallest of the whole species of *birds*. See *HUMMING Bird*; and Phil. Trans. N° 200. p. 760.

BIRDS, *anomalous*. It is disputed whether the *BAT* belongs to the *bird* or quadruped kind. Later naturalists incline to the latter, and, notwithstanding its wings, condemn it to be a mouse.

The like difficulty has been raised with respect to the *barnacle*, *solan goose*, or *maereuse*. Some, notwithstanding its feathers, maintain it to be a fish. What shall we then say of the *penguin*, or *penguin*, an eastern *bird*, denominated from the island of that name, which walks erect like a man, has no feathers, nor flies, nor associates with other *birds*; and which some will have to participate both of the human, the volatile, and the fishy kingdom. In reality, it is *animal bipes* and *implume*, and consequently a man, on the terms of Plato's definition.

Macer, among the ancients, and Willughby and Ray among the moderns, have written expressly on *birds*. This last author affirms, that the kinds of *birds* known and described, are about 500. Boyle has given pneumatical experiments on *birds in vacuo*. Phil. Trans. N° 100. p. 480, &c.

Prescience, or knowledge of futurity, was supposed, among the ancients, a natural faculty of *birds*, owing, perhaps, to their nearer intercourse with heaven, or their breathing a purer and more celestial air than other animals. Hence it was, that divination by *birds* obtained among the ancient Greeks and Romans, being performed by observing, and interpreting the flight, chirping and feeding of divers birds. See *AUGURY* and *AUSPICUM*. *Birds*, with regard to augury and divination, were of divers kinds, viz.

Aves Auspicatae, or *felices*, those which naturally portended good: such were the *dove*, *swan*, &c.

Aves inauspicatae, *dirae*, *ominosae*, those which boded some evil or mischief: such were the *kite*, *raven*, *crow*, and *owl*, every where, except at Athens.

Admissiva, that which excites and encourages the consulter to execute what he has in view.

Arciva or *arcula*, that which forbid a thing to be done; otherwise called *clivia*, *clamatoria*, and *prohibitoria*, *inebria*, and *inhiba*.

Incendiari, that which gave omen of a fire, or other calamity; or which is seen carrying a fire-brand from the funeral-pile to a house.

Remora, that which stays, or delays an action.

Sinistra, that on the left hand, denoted a happy or prosperous omen; and was also called *secunda*, *prospera*.

Alites, those which gave omens by their wings and flight.

Ofcines, those by their singing or chirping.

Pulli, by their pecking.

Prapetes, those which by their flight, or perching, gave happy omens.

Inferae, or *inebrae*, those which in like manner gave ill omens.

BIRD, in *Falconry*, denotes a *hawk*, or *FALCON*.

BIRDS, *nides*, *aves nidulariae*, those taken while in the nest.

BIRDS, *ramage*, *arborariae aves*, those only arrived at strength sufficient to fly from branch to branch.

BIRD, *bagard*, that which has lived at liberty, and is thence more wild and untractable.

BIRD of the *list*, that which having been reclaimed, returns to, and perches on the hand, without the help of a lure.

BIRD of *lure*, that which comes to the lure, and by that means to the hand.

BIRD, *bastard*, a *hawk*, for instance, bred of a *hawk* and a *lanier*. Or a *saker*, bred of a *saker* and a *lanier*.

BIRDS, *coward*, those which only pursue their game for their own belly, and which are not to be reduced to just sport. As *ravens*, *kites*, &c.

BIRDS, *storm*. See *PROCELLARIA*.

BIRDS, in *Medicine*, are chiefly the *goose*, *duck*, *hen*, *peacock*, and *pigeon*; of which the fat, eggs, and dung, are in use. Sextus Placidus treats at large concerning remedies from *birds*.

Birds, considered as foods, are of a dry warm nature, as feeding chiefly on dry meats and drinking little. They are supposed to abound much in salt and sulphur, whence Kircher accounts for the bright colour of their feathers. Some have denied the existence of any volatile salt in *birds*. Borrichius establishes it.

The *peacock* has been called *avis medica*, or the medicinal *bird*, on account of its great efficacy in divers diseases.

BIRDS, in *Husbandry*, are to be guarded against as destructive. *Kites* and *hawks*, to chickens; *crooks* and *pigeons*, to corn; *jays*, *sparrows*, and other small *birds*, to fruits, &c.

Writers in husbandry prescribe divers methods of scaring away, or destroying noxious *birds*. Some prevent *birds* from eating the seed when first sown, by liming, and mixing it with foot.

BIRD, in *Astronomy*, *avis Indica*. See *APUS*.

BIRD of *Phæbus*, the *Raven*, one of the southern constellations. See *CORVUS*.

BIRDS, in *Heraldry*, are figures frequently borne in arms. *Birds* are esteemed a more honourable bearing than fishes; and wild, ravenous *birds*, than tame ones. The terms *armed*, *close*, *crested*, *displayed*, *jeffed*, *jowlopped*, *languid*, and *membered*, are applied to *birds*, which see.

BIRD of the *wife*, among *Chemists*, is the philosophical mercury; and, in general, sublimations or substances spiritualized by the separation of their terrestrial part.

BIRD, *golden*, the hermetic matter partly matured.

BIRD, *green*, the philosopher's stone, at the time when its green colour appears.

BIRD-call, a little stick cleft at one end, in which is put a leaf of some plant, wherewith to counterfeit the cryer's CALL of several *birds*, and bring them to the net, or snare, or lime-twig, to be taken.

A laurel-leaf fitted on the *bird call*, counterfeits the voice of *lapwings*; a leek, that of *nightingales*, &c.

BIRD, *Cyprian*, *aves Cypriæ*, or *aviculæ Cypriæ*, is a denomination given to a kind of odorous candles, made of the matter of troches, and burnt for the sake of their fumes, called also, from their figure, *baculi*, or *sticks*.

BIRD of *Hermes*, *avis*, or *avicula Hermetica*. All chemists speak much of that which flies in the night without wings. Some will have the *avicula Hermetica* to be an universal salt prepared from dew.—It also denotes red-lead.

BIRD cherry, in *Botany*, see *PRUNUS*.

BIRD's eye, in *Botany*, see *PHEASANT's eye*.

BIRD's eye view. See *PERSPECTIVE*.

BIRD's foot, *Ornithopus*, in *Botany*, a genus of the *diadelphica decandria* class. Its characters are these: the empalement of the flower is permanent, of one leaf, tubulous, and indented in five equal segments at the brim; the flower is of the butterfly kind, the standard heart-shaped and entire, the wings oval, erect, and almost as large as the standard, and the keel is small and compressed; it has ten stamina, nine of which are joined, and one standing separate, terminated by single summits; the germen is narrow, supporting a bristly ascending style, terminated by a punctured stigma. The germen becomes a taper incurved pod, having many joints connected together, which separate when ripe, each containing one oblong seed. Linnæus enumerates four, and Miller five species.

BIRD, or *fowl-mead grass*, a species of *grafs*, which has been lately cultivated with a particular attention. It is a fine, sweet, silky *grafs*, with a durable verdure; throws out a great crop, and produces a large quantity of seed. One rood of ground yielded a hundred weight of seed, and a very large load of hay. It is most proper for upland meadow: the seed should be left uncovered on the ground.

BIRD's nest, in *Botany*, a name used by some for the *daucus*, or *CARROT*; and by others for *OPHRYS*.

BIRD's nest, *purple*, see *ORCHIS*.

BIRD's nests, in *Cookery*, the nests of a small Indian swallow, very delicately tasted, and frequently mixed among soups. On the sea-coasts of China, at certain seasons of the year, there are seen vast numbers of these *birds*; they leave the inland country at their breeding time, and come to build in the rocks, and form their nests out of a spumous matter, which they find on the shore, washed thither by the waves. They are of a hemispheric figure, and of the size of a goose's egg, and in substance much resemble the *ichthyocolla*, or *isinglass*. The Chinese gather their nests, and sell them to all parts of the world; they dissolve in broths, &c. and make a kind of jelly, of a very delicious flavour.

BIRD's pepper, see *CAPSICUM*.

BIRDLIME, a viscid substance, prepared various ways, and from various materials, for the catching of birds, mice, and other vermin.

The *birdlime* ordinarily used among us, is made from holly-bark, boiled ten or twelve hours: when the green coat is separated from the other, it is covered up a fortnight in a moist place, then pounded into a tough paste, so that no fibres of the wood be left, and washed in a running stream till no motes appear, put up to ferment four or five days, skimmed as often as any thing arises, and laid up for use.—To use it, a third part of nut oil, or any thin grease, is incorporated with it over the fire.

The mistletoe affords a juice, even superior to that of the holly; and if a young shoot of the common elder be cut through, a stringy juice will draw out in threads, and follow the knife like *birdlime*, or the juice of holly. It seems in this tree to be lodged, not in the bark, but in certain veins just within the circle of the wood. The roots of all the hyacinths also afford a tough and stringy juice of the same kind, and so do the asphodel, the Narcissus, and the black bryony root, in a surprising quantity.

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The *birdlime* brought from Damascus is supposed to be made of sebestins, their kernels being frequently found in it: but this does not endure either frost or wet. That brought from Spain is of an ill smell; that of the Italians is made of the berries of mistletoe, heated, mixed with oil, as before; to make it bear the water, they add turpentine.—It is said, the bark of our *viburnum* or way-faring shrub, makes *birdlime* as good as the best.

Birdlime is a substance very apt to be congealed, and rendered unserviceable by frosts; to prevent which it is proper, at the cold seasons, to incorporate some petroleum with it, before it is used. The method of using it is to make it hot, and dip the ends of a bundle of rods in it; then to turn them about and play them together till a sufficient quantity is extended over them all. If strings, or cords are to be limed, they are to be dipped into the *birdlime*, while very hot. The cords may be put in cold, but the rods should be warmed a little. Straws are to be limed while the matter is very hot; a large bundle of them should be put in at once, and worked about in it, till they are well besmeared. When thus prepared, they should be preserved in a leather bag, till they are used. When the twigs, or cords, are to be put in places subject to wet, the common *birdlime* is apt to have its force soon taken away. It is necessary, therefore, to have recourse to a particular sort which, from its property of bearing water unhurt, is called *water-birdlime*; and is prepared thus.

Take a pound of strong and good *birdlime*, wash it thoroughly in spring-water, till the hardness is entirely removed: and then beat it well, that the water may be separated from it; then dry it well, and put it into an earthen pot; add to it, as much capon's grease as will make it run. Then add two spoonfuls of strong vinegar, one spoonful of oil, and a small quantity of Venice turpentine. Let the whole boil for some minutes over a moderate fire, stirring it all the time. Then take it off; and when there is occasion to use it, warm it, and cover the sticks well with it. This is the best sort of *birdlime* for snipes, and other birds that love wet places.

M. Barrera, physician at Perpignon, has discovered an animal *birdlime*, prepared of the bolls of a sort of caterpillars, by putrefying them in the earth, steeping them in water, and then pounding and mixing them with olive oil. Fontenel. Hist. Acad. Scienc. 1720, p. 12.

BIREMIS, from *bis*, double, and *remus*, oar, in *Antiquity*, a vessel with one or more rows of oars, ranged, as some think, in two stages over each other; or a vessel having two ranks or rows of oars placed over, and aside of each other. But the particular fabric of these vessels seems far from being a settled point among the learned.

The Roman *biremis* is the same with what the Greeks called *διπποτα*, and stands contradistinguished from *triremis*, *quadriremis*, &c.

BIRETUM, see *BIRRETUM*.

BIROTA, *Biotum*, from *bis* and *rota*, wheel, a kind of vehicle denominated from the two wheels whereon it moved.

The *birota*, by the constitution of Constantine, was drawn by three mules, and carried two hundred pounds weight; by which it was distinguished from the *rheda*, which carried a thousand pounds and was drawn by eight, and in winter by ten mules.

BIRRETUM, in *Writers of the Middle and Lower Ages*, a thin black cap or cover for the head, made of linnen, fitted close to the head, and pointed by a pyramid, anciently worn, by priests, soldiers, doctors, &c. Du-Cange.

The word *birretum*, sometimes written *birrettum* and *bi-retum*, is also applied to a cap or coif of a judge, or serjeant at law.

The *birretum* also denotes the cap worn by the novices in the Jesuits order, formerly of a square, now a round figure.

The *birret* was the ordinary cover of the head in France five hundred years ago. It took its denomination from *birrus* or *birrum*, the coat anciently used by ecclesiastics; with which the cap was then of a piece, and made part of it; so that the whole covered, not only the head, but the shoulders. Afterwards when they began to retrench the lower part, still retaining the upper, it was no longer called *birrus*, or *birrum*, but diminutively *birret*, or *birretum*.

BIRRUS, an ancient habit worn by the Christians in Africa.

The word is also written *byrrus*, supposed to be formed from *πυρρος*, on account of its red colour.

Some will have the *birrus* an episcopal habit. Others extend it to all the clergy. Others, on juster grounds, make it the common coat of all the Christians in that quarter.

BIRTH, the natural exclusion of a perfect FOETUS from the womb by the *vagina*. See *DELIVERY*, &c.

BIRTH, an *immature*, is called an **ABORTION**.

BIRTH, *seven months*, *partus septimestris*, that which happens on the hundred and eighth, or hundred and eighty-second day after impregnation.

This, physicians allow, may not only be a living, but a vital *birth*; though it does not often prove long lived. And the civil laws all own it as legitimate.

Hippocrates has written expressly on the seven months birth, *Περὶ ἐπταμηνῶν*, in two books, the first of which, as now extant, is held spurious. The second is commented on by Galen, *Περὶ ἐπταμηνῶν βρεφῶν*.

A child born in the seventh month oftener lives than a child born in the eighth; perhaps because the premature *birth* in the first case is owing to the strength of the child, and in the second to the weakness of the mother.

BIRTH, *eight months*, *partus octimestris*, seldom if ever produces a living, or lively child. An eight month's *birth* is always weak and sickly, and scarce ever survives the fortieth day.

BIRTHS, *præternatural*, are those made by way of the anus, navel, &c.

For the number of *births*, see **MARRIAGE**; under which the proportion of *births* to marriages, of *births* to burials, and of male *births* to females is computed. See also **MORTALITY**.

BIRTH, *after*, see **AFTER-birth**.

BIRTH, or **BIRTHING**, among *Seamen*, denotes the due distance observed between ships lying at an anchor, or under fail. A convenient place a-board for a mess to put their chests, sleep, &c. is also called a *birth*.—There is usually one of these in ships of war between every two guns. And a proper place to moor a ship in is called by the same name, as is also the station in which a ship rides at anchor.

BIRTH, *exposition of*, among the *Ancients*, was where a newborn infant was exposed or cast away, and left to the mercy of the first-comer, who might either take and bring it up, or suffer it to perish. See **EXPOSING of children**.

Ger. Nodt has a treatise express on the subject. Julius Paulus, *Sive de Partu Expositione & Nece apud Veteres*. Ludg. Bat. 1710, 4to.

BIRTH, *supposition of*, *partus suppositio*, in the *Civil Law*, is a crime, for which accusation may be intended by those who have interest therein, and is punished with death, like the *crimen falsi*, or forgery.

BIRTH, *suppression of*, *partus suppressio*, is the crime of a woman, who endeavours, by medicines, to destroy or hinder the *birth* of a child: or, after its being born, hides, exposes, or even strangles it.

BIRTH-day, the anniversary return of the day whereon a person was born.

This answers to what the ancients called γενεθλιον, *genethlion*, *natalis dies*, *natalitius dies*, *natalitia*, and, in the middle age, *genetalius*.

The ancients made much of their religion to consist in the celebration of *birth-days*, and took omens from thence of the felicity of the coming year. We meet with *birth-days* of the gods, emperors, great men, poets, and even private persons. What is more, the *birth-days* of cities, as Rome and Constantinople, were celebrated with great pomp by the inhabitants. Virgil's *birth-day* was held very strictly by the wits and poets who succeeded him. Pliny assures us, that Silius kept it with more solemnity than he did his own. Epist. lib. iii. ep. 7.

The manner of celebrating *birth-days* was by a splendid dress; wearing a sort of rings peculiar to that day; offering sacrifices, the men to their genius, of wine, frankincense; the women to Juno; giving suppers, and treating their friends and clients; who, in return, made them presents, wrote and sung their panegyrics, and offered vows and good wishes for the frequent happy returns of the same day.

The *birth-days* of emperors were also celebrated with public sports, feasts, vows and medals struck on the occasion.

But the ancients, it is to be observed, had other sorts of *birth-days* besides the days on which they were born. The day of their adoption was always reputed as a *birth-day*, and celebrated accordingly.

The emperor Adrian, we are told, observed three *birth-days*; viz. the day of his nativity, of his adoption, and of his inauguration. Fabr. Bib. Græc. tom. xii. lib. vi. cap. 6. In those times it was held, that men were not born only on those days when they first came into the world, but on those also when they arrived at their chief honours and command in the commonwealth, e. gr. the consulate. Hence that of Cicero in his oration Ad Quirites, after his return from exile: *A parentibus id quod necesse erat, parvus sum procreatus, a vobis natus sum consularis*.

Besides, those who returned from banishment, were also considered as being born again, *renati*, and ever after called the day of their return their *birth-day*. Thus

Cicero to Atticus: *Diemque natalem reditus mei cura, ut in tuis ædibus amœnissimisagam tecum, & cum meis*.

Censorinus has a treatise *De Die Natali*, addressed to Q. Cerellius; as a compliment on his *birth-day*.

BIRTH-days of the saints and martyrs, *natales sanctorum*, denote the days of their deaths.

In reality, *natalis* among the ancients, was not restrained to *birth-days*, but extended to all feast-days.

Hence it is we meet with *natalis solis*, *natalis calicis*, *natalis ecclesiæ*, *natalis reliquiarum*, &c.

BIRTH-fin, the same with *original sin*.

BIRTH-wort, in *Botany*, the English name of the plant **ARISTOLOCHIA**, a genus of the *gynandria hexandria* class.

Its characters are these: the flower is of one leaf, which is unequal, the base is swelling and globular; it is afterward extended in a cylindrical tube, which spreads open at the brim, where the lower part is stretched out like a tongue; the oblong angular germen fits under the flower, which afterwards turns to a large seed-vessel, differing in form, which opens in six cells, filled with seeds, for the most part compressed. There are nine species, one of which is the snake-root, which is greatly used in medicine; these roots are brought over from Virginia and Carolina. There are some of these plants preserved in the gardens of those who are curious; but as they are sometimes killed by frost in winter, so they are not very common in the English gardens.

BIS, in *Botany, a name given by some old writers to the **NAPELLUS**, or monks-hood; and by others to the **CICUTA** or hemlock.*

There is, however, another sense of the word, very different from both these, in which it is used to express an esculent plant. The phrase *bis al nil* is frequent among the Arabian writers; and as *al nil* signifies only of the river Nile, the whole name should seem to express the character of some poisonous plant growing in the Nile. This, however, is by no means the sense in which it is received; for we are told, that *bis al nil* signifies a bulbous root of a sweet taste, growing on the mountains about Damascus, and in other parts of Syria, and eaten in the spring by the people of the adjacent country.

Bis-annual, a name given by botanists to those plants, which ordinarily do not flower till the second year.

BISA, or **BIZA**, a coin in Pegu, current there for half a ducat. The denomination is also given to a kind of weight used in the same country, equivalent to two Venetian pounds five ounces, or to three pounds nine ounces of the smaller weight of that city.

BISACUTA, in *Middle Age Writers*, an ax with two edges, or which cuts either way; or a missile weapon, pointed at both ends.

Walsingham represents the *securis bisacuta* as peculiar to the Scottish nation. See **BATTLE-ax**.

BISANT. See **BESANT**.

BISARCA, in *Botany*, a name used by some authors for the herb **TARRAGON**.

BISBÆA, a feast celebrated by the Messapii, after the pruning of their vines, to obtain of the gods that they might grow again the better.

The word is formed from βισσεν, used by some for a vine.

BISCAIAN language denotes the Cantabrian, or ancient language of Spain, being a branch of the Celtic, which first gave way to the Romanse.

BISCIA, in *Ichthyology*, a name by which some have called the **ACUS**, or, as we call it in English, the tobacco-pipe-fish, the needle-fish, or trumpet-fish.

BISCUIT, see **BISKET**.

BISCUTELLA, in *Botany*, see **MUSTARD**.

BISECTION, see **BISSECTION**.

BISELLIARI, or **BISELLIARI**, in *Antiquity*, those who enjoyed the honour or privilege of the **BISELLIUM**.

The word occurs in ancient inscription. CN. PLAETORIO VIVIRO AUGUSTALI BISELLIARIO. Gruter. Inscr. p. 1099.

The honor *bisellii* appears to have been much the same with what in France is called *droit de fauteuil*; and the *biselliarii* those who, in public assemblies, enjoy this distinction of the *fauteuil*, while other persons are obliged to stand, or sit on benches, stools, or ordinary chairs. Scaliger in his index to Gruter, mistook the *biselliarii* for artificers who made these seats.

BISELLIUM, from *bis* and *sella*, a chair, in *Antiquity*, a kind of seat or chair, larger and richer than ordinary, big enough to hold two persons, wherein to sit in courts, theatres, and other public assemblies.

BISERRULA, in *Botany*, a genus of the *diadelphia decandria* class. We have no English name for this plant. Its characters are these: the flower is papilionaceous, having a large roundish standard, whose edges are reflexed; the wings are oblong, and the keel is of the same length with the wings. It hath ten stamina, nine of which are joined, and the other single: in the centre is situated an oblong compressed germen, which afterwards becomes a flat,

flat, narrow pod, indented on both edges, like the saw of a sword-fish, having two cells filled with kidney-shaped seeds. We have but one species of this genus, which is an annual plant, growing naturally in Italy, Sicily, Spain, and the south of France.

BISETÆ, from *bis* and *seta*, *bristle*, in *Natural History*, a term used to express a genus of flies of the class of the *SETICAUDÆ*, distinguished from the others by their having two hairs or bristles growing out of their tail. There are many species of this genus, and they are usually divided by authors into two principal kinds; such as have sharp ends, and such as have blunt ones. There are several species of the former found in our hedges. See **HENOTHRIX**.

BISHOP, a prelate, or person consecrated for the spiritual government and direction of a diocese.

The word comes from the Saxon *bischop*, and that from the Greek *ἐπισκοπος*, an *overseer* or *inspector*; which was a title the Athenians gave to those whom they sent into the provinces subject to them, to see whether every thing was kept in order; and the Romans gave the same title to those who were inspectors and visitors of the bread and provision. It appears from a letter of Cicero, that he himself had a bishopric; being *episcopus Orae & Campaniae*.

A *bishop* differs from an archbishop in this, that an archbishop with *bishops* consecrate a *bishop*, as a *bishop* with priests, ordain a priest; that the archbishop visits a province, as the *bishop* a diocese; that the archbishop convokes a provincial synod, as the *bishop* a diocesan one; and that the archbishop has canonical authority over all the *bishops* of his province, as the *bishop* over the priests in his diocese. It is a long time that *bishops* have been distinguished from mere priests or presbyters; but whether that distinction be of divine or human right, whether it was settled in the apostolical age, or introduced since, is much controverted. On the one side stands the New Testament, wherein it is certain the names *bishop* and *priest* are used indifferently: on the other side are tradition, the fathers, and the Apostolical Constitutions.

There appear no footsteps of any institution of *bishops*, distinct from priests, in the Scriptures; neither do the opposers thereof pretend to shew any mark of any other form of church government therein: so that it may seem probable the apostles did not settle any thing of this kind at all; but either left the spiritual economy in the hands of the presbyterians, or of those together with the people.

Accordingly new occasions requiring new measures, in a little time the functions of the priesthood were divided, and the priests distinguished into degrees; the political part of religion being assigned principally to *bishops*, and the evangelical to the priests, &c. or rather, as some will have it, the functions of teaching and preaching were reserved to the *bishop*, and that of ordination superadded; which was their principal distinction, and the mark of their sovereignty in their diocese.

By the ancient discipline, *bishops* were to be married once, and not to put away their wives on pretence of religion; but a second marriage was a disqualification for this order. If they lived chaste, they were ranked as confessors.

Some *bishops* in the middle age, on account of their *regalia*, or temporalities, were obliged to a military service called *hostis*, by which they were to lead their vassals into the field and attend the king in his military expeditions. This Charlemagne excused, and even forbid: but the prohibition was little regarded, since we find the thing often practised afterwards. — Du-Cange.

The election of *bishops* was anciently placed in the clergy, and the people of the parish, province, or diocese; but afterwards, princes and magistrates, patriarchs and popes, usurped the power. The election was to be within three months after the vacancy of the see; and the person to be chosen out of the clergy of that church. Formerly the *bishop* claimed a share in the election of an archbishop; but this was set aside by the popes.

In England, during the Saxon times, all ecclesiastical dignities were confirmed by the king in parliament. At length, however, after several contests, especially between archbishop Anselm and Henry I. in consequence of a grant of king John, recognised in Magna Charta, and established by stat. 25 Edw. III. stat. 6. § 3. *bishops* were elected by the chapters of monks or canons, some shadow of which still remains in the present method of disposing of bishopricks. But by stat. 25 Hen. VIII. cap. 20. the right of nomination was restored to the crown.

Ordinarily, at least three *bishops* are required in the ceremony of consecrating a *bishop*; but, in some cases, a single one might suffice. The English succession of protestant *bishops* stands on this last ground.

In England, the king being certified of the death of a

bishop by the dean and chapter, and his leave requested to elect another, the *conge d'elire* is sent to them, with a letter missive, nominating the person whom he would have chosen. The election is to be within twelve days after the receipt of it, otherwise the king by letters patent appoints whom he pleases; and the chapter, in case of refusing the person named by the king, incurs a *præmunire*. — After election, and its being accepted of by the *bishop*, the king grants a mandate under the great seal for confirmation, which the archbishop consigns to his vicar-general consisting mostly in a solemn citation of such as have any objections to the *bishop* elect, a declaration of their contumacy in not appearing, and an administration of the oaths of allegiance and supremacy, of simony, and canonical obedience. Sentence being read by the vicar-general, the *bishop* is installed in the province of Canterbury by the arch-deacon: the fact is recorded by a public notary; and the bishop is invested with full powers to exercise all spiritual jurisdictions, though he cannot sue for his temporalities till after consecration. — Then follows the consecration by the archbishop, or some other *bishop* appointed by lawful commissions, and two assistant *bishops*: the ceremony of which is much the same as in the Romish church, save that, having put on the episcopal robes, the archbishop and *bishops* lay their hands on the new prelate's head, and consecrate him with a certain form of words. The fees of the whole process are said to amount to about 600 l.

The process of the translation of a *bishop* to another bishoprick only differs in this, that there is no consecration. The age of a *bishop* is to be at least thirty years; and, by the ancient discipline, none were to be chosen but those who had passed through all the inferior orders; but, in some cases of necessity, this was dispensed with, and deacons, nay laymen, were raised *per saltum* to the episcopal dignity.

The form of consecrating a *bishop* is different in different churches. — In the Greek church, the *bishop* elect, being by the assistant *bishops* presented for consecration, and the instrument of election put in his hand; after several prayers, (the first called *diaconicum*) demanding consecration, makes profession of his faith; after which he receives a benediction. He is then interrogated as to the belief of the trinity; to which he answers by a *long profession of faith*, and receives a second benediction. Lastly, he is asked what he thinks of the *incarnation*; to which he answers in a *third profession of faith*; which is followed by a third benediction: after which the consecrator gives him the pastoral staff: then he is led up to the altar; where, after certain prayers, and three crosses on his head, he receives the *pallium*, if he be an archbishop or patriarch; he then receives the kiss of peace, of his consecrator and two assistants; and sitting down, reads, prays, and gives the communion to his consecrator and others.

In the Romish church the *bishop* elect being presented by the elder assistant to the consecrator, takes the oath: he is then examined as to his faith; and after several prayers, the New Testament is drawn over his head, and he receives the chrism or unction on his head. The pastoral staff, ring, and Gospel are then given him; and, after communion, the mitre is put on his head: each ceremony being accompanied with proper prayers, &c. the consecration ends with *Te Deum*.

These last-mentioned ceremonies are laid aside in the consecration of English *bishops*. Nevertheless, the book of consecration, set forth in the time of Edward VI. and confirmed by act of parliament, in which some of them are enjoined, is declared to be the standard for this purpose by the thirty-sixth article.

The function of a *bishop* in England may be considered as two-fold; viz. what belongs to his *order*, and what belongs to his *jurisdiction*. — To the *episcopal order* belong the ceremonies of dedication, confirmation, and ordination; to the *episcopal jurisdiction*, by the statute-law, belong the licensing of physicians, chirurgeons, and schoolmasters, the uniting small parishes (though this last privilege is now peculiar to the *bishop* of Norwich), assisting the civil magistrate in the execution of statutes relating to ecclesiastical matters, and compelling the payment of tithes and subsidies due from the clergy.

By the common law, the *bishop* is to certify the judges, touching legitimate and illegitimate births and marriages; and by that and the ecclesiastical law, he is to take care of the probate of wills, and granting administrations; to collate the benefices, grant institutions on the presentation of other patrons, command induction, order the collecting and preserving the profits of vacant benefices for the use of the successors, defend the liberties of the church, and visit his diocese once in three years. To the *bishop* also belong suspension, deprivation, deposition, degradation, and EXCOMMUNICATION.

The *bishops* of England are all barons. Barons in a two-fold

fold manner; viz. *feudal*, in regard of lands and baronies annexed to their bishoprics: and by *writ*, as being summoned by writ to parliament.—They have the precedence of all other *barons*, and sit in the upper house as *barons*.—They are twenty-four in number, besides two archbishops.

With respect to the order of precedency among one another, the archbishop of Canterbury takes the lead; then the archbishop of York; next to him the *bishops* of London, of Durham, and of Winchester. The other *bishops* follow according to the seniority of their consecration; excepting only, that a *bishop* being a privy counsellor, takes place after the *bishop* of Durham.

Bishops have two special privileges next to regal; the first, that in their courts they sit, and pass sentence, of themselves and by their own authority: the *bishops* courts being not like other courts, but writs are sent out in their own name, *teste* the *bishop*, not in the king's name, as is done in the king's courts.—The second, that, like the king, they can depute their authority to another, as their suffragan, chancellor, commissary, &c.

They have also this advantage over lay-lords, that, in whatever christian country they are, their episcopal degree and dignity are acknowledged; and they may, *quatenus bishops*, ordain, &c.

They have several immunities, as from arrests, outlawries, distresses, &c. liberty to hunt in the king's forests, &c. to have *certain tuns of wine duty-free*, &c. Their persons may not be seized, as lay-peers may, upon contempt, but their temporalities alone. They may qualify as many chaplains as a duke, viz. six. But, as they have no right to be tried themselves in the court of the lord-high steward, as peers, they ought not to be judges there.

By law the crime of *episcopicide*, which a clergyman commits by killing his *bishop*, is petty-treason.

In Denmark there are six superintendents, who take it very kindly to be called *bishops*, and *my lords*.—They have no temporalities; keep no ecclesiastical courts; have no cathedrals, or prebends, &c. but are only *primi inter pares*, having the rank above the inferior clergy of the province, and inspection over their doctrine and manners. They are allowed two or three parishes each. Their habit is common with that of the other ministers. In Sweden are an archbishop, and ten *bishops*, with seven or eight superintendents under them.—They have also ecclesiastical courts, &c.

BISHOP-abbot, *episcopus abbas*, was an abbot invested with the episcopal order; of which we meet with several in the richer and more considerable monasteries.

BISHOP, cardinal, a *bishop* in chief, or in *capite*.

St. Gregory sometimes uses the term for a proper *bishop*. Anciently there were also *bishops*, who by a peculiar privilege from the holy see, were ranked, and had a seat among the cardinals.

BISHOPS, cathedral, was also a title given to the proper *bishops*, by way of distinction from the *chorepiscopi*.

BISHOPS, vague, those without any diocese, sometimes attendant in camps, or in foreign countries, for the conversion of infidels.

The like *vague bishops* were sometimes also granted by popes to monasteries, exempt from the jurisdiction of the diocesan, where they performed all the episcopal functions. Du-Cange.

BISHOP in partibus infidelium, he who is dignified with the title of a bishoprick, whose district or diocese is in the possession of infidels or heretics.

By the canon law, a *bishop in partibus* is qualified hereby to be a COADJUTOR of another *bishop*.

The denomination took its rise from the expulsion of the *bishops* and clergy, out of the Holy Land by the Saracens; when flying into Italy for shelter, coadjutories were given them for their subsistence.

BISHOP, accephalus, he who is immediately subject to the papal see, without any metropolitan over him.

BISHOP-elect, is he who has the king's nomination, with the sanction of the chapter; but without consecration.

BISHOP designed, *episcopus designatus*, denoted a COADJUTOR of a *bishop*, who, in virtue of his office, is to succeed at the incumbent's death.

BISHOPS, suffragan, are coadjutors or assistants of diocesan *bishops*, authorised by commission from him.

BISHOPS, exempt, those freed from the jurisdiction of the metropolitan, and immediately subject to the see of Rome alone.

Bishop of the palace, *episcopus palatii*, was probably the same with *bishop* of the king's chapel, a title in the court of Bohemia. Du-Cange.

It was also a title given those *bishops*, who, by licence of the pope, dwelt in palaces of kings, to be in readiness for spiritual service and council in church-matters.

BISHOP of the prime see, denoted a PRIMATE, otherwise denominated a *senior bishop*.

BISHOPS, commendatory, or *bishops in commendam*, are cardinals not of the order of *bishops*, or other prelates, who yet hold bishopricks in *commendam*.

The appellation had its origin during the residence of the papal see at Avignon, whence scarce any cardinal, priest, or deacon, was created, who held not one, two, three, or more *bishopricks in commendam*. Du-Cange.

BISHOP, universal, or *catholic*, is a title given to the patriarch of Armenia.

BISHOP of the catholic or universal church, a title sometimes assumed by the popes.

BISHOP of bishops, was a title anciently given to the prelates of some of the greater and more honourable sees, as Jerusalem and Rome.

The first who had the title was James *bishop* of Jerusalem.

Some will have the appellation to have been common to all *bishops*.

BISHOPS, in the Lutheran Church, are those more usually called SUPERINTENDENTS.

The Calvinists allow of no other *bishops* besides presbyters; but the Lutherans make some distinction, and give a superiority or pre-eminence over the rest of their *bishops*, *superintendents*, or *overseers*.

BISHOP is also a quality sometimes attributed to secular princes, in respect of their SUPREMACY or jurisdiction in matters belonging to religion.

In this sense it is that the emperor Constantine, in a letter to the *bishops* in his dominions, calls himself *common bishop*, as being in some respects, general *bishop* of the whole Roman world.

BISHOP of the Jews, the head of that people in England, chosen by themselves, to whom they submitted to be judged, and governed according to their law. Prideaux's Connect. part ii. lib. v. p. 478.

This officer, which subsisted under our Norman kings, and was licensed by them, answered to the *MECHALOTARCHS* in Babylon, and the *ALABARCHS* in Egypt.

BISHOPS at chess, a kind of pieces, the third in rank, below queens, but above knights, distinguished by their cloven heads.

In Latin writers of the middle age, the *bishop* is called *alphinus*; and by the French *le fou*, the fool or madman. See CHESS.

BISHOP, in Zoology, a little spotted beetle, commonly called the lady-cow, or lady-bird.

BISHOPS, regionary, see REGIONARY.

BISHOP's Court, see COURT.

BISHOP's see, or seat, originally denoted the throne or chair in the church where the *bishop* sat.

This was also denominated APSIS.

BISHOP's see also denotes the city or place where the residence of the *bishop* is fixed.

Every *bishop's see* was anciently called *sedes apostolica*; though the appellation has since been restrained to the see of Rome.

Anciently *bishops* seem to have had a right in England to sit as judges in the hundred and county-courts. In after-times, they were forbid to sit in secular courts, and had separate courts erected for them; which proved an occasion of much dispute between the two jurisdictions. No church-tenant might be sued in any court but the *bishop's*. There are also traces of a separate court of the *bishops* much earlier, among our Saxon ancestors, in the eighth century.

The regard borne to the character of *bishops*, made them the common arbitrators even of secular causes: they had the cognizance of all causes concerning lands in *frank-almoign*; and for ecclesiastics, were judges even in capital causes.

BISHOP's weed, *Ammi*, in Botany, a genus belonging to the *pentandria digynia* class of Linnæus. Its characters are these: it is an umbelliferous plant, with difform flowers, each having five heart-shaped petals; they have five slender stamina, and two reflexed styles, crowned with obtuse stigmas; the germen becomes a small, round striated fruit, composed of two seeds. There are three species.

BISHOP, in Ornithology, is a name given to an excellent singing bird in Louisiana. His song continues for the space of a *miserere*, in all which time he does not appear to breathe; he is then silent twice as long before he renews it; so that the alternative of song and rest continues two hours.

BISHOPING, in Horsemanship, a term denoting the arts used by jockies for making old horses appear young, &c.

BISHOPRIC, the jurisdiction of a *bishop*: or the district within which it is comprised; called also *diocese*.

There are twenty-four *bishoprics*, and two archbishoprics, in England and Wales.—To the old ones subsisting before the times of the Reformation, Henry VIII. by letters patent added five more *bishoprics*; viz. those of Chester, Gloucester, Peterborough, Bristol, and Oxford, stat. 34. & 35 Hen. VIII. cap. 17.

In Ireland, there are eighteen *bishopricks*, and four arch-bishopricks; in Scotland none.

BISK, or **BISQUE**, in *Cookery*, a rich sort of broth or soup, made of pigeons, chickens, force-meat, mutton-gravy, and other ingredients.

The word is French, formed, as some think, from *biscocta*; because the *bisque*, consisting of a diversity of ingredients, needs several repeated coctions to bring it to perfection.

There is also a *demi-bisque*, made at a low expence, in which only half the ingredients are used; and a *bisque* of fish, made of carps, minced with their roes and lobsters.

BISKET, or **BISQUET**, usually denotes a delicate kind of bread prepared by the confectioners, of fine flour, eggs, sugar, and rose or orange-water; or of flour, eggs, and sugar, with anise-seeds and citron-peel; baked in the oven in tin or paper moulds.

The word comes from the Latin *bis*, twice, and the French *cuit*, coctus, q. d. baked.

We find divers sorts of such *biskets*, as seed-*bisket*, fruit-*bisket*, long-*bisket*, round-*bisket*, Naples-*bisket*, sponge-*bisket*, &c.

BISKET, *sea*, is a sort of bread much dried, by passing the oven twice, to make it keep for the service of the sea.—For long voyages they bake it four times, and prepare it six months before the embarkation. It will hold good a whole year.

To preserve sea-*biskets* from insects, Dr. Hales advises to make the fumes of burning brimstone pass through the casks full of bread.

Bisket may be likewise preserved a long time, by keeping it in casks well calked, and lined with tin.

The ancients had their *bisket* prepared after the like manner, and for the like use as the moderns. The Greeks called it *απτον διπυρον*, q. d. bread put twice to the fire.

The Romans gave it the name of *panis nauticus*, or *capta*. Pliny denominates it *vetus aut nauticus panis tusus atque iterum coctus*. By which it appears, that after the first baking, they ground or pounded it down again for a second. In some middle-age writers, it is called *paximas*, *paximus*, and *panis paximatus*.

Among the Romans, we also meet with a kind of land-*bisket* for the camp-service, called *buccellatum*, sometimes *expeditionalis annona*, which was baked much, both to make it lighter for carriage, and less liable to corrupt, the coction being continued till the bread was reduced one fourth of its former weight.

BISLINGUA, *double-tongue*, a name used by many authors for the narrow-leaved **RUSCUS**, or **BUTCHERS-BROOM**; called by many others, the Alexandrian bay, or *laurus Alexandria*.

BISMILLAH, in the *Mahometan Customs*, a solemn form, viz. in the name of the most merciful God, constantly placed at the beginning of their books and writings in general, as a peculiar mark, or distinguished characteristic, of their religion, it being counted an impiety to omit it. The Jews for the same purpose, make use of the form, in the name of the Lord, or, in the name of the great God. Sale.

BISMILLAH is also used among the Arabs, as a word of invitation to eat.

An Arab prince will frequently sit down to eat in the street before his own door, and call all that pass, even beggars, by this word, who do not fail to come and sit down to eat with him; for the Arabs are great levellers, and set every body on a footing with themselves. Pococke's Egypt, &c. p. 483.

BISMUTH, a mineral body, of the semimetallic kind; by many supposed to be composed of the first matter of tin, while yet imperfect. It is found usually in tin-mines, sometimes also in silver-mines.

Its weight and colour discover it to be of a mercurial or metallic nature. In common menstruums, it undergoes much the same alterations, and assumes much the same forms as lead. Quincy says, there is always some silver in it.

Its substance is hard, ponderous, and brittle, of a large grain, glossy, white, and shining.—It is also called *TINGLASS*; because, when broken, it shews a vast number of little polished *laminæ* like glass: it is also called **MARCA-SITE**, by way of excellence, because surpassing all other marcasites, or semimetals, in whiteness and beauty.

It appears to be composed of cubes, formed by the application of plates upon each other. Its colour is less white than that of the regulus of antimony, and has a reddish tinge, especially when exposed to the air. It is the heaviest of the semimetals, and loses in water about a ninth part of its weight: its specific quantity being from 9.600 to 9.700. Like the other semimetals, it is semi-volatile; when exposed to the fire, flowers rise from it, it is calcined and converted into a litharge and glass nearly as lead is, and, like it, may be employed to the purification of gold and silver by cupellation.

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It easily combines with sulphur, and amalgamates with mercury, and unites with all metallic matters, excepting according to Mr. Gellert, zinc and arsenic; their affinities with it are, according to him, in the following order. Iron, copper, tin, lead, silver, and gold. *Bismuth*, like iron, is said to occupy, when fused, a less space than when solid; it is fusible with a heat of 460 degrees of Fahrenheit's thermometer; it greatly increases the fusibility of some other metals: a small portion of it increases the brightness, hardness, and sonorousness of tin, for making pewter, with which it is chiefly used; as it is also for soldering some metals, and for making printer's types; for foils for mirrors, for anatomical injections; for imitating silvering upon wood; and for rendering some metals fitter to be cast into moulds.

Bismuth is found native. Its most usual appearance is in the state of ore, into which it is reduced by its particles being penetrated by, and intimately mixed with, a sulphur, and with a large quantity of arsenic, and with an earthy matter, which yields a blue colour, equal to the zaffer, or smalt produced from cobalt.

In the fusion of this ore, the sulphur and arsenic evaporate over the fire; and the reguline matter, being freed from its imprisoned state, runs off from the earthy substance, which being left fixt behind, may, with the addition of flints, and fixed alkali, be run into a fine blue, glassy matter, no way differing from the smalt of cobalt.

Native *bismuth* is found in small compact masses, of a pale lead colour on the outside, and when broken, of a fine glittering, silvery white, and composed of a multitude of foliaceous flakes or plates, laid evenly over one another, and disposed in several irregular directions in the mass.

It is subject to fewer variations in its ore than most other minerals; but it is sometimes turned yellow by too great a proportion of sulphur, and sometimes is very deeply tinged with the matter of the common marcasites, and, in this condition, is often mistaken for mere marcasite, to the no small loss of the proprietor of the mine.

It is very common in Germany and England. The tin-mines in Cornwall afford it; though in no considerable quantity worth saving. Pryce's Min. p. 45.

Mr. Boyle mentions a medicine prepared from *bismuth* by calcination, and the addition of spirit of vinegar and *cremor tartari*, which has been extolled in the dropsy. He also mentions a preparation of it with common sublimate into a white powder, a few grains of which purge gently. Works abr. p. 501.

Its medicinal virtue is much the same with that of the dross of lead, being seldom used except in external forms, as containing an arsenical salt, very dangerous to be taken inwardly; yet, M. du Clos made a purgative of it, to be used in the dropsy. Add that *bismuth* being dissolved in spirit of nitre, yields a fume, which, being precipitated with water, produces a white powder, called, magistery of *bismuth*, and Spanish white, found a good diaphoretic in acute cases.

But its chief use among the ancients, as well as moderns, is as a cosmetic. Other menstrua, and other precipitates, have been used for producing this powder; but by whatever means it is prepared, it retains a corrosive quality, and injures the complexion.

Sig. Poli, by repeated distillations of *bismuth* with an equal quantity of corrosive sublimate, procured a running mercury, and a fine powder, of the colour of pearl, which might be of use in counterfeiting the oriental pearls. Hist. Acad. Sc. 1713.

To the same purpose Neuman says, that by exposing a mixture of *bismuth* and corrosive sublimate to the fire in a retort, part of the quicksilver distilled, and was succeeded by a dark brown butter, which concocting, grew hard as a stone. By repeatedly rectifying the butter, it became clearer and browner, and harder; and an unctuous pearl-coloured matter remained after every distillation. Neuman's Works, p. 109.

Bismuth bears a near affinity to ZINC.

Lemery says, that if the solution of *bismuth* be used as an ink to write with, the writing does not appear, but that it becomes very black, when moistened with the deliquated liquor of the scoria of *regulus* of antimony. See *INK sympathetic*.

There is also an artificial *bismuth*, which is that ordinarily found in the shops, made by reducing tin into thin *laminæ*, or plates, and cementing them by a mixture of white tartar, salt-petre, and arsenic, stratified in a crucible over a naked fire. The same is also by some made of a mineral called ZINC, using lead instead of tin, and a little calamine.

BISMUTH-graupen, in *Mineralogy*, a name given by the Germans to a fixed earth contained in the ores of *bismuth*, which serves to make *smalt*, as well as the earth of *cobalt*. After the *bismuth* is melted from the ore, they take the *residuum*, or *graupen*, and mixing it with flints calcined

and powdered, they run it into a fine blue glass, which is no way inferior to the common *smalt*.

The *bismuth* ore is often mixed among the *cobalt*, and, in this case, the miners separate them with all the care they can; but often they are not able to do it perfectly, and the two minerals bear the fire together; in which case, there arises some difficulty in the working; for the *bismuth* mixing itself with some of the earth of the *cobalt*, in this case, subsides to the bottom of the vessel in form of reddish *regulus*; but this is to be separated by a second operation, and the *regulus* obtained pure and white; and its own earth, together with that of the *cobalt*, are separated from it, and wrought together into *smalt*.

BISNOW, or **BISCHNOU**, a set among the Indian **BANIANS**, or cast of merchants.

The banian sect consists of two lesser ones; that of *bisnow*, and that of *samarath*.

The followers of the former hold one God, whom they call *ram-ram*, and allow of no lieutenants or deputy-gods, as is done by those of the sect *samarath*; but they allow their god a wife, and have idols, which they dress up with gold chains, and collars of pearl and precious stones, and pay them worship, by singing hymns in their temples, and dancing before them to the sound of flageolets and kettle-drums.

In this sect, the wives do not burn themselves after their husbands death, as is practised by those of the *samarath* sect; but content themselves with a perpetual widowhood.

BISOMUM, in *Antiquity*, a **TOMB** for two bodies, or the ashes of two.

The word is compounded of *bis*, twice, and the Greek *σῶμα*, body, or *ashes of a body*. Some, with greater purity, write *disomum*.

The ancients frequently buried two, three, or four bodies in the same sepulchre, disposed a-side of each other; for it was held an impiety to lay one a-top of another. Hence the sepulchres of the primitive Christians had the words *bisomi*, *trisomi*, *quadrisomi*, &c. inscribed on them, to indicate the number of bodies deposited in them. Du-Cange.

BISON, in *Natural History*, the name of a species of wild-bull, which differs from all other species, by having a very shaggy mane, running down his neck quite to his shoulders, and a large hump on his back. In Mr. Ray's time, there was a bull of this kind kept in St. James's Park; but there was no account whence it was brought. This author supposes it to have been from Florida, where, according to Ambrose Paré, there are bulls called *butrones* by the natives, which have horns of about a foot long, and a bunch in the middle of the back, like the camel. Thevet also mentions this creature; and Gesner describes it under the name of the **BOS CAMELITA**.

BISQUET. See **BISKET**.

BISSACRAMENTALES, a denomination given by some Romish writers to protestants, on account of their only holding two sacraments, viz. baptism and the supper.

BISSECTION, in *Geometry*, the division of any quantity into two equal parts, otherwise called **BIPARTITION**. See **DIVISION**, &c.

BISSELAËON, in the *Materia Medica*, a name that is found in many works of the most ancient Greek and Roman writers, and used to express the oil of pitch, or that fluid substance which swims at the surface of melted pitch, and was taken up by means of wool or cotton by the ancients, and used in many external disorders.

The common name of this oil was *pisselæum*; and this other name is only a corrupt way of spelling it. The old authors, in many other words as well as this, have changed the initial P into B.

BISSEXTIALIS, or **BISSEXTIALIS olla**, an ancient measure or vessel, containing twelve ounces, or two **SEX-TARIES**.

BISSEXTILE, or *Leap-year*, in *Chronology*, a **YEAR** consisting of 366 days, happening once each four years, by reason of the addition of a day in the month of February, to recover the six hours which the sun spends in his course each year, beyond the 365 days ordinarily allowed for it.

The day thus added, is also called *bissextile*; Cæsar having appointed it to be the day before the 24th of February, which among the Romans was the sixth of the calends of March, and was reckoned twice.

By the statute *de anno bissextile*, 21 Hen. III. to prevent misunderstandings, the intercalary day, and that next before it, are to be accounted as one day.

The astronomers concerned in reforming the calendar, by order of pope Gregory XIII. in 1582, observing, that the *bissextile* in four years added 44 minutes more than the sun spent in returning to the same point of the zodiac; and computing that these supernumerary minutes in 133

years would form a day; to prevent any changes being thus insensibly introduced in the seasons, directed, that, in the course of 400 years, there should be three *bissextiles* retrenched; so that every centesimal year, which, according to the Julian account, is *bissextile*, or leap-year, is a common year in the Gregorian account, unless the number of centuries can be divided by 4, without a remainder. Thus 1600 and 2000 are *bissextile*; but 1700, 1800, and 1900, are common.

The Gregorian computation was received in most foreign countries ever since the reforming of the calendar; and by act of parliament, passed anno 1751, it commenced in all the dominions under the crown of Great Britain, in the year following, ordering that the natural day following the second of September, should be accounted the fourteenth; omitting the intermediate eleven days of the common calendar.

BISTER. See **BISTRE**.

BISTI, a species of Persian money, valued at sixteen or eighteen French *deniers*. Some represent the *bisti* as an ancient silver coin: others, as Chardin, make it only a money of account, and call it **DINAR BISTI**.

BISTORT, or **SNAKEWEED**, *Polygonum*, in *Botany*, the name of a genus of the *ostandria trigynia* class of plants, the characters of which are these: the flower is of the apetalous kind, consisting of a number of stamina, which arise from a cup, divided into several segments at the edge: the pistil becomes afterwards a seed usually of a triangular figure, and contained in a capsule, which was before the cup of the flower.

To this it is to be added, that the flowers are disposed in spikes; and the roots are large and fleshy, oddly twisted or contorted, and furnished with a number of small fibres, like hairs. There are also some species of *bistort*, in which, beside the common flowers and seeds, there are certain tubercles, which have their roots, and rudiments of leaves.

There are three different species of this plant which are found wild in England, but they are seldom planted in gardens, the common sort only is used in medicine. Phil. Trans. vol. xlix. part ii. N^o 112. See **KNOT-grass**.

The common great *bistort*, or *snakeweed*, flowers in May, and if the season proves moist, will continue to produce new spikes of flowers until August: it may be propagated by planting the roots in a moist shady border, either in spring or autumn, which will soon furnish a garden with plants, for it greatly increases by its creeping roots.

The root of *bistort*, which is the only part that is used, is drying and binding; of service in all kinds of fluxes and hæmorrhages, either from the bowels, or any other part; they help the incontinence of urine, and the making bloody water; they are also alexipharmic, and good in pestilential fevers, resist poison, and the bites and stings of venomous creatures.

BISTOURY, a kind of surgeon's cutting instrument, of the knife-kind; much used in making incisions.—There are three kinds: the blade of the *first* turns backwards and forwards like a lancet for opening abscesses, and is sometimes used instead of it.—The *strait bistoury* does not turn, but stands strait in the handle like a common knife.—The *crooked bistoury* is shaped like a half moon, the keen edge being on the inside.

We have the description of a *bistoury*, and furrowed director, somewhat different from the common, by Mr. Monro, in the Med. Ess. Edinb. vol v. art. 41.

M. le Dran describes a *bistouri caché*, for more safely performing the operation of *herniæ*. The point of the *bistoury* slides in the furrow of the director, to keep down the guts, and thereby prevent their being cut. See *Tab. Surgery*, fig. 4, 5, 6, 7, 8.

BISTRE, a composition made of the most glossy and highest burnt foot, pulverized, and passed through a fine sieve, then baked in a little gum-water, and made into cakes.

The best is prepared from the foot of dry beech-wood, by grinding it with urine or water, into a smooth paste, and then diluting it with more water; after the grosser substance has subsided, the liquor is poured off into another vessel, and left to settle three or four days; the fine matter that remains is *bistre*. That which is good is transparent, when moistened with water, and of a warm deep, brown colour.

Instead of this, some use the hatches of a pen, with a little Indian ink, others red chalk, others black lead, &c. See **WASHING**.

BIT, or **BITT**, an essential part of a bridle; its form and use well known; its parts and kinds various.

The kinds of *bitts* are, 1. The musroll, snaffle, or watering *bit*. 2. The cannon-mouth, jointed in the middle; preferred by Solleysel to all others. 3. The cannon with a fast mouth all of a piece, only kneed in the middle, to form

form a liberty or space for the tongue; fit for horses too sensible or ticklish, and liable to be continually bearing on the hand. 4. The cannon-mouth, with the liberty in form of a pigeon's neck; proper where a horse has too large a tongue. 5. The cannon with a port, mouth, and an upset, or mounting liberty, used where a horse has a good mouth but large tongue. 6. The scatch-mouth, with an upset; ruder, but more secure than a cannon-mouth. 7. The cannon-mouth with a liberty, after M. Pignarel's manner; proper for a horse with a large tongue and round bars. 8. The masticadour, or flavouring bit. 9. The cat's foot bit. 10. The bastonet bit, &c. The several parts of a snaffle or curb-bit are—the mouth-piece, the cheeks and eyes, guard of the cheek, head of the cheeks, the port, the welts, the campanel, or curb and hook, the bosses, the bolsters and rabbits, the water-chains, the side bolts, bolts and rings, kirbles of the bit or curb, trench, top-roll, flap, and jeive.

To **BIT** a horse, is to give him such a bridle as is most proper for gaining his consent to those actions which are required of him.

All bits ought to be proportioned to the mouth of the horse, according as it is more or less cloven or wide; or more or less sensible and tender: also according as the tongue and lips are higher and flatter; and as the palate is more or less fleshy.

BIT is also used for a little tool, fitted to a stock or handle, to bore withal.

In this sense we say, the bit of a piercer, an AUGRE, or the like; meaning that iron part of those tools, where-with the holes are bored.

BIT of a key is that part fitted at right angles to the shank of the KEY, wherein the wards are made. See LOCK, &c.

BIT is also used, in Commerce, for a piece of coin current in Jamaica, and valued at 7d. $\frac{1}{2}$.

BITs, or *bitts*, in a ship, are two great pieces of timber usually placed abaft the manger in the ship's loof, through which the cross-piece goes, their lower parts being fastened to the rudders; and their middle parts, in great ships, bolted to two large beams, cross the bows. Their use is to belay the cable to, when the ship rides at anchor.

The word seems formed from the French *bittes*, which signifies the same; unless we suppose that the French word is formed from ours.

In great storms, to strengthen the *bitts*, and secure the bows, the cable is fastened to the main-mast.

BITTs, *fore-jeer*, those to which the fore-jeer is fastened and belayed.

BITs, *fore-top-sail-sheet*, those to which the fore-top-sail-sheet is belayed.

BITE is defined to be a solution of the continuity of a soft part, caused by the impression of an animal's teeth.

For the poisonous or venomous bites of VIPERS, the RATTLE-SNAKE, MAD-DOGS, the TARANTULA, &c. See VIPERS, &c.

SNAKE-STONE, SNAKE-WEED, *terra Melitenfis*, &c. are reputed specifics against poisonous bites.

The bites of spiders, at least of some species, also appear to be poisonous; which has perhaps been the occasion of the common error, that this insect is poisonous, when eaten. See SPIDER.

Mr. Robie, a physician in New England, gives the history of a person bitten in the leg by a small spider, accidentally enclosed in his stocking; it was followed by an acute, erratic pain; first in the leg, then in the groin, and successively passing into the small of the back, the thigh, and the head, attended with a numbness, &c. It was cured with *sp. cor. cerv.* and *sal. vol. corn. cerv.* with *vinum viperinum*, and onions or garlic applied to the wound. Phil. Transf. N° 382. p. 69.

Sig. Redi attributes the malignity of the bite of a VIPER, to a yellow juice lodged in a bag behind the gum, which is instilled through a slit in the teeth, into the wound. M. Bourdelot, and Charas, ascribe it to the irritated bilious spirits, and breath of the enraged animal. Phil. Transf. N° 83.

In support of which it is alledged, that the viper's lungs are all full of bilious spirits, which exhale with its breath; and that there is an immediate duct in this creature, from the gall-bladder to the throat; by means of which, a quicker and more copious infusion of the bile, is made into the wound. But much of this may be justly doubted. Phil. Transf. N° 77. p. 3015.

The best remedy for it is sucking the wound; a kind of cure, for which the ancient Maris and Pillis are celebrated.

The best cure for the bite of a rattle-snake is an actual cautery; e. gr. a hot burning coal held on the wound. Phil. Transf. N° 210.

The bites of divers creatures, when mad, are poisonous, which at other times are not so, as of dogs, cats, men,

&c. See HYDROPHOBIA, MAD-dog, MADNESS, MANIA, &c.

BITE is also applied, in a less proper sense, to the impression of other sharp, or pungent bodies. Thus a file is said to bite the metal; *aqua fortis bites*, or eats into copper. An anchor is also said to bite, when it holds fast in the ground.

BITERLOGH, or **BITHERLAGE**, the ancient Danish military, or camp law.

The word is compounded from *bithe*, *mulct*, and *lagh*, law; q. d. the law of mulcts, or wites.

Among the laws of the Danes, there are two peculiarly eminent; viz. the *bird straa*, or court-law; and the *bitherlage raett*, made by Canute the Great, about the year 1035. Of which an edition has been given by Resenius.

BITHYNIARCHIA, a sort of superior priesthood in the province of Bithynia, to which belongs the superintendency of the sacred games, and which gave an exemption to him possessed of it, called *bithyniarcha*, from the care of tutorage.

BITTACLE, or **BINACLE**, a square box, or frame of timber, placed in the steerage of a ship, wherein the COMPASS is placed.

The word is formed, by contraction, from the French *habitable*, a small habitation, which signifies the same.

Large vessels have two bittacles, a lesser placed before the pilot, and a greater before the steersman.

In the smaller vessels, the bittacle is divided into three spaces or apartments; in large vessels into five. One for the hour-glass; another for the lamp or light; another for the compass, &c.

Great care is to be taken in the disposition, framing, &c. of the bittacle, that it stand true, and that it be not fastened together with iron nails, but with wooden pins, because the former would affect the compass.

BITTACUS, in *Natural History*, a name given by Ctesias, and some others of the Greek authors, to the parrot. The word *psittacus* is so near this, that they are plainly only a corruption of one another. The Greeks called this bird indifferently *psittacus*, and *sittacus*, as they did the fine ointment *sagda*, indifferently by that name, or *psagda*, the *ps* being only one letter with them; and that, and the single S, very frequently used at pleasure for one another.

BITTER almonds. See ALMOND.

BITTER apple. See COLOCYNTHIS.

BITTER gourd. See COLOCYNTHIS.

BITTER waters. See WATER.

BITTER wine. See WINE.

BITTER sweet, in Botany. See NIGHTSHADE.

BITTER vetch. See VETCH.

BITTER wort. See GENTIAN.

BITTERN, in *Ornithology*, the name of a bird of the heron-kind, called by authors *ARDEA stellaris*; and by some *taurus*, *betaurus*, *butorius*, and *ocnus*: in English, the *butterbump*, and *mire-drum*. It builds on the ground, and lays five or six eggs, which are roundish, and of a greenish white. When wounded, and going to be taken, it strikes at the person's eye, and ought carefully to be guarded against.

BITTERN is also a name given to the brine swimming upon the first concreted salt in the salt-works; this liquor is laded off, that the salt may be taken out of the vessel, and is afterwards put in again, and affords more salt, which is to be separated like the rest, by lading off the liquor a second time, and so on.

The *bittern*, according to Mr. Boyle, is a very saline, bitter, sharp, pungent liquor, which drains off in the making of salt from sea-water; or which remains in the pans, after the coagulation, and granulation of the purer, and more saline part, by boiling.

A *bittern* also runs, or oozes, from the heaps of fossile salt at Lymington, and Portsea in Hampshire. Phil. Transf. N° 377. p. 348.

Bittern makes the basis of *sal catharticum amarum*, or EPSOM-SALT.

Bittern is the mother-ley or SEA-salt, or the liquor which remains after the purification and crystallization. It is employed in this country for making a purging bitter salt, which proves similar in quality to the salt obtained from the Epsom waters, and is commonly sold under its name. The ley is boiled down to a certain pitch, then filtered and inspissated, the dry matter is calcined, redissolved, and crystallized. If the mother-ley be inspissated and distilled with vitriolic additions, a spirit of salt is obtained. Neumann, p. 212.

BITTERNESS, a kind of savour or sensation, opposite to sweetness.

According to Grew, *bitterness* is produced by a sulphur well impregnated with a salt, either alkaline or acid, and shackled with earth.

Hence it is, that the bitterest plants usually yield the greatest quantity of lixivial salt; and that many distilled oils

oils, digested with any strong acid, acquire a bitter taste. Add, that the leaves of all sweet roots are bitter; the fig-tree, which bears a sweet fruit, bleeds a bitter milk; and that the roots of plants, which bear a bitter stalk, are not bitter, but hot. That the earthy parts contribute considerably to the *bitterness* of bodies, appears hence, that most bodies of that kind are fixed; or, if they do emit fumes, do not lose their bitter taste therewith. Disc. of Taste of Plants, cap. iv. § 12.

Bitterness, Neumann observes, is extracted both by water and spirit; does not arise in distillation; is freed from its smell by boiling in water, and covered by acids. He has given the chemical history of *bitter* VEGETABLES. See his Works.

Mr. Boyle observes, that a substance *bitter* in the highest degree, may be divided into two substances, the one extremely sour, and the other insipid. This happens, when the crystals of silver are distilled by a heat sufficient to drive away all the spirits from the silver. What remains is insipid, and what rises is highly acid. Works abr. vol. i. p. 541.

The extinguishing, or removing of *bitterness*, is called DULCIFYING, sweetening, &c.

M. Bon has given methods of removing or discharging the *bitterness* of olives and Indian chestnuts. Mem. Acad. Sc. 1720. p. 600.

The *bitterness* of SEA-WATER has been supposed to arise from the dissolution of the beds, or strata of BITUMEN; as its saltiness does from a dissolution of the strata of salt. Ibid. 1770. p. 33.

The qualities of *bitter* bodies are supposed to be dry, warm, astringent, and earthy.

According to Grew, all plants which are *bitter* and pungent, either on the tongue, or in the throat, are good cleansers, e. gr. daisy, anagallis, &c. The same author adds, that most purgative and emetic plants, which have any sensible taste, are *bitter*; either simply, as colocynthis; or *bitter* and astringent, as aloes, &c.

Bitter things are generally reputed STOMACHIC; yet, according to Abercromby, they are naturally the reverse, and hurtful to the stomach; and only become beneficial to it, where their astringency renders them proper. Phil. Trans. N° 171. p. 1026.

Bitters are said to resist putrefaction, and moderate fermentation: hence appears their use in putrid disorders.

Bitters likewise correct acidities, and assist digestion, by bracing the fibres of the stomach.

BITTER purging salt, *sal catharticum amarum*. See EPSOM salt.

BITTER place, *locus amarus*, a poor barren soil, by Pliny called *terra amara, five macra*.

BITTER, in the sea language, denotes a turn of the cable about the bitts, in order to its being veered out by little and little at pleasure.

A ship is said to be brought up to a *bitter*, when she is stopped by her cable.

BITTER end, is that part of the cable which stays within board, wound about the bitts, when the ship is at anchor. When they would have that end bent to the anchor, they say, bend to the *bitter end*.

BITUMEN, in a general sense, a fatty, tenacious, mineral juice, very inflammable; or a fossil body, which readily takes fire, yields an oil, and is not soluble in water.

The origin of *bitumens* has not yet been ascertained: some suppose that they belong to the mineral kingdom, and others that they proceed originally from vegetable substances. Macquer inclines to the latter opinion; though Dr. Lewis, the translator of Neumann's works, distinguishes between mineral *bitumens* and vegetable resins.

Naturalists distinguish three kinds of *bitumens*; *hard*, *soft*, and *liquid* or *oily*; each of which they subdivide into several species.

Among the *hard* or *solid* *bitumens* are ranked, yellow amber, ambergris, jet, asphaltum, pissasphaltum, pit-coal, and sulphurs.—The *soft* are maltha, *bitumen* of Calao, and of Surinam.—Lastly, the naphtha of Italy, and petroleum, are ranked among the *liquid* *bitumens*.

Of *bitumens*, some again are fossil, others are found floating on the surface of certain lakes, and others spring from the earth like fountains; as at Pitchford in Shropshire, &c.—Some *bitumens* are so hard, that they are used in forges, instead of coals: others so glutinous, that they serve instead of cement, or mortar, in buildings; of which kind that was wherewith the famous walls of Babylon were built: and others so liquid, that they are burnt in lamps instead of oil.

The *bitumen* in most esteem is that of Judæa.

From the origin and inflammability of *bitumens*, it appears they bear a near affinity to sulphurs, and are supposed both formed of the same principles or ingredients; only differing in this, that sulphurs are harder and more brittle, *bitumens* more fatty and tenacious.

Bitumens are usually divided into two species, *liquid* and *solid*. Though some distinguish three kinds, as before mentioned.

Dr. Woodward gives a different division of the English *bitumens*, or bituminous fossils. The first are those of a more lax and coarse constitution; and which, when wetted, yield a grosser, or pitchy matter. Such are the *lapis piceus*, or pitch-stone, the *lapis impelites*, *obsidianus* or canel, and the *lithanthrax* or coal. The second is of a more dense and fine constitution, and yields an oil: such are the GAGATES, or jet; and SUCCINUM, or amber.

Bitumen is supposed the chief fuel of the subterranean fires.

Many have been fond of supposing all sea-water to contain a large quantity of *bitumen*, and that it owes its bitterness to this admixture; but this seems erroneous, since we find that all sea-water contains a large quantity of bitter purging salt of the nature of what is sold in our shops under the name of *Epsom salt*; and its bitterness is of the very same kind with the taste of that salt.

That there are, however, *bitumens* mixed in several places with the water of the sea, is very certain. Barbadoes tar is found floating on the sea, being washed in great quantities from the rocks, and Count Marfigli observed spiral filaments arising from the surface of the sea Marmora, near Constantinople, which concreted into *bitumen*, exactly of the same kind with that he observed at Zant, flowing from the sides of a bituminous mountain.

On some of the coasts of Italy they skim off a kind of liquid *bitumen*, or petroleum, from the surface of the sea. Some think that ambergris is a bitumen of the sea, and many travellers tell us of a fatty substance on the surface of it, that gives light in the night. These various substances may impart various properties to the sea-water, in such parts where they are found to abound, and they may be common in many places, but they are certainly not found in all, nor is *bitumen* a necessary ingredient in sea-water. Count Marfigli has indeed proved, that a spirit distils from the most common of all *bitumens*. Pit-coal will give water a bitter taste, but sea-water is not yet proved to be impregnated with such a spirit. On the contrary, when distilled, it has no better taste; therefore marine waters are not impregnated with such a volatile spirit, but evidently owe their *bitterness* to a fixed principle; and it is very certain, that pit-coal cannot give this taste, since the waters which issue out from among the strata of sea-coal are never found to be bitter, though often strongly impregnated with iron.

All *bitumens* have this good quality in their burning, that they will do without a wick. Dr. Plott therefore conjectures, that the famous sepulchral LAMPS of the ancients were contrived of these *bitumens*, particularly of the liquid kind, because any thing that would require a wick, would be liable to its choking up, and being destroyed.

BITUMEN, in a more particular sense, is restrained to the ASPHALTOS, otherwise called *bitumen Judaicum*.

BITUMEN *Barbadense*, see BARBADOES tar.

BITUMEN *Hybleanum*, in *Mineralogy*, a name given by Boccone and others to a peculiar species of bituminous fossil, which is flexible while in the earth, a property very singular in a fossil not of the talcy kind, as this evidently is not. It is a stony substance, smelling like the common *bitumens*, and composed of a very great number of thin plates, laid evenly and regularly on one another. It has its name from the place where it is found, which is the Hyblæan mountains of Sicily, near Milelli, neighbouring upon the town of Augusta and the ancient Megara. When burnt in a candle, the bituminous smell is perceived very strong; and the stone, though when first taken up it be flexible like paper, yet in time hardens and becomes brittle like other fossils of that lax consistence. There are found whole hillocks covered with it. This does not prevent their bearing plants and herbage, the roots of the grafs, &c. insinuating themselves between the *laminæ* of this stone, and getting good nourishment there. Phil. Trans. N° 100.

BITUMINOUS, something that relates to, or partakes of the nature and qualities of BITUMEN.

All *bituminous* bodies are offensive to the head. Their smell or stench makes the EPILEPSY discover itself.

BIVALVE, or BIVALVULAR, a term used by the writers of natural history, for such shell-fish as have two shells, e. gr. cockles, muscles, oysters, &c. which are said to be of the *bivalvular* kind.

These are a less numerous class than the *univalves*, and have been arranged by an accurate French writer under six genera. They are, 1. The OYSTERS. 2. The CHAMÆ. 3. The MYTULI, or MUSCLES. 4. The CARDIFORM shells. 5. The PECTINES, or scallops.

And,

And, 6. The SOLENS, or razor-shells. For the characters and species of each of these, see their several heads, OISTERS, &c.

See a description of *bivalve* insects by Mr. Muller, in the Phil. Transf. vol lxi. part i. N^o 29.

BIVALVE is also applied to the *siliquæ*, or seed-pods, of such plants as open their whole length to discharge their seeds. Such are peas, beans, &c. which the botanists say, have *bivalve* or *bivalvular siliquæ*.

BIVENTER, from *bis*, and *venter*, belly; in *Anatomy*, a denomination given to the sixth muscle of the lower jaw; being the last of those serving to depress or open it: thus called, as having two bellies for its two extremities, and a tendon in the middle.—See *Tab. Anat. (Myol.) fig. 2. n. 2.*

The *biventer* or *digastricus* has its origin from a scissure between the occipital bone and the mastoidal *apophysis*; whence passing its tendon through a hole in the *stylohyoideus*, and an annular ligament of the *os hyoides*, there arise some fibres, which join its second belly: hence, growing fleshy, and returning upwards, it is inserted into the middle of the inferior part of the lower jaw.—By this contrivance it is enabled to draw the jaw downwards.

BIUMBRES, from *bis*, double, and *umbra*, shadow; in *Geography*, an appellation given to the inhabitants of the torrid zone, because at two different seasons of the year, their shadows are projected two different ways.

The *biumbres* are the same with those otherwise denominated AMPHISCII.

BIXA, in *Botany*, a genus of the *polyandria monogynia* class; ANOTTA, by the French called ROUCOU. Its characters are these: the flower hath a double series of petals, the outer consisting of five, which are large, the inner of the same number and shape, but narrower. It hath a great number of bristly STAMINA: in the centre is situated an oval *germen*, which afterward becomes an oval heart-shaped capsule, covered with sharp bristles, opening with two valves, with one cell, and filled with angular seeds. We have but one species of this genus; which must be constantly kept in a bark stove, or they will not thrive in England.

BIZZARRE, Fr. denoting *capricious*, &c. a term used among *Florists* for a particular kind of carnation, which has its flowers striped or variegated with three or four colours.

BIZE, in *Zoology*, a name by which some call the PELAMYS, a sea-fish, of the shape of the tunny, and resembling the young brood of that fish; but distinguishable by its wanting scales in most parts of its body.

BIZOCHI, or BISOCHI, a sect or branch of religious minorities, condemned by several popes.

The *Bizochi* were also called *fratricelli*, or *fratres de paupere vita*; sometimes *Bichini*, or *Bicchini*, and BEGUINS. The name is formed from *bisaccus*, on account of a double budget or wallet wherewith they begged their living. See BEGHARDI.

BIZZARRO, or con BIZZARIA, in the *Italian Music*, signifies *with capricious changes*; sometimes fast, at others slow, soft, strong, &c. at the fancy of the composer.

BLACK, something opaque and porous, that imbibes all the light falling on it, reflects none, and therefore exhibits no colour. See BLACKNESS.

There are various kinds of *blacks*, which pass in commerce; viz. *blue black*, *dyers black*, *painters black*, *German black*, *ivory black*, *Spanish black*, *lamp black*, *Indian black*, &c.

Bodies of a *black* colour are found more inflammable, because the rays of light falling on them are not reflected outwards, but enter the body, and are often reflected and refracted within it, till they be stifled and lost. They are also found lighter, *cæteris paribus*, than white bodies, being more porous. It may be added, that cloaths dyed of this colour wear out faster than those of any other, because their substance is more penetrated and corroded by the vitriol necessary to strike their dye, than other bodies are by the galls and alum which suffice for them.

The inflammability of *black* bodies, and their disposition to conceive heat, beyond those of other colours, is easily evinced. Some appeal to the experiment of a white and a *black* glove worn in the same sun; the consequence will be, a very sensibly greater degree of heat in the one hand than the other. Others allege the phenomena of burning-glasses, by which *black* bodies are always found to kindle soonest. Mr. Boyle gives other proofs still more obvious: he took a large tile, and having whited over one half of its superficies, and blacked the other, exposed it to the summer sun; where having let it lie a convenient time, he found, that whilst the whited part remained still cool, the *black* part was grown very hot. For farther satisfaction, the same author has sometimes left on the surface of the tile a part retaining its native red, and exposing all to the sun, has found the latter to

have contracted a heat in comparison of the white part; but inferior to that of the *black*.

So also on his exposing two pieces of silk, one white; the other *black*, in the same window to the sun, he often found the latter considerably heated, when the former has remained cool. It is observable likewise, that rooms hung with *black* are not only darker, but warmer than others. Boyle's Works abridg. tom. i. p. 144. and tom. ii. p. 36.

To all which may be added, that a virtuoso of unsuspected credit assured Mr. Boyle, that, in a hot climate, he had, by carefully blackening the shells of eggs, and exposing them to the sun, seen them thereby well roasted in a short time.

Dr. Watson of Cambridge covered the bulb of a thermometer with a *black* coating of Indian ink; in consequence of which, the mercury rose ten degrees. Phil. Transf. vol. lxiii. part. i. p. 40.

Black cloaths heat more, and dry sooner in the sun than white cloaths. *Black* is a bad colour for cloaths in hot climates; but a fit colour for the linings of ladies summer hats. Dr. Franklin's Experiments, Observations, &c. 5th edit. p. 483, & seq. He observes also, *ibid.* p. 382, that a chimney painted *black*, when exposed to the sun, will draw more strongly.

BLACK, in matters of dress, is the distinguishing habit of church-men and mourners.

Some will have it, that the common people among the Romans were clothed in *black*; whence the denomination given them of *turba pullata*.

BLACK, in *Heraldry*, is properly called SABLE.

BLACK, in the *Manege*.—A horse of a deep, shining, and lively *black* is called a *black-mare*, or *coal-black*. Horses *black* all over are commonly reckoned dull and melancholy; but a white foot, or star in the forehead, gives them a degree of sprightliness. The Spanish gravity is said to be best pleased with those entirely *black*.

BLACK, *blue*, is the coal of some kind of wood, or other vegetable matter: the best sort is said to be made of vine-stalks and tendrils.

BLACK, *bone*, is made of the bones of bullocks, cows, &c. well burnt and ground. To be good, it must be soft and friable, of a glossy cast. It is in considerable use, though inferior in goodness to *ivory black*.

The invention of *bone* or *ivory black* is attributed to Apelles. Plin. Hist. Nat. lib. xxxv. cap. 5.

BLACK, *dyers*, is one of the five simple and mother colours used in DYING; and given differently, according to the different quality and value of the stuffs to be dyed.

Green vitriol strikes a *black* colour with vegetable astringents, and hence it is the basis of the *black* dye for cloth, leather, hats, &c. And as solutions of iron with galls, &c. produce the same colour, a method is derived from hence of distinguishing the minutest portions of iron in mineral waters, &c. Neumann.

For broad cloths, fine ratines, and druggets &c. they use woad and indigo; the goodness of the colour consists in there not being above six pounds of indigo to a ball of woad, when the latter begins to cast its blue flower; and, in its not being heated for use above twice.—Thus blued, the stuff is boiled with alum, or tartar, then maddered; and, lastly, the *black* given with galls, copperas, and sumac.—To bind it, and prevent its smearing in use, the stuffs are to be well scoured in the fulling-mill, when white, and well washed afterwards. For stuffs of less value, it is sufficient they be well blued with woad, and *blackened* with galls and copperas: but no stuff can be regularly dyed from white into *black*, without passing through the intermediate blue.

Yet there is a colour called *coal black*, or *Jesuit's black*, prepared of the same ingredients as the former, and sufficient of itself without the blue dye. Here the drugs are dissolved in water that had boiled four hours, and stood to cool till the hand would bear it; then the stuff is dipped in it, and again taken out six or eight times. Some even prefer this *black* to the other.—This method of dying *black* is said to have been invented by the Jesuits, and to have been practised in their houses, where they retained numbers of dyers.

By 23 El. c. 9. nothing of the nature of cloth shall be maddered for a *black*, except it be first grounded with woad only, or with woad and anele [blue ind.] unless the madder be put in with sumac or galls; on pain of forfeiting the value of the thing dyed: provided it shall be lawful to dye any manner of *gall black*, and *sumac black* [plain black] wherein no madder shall be used.

Logwood strikes a *black* with chalybeate solutions, and is employed with those liquors for staining wood *black*, as picture-frames, &c. With the addition of galls, it is used for dying cloth and hats *black*. Neumann's Works, p. 385. This *black* colour is not permanent, though beautiful, any more than the natural violet dye of the LOG-wood.

BLACK, earth, is a kind of coal found in the ground, which, well pounded, is used by painters in fresco.

There is also a kind of **BLACK** made of silver and lead, used to fill up the strokes and cavities of things engraved.

BLACK, German or Frankfort, is made of the lees of wine burnt, then washed in water, and ground in mills for that purpose, together with ivory or peach-stones burnt. This *black* makes the principal ingredient in the rolling-press-printers **INK**. It is ordinarily brought from Frankfort, Mentz, or Strasbourg, either in lumps or powder. That made in France is more valued than that of Germany.

BLACK, harts, that which remains in the retort after extracting the spirit, salt, and oil of hartshorn. This residue being ground up with water, makes a *black* not much inferior to that of ivory.

BLACK, ivory, is made of ivory burnt or charred, ordinarily between two crucibles well luted: which, being thus rendered perfectly *black*, and in scales, is ground in water, and made into troches, or little cakes, used by the painters; as also by the jewellers to blacken the bottom or ground of the collets, wherein they set diamonds to give them their teint or foil. Some recommend soaking the chips or shaving of ivory in hot linseed oil, before it is charred.

There are particular machines and contrivances for burning the *ivory* for these purposes, by which the colour is rendered more beautiful than that of the coal which remains in the distillation. Neumann.

The goodness of *ivory black* may be perceived by its fullness, without a blue cast; and by the fineness of the powder.

BLACK, lamp, or Lam BLACK, originally perhaps the foot collected from lamps, is generally prepared by melting and purifying resin or pitch in iron vessels; then setting fire to it under a chimney, or other place made for the purpose lined a-top with sheep skins, or thick linen cloth, to receive the vapour or smoak, which is the *black*: in which manner they prepare vast quantities of it at Paris. In England it is ordinarily prepared from the resinous and fatty parts of woods, burnt under a kind of tent, which receives it; but the greatest part is brought from Sweden and Norway, where it is frequently obtained not from pure resin or pitch, but from the dregs; and pieces of the bark of the tree, separated in preparing them. The dregs left on straining the resin is burnt for *lamp black*, in a low oven, from which the smoak is conveyed by a long passage into a square chamber, having an aperture in the top, upon which is fastened a large sack. The foot concretes partly in the sack, and partly in the chamber and canal.

It is used on various occasions, particularly in the printers **INK**; for which it is mixed with oils of turpentine and linseed, all boiled together.

It must be observed, that this *black* takes fire very readily, and when on fire is very difficultly extinguished: the best method of putting it out is with wet linen, hay, or straw; for water alone will not do it.

There is a finer and brighter kind of *lamp* or *candle black* procured from the fumes of a lamp or candle, gathered by a proper receptacle placed in manner of a canopy over the luminary, and wiped or brushed off; but it is not procured in quantity sufficient for ordinary use.

A glass tube closely filled with *lamp black* has been found to conduct a considerable charge of electricity instantaneously, and with scarce any explosion. But a coating of this substance mixed with tar or oil is a perfect non-conductor, and has proved a preservative from lightning by repelling the electric matter from those parts of the masts of ships which have been covered with it.

BLACK, foot, or chimney, is a poor colour; but ready for painting *black* draperies in oil. See **SOOT**.

BLACK, Spanish, so called, because first invented by the Spaniards, and most of it bought from them; is no other than burnt cork used in various works, particularly among painters.

BLACK, Indian; see **INDIAN INK**.

BLACK, curriers, signifies a teint or dye laid on tanned leather; of which there are usually two; the first made of galls, aleger, and old iron; the second of galls, copperas, and gum Arabic. See **CURRYING**.

BLACK act; the statute of 9 Geo. I. c. 22. is commonly called the *Waltham black act*, because it was occasioned by the devastations committed near Waltham in Essex, by persons in disguise, or with their faces *blackened*. By this statute it is enacted, that persons hunting armed and disguised, and killing or stealing deer, or robbing warrens, or stealing fish out of any river, &c. or any persons unlawfully hunting in his majesty's forests, &c. or breaking down the head of any fish-pond, or killing, &c. of cattle, or cutting down trees, or setting fire to house, barn, or wood, or shooting at any person, or sending letters, either anonymous or signed with a fictitious name, demanding money, &c. or rescuing such offend-

ers, are guilty of felony, without benefit of clergy. This act is made perpetual by 31 Geo. II. c. 42. See farther 6 Geo. II. c. 37. and 27 Geo. II. c. 15. Blackstone's Comm. vol. iv. p. 144. 208. 232. 244.

BLACK-berry, in *Botany*, a species of the **RASP-berry**.

BLACK-bird, merula, in *Ornithology*, a bird of the **TURDUS** or thrush kind, of which there are several species.

1. The common kind, well known in our hedges.
2. The kind called the *PASSER solitarius*, or solitary sparrow.
3. The *cæruleus*, of which there are two kinds.
4. The Brazilian *black-bird*, remarkable for the shortness and crookedness of its beak, and for its remarkably beautiful colours. Its tail and wings are black, and the rest of its body of a fine beautiful deep red. Its legs and feet are black, or of a brownish grey. Its wing-feathers also have some slight variegation of red.
5. The *MERULA rosea*, or rose-coloured *black-bird*; this is smaller than the common kind, and its back, breast, and wings are of a pale red or damask rose-colour. Its wings and tail black.
6. The red-breasted Indian *black-bird*, called by the Brazilians *JACAPU*.
7. The *merula torquata*, or ring *AMZELL*. Beside these there is the *MERULA montana*, or common *AMZELL*: and the *MERULA bicolor*: and two other birds, called *MERULA congeneres*, described by Aldrovandus, but not now known. See *Tab. of Birds*, No 29, 30.

The music of the *black-bird* is not its only valuable quality; for it is a very delicate bird for the table. It builds its nest in woods, very early in the spring, often in March, while the snow is on the ground. It generally chooses the stumps of trees, or thick hedges, for the place. The outside of the nest is made of dry grass, sticks, and the fibres of roots of trees: the inside is lined with clay, and formed so round, that art cannot mend it. They build three or four times in the year, and even oftener than that, if their nests are taken early from them. The young ones may be easily raised with any kind of meat. It sings three or four months in the year: the note is loud, and not very agreeable; but may be much improved by teaching.

BLACK-books, a name given to those which treat of **NIGROMANCY**, or, as some call it, **NIGROMANCY**.

The *BLACK-book* of the English monasteries was a detail of the scandalous enormities practised in religious houses, compiled by order of the visitors under king Henry VIII. to blacken them, and thus hasten their dissolution.

BLACK-cansons, a name given to the regular canons of St. Augustine, who wore a *black* mantle over their surplice, by way of distinction from the *Præmonstratenses*.

BLACK cap, in *Zoology*, a name given by the common people of many counties of England to the **PEWIT**, a bird of the gull-kind.

BLACK-cap is also the common English name for the *parus palustris*, or marsh-TITMOUSE.

BLACK-cap, or *motacilla atricapilla* of Linnæus, is one of the smallest birds: the crown of the head in the male is black, but in the female of a dull dust-colour; and they are thus distinguished. This is a bird of passage. It sings finely, with a full, sweet, deep, loud, wild pipe: its strains are short, and motions desultory. Its notes are superior to those of any of our feathered warblers, the nightingale excepted: and it is therefore called in Norfolk the mock-nightingale.

BLACK chalk; see **CHALK**.

BLACK-diver, in *Zoology*, a name given by many to a species of duck very common about the coasts of Lancashire, Yorkshire, and some other counties, and called more generally the **SCOTER**. It is all over *black*.

BLACK-ears, or black-eared cat; see **SIGAH gush**.

BLACK-earth, terra nigra, denotes the natural mould or loam. See **SOIL**, &c.

BLACK eunuchs, in the customs of Eastern nations, are Ethiopians castrated, to whom their princes commonly commit the care of their women. See **EUNUCH**.

BLACK-eye, hypophagma, in *Medicine*, a suffusion of blood on the *tunica adnata* turning livid, occasioned by a blow. See **ECCHYMOISIS**.

BLACK-eye is also a name given to the **GERM** in **BEANS**, which the Romans called **HILUM**.

BLACK-fryers, a name given to the **DOMINICAN** order, called also *Predicants* and *Preaching fryers*; in France, *Jacobins*.

BLACK-game, in *Zoology*, a common English name for the *urogallus* or *tetrao minor*, called also the **GROUSE**.

BLACK-glass, see **GLASS**.

BLACK-grass, a species of American grass, growing in meadows which border on tide-rivers, well supplied also with fresh water; for a mixture both of fresh and salt water seems to be necessary for its prolific vegetation. Its seeds are small, like those of tobacco; its colour a deep green; and it affords from three to four tons of hay by the acre. This kind of grass thrives best on a clay or strong loam; nor is the vicinity of salt water absolutely

olutely necessary. The seeds have been lately brought over into England, and distributed for trial in proper soils.

BLACK-jack, or **BLEND**, is a mineral called also *false GALENA*, and *BLINDE*, &c.

BLACK-land, in *Agriculture*, a term by which the husbandmen denote a particular sort of clayey soil, which however, they know more by its other properties than by its colour, which is rarely any thing like a true *black*, and often but a pale grey. This, however pale when dry, always blackens by means of rains; and when ploughed up at these seasons, it sticks to the plough-shares, and the more it is wrought, the muddier and dusker-coloured it appears. This sort of soil always contains a large quantity of sand, and usually a great number of small white stones.

BLACK-lead; see **LEAD**.

BLACK-leather, is that which has passed the curriers hands, where, from the russet as it was left by the tanners, it is become *black*, by having been scored and rubbed three times on the grain-side with copperas-water.

BLACK-legs, a name given in Leicestershire to a disease frequent among calves and sheep. It is a kind of jelly, which settles in their legs, and often in the neck, between the skin and flesh.

BLACK-mail, a certain rate of money, corn, cattle, or other matter, anciently paid by the inhabitants of towns in Westmorland, Cumberland, Northumberland, and Durham, to divers persons inhabiting on or near the borders, being men of name, and allied with others in those parts, known to be great robbers and spoil-takers; in order to be by them freed and protected from any pillage. Prohibited by 43 El. c. 13.

The origin of this word is much contested, yet there is ground to hold the word *black* to be here a corruption of *blank* or *white*, and consequently to signify a rent paid in a small copper coin called *blanks*. This may receive some light from a phrase still used in Picardy, where speaking of a person who has not a single halfpenny, they say, *il n' a pas une blanche maille*.

BLACK-monks, a denomination given to the **BENEDICTINS**, called in Latin *nigri monachi*, or *nigromonachi*; sometimes *ordo nigrorum*, the order of *blacks*.

BLACK-oats; see **OATS**.

BLACK-procession, in *Ecclesiastical Writers*, that which is made in *black* habits, and with *black* ensigns and ornaments. See **PROCESSION**.

Anciently at Malta there was a *black-procession* every Friday, where the whole clergy walked with their faces covered with a *black* veil.

BLACK-rents, the same with **BLACK-mail**, supposed to be rents formerly paid in provisions and flesh, not in specie.

BLACK-rod—*Gentleman-usher* of the **BLACK-rod**, is the chief gentleman-usher to the king, called in the black-book, *Lator virgæ nigræ*, & *basiliarius*; and elsewhere, *virgæ bajulus*.

His duty is to bear the rod before the king at the feast of St. George at Windsor; he has also the keeping of the chapter-house door, when a chapter of the order of the garter is sitting; and, in time of parliament, attends the house of peers. His badge is a *black-rod*, with a lion in gold a-top. This rod has the authority of a mace: and to his custody all peers questioned for any crime are first committed.

BLACK-row grains, a species of iron-stone or ore found in the mines about Dudley in Staffordshire.

BLACK-sands; see **SANDS**.

BLACK-sealing-wax; see **WAX**.

BLACK-sheep, in the *Oriental History*, the ensign or standard of a race of Turkmans settled in Armenia and Mesopotamia; hence called the *dynasty of the black-sheep*.

BLACK-stains; see **STAINING**.

BLACK-stones and gems, according to Dr. Woodward, owe their colour to a mixture of tin in their composition.

BLACK-strakes, a range of planks immediately above the wales in a ship's side: they are always covered with a mixture of tar and lamp-black.

BLACK-thorn, in *Botany*, a species of the *prunus*. See **PLUM-tree**.

BLACK-tin, in *Mineralogy*, a denomination given to the tin-ore when dressed, stamped, and washed ready for the blowing-house, or to be melted into metal. Phil. Trans. N° 69. p. 2110.

It is prepared into this state by means of beating and washing; and when it has passed through several buddles or washing-troughs, it is taken up in form of a black powder, like fine sand, called *black-TIN*.

BLACK-varnish; see **VARNISH**.

BLACK-vegetable juice; see **ANACARDIUM**.

BLACK-whyttlof, in our old writers, bread of a middle fineness betwixt white and brown, called in some parts *ravel-bread*.

In religious houses, it was the bread made for ordinary guests, and distinguished from their household loaf, or *panis conventualis*, which was pure manchet, or white bread.

BLACK-work, iron wrought by the black-smith; thus called by way of opposition to that wrought by white-smiths.

BLACK of charcoal; see **CHARCOAL**.

BLACK Book of the Exchequer, *Eagle*, *Hellebore*, *Money*, *Order*, *Star*; see the several substantives.

BLACKING is sometimes used for a factitious black, as lamp black, shoe-BLACK, &c. A mixture of ivory or lamp-black with linseed oil, makes the common oil *blackening*. For a shining *blackening*, small-beer or water is used instead of oil, in the proportion of about a pint to an ounce of the ivory-black, with the addition of half an ounce of brown sugar, and as much gum Arabic. The white of an egg, substituted for the gum, makes the black more shining; but is supposed to hurt the leather, and make it apt to crack.

BLACKNESS, the quality of a black body; or a colour arising from such a texture and situation of the superficial parts of the body, as does, as it were, deaden, or rather absorb, the light falling on it, without reflecting any; or very little of it, to the eye.

In which sense, *blackness* stands directly opposed to *whiteness*; which consists in such a texture of parts, as indifferently reflects all the rays thrown upon it, of what colour soever they be.

Descartes, says Dr. Priestley, though mistaken with respect to the nature of light and colours, yet distinguishes justly between *black* and *white*, observing, that *black* suffocates and extinguishes the light that falls upon it; but that *white* reflects them. This, adds the historian of philosophy, is the first distinct account I have met with of this sensible hypothesis. Hist. of Vision, p. 127 and 143. &c.

Sir Isaac Newton, in his Optics, shews, that for the production of *black* colours, the corpuscles must be less than those which exhibit any other colours; because, where the sizes of the component particles are greater, there is too much light reflected to constitute this colour: but, if there be a little less than is requisite to reflect the white, and very faint blue of the first order, they will reflect so little light, as to appear intensely black; and yet may, perhaps, reflect it variously to and fro within them so long, till it happen to be stifled and lost; by which means they will appear *black* in all positions of the eye, without any transparency.

And from hence it appears, why fire, and putrefaction, by dividing the particles of substances, turn them black: why small quantities of *black* substances impart their colours very freely, and intensely, to other substances, to which they are applied; the minute particles of these, by reason of their very great number, easily overspreading the gross particles of others. Hence also appears, why glass, ground very elaborately with sand, on a copper plate, till it be well polished, makes the sand, together with what by rubbing is worn off from the glass and copper, become very black; and why black substances do, sooner of all others, become hot in the sun's light, and burn (which effect may proceed partly from the multitude of refractions in a little room, and partly from the easy commotion of such very small particles): also, why blacks are usually a little inclined towards a bluish colour; for, that they are so, may be seen by illuminating white paper with light reflecting from black substances, where the paper will usually appear of a bluish white; and the reason is, that black borders on the obscure blue of the first order of colours; and therefore reflects more rays of that colour than of any other.

BLACKS, *Negroes*: a people, so called from the colour of their skin.—For the reason of their colour, and the commerce of them, see **NEGRO**.

BLACKS, is also a name given to an association of disorderly and ill-designing persons, formerly herding chiefly about Waltham in Essex, who destroyed deer, robbed fish-ponds, ruined timber, &c.—See **BLACK act**.

BLADDER, in *Anatomy*, a thin expanded membranous body, found in several parts of an animal, serving as a receptacle of some juice, or of some liquid excrement; from whence it takes various denominations, as *urine-bladder*, *gall-bladder*, &c.

BLADDER, by way of eminence, is a large vessel, which serves as a receptacle of the urine of animals, after its secretion from the blood in the kidneys.

This is sometimes also called, by way of distinction, the *urinary bladder*, *vesica urinaria*.

The bladder is situated in the *pelvis* of the *abdomen*; in men immediately on the *rectum*; in women, in the *vagina uteri*: its figure in quadrupeds resembles a pear, with the basis upwards; but in human bodies the lower part

part is almost on a level with the upper; and its orifice, or neck, placed sideways, while the *fundus*, or bottom, which in a human bladder is very broad, rests either on the *rectum*, or the *vagina uteri*.—It is fastened to the navel by the *urachus* degenerated into a ligament, its sides to the umbilical arteries, and its neck to the *intestinum rectum* in women.

The *bladder* is composed of three coats; the first a covering of the *peritonæum*; the second consists of muscular fibres, which run irregularly several ways; and the third, which is full of wrinkles for facilitating its dilatation, is both glandulous and nervous.—Its glands secrete a viscous and slimy matter, which defends the *bladder* from the acrimony of the salts in the urine. Around its neck there goes a small muscle, called *sphincter vesicæ*, which contracts the orifice of the *bladder*, to prevent the urine from dripping involuntary, or till it thrust open the passage, by the contraction of the second coat of the *bladder*, which is therefore called *detrusor urinæ*.

Though the urinary *bladder* be naturally single, yet there have been instances of nature's varying from herself in this particular. The *bladder* of the famous Casaubon, upon dissecting his body after his death, was found to be double; and, in the Philosophical Transactions, we have an account of a triple *bladder* found in the body of a gentleman, who had long been ill, and no one could guess the cause.

As to the figure and situation of the human *bladder*, Mr. Weitbrecht has given a better description of them than is to be met with in the common systems. Vid. Med. Ess. Edinb. Phil. Trans. N° 280. p. 1211.

The diseases to which the *bladder* is subject are ulcers, wounds, descents or ruptures, preternatural contents, particularly stones and gravel, *schirrhus*, palsies, inflammations of its neck, &c. To these diseases may be added incontinence of urine.

The internal membrane of the *bladder* has been known to come away with the urine, without any great danger. Mr. Rohault gives an account, in the Memoirs of the Academy of Sciences, of a patient he had, who, after a very violent stoppage of urine, voided with some pain a piece of a membrane of an inch square. Three or four days afterwards, the patient felt something again obstruct the passage; and as it came nearer the end of the *urethra*, he at length took hold of it, and drew out a larger piece of the same sort of membrane. Some time after this, in straining violently in discharging his urine, he voided three other such pieces, which together, according to Mr. Rohault's judgment, could not make less than two thirds of the internal membrane of the whole *bladder*; and in effect it was plain, that, in the course of the disease, the whole internal membrane had gradually detached itself from the external one, and made its way out by the *urethra*. After the whole was thus discharged, the urine found no stoppage; and it is evident, that what had before stopped its passage, was no other than the pieces of this membrane falling before, or blocking up the *urethra*. The pieces of the membrane, when examined, appeared to have all their blood-vessels in their natural size; and the urine, in the whole course of the disease, having never been tinged with blood, is a proof, that the membrane detached itself naturally, not by violence. The patient, after this, was wholly cured of his complaint; but had a small incontinence of urine attending him, which was plainly owing to the sphincter's having been weakened, by being, as well as the *bladder*, divested of its membranes. Mem. Acad. Scienc. 1714.

The operations performed on the *bladder* are chiefly section, and extraction of the stone; to which may be added injection, dilatation, the application of lithontriptic diuretics, &c. Phil. Trans. N° 236. p. 15, seq. where Hippocrates's aphorism, that the sections of the *bladder* are always mortal, is defended; and the best method of extracting the stone out of the *bladder*, especially in women, is shewn to be by a gradual dilatation of the *urethra*. See also Hist. Acad. Scienc. ann. 1720. p. 33. where the great impediments to the dissolution of the stone in the *bladder* by lithontriptics, are represented to be the medicine's not continuing long enough in the *bladder*, and its being altered by the urine.

The urinary *bladders* of brutes are differently contrived from the human *bladder*, and from each other, according to the structure, œconomy, and manners of living of each creature.

Birds are usually said to be without *bladders*, as being without urine; yet does not this hold universally; since in an ostrich dissected by the French academy, a *bladder* was found situate at the extremity of the *rectum*, big enough to hold both filts, and in it eight ounces of urine.

Many have also denied a *bladder* of urine to fishes; but

the more exact observers find this part in all, at least, the greater part of the fishy kind. Phil. Trans. N° 178. Tortoises, Aristotle observes, have large *bladders*, and they need such; since being covered with a thick shell, and having no pores or perspirative vessels whereby to carry off their moisture, it is retained within them, and accumulated in the *bladder* of urine.

In the lion, the *bladder* is small, as is the kidney; for that creature rarely drinks; insomuch that Albertus affirms the female does not suckle her young, as having no milk.

Bladders, when below a certain magnitude, are more usually denominated by the diminutive vesicles, *vesiculæ*. Of these we meet with many sorts both in the animal and vegetable world; some natural, as in the lungs, especially of frogs, and as some also imagine, in the muscles; others morbid or preternatural, as the *hydatides*, and those observable in the itch. Naturalists have also discovered *bladders* in the *thorax* and *abdomen* of birds, as well as others in the belly of fishes, called *air-bladders* and *swims*.

Vegetable *bladders* are found every-where, in the structure of the bark, the fruit, pith, and *parenchyma*, or pulp; besides those morbid ones raised on the surface of leaves by the puncture of insects.

BLADDER, *swimming*; see AIR-bladder.

BLADDERS, oil, in the anatomy of plants; see OIL-bladders.

BLADDER-puceron; see PUCERON.

BLADDER-nut, *staphylæa*, in Botany, a genus of the *pentandria trigynia* class. Its characters are these: the em-palement is concave, coloured, and so large as to enclose the flower, which has five oblong erect petals, and a pitcher-shaped concave *nectarium*, at the bottom of the flower, with five oblong erect styles terminated by single summits, and a thick *germen* divided in three parts, supporting three styles to which there are obtuse stigmas contiguous. The *germen* afterward becomes two hard almost globular seeds, included in three bladders, joined by a longitudinal seam, with an acute point, opening within. There are two species; the *bladder-nut* with winged leaves; and, the *bladder-nut*, with trifoliate leaves, or three-leaved Virginian *bladder-nut*. See Tab. I. of Botany, Class 21.

The first makes a pretty variety, when intermixed with others; though the flowers are not very beautiful. The nuts of this tree being hard and smooth, are strung for beads by the Roman catholics in some countries; and the children of the poor inhabitants eat the nuts, though they have a disagreeable taste.

It is said that from the seeds are expressed an oil having a resolvent virtue.

BLADDER-nut, African; see ROYENA.

BLADDER-nut, laurel-leaved; see HOLLY.

BLADDER-sena; see SENA.

BLADE, in Botany, that part of the flower, or florid attire of a plant, which arises out of the concave of the sheath, and, at the top, usually divides into two parts, which are covered with globules of the same nature as those of the apices, but not so copious.

The *blade* runs through the hollow of the sheath and base, and is fastened to the convex of the seed-case, having its head and sides beset with globules, which, through a glass appear like turnip-seeds, and which, in some plants, grow close to the *blade*, and in others adhere to it by little pedicles, or foot-stalks. These globules, as the *blade* springs up from within the sheath, are still rubbed off, and so stand like a powder on both. In some plants, as knap-weed, they seem also to grow on the inside of the sheath; as appears on splitting it with a pin. The head of a *blade* is divided usually into two; but sometimes, as in the cichory, into three parts, which, by degrees, curl outward, like scorpion-grass. Grew's Anat. of Plants, lib. i. c. 5. § 20. lib. iv. c. 4. § 5.

BLADE, in Anatomy; see SHOULDER-blade.

BLADE, in Commerce, a thin, slender piece of metal, either forged by the hammer, or run and cast in moulds, to be afterwards sharpened to a point, edge, or the like.

Sword-blades are made by the armourers, knife-blades by the cutlers, &c.

The English and Damascus blades are most esteemed. Among the French, those of Vienne and Dauphiny have the preference.

The conditions of a good *blade* of a small-sword are, that it be light and tough, apter to bend than break. When it will stand in the bend, it is called a *poor man's blade*.

BLADE of a chissel, is the iron or steel part, as distinguished from the wooden handle.

BLADE of mace, or cinnamon, among apothecaries, are little slips or slices of those barks.

BLADE of an oar, is the flat part, which is plunged into the water in rowing. On the length of this does the force and effect of the oar, in a great measure, depend.

BLADE

BLADE of a saw, the thin part wherein the teeth are cut, which, to be good, must be stiff, yet bend equally into a regular bow all the way, without yielding more in one place than another.

BLADE-mill, is that contrived for grinding iron tools, as scythes, reaping hooks, axes, chisels, and the like, to a bright edge.

BLADUM, in *Middle Age Writers*, is taken for all sorts of standing corn in the blade and ear. The word is also written *blatum*, *blava*, and *blavium*.

In our old charters, the word *bladum* included the whole product of the ground, fruit, corn, flax, grass, &c. and whatever was opposed to living creatures.

The word *bladum* was sometimes also applied to all sorts of grain or corn threshed on the floor: *tria quarteria frumenti, tria quarteria avenarum, & unum quarterium fabarum, erunt quieti de solutione prædicti bladi in perpetuum*.

But the word was more peculiarly appropriated to bread-corn, or wheat, called in French *blé*.

Thus the Knights Templars are said to have granted to Sir Wido de Meriton's wife *duas summas bladi*. Kennet's Paroch. Ant. and Du-Cange.

BLÆRIA, in *Botany*, a genus of the *tetrandria monogynia* class of plants. Its characters are: that the calyx is quadripartite, the corolla quadrid, the stamina inserted in the receptacle, and the fruit a capsule with four cells, containing many seeds. There are two species.

BLÆSUS, among *Medicinal Writers*, the same with *balbus*. Dr. Holder calls the letters F and Th *blæse*, on account of the difficulty multitudes find of pronouncing them. Elem. Speech, p. 52.

The word is also used to denote an irregularity in the figure or the limbs, especially the legs, when bent outwards.

BLAIN, a distemper incident to beasts, consisting in a bladder growing on the root of the tongue against the wind-pipe, which at length swelling stops the breath.

It comes by great chafing, and heating of the stomach; whereby, as some judge, it still grows and increases by more heat.

It is perceived, by the beast's gaping, holding out his tongue, and foaming at the mouth: to cure it, cast the beast, take forth his tongue, and then slitting the bladder, wash it gently with vinegar and a little salt.

BLAISE, a military order instituted by the kings of Armenia, in honour of St. Blaise, anciently bishop of Sebasta in that country, the patron saint of that nation.

Justinian calls them *Knights of St. Blaise and St. Mary*, and places them not only in Armenia, but in Palestine.

They made a particular vow to defend the religion of the church of Rome, and followed the rule of St. Basil.

The precise year of the institution of the *Knights of St. Blaise* is not known: but they appear to have commenced about the same time with the Knights Templars and Hospitallers; to the former of which they bore a near affinity, the regulars being the same in both.

BLAKEA, in *Botany*, a genus of the class of *dodecandria monogynia*, with the calix composed of six leaves below, and entire above; six petals, and a six celled polyspermous capsule. There is only one species.

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BLANC, see **BLANK**.

BLANC-manger, Fr. q. d. *white food*, is a preparation of dissolved isinglass, milk, sugar, cinnamon, &c. boiled into a thick consistence, and garnished for the table with blanched almonds. It is cooling and strengthening.

BLANCS manteaux, a name originally given to the *Servites*, or servants of the Blessed Virgin, on account of their white cloaks; but since applied to divers sorts of religious, who have successively inhabited the house of the *Servites*, and now to the *Benedictines* at Paris, though habited in black.

BLANCA, in *Medicine*, denotes a lenitive composition, formerly much in use; so called either from its white colour, at because of its purging white, i. e. phlegmatic humours. There were three sorts; a great, middle, and least *blanca*.

BLANCA mulierum, among the *Chemists*, signifies *CERUSS*.

BLANCARDS, a name given to certain linen cloth, thus called, because the thread used to weave them, has been half-blanché or bleached before it was used. They are manufactured in Normandy, particularly in the places which are in the district, or under the jurisdiction of Pont-Audemer, Bernay, and Lisieux.

BLANCH fermé, or **BLANK farm**, a *white farm*, that is, where the rent was to be paid in silver, not in cattle.

In ancient times, the crown rents were many times reserved to be paid in *libris albis*, called *blanche firmes*: in which case the buyer was holden *dealbare firmam*; viz. his base money or coin, worse than standard, was melted down in the exchequer, and reduced to the fineness of standard silver; or instead thereof he paid to the king 12d. in the pound, by way of addition.

BLANCHE carte, see **CARTE**.

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BLANCHERS, a name given to mechanics employed in **BLANCHING**, i. e. the art or manner of **BLEACHING** or **WHITENING**.

BLANCHING, in *Gardening*, is an operation performed on certain fallads, roots, &c. as of celery, and endive; to render them fairer or fitter for the table. See **APIUM** and **ENDIVE**.

BLANCHING also denotes the operation of covering iron plates with a thin coat or crust of tin. See **LATTEN**.

BLANCHING of copper for sale, in imitation of silver; or mixing blanched copper with silver, or exposing the same to sale; or any malleable composition or mixture of metals or minerals heavier than silver, and which looks, and touches, and wears like gold, but is manifestly worse than standard, is made felony, 8 and 9 W. III. &c. 26.

BLANCHING of wax, see **WAX**.

BLANCHING, in *Coinage* the operation of preparing the pieces before striking to give them the requisite lustre and brightness.

The *blanching*, as now practised, is performed by heating or heating the pieces in a kind of pan or shovel, with a wood-fire, in manner of a reverberatory furnace, so that the flame passes over the shovel. The pieces being sufficiently heated, and cooled again, are put successively to boil in two copper pans, wherein are *aqua fortis*, common salt, and tartar of Montpellier; when they have been well-drained of this first water in a copper sieve, they throw sand and fresh water over them; and when dry they are well rubbed.

The ancient method of *blanching* was, by putting the pieces, after heating, in a large vessel of common water; and some ounces of *aqua fortis*, but in different proportions for gold and silver.—The method is now disused partly by reason of its expensiveness, and partly because it diminishes the weight of the metal.

BLANK, or **BLANC**, in a general sense signifies **WHITE**; and **BLANCUS**, or **BLANCA**, is more particularly used for a kind of white, or silver money, of base alloy, coined by Henry V. in those parts of France then subject to England, valued at 8d. sterling. They were forbidden by his successor to be current in this realm. In some ancient charters they are called *solidi bianci*, *white shillings*.

BLANK also denotes a small copper coin, formerly current in France, at the rate of five deniers Tournois.

They had also great *blanks* or pieces of three *blanks*, and others of six in respect whereof the single sort were called little *blanks*; but of late they are all become only monies of account.

BLANK, or **BLANK-ticket**, in **LOTTERIES**, that to which no prize is allotted.

The French have a game, under the denomination *blanque*, answering to our **LOTTERY**.

BLANK, in *Coinage*, a plate, or piece of gold, or silver, cut and shaped for a coin, but not yet stamped. See **COINING**.

BLANK, in *Ichthyology*, a name given by authors to a species of the cod-fish, called *gelbe, kolmulen*, and *asellus flavescens*.

BLANK-bar, in *Law*, is used for the same with what we call a *common bar*, and is the name of a *plea in bar*, which in an action of trespass is put in to oblige the plaintiff to assign the certain place where the trespass was committed.

BLANKS, in judicial proceedings, certain void spaces sometimes left by mistake. A **BLANK** (if something material be omitted) in a declaration, abates the same; and such a *blank* is a good cause of demurrer.

BLANK-verse, see **VERSE** and **RHYME**.

BLANK-point see **POINT blank**.

BLANKET, in *Commerce*, a warm woolly sort of stuff, light and loose woven; chiefly used in bedding.

The manufacture of *blankets* is chiefly confined to Witney in Oxfordshire, where it is advanced to that height, that no other place comes near it. Some attribute a great part of the excellency of the Witney *blankets* to the absterfve nitrous water of the river Windrush, wherewith they are scoured; others think they rather owe it to a peculiar way of loose spinning, which the people have thereabouts. Be this as it will, the place has ingrossed almost the whole trade of the nation for this commodity; inasmuch, that the wool fit for it centres here, from the farthest parts of the kingdom. Plott, Hist. Oxf. chap. ix. § 163.

Blankets are made of felt wool, i. e. wool from off sheepskins which they divide into several sorts.

Of the head wool, and bay wool, they make *blankets* of twelve, eleven, and ten quarters broad; of the ordinary and middle sort, *blankets* of eight and seven quarters broad; of the best tail wool, *blankets* of six quarters broad, commonly called *cuts*, serving for seamen's hammocks. See **HYKES**.

BLANKET, *tossing in a*, a ludicrous kind of punishment, of which we find mention in the ancients, under the denomination *sagatio*. Martial describes it graphically enough. *Ibis ab excusso, missus ad astra, sago.*

A late writer represents it as one of Otho's imperial delights. But this is turning the tables; that emperor's diversion, as related by Suetonius, was not to be the subject, but the agent in the affair; it being his practice to stroll out in dark nights, and where he met with a helpless, or drunken man, to give him the discipline of the blanket.

BLANQUILLE, a small silver coin, equivalent to about 11½d. sterling, current in Morocco, and on the coasts of Barbary.

BLAPSIGONIA, a kind of disease, or defect in bees, when they neglect, or fail to produce young, being wholly employed in making honey.

The word is Greek, compounded of *βλαπτω*, *I hurt*, and *γυνή*, *brood or issue*.

BLARE, a small copper coin, containing a little mixture of silver, struck at Bern, and valued at much the same with the *RATZE* in other places.

BLAS, a novel term, in the Helmontian philosophy, denoting the local and alterative motion of the stars; from whose influence proceed changes of weather, seasons, storms, and the like.

In imitation of this *blas stellarum*, the same author framed another in animals, either natural, whereby each *viscus* is framed according to the model of its particular; or voluntary, which is directed to motion by the will.

BLASIA, in *Botany*, the name of a genus of plants belonging to the class of *cryptogamia algarum*, approaching to the nature of the *lichens*; the characters of which are these: the male flower has a cup composed of one leaf which is oval at the base, somewhat cylindric in the middle, and expanded and truncated at the top; in this are contained a number of loose granules, which seem to perform the office of *apices*, and contain the *farina fecundans*. The female flower has scarce any cup, but produces a single roundish fruit, usually immersed in the leaves; in this are contained certain round bodies, which appear to be seeds. Linnæus is much in doubt, whether these flowers are not to be understood a contrary way, and seems to suspect, that what are called female flowers are really male ones; and what are called male, female.

BLASPHEMY, *blasphemia*, or *blasphemium*, in *Middle Age Writers*, denotes simply the blaming or condemning of a person or thing.

The word is Greek, *βλασφημία*, from *βλαπτω*, *lædo*.

Among the Greeks, *to blaspheme*, was to use words of evil omen, or that portended something ill, which the ancients were careful to avoid, substituting in lieu of them other words of softer and gentler import, sometimes the very reverse of the proper ones.

BLASPHEMY is more peculiarly restrained to evil or reproachful words spoken of the Deity. Augustin says. *Jam vulgo blasphemia non accipitur nisi mala verba de Deo dicere.*

According to Lindwood, *blasphemy* is an injury offered to God, by denying that which is due and belonging to him; or attributing to him what is not agreeable to his nature.

By the Mosaic law, *blasphemy* was punished with death. Levit. chap. xxiv. ver. 13—16. As also by the civil law. Novel. 77. In Spain, Naples, France, and Italy, the pains of death are not now inflicted. In the empire, either amputation, or death, is made the punishment of this crime.

By the canon law, *blasphemy* was punished only by a solemn penance and by custom, either by a pecuniary or corporal punishment. By the English laws, *blasphemies* of God, as denying his being, or providence, and all contumelious reproaches of Jesus Christ, &c. are offences by the common law, and punishable by fine, imprisonment, and pillory. And by the statute law, he that denies one of the persons in the Trinity, or asserts there are more than one, or denies Christianity to be true, for the first offence is rendered incapable of any office; for the second, adjudged incapable of suing, being executor or guardian, receiving any gift or legacy, and to be imprisoned for three years. 9 and 10 W. III. c. 32.

According to the law of Scotland, the punishment of *blasphemy* is death. The first species thereof consists in railing at or cursing God, and here the single act constitutes the crime. The second consists in denying the existence of the Supreme Being, or any of the persons of the Trinity; and therein obstinately persevering to the last. For reiterated denial does not fully constitute the crime, because the stat. of Charles II. 1661, admits of repentance before conviction, as a complete expiation.

This statute of 1661, is ratified by a statute of king William, whereby the calling in question the existence of God, or of any of the persons of the Trinity, or the authority of Scripture, or the Divine Providence, is made penal. For the first offence, imprisonment till satisfaction given by public repentance in sack-cloth. For the second, a fine of a year's valued rent of the real estate, and twentieth part of the personal estate: and the trial in both these cases is competent to inferior judges. The trial of the third offence is death, to be tried only by the justices.

BLASPHEMY against the Holy Ghost. Divines are not agreed with respect to the nature of the crime thus denominated, Matthew, chap. xii. ver. 31. and the grounds of the extreme guilt ascribed to it. Dr. Tillotson maintains, that it consisted in maliciously attributing the miraculous operations which Christ performed by the power of the Holy Ghost to the devil. Vol. ii. serm. xviii. But Dr. Whitby, with greater probability, refers it to the dispensation of the Holy Ghost, which commenced after our Lord's resurrection and ascension; and those were guilty of the crime, who persisted in their unbelief and blasphemed the Holy Ghost, representing him as an evil spirit. The crime was unpardonable, because it implied a wilful opposition to the last and most powerful evidence which God would vouchsafe to mankind, and precluded the possibility of a recovery to faith and repentance. Whitby's Fourth Appendix to the Gospel of St. Matthew, in his Paraphrase, vol. i. p. 268.

BLAST, *flatus*, in the *Military Art*, a sudden compression of the air, caused by the discharge of the bullet out of a great gun.

The *blast* sometimes throws down part of the embrasures of the wall.

BLAST is also applied, in a more general sense, to any forcible stream of wind, or air; excited by the mouth, bellows, or the like.

BLAST is also used in *Agriculture and Gardening*, for what is otherwise called a *BLIGHT*.

Blasts differ from *MILDEWS*, *rubigines*.

The *SMUT* of corn is a species of *blast*.

Blasts, or *blastings*, are by some supposed owing to cold; by others, to the want of a due supply of sap; by others, to ascending fumes of the earth; by others, to sharp winds and frosts immediately succeeding rains. Phil. Trans. N° 44.

That species called *uredines*, or *fire-blasts*, is supposed by Dr. Hales owing to the solar rays reflected from, or condensed in the clouds, or even collected by the dense steams in hop-gardens, and other places. Ibid. N° 399.

The effect of them is to wither, shrivel, scorch, turn black, and, as it were, burn up the leaves, blossoms, and fruits of trees, shrubs, herbs, grass, corn, even for whole tracts of ground.

Physicians also speak of a kind of *blasts* affecting human bodies, and causing *ERYSIPELAS*, *PALSIES*, &c.

BLASTS, among *Miners*, see *DAMPS*.

BLASTED, something struck with a *BLAST*.

Among the Romans, places *blasted* with lightning were to be consecrated to Jupiter, under the name of *BIDENTALIA*, and *PUTEALIA*.

It was also a ceremonial of religion to burn *blasted* bodies in the fire.

BLASTING, among *Miners*, a term for the tearing up of rocks, which they find in their way, by gun-powder. The method of doing which is this; they make a long hole, like the hollow of a large gun barrel, in the rock they would split; this they fill with gun-powder, then they firmly stop up the mouth of the whole with clay, except a touch-hole at which they leave a match to fire it. A small quantity of powder does great things this way.

BLASTOLOGY, from *βλαστος*, *bud*, and *ανθω*, *I gather*; the regular and stated pruning of *VINES*.

BLASTUM mosylitum, in the *Materia Medica*, a term used by some writers to express the *cassia lignea*, or cassia bark, when not peeled off from the branches, but kept with the wood within it; this was a common way of collecting and preserving, not only this bark but the cinnamon and many others.

BLATTA, in *Natural History*, a genus of insects of the order of *hemiptera* in the Linnæan system, the characters of which are, that the head is inclined, the antennæ are setaceous, the wings are membranaceous, the *thorax* is flat, orbiculated, and marginated, the feet are formed for running, and there are two small horns above the tail. There are several species.

It is likewise the name of a species of beetle, called by Columna *SCARABÆUS testudinatus*.

BLATTA, in *Middle Age Writers*, denotes a purple in the wool or silk, dyed with the liquor of the fish called the *BLATTA*.

This

This was otherwise denominated *blatta serica*, or *blatto sericum*; whence also *blattiarius*, used in ancient writers for a dyer in purple.

BLATTA, according to some writers, was also used for the KERMES insect; and, according to others, for the purple worm. But both of these acceptations are suspicious.

We know that it was anciently used for a kind of moth, or fly, whose fat was reputed excellent for the ears. See *Book-worm*.

BLATTA, *byzantina*, in *Physiology* and *Pharmacy*, a testaceous body, being the *operculum*, or lid of a turbinated shell, whose fish yields a purple dye.

The *blatta* differs from the lid of the *buccinum* or *purpura*, in figure; the first being oblong, the latter round: but in the shops they are ordinarily confounded, and sold for each other. The *blatta byzantina* is also confounded by apothecaries with the UNGUIS ODORATUS, from which it ought to be distinguished, as belonging to another kind of shell-fish.

Dr. Lister takes the *blatta byzantina* to have succeeded the UNGUIS ODORATUS, and to have been brought into the shops in its place. In Dioscorides's time, the best was brought from the Red Sea, viz. the palest and fattest; the blacker and less from Babylon, or the Persian gulf: but it seems, latter times took up with those found about Constantinople; whence the present shop-*blatta* had its name.

The name *blatta* seems to have been given to this *operculum* from the colour; as being of a dark hair-colour, as the common *blatta pistinaria*, or *bakehouse-beetle*, so frequent in London, is.

The *blatta byzantina*, when exhibited internally, renders the body soluble, softens the spleen, and dissolves peccant humours. When used externally, by way of fumigation, it restores epileptic patients, and women labouring under a strangulation of the uterus. In other disorders its effects are the same with those of most other testaceous substances.

BLATTARIA, in *Botany*, see MULLEIN.

BLAZE, in the *Manege*, see STAR.

BLAZING-star. See COMET.

BLAZON, or BLAZONRY, in *Heraldry*, the art of deciphering the arms of noble houses; or of naming all the parts in their proper and particular terms.

Various etymologies are given of the word *blazon*: the most probable is that which derives it from the German *blaesen*, to blow a horn; it being the custom of those who presented themselves at the lists in the ancient tournaments to blow a horn, to notify their coming. After this the heralds sounded their trumpets, and then *blazoned* the arms of those who presented themselves; described them aloud, and sometimes expatiated on the praises, and high exploits of the persons who bore them.

There is this difference between *arms* and *blazon*; that the first are the device or figures borne on the coat, or shield; and *blazon* the description thereof in words.

The rules of *blazon* are, 1. To name the metal or colour of the field first: as, *or*, *argent*, or *gules*, &c. 2. To name the manner of the division of the escutcheon by line, whether downright or bendwise, and also the difference of the line, whether it be indented, ingrailed, &c. in the next place. 3. Then to name the charge that is on the field. 4. Having thus expressed the field, the division, and the charge, if there be more parts of the field occupied by the charge than one, you are to name the principal part of the field first. 5. If there be more than one kind of charge in the field, that in the chief part is to be named first. 6. To use no iteration or repetition of words, in *blazoning* a coat, especially of any of these four words, *of*, *or*, *and*, *with*. 7. The three forms of *blazon* are by metals and colours, by precious stones, and by the celestial planets: the first for private gentlemen; the second for persons ennobled with titles, as dukes, earls, &c. and the third for emperors, kings, and princes. Though this variety of form is rejected by the French, from whom we had our heraldry, and by all other nations, who use none but metals and colours for all degrees. 8. That metal upon metal, and colour upon colour is false heraldry; which admits of no exception, except in the arms of Jerusalem, which are, *argent*, a cross potent between four crosslets, *or*.—Add, that when lions stand upright in a coat, they are called *rampant*; when walking forward, *passant*; when they look you in the face, *passant guardant*; in other postures they have other terms, as *saliant*, *regardant*; &c. Wolves and bears are termed after the manner of lions; griffins (instead of *rampant* and *saliant*) are termed *segreant*; lions, griffins, and eagles, are also said to be *angued* and *armed*; swans, *membered*; hawks, *jeffed* and *belled*; cocks, *armed*, *crested*, and *jowloped*: that is, when the tongues, bills, and claws of such creatures are found

of different colours from the body.—When an animal proceeds from the bottom of the ordinary, it is termed *issuant*; when over some ordinary, *jeffant*; and if it proceed from the middle of any ordinary, or common charge, *naissant*.

BLEA, in vegetables, is that part of a tree, which lies immediately under the bark, and between that and the hard wood, and is the first progress of the alteration of the bark into wood by the natural growth and strengthening of the fibres.

While the *blea* remains yet soft, and retains something of the nature of bark, it may maintain a feeble vegetation; but when it is grown absolutely hard and woody, it can contribute nothing to the growth of the tree. The vegetation of the young branches of trees is the most lively and vigorous, and the only one that goes as far as the flowers and fruit, because these branches are little else but bark.

BLEACHING, or BLANCHING, the art of whitening linens, stuffs, silks, and other matters.

BLEACHING of silk. While it is yet raw, it is put into a thin linen bag, and thrown into a vessel of boiling river-water, wherein soap has been dissolved, then boiled two or three hours, and the bag being turned several times, it is taken out, beaten and washed in cold water, slightly wrung out, and thrown into a vessel of cold water, mixed with soap and a little indigo: the indigo gives it the bluish cast always observed in white silks. After taking it out of the second vessel, it is wrung out, and all the water and soap expressed, shook out to untwist and separate the thread, and hung up in the air, in a kind of stove made on purpose, wherein is burned sulphur; the vapour whereof gives the last degree of whiteness to the silk.

BLEACHING or scouring of woollen stuff. There are three ways of whitening woollens; the first with water and soap; the second with vapour of sulphur; the third with chalk, indigo, and vapour of sulphur.

For the first, the stuffs being taken from the fulling-mill, are put into soaped water a little warm, and worked afresh by force of arms over a bench, which finishes the whitening the fulling-mill had begun; and lastly, washed out in clear water and dried; this is called *the natural way of bleaching*.

In the second method, they begin with washing the stuff in river-water; it is then laid to dry on poles, and, when half dry, spread out in a kind of stove well closed, wherein is burnt sulphur: the vapour whereof diffusing itself, sticks by little and little over all the stuff, and gives it a fine whitening: this is commonly called *bleaching by the flower*.

In the third method, after the stuffs have been washed, they are thrown into cold water impregnated with chalk and indigo; after they have been well agitated here, they are washed afresh in clear water, half dried on poles, and spread in a stove to receive the vapour of the sulphur: which finishes the operation. This is not esteemed the best method of *bleaching*; though agreeable enough to the sight.

It may be here observed, that when a stuff has once received the steam of sulphur, it will scarce receive any beautiful dye but black or blue.

BLEACHING of Hollands or fine linens. After taking them from the loom, they are steeped a day in fair water, washed out and cleared of their filth, and thrown into a bucking-tub filled with a cold *lixivium*, or ley of wood-ashes and water. When taken out of the ley, they are washed in clear water, spread in a meadow, and watered, from time to time, with water from little dikes, or canals, along the ground, by means of scoops, or hollow peels of wood, called by the Dutch, who pretend to be the inventors of them, *gieters*. After lying a certain time on the ground, they are passed through a new ley, poured on hot, and again washed in clear water, and laid a second time on the ground, and every thing repeated as before; then passed through a soft gentle ley, to dispose them to resume the softness which the other harsher leys have taken from them, washed in clear water, soaped with black soap, and that soap, again washed out in clear water: they are then steeped in cow's milk, the cream being first skimmed off, which finishes their whitening and scouring, gives them a softness, and makes them cast a little knap: when taken out of the milk, they are washed in clear water for the last time. After all this process, they give the linen its first blue, by passing it through a water wherein a little starch, and smalt, or Dutch *lapis lazuli* have been steeped. Lastly, the proper stiffness and lustre are given with starch, pale smalt, and gums, the quantity and quality whereof may be adjusted according to occasion.

In fine weather, the whole process of *bleaching* is completed in a month's time; in bad weather it takes up six weeks or more.

In some parts of France, ARUM, or WAKE-robin, is used in *bleaching*, being supposed by its corrosive quality to dissolve unctuosities, and make the linen white. It was used also for STARCH before the discovery of that from wheat; and was said to cause a soreness of the hands hardly relievable by ointments. Neumann.

BLEACHING of coarse linens. They are taken from the loom, and laid in wooden frames, full of cold water; where, by means of wooden hammers, worked by a water-mill, they are beat so as to wash and purge them of their filth; then spread on the ground, where the dew, which they receive for eight days, takes off more of their impurity; then put into a kind of wooden tubs or pans, with a hot ley over them. Thus lixiviated, they are again purged in the mill, laid afresh on the ground, and after eight days more, passed through a second ley, and all things repeated, till such time as they have acquired their just degree of whiteness.

The process of *bleaching* in Scotland differs in some particulars from that above described, and used in France, &c. The following is an abstract. The linens are folded up, in distinct pieces, deposited in a wooden vessel, and covered with warm water, or equal parts of water and ley: a wooden cover is laid over them to press them down: when the fermentation begins, bubbles of air rise to the surface of the liquor, and there form a kind of pellicle or scum; when this begins to subside, which generally happens in the space of thirty-six or forty-eight hours, the linen is taken out, well rinsed, washed in a mill, and spread on a field to dry. As soon as it is thoroughly dry, it is fit for bucking. For this purpose a mother ley is prepared of 30lb. of blue, and as much white pearl ashes, 200lb. of Marcott ashes, or 300lb. of cashub and 300lb. of Muscovy ashes, all well pounded, and boiled for a quarter of an hour in a large copper, containing about 126 Scotch gallons of water. This liquor is left to settle, and is then used for preparing the bucking-ley: two gallons of this, with 2lb. of soft soap, are mixed with thirty-eight gallons of water: this ley, made blood-warm, is poured on the linens, previously disposed in a large wooden vessel: after a short interval, the liquor is drawn off and heated again to a greater degree, and poured on the linen as before; which process is repeated several times, till at last the ley is thrown on boiling hot. When this is done, the linens are spread on the grass, and watered several times in the course of forty-eight hours: this process of bucking and watering is repeated from ten to sixteen times or more, and the ley is gradually made stronger from the first to the middle bucking, and weakened in the same manner to the last. The next operation is that of souring, which is performed by pouring such a quantity of butter milk or sour milk, or instead of this, sour liquor made with bran or rye-meal and water, as is sufficient to cover and well moisten the linen, which is put in rows into a large vessel, and kept down by a lid full of holes, and prevented from rising. A fermentation takes place in this part of the process, which lasts five or six days, and when the scum formed by the ascending air-bubbles begins to subside, the linen should be taken out, rinsed, mill-washed, and then washed with soap and water. These several operations are repeated in succession, till the linen is sufficiently whitened; after which it is blued, starched, and dried. In *bleaching* coarse cloths, boiling is used instead of bucking; and they are scoured with warm water and bran.

Instead of the acid of milk, Dr. Home recommends, for this purpose water acidulated with spirit of vitriol, in the proportion of half an ounce, or at most three quarters of an ounce, to a gallon. This process is much quicker than the other, requiring only as many hours as the other requires days. Home's Exper. on Bleaching. The method used for *bleaching* coarse cloths in Scotland, is like that practised in Ireland for both fine and coarse. Persons appointed by the trustees for improving the hempen and flaxen manufactures in Scotland, may enter into any bleach-yard, back-house, &c. and search all rooms, and the boilers therein, and view the lees, and refuse and dregs thereof, to see whether there have been any lime, pigeons dung, or soap dregs, used in the *bleaching* of linen cloth or yarn, contrary to the statute, 13 Geo. I. c. 26. § 16.

Lime, or pigeons-dung, are not to be used in *bleaching* and whitening of linen, 10 Anne, c. 21.

Lime-water prohibited in *bleaching* is made either of shell-lime, or of stone-lime: the former is stronger than the latter, and more powerful on the human calculus; and Dr. Home discovered by experiment, that it was likewise more efficacious in *bleaching* linen. It whitens more, but weakens more, and extracts more out of the cloth. He concluded from his experiments, that it ought to be considered as the most expeditious, but at the same time as the most dangerous material for *bleach-*

ing yet known. In the course of his experiments, this remarkable phenomenon occurred, that though LIME and LIME-water preserve many animal substances in a sound state; yet mixed with alkalies, it produces a ley corrosive with respect to animals; but the effects on linen were just the reverse, LIME-water was corrosive, and alkalies, in proportion to their quantity, weakened its corrosive power; insomuch that he judged that a mixture of one part of lime with four of pure alkali, might be safely used in *bleaching*.

For BLEACHING of hair, see HAIR.

For BLEACHING of wax, see WAX.

BLEAK, in *Ichthyology*, a name given by us to the fish called by authors the ALBURNUS and *albula*. According to the new system of Artedi, it is a species of the CYPRINUS. The French call it the ABLETTE.

BLEB, a small blister or BUBBLE.

Naturalists have observed small purple *blebs* on all the plants of the *hypericum* kind. Phil. Trans. N^o 224.

Thick pieces of glass, fit for large optic glasses, are rarely to be had without *blebs*. Ibid. N^o 4.

BLECTINUM, in *Botany*, a genus of plants of the class of the *cryptogamia filices*; the fructifications of which are disposed in parallel lines on the sides of the leaves.

BLEEDING, PHLEBOTOMY, an operation in chirurgery; being the opening of a vein with a lancet, for the evacuation of corrupt or redundant blood.

Some physicians extol *bleeding* as the surest, and most efficacious species of evacuants. Yet it was very rare among the ancients, however frequent among the moderns. Ostensius observes, that at Rome persons of quality are not allowed to be let blood, even in the most dangerous diseases, without leave from the pope.

The *hippopotamus* is said to have taught men the use of *bleeding*: for that animal, being overcharged with blood, rubs itself against a pointed bulrush, and opens a vein; till finding its plenitude discharged, it welters in the mire to stanch the blood again.

Bleeding is a species of evacuation of the utmost importance in medicine; an idea of its effects, with the reason of its use, may be conceived from what follows.

It is evident the blood thrown out of the heart, while it strikes upon the antecedent blood, and drives it forwards, transfers to it part of its own motion, and it is therefore so much retarded in its own motion. Hence, if blood be drawn out of the basilic vein of the right arm; the succeeding blood, or that carried by the axillary artery, or right subclavian, will be less hindered in its motion than it was before that vein was opened; for part of the blood being taken away by the opening of that vein, there remains behind a lesser quantity in the axillary vein, or less is contained between the farther extremity of the axillary artery and the heart, than was before: therefore the blood being let out of the vein, the remainder in the artery will be less impeded in its motion than before.

Hence the blood of that artery, which communicates with the vein that is opened, will flow with a greater velocity after the aperture is made than before. Consequently, while the blood is flowing out of the vein in the arm, that thrown out of the heart into the *aorta*, will find less resistance in the ascending trunk than in the descending; and will therefore flow faster in the ascending than in the descending trunk: and thence too it will find less resistance in the right subclavian artery than in the left.

Lastly, it hence appears, that the blood being let out of a vein in the right arm, the remaining blood in the right axillary artery runs with a greater velocity into the artery of that arm that is contiguous to it, than through the thoracic artery, or the right scapulary, which is likewise contiguous to it; because, when the blood is not supposed to be drawn out from any vein corresponding to the thoracic artery, or into which this discharges itself, there is proportionably a greater impediment to the motion of the blood in the thoracic artery than in that of the arm. But because the velocity of the blood in the subclavian artery, or the right axillary, is greater than in the left; the velocity in the right thoracic will also be greater than in the left thoracic artery. Hence it is manifest, that the blood being let out of a vein in the right arm; the greatest velocity of the remaining blood will be in the artery of that arm, because it immediately empties its blood into the vein that is opened; and the next greatest velocity will be in the thoracic artery, or scapulary of the same side, going out from the axillary artery. But the velocity of the blood will be far less in the brachial, axillary, and thoracic artery on the left and opposite side; and least of all in the arteries arising from the descending trunk of the *aorta*.

On this view it may easily be gathered what is to be done in the several circumstances of blood-letting: for instance, if we would prevent the increase of any humour

inour from the blood stagnating in the left leg, or bring it about, that as little blood as possible should flow to that leg in any given space of time; first, blood is to be taken from the arm or leg of the right side: because this is truly making what is called a *revulsion*.

Again, if the blood be drawn away on the same side, and from some vein that receives the blood from a branch of that trunk which transmits it to the swelled part; it will occasion a great derivation of blood to that limb for a few moments: and this is all that can make any difference between the different parts from which the blood is drawn.

As to what relates to the whole habit; in all lentors and viscidities, if there be a due strength and elasticity remaining in the solids, PHLEBOTOMY will make the remaining blood circulate the faster; and become thinner and warmer; but in a *plethora*, from a debauch; or too large quantities of spirituous nourishment; or from a diminution of perspiration, where the blood yet retains its natural fluxility, PHLEBOTOMY will make the remaining mass circulate slower, and become cooler.

In the former case, a diminution of the resistance in the blood-vessels will increase the contractile powers of those vessels, and make them beat faster, and circulate their contents, with greater velocity; but in the latter case a diminution of the quantity of spirituous blood will lessen the quantity of spirit secreted in the brain. the consequence of which will be, that the heart and arteries will not contract so often and so strongly as before, and therefore the blood will move slower, and become cooler. And on these things depend the whole doctrine of blood-letting.

Bleeding, according to Dr. Pringle, is the most indispensable of all remedies in inflammatory diseases; to the delaying of which too long, or not repeating it, are chiefly owing the bad consequences of colds, as dangerous fevers, rheumatisms, and consumptions. He observes farther, that, in general, young practitioners are apt to be too sparing in letting blood, by which means many lives are lost: for a surgeon may be assured a soldier will never complain of a cough, or pains with inflammatory symptoms, wherein *bleeding* is not necessary; and from the fizziness of the blood, and continuance of the complaints, he is to judge of the necessity of repeating it, which, in case of a stitch, or difficult breathing, is never to be delayed. In inflammatory cases, from twelve to fifteen ounces may be taken for the first *bleeding*, and somewhat less for all the rest; and when it is necessary to exceed this quantity, it may be proper to follow Celsus's rule, in minding the colour of the blood whilst it flows, and when it is of a blackish cast, which is always the case in difficult breathing and great inflammations, to let it run till it becomes more florid. In all cases, where plentiful *bleeding* is indicated, it is best to do it in bed, to prevent fainting; and we may observe, that a person will bear the loss of a much greater quantity of blood if the stream is small than by a large orifice, which some have thought necessary for making a more speedy revulsion.

Bleeding is highly necessary in the *phrenitis ophthalmia*, quinsy, rheumatism, cough, hectic fits, and in general, in all inflammatory cases. See Pringle's Observations on the Diseases of the Army, passim.

It is to be observed, however, that, in malignant and putrid disorders, *bleeding* frequently renders them more malignant; it is therefore to be omitted, or at least not repeated, unless there appear evident marks of inflammation. See MALIGNANT BILIOUS fever. DYSENTERY, &c.

As to the method of the operation, the puncture should neither be too small nor too large. Different surgeons open the vein in three different directions; some make the orifice in a straight line with the course of the vein; others transversely; but most make it obliquely: and if the patient is to be blooded in the left arm, the surgeon should be able to use his left hand instead of his right.

If the blood stops after a small time, loosen the BANDAGE a little, to give way to more blood's descending by the artery, and it will bleed freshly again; and if the orifice be obstructed by too great a tension of the skin, or an intrusion of the *membrana adiposa*, the piece of fat should be returned by pressing of the finger, or a bit of sponge; and the skin relaxed by bending the arm; and, lastly, if the orifice be obstructed by thick grumous blood, that impediment may be removed by wiping with a sponge, dipped in warm water.

When a sufficient quantity of blood is discharged, the ligature must be immediately taken off, and the skin about the orifice gently stroked or pressed together by the two fore-fingers of the left hand; by which means, the lips of the divided vein are closed: then the smaller of the two compresses is to be applied, first letting what little blood there may be between the orifice and the

vein be discharged; the larger compress should then be laid on the smaller, and pressed slightly down with the thumb; then wiping the blood from the arm, the bandage is to be applied. Some wet the compresses in vinegar, water, or spirit of wine; but it is not necessary and they fit easiest when applied dry.

In *bleeding* it sometimes happens that an artery is opened either instead of, or together with, the vein: an accident of this kind is attended with the utmost danger. An artery is known to be wounded when the blood spins out very forcibly from the orifice, and that by starts and leaps, not in an even stream, and extends itself in a greater arch from the orifice to the basin. The colour of the blood from an artery is also much more florid than from a vein; to which add, that on pressing the finger on the vessel below the orifice, the blood starts out more violently than before; and stops, or at least abates, on pressing above the orifice; quite the contrary of what happens on the opening of a vein.

In an accident of this kind, the surgeon should have presence of mind not to betray the case by his fears, to the patient, or attendants: he should observe whether the blood flows freely from the orifice, or whether it insinuates itself in any considerable quantity between the integuments. If the first is the case, he must take a large quantity of blood away, even till the patient faints, persuading the attendants that the heat of the blood requires it; and while the patient is in his fainting fits, as the flux then ceases, he may commodiously dress and bind up the wound; and by this precaution hinder a fresh hæmorrhage or an aneurism. The surgeon must place some small piece of money between the folds of the first compress; and on this place two, three, or more compresses, each larger than the other; and then, bending the *cubitus*, apply two bandages in this manner, as after bleeding in the vein, only a little tighter; and lay a thick, long, and narrow compress over the artery, from the *cubitus* to the *axilla*: and the patient must be warned to wear his arm in a sling, pinned to his cloaths, for a fortnight, and refrain from all use of it.

If the blood from the wounded artery is found to insinuate itself between the integuments, the orifice must be immediately compressed, and tied up as before directed; and the arm often inspected to see whether a bleeding within the integuments does not yet continue. The patient must be frequently bled in the other arm, and, if a large quantity of blood should be lodged from the wounded artery under the integuments, it will be necessary to open the integuments to discharge it.

It is too common an accident to find a nerve or tendon punctured in *bleeding*; and this is generally known to be the case by the patient's making a severe outcry at the time; and especially if he complains afterwards of acute pains, and the limb begins to swell and be inflamed, convulsed, stiff, and extended as in the cramp; which symptoms, if not timely relieved, threaten convulsions of the whole body, a gangrene of the part, and even death in a short time.

The best method to be taken in these accidents is, to first bathe the part with a mixture of oil of turpentine and spirit of wine, and then invest the whole arm with the diachalcitis plaster, melted down in oil of vinegar and roses, retaining it on by the expulsive bandage; which, beginning upon the hand, ascends gradually by spiral turns to the top of the shoulder; by which means the impulse of the blood on the part is not only much abated, but also the pain and inflammation much diminished: and, lastly, the following cataplasm should be applied to the arm, to complete the cure: take of flour of barley and of bitter vetch, of each two ounces; chamomile flowers and melilot flowers, of each two handfuls; fresh butter, an ounce and half: boil these into a cataplasm with soap-suds, and apply them to the arm till the pain and other bad symptoms are removed. Heister.

BLEEDING in the hand.—There are two principal veins in the hand, which are sometimes opened to bleed the patient: the one is the *salvatella*, which runs on the outside of the back of the hand towards the little finger. This was called *splenica* by the ancients, and they esteemed the opening of it particularly serviceable in melancholy, and diseases of the spleen. The other is the *cephalica*, which runs between the thumb and fore-finger, and was so denominated from an opinion, that the *bleeding* from it was particularly serviceable in diseases of the head; but these opinions were all without foundation; and though the patient is bled more difficultly and slowly in these veins, the effect is the same as if bled in the arm. It is sometimes, however, necessary for a surgeon to open them, either at the particular desire of the patient, or when the veins of the arm are very obscurely situated, or lie deep, while these lie fair and conspicuous.

When any one is to be blooded in the hand, it must first be held for a considerable time in warm water, and well

rubbed there with the other hand, in order to make the small veins become turgid and conspicuous; then a ligature is to be fixed on the wrist, that the veins may continue thus distended, and wiping the hand dry with a napkin, an orifice is to be made in the most convenient part of the vein, as in *bleeding* in the arm. If the blood does not flow freely from the orifice, the hand must be again plunged into warm water, and kept there till the quantity taken away is judged sufficient: then the hand is to be wiped dry, and the orifice covered with a compress, defended by a proper **BANDAGE**. Heister.

BLEEDING in the head.—Many physicians have been of opinion, that *bleeding* from the veins of the forehead and temples is more expeditious in giving relief in disorders of the head than the like discharge by veins more remote from the part affected. There seems, however, to be but little foundation for this, and that the *bleeding* by the jugular vein would much more expeditiously answer the end proposed. If the surgeon, however, is called upon to perform this operation, he must first draw a handkerchief or neckcloth as tight round the neck as can conveniently be borne, that by compressing the jugular vein, those branches of it may become more turgid and conspicuous. The vein being opened, the patient must hold down his head, that the blood may not trickle down into his eyes or mouth, when the stream does not spin out with sufficient force. If the blood does not stop of itself, after a sufficient quantity is discharged, you must compress the orifice with a finger, and, after wiping the forehead and face, apply a compress or two, with the proper bandage.

BLEEDING in the eyes.—There are several ways of performing this operation, but the best seems to be this. The patient being seated on a chair, and his head held in a proper posture, a transverse incision is to be made, with a fine lancet, upon the turgid small veins in the corners of the eye, so as to open them or cut them quite asunder. The eye-lids must be held apart with one hand, whilst the veins are opened with the other; and some use a pair of fine scissars for this purpose, instead of a lancet, and others elevate the veins with a crooked needle before they divide them: but in this operation, the better way would be to make the needles with edges, that when the veins were thus elevated, they might divide them without the help of any other instrument. When the incision is made, the discharge of blood must be promoted by means of fomentation with a sponge dipped in warm water; and if the discharge is not sufficient, the incision may be repeated two or three times: but few patients can be brought to suffer this, and there is no practising it at all upon infants, because they will not keep the eye steady. Heister.

BLEEDING in the neck.—It has been a very ancient practice to bleed in the external jugular veins of the neck for most inflammatory disorders of the adjacent parts. The accumulated blood and humours may certainly be thus discharged from the parts, and the operation is no way difficult or dangerous; since the jugular veins run on each side of the neck, from the head to the clavicles, just under the skin. They are very large, and easily opened; but a stricture is first to be made on the lower part of the neck with a handkerchief, or the like ligature. The best method of raising this vein is, however, by a loose ligature thrown over the neck, which the patient, or an assistant, may pull downward over the breast; and by this means the jugular veins will be compressed on each side, and become turgid, without occluding the *trachea*, or obstructing perspiration. When the veins are thus made turgid, whichever of them lies the fairest, may be secured by the finger for incision, if the disorder affects the whole head; but if only one side be affected, it is best to open the jugular on that side.

When the proper quantity of blood is taken, close the orifice, and apply a proper compress and bandage. The common fear of this vein's bleeding afterwards is ill-grounded, and there seldom is any difficulty of stopping the blood. The patient commonly faints away in *bleeding*; but this occasions no harm. Heister.

BLEEDING in the ranula.—It is often found of service in quinsies, and other inflammatory disorders in the neck, to bleed in two small veins, which run under the tip or end of the tongue, especially if a larger vein has been before opened in the neck or arm. To bleed in these veins, a stricture must be made upon the neck; the apex of the tongue must be then elevated with the left hand, while with the other the veins are both opened, first one, and then the other, by the lancet. When they have bled sufficiently, remove the stricture from the neck, on which the *bleeding* usually stops of itself; but, if it does not, let the patient take a little vinegar, or red wine, in his mouth, or else apply a bit of vitriol, or alum, or a compress dipped in some styptic liquor, till the hæmorrhage ceases. But there is no need of being

too busy with these topics; for the blood never flows violently or long without them; and if there be not a good quantity of blood discharged by these veins on the occasions for which they are usually opened, the operation is of no use. Heister.

The Bramins never bleed, but, in lieu thereof, fast.

BLEEDING at an artery is called **ARTERIOTOMY**.

BLEEDING by measure, is where account is taken of the quantity as it flows from the vein, in order to put a stop to the flux when the requisite portion is had.

BLEEDING at large, where the flux is continued without regard to the quantity, till such time as some expected effect is perceived. This method is sometimes used in cases of apoplexies, comata, &c.

BLEEDING of a corpse, *cruentatio cadaveris*, is a phenomenon said to have frequently happened in the bodies of persons murdered, which, on the touch, or even approach of the murderer, began to bleed at the nose, ears, and other parts; so as formerly to be admitted in England, and still allowed in some other parts, as a sort of detection of the criminal, and proof of the fact. Phil. Trans. N^o 77. p. 3012. But this kind of evidence derives its weight merely from superstition and credulity.

Numerous instances of these posthumous hæmorrhages are given by Webster, Lemnius, Libavius, and especially Horstius, who has a discourse express on the point, under this title, *De Cruentatione Cadaverum*.

BLEEDING is also applied, in a less proper sense, to a flux of SAP out of the wounded vessels of plants, either spontaneously at certain seasons, or by art, and the help of incision.

BLEMISH, a term in *Hunting*, used when the hounds, or beagles, finding where the chace has been, make a proffer to enter, but return.

BLEMMYES, or **BLEMYES**; among the *Ancient Geographers*, a fabulous sort of people, supposed without heads; having eyes and mouths on their breasts, said to have inhabited part of *Æthiopia*.

Bochart derives the word *Blemmyes* from בְּלִי, which implies a negation, and מוֹת, brain: in which sense the *Blemmyes* should have been people without brains.

BLENCH, a sort of tenure of land; as to hold land in *blench* is by payment of a sugar-loaf, a couple of capons, a beaver-hat, &c. if the same be demanded in the name of *blench*, i. e. *nomine albe firmæ*.

BLEND, **LENDE**, or **BLACK-Jack**, is a mineral called also *false galena*. See **BLIND** and **ZINC**.

BLEND-metal-iron, a coarse sort of iron from the Staffordshire mines, used for making nails and heavy ware; in some places also for horse-shoes.

BLEND-water, a distemper incident to black cattle, which comes several ways. 1. From blood. 2. From the yellows, which is a ringleader of all diseases. And 3. From the change of ground: for being hard, it is apt to breed this evil, which if not remedied in six days, will be past help.

BLENNA, **BLENA**, βλεννα, μύξα, κορυζα, in Hippocrates, is a thick phlegm and mucus flowing from the brain through the nostrils, and shewing signs of a beginning concoction; as Galen explains him in several parts of his works.

BLENNIUS, in *Ichthyology*, the name of a genus of fish, of the general order of the **ACANTHOPTERYGII**, according to the distribution of Artedi, and of the *jugulares* in the Linnæan system. The name is derived from the word βλεννα, which signifies a tough and mucous matter, such as that which the body of this fish is covered with. The characters of this genus are, that the membrane of the gills has six bones; the fore-part of the head is very slanting; the body is prickly, and the belly-fins have two bones. Of this genus there are several species, as the crested *blennius*, or *galerita*, with a triangular lobe, red at the edges, and situated between the eyes, and a cuticular crest running transversely over the head; the *gattorugine*, or *blennius*, with two little fins at the eyes, and twenty-three bones at the *pinnæ ani*; the *gunnellus Cornubensium*, *liparis*, or *butter-fly*, with about ten black spots, and a white border on each side of the back-fin; the *pholis*, or smooth-headed *blennius*, called in Cornwall *mulgranoc*, and *bulcard*; the viviparous *blennius*, &c. But the name *blennius*, and *blennus*, is usually appropriated to that with a furrow between the eyes, and a large beautiful spot, black in the middle, and edged with white in the back-fin; and on this account called in English the *butter-fly-fish*. It is common in the Mediterranean, and is sold in Venice and elsewhere for the **FABER**. The flesh is very soft. See *Tab. of Fish*, N^o 16. Willughby, p. 131.

Blennus is also a name given by some authors, particularly Schonfelt, to the *SYNGNATHUS corpore hexagono, cauda pinnata*; the **ACUS** of Aristotle; and *acus secunda* of other writers; called also by Gesner and Bellonius,

TYPHLE *marina*. It is a name used also by some for the tobacco-pipe fish.

BLESENSIS *bolus*, *bole of Blois*, in the *Materia Medica* a very valuable medicinal earth dug about Saumur, Blois, and Burgoyne in France, and seeming to possess all the virtues of the Armenian bole of Galen, which it also much resembles in external appearance.

It is a very valuable medicine in fluxes and many other cases, and might be had in any quantities, at a small price; but the common red French bole, or a counterfeit of it, or the substance called **BOLE Armenic**, is generally sold for it.

BLESTRISMUS, from *βλησπίζω*, *I toss*, derived from *βαλλω*, in the *Ancient Physic*, a continual tossing and inquietude of the body, occasioned by a tumultuary effervescence of the blood, especially in acute fevers.

BLETA *alba*, an epithet given by some to the milky urine voided in some disorders of the kidneys, ranked by Paracelsus among the causes of the *phthisis*.

BLETUS, *βλητος*, from *βαλλω*, *I strike*, in the *Ancient Physic*, a person whose side, by reason of some internal inflammation, as a pleurisy or peripneumony, turns black or livid-spotted, chiefly presently after death.

BLEW-CAP, or *Blue-cap*, an English name for a peculiar species of fish of the salmon kind, distinguished by a broad blue spot on the head, from whence they have their name. These seem not to breed with us; but appear in our rivers only at certain seasons, when there have been very violent north winds. This fish is seldom found single; so that the fishermen rejoice at the taking one of them, expecting a large shoal of them near.

BLEYME, in *Farriery*, an inflammation of a horse's hoof, occasioned by blood putrefied in the inner part of the coffin towards the heel, between the sole and the coffin-bone.

Some write the word corruptly *bleine*. It is originally French, *bleime*, which signifies the same.

There are three sorts of *bleymes*; the first, bred in spoiled wrinkled feet with narrow heels, are usually seated in the inward or weakest quarter; the second, besides the usual symptoms of the first, infects the gristle, and must be extirpated, as in the cure of a quitter-bone: the third is occasioned by small stones and gravel between the shoe and the sole.—For a cure they pare the foot, let out the matter, if any, and dress the fore, like the prick of a nail.

BLICEA, in *Ichthyology*, the name of a small fish of the harengiform kind, caught in the German and other seas, and supposed by many to be the same with what in England we call the sprat, which to some seems to be no other than a young herring.

It is likewise the name of a fresh-water fish of the *mala-costomous*, or as we call it in English, the leather-mouthed kind, seeming to be the same with the more common kind of *carcassius*. It is also the name of an East India fish, which might be more properly called *harengus minor Indicus*, or the small Indian herring. It is of the shape of the herring, but somewhat broader and thinner, and is of the same colour. Its tail also is forked; but its head is of an odd figure, its eyes and the end of its snout being extremely large. This fish swims usually in vast shoals, and is caught principally on the coast of Malabar. It is a well tasted fish; but has not at all the taste of a herring. It takes salt, which scarce any other of the East India fish will do, and is therefore very much valued, and sent into all the neighbouring parts of the country in pickle. There is also another very considerable use it is put to by the natives, which is the manuring of the lands whereon they sow their rice: they use this fish, which is caught in prodigious plenty, instead of dung on this occasion. Willughby and Ray.

BLIEGG, in *Ichthyology*, a name given by the Germans to the fish we call the **BLEAKE**, and authors in general the **ALBULA** and **ALBUNA**.

BLIGHT, in *Husbandry*, a disease incident to plants, and affecting them variously; the whole plant sometimes perishing by it, and sometimes only the leaves and blossoms, which will be scorched and shrivelled up, the rest remaining green and flourishing.

This disorder seldom happens but upon the blowing of sharp easterly winds, which are most frequent with us about March; whence that month proves, of all others, the most fatal to plants.—From this circumstance, some imagine the colds that then reign, being exasperated by the eastern winds, effect *blights*; but Mr. Bradley furnishes a more plausible account; for on this principle, it were hard to say, why one plant, or one part of a plant, should be *blighted* more than another. He observes then, that caterpillars and other insects generally attend those winds; and that they infect some kind of tree more than another, and even some particular branch more than others; and thence infers, either that the eggs of those insects, or the insects themselves, are brought to us by the easterly winds; or that the temperature of the

air, when the eastern winds blow, is necessary to hatch those creatures, supposing the eggs to have been already laid on the infected parts. Now each of these causes seems to have its effect: those *blights* attended with large worms, or caterpillars, seem hatched by the eastern winds; and those others, which only produce the small insects; that occasion the curling of the leaves of trees, may proceed from swarms of them, either ready hatched, or in the egg, brought with the wind.

The coldness of those winds he shews to be no objection against their being fitted to hatch insects; different insects requiring vastly different degrees of heat. To this he adds, that every insect has its proper plant, or tribe of plants, which it naturally requires for its nourishment, and will feed on no other; and in which, therefore it lays its eggs: it is no wonder then, that one kind of tree should be infected, and all the rest escape. That wind, v. gr. which brings or hatches the caterpillars on the apple-tree, will not infect the pear, plum, or cherry; because, were the shoals of insects natural to the apple to light on those other trees mentioned, they would either want their proper matrix to hatch in; or, were they ready hatched, would perish for want of proper food. So that it is mortally impossible all kinds of plants should be *blighted* at the same time, unless the eggs of every kind of insect natural to each tree could be brought at one time with the wind; or, that an easterly wind could contain in it, at once, as many different degrees of cold, or heat, as would be required to hatch and maintain each different class of insects. Nor is it any objection, that in *blights* there are not frequently any animals immediately perceivable. By the microscope, we discover animalcules a million of times less than the smallest which come under ordinary notice; these, the gentlest air may be conceived capable of blowing from place to place; so that it is no wonder if they be brought to us from the remotest regions, especially the north-east part of Great Tartary, &c. where the cold is intense enough to give them life; and from whence there is not sea enough, by the warmth and saltness of whose vapours they might be suffocated. Those brought from the north-east parts of America are probably destroyed by passing the vast Atlantic ocean, which may be the reason why the north-west wind is not so infectious.

But that *blights* are frequently no more than inward weakness or distemper in trees, evidently appears, if we consider how often it happens, that trees against the same wall, exposed to the same aspect, and equally enjoying the advantages of sun and air, with every other circumstance which might render them equally healthy, are often observed to differ greatly in strength and vigour; and as often do we observe the weak trees to be continually *blighted*, when the vigorous ones in the same situation escape. Dr. Hales ascribes *blights* to the obstruction of perspiration in blossoms and leaves, occasioned by a continued dry easterly wind, without showers or dew; in consequence of which the perspirable matter becomes glutinous, and adheres to the surface of leaves, hereby affording a proper nutriment for insects, which prey on the leaves and tender branches of fruit-trees, when the *blight* happens, though they are not the first cause of it.

To prevent *blights*, the more knowing among country-people, while the easterly winds blow, are accustomed to guard against them by burning heaps of weeds, chaff, and other combustibles, on the wind-side of their orchards, that the smok may either poison the insects or their eggs, as they pass long. It may be added, that these fires are often made with good success, to destroy the caterpillars, even after they are hatched, and have begun to devour the trees.—Another method of preserving trees from *blights* is, by sprinkling tobacco-dust, or pepper-dust, or washing the leaves with water wherein tobacco-stalks have been infused; which, it is said, is present death to all insects and animalcules. Another is by pulling off the leaves when withered, and cutting off the smaller branches, when they produce crooked and unnatural shoots. Dr. Hales recommends washing and sprinkling the trees occasionally with fair water; and if their shoots seem to be much infected, washing them with a woollen cloth, so that their perspiration may not be obstructed.

But there is another sort of *blights*, against which it is more difficult to guard fruit-trees; that is occasioned by sharp, pinching, frosty mornings, which often happen at a time when the trees are in flower, or while the fruit is very young, and occasion the blossoms or fruit to drop off; and sometimes the tender parts of the shoots and leaves are greatly injured thereby. The only method yet found out to prevent this mischief is, by carefully covering the walls, either with mats or canvas, &c. Which being fastened so as not to be disturbed with the wind, and suffered to remain on during the night,

night, are to be taken off ever day, if the weather permits.

Another sort of *blight*, which sometimes happens in April or May, and which is often very destructive to orchards and open plantations, and against which we know of no remedy, is what is called a *fire-blast*, which in a few hours hath not only destroyed the fruit and leaves, but many times parts of the trees, and sometimes whole ones have been killed by it. This more frequently happens in close plantations, where the stagnating vapours from the earth, and the plentiful perspirations from the trees, are pent in, for want of a free air to dissipate and dispel them, than in those planted at a greater distance, or surrounded with hills or woods. See *RUST*.

Corn is liable to *blights*, like other sorts of grain.

BLIGHT of corn is called *SMUT*.

BLIKE, in *Ichthyology*, a name given by some to an anadromous fish, somewhat resembling our river chub, and called by Gesner *capito anadromus*; but more generally known by the name *ZARTA*, or the *ZERTE*.

BLIND.—*Pore* or *Pur-BLIND*, denotes only a great degree of short-sightedness. Phil. Trans. N^o 37. p. 731.

BLIND, *Moon*, is used in speaking of horses which, according to the vulgar but very absurd opinion, lose their sight only under certain states of the moon, and see at every other time. This disease is the forerunner of cataracts, and generally ends in total blindness.

In some cases of this distemper, a thin viscid corrosive water runs from the diseased eye, more or less in proportion to the degree in which the eye and eye-lids are swelled and inflamed. In other cases, the diseased eye discharges no humour; but looks thick and troubled; and the horse sees little, or very indistinctly. The causes of this distemper are various: it sometimes proceeds from a natural defect of the eyes, and often from some accidental malady. When the humour attaches one eye without changing to the other, there is hope of a cure; at least of preserving one eye. But when the eyes looked depressed, and gradually decay, total blindness commonly ensues. If the eyes are full and inflamed, bleeding is proper; but if they appear sunk and perishing, it is often pernicious. In the former case, when the eyes discharge a sharp water, they should be washed twice a day with a strong tincture of roses, made by steeping two drams of rose buds in half a pint of boiling water, and dissolving half a dram of sugar of lead in the quantity of four ounces of it. If the matter digests, two drams of honey should be added to the above quantity. At the same time purges should likewise be administered twice a week. Lenitive electary and cream of tartar, of each four ounces; Glauber's purging salts, three ounces; the solutive syrup of roses, two ounces, mixed with white wine and water, or warm water-gruel, are very proper for this purpose. Cutting out the haw is also an operation which is usually performed on moon-blind horses. Gibson.

BLIND is also used for occult, or imperceptible. Hence *blind* rampart, *cæcum vallum*, among the ancients, was that beset with sharp stakes, concealed by grass or leaves growing over them.

BLIND testimonies cæca testimonia, those given by absent persons in writing.

BLIND is also used in speaking of bodies without apertures. Hence.

BLIND wall, *cæcus paries*, that without windows. In a like sense we meet with *blind* chamber, *cæcum cubiculum*.

BLIND is also used in speaking of vessels which are not perforated.

In this sense the chemists say a *blind* alembic. A tube is said to be *blind*, when it is closed a-top.

Some anatomists also call the third cavity of the ear *COECUM*, as having no issue; but it is more usually denominated *LABYRINTH*.

BLIND granado, that which does not light or take fire.

BLIND, in *Ichthyology*, a local name for a fish, called by authors the *ASELLUS luscus*, and more universally in English the *bib*. It is a fish of the cod-kind, but never growing to any great size. The word *blind* is used in Cornwall.

BLIND, or *BLINDE*, among *Mineralists*, a species of lead-MARCASITE, by our miners called *mock-ore*, *mock-lead*, and *wild-lead*, &c.

Blind is a mineral mass, flaky, glossy, and breaking in angles, much like the potters lead-ore, only of a colour more dusky, and approaching to black. In it are veins of a yellow shining MARCASITE, with a little white spar and on one side a greenish æruginous matter. On a trial by the fire it yielded very little copper, less lead, and no tin. It is very obstinate, several attempts having been made with the alkaline fluxes to run it, in vain.

The German mineralists call it *BLENDE*, whence our denomination *blinde*. It answers to what in Agricola is called *GALENA inanis*.

It usually lies immediately over the veins of lead-ore: in the mines which produce it, for it is not found in all. When the miners see this, they know the vein of ore is very near. See *Ores* of *ZINC*.

BLIND faith, see *FAITH*.

BLIND gut, see *COECUM*.

BLIND worm, see *SLOW-worm*.

BLINDS, or *BLINDES*, in the *Military Art*, denote every thing serving to cover the besiegers from the enemy, as wool-packs, earth-baskets, sand-bags, and the like.

Blinds are sometimes only canvas stretched to take away the sight of the enemy; sometimes they are planks set up, properly called mantlets; others are of baskets, others of barrels.

BLINDS more peculiarly denote wooden frames of four pieces, round or flat, two of which are six feet long, and pointed at the ends, and the others three or four feet, which serve as spars to fasten the two first together. They are fixed upright in the ground, against the sides of the saps to sustain the earth, and to fasten fascines on the upper part, or to cover the saps, and to lay fascines over them, to secure the troops from stones and grenades. They are chiefly used, where the trenches are carried on in the face of the place, in a right line, so as the enemy might scour them with their guns from the walls. See *Tab. of Fortification*, fig. 1.

BLIND is sometimes also used for *ORILLON*.

BLINDING, a species of corporal punishment anciently inflicted on thieves, adulterers, perjurers, and others; and from which the ancient Christians were not exempt. Sometimes lime in vinegar, or barely scalding vinegar, was poured into the eyes, till their balls were consumed; sometimes a rope was twisted round the head till the eyes started out. Solin. Polyhist. c. 4. Lamprid. in Alex. Sev. c. 17. Val. Max. lib. vi. c. 5. Lactant. de Mort. Persec. c. 36.

In the middle age, they changed total *blindness* for a great darkness, or diminution of sight, which they produced by holding a red hot iron dish or basin before the eyes, till their humours were dried, and their coats shrivelled up.

The inhabitants of the city Apollonia executed it on their watch whom they found asleep. Democritus, according to Plutarch, Cicero, and A. Gellius, put out his own eyes, that he might be less disturbed in his mental contemplations, when thus freed from the distraction of the objects of sight. Herodot. lib. vi. c. 92. Aul. Gell. Noct. Att. lib. x. c. 71. Cicero Tusc. Qu. 5.

BLINDING, *abæcatio*, in the *Black Art*, denotes a species of *NECROMANCY*, whereby a visible body may be concealed, or hidden by an invisible power.

BLINDING of a *casemate*, signifies erecting a battery against it, in order to dismount its cannon, and render them useless.

BLINDNESS, a privation of the sense of sight, arising from a total depravation of its organs, or an involuntary obstruction of their functions.

Blindness is of divers kinds. Natural *blindness* is that happening according to the ordinary course of things; thus that of certain insects formed without eyes, though it is not easy to fix which these are, since divers animals have been erroneously supposed so, on account of their smallness or imperceptibility; as the *CÆCILIA*, commonly called the blind-worm, the mole, &c.

Preternatural, or morbid *blindness*, is that owing to disease or accident.

Total *blindness*, is that wherein all sight or preception, even of light, is wanting, as in the case of those who are said to be *stone-blind*.

A *blind* man, by the civil law, cannot make a testament, except under certain modifications; but in every case he is disabled from being a witness to a testament, on account of his *blindness*.

Partial *blindness*, is that wherein some faint glimmering is left, as is always the case in people who have ripe cataracts, who are never so blind, but they can discern day from night; and, for the most part, in a strong light, distinguish black, white, and scarlet, though they cannot perceive the shape of any thing. The reason is, that the light by which those preceptions are made, being let in obliquely through the aqueous humour, or the anterior surface of the crystalline (by which the rays cannot be brought into a focus upon the retina), they can discern in no other manner than a sound eye can through a glass of broken jelly, where a great variety of surfaces so differently refract the light, that the several distinct pencils of rays cannot be collected by the eye into their proper foci; wherefore the shape of an object in such a case cannot be at all discerned, though the colour may. Phil. Trans. N^o 402. p. 447.

Perpetual *blindness*, is that which remains alike under all the diversity of seasons, times, ages, &c.

Transient *blindness*, is that which gives way of itself in due time,

time, as that of whelps, which continues for several days, sometimes nine, rarely twelve, after they are littered.

The Nogais Tartars, according to father Du Ban the Jesuit, who lived among them, are born *blind*, and open not their eyes, till several days.

Periodical *blindness* is that which comes and goes by turns, according to the season of the moon, time of day, and the like. Phil. Trans. N° 233. p. 728.

Diurnal *blindness*, is called *hemera copia*.

Nocturnal *blindness*, called also *nyctalopia*, that which ensues on the setting of the sun in persons who see perfectly in the day, but become quite blind as soon as night comes on. Brigg, in Phil. Trans. N° 159. p. 560. where an instance of it is given. See a singular case of this kind, related by Dr. Samuel Pye, in the Medic. Observ. and Inquir. vol. i. p. 111. See also the Col. Acad. tom. vi. p. 507.

The causes of *blindness* are either ordinary, as a decay of the optic nerve, (an instance whereof we have in the Academy of Sciences, where, upon opening the eye of a person long blind, the optic nerve was found extremely shrunk and decayed, and having no medulla in it); or some external violence, vicious conformation, growth of a cataract, *gutta serena*, small-pox, or the like. Hist. Acad. Scienc. ann. 1713 and 1721.

Extraordinary causes of *blindness*, are malignant stench, poisonous juices dropped into the eye, baneful vermin, long confinement in the dark, or the like.

The ducks, which breed under ground, and break out into the Zirchnitzer sea, in Carniola, after all great storms, are blind at their first eruption; but in some time come to their sight.

The author of the embassy of D. Garcias de Silva Figueroa into Persia, tells us, that in several parts of that kingdom are found vast numbers of blind people of all ages, sexes, and conditions; by reason of a species of little flies, which prick the eyes and lips, and enter the nostrils, carrying certain *blindness* with them when they light on the eyes.

The miseries of *blindness* are feelingly painted by Milton, and may be also partly guessed at by the extasies into which persons have fallen on their recovery from it.

Mr. Boyle mentions a gentleman, who, having been blind, and brought to sight at eighteen, was very near going distracted with the joy. See a remarkable case of this kind, Tatler, N° 55. vol. i. Parad. Lost, lib. iii. init. Boyle's Works abr. tom. i. p. 4.

We find various recompenses for *blindness*, or substitutes for the use of the eyes, in the wonderful sagacity of many blind persons recited by Zahnus in his *Oculus Artificialis*, and others. In some, the defect has been supplied by a most excellent gift of remembering what they had seen; in others, by a delicate nose, or the sense of smelling; in others, by an exquisite touch, or a sense of feeling, which they have had in such perfection, that, as it has been said of some, they learned to hear with their eyes; as it may be said of these, that they taught themselves to see with their hands.

Some have been enabled to perform all sorts of curious and subtle works in the nicest and most dexterous manner. Aldrovandus speaks of a sculptor who became *blind* at twenty years of age, and yet ten years after made a perfect marble statue of Cosmo II. de Medicis; and another of clay like Urban VIII. Bartholin tells us of a *blind* sculptor in Denmark, who distinguished perfectly well, by mere touch, not only all kinds of wood, but all the colours; and F. Grimaldi gives an instance of the like kind; besides the *blind* organist lately living in Paris, who is said to have done the same.

The most extraordinary of all, is a *blind* guide, who, according to the report of good writers, used to conduct the merchants through the sands and deserts of Arabia. James Bernouilli contrived a method of teaching blind persons to write. Leo Afr. Desc. Afr. lib. vi. p. 246. Casaub. Treat. of Enthuf. chap. ii. p. 45. Fonten. Elog. des Acad. p. 114.

Yet have not blind persons any idea of visible objects, though they can distinguish them by the touch: thus the gentleman couched by Mr. Cheselden, though he knew the colours asunder in a good light during his blind state; yet when he saw them after couching, the faint ideas he had of them before, were not sufficient for him to know them by afterwards. Phil. Trans. N° 403. p. 447.

It was even a considerable time before he could remember which was the cat and which the dog, though often informed, without feeling them. Add, that he had no idea of distance; but thought all the objects he saw touched his eyes, as what he felt did his skin.

BLINDNESS, in *Farriery*, is a disease incident to horses especially those of an iron-grey or dapple-grey colour, when ridden too hard, or backed too young. Phil. Trans. N° 37.

It may be discovered by the walk or step, which, in a blind horse, is always uncertain and unequal, because he dares not set down his feet boldly when led in one's hand; though, if the same horse be mounted by an expert horseman, and the horse himself be mettled, the fear of the spur will make him go more freely; so that his *blindness* can hardly be perceived. Another mark whereby a horse may be known to have lost his sight, is, that upon hearing any body enter the stable, he will prick up his ears, and move them backwards and forwards, as mistrusting every thing, and being in continual alarm by the least noise.

Dr. Lower first shewed the cause of the ordinary *blindness* in horses; which is a spongy excrescence, growing in one, sometimes in two or three places of the *uvula*, which being at length overgrown, covers the pupil when the horse is brought into the light, though in a dark stable it dilates again.

BLINKS, in *Botany*, see MONTIA.

BLINKS, among *Ancient Sportsmen*, denoted boughs broken down from trees, and thrown in the way where deer are likely to pass, to hinder their running, or rather to mark which way a deer runs, in order to guide the hunter.

BLINKING of *beer*, in Lincolnshire, signifies letting the wort stand for some time in the vat, till it hath acquired some degree of acidity, in order to dispose it to fine, and be the sooner ready for drinking.

BLISSOM, among *Husbandmen*, corruptly called *blossom*, is the act of a ram when coupling with an ewe.

BLISTER, in the *Animal Oeconomy*, denotes a thin bladder raised on the skin, and full of a watery or other humour. *Blisters* are symptoms usually ensuing on burns, scalds, and caustic matter applied to the skin.

It is disputed among surgeons, whether *blisters*, in case of burns, are to be opened; or not: Some advise it, to prevent farther ulcerations underneath: others, unless they be large, dissuade it; as creating the patient needless pain.

BLISTER, EPISPASTIC, or VESICATORY, an external medicine serving to raise a blister; whence also it is itself, though improperly, called a *blister*.

Of *blisters* there are some which act very gently, and others with great violence.

Blisters are unguents, cataplasms, or plasters, made of sharp irritating medicaments, which have a faculty of drawing the humours from within, outwards; inflaming and ulcerating the skin, and raising *vesicae*, or bladders; whence their denomination, *vesicatory*.

We have *vesicatories* made of CANTHARIDES, of EUPHORBUM, FIGS, SUBLIMATE OF MERCURY, LAPIS INFERNALIS, MUSTARD, ANACARDIUM, SQUILLS, BRIONY, VINEGAR, PEPPER, LEAVEN, lesser SPURGE, &c. which are incorporated, and made up with honey, gum, resins, &c. to bring them to the consistence required.

Blistering chiefly takes place in the dropsy, delirious and feverish disorders, apoplexies, pleurifies, and the like. Some also prescribe it in the *hydrocephalus*, *ophthalmia*, suffocative catarrhs, *cephalæa*, &c. Some say, that *blistering* is generally found hurtful in dropsies.

In the Phil. Trans. vol. i. p. ii. N° 75. an. 1758. there is a paper by Dr. Whytt, containing cases of the remarkable effects of *blisters* in lessening the quickness of the pulse in coughs, attended with infarction of the lungs, and fever. See also several papers concerning *blisters* in the Lond. Medic. Observ. &c. vol. ii. p. 311. ibid. p. 382. and vol. iii. p. 102. where they are recommended as efficacious in curing an incontinence of urine.

The operation and effect of *blisters* in curing fevers are by some resolved into the pain which they excite; by others, into the ingress of the particles of the CANTHARIDES into the blood; by others, into the quantity of hot, sharp, and salt lymph discharged; by others, into the condensation of the blood, and stoppage of the rarefaction, whereby the spirits are disposed to be plentifully separated. Dr. Cockburn, who refutes all these systems, accounts for it from the CANTHARIDES wounding the nerves or canal whereby the spirits are conveyed to the heart; Dr. Morgan, from the subtle, hot, active salts of the flies, strongly attracted by the *serum*, and carried with it through the several glands and secretory ducts of the body, where they act by dissolving, attenuating, and rarefying the viscid cohesions of the lymph and *serum*, and stimulating the nervous coats of the vessels, whereby they are induced to throw off their stagnating viscidities, and restore the free drain of the lymph from the arteries to the veins; and at the same time, by scouring and cleansing the expurgatory glands, bring on critical sweats, and urines. Phil. Trans. N° 252. p. 173.

Dr. Morgan endeavours to discard the method of dressing *blisters*, by which nothing is gained but the plaguing and

and tormenting of the patient, and depriving him of the benefit of a much greater discharge, which would be at least three to one, were the same plaster left on for four or five days, or as long as it will draw off any thing; and then, when it has done running, taking it off and applying a plaster of melilot, or rather of diachylum, once for all, till the part is quite well and healed. Indeed when a *blister* is first raised, if it doth not break and run of itself, it may be proper to raise the lower end of the plaster a little, to snip the bladder, and let out the water; but if the surgeon has made the plaster strong enough, this is commonly done of itself, without help. It is usually objected, that a strong epispastic left on five or six days, must deeply corrode the flesh under it, and thereby endanger a mortification. But this, according to the author last cited, is so far from being true, that on the contrary, it prevents the worst accidents usually happening in *blistering*, which are what they call *sloughs*, or deep strong incrustations of a sharp, salt, and adhesive matter, covering the whole surface of the flesh where the plaster had been applied. Now this is always occasioned by an unseasonable removal of the epispastic, while the humour is in full flow, and strongly feeding to the part; and the humour, thus suddenly checked and thrown back for want of a sufficient drain, forms this slough. Morg. Mech. Pract. of Phys. p. 176.

BLISTERING, in *Farriery*, is used in cases of strains and shrunk sinews in horses, as some maintain, with good effect; but others say with none.

BLITE, *strawberry-spinage*, *blitum*, in *Botany*, a genus of the *monandria digynia* class of plants; the characters of which are these: the flower hath no petals, but one bristly stamen, of the length of the empalement; in the centre is situated an oval pointed germen; the empalement afterward becomes an oval compressed capsule, including one globular compressed seed, of the size of the capsule. There are two species.

Blite is esteemed cooling and emollient, and therefore good in dysenteries and spitting of blood.

BLOATED *fish* or *herring*, in our *Statutes*, are those which are half-dried. Vide Stat. ann. 18 Car. II. c. 2.

Bloated herrings are made by steeping them in a peculiar brine, and then hanging them in a chimney to dry.

BLOATING, a puffing up or inflation of the exterior habit of the body, lodged chiefly in the adipose cells. It is the same with what physicians call an *emphysema*.

BLOCK is used for a piece of marble as it comes out of the quarry, before it has assumed any form from the hand of a workman.

Block, in the *Mechanic Arts*, a large piece of solid wood whereon to fasten work, or to fashion it; strength and stability being the requisite properties.

In this sense we say a chopping *block*; a sugar-finer's *block*; a smith's *block*, on which his anvil is fastened; an executioner's *block*, on which the criminal's head is laid to be struck off.

Block, *mounting*, see ANABATHRA.

Block, among *Cutters of Wood*, is a form made of pear-tree, box, or other hard and close-grained wood, free from knots, on which they cut their figures in relieve with knives, chisels, &c.

The like *blocks* are in use for card-making; and from the same first arose the modern art of printing. Phil. Trans. N^o 310. p. 2398.

Block, among *Bowlers*, the mark which is aimed at, being a small-sized bowl laid on the green for this purpose; it is called also the *jack*.

Block, in *Falconry*, denotes the perch whereon a bird of prey is kept. This is to be covered with cloth.

Blocks, in *Sea-language*, are pieces of wood belonging to ships, in which the shivers of pullies are placed, and wherein the running ropes go. Of these, some are single, some double; and some have three, four, or five shivers in them. They are named and distinguished by the ropes they carry, and the uses they serve for. See *Tab. Ship*.

The *cat-block* is employed to draw the anchor up at the cat-head.

The *clue-garnet-blocks* serve to draw the clues or lower corners of the courses up to the yard, and are fastened to the clues of those sails.

The *fish-block* is hung in a notch at the end of the davit, serving to haul up the flocks of the anchor to the ship's bow. The *snatch-block* is a large *block* with a shiver in it, and a notch cut through one of its cheeks, for the more ready receiving a rope, since, by means of this notch, the middle part of the rope may be reeved into the *block*, without passing it endwise. It is commonly fastened with a strap about the main-mast close to the upper-deck, and is chiefly used for the fall of the winding tackle, which is reeved into this *block*, and then brought to the capstan.

The *top-block* is used to hoist up or lower down the top-

mast, and is hooked in an eye-bolt driven into the cap. *Block and Block* is a phrase used when on hauling on any tackle, halyard, or the like, to which two *blocks* belong, the two meet and touch; so that they can haul no farther.

Block, *voyal*, see VOYAL.

Blocks, *wind-tackle*, see WIND.

Block-wood, is a name sometimes given in our laws to LOGWOOD. 23 Eliz. c. 9.

BLOCKADE, a sort of SIEGE of a place, intended to be taken by famine, wherein all the passages and avenues are seized, and shut up, so that no supplies of provision can be brought in.

It comes from the German *blochus* or *blockhouse*, a bulwark, or house of wood; or from the Gaulish *bloca*, *barricade*: though others derive it from the Latin *buculare*, to stop a passage.

A *blockade* is no regular SIEGE; inasmuch as there are no trenches or attacks. *Blockades* are formed by the cavalry.

The word *blockade* is sometimes also used in speaking of the beginning of a SIEGE, when forces are sent to seize the principal avenues where the besiegers intend to fix their quarters.

There are two ways of forming *blockades*. The first is simply by fortifying or seizing posts at some distance from the place, chiefly on the banks of rivers both above and below, and on the great roads and inlets, where bodies of foot and horse are placed, communicating with each other, till the distress of the place, for want of necessaries, occasions desertions of the garrison, and murmurings or insurrection of the townsmen, whereby the governor is frequently forced to capitulate.

The other sort is made nearer the place, by lines of circumvallation, wherein an army is posted, being chiefly used when, after a battle, the vanquished party have shut themselves up in some town ill provided, and thereby capable of being starved in a short time.

BLOCK-battery, in the *Military Art*, denotes a wooden battery on four wheels, moveable from place to place, whereby to fire *en barbe*, or over the parapet; sometimes also used in galleries and casemates, where room is wanted.

Block-house, a kind of wooden fort or battery, either mounted on rollers, or on a vessel, and serving either on the water, or in some counter-scarps and counter-approaches.

The name is sometimes also given to a brick or stone fort, built on a bridge, or the brink of a river, serving not only for its defence, but for the command of the river both above and below. Such was that noted *block-house* anciently on the bridge of Dresden, since demolished on enlarging the bridge.

BLOCKING, in *Middle Age Writers*, denotes a kind of burial used for persons dying excommunicated.

BLOCKINGS, *circular*, in *Architecture*, are bases to the dome represented in *Tab. of Archit. fig. 40. (QQQ)*; which by their apparent solidity seem to strengthen the dome, and at the same time taking from its height, add a peculiar gracefulness to its appearance.

BLOCKINGS, *square*, are represented at S, *fig. 40. in Tab. Archit.* These, when enriched with base and cap, obtain the appellation of PEDESTALS.

Blocking-course, see COURSE.

BLOCKY, among *Jewellers*, a name given to a diamond when its sides are too upright, by its TABLE and COLLET being larger than they ought to be.

BLOIS, *bole of*, see BLESENSIS *bolus*.

BLOMARY, or **BLOOMARY**, the first forge in an iron-work, through which the metal passes after it is melted out of the ore. See IRON. They are also called *blomary-hearths*.

BLOOD, a warm, red liquor in most animals, circulating, by means of arteries and veins, through every part of the body, during their life, and the common source whence all the necessary and superfluous animal liquids are derived.

Blood, *microscopically examined*. By the microscope, the blood appears to consist of little red globules, swimming in an aqueous liquor, supposed to be the *cruor* and *serum* that appear distinct when let out. Mr. Leewenhoeck computes these globules to be twenty-five thousand times smaller than the smallest grains of sand; and Dr. Jurin makes them still less. Upon an accurate mensuration, he found the diameter of one equal to $\frac{1}{32000}$ of an inch, or less than $\frac{1}{32000}$ of an ordinary hair of the head.

Blood makes a very common object for microscopical observations. The method of examining it is this: take a small drop of warm blood immediately from the vein, with the nib of a pen, or hair-pencil, and spread it as thin as possible on a plate of glass; and applying this to the microscope with the second, or first magnifier, the globules will all be seen very distinctly, and a little practice

practice will enable us to form a judgment on the alterations that may happen in the size, figure, or colour of them. If a little warm water be applied to the *blood*, the globules will be divided, and many of them break into a number of smaller globules. If warm milk be added instead of water, the larger globules will be seen very distinct; but the smaller will be blended with, and lost in the milk, which is itself no other than a congeries of such globules.

Late writers have industriously pursued the examination of the globules of the *blood*; and found divers orders of them: those larger ones visible to the eye constitute the *globules of the first order*; each of which, according to the Leewenhoeck, is composed of six smaller spheres, clustered together in a very regular way; and that so nicely, in a perfect globule, that the composition comes to be imperceptible. But sometimes the same person has seen a red globule loosening and breaking into these compounding spherules; and sometimes has had the good fortune to perceive these running together, and beginning the composition of a new red globule. These smaller spherules are called *globules of the second order*. But Leewenhoeck did not stop here; he saw in the chyle and *blood* a great many particles six times less than these globules of the second order, and thirty-six times less than the great red globules. So that the globules of the second order are to be looked on as compounded of these smaller ones; which therefore are justly to be reckoned as another class, or *globules of the third order*. Farther, he finds innumerable *blood*-vessels in the body of such smallness, that none of those hitherto mentioned globules could pass through them; so that it seems necessary to suppose inferior classes of *globules of the fourth, fifth, sixth, &c. orders*. He even saw vessels, the wideness of which was less than the eighth part of the diameter of a red globule; so that the particles, passing through them, should be upwards of five hundred times less than such globules, and consequently smaller than those of the fourth order. Besides, upon a careful examination, he could perceive still smaller vessels, narrower than the tenth part of the diameter of a red globule, and consequently not capable of transmitting spherules greater than if a red globule were broken into a thousand parts. On the whole then, the globules of the first order are made up of six globules of the second, these of six of the third, these of six of the fourth, these of six of the fifth order, and so on. And accordingly we find the globules of the higher orders may be broken down into their compounded particles. That the *blood*, in some cases, might be turned into *serum*, was observed by Aristotle. Nor did such a change of the *blood* escape the observation of the accurate Dr. Harvey. Phil. Trans. N^o 102. N^o 106. N^o 109. N^o 165. N^o 263. N^o 380. Med. Ess. Edinb. tom. ii. *passim*.

Dr. Martine has also given us some computation of the diameters, magnitudes, weights, &c. of the globules of the *blood*. The doctor's computation of the diameter of a red globule agrees with Leewenhoeck's and Dr. Jurin's, being about $\frac{1}{1000}$ of an inch.

The *blood*, as already observed, is composed of globules of different orders and magnitudes. The diameters of those of the tenth order are estimated at less than $\frac{1}{400000}$ of an inch.

The particles of *blood* have ever since the time of Leewenhoeck, been generally deemed spherical, and therefore called globules; though some accurate observers have at different times expressed their doubts concerning their figure. Leewenhoeck acknowledges, that in fish and in the *amphibia* they are flat and elliptical; but those of the human blood, and of the blood of quadrupeds, have generally been reckoned spherical. Father de la Torre, by observing them with glass spherules of a very considerable magnifying power, was led to apprehend, that they were flat and annular: Mr. Hewson has prosecuted the inquiry both into their size and shape; and he concludes, that so far from being of the same size in all animals, as some have supposed, they differ much in this respect; and that this difference bears no regular proportion to the size of the animal to which they belong; those of an ox's *blood* not being so large as those of the human *blood*, and those of a porpoise not being larger than those of smaller fish: nor are they all of the same size in the same animal. With respect to their figure, he observes, that they are flat in all animals, the human subject not excepted; that a dark spot may be seen in the middle of one of these particles, which F. de la Torre supposes to be a perforation, but which Mr. Hewson supposes to be a solid particle contained in a flat vesicle, and filling only the middle of it, whilst the edges of this vesicle are hollow and either empty, or filled with a subtiler fluid. He supposes farther, that they are solid particles, and not fluid, as has been commonly believed: and he adds, that the use of those salts

which enter into the composition of the *blood*, is probably to preserve the red vesicles in their flat form. See an account of the experiments on which these conclusions are founded, in the Phil. Trans. vol. lxiii. part ii. p. 303.

BLOOD, analysis of the. The *blood*, while in its vessels, appears to the naked eye uniform and homogeneous; but, when let out and cold, it separates spontaneously into two different parts, the one red and fibrous, which coheres into a mass, and is called the *cruor*; the other thin and transparent, which retains its fluidity when cold, and, being supposed specifically heavier than the other, sustains and bears it up, and is called the *serum*. The proportion of the *serum* to the *cruor*, Dr. Drake makes, at a medium, as one and a half to one: but Mr. Boyle, more accurately, makes the *serum* $\frac{1}{3}$ of the whole *blood*; and Dr. Jurin, $\frac{1}{5}$ of the whole weight, or $\frac{1}{3}$ of the bulk.

Boerhaave extends the proportion of the *serum* of *blood* to $\frac{5}{8}$ parts of the whole mass; yet Dr. Morgan scruples not to depart from this, and makes the *cruor* and *serum* equal to each other. Indeed in cold, and sufficiently coagulated *blood*, the tough *crassamentum*, and its surrounding fluid, *serum*, are ordinarily found to the eye pretty nearly equal to one another.

If the red part of the *blood* bears too great a proportion to the *serum*, which is the case of athletic persons, and others who do not take a sufficient quantity of drink with their meat, the fault may be corrected by lessening the meat, or by increasing their drink. Dr. Bryan Robinson tells us of a young man, who, not having for a considerable time drank with his meat, had a very florid complexion, and scorbutic eruption all over this body, which indicated too great a proportion of the red part of the *blood* to the *serum*; he was freed from his disorder by drinking with his meat, without any farther remedy.

In the beginning of fevers, the proportion of the red part of the *blood* to the *serum* is greater, and at the end of them less, than it is in health. The change of this proportion is owing to persons under this disorder living wholly on drink and liquid nourishment. And bodies loaded with serous moisture, an argument of too small a proportion of the red part of the *blood* to the *serum*, have been freed from their load by abstaining wholly from drink.

There are other causes besides the bare quantities of meat and drink, which vary the proportion of the red part of the *blood* to the *serum*; for this proportion is greater in country people than in citizens, in persons who use exercise than in persons who are inactive, and in persons who live upon flesh meats and fermented liquors than in persons who live upon vegetables and water. In short, this proportion is increased by things which dry the body and strengthen the fibres; and lessened by things of a contrary nature.

Too great a proportion of the red part of the *blood* to the *serum* renders bodies subject to inflammatory fevers on taking cold.

When extravasated *blood* is left to itself, the red globules run forcibly together, and squeeze out the intervening *serum* in some animals with a greater, in others with a less force; which is a proof, that these globules are endowed with an attractive power. This force in deer's *blood* is so weak, that it scarcely coagulates into a firm *crassamentum*. On the contrary in some great and strong beasts, it becomes a tough, and almost indissoluble mass; so that the *blood* of bulls was frequently drank by the ancients as a most effectual poison.

Mr. Le Cat thinks, that the *blood* is detained in its fluid state by a caustic fluid, and that this forms the red globules. But then it needs the assistance of the animal fluid, which is the principle that preserves all from corruption, and to which we owe our sensation and motion. See COAGULATION, CRASSAMENTUM, and SENSITIVE fluid.

The *blood* is found to consist chiefly of phlegm, as the basis or vehicle; of volatile salts; of oil, which, by some nice examiners, has been found of two kinds; and of *caput mortuum*, or earth, which, though it may consist of divers substances, essentially different from each other, yields only a little fixed salt. From the best experiments of this kind it appears, that in seven ounces of human *blood*, there are five ounces two drachms of phlegm, three drachms of a subtiler spirituous oil, a small quantity of a thicker oil, two drachms of salt, and about two of earth.

The *blood*, and other parts of animals, all contain more or less of an acid; and this seems wholly owing to the effects of their organs of digestion upon the aliments they take in, which, in fine, become assimilated to, and make part of their fluids and solids.

It might be supposed, that this acid, however, should be only found in such animals as eat vegetables, not in such as feed on other creatures; but this doubt will vanish

nish when we consider, that the carnivorous animals swallow these acids, at least, at second-hand, in the flesh of those animals which had fed on vegetables. This, though a very fair way of reasoning, did not content Mr. Homberg, but he tried the facts themselves by a number of experiments; by which he was convinced, that in carnivorous and fructivorous animals, and in such as eat vegetables alone, the acids of those vegetables remained acids in the parts of the animal. Mr. Homberg tried the same experiments on the flesh and blood of creatures that eat only flesh, as well as on those which eat indiscriminately every sort of food, and the event proved the same in all. All contained a red acid liquor, which had the properties before described, and in which the alkali and acid were so blended together, that they destroyed not one another, but each was ready to exert itself on occasion. Mem. Acad. Scienc. 1712.

Dr. Jurin adds, that the *serum*, upon a chemical analysis, exhibits a great deal of phlegm, and of the other principles a small quantity; and, on the contrary, the *cruor* yields less phlegm, but the other principles much more copiously than the *serum*. From which data he concludes, that the globules consist of some phlegm united with the oil and salts, and a small quantity of earth; but in what proportion, and how, and in what parts they are formed, &c. is not determined. Indeed, it must be considered, that the principles which the chemists thus produce separate, may possibly be much altered by the fire. Thus, it is past doubt, the oils drawn from the blood by fire, are vastly different from the natural oil, which circulates with the blood. To which may be added, that the *caput mortuum* remaining after distillation may, possibly, be a new production, which had no existence under any form resembling that in the blood.

The origin of the blood is in the chyle, which, passing the lacteals, is delivered into the subclavian; where, mixing with the blood, they proceed together to the right ventricle of the heart; and there, being yet more intimately mixed, they circulate together through the whole body: till, after several circulations, and secretions at the several strainers of the body, they are assimilated, so as to make one uniform compound mass, which appears to be nothing else but chyle altered by the artifice of nature, and exalted into blood; there being no appearance of any thing extraneous mixed with the liquor circulating in the blood-vessels, but chyle; excepting what had been before separated from it, for some particular purposes, which being once served, it is returned to it again: unless, perhaps, it may receive some portion of air in the lungs.

That there is air mixed in the blood, and circulating with it, is past doubt; but, whether any more than was at first contained in the food whereof the chyle is formed, is a question not yet decided. The principal arguments urged for it are, the necessity of respiration; which may be accounted for on another principle: and the florid colour the blood receives in the lungs, and first shews in the *vena pulmonalis*; which is countenanced by an experiment made with the red grumous part of the blood after coagulation on blood-letting; for, upon turning the under surface, which was before black, upwards, and exposing it to the air, by its contact wherewith it acquires a florid colour, like that of the blood in the *vena pulmonalis*. But this effect others account for from the extraordinary agitation and comminution of the blood in the lungs. Dr. Lower has confuted this notion, by observing that the attrition of the blood is greater in the muscles, from which, however, it always returns black.

Indeed, Dr. Keil, Bohnius, Bernouilli, and some other mathematical physiologists, go farther. Mr. Boyle having examined the specific gravity of blood, and found that of the *serum* to be greater than that of blood, in the proportion of 1190 to 1040, i. e. nearly as 8 to 7, it followed, that the *cruor*, or blood-globules, were specifically lighter than the *serum*, and that in a considerable degree; which was farther confirmed by the globules being sustained in the *serum*, both while circulating, and when let out.—Hence it was conjectured, that these globules were nothing else but thin vesicles filled with a subtle aerial substance: and this opinion was confirmed from its being observed, in viewing the circulation by a microscope, that a blood-globule, in passing through a very narrow vessel, would change its shape from a globular, to an oval form, and would again recover its former figure, as soon as it was got through its narrow passage: which appearance was naturally enough ascribed to the elasticity of the included air: and, from this conjecture were accounted for a great number of the phenomena of the animal œconomy, particularly Dr. Keil's theory of muscular motion.

But this principle Dr. Jurin has examined, and appears to have overthrown. He made several experiments, in some of which the *cruor* before suspended at the surface

of the *serum*, immediately sunk, when its adhesion to the sides of the porringer was cut off, and it was removed to another vessel of *serum*. In others where the *cruor*, buoyed up in the *serum*, even without any adhesion to the sides of the glass, and merely by the bubbles of air adhering to its surface, upon being included in a receiver, and exhausting the air, so that the bubbles burst, would sink: whence he concludes the globular part of the blood to be heavier than the *serum*: and, from other experiments, he ascertains the proportion of the gravity of blood to that of *serum*, to be as 1054 to 1030; whence the quantity of the globules being before fixed at $\frac{1}{4}$ of the whole, the precise gravity of the globules beyond that of the *serum* is easily determined. The blood-globules therefore are not vesicles filled with air, or any other fluid substance lighter than *serum*: which is farther confirmed from this, that blood-globules are not found to dilate, or undergo any alteration, in an exhausted receiver, when viewed through a microscope; whereas, were they filled with any elastic fluid, they would either burst, or at least dilate into 70 or 80 times the space.

As to the heat of the blood, authors are exceedingly divided about the cause thereof: the ancients ascribe it to a vital flame, or innate heat lodged in the heart, and thence communicated to the blood. Dr. Willis imagines a kind of accension in the blood, and thinks its heat results from its being, as it were, set on fire, and persevering in that state. Dr. Henshaw solves it from an ebullition consequent on the mixture of two fluids, so dissimilar as the chyle and blood. Others have recourse to the chemical principles of alkali and acid; others to the mutual action of the principles, or component parts of the blood, by means whereof an intestine motion, and by that means an intestine heat, or incalcescence, is effected.

Dr. Drake, with more reason, attributes the heat of the blood to the spring of the air inclosed together with it in the vessels: for air, being inclosed in the blood-vessels, will endeavour to expand itself; and, consequently, if it have force enough, will drive outwards the parts of the body that inclose it; by which means it causes the blood to beat against the sides of the vessels; which, having muscular, contractile coats, do in their turns compress it again, and so cause a reciprocal æstus in the blood, greater than the mere circulatory motion could; whence the parts of the solids, or containing vessels, being put into a constant agitation, a heat is produced in both, which they mutually impart to each other. See ATTRITION, &c.

Lastly, Dr. Boerhaave accounts for the heat of the blood from the action of the heart, and the re-action of the aorta: for the blood, driven by the heart obliquely against the sides of the aorta, presses them, and spends almost its whole momentum against the curvity thereof, and is, by the figure and elasticity of this vessel; pressed back again. Every moment of time, therefore, each particle of blood acquires a new motion, a new *nifus* and rotation: hence follows a perpetual attrition, attenuation, rubbing off of angles, and a similitude and homogeneity of all the parts; and hence the mass derives its fluidity, heat, division into particles accommodated to all vessels, pressure into the lateral tubes, &c.

Nor is the cause of the redness of the blood less obscure: the chemists account for it from the exaltation of its sulphur; others from the mixture of saline and subacid juices with sulphureous ones; and others from the colour of the heart. The French philosophers attribute the redness to the smallness of the size, and roundness of the figure, of the particles that compose the *cruor*; notwithstanding that red, being the colour of all others least refrangible, and the globular figure of all others the most refrangible, that figure seems, of all others, least apt to produce this colour. Others ascribe the colour of the blood to the impregnation of the air in the lungs; for, that air is disposed to produce such an effect, appears from the experiment above.

But others, more reserved, extend this effect of the air no farther than to account for the difference of redness between the venal and arterial blood; supposing, that after its colour has been heightened, and rendered more florid, by the mixture of the air in the lungs, it retains it pretty well in the arteries; but that, circulating in the body, and carried through the veins, the air transpires by degrees, through the pores of the vessels, and leaves the liquor of a paler dye.

There is now little doubt that the redness of the blood is owing to its contact with air: M. Cigna of Turin found, by putting a little oil on a quantity of blood, that it remained black throughout; but that when he took away the red part, and exposed to the air the lower laminae which were black, they also became successively red, till the whole mass acquired that colour. Beccaria, at his request, exposed blood in *vacuo*, and found that it always

continued

continued black; but when he brought it into contact with the air, it became red.

M. Cigna, in his first Memoir, published in the *Miscellanea Taurinensia*, expresses his opinion, that the air which is introduced into the *blood* by means of the chyle, continues to preserve its redness: but in a second Memoir on the same subject, he doubts whether the change of colour takes place in the lungs: and if it does, he inclines to ascribe it to the evaporation from the *blood* in the lungs. The ingenious Mr. Hewson is fully convinced, that the air in the lungs is the immediate cause of this change of colour; and to this purpose he observes, that he has distinctly seen the *blood* of a more florid red in the left auricle of the heart than it was in the right: and though some have attributed the effect to nitre absorbed from the air, he considers this as a mere hypothesis, adding, rather too hastily, that air contains no nitre; and that most of the neutral salts produce the same effect in some degree.

Dr. Priestley, who has pursued his enquiries on the subject of RESPIRATION with very considerable success, apprehends, that the air we breathe may be so far decomposed, as to communicate a nitrous quality to the *blood*, in its passage to the lungs: and this opinion is confirmed by his analysis of atmospherical air, which he has proved to consist of earth and spirit of nitre. He has farther demonstrated, by the most accurate and conclusive experiments, that the florid red colour of the *blood* is owing to the effect which the air has upon it; for the blackest parts of the *crassamentum* of coagulated *blood*, separated from the *serum*, assumed a florid red colour in common air: and the colour was more florid, and the change produced in less time in dephlogisticated air, which is purer and more fit for respiration than common air: on the contrary, the brightest red *blood* became black in any kind of air, that was unfit for respiration, as in fixed air, inflammable air, nitrous air, or phlogisticated air; but upon exposing the *blood*, which became black in the phlogisticated air, to common or dephlogisticated air, it regained its red colour: and the same pieces became alternately black and red by being transferred from phlogisticated to dephlogisticated air; and *vice versa*. The *blood*, in these experiments, he says, must have parted with its phlogiston to the common air or dephlogisticated air; and have imbibed it and have become saturated with it, when exposed to phlogisticated, nitrous, inflammable or fixed air. There are, however, he acknowledges, other causes to which the blackness of the *blood* may sometimes be owing, besides its acquiring phlogiston: nor can it be expected, that when *blood* has become black without having received phlogiston *ab extra*, it will generally recover its florid colour by being exposed to the air.

Dr. Priestley proceeded to examine, whether the quality of the air, to which pieces of *blood* had been exposed, and in which their colour was changed, was at all affected or altered, during the operation. In this experiment he made use of dephlogisticated air, as its quality is more susceptible of alteration than common air; and he found that a piece of *crassamentum*, about the size of a walnut, put into the quantity of about five ounce-measures of this air, and changed about ten or twelve times in the space of twenty-four hours, so depraved the air, that a mixture of one measure of this, and two of nitrous air, which, at the beginning of the experiment, occupied the space of no more than half a measure, afterwards occupied the space of a measure and a half. See AIR, nitrous. Whence he infers, that the black *blood* must have communicated phlogiston to the air; and that its change of colour from black to a florid red, must have been occasioned by the separation of phlogiston from it. He afterwards satisfied himself, that *blood* has likewise a power of taking phlogiston from air; for by exposing *blood* of a very beautiful florid colour to nitrous and to inflammable air, both were considerably diminished by the process. And he concludes, upon the whole, that the air becomes phlogisticated in passing through the lungs, by means of the *blood*. Dr. Priestley anticipates an objection, which may be urged against this conclusion; viz. that the *blood* never comes into actual contact with the air in the lungs, but is separated from it, according to Dr. Hales, at the distance of no more than a thousandth part of an inch; and that the red globules remain in a large quantity of *serum*, which is a fluid of a very different nature. In order to resolve this difficulty, he put a large quantity of black *blood* into a bladder, moistened with a little *serum*, and tying it very close, hung it in a free exposure to the air; and the next day he found, that all the lower surface of the *blood*, which had been separated from the common air by the intervention of the bladder, and a small quantity of *serum*, had acquired a coating of a florid red colour, as thick, in his opinion, as it would have acquired, had it been

exposed to the open air. He also found that a deep covering of *serum* did not obstruct the mutual action of the *blood* and air any more than the bladder had done. From both experiments he infers, that the change of colour cannot be owing, as M. Cigna imagined, to evaporation: nor is the change of colour in the last experiment owing to the *serum*, but to the air; for two equal portions of black *blood* were put into equal cups, containing equal quantities of *serum*, covering them to the depth of half an inch; one cup was exposed to the open air, and the other placed in an exhausted receiver; the *blood* in the former presently acquired a florid colour, but the other continued after twelve hours as black as the first. Dr. Priestley infers, from another experiment, that the most florid *blood*, contains a considerable quantity of phlogiston; and he observes that there is a great difference in the constitution of *blood*, with respect to its property of being affected by the air. See on this curious subject, Hewson's Experimental Inquiry into the Properties of Blood, or Phil. Transf. vol. lx. p. 368, &c. Priestley's Exp. and Obs. on Air, vol. iii. p. 55. or Phil. Transf. vol. lxvii. p. 226, &c.

Boerhaave accounts for the colour of the *blood* from the same cause as for its heat, viz. from the action of the heart, and re-action of the sides of the *aorta*. Borelli, to ascertain the cause of the redness, took a parcel of the *cruor*, after it had separated itself as far as spontaneously it would from the *serum*, and, washing it frequently in water, found it separable into a viscous, slippery substance, consisting of white or colourless fibres (which rose to the surface of the water, and there gathered into a skim, or coherent pellicle of a reticular texture), and a deep red powder, which precipitated pretty plentifully to the bottom. Hence it appears, that the red colour of the *blood* is imparted to it by red tinging particles; as in the common case of dyers. By examining the red precipitate apart, and finding which of the elements it consisted chiefly of, a man who would reason about the colour of the *blood* from principles of the chemists, might carry that matter nearer an issue.

However, this red colour, though generally found in all terrestrial animals, is not yet absolutely necessary and essential: there being whole species which have their circulating liquor, or *blood*, white and limpid; to which Dr. Drake adds an instance of a pure white *blood*, like milk, which he let out of the median vein of a man, and which, when cold, did not separate into a *crassamentum*, as the red usually does; nor yield a skim of cream; or turn sour upon keeping, as milk does. Dr. Beal gives another instance of the like kind; and Dr. Lower adds a third, of a person who bled so long at the nose, till at last the broth he drank flowed, little altered, that way, as *blood*.

BLOOD, changes and disorders of the. From the principles; or constituent parts of the *blood* above recited, variously combined and distributed by the circulatory motion impressed by the heart, and by the oscillatory expansive motion of the interspersed air, and the re-action of the contractile vessels, flow all the properties and operations of the *blood*. From this mixture of elements, and their lax composition, it becomes susceptible of various alterations and impressions; the principal whereof are, *coagulation*, which usually attends it out of the body, sometimes in it, and scarce ever without an artificial procurement, but always mortal: and *dissolution*, which is just opposite to the former, and consists in such a comminution of the fibrous parts of the *blood* as indisposes it for a separation of the *cruor* from the *serum*. This is frequently the consequence of malignant and pestilential fevers, &c. and is likewise occasioned by some kinds of poisons.

These two contrary affections of the *blood*, Dr. Drake ascribes to the opposite kinds of salts, acids, and volatile alkalis. For though, adds he, in a human body, no pure acid is found, nor could it, indeed, be consistent with life; yet it may, and does often, enter the *blood*, so compounded as to bridle the volatile, alkalious salt of the *blood*, and so hinder the due attenuation and mixture of the several parts; as is the case in a *diabetes*, and perhaps in a *chlorosis*, where the *blood* is thick and torpid: on the other hand, where the alkalious salts are too redundant, the *blood* is rendered too thin and fluid, so that the difference of its constituent parts is lost.

Another affection frequent in the *blood* is, a too great abundance of oils, or oily particles, by means whereof the active parts of the *blood* are too much clogged, and those parts which should be secreted, for peculiar uses in the body, are detained; and perhaps the solids, through which it passes, too much lubricated, their tone vitiated, shrunk, relaxed, &c. whence the sluggishness and inactivity of very fat people.

The contrary affection to this is, the defect of oil in the *blood*; which, being as it were its balsam, lines and

preserves the parts from being fretted and corroded by the salts, whose *spicula* or edges are, as it were, sheathed into this soft balsamic matter, and their attrition against the solid parts prevented: this state of the *blood* is usually attended with a general atrophy, and a fretting and corrosion of some particular parts; whence serous defluxions, aposthumations, and ulcers especially in the lungs, whose tender vesiculous substance is more easily annoyed than any other, by the acrimony of the saline *serum*. See CATARRH, CORPULENCY, &c.

There are other affections of the *blood*, resulting from its inordinate temperature and mixture, with regard to the earthy parts; the consequences of which are, the stone, &c. and others that do not originally spring from any dyscrasy, or undue mixture of the elements, but from an alteration in its motion; such as an augmentation or diminution of its progressive motion, or the like changes in its intestine motion; whence supernatural fermentations are induced. The occasions here may be various; sometimes fevers, and other disorders occasioned by surfeits, debauches, catching cold, violent exercise, &c. whence atonias; at other times some latent malignity of the air, whence epidemical diseases.

To which may be added divers other morbid constitutions depending on the different states and dispositions of the *blood*, in respect of quantity, velocity, fluidity, density, serosity, &c. An excess in the quantity of *blood* constitutes what we call a *plenitude*, or *plethora*; a defect or want of a competent quantity, a *leiphaemia*.

The symptoms of excess or defect, of an over-repletion or depletion, in the *blood*-vessels, are obvious; but caution must be used not to mistake every occasional flushing or tide of the *blood* to the head for a general *plethora* of the *blood*-vessels, such tides and flushings being very common in cases where there is yet no *blood* to spare.

The *æquilibrium* of the *blood* is an uniform and proportional diffusion of it through all the parts of the body.

Any considerable *stimulus*, it is known, will drive the *blood* in large quantities to the stimulated part, which must necessarily break the *æquilibrium* and uniformity of its circulation; whence congestions, stagnations, concretions, &c. of the *blood*; and hence it is that a great part of regular practice consists in driving, revulsing, discussing, and variously directing, and determining the *blood*, in order to recover its *æquilibrium*.

The *æquilibrium* of the *blood* against any occasional affluxes and refluxes of this fluid, is preserved or restored, either by raising and diffusing it when too weak and languid by cardiacs; as saffron, opium, Virginia snake-root, &c. or by depressing and repelling it when too much raised and diffused; which is done by the absorbents, coolers, purgatives, acids of all sorts, especially apples.

The morbid excess or defect of the *blood's velocity* is as remarkable as that of its quantity; but this cannot be judged from the natural state of the pulse in health, which is different in different constitutions. The ordinary number of pulsations in a minute is from 70 to 80 under a state of waking and moderate heat, and from 80 to 96 during the time of sleep. See PULSE.

The too great *heat* and *viscosity* of the *blood* are some of its most generally prevailing morbid constitutions, especially in a country, as ours, abounding with all the temptations to, and provisions for, ease and luxury. This state of the *blood* is brought on generally by drinking too freely hot, spirituous, inflammable liquors, and feeding plentifully on things which contain a large proportion of volatile oily salts; as flesh-meats half-boiled or roasted, eaten in their bloody gravy, and all hot, spicy, and high-seasoned broths, sauces, and the like. The *blood* being by these over-heated and rarefied, the *serum* is, in consequence, thickened into a sort of jelly, by which means it is rendered unfit for motion, coheres too strongly with the *crassamentum*, and passes but slowly through the lymphatics and secretory glands. In this state, the thicker and more viscid parts of the *serum*, lodging on the lymphatics and receptacles of the glands, gradually obstruct or fill them up. From which obstruction and diminished or intercepted circulation of the animal fluids, the heat and viscosity of the *blood* still increase, till a vital flame, raised too high, produces a fever. This state of the *blood*, and its symptoms, are aggravated by a sedentary life, or the want of due motion or exercise; for while the natural motion of the muscular *fibrillæ* is either not at all, or but little promoted by voluntary action, the glands, and their receptacles, must be the sooner stuffed up, and the circulation of the lymph, that powerful means by which nature continually cools and dilutes the *blood*, sooner be suspended.

The *blood* is cooled, diluted, and attenuated by temperance, exercise, the use of water as beverage, and otherwise, and by deobstruents, especially mercury, in the gentler preparations of it; as *æthiops* or cinnabar given

in moderate doses, so as not sensibly to affect the stomach, nor excite salivation for a long time.

As to the greater or less degree of fluidity and viscosity of the *blood*, it is manifest, that this humour may either have its parts too intimately divided and attenuated, or, on the contrary, there may be too close a cohesion between its parts, so as to render the mass too thick and viscous. The first of these states disposes the *blood* to a too quick, easy, and rapid motion, and sometimes dissolves and fuses it to such a degree, that the globules or *crassamentum* pass, together with the *serum*, through the glandular strainers, and occasions bloody secretions; as in malignant and pestilential fevers, bloody sweats, and other preternatural hæmorrhages. The latter or viscid state renders the *blood* unapt for motion, and disposes it to stick and lodge in the capillaries and lymphatics. Phil. Trans. N^o 44. p. 891.

The *specific gravity* of the *blood*, or the various degrees of its rarefaction and condensation, depend on the degrees of heat; as the natural heat either rises too high, or sinks too low, the *blood* will of consequence, be either too much rarefied, or too much condensed. In the former case, where the *blood* is overheated and rarefied, the expansive force of the elementary fire and air contained in the mass, prevails over the corpuscular attraction; and then, by the coagulating power of heat upon the *serum*, and its too intimate mixture and cohesion with the *crassamentum*, the lymph, which should form the secretions, cannot be separated, but the *serum* is, as it were, absorbed in the *crassamentum*; in consequence of which, the secretions must be diminished, or quite suspended, and a fever ensue, more or less inflammatory, according to the degrees of heat in the *blood*, and the consequent suspension or interruption of the lymphatic secretions. See FEVER and BUFF.

On the other hand, when the *blood* is immoderately cooled and condensed, the corpuscular attraction prevailing over the expansive force, the *serum* will be overthinned and diluted, and consequently separated too fast, and thrown off too plentifully on the glands and lymphatics so that if the urinary drains happen to be obstructed, a surcharge of *serum* must ensue, and in consequence of this a dropsy: and in case the fluid parts of the urine pass freely enough, and only the grosser recrements, salts, and *fabula*, or fine sands, be kept back, these being thrown on the several organs, will produce the symptoms of the scurvy.

In order to ascertain the colour of the different parts of corrupted *blood*, Dr. Pringle made the following experiment. He took a fresh quantity without any inflammatory crust, and divided it into the *crassamentum*, the *serum* with a few red globules in it, and the pure *serum*. The phials, containing these several liquors were put into a furnace, where they stood some days, till they became thoroughly putrid.

The *crassamentum* was changed from a deep crimson to a dark livid colour; so that when any portion of it was diluted with water, it appeared of a tawney hue. Of the same colour was the *serum* in which the red globules remained. But the pure *serum*, after becoming turbid, dropped a white purulent sediment, and changed into a faint olive-green.

From this experiment he concludes, that the *ichor* of *forde's* and that of dysentery fluxes, consists of the *serum* tinged with a small quantity of red *blood* putrefied; and that when the serous vessels are of a tawney cast, we are not to refer that colour to inflammation, but to a sudden solution of some of the red globules mixed with the *serum*. A few drops of this putrid *crassamentum* were mixed with the recent urine of a healthy person, which they immediately changed into a flame-coloured water, common in fevers and in the scurvy. After standing an hour or two, the same gathered a cloud, resembling what is seen in the crude urine of persons in acute distempers.

As to a green *serum*, it is perhaps never to be seen in the vessels of a living body, since it is not to be supposed that a person could survive so great a change of the *blood*; in foul ulcers, indeed, and in other sores, where the *serum* is left to stagnate long, the matter is found of a greenish colour, and is then always acrimonious. But the effects of a green *serum* are, in no case, to be so much dreaded as in the case of an *ascites*, where it is collected in so large a quantity: of which we had some time since, almost a fatal instance in Mr. Cox, surgeon at Peterborough; who, upon tapping a woman but a few hours after death, was so affected with the poisonous steams of a green *serum*, that he was presently seized with a pestilential fever, and narrowly escaped with his life.

In regard to the sediment which the *serum* dropped on becoming putrid, and which resembled well digested matter, the doctor thinks it a terrestrial substance, intended for the nourishment or reparation of the solids; in which opinion he was the more confirmed by observ-

ing a like sediment in the urine of men in perfect health: and therefore concludes that the *pus*, or digested matter of sores, is nothing but this substance separated from the *serum* of blood. And hence it is that all large ulcers are extremely weakening, from the great expence of *blood* in furnishing this substance. Hence also it is, that issues are of more consequence for making drains than one would expect from the visible evacuation: as near as the doctor could guess, an ounce of *serum*, after standing some days, not furnishing more of this matter than what might be produced in the daily discharge of a large pea-issue, or from a seton.

There are frequent instances of the tawney colour of the *serum*, the resolution of the *crassamentum*, and even of the offensive smell of *blood* recently drawn. And, indeed, if we reflect how putrescent *blood* is in a heat equal to that of the human body, we may be convinced that no sooner is the perspiration of the lungs impeded, than a corruption begins in the whole mass; which if not timely prevented, brings on some putrid disease. If the acrimony is great and sudden, a fever or flux will ensue; but if the accumulation is so slow that the body grows habituated to the putrefaction, a scurvy prevails. This is the case in long voyages, on board unventilated ships; in marshy countries; and, in a lesser degree, in all northerly climates, in moist situations.

BLOOD, *thickness of the*, is also a preternatural concretion, following on a *plethora*, or diminution of its motion, from which stagnations and other disorders draw their rise. This is either general throughout the whole body; or special, confined to some particular part; as in hypochondriac and hysterical cases, where the *blood*, by reason of the slowness of its progression, acquires a *lentor* in the region of the *abdomen*. To the same cause are also owing polypuses, apoplexies, pleurifies, infarctions of the *viscera*, palpitations of the heart, suppressions of the menses, &c.

BLOOD, *solubility of the*, is that tendency in the *serum* and *crassamentum*, by which they are disposed to separate and disengage from each other, when the blood comes to cool, and stand in a basin. When *blood* is taken off, it must frequently stand a long time at rest, and in a cold place, before its principles can disunite, so as to effect a perfect separation of the *serum* from the *crassamentum*; and yet at last, when the separation is made, there may be a sufficient quantity of *serum*, and perhaps a greater proportion than ordinary; whereas, at other times, this separation shall be quickly made, and the solution affected after a short time of standing in a warmer air. Phil. Trans. N^o 44. p. 89.

The red part of the *blood* is readily soluble in water, but not in *serum*, nor in a saturated solution of neutral salts. See an account of some experiments on the *blood* by Dr. Lewis, in Neumann's Works, p. 551. n.

BLOOD, *sweetening, purifying, or cleansing the* are terms which seems to have risen from a mistake. as if the *blood* were an impure fluid, or capable of receiving impurities with the chyle; which seems to be overturned by the extreme fineness of the orifices of the lacteals, which will hardly allow any thing impure to pass.

BLOOD, *excretions or evacuations of the*, are either spontaneous, as in the hæmorrhoids, hæmoptoe, hæmorrhages at the nose, the lochia, and menstrual flux; or artificially produced by medicines, emmenagogues, venæsections, scarifications, leeches, &c.

The want of due evacuations of the *blood* produces plethoras. In hypochondriacal cases, the natural excretions by the *anus*, menstrual flux, &c. are by all means to be promoted, as the surest means of cure.

BLOOD, *transfusion of it*, see TRANSFUSION.

BLOOD, *injecting liquors into it*, see INJECTION.

BLOOD, *spitting of*. Spirit of plantain-juice, comfrey-roots, and fine sugar are recommended by Mr. Boyle as an approved remedy against spitting and vomiting of *blood*.

TAR-WATER is said to be a very good remedy in this case.

BLOOD, *orgasm of the*, denotes an extraordinary *efflatus* or ebullition, observed in fevers, phrenzies, hæmoptoes, palpitations of the heart, and even by some supposed in cephalalgias, scurvies, arthritic pains, &c. It is to be composed or allayed by calmers, nitrosc preparations, &c. rather than by opiates.

BLOOD, *cooling of the*, recommended by lord Bacon as a means of longevity, is to be effected by clysters, baths, unctions, refrigerating decoctions applied to the belly, &c. Some have vainly imagined the chief office of respiration to be, to cool the kindled *blood*, and prevent too great a deflagration. See RESPIRATION.

BLOOD, *depuration of*. see SECRETION.

BLOOD *flux of*, is called an HÆMORRHAGE. The periodical ones of women, MENSES. Those after child-birth, LOCHIA. That ordinarily happening on the first coition, is by some called and considered as the test of virginity.

In the Philosophical Transactions we have several very uncommon instances of spontaneous hæmorrhages or effusions of *blood*; particularly of a child that bled at the nose, ears, and hind part of the head, for three days; from that to the sixth, the sweat blood from the head; on the sixth, bled at the head, shoulders, and waist; and for three days more continued to bleed at the toes, bend of the arms, joints of the fingers of each hand; and at the fingers end, till she died: after death were found, in the places where the *blood* issued, little holes like the prickings of a needle.

About the matter of nutrition, or the source whence the nourishment is derived, great contests have arisen among physicians and anatomists; some contending for a nutritious juice conveyed through the lungs; some setting up the lymph, others the chyle, some the *serum* of the *blood*, some the *cruur*, as the universal *succus alibilis*, &c. However, all these, except they who bring the nutriment through the nerves, make, the *blood* the vehicle that conveys the alimentary parts through the body; whatever they be, and whencesoever derived: but perhaps it was on the score of its heterogeneity, or composition of different elements, that they did not make itself the nutritious fluid; without restraining that faculty to some particular parts of it. But Dr. Drake makes no scruple to say, that the *blood*, in its largest acceptation, as consisting of all the parts before described, is simple and homogeneous enough for the purposes of nutrition; and that every part thereof contributes something, either materially or instrumentally, to the augmentation, or reparation of the parts through which it passes. See NUTRITION.

For the manner in which the *blood* is formed; and how the chyle is assimilated into *blood*, see SANGUIFICATION.

BLOOD, *the quantity of*, in a human body, has been variously estimated by various authors: Dr. Lower computes it in an ordinary man, at about twenty pounds; Dr. Moulin by observing the proportion of the weight of several animals to their *blood*, estimates it at about $\frac{1}{10}$ of the weight of the whole man, which may amount to eight or ten pounds. Dr. Keill, from a calculation founded on the proportion of the coats to the diameters of the vessels, shews, that in a body weighing 160 pounds, 100 pounds thereof are *blood*; but then under *blood* he includes the juices of the lympheducts, nerves, and other vessels which are secreted from it.

In reality, it is very difficult to determine the quantity of *blood* in the body. Bleeding to death, the method used by Dr. Moulin and others, can never give the estimate of its true quantity: because no animal can bleed longer than while the great artery is full, the continuance of which will be longer or shorter as the wounded artery is smaller or greater; and the *aorta* must always be the first vessel that empties. The most certain way, in Dr. Keill's opinion, is by finding what proportion the cavities of the vessels, of which the whole body is composed, bear to the thickness of the coat. This, in the veins and arteries, may be exactly found; but, in other vessels, we only know the quantity of fluid they contain, by carefully evaporating as much as possible.

Some think it probable, that at least two-thirds of the quantity of *blood* contained in an animal body, is continually passing the capillaries and small vessels in the glandular and muscular parts, which can never be drawn off by any thick discharge from cutting the large vessels; since, in that case, the larger vessels being emptied much faster than they can be supplied again from the capillaries, a defect of *blood* will soon ensue at the heart; upon which the animal falls into convulsions, and the circulation stops while far the greater part of the *blood* must be supposed stagnating in the smaller and remoter vessels.

BLOOD, *for the staunching of*, see STYPTIC.

BLOOD, *circulation of the*, denotes a natural motion of the *blood* in every living animal; whereby that fluid is alternately conveyed from the heart to every part of the body, by the arteries, and returned from the same parts to the heart by the veins.

The circulation of the *blood* has been generally allowed to have been first discovered in England in the year 1628, by Harvey, a physician of our own country; though there are several authors who dispute it with him.

Jansson ab Almeloveen, in a Treatise of New Inventions, printed in 1684, quotes several passages from Hippocrates to prove that the *circulation* was known to him. Wallæus, Ep. ad Barthol pretends it was known not only to Hippocrates, but also to Plato and Aristotle. It is added, that the Chinese physicians taught it 400 years before it was spoke of in Europe.

Some go back as far as Solomon, and imagine they see some traces of it in Ecclesiastes, chap. xii. Bern. Genga, in an Italian treatise of Anatomy, quotes several passages from Realdus Columbus, and And Cæsalpinus, where-

by

by he endeavours to prove that they admitted a *circulation* long enough before Harvey.

He adds, that Fra. Paolo Sarpi, the famous Venetian, from a consideration of the structure of the valves of the veins, and other experiments, concluded a *circulation*. See also Dutens's *Recherches sur l'Origine des Decouvertes attribuées aux Modernes*. Paris, 1766.

Leoniceus adds, that F. Paolo durst not make known his discovery, for fear of the inquisition; that he therefore only communicated the secret to Fab. ab Aquapendente; who, after his death, deposited the book he had composed on it in the library of St. Mark; where it lay hid a long time, till Aquapendente discovered the secret to Harvey, who then studied under him at Padua; and who, upon his return to England, a country of liberty, published it as his own. But much of this is fable.

Sir Geo. Ent has shewn that farther Paul received the first notice of the circulation of the *blood* from Harvey's book on the subject, which was carried to Venice by the ambassador of the republic at the court of England, who shewed it to F. Paul, by whom some extracts were made from it, which coming afterwards into the hands of his heirs, gave rise to an opinion in several persons that he was the author of the papers and of the invention.

Servetus first announced the *minor circuitus*, or the lesser circulation of the *blood* through the lungs, but the *major circuitus* was undoubtedly the discovery of Harvey. Many of the ancients had some knowledge of the motion of the *blood*; but they were ignorant of its regular circulation.

The circulation of the *blood* is evinced, from the following considerations. 1. All the *blood* of a living animal, upon wounding any one of the larger arteries, is in a little time, evacuated, and that with a considerable force: as appears from the operation of butcher's, &c.

Hence, it follows, that the *blood* was a passage from every part of the animal body into every artery: and if the whole mass of *blood* be found to move on this occasion, it is evident it must have moved before.

2. The great quantity of *blood* driven out of the heart into the arteries of every pulse, makes a circulation necessary; since, without it, an infinitely greater stock of *blood* must be supposed in the body of a man, than any observation or experiment will allow of.

For though the ancients, who knew not this circulation, imagined that only a drop or two was expelled at each *systole*; which they were necessitated to suppose, to avoid the too great distension of the arteries, from a more considerable influx: yet it is certain, and even demonstrable that there must needs be an ounce or more driven into them at each time; and yet some compute that there are five or six thousand pulsations in an hour.

3. Any of the arteries, being tied with a thread, swell and beat between the bandage and the heart; but they grow flaccid between the bandage and the extremities of the body. If now the artery be cut between the bandage and the heart, *blood* streams out, even to death; if it be cut between the bandage and the extremity of the body, the quantity of *blood* it yields is very small.

The vital *blood*, therefore, flows through the arteries; and its course is from the heart towards the extremes of the body: and this it does in every part of the body, internal and external; still out of a wider part into a narrower, out of the trunk into the branches. And it is on this principle alone, that all the *blood* may be derived into any artery, and evacuated at it.

4. Any one of the larger veins being bound up with a thread, swells between the extremes of the body and the bandage, but without beating; and between the bandage and the heart it becomes flaccid.

If opened in the former part, it bleeds largely; if in the latter it scarce bleeds at all. The *blood*, therefore, flows briskly from every part of the body into this vein; and its course is from the extremes of the body towards the heart; from the narrower parts of the vein towards the wider parts; from the branches to the trunk.

From the whole it is evident, that all the arteries of the body are continually bringing the *blood* from the left part of the heart, through the trunks of the arteries, into the branches; and from those to all parts of the body, internal and external; and on the contrary, that all the veins, excepting the *porta*, are perpetually bringing back the *blood* from the extreme parts into the smaller branches; from those it passes into the larger, at length into the trunks, and thence into the *cava*; and through the *sinus venosus*, or trunk of that vein (which ends in the cavity of the right auricle) into the heart.

The *blood* being arrived here, its motion, or *circulation* is continued as follows.

The auricles of the heart being large hollow muscles, are furnished with a double series of strong fibres proceeding with a contrary direction to two opposite tendons, the one adhering to the right ventricle, the other to the *sinus venosus*: as also with innumerable veins and arteries; by

the contractile force of these auricles, the *blood* will be vigorously expressed, and drove into the right ventricle; which, upon this contraction, is rendered flaccid, empty, and disposed to admit it.

If now the right ventricle, thus full of *blood*, by the contraction of its fibres press the *blood* towards the aperture again, venous blood at the same time pouring in, will drive it back again into the cavity and mix it more intimately; till rising up against the *parietes*, it raises the *valvula tricuspidis*, which are so connected to the fleshy columns extended on the opposite side, as that when laid quite down they cannot close the *parietes* of the right ventricle: these it thrusts towards the right auricle, till being there joined they stop the passage very closely, and prevent any return.

By the same means, the same *blood* rises up into the three semilunar valves, placed in the extremity of the other mouth, and lying open to the pulmonary artery: these it shuts close against the sides of the artery, and leaves a passage into the artery alone. The venous *blood*, therefore, that is, the *blood* of the whole body, continually moves out of the *sinus*, or trunk of the *vena cava*, through the right auricle, and right ventricle, into the pulmonary artery, in a continued and forcible stream.

The *blood* carried by this artery into the lungs, and distributed by its branches through the whole substance thereof, is first admitted into the extremities of the pulmonary vein, called *arteria venosa*; whence passing into four large vessels, which unite together, it is brought to the left *sinus venosus*, or trunk of the pulmonary vein; by the force of whose musculous structure it is driven into the left ventricle, which on this occasion, is relaxed, and by that means prepared to receive it.

Hence, as before, it is driven into the left ventricle, which is relaxed by the same means; and the *valvula mitralis* opening, admit it into the left ventricle, and hinder its reflux into the pulmonary vein.

From hence it is forced into the *aorta*; at whose orifice there are three semilunar valves, which also prevent a reflux by closing the same.

And thus is *circulation* effected; all the *blood* sent into the lungs, and received in the *arteria venosa*, *sinus venosus*, left auricle and ventricle, being here continually propelled into the *aorta*, whose ramifications are spread throughout all the rest of the body, with a violent motion.

This motion, in living animals, is attended with the following phenomena.

1. Both the venous sinuses are filled, and grow turgid at the same time. 2. Both auricles grow flaccid at the same time, and both are filled at the same time with *blood* impelled by the contractile force of its correspondent muscular venous sinus. 3. Each ventricle contracts, and empties itself of *blood* at the same time; and the two great arteries are filled and dilated at the same time. 4. As soon as the *blood*, by this contraction, is expelled, both ventricles being emptied, the heart grows longer and broader; and consequently more flaccid and capacious. 5. Upon which, the muscular fibres of both venous sinuses contract, and express the *blood* contained in them into the ventricles of the heart. 6. In the mean time, the venous sinuses are again filled, as before; and the auricles, &c. return into their former habitude. 7. And this alteration continues till the animal begins to languish, under the approach of death; at which time the auricles and venous sinuses make several palpitations, for one contraction of the ventricle.

Thus is all the *blood*, in its return from every part of the body, internal and external, and from every part of the heart and its auricles, impelled into the right ventricle; out of that into the lungs; thence into the left ventricle, and thence through the whole extent of the body; and thence again brought back to the heart.

As to the manner of the *blood's* passing out of the arteries into the veins in order to its being returned to the heart. there are two opinions.

In the first, the veins and arteries are supposed to open into each other, or to be continued from each other, by ANASTOMASES, or inosculation of their extremities.

In the latter, the extreme capillary arteries are supposed to let out their *blood* into the pores of the substances of the parts; on whose nutrition part is spent, and the rest is received in at the mouths of the capillary veins.

Each of these opinions must be allowed to have its reason: for without the first, it were difficult to account for so quick a return of the *blood* to the heart, as in effect we find; besides, that in some of the larger vessels there is a confessed anastomasis, v. g. in the splenic artery with the splenic vein, &c. whence authors conclude the same contrivance to hold in the lesser vessels; even in the smallest twigs in the extreme parts of the body, though not discovered by the eye; nature being ordinarily found very uniform, and consistent with herself.

Riolanus, however, who will allow of no *circulation* but by

by anastomoses, allows of none, neither; but by the larger vessels.

The reason of the latter opinion is deduced hence, that if part of the arterial blood did not ooze out into the substance of the parts, they could not be nourished thereby: for the blood, while contained in the vessels, may indeed convey warmth thereto, but no nutriment; the very vessels themselves being not nourished by the fluid running in their cavity, but by capillaries passing their coats.

If then the blood be driven out of the vessels in a greater quantity than is required for NUTRITION, the redundancy must be imbibed by the capillary veins.

M. Leewenhoeck seemed to have put this matter out of doubt by his microscopes, with which he discovered the inosculation, or continuations of the extremities of the veins and arteries in fishes, frogs, &c. See ANASTOMASIS.

But doubts arising, whether the veins and arteries in human bodies and quadrupeds were of similar structure, Mr. Cowper made experiments, which evinced the inosculation in the omentum of a cat, and also in the mesentery of a dog. He found that the extremities of the vessels are not equally lessened, in the inosculation in different animals.

In the tail of the tadpole, he frequently observed several communications between the veins and the arteries; through each of which two globules of blood might pass together. In young fish, particularly grigs, the communicant branch is so small, that one globule of blood can scarce pass in the space of three seconds.

The tail of a newt, or water-lizard, affords also a very entertaining prospect of the circulation of the blood through almost numberless small vessels; but no object shews it so agreeably as one of these animals while so young as not to be above an inch long; for then the whole body is so very transparent, that the circulation may be seen in every part of it, as well as in the tail; and, in these objects, nothing is more beautiful than the course of the blood into the toes, and back again, where it may be traced all the way with great ease. Near the head there are also found three small fins, which afford a very delightful prospect: these are all divided like the leaves of polypody, and, in every one of the branches of these, the blood may be very accurately traced, running to the end through the artery, and there returning back again by a vein of the same size, and laid in the same direction; and as the vessels are very numerous and large in this part, and the third or fourth magnifier may be used, there are sometimes seen thirty or forty channels of the running blood at once; and this the more as the globules of blood in the newt are large, and are fewer in number, in proportion to the quantity of serum, than in any other animal, and their figure, as they are protruded through the vessels, changes in a very surprising manner.

In a *fœtus*, the apparatus for the circulation is somewhat different from that above described.—The septum which separates the two auricles of the heart, is pierced through with an aperture, called the FORAMEN ovale; and the trunk of the pulmonary artery, a little after it has left the heart, sends out a tube in the descending aorta, called the communicating canal.

The *fœtus* being born, the foramen ovale closes, by degrees and the canal of communication dries up, and becomes a simple ligament. Though in some instances it has been known to remain open.

This mechanism once known, it was easy to perceive its use.—For while the *fœtus* is inclosed in the uterus, it receives no air, but that little furnished it by the umbilical vein: its lungs, therefore, cannot swell and subside as they do after the birth, and after the free admission of the air. They continue almost at rest, and without any motion; their vessels are, as it were, full of themselves and do not allow the blood to circulate, either in abundance, or with ease.

Nature, therefore, has excused the lungs from the passage of the greatest part of the blood; and has contrived the foramen ovale, by which part of the blood of the vena cava, received into the right auricle, passes into the left auricle, as the mouth of the pulmonary veins; and by this means it is found as far in its journey as if it had passed the lungs.

But this is not all: for the blood of the cava, which, missing the foramen ovale, passes from the right auricle into the right ventricle, being still in too great quantity to pass by the lungs, whither it is driven through the pulmonary artery, is partly intercepted in the way by the communicant canal, and poured immediately into the descending aorta.

This is the doctrine of Harvey, Lower, and most other anatomists; but M. Mery, of the Royal Academy, has made an innovation in it.

He assigns another use for the foramen ovale; and maintains that the whole mass of blood brought from the cava to the right ventricle, passes, as in adults, into the pulmonary artery; whence part of it is conveyed by the communicant canal into the aorta; and the rest brought from the lungs by the pulmonary vein into the left auricle, where it is divided into two parts; the one passing through the foramen ovale into the right ventricle, without circulating through the aorta, and the rest of the body; the other part pushed, as in adults, by the contraction of the left ventricle, into the aorta, and the whole body of the *fœtus*.

The whole question, then, turns upon this, viz. whether the blood pass through the foramen ovale from the right to the left ventricle, or from the left to the right?

M. du Verney asserts the ancient opinion, against M. Mery; and maintains that the foramen ovale has a valve so disposed as to be opened by the blood driving into the right ventricle; but shut the more firmly, by its pushing towards the left. But M. Mery denies the existence of any such valve.

Again, in an adult, the aorta, being to receive all the blood of the pulmonary artery, is found of the same bigness. In a *fœtus*, the two arteries are to receive unequal quantities, which of the two systems soever be followed. According to the common opinion, the aorta, receiving more blood than the pulmonary, should be bigger: according to the opinion of M. Mery, the pulmonary artery should be the bigger, as being esteemed to receive a greater quantity of blood.

To judge of the two systems, therefore, it should seem their needed nothing but to determine which of the two vessels were biggest in a *fœtus*.

M. Mery always found the pulmonary artery half as big again as the aorta; and, on the other hand, M. Tauvry, who seconded M. du Verney, produces cases where the pulmonary is less than the aorta: the facts on both sides being examined by the French Royal Academy.

M. Tauvry adds that though the pulmonary artery should be greater than the aorta, yet this does not prove, that more blood passes the first than the second; since it may be accounted for from the blood's pressing more slowly towards the lungs, which it finds some difficulty to penetrate, and accordingly swells, and is driven back.

M. Littré, upon dissecting an adult, in whom the foramen ovale was still open, and measuring the capacities of the vessels on each side, declares for M. Mery.

As to the force of the circulation in the *fœtus*, anatomists are again divided.—The popular opinion is, that, during gestation, the arteries of the uterus convey their blood into the placenta which is nourished by it, and that the surplus is conveyed into the roots of the umbilical vein, which makes part of the navel-string: thence it is carried to the liver of the *fœtus*, where it enters the vena cava, and is thence conveyed to the right ventricle of the heart, and distributed as before.

Again, the blood, brought from the iliac arteries of the *fœtus*, enters the navel-string by the umbilical arteries; then passes into the placenta, where it is resumed by the veins of the uterus, which carry it back again to the mother: and perhaps, also by the roots of the umbilical vein, which mix it afresh with the blood of the mother.

According to this system therefore it is the blood of the mother that supplies the child; which is here only regarded as a distinct member, or part, of her frame.

The beating of her heart sends to it a portion of her blood; and so much of the impulse is preserved, as suffices to maintain that languid circulation which a *fœtus* enjoys; and, in all probability, gives that feeble pulsation observed in the heart.

Other anatomists maintain, that the *fœtus* is only supplied with chyle from the glands of the uterus; which is further elaborated, and turned into blood, in the vessels of the *fœtus*; and circulates therein, without any farther communication with the mother.—These allow of no reciprocal circulation, excepting between the placenta and the *fœtus*.

But the former opinion seems best supported: for the placenta, being separated from the uterus, during the time of gestation, neither yields any chyle, nor any other thing but blood. Besides, M. Mery has shewn, that the uterus has no glands to furnish any chyle.

Two other observations of the same author, confirm the popular system: the inner surface of the uterus is lined with veins; and the outer surface of the placenta is not lined with any membrane; now as it is by these two surfaces that the two seem, in some measure, glued together, it looks as if they were only left without membranes, for an immediate communication between their blood-vessels.

Add to these a fact, whereof M. Mery was an eye-witness: a woman big with child, was killed by a fall; in the cavity of her belly were found seven or eight pints

of blood; all the blood-vessels being emptied: the child, too, was found dead, but without the least appearance of any wound, or contusion, all its blood-vessels being empty of blood, like those of the mother. The body of the placenta still adhered to the whole inner surface of the uterus; nor was there any extravasated blood there.

Now the blood here had no other way to discharge itself, but by the veins of the uterus: whence it follows, that those veins bring back to the mother the blood of the fœtus; which, alone, establishes the whole system. If the circulation were only from the fœtus to the placenta, and not also to the mother, the dead child would have had all its blood.

Upon the whole, the blood in the lungs of the fœtus has none of the advantages of air, or respiration; which yet being necessary, nature, it is supposed, takes care that it receives a portion of air, mixed together with its mother's blood, and transmitted to it by the umbilical vessels, to be diffused through the body.

This is confirmed hence; that, by constringing the navel-string very tight, the child dies like a man strangled; which appears to be owing to nothing but the want of air. Add to this, that as soon as the mother ceases to respire, the fœtus expires.

As to the velocity of the circulating blood, and the time wherein the circulation is completed, several computations have been made. By Dr. Keill's account, the blood is driven out of the heart into the aorta, with a velocity which would carry it 52 feet in a minute; but this velocity is continually abated in the progress of the blood through the numerous sections, or branches, of the arteries; so that before it arrives at the extremities of the body, its motion is infinitely diminished.

But Dr. Jurin shews, that in any two arteries transmitting equal quantities of blood, the momentum of the blood is greater in the artery more remote from the heart than in that nearer; and that its momentum is greater in all the capillary arteries together, than in the aorta; and that the momentum of the blood is greater in any of the veins than in the artery corresponding to it; and therefore greater in the vena cava than in the aorta. Lastly, he shews, that the momentum of the blood in the vena cava is equal to that of the quantity of blood thrown out into the aorta at each systole, whose velocity is such as would pass the whole length of the arteries and veins in the interval of time between two pulses, and that the absolute momentum of the blood in the cava, without any regard to the resistance, is equal to the momentum of the weight of thirty pounds passing over the space of an inch in a second. He supposes the motion of the blood to be equable which in reality it is not.

Dr. Keill, upon a moderate ratio of the branches of the arteries to the trunks, shews, that the greatest velocity of the blood is to the least, in a greater proportion than that of 10000,00000,00000,00000,00000,00000,00000,00000 to 1.

The space of time wherein the whole mass of blood may ordinarily circulate, is variously determined.—Some of the latest writers state it thus: supposing the heart to make 2000 pulses in an hour, and that at every pulse there is expelled an ounce of blood; as the whole mass is not ordinarily computed to exceed 24 pounds, it must be circulated seven or eight times over, in the space of an hour. See HEART.

The impetus, occasioning the circulation, is great enough in some animals to raise the blood six, seven, or eight feet high from the orifice it spins out at; which, however, is far exceeded by that of the sap of a vine in bleeding-time, which will sometimes rise upwards of forty feet high. Phil. Trans. N° 398. p. 274.

The heat and motion of the blood are always greater from a greater activity in the soul, in the day than in the night; and they are likewise ever greater from the food taken in the day-time, for the pulse is always quicker after eating than before it; after a full meal, than after a spare one; and after a meal of drier and stronger food, than after a meal of food that is moister and weaker.

BLOOD, vitality and ascension of the.—Dr. Willis endeavours to shew that the blood being animate, this animation or life depends on its being kindled; inasmuch as the common affections of fire and flame belong to the blood, though this vital flame doth not appear to fight, because its form is subordinate to another superior form, viz. the soul of the animal. Phil. Trans. N° 57. p. 1178. See BIOLYCHNIUM.

BLOOD, inflammability of the.—Mr. Boyle having held a piece of human blood, dried till it was almost pulverable, in the flame of a candle, found it would take fire, and afford a flame much like that which excited it, burning with a crackling noise, and here and there melting. But this inflammability much better appeared, when putting together four or five thoroughly kindled coals, he laid on

them a piece of dried blood of the bigness of a small nutmeg; for this yielded a large and very yellow flame, and if it were seasonably and warily blown from time to time as the effluvia degenerated into smoke, it would long continue to yield clear and yellow flames. The same author having caused some blood to be dried till it was reducible to fine powder, took part of the powder, which had passed a fine sieve, and casting it on the flame of a good candle, the grains, in their quick passage through it, took fire; and the powder flashed not without noise, as if it had been rosin.

BLOOD, uses of the, are either in the animal œconomy, or in medicine, religion, diet, arts, manufactures, &c.

In the animal œconomy, the blood serves as the source or fund from which all the humours of the body are secreted, whether necessary for nutrition, digestion, muscular motion, sensation, or the like. Some also make it the principle of life and heat. And others hold it to do the office of a pondus in the alternate motion of the heart. Phil. Trans. N° 281.

Dr. Priestley has shewn, that one great use of the blood must be to discharge the phlogiston with which the animal system abounds; imbibing it in the course of its circulation, and imparting it to the air, with which it is nearly brought into contact, in the lungs; the air thus acting as the great menstruum for this purpose. Exp. and Obs. on Air, vol. iii. p. 71.

BLOOD, mechanical and commercial uses of it, are chiefly in agriculture, where it is found an excellent manure for fruit-trees; among lapidaries, among whom, it is pretended, rabbits blood will soften glass and flint; and goats blood dissolves diamonds; in building, boards are sometimes rubbed with blood to turn them brown. Some also pretend it has anciently been used in the mortar of old walls. Blood is the basis of that noble colour, called by painters PRUSSIAN BLUE; and it is to vitriol; that is, to iron dissolved, and formed into a salt, that it owes its change into that colour.

On this principle, Mr. Brown, an excellent chemist among us, tried the effect of solutions of other metals mixed with blood, the result of which may be a basis for many valuable discoveries. The blood, in all these experiments, was prepared into a *lixivium*, in the same manner as the making of the PRUSSIAN BLUE, that is by calcining it with an equal weight of salt of tartar, and then dissolving it in boiling water.

This *lixivium* of blood being poured into a solution of silver in *aqua fortis*, produces a coagulation of a pure flesh-colour. The like *lixivium* made with flesh instead of blood, produces in this case a white coagulum; and simple oil of tartar being used in the same experiment by way of comparison with these *lixivia*, afforded a much whiter sediment. Spirit of salt being added severally to all the three mixtures, the bloom of the flesh-colour was taken off in the first; but it suffered no other change. In the second, the coagulum was tinged a little blue; and in the third, the whiteness was evidently improved. The bluish tinge in the second case, is not wholly to be attributed to the flesh, but perhaps might be owing to an alloy of copper in the silver, from which it is seldom entirely freed.

The same liquors were made use of to form a precipitate from corrosive sublimate of mercury dissolved in water, the consequence of which was, that the *lixivium* with the blood produced a pure yellow; that with flesh, an orange colour; and the simple oil of tartar, a dingy red. The addition of spirit of salt afterwards to these made some very odd alterations; for the first changed its yellow into an orange colour; and the second, its orange colour to a blue; while the third became without any colour. The blue colour in the *lixivium* with the flesh, when mixed with this solution, may be accounted for from the vitriol in this preparation; but it is not so easy to say, why the same vitriol should not have produced also a blue in a *lixivium* with blood.

Copper, when dissolved in *aqua fortis*, makes the water of a green colour; and, on pouring to this the two *lixivia* of blood and of flesh, the coagula are much alike; that is they are white, tinged with green; but on adding spirit of salt to them, they become of a colour not unlike that of copper before the solution. Oil of tartar gives a pale green solution, and the spirit of salt clears up the liquor, and restores it to its former colour.

Bismuth dissolved in *aqua fortis*, and mixed with a *lixivium* of blood, produces a milky coagulum, which, after a small time standing, with the addition of some spirit of salt, becomes of a pale blue. The *lixivia* of flesh, and of crude salt of tartar, produced both white coagula, which the spirit of salt made no alteration in. From these experiments it appears, that not any of these metallic bodies would produce a fine blue colour, with the *lixivium* of the blood; but a solution of iron answers all the

the experiments that are made with the solution of vitriol, and produces as fine a blue colour, as that made in the common way. Phil. Trans. N^o 381. p. 25.

BLOOD, medicinal uses of.—We find a great number of these enumerated by ancient and modern writers; but most of them, we doubt, on false and insufficient grounds.

BLOOD, eating of.—This practice appears to have been prohibited to Noah, which prohibition was renewed by Moses, and observed by the Jews, principally with a view to the use of sacrifices in divine worship, and as a token of respect to the altar, at which the blood of every victim was presented before God. The prohibition was repeated by the apostles at the council of Jerusalem, confirmed and defended by all the fathers except St. Augustin, and the universal practice, both of the eastern and western church, till his time; and, in many churches, even of the West, much longer, as low as the middle of the tenth, some say the eleventh century. The question is, whether the apostolical precept to abstain from blood, be to be considered as only temporal and occasional, a sort of accommodation to the weakness of the Jewish converts; or perpetual, founded on moral principles, and consequently still obligatory.

The former opinion seems the more probable: though the advocates of the latter urge, that blood is prohibited, because it tends to make men savage; that the prohibition is joined with that of fornication, which is an immorality; and that God has enjoyed abstinence from blood on all Christians, in order to manifest his supreme power over all their enjoyments.

BLOOD, religious uses of.—Among the ancients, blood was used for the sealing and ratifying covenants and alliances, which was done by the contracting parties drinking a little of each other's blood; for appeasing the manes of the dead, in order to which blood was offered on their tombs, as part of the funeral ceremony. Thus we read, that twelve youths were sacrificed at the funeral of Patroclus; and eight at that of Pallas. Homer II. p. ver. 27. Virgil. Æn. lib. x. ver. 518.

The blood of victims was the portion of the gods, both among Jews and heathens; and accordingly was poured or sprinkled on the altars, in oblation to them.

Some have asserted, that the Romans offered human blood to appease their deities, which is denied by others.

The priests made another use of blood, viz. for divination: the streaming of blood from the earth, fire, and the like, was held a prodigy, or omen of evil.

The Roman priests were not unacquainted with the use of blood in miracles; they had their fluxes of blood from images, ready to serve a turn; witness that said to have streamed from the statue of Minerva at Modena, before the battle at that place. But in this their successors have gone beyond them. How many relations in ecclesiastical writers of Madonas, crucifixes, and wafers bleeding! At least the liquefaction of the blood of St. Januarius at Naples, repeated annually for so many ages, seems to transcend by far, all the frauds of the Grecian or Roman priesthood. But the chemists are got into the secret, and we find M. Neumann at Berlin performed the miracle of the liquefaction of dried blood, with all the circumstances of the Neapolitan experiment.

BLOOD, in the Romish Church, is used in speaking of the wine in the EUCHARIST; which they suppose miraculously converted, by the priest's consecration, into the real blood of Christ. See TRANSUBSTANTIATION, &c.

BLOOD is also used abusively for the SAP of plants; as having much the same office in the vegetable, as the other in the animal œconomy.

In a sense not unlike this, wine is sometimes also denominated the blood of the grape.

BLOOD is also applied, in Pharmacy, to certain vegetable juices, tears, &c. as DRAGONS blood, a sort of eastern gum.

BLOOD, dragon's, sanguis draconis, is also used by the Arabs for the juice of the ANCHUSA.

BLOOD, satyrium, a ruddy liquor produced from the roots of satyrium, baked with bread; and liquified, as it were into blood, by a long digestion.

BLOOD, in Chemistry and Alchemy, is a denomination given to several artificial compositions, chiefly on account of their red colour.

BLOOD is more peculiarly used by the alchemists for the tincture of a thing.

In which sense we meet with blood of mercury, denoting the tincture of it; dragons blood, denoting the tincture of ANTIMONY

BLOOD, or sanguis veri ruffi, denotes the sulphur of MARCASITE.

BLOOD is also used, in Middle Age Writers, for supreme jurisdiction, exercised by the lord of the fee, in cases where blood is spilt.

This is also called judgment of blood, justice of blood, sometimes cognizance of blood.

BLOOD, avenger of, among the Jews, was the next of kin to the person murdered; who was to prosecute the murderer.

Ecclesiastical judges retire when judgment is to be given in cases of blood, because the church is supposed to abhor blood: it condemns no person to death; and its members become irregular, or disabled from their functions, by the effusion of blood.

BLOOD of Christ is the denomination of a military order instituted at Mantua, in 1608, by Vinc. Gonzagua IV. Its device was Domine probasti me; or, Nihil hoc triste recepto.

Hermant speaks of this order, and observes that it took its name from some drops of the blood of Christ said to have been preserved in the cathedral church of Mantua.

The number of knights was restrained to twenty, besides the grand-master; the office whereof was annexed to himself, and his successors.

BLOOD, in Farriery, denotes a distemper in cattle's backs, which makes them in going draw their heads aside, or after them: the cure is by flitting the length of two joints under the tail, and thus letting the beast bleed plentifully. If he bleed too much, the farriers knit his tail next the body, and then bind salt and nettles bruised on the part.

BLOOD-running itch, is a species of itch in a horse, proceeding from an inflammation of the blood by over heating, hard riding, or other sore labour; which getting between the skin and flesh, makes the beast rub and bite himself; and, if let alone, sometimes turns to a grievous mange, highly infectious to all nigh him.

BLOOD, field of, in Syriac *aceldama*, was a field purchased by the Jews, with the thirty pieces of silver which had been given to Judas for betraying his master, and which he had restored.

It still serves for a burial-ground, in which all pilgrims, who die in their pilgrimage at Jerusalem, are interred.

BLOOD-flower, Hæmanthus, in Botany, a genus of the hexandria monogynia class; its characters are these: the flower has a permanent empalement of six leaves, shaped like an umbel; it hath one erect petal, cut into six parts; and six awl-shaped stamina, which are inserted in the petal; The germen is situated under the flower, and afterwards becomes a roundish berry with three cells, each containing one triangular seed. There are four species:

the season for transplanting the bulbs of this plant is in May or June, when the leaves are decayed; they may be kept out of the earth at this season three or four months, but it is more adviseable to plant them sooner, as they always flower the stronger for it. Their soil is half a fine hazel-earth, and half old rotten dung; in September they must be removed into a moderate stove, and watered gently at times. They flower in the depth of winter.

BLOOD-bound. See HOUND.

BLOOD-letting. See BLEEDING.

BLOOD of the philosophers, in the Hermetic Art, denotes a mercurial spirit, inherent in all metals, but chiefly in gold and silver.

BLOOD, precious, a denomination given to a reformed congregation of Bernardine nuns at Paris, first established under that name in 1661.

BLOOD, princes of the, in France, are those descended from the blood royal.

BLOOD salamander's, signifies the redness remaining in the receiver, after distilling the spirit of nitre.

BLOOD-shotten, a distemper of the eyes, wherein the blood-vessels are greatly distended, so as to make the eyes appear red. See OPHTHALMIA.

BLOOD-stone. See HÆMATITES and SANGUINE.

BLOOD of sulphur, sanguis sulphuris, is a preparation of liver of sulphur, ground with the oil of tartar per deliquium, then digested with dulcified spirit of nitre. It is reputed a good pectoral and diuretic, but rarely prescribed.

BLOOD-vessels, in Anatomy, usually include only the veins and arteries; though, in a larger sense, all the vessels in the body; as the nerves, lymphatics, &c. to the very hair, may be comprehended under the denomination.

Mr. Boyle observed an actual blood-vessel, and full of red blood in the middle of a NERVE.

In the PLICA POLONICA, each hair is sensibly a blood-vessel; and, when cut, will bleed like a small vein. Boyle's Phil. Works abr. tom. i. p. 173. 449.

BLOOD-snake. See Blood-SNAKE.

BLOOD-wite, in Ancient Law Writers, signifies blood, and a customary amercement paid as a composition for the shedding or drawing of blood.

The word is also written blodwite, blodwita, blodwyta, bloodwit, blodwit, bloudwit, and bluidweit.

It is formed from the ancient Saxon *blud*, *blood*, and *vite*, or *wite*, a fine or penalty.

The word also denotes an exemption from this penalty, granted by the king to certain persons and communities, as a special favour.

King Henry II. granted to all tenants within the honour of Wallingford—*Ut quieti sint de hidagio & blodwite & bredwite*.

BLOOD-wood, *Hæmatoxylon*. See LOG-wood.

BLOOD-wort, in Botany. See SANGUINARIA and DOCK.

BLOOD, corruption of, in Law. See CORRUPTION of Blood.

BLOOD, inheritable, denotes such a regular descent as gives a person legal right to inherit the estate of an ancestor. See ATTAINDER, ESCHEAT, INHERITANCE, &c.

BLOOD royal, is applied to the regular descendants of the royal family.

BLOOD, whole and half; a kinsman of the whole blood is he that is derived from the same couple of ancestors; whereas a person of half blood descends from either of them singly, by a second marriage. Blackst. Com. vol. ii. p. 227.

BLOODY crime, *sanguineum crimen*, in Writers of the Middle and Barbarous Age, that which is punished with the blood or life of the offender.

BLOODY hand, one of the four kinds of trespasses in the king's forest, by which the offender being taken with his hands or other part bloody, is judged to have killed the deer, though he be not found either hunting or chasing.

BLOODY heel cock. See HEELER.

BLOODY rains. See RAIN.

BLOODY sweat. Many instances of this are recorded, in which it has been owing to bodily disorder, or extreme mental agitation and agony. See particularly Aristotle's Hist. Animal. lib. iii. cap. 19. apud Oper. tom. ii. Thuanus Hist. Temp. &c. lib. ii. apud Oper. tom. i. Melanges d'Histoire & de Literature, &c. par. M. V. Marville, tom. iii. p. 149. Acta Physico-Med. Norimbergæ, vol. i. p. 84. and vol. viii. p. 428.

BLOODY flux. See FLUX and DYSENTERY.

BLOODY urine, a disorder wherein the URINE comes away mixed with blood, in greater or less quantity.

The blood here voided usually comes from the kidneys, though sometimes from the bladder or ureters.—It is sometimes occasioned by violent motion, or a fall on the back, causing a rupture of some of the blood-vessels of the urinary parts: sometimes it succeeds sudden suppressions of the hæmorrhoids or *menfes*. The stone, especially in the kidneys, will also occasion frequent paroxysms of this disease: and *cantharides* taken internally, or even applied externally without acids, will sometimes have the same effect.—Bloody urine is a terrible symptom in the small pox, and malignant fevers, though on some occasions it has proved critical, and carried off the distemper.

BLOOM, in the Iron Works, a term used by the miners for a four-square mass of hammered iron, of about two foot long, and three quarters of a hundred weight, made from part of a sow of cast iron. The bloom, however, is not yet become iron fit for the smith's use, but must undergo many hammerings, and be first made what they call the ANCONY.

BLOOM, half, a round mass of metal, which comes out of the finery of an IRON-work. See BLOMARY.

BLOSSOM, in a general sense, denotes the FLOWER of any plant.

In a more proper sense, the word is restrained to the flowers of trees, which they put forth in the spring, as the forerunners of their fruit, otherwise called their bloom.

The office of the blossom is partly to protect, and partly to draw nourishment to the embryo fruit, or seed. Phil. Trans. N° 399. p. 329.

As essential as blossom may seem to be to fruits, being, according to Malpighi, both the uterus, and the eggs, or *fœtus* of the plant, yet we are told of trees bearing fruit without blossoms, as was done by the maple-tree in New England, mentioned by Mr. Dudley, and is always done by the polonic tree in China, which, according to Kircher's relation, produces its fruit immediately from the stock, without the intervention of any blossoms. Phil. Trans. N° 117. N° 385. p. 199. N° 26. p. 486.

In some plants the male and female parts of generation are remote from each other; e. gr. in the gourd, pumpkin, melon, cucumber, and all that race; to which may be added the nut-bearing, and perhaps most bearing trees, which have all blossoms distinctly, male and female, on the same plant.

The male blossoms, called also CATKINS, may be distinguished from the others, in that they have not any pistil or rudiment of fruit about them, but have only a large thrum, covered with dust in their middle.

The female blossom has a pistil within the petala, or flower-leaves, and the rudiment of their fruit is always apparent at the bottom of the flower before it opens.

Some sorts of willows appear to change their sex every year; and produce only male blossoms, or catkins, one year; and the year following strings of female blossoms, which, if they happen to be near enough some flowering male, will produce seed, not much unlike those of an *apocinum*.

BLOSSOM is also used in the *Manege* for the colour of a horse, which has his hair white, but intermixed all over with sorrel and bay hairs, called also peach-coloured.

Horses of this colour generally are hard and insensible, both in the mouth and the flank; so that they are little valued; besides they are apt to turn blind.

BLOSSOM, in respect of sheep. See BLISSOM.

BLOTTED china ware, a name given by some to a sort of china that is loaded with colours in an irregular manner. This pleases some people, but it is a defective sort of ware, the large blotches of colours having been only laid on to cover the blemishes or faults in the first baking.

BLOTTING paper, a species of paper made without size or stiffening, serving to imbibe the wet ink in books of account, and prevent its setting off, or blotting the opposite page.

BLOTTING-book, a sort of minute book, or memorandum book, used by some merchants for making imperfect entries in a present hurry, which are to be copied out fairer and fuller at night into the journal.

BLOW, in a general sense denotes a stroke given either with the hand, a weapon, or instrument.

In fencing, blows differ from thrusts, as the former are given by striking, the latter by pushing.

We say to give, to return, to parry a blow. See PARRYING.

Blows on the sword make a species of pursuit, called BEATING.

BLOW, blind, *ictus orbis* or *cæcus*, is that which does not appear, or is not attended with effusion of blood; in contradistinction from that followed by a wound, discolouring, tumor, or the like, called *ictus apertus* or *apparens*, an open blow.

In the ancient laws, we find blows for remembrance, given to make persons remember some transaction, and enable them to become better witnesses of it in future times.

BLOW, military, *alapa militaris*, that given with the sword on the neck or shoulder of a candidate for knighthood, in the ceremony of dubbing him.

The custom seems to have taken its rise from the ancient ceremony of manumission.

In giving the blow, the prince used this form: *esto bonus miles*; upon which the party rose a complete knight, and qualified to bear arms in his own right. Sometimes a double or even triple blow was given, called *trinapercussio*.

BLOWS, in Common Law. See BATTERY.

Blows and contusions on the head, and about the larynx, are dangerous; those in the epigastric region, especially about the *scrobiculus cordis*, are frequently mortal.

BLOWS, fly, the ova of flies deposited on flesh, or other bodies proper for hatching them.

BLOW-pipe, among jewellers and other artificers, is a glass tube, of a length and thickness at discretion, wherewith they quicken the flame of their lamp, by blowing through it with their mouth. It is used in works of quicker dispatch, which do not need the bellows, for concentrating flame, and various uses.

Though the wind blown out at a small bent tube of glass, called a blow-pipe, seems not to have any great celerity in comparison of the parts of flame, and is itself of little force; yet, when the flame of a lamp, or candle, is directed by it, so as to beat upon a body at a convenient distance, it may be made to melt silver, or even copper itself, which yet may be kept, for many hours, unmelted in a red-hot crucible, or the flame of the lamp or candle unassisted by the blast.

The enamellers have also tubes of divers sizes, wherewith to blow their enamel, answering to the same purpose as the *pontoglio*, or blow-pipe, of glassmen.

BLOWER, *souffleur*, an appellation of contempt sometimes given to an ALCHEMIST.

In the French king's kitchen, there was anciently an officer under the denomination of *sufflator*, or fire-blower. The Roman mint-men were distinguished by the appellation of *blowers* of gold, silver, and brass, &c. *flatores auri, argenti*.

BLOWER, among dealers in horses, a term used for such horses as wheeze much, without wanting wind. See WHEEZING.

BLOWING of glass, one of the methods of forming the divers kinds of works in the glass manufacture.—It is performed by dipping the end of an iron *pontoglio*, or blowing-pipe, in the melted glass, and blowing through it with

with the mouth, according to the circumstances of the glass to be blown.

BLOWING machines, see BELLOWS.

BLOWING, in *Medicine*. One method of administering medicines is by inflation, or *blowing* them into the part by a tube: thus it is they sometimes convey powders into the eye, and sometimes up the nose, for the cure of a POLYPUS.

BLOWING, *exsufflatio*, was also a ceremony in the ancient administration of baptism, whereby the *catechumen*, upon rehearsing the renunciation, blew three blasts with his mouth, to signify that he rejected or cast the devil absolutely off.

Something like this is still retained in the Russian church. In the sacramentary of St. Gregory, the priest who administers baptism, is enjoined to *blow* thrice on the child's face, making the sign of the cross with his hand, and pronouncing the words *exi ab eo Satan*. Justin Martyr, Tertullian, St. Cyril, and St. Augustin speak of this ceremony as used in their times.

BLOWING of *tin*, the running or melting of ore, after first burning it in a kiln, to destroy the mundic. Phil. Transf. N° 69. p. 2111, seq. See TIN.

BLOWING of a *fire-arm*, is when the touch-hole is gulled, so that the powder will flame out.

BLOWING is also used in speaking of the natural motion or cause of the wind.

In the sea-language, the wind is said to *blow home*, or *blow through*, when it does not cease, or grow less, till it comes past the place where the speaker is. To *blow through* is sometimes also used to denote, that the wind will be so great as to *blow* afunder the sails. When a wind increases so much that they cannot bear any top-sails, they say, they were *blown into their courses*, i. e. they could only have out the sails so called. To express an extraordinary great wind, they sometimes say, it will *blow the sail* out of the bolt-ropes.

BLOWING is also used in speaking of the force and effect of kindled GUN-powder, on bodies which happen to be over it.

In this sense we say to *blow up* a house. Engineers at sieges make MINES wherewith to *blow up* walls, bastions, and other defences.

Powder-mills are apt to *blow up* by the iron-gudgeon's growing hot, and setting fire to the powder-dust flying about.

BLOWING, among *Gardeners*, denotes the action of flowers, whereby they open and display their leaves.

In which sense, *blowing* amounts to much the same with FLOWERING and BLOSSOMING.

BLOWING of a *flower*, among *Florists*, an artificial process in order to bring a flower to display itself with greater perfection and beauty than it would arrive to in the natural way of *blowing*. The usual method is thus: about April, when the flower-stems begin to put forth, or *spindle*, as the gardeners call it, they place by each flower a strait stick four feet long, and tie the spindles to it as they shoot. As soon as the flower-buds appear, they leave only one of the largest on each flower-stem to blossom. About ten days before the flowers open themselves, the round-podded kinds will begin to crack their husks on one side, when the careful gardener, with a fine needle, splits or opens the husk on the opposite side to the natural fraction; and about three or four days before the complete opening of the flower, cuts off with a pair of scissars the points on the top of the flower-pod, and supplies the vacancies or openings on each side the husk with two small pieces of vellum, or oil-cloth, slipped in between the flower-leaves and the inside of the husk; by such means, the blossom will display its parts equally on all sides, and be of a regular figure. Besides this care, when the blossom begins to shew its colours, they use to shade it from the extreme heat of the sun with a trencher-like board, or other device of the like nature, fastened to the stick which supports it; for the flowers, as well as fruits, grow larger in the shade, and ripen and decay soonest in the sun.

In *Heraldry*, a *fleur de lys* is said to be *blown*, *espanoui*, when its leaves are opened, so that buds appear among the *fleurons*. The arms of the city of Florence are *argent, a fleur de lys blown, gules*.

BLOWING-snake, in *Zoology*, a name given by the people of Virginia to a species of serpent much resembling the European viper, but considerably larger, and very remarkable for its inflating and extending the surface of its head before it bites. Its wound is very fatal.

BLOWN red, in the manufacture of porcelain. See RED.

BLUBBER, in *Physiology* and *Trade*, the fat which invests the bodies of all large cetaceous fish, serving to furnish an oil.

The *blubber* is properly the *adeps* of the animal: it lies immediately under the skin, and over the muscular flesh.

In the porpoise, it is firm and full of fibres, and invests the body about an inch thick. In the whale, its thickness is ordinarily six inches; but about the under lip, it is found two or three feet thick. The whole quantity yielded by one of these animals ordinarily amounts to forty or fifty, sometimes to eighty or more, hundred weight. Phil. Transf. N° 77. p. 2275.

The use of the *blubber* to the animal seems to be partly to poise the body, and render it equiponderant to the water; partly to keep off the water at some distance from the blood, the immediate contact whereof would be apt to chill it; and partly also for the same use that cloaths serve us, to keep the fish warm; by reflecting or reverberating the hot steams of the body, and so redoubling the heat; since all fat bodies are, by experience, found less sensible of the impression of cold than lean ones.

Its use in trade and manufactures is to furnish train-oil, which it does by boiling down. Formerly this was performed ashore in the countries where the whales were caught; but of late the fishers do not go ashore, they bring the *blubber* home, stowed in casks, and boil it down there.

BLUBBER-livers. The livers of cods, which having been barrelled, yield spontaneously a considerable quantity of oil, which being skimmed off, the residue are called *blubber-livers*, to be boiled down for more oil.

BLUBBER, *sea*, a denomination given by our navigators to the URTICA MARINA, or sea-nettle. Phil. Transf. N° 349.

BLUE, one of the primitive colours of the rays of light.

Anciently *blue* was the symbol of the sea; for which reason, in the Circensian games, the combatants who represented the sea were clad in *blue*; and those who had distinguished themselves by any notable exploit at sea, were rewarded with a *blue* ensign.

Mr. Boyle has given us the following method of making transparent *blue*, nearly equal to ultramarine. The principal ingredient of this beautiful colour is the *cyanus*, or *blue* corn-bottle flower, which abounds almost in every corn-field, and may easily be had during four of the summer months. It may be gathered by children about the verges of corn-fields, without doing any damage to the corn.

This flower has two *blues* in it, one of a pale colour in the large outer leaves; and the other of a deeper *blue*, that lies in the middle of the flower. Both these will do, being separated from the buttons or cases in which they grow; but the deep *blue* leaves in the middle produce much the best colour: this may be observed by rubbing the leaves while they are fresh upon a piece of writing-paper, so hard as to express the juice, which will yield an excellent colour, that by the experience of two or three years has not been found to fade.

A sufficient quantity of these middle leaves being procured, let the juice be pressed from them; to which a little alum being added, will give a lasting transparent *blue*, scarcely inferior in brightness to ultramarine.

It is very probable, that if the chives of these flowers were cured in the same manner with saffron, they would produce a much greater body of colour, from which a tincture might be drawn with more ease than when pressed fresh from the field.

Mr. Boyle also recommends another fine *blue*, produced from the *blue* leaves of rue beaten in a stone mortar with a wooden pestle, and then put in water for fourteen days or more, washing them every day until they are rotten. These beaten up at last, water and all, until they become a pulp, and then dried in the sun, will make a fine *blue* for shading.

BLUE ashes, *Cendre bleu*, and by corruption from the French *Sanders blue*. These are very much used in water-colours, and some are very lively; but in oil they grow dull and greenish, being somewhat of the nature of verdigrise; and the more oil is put to them, the weaker they become. They are found in the form of a soft stone, in places where there are copper mines, and water only is made use of in levigating them, to reduce them to a fine powder. This kind of *blue* ought to be used in works to be seen by candle-light, as in scene-painting; for though a great deal of white is mixed with it, it appears very beautiful, notwithstanding it has a greenish cast; quite contrary to enamel, which looks bright by day, and dull by candle-light.

Some of these *blue* ashes look as beautiful as ultramarine, but by mixing them with a little oil, the difference is easily discovered: for whereas ultramarine becomes much higher on being mixed with oil, these acquire no body of colour from the mixture.

There is nothing to be found in the shops under this name but common *verditer*, or some species of it. See VERDITER.

BLU

BLUE bice, is a colour of good brightness, next to *Prussian blue*; it is also a colour of a body, and flows well from the pencil. See **BICE**.

BLUE, azure, in *Chemistry*. This colour may be drawn from silver: but Boyle and Henckel justly observe, that this happens only according to the proportion of copper found mixed in this metal. The following is the shortest process for making it. Dissolve sal gem, salt of tartar, and roche alum, in the strongest double-distilled vinegar; suspend over the vinegar so prepared, thin plates of silver; and bury the vessel in the husks of grapes. Every three days remove the plates, and wipe off the *blue* which will be formed on them. Otherwise, put *laminae* of silver as thin as paper into a pint of the strongest vinegar, add to it two ounces of *sal ammoniac* well pulverised; put this into a glazed earthen pot carefully stopped; bury this in horse-dung for fifteen or twenty days, at the end of which time you will find the plates covered with a fine *azure blue*.

BLUE, dyers, is one of their simple or mother colours, used in the composition of others; it is given chiefly with woad, and indigo. Some dyers heighten their *blue*, by adding madder, brasil, and other woods. The way of brightening *blues* is by passing the stuff, when dyed and well washed, through luke-warm water; or, which is much better, by working and fulling the dyed stuff with melted soap, and then scouring it well.—*Blues* are dyed immediately from the whites, without any other preparation than scouring. See **DYING**.

Blue and yellow compose green when blended together. Hellot suspects that such a *blue fecula* as is procured from **INDIGO** and **WOAD** is procurable from many other vegetables. He supposes the natural greens of vegetables to be compounded in like manner of those two colours, *blue* and yellow; and that the *blue* is oftentimes the most permanent, so as to remain entire after the putrefaction or destruction of the yellow. The theory is specious, and perhaps just. Neumann.

BLUE black. See **BLACK**.

BLUE enamel. See *Azure ENAMEL*.

BLUE, Flanders, is a colour seldom used but in landscapes, as being apt to turn green. The French call it *cendre verte*, or green ashes.

BLUE for painting or staining glass. See **GLASS**.

BLUE Japan, see **JAPANING**.

BLUE, Indigo, see **INDIGO**.

BLUE Litmus, or *Lacmus*, see **LITMUS**.

BLUE, painters, is made differently, according to the different kinds of paintings. In limning, fresco, and miniature, they use indifferently ultramarine, *blue ashes*, and smalt; these are the natural *blues*, excepting the last, which is partly natural, partly artificial. See each under its proper head.

In oil and miniature they use indigo, *blue bice*, *blue verditer*, *lapis armenus*, smalt, and litmus; also a counterfeit ultramarine.

Enamellers and painters on glass have *blues* peculiar to themselves; each preparing them after his own manner. See **ENAMELLING**, *Painting on GLASS*, and Neumann's Chem. Works, by Dr. Lewis.

BLUE, Prussian, or **Berlin BLUE**, is a modern invention, considerably in use among painters, though inferior to the ultramarine *blue*. It was discovered by accident, about the beginning of this century. A chemist of Berlin, having successively thrown upon the ground several liquors from his laboratory, was surprised to see it suddenly stained with a most beautiful colour. Recollecting the liquors he had thrown on each other, he made a similar mixture in a vessel, and produced the same colour. He did not publish his process, but prepared and sold his **BLUE**, which was substituted for **ULTRAMARINE**. The account of it was first published in the Berlin Memoirs, 1710; but without the description of its process.

In a paper of Dr. Woodward's, communicated to the Royal Society in the year 1724, there is given a short way of making the *Prussian blue*, which when tried over again by Mr. Brown the chemist, was found to answer perfectly well; and gave hints and occasions to several experiments, which gave great light into the true nature of the bodies used in that preparation.

The method was this. Four ounces of bullock's blood dried, and four ounces of salt of tartar prepared from four ounces of crude tartar and as much nitre, were calcined together; two hours after which, a black spongy substance remained in the crucible, weighing four ounces; a solution of which being made in boiling water, and afterwards filtered, left a remainder which when dried weighed nine drams. An ounce of English vitriol was dissolved in six ounces of rain-water, and eight ounces of crude alum in two quarts of water. These being mixed

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hot with the blood, became green; and on adding two or three ounces of spirit of salt, they become of a fine *blue*, which will subside, and leave the water clear at top. Mr. Brown found the process exactly answer, and the product was an ounce of a very fine colour, and perfectly fit for the painter's use.

Among the several experiments which were made by mixing, in different manners and proportions, the several liquors of which this colour was to be prepared, all produced a *blue*; but that in different degrees, some being deeper and others much paler. In one experiment the alum was wholly left out, and a very pale *blue* was produced; in another, the alum and vitriol were used in equal quantities, and then the product was an extremely deep *blue*.

Upon the whole, the prescription seems to be given after repeated trials, and appears to be that very combination of the several ingredients, which must give the very finest colour they are capable of giving.

It is curious to know what gave the first hint for the production of so fine a colour from a combination of such materials, especially when we come to consider, that the blood has the principal share in this surprising change. Blood of any kind, or flesh of any kind, would produce the same effects; but it is probable that flesh would not yield so strong or fine a colour. Beef has been tried, and found to yield a *blue*, but not so fine as the blood. Phil. Trans. abr. vol. vii. p. 747, &c.

In all the recipes which have been given for making the *Prussian blue*, the liquors are ordered to be mixed together boiling hot, except the spirit of salt; and experience shews, that the colour is most readily and beautifully made that way: but in experiments made with all the liquors cold, the colours have been very well produced, only in less beauty; and they have required washing several times in fresh water, to bring them to their beauty.

Mr. Brown thinks, that this *blue* is the phlogistic part of iron, disengaged by the lixivium of bullock's blood, and applied to the earth of alum: and this opinion has been adopted by M. Geoffroy. The abbé Menon supposes that *Prussian blue* is nothing but iron entirely freed from all saline matter by the phlogiston of the alkaline lixivium, and precipitated with its natural colour, which, he says, is *blue*: the alum serving to diminish the intensity of the colour, by the whiteness of its earth. M. Macquer concludes, from many experiments, that it is nothing but iron impregnated with a superabundant quantity of phlogiston, which it receives from the phlogisticated alkaline precipitant. He has likewise applied the preparation of this pigment to the dying of wool and silk, and found means of fixing the colour. The cloth must first be dipped in a diluted solution of vitriol and alum, then in the ley diluted, and afterwards in water acidulated with spirit of vitriol; it acquires hereby a light *blue* colour, which becomes deeper and deeper by repeating the dippings as before, and adding to the liquors each time a little more of the respective saline matters. M. Macquer observes, that this *blue* dye exceeds in beauty and lustre that of indigo and woad; that it penetrates the whole substance of fulled cloth, without weakening it; that it is durable in the air, and bears boiling in alum water, but is discharged by soap. Phil. Trans. abr. vol. vii. p. 747, &c. Mem. Acad. Scienc. for the years 1725, 1749, 1752.

The method of making this *Prussian blue* in perfection, has been purchased as a very valuable secret. Its process is very extraordinary, and could scarce be derived *a priori* from any reasoning about the nature of colours. It is allowed to be an excellent *blue* pigment, and is by some preferred to **ULTRAMARINE**, though its durability might have been suspected, from the vegetable and animal matters used in its preparation, if the colour did not seem extraordinarily fixed by the operation.

The goodness of *Prussian blue* must be distinguished by its brightness, deepness, and coolness.

There are four different processes given for making the finest sort of *Prussian blue* with quick-lime given in the Hist. of the Acad. of Scienc. at Paris, for the year 1756. Process I. Take 3 lb. of ox's blood, dried and reduced into a kind of small scales; an equal quantity of quick-lime newly baked; 2 lb. of red tartar; and 1 lb. 8 oz. of salt-petre; pulverise the whole grossly, and put it into a crucible, placed in the midst of a great furnace, and give it a gradual fire. After four hours when the matter is reduced into a kind of paste which emits no more smoke, and is equally red, throw it by spoonfuls into two pails of boiling water; and, having filtrated the lixivium, mix it with a solution of 6 lb. of alum, and 1 lb. 8 oz. of green vitriol. This operation will yield but 7 oz. of *fecula*; but its beauty will make sufficient amends for the small

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small quantity, as it will surpass in this respect all the *blues*, of Prussia, which are prepared by other methods. It has also as good an effect as the finest *ultra-marine*; and has, besides the advantage of resisting the impression of the air.

Process II. Take 3lb. of dried ox's blood; an equal quantity of quick-lime, 2lb. of red tartar, and 2lb. of nitre; let them be calcined and lixiviated, as in the former process: pour the solution into a lixivium of 4lb. of alum, and 1lb. of green vitriol. This operation will yield more of the *blue fecula* than the other, but the colour will be less beautiful.

Process III. Take 3lb. of dried ox's blood, 4lb. 8oz. of quick-lime; 2lb. of red tartar, 1lb. 8oz. of salt-petre. Proceed as before. This operation will produce the most beautiful *blue*; but the quantity will be only about 8 oz. and 4 drams.

Process IV. Take 3lb. of dried ox's blood, 6lb. of quick-lime, 2lb. of red tartar, and 1lb. 8oz. of nitre. Calcine and lixivate as before; pour the warm lixivium into a solution of 4lb. of alum, and 1lb. of green vitriol; the *fecula* precipitated in this way will be as beautiful as those of the first process, and the quantity 26 ounces.

BLUE, Saxon. This dye has been known for some time, and is made by dissolving indigo in oil of vitriol, by which the indigo becomes of a much more lively colour, and is extended to such a degree, that it will go very far in dying. The following receipt for making it, produces a very fine colour, and never fails of success.

Mix 1 oz. of the best powdered indigo with 4 oz. of oil of vitriol, in a glass body or matras; digest it an hour with the heat of boiling water, shaking the mixture at different times. Add 12 oz. of the water to it, stir the whole well, and when cold filter it: a very rich deep colour will be produced: and if a paler *blue* be required, it may be had by the addition of water. The heat of boiling water is sufficient for this operation, and can never spoil the colour. A sand-heat, not uncommonly used for this purpose, is often found to damage the colour.

Indigo digested with a large quantity of spirit of wine, and dried, will produce a finer colour than the former, if treated in the same manner with oil of vitriol.

For an account of the processes for obtaining *BLUE liquors* from oak-duft and vitriol, from log-wood and verdigrise, from log-wood and blue vitriol, from an essential oil and volatile spirit; see Dr. Lewis's *Commercium Philosophico-Technicum*, ed. 4to, ann. 1773. p. 382. 407. 436.

BLUE, stone or powder, used in washing of linen, is the same with *SMALT*, either in the lump, or powdered.

When the *SMALT* is taken from the pot, it is thrown into a large vessel of cold water: this makes it more tractable and easily powdered. Afterwards, when examined after cooling, it is found to be mixed with a greyish matter resembling ashes, which they call *eschel*: This grey matter is separated by washing, and then the *blue substance* is powdered and sifted through fine sieves, to bring it to what we call *powder-blue*. Phil. Trans. N° 396.

BLUE, turnsol, is a *blue* used in painting on wood, made of the seed of that plant. It is prepared by boiling four ounces of turnsol in a pint and a half of water wherein lime has been slacked. See *TURNSOLE*.

BLUE, ultramarine, a beautiful blue colour, used by the painters, prepared from *lapis LAZULI*.

Some derive its name *ultramarine*, q. d. *beyond sea*, from its being first brought into Europe out of India, and Persia. Others say, it is because its colour is deeper than that of the sea.

This *blue* is one of the richest and most valuable colours, used in painting. The preparation consists in first calcining the stone in an iron pot or crucible, then grinding it very fine on a porphyry; then mixing it up with a paste made of wax, pitch, mastich, turpentine, and oil; and at last washing the paste well in clear water, to separate the colouring part from the rest, which precipitates to the bottom, in form of a subtle, beautiful, *blue powder*. The water is then poured off, and the powder at bottom is dried in the sun; and it is the true *ultramarine*.

Those who prepare this colour, make usually four kinds, which they procure by so many different lotions: the first is always the best; and the rest worse and worse to the last. There is *ultramarine* of the first kind, sold for 11l. sterling per ounce; and of the last, for about 12 or 15s.

The common opinion concerning its origin is, that the method of making it was first discovered in England; and that a member of the East India company, having a quarrel with his associates, to be revenged of them, made the secret public.

Ultramarine must be chosen of a high colour, and well

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ground, which is known by putting it between the teeth, where, if it feel gritty, it is a sign the triture is not sufficient.

To know whether it be pure and unmixed, put a little of it in a crucible, and heating it red hot, if the powder has not changed its colour after this trial, it is certainly pure: on the contrary, if you perceive any change, or any black specks in it, it is falsified.

Besides this, there is another kind called common or *Dutch ultramarine*; which is only the crude *lapis armenus* and small well ground; and pulverised; the colour whereof, when used by the painters, is something like that of the true *ultramarine*, though much less valued.

Ultramarine, on account of its high price, is frequently adulterated, either by a precipitation or magistery of copper made by alkaline salt, or by fine smalt. The adulteration in the former way may be discovered by pouring some diluted spirit of nitre on a small quantity of the *ultramarine*; which, if there be any copper, will soon dissolve, and form a greenish *blue* solution. The other kind of adulteration may be detected by washing the substance in water; the particles of the smalt being much grosser than those of the *ultramarine*: besides smalt will not mix so readily with oil; and in enamel painting they may be easily distinguished, because smalt will flux without any addition, whereas the other requires the addition of some vitreous body.

There is a *blue substance*, something like what Kentman mentions under the name of *cæruleum patavinum*. It was discovered in a peat-moss in Scotland. This earth is at first of a white colour, and only grows *blue* by being exposed to the air. It has also some resemblance to what Mr. de Costa in his Nat. Hist. of Foss. p. 103. calls *ochra friabilis cærulea*. It is described very minutely by Mr. Douglas, who gives an account of his various experiments upon it, and recommends it as a cheap paint in gum water, particularly as it is levigated and prepared by nature. See Phil. Trans. vol. lviii. N° 27. an. 1768.

Many similar specimens of *blue earth* have been discovered in England and Ireland, and several parts of the continent.

BLUE-ball, a name given in some countries to the *Conc-WHEAT*.

BLUE-bottle, in Botany, is the English name of the *CYANUS*. It is a small plant, with beautiful blue-flowers, common in our corn-fields, and of which many beautiful species are kept in gardens. See *CENTAURY*.

The common wild *blue-bottle* of our corn-fields, is esteemed a cardiac and alexipharmic. Conserves and syrups are prepared from it in some places, and serve very properly for the making of other more efficacious medicines of the same intention into form. Schroder and some others have greatly extolled the distilled water of the flowers in inflammations, and many other disorders of the eyes; but this seems a less warranted matter. The flowers of the large garden kind, are said to be particularly good in disorders of the womb, and the leaves of either in infusion in dropies.

There are several species of this plant, commonly cultivated in gardens, for the beauty of their flowers. They are almost all annuals, perishing as soon as they have ripened their seed. In order to have them flower early, their seeds should be sown in July, or the beginning of August, and when the plants have once got strength, they should be transplanted into warm bodies, and will endure the cold very well, and will flower very early the next summer.

BLUE-cap, in Ichthyology, see *BLEW-cap*.

BLUE-mantle, in Heraldry, the title of a pursuivant at arms.

BLUE-nuns, filles blues, those of the order of the Annunciation.

BLUENESS, that quality which denominates a body *blue*; or such a size and texture of the parts that compose the surface of a body, as disposes them to reflect the blue or azure rays of light, and those only, to the eye.

With respect to the *blueness* of the sky, M. de la Hire, after Leonardo da Vinci, observes, that any black body viewed through a thin white one, gives the sensation of blue; and this he assigns as the reason of the *blueness* of the sky, the immense depth whereof being wholly devoid of light, is viewed through the air illuminated and whitened by the sun. For the same reason he adds, it is, that foot mixed with white makes a blue; for white bodies, being always a little transparent, and mixing themselves with a black behind, give the perception of blue. From the same principle he accounts for the *blueness* of the veins on the surface of the skin, though the blood they are filled with be a deep red; for red, he observes, unless viewed in a clear, strong light, appears a dark brown, bordering on black: being then in a kind of obscurity in the veins, it must have

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have the effect of a black; and this, viewed through the membrane of the vein, and the white skin, will produce the perception of *blueness*.

In the same way did many of the early writers account for the phenomenon of a *blue* sky; such as Fromondus, Funceius, Otto Guericke, and many others: their opinion long prevailed, and has been adopted by some in more modern times, especially by Wolf, and Muschenbroek. But in the explanation of this phenomenon, sir Isaac Newton observes, that all the vapours, when they begin to condense and coalesce into natural particles, become first of such a bigness as to reflect the azure rays, before they can constitute clouds of any other colour. This, therefore, being the first colour, they begin to reflect, must be that of the finest and most transparent skies, in which the vapours are not arrived to a grossness sufficient to reflect, other colours.

M. Bouguer, without having recourse to the vapours diffused through the atmosphere, in order to account for the reflection of the *blue* making rays, ascribes it to the constitution of the air itself, whereby these fainter-coloured rays are incapable of making their way through any considerable tract of it. And he accounts for those *blue* shadows, which were first observed by M. Buffon in the year 1742, by the aerial colour of the atmosphere, which enlightens these shadows, and in which the *blue* rays prevail; whilst the red rays are not reflected so soon, but pass on to the remoter regions of the atmosphere. The abbé Mazeas accounts for the phenomenon of *blue* shadows by the diminution of light; having observed that, of two shadows which were cast upon a white wall from an opaque body illuminated by the moon, and by a candle at the same time, that which was enlightened by a candle was reddish, and that which was enlightened by the moon was *blue*. However, the true cause of this appearance seems to be that assigned by M. Bouguer, which agrees with the solution given of it about the same time by Mr. Melville. But instead of attributing the different colours of the clouds, as sir Isaac Newton does, to the different size of those globules into which the vapours are condensed. Mr. Melville supposes, that the clouds only reflect and transmit the sun's light; and that, according to their different altitudes, they may assume all the variety of colours at sun rising and setting, by barely reflecting the sun's incident light, as they receive it through a shorter or longer tract of air: and the change produced in the sun's rays by the quantity of air through which they pass, from white to yellow, from yellow to orange, and lastly to red, may be understood agreeably to this hypothesis, by applying to the atmosphere what sir Isaac Newton says concerning the colour or transparent liquors in general, and that of the infusion of *lignum nephriticum* in particular. Edinb. Ess. vol. ii. p. 75. Bouguer *Traité d'Optique*, p. 368. Newton's *Optics*, p. 228; or Priestley's *Hist. of Vision*, &c. p. 436—449.

BLUFF-head, or **BLUFF-headed**, in the *Sea-Language*, is when a ship has but a small **RAKE** forward on, being built with her stem too straight up.

Bluff-headed ships are opposed to those that are sharp-headed. They are shorter, less masted, and sail cheaper.

BLUING of iron, a method of beautifying that metal sometimes practised; as for mourning buckles, swords, or the like. The manner is thus: take a piece of grindstone, and whet-stone, and rub hard on the work to take off the black scurf from it; then heat it in the fire, and as it grows hot, the colour changes by degrees, coming first to a light, then to a dark gold-colour, and lastly to a blue. Sometimes they grind also indigo and fallad-oil together, and rub the mixture on the work with a woollen rag, while it is heating, leaving it to cool of itself.

Among sculptors we also find mention of *bluing* a figure of bronze, by which is meant the heating of it, to prepare it for the application of gold-leaf, because of the bluish cast it requires in the operation.

BLUNDERBUSS, in the *Military Art*, a short sort of fire arm, with a large bore contrived to carry a number of musket or pistol bullets at once.

The *blunderbuss* is proper to do execution in a crowd, or to make good a narrow passage, as the door of a house, stair-case, or the like.

BLUNT, in *Fencing*. To fight with *blunts*, is to exercise or parade with weapons without points or edges.

BLUNTING the angles of a battalion, in the *Military Art*, signifies to retrench the four corners, and turn the square into an octagon.

This is done in order to give an opportunity for presenting the pikes, or firing on all sides, and was a military evolution formerly much in use, but now disused.

BLUSHING, a suffusion or redness of the cheeks, ex-

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cited by a sense of shame, on account of consciousness of some failing or imperfection.

Blushing is supposed to be produced from a kind of consent, or sympathy, between several parts of the body, occasioned by the same nerve being extended to them all. Thus the fifth pair of nerves being branched from the brain to the eye, ear, muscles of the lips, cheeks, palate, tongue, and nose; a thing seen or heard, that is shameful, affects the cheeks with *blushes*, driving the blood into the minute vessels thereof; at the same time that it affects the eye, and ear. For the same reason it is, as Dr. Derham observes, that a savoury thing seen or smelt affects the glands and parts of the mouth: if a thing heard be pleasing, it affects the muscles of the face with laughter; if melancholy, it exerts itself on the glands of the eyes, and occasions weeping, &c. And to the same cause Dr. Willis ascribes the pleasure of kissing.

BMI, in *Music*, See **GAMUT**.

BOA, in *Natural History*, an aquatic serpent of prodigious size, which follows herds of oxen, from which it takes its name. It sucks the cows teats, and is found sometimes in Calabria. One of these was killed in the reign of the emperor Claudius, in the belly of which they found a child, which had been swallowed whole. The bite causes an inflammation of the part bitten.

Boa is a genus of serpents in the Linnæan system, with abdominal and subcaudal *scuta*, and without a rattle.

BOADODA Basha, in the *Turkish Military Orders*, an officer of the *janizaries*, whose business it is to walk every day about the principal parts of the city, with a number of *janizaries*, to attend him, to keep order and see that all things are regular, even to the dress. This office is for three months, and from this the person is usually advanced to be a *serach*.

BOAR, in *Zoology*, *sus agrestis*, the wild boar. This creature differs from the common domestic hog, in that the grown animal is not different in colour in the different individuals of the same species; but it is always of a rusty iron-grey. His snout is much longer also than that of the other; his ears shorter and rounder; and both these, and his tail and feet, are always black. It differs also in that it is covered with two sorts of hairs, the one kind long, the other short: these last serve the creature to the same purposes, as the downy fur which the beaver and otter have under their long hair. It is very commonly wild in Italy, and its flesh frequently brought to market. Ray.

The wild **BOAR**, among the *Huntsmen*, has several names, according to its different ages: the first year it is called a *pig of the faunder*; the second, it is called a *hog*; the third a *hog steer*, and the fourth, *boar*; when leaving the faunder, he is called a *singler*, or *sangler*.

The *boar* generally lives to twenty-five or thirty years, if he escapes accidents. The time of going to rut is in December, and lasts about three weeks. They feed on all sorts of fruits, and on the roots of many plants: the root of fern in particular seems a great favourite with them: and when they frequent places near the sea coasts, they will descend to the shores, and demolish the tenderer shell-fish in very great numbers. Their general places of rest are among the thickest bushes that can be found, and they are not easily put out of them, but will stand the bay a long time. In April and May they sleep more sound than at any other time of the year, and this is therefore the successful time for taking them in the toils. When a *boar* is roused out of the thicket, he always goes from it, if possible, the same way by which he came to it; and when he is once up, he will never stop till he comes to some place of greater security. If it happens that a *faunder* of them are found together, when any one breaks away, the rest all follow the same way. When the *boar* is hunted in the wood, where he was bred, he will scarce ever be brought to quit it; he will sometimes make towards the sides to listen to the noise of the dogs, but retires into the middle again, and usually dies or escapes there. When it happens that a *boar* runs ahead, he will not be stopt, or put out of his way by man or beast, so long as he has any strength left. He makes no doubles or crossings when chased; and when killed makes no noise, if an old *boar*; but the sows and pigs will squeak, when wounded.

The season for hunting the wild *boar* begins in September, and ends in December, when they go to rut. If it be a large *boar*, and one that has lain long at rest, he must be hunted with a great number of dogs, and those such as will keep close to him; and the huntmen, with his spear, should always be riding in among them, and charging the *boar* as often as he can, to discourage him: such a *boar* as this, with five or six couple of dogs, will run to the first convenient place of shelter, and there stand

stand at bay, and make at them as they attempt to come up with him.

There ought always to be relays also set for the best and staunchest hounds in the kennel; for if they are of young eager dogs, they will be apt to seize him, and be killed or spoiled before the rest come up. The putting of collars with bells about the dogs' necks is a great security for them; for the *boar* will not so soon strike at them when they have these, but will rather run before them. The huntsmen generally kill the *boar* with their swords or spears; but great caution is necessary in making the blows, for he is very apt to catch them upon his snout or tusks, and if wounded and not killed, he will attack the huntsman in the most furious manner. The places in which the wound is to be given with the spear, are either between the eyes in the middle of the forehead, or in the shoulders: both these places make the wound mortal. When this creature makes at the hunter, his safety consists merely in courage and address; if he flies for it, he is surely overtaken and killed; if the *boar* comes straight up, he is to be received at the point of the spear; but if he makes doubles and windings, he is to be watched very cautiously, for he will attempt getting hold of the spear in his mouth, and if he does so, nothing can save the huntsman but another person's attacking him behind; he will on this attack the second person, and the first must then attack him again; two people will thus have enough to do with him, and were it not for the forks of the *boar*-spears that make it impossible to press forward upon them, the huntsman who gives the creature his death's wound, would seldom escape falling a sacrifice to his revenge for it.

The modern way of *boar*-hunting is generally to dispatch the creature by all the huntsmen striking him at once; but the ancient Roman way was, for a person on foot, armed with a spear to keep the creature at bay, and in this case the *boar* would run of himself upon the spear to come at the huntsman, and push forward till the spear pierced him through.

The wild *boar* was formerly a native of Britain, as appears from the laws of Hoel Dda, Leges Wallicæ, 41. William the Conqueror punished with the loss of their eyes, any that were convicted of killing him: Charles I. turned out wild *boars* in the New Forest, but they were destroyed in the civil wars.

The hinder claws of a *boar* are called *guards*.

In the corn he is said to *feed*; in the meadows or fallow fields, to *root*, *worm*, or *fern*: in a close to *graze*.

The *boar* is farrowed with as many teeth as he will ever have, his teeth increasing only in bigness, not in number; among these there are four called *tushes* or *tusks*, the two biggest of which do not hurt when he strikes, but serve only to whet the other two lowest, with which the beast defends himself, and frequently kills, as being greater and longer than the rest.

It is very remarkable, that these creatures in the West Indies are subject to the stone: few of them are absolutely free from it, yet scarce any have the stones of any considerable size. It is common to find a great number in the same bladder, and they are usually of about a scruple weight, and are angular, and that with great regularity, each having five angles. Phil. Trans. N^o 36. Among the Ancient Romans, *boar's* flesh was a delicacy; a *boar* served up whole was a dish of state.

The *boar* was sometimes also the military ensign borne by the Roman armies, in lieu of the eagle.

Among physicians, a *boar's* bladder has been reputed a specific for the epilepsy.

The tush of the wild *boar* still passes with some as of great efficacy in quinsies and pleurisies. See an analysis of it in Dr. Lewis's edition of Neumann's Works, p. 521.

BOAR, in the *Manege*. A horse is said to *boar* when he shoots out his nose as high as his ears, and tosses in the wind.

BOARD, a piece of timber sawed thin, for the purposes of building. See **TIMBER**.

We say, a *deal-board*, an *oak-board*, &c. *Boards* thicker than ordinary are called *planks*. *Boards* formed ready for the coopers use are called *clap-boards*. We have also *mill-board*, and *scale-board*, shaved very thin, for cases, band-boxes, &c.

Deal-boards are generally imported into England ready sawed, because they are prepared cheaper abroad, by means of saw-mills.

Clap-boards are imported from Sweden and Dantzick.

Oak-boards chiefly from Sweden and Holland; some from Dantzick.

Pipe-boards are brought from Dantzick. We also import white *boards* for shoe-makers: mill and *scale-boards*, paste-boards, &c. for divers artificers.

Scale-board is a thinner sort, used for the covers of primers, thin boxes, and the like. It is sawed with mills, and imported from Hamburgh.

BOARD, feather-edged, graining, log, past, found, trail, waste weather. See the several adjectives.

BOARD, is also used for a kind of table or bench, whereon several artificers perform their work.

In this sense, we say a *work-board*, a *shop-board*, a *taylor's-board*, &c.

BOARD, is also used for a flat machine, or frame, used in certain games, and the like.

In this sense, we say a *draught-board*, a *chess-board*, a *shovel-board* and the like.

BOARDS, in *Book-Binding*. See **BOOK-BINDING**.

BOARD, *bureau*, is also used for an office where accounts are taken, payments ordered, and the like.

In this sense, we say the *board* of works, *board* of ordnance, *board* of treasury, and the like.

BOARD of green cloth. See **GREEN-CLOTH**.

BOARD of trade and plantation, was established in its present form by king William, in the year 1696. Commercial matters had before this time been generally referred to a fluctuating committee of the privy council: the obvious inconveniences attending this mode of management, induced king Charles II. to erect a special council of trade in the year 1668, which was soon after laid aside: it was renewed again in 1672, but soon discontinued, and the former method of reference to committees of the privy council revived. In 1696, a regular and permanent *board* was established, for settling all disputes and regulations relating to commerce and colonies. This *board*, beside such of our ministers of state, who only attend on extraordinary occasions, consists of a first lord commissioner, and of seven other commissioners, with an annual salary of one thousand pounds each. This *board* was abolished in 1780.

BOARD of trade, *bureau de commerce*, an office in the French polity, established in 1723, composed of eight persons of experience in commerce and navigation, where all papers and proposals relating to the improvement of trade are examined, and all difficulties which occur in affairs of navigation and commerce either within or without the realm, are discussed.

BOARD-wages, denotes a certain annual sum allowed to household servants for maintenance. *Board-wage*, granted to the menial officers and servants of the crown, commenced in 1629, when the necessities of king Charles obliged him to retrench the expence of his household, by abolishing the greatest part of the daily tables in his palace, which were eighty in number, and substituting this annual allowance in their room.

BOARD, or **ABOARD**, in the *Sea-Language*, is used in speaking of things within a ship, or other vessel.

Hence, to go *aboard* signifies to go into the ship; to heave over *board*, is to throw a thing out of the vessel into the sea; to slip by the *board*, is to slip down by the ship's side; *board* and *board*, is when two ships come so near as to touch one another; or when they lie side by side.

Weather-board, is that side of a ship which is to windward.

To *board* a ship, is to enter an enemy's ship in a fight. See **BOARDING**, *infra*.

To *make a board*, or, as it is otherwise expressed, to *board it up* to a place, is to turn to windward; and to beat sometimes upon one tack, and sometimes upon another; in which it is to be noted, that the farther you stand off to one point of the compass, the better *board* you will make; and that it is better making *long boards* than short ones, if you have sea-room. A *long board* is when you stand a great way off before you tack or turn; a *short board* is when you stand off a little: a *good board* is when we have got up much to windward, or when a ship advances much at one tack, and sails upon a straight line. To leave a land on *back-board*, is to leave it a-stern or behind; the *back-board* being that which, in boats or ships, we lean our backs against.

BOARDED floor. See **FLOOR**.

BOARDING of a ship, an attack made to take her, by entering her decks with a detachment of armed men.

In order to *board* a ship, it is best to bear directly up with her, and cause all your ports to leeward to be beat open, and bring as many guns from the weather-side thither as you have ports for; and then lay the enemy's ship on board loof for loof, and order your tops and yards to be manned and furnished with necessaries, and let all your small shot be in readiness; then charge at once with both small and great, and at the same time enter your men in the smoke, occasioned by the firing, or by lighted powder-flasks and an earthen shell, called a stink-pot, thrown on the enemy's deck, either on the bow of the ship, or bring your mid-ship close up with her quarter, and so enter your men by the shrouds, or, if you would use your ordnance, it is best to board the enemy's ship athwart her hawse, for then you use most of your great guns, and she only those of the prow. Let some of your men endeavour to cut down the enemy's yards and tackle, whilst others clear the decks, and beat

the enemy from aloft; then let the scuttles and hatches be broke open with all speed, to avoid trains, and the danger of being blown up by barrels of powder, placed under the decks. Thus, your men being in possession of the sails and helm, and the enemy every way stowed below the decks, the ship is taken, and all lies at your discretion.

BOARIA *Lappa*, a name given by the ancient Romans to the fruit or rough balls of the common aparine or cleavers. Pliny calls this plant sometimes *lappa*, sometimes *lappago*; and the fruit by the names of *lappæ boariæ*, or *lappæ caninæ*; and sometimes *canariæ*.

BOAROLA BOARINA, in *Ornithology*, the name of a very small bird, described by Aldrovandus, and some others, and seemingly the same species with the *FLY-catcher*; or *MUSCICAPA*.

BOAT, a small, open, floating vessel, commonly wrought or moved only by rowing; intended chiefly for the navigation of rivers, lakes, and the like.

The *boat* acquires various names, according to its various structure, and the various uses it is appointed for, and the places where it is to be used. The several *boats*, and their names are,

A *jolly-boat*, a *long-boat*, a *skiffe*, a *pinnace*, a *cutter*, a *lanch*, a *water-boat*, a *yawl*, which are *boats* for *ships*; a *gondola*, a *Greenland-boat*, a *Bermudas-boat*, a *balloon of Siam*, a *horse-boat*, a *periagua*, a *pleasure-boat*, a *ponton* a *canoe*, a *crackle*, a *currycurry*, a *deal-hooker*, a *felucca*, a *ferry-boat*, a *pram*, a *punt*, a *shallop*, a *Moses*, a *tilt-boat*, a *tod-boat*, a *well-boat*, a *wherry*, a *flat bottomed-boat*, &c.

The *boats* or *wherries*, allowed to ply about London, are either *skullers*, wrought by a single person with two oars; or *oars*, wrought by two persons, with each an oar. De Chales proposes the construction of a *boat*, which, what burden soever it bear, shall not only move against the current, without either sails or oars, but also advance so much the faster, as the rapidity of the water is greater. Its make is the same with that of the others, excepting only a wheel added to its side, with a cord, which winds round a roller as fast as the wheels turns. Something of the like kind has also been since done by M. Pitot. Vide Mem. Acad. R. Scienc. an. 1729. p. 359, and p. 540.

A new attempt, and with great success, is also said to have been lately made at Vienna.

M. de la Hire has given us an examination of the force necessary to move *boats*, both in stagnant and running water, either with ropes fastened to them, or with oars, or with any other machine: wherein he shews, that the larger the surface of the oars plunged in the water, and the smaller that of the *boat* presented to the water, is; and again, the longer that part of the oar between the hand and the places where the oar rests on the *boat*, and the shorter that between this last point and the water; the freer will the *boat* move, and the greater effect will the oar have. See **OAR**.

Hence it is easy to calculate the force of any machine that shall be applied to rowing; v. gr. if we know the absolute force of all the men who row, it must be changed into a relative force, according to the proportion of the two parts of the oar; i. e. if the part out of the vessel be double the other, and all the men together can act with the force of 900 pounds, we compute first, that they will exert 300; which 300, multiplied by the surface which the vessel presents to the water, gives a solid water of a certain weight; which weight may be found, and of consequence the velocity impressed on the vessel by the oars. Or, the velocity of the oars may be found in the same manner, by multiplying the 300 pounds by the surface of all the parts of the oars plunged in the water. Nor would there be any difficulty in finding first the relative forces, then the absolute ones; the velocities either of the oars, or of the vessel, being given, or the proportion of the two parts of the oar.

Boats sail more slowly and heavily over shallow than over deep waters. See an account of experiments for explaining this, in Dr. Franklin's Letter to St. John Pringle. Experiments, &c. 4to. 5th. ed. p. 510.

BOAT, *long*, called also the *ship's boat*, is the largest and strongest *boat* belonging to a ship that can be hoisted aboard of her. It has a mast, sail, and oars, as other *boats*; also a tiller to the rudder, which answers to the helm of a ship.

Her thoughts are the seats where the rowers sit; and her thowls the small pins between which the oars are put when they row.

Instead of a *long-boat*, merchant-ships in the Mediterranean use a **LANCH**.

A ship's *boat* is the very model of a ship, and is built in parts in all things answerable to those which a ship requires, both for sailing and bearing a sail: and they bear the same names as to all the parts of a ship under water, as rake, run, stem, stern, bow, bidge, &c.

Its use is to weigh the anchor, bring goods, provision, &c. to or from the ship, and other services, as occasion requires. The *long-boat* of a man of war may be decked, armed, and equipped for cruising short distances against merchant ships of the enemy, or smugglers, or for impressing seamen, &c.

The terms used in navigating a *boat*, are, to *trim the boat*, that is to keep her even; to *wind the boat*, i. e. to bring her head the other way; *free* or *bale the boat*, i. e. to fling out the water; *man the boat*, i. e. let some men go to row the *boat*; to *moor the boat*, i. e. to fasten it with two ropes, so that one shall counteract the other; *send the boat*, i. e. save her from beating against the ship's sides. The *boat's* gang includes those who use to row in the *boat*, which are the cockswain and his gang, to whom the charge of the *boat* immediately belongs.

A *bold boat* is that which will endure a rough sea well.

A good *long-boat* will live in any grown sea, if the water be sometimes freed, unless the seabreak very much. The rope by which it is towed at the ship's stern, is called the *boat-rope*, to which, in order to keep the *boat* from sheering, they add another called a *gest-rope*.

To save the bows of the *boat*, which would be torn out with the twitches which the ship under sail gives it, they swite her, i. e. make fast a rope round by the gunwale, and to that fasten the *boat*.

BOATS, *train of*, a number of small vessels fastened to each other, ascending up the Loir in France, by sails when the wind serves, otherwise towed by men, sometimes to the number of seventy or eighty to a single rope.

Bum-BOAT. See **BUM boat**.

BOATS, *coach*, *bateaux coches*, more frequently called *water-coaches*, are large covered *boats*, used chiefly on the river Seine, for the convenience of passengers, and conveyance of all sorts of goods.

BOAT, *scapha*, in *Surgery*, a species of **BANDAGE**, used when the crown of the head and the part between that and the forehead are to be bound. It is likewise called *tholus diocleus*.

BOAT-fly, a water-insect, whose back is shaped much like the bottom of a *boat*; the hind-legs, which are thrice as long as the fore, aptly enough resembling a pair of oars. Accordingly, contrary to all other creatures, he swims, says Moutet, on his back.

BOAT-hook, an iron hook, with a sharp point on the hinder part of it, fixed on a long pole, used in bringing it to or pushing it from any other *boat*, ship, &c.

BOATING, a kind of punishment in use among the ancient Persians for capital offenders.

The manner of boating was thus: the person condemned to it being laid on his back in a *boat*, and having his hands stretched out, and tied fast on each side of it, had another *boat* put over him, his head being left out through a place fit for it. In this posture they fed him, till the worms, which were bred in the excrements he voided as he thus lay, eat out his bowels, and so caused his death, which was usually twenty days in effecting, the criminal lying all this while in most exquisite torments. Prid. Connect. tom. ii. p. 368.

BOATSWAIN, an officer on board a ship, who has charge of her rigging, ropes, cables, anchors, sails, flags, colours, and pendants; and is also to take care of the *long-boat*, and its furniture, and to steer her, either by himself or his mate.

He calls out the several gangs aboard, to the due execution of their watches, works, &c. He is likewise a kind of a **PROVOST-marshal**, who sees and punishes all offenders sentenced by the captain, or a court-martial of the fleet.

BOATSWAIN's-mate is an assistant of that officer, who has the peculiar command of the *long-boat*, for the setting forth of anchors, weighing or fetching home an anchor, warping, towing, or mooring. He is also to give an account of his store.

This officer is the same with what the Dutch called *boots-man-mael*; the Germans, *unter-boots-man*; and the French *bossman*, or *second contre-maitre*.

BOB of a *pendulum*, the same with its ball; except that the former is used in speaking of short **PENDULUMS**, the latter of long ones.

BOB, in *Ring*, denotes a peal consisting of several courses, or sets of changes.

BOB-stay, in *Sea-Language*, a rope used to confine the bowsprit of a ship downward to the stem.

BOBARTIA, in *Botany*, a genus of the *triandria digynia* class of plants, the *calyx* of which is imbricated, and contains only a single flower; the corolla is a glume, bivalve, and placed on the germen; the seed is single, of an oval figure, and contained in the cup. There is one species.

BOBBING, or **BOBBIN**, a little piece of wood turned into a cylindric form, whereon thread is wound, to be used in the weaving of bone-lace.

B O C

The French also give the denomination *bobine* to what among us is more properly called a *spool* or *quill*. In which they are also followed by several English.

In this general sense, *bobbins* are used to wind thread, worsted, hair, cotton, silk, gold; and silver; and they are of different lengths and sizes, according to the materials which are spun or wound.

BOBBING, among *Fishermen*, a particular manner of **FISHING** for eels, different from *sniggling*.

Bobbing for eels is thus performed: they scour well some large lobs, and with a needle run a twisted silk through them from end to end, taking so many that they may wrap them about a board a dozen times at least: then they tie them fast with the two ends of the silk, that they may hang in so many hanks; which done, they fasten all to a strong cord, and about an hand-breadth and an half above the worms, fix a plummet three quarters of a pound weight, and make the cord fast to a strong pole. With this apparatus fishing in muddy water, they feel the eels tug lustily at the bait; when they think they have swallowed it sufficiently, gently draw up the rope to the top and bring them ashore.

BOBISATIO, or **BOCEDISATIO**, in *Musick*, denotes the using of the seven syllables *bo, ce, di, ga, lo, ma, ni*, to express the seven musical notes in lieu of the six usual ones introduced by *Aretine*, *ut, re, mi, fa, sol, la*, as has been sometimes done by the Netherland and German musicians since the beginning of the seventeenth century, to avoid the mutation necessary in the use of these latter.

BOCA, in *Ichthyology*, the name given by *Paulus Jovius* to the *boce* of *Aristotle*, called the *boops*, from the largeness of its eyes. It is a species of the *SPARUS*, and is distinguished by having four parallel longitudinal gold and silver coloured lines on each side. *Gaza* and some others call it *voca*; and the *Italians*, *boga*.

BOCAMOLLE, in *Ichthyology*, a name given by some to a very large and long *Brazilian* fish; more usually called by its *Brazilian* name, *pira-jurumenbeca*.

BOCARDO, in *Logic*, the fifth mode of the first figure of syllogisms, wherein the first proposition is particular and negative; the second, universal and affirmative; and the third, or conclusion, particular and negative. Thus:

BOC Some animal is not man.
AR Every animal has a principle of sensation.
DO Therefore something has a principle of sensation, that is not man.

BOCCA, in *Ichthyology*, a name by which some authors have called the fish, more commonly known by the name of the *URANOSCOPUS*, or *STAR-gazer*.

It is a species of the *TRACHINUS*, distinguished from the other kinds by having a great number of beards on the lower-jaw.

BOCCA, in *Glass-making*, the round hole in the working furnace, by which the metal is taken out of the great pots, and by which the pots are put into the furnace. This is to be stopped with a cover made of earth and brick and removeable at pleasure, to preserve the eyes of the workmen from the violence of the heat.

BOCCALE, or **BOCAL**, a liquid measure used at *Rome*, answering to what among us is called a bottle, being equivalent to about an English quart. Seven *bocales* and an half make the *rubbia*.

BOCCARELLA, in the *Glass-Manufacture*, a small hole or aperture of the furnace, one of which is placed on each side of the *BOCCA*, almost horizontally with it. Out of them the servitors take coloured or finer metal from the piling pot.

BOCCONIA, in *Botany*, so called after *Paul Boccone*, a considerable botanical writer in *Sicily*; the name of a genus of the *dodecandria monogynia* class of plants; the characters of which are these: the flower hath four narrow petals, with a great number of very short stamina; in the centre is situated a roundish germen, contracted at both ends, which afterward becomes an oval fruit, contracted at both ends, having one cell, full of pulp, including a single round seed. There is but one species of this genus known at present, which is the branching *bocconia*, with a woolly cow-parship leaf; or as it is called by *sir Hans Sloane*, the greater tree-celandine with oak leaves.

It is very common in *Jamaica*, and several other parts of *America*, where it grows to the height of ten or twelve feet; having a straight trunk, as large as a man's arm which is covered with a white smooth bark. The whole plant abounds with a yellow juice, like the greater celandine, which is of an acrid nature; so that it is used by the *Americans* to take off warts, and spots from the eyes. The singular beauty of this plant renders it worthy a place in every curious collection; and the *Indians* are very fond of it, for *Hernandez* tells us, their kings planted it in their gardens.

B O D

BOCE, in *Ichthyology*; see **BOCA**.

BOCKING herring, in the *Dutch trade*, signifies the same with **BLOATED** herring among us.

BOCK-LAND, or **BOOK-LAND**, formerly denoted that which we now call **FREEHOLD-land**, or **CHARTER-land**; and it was by that name distinguished from **FOLK-land**, which was **COPYHOLD-land**.

In *Ancient Law-Writers*, it denotes a possession or inheritance held by evidence in writing.

The word was doubtless written *bock-land*, quasi *book-land*, answering to free land. It stood opposed to **FOLK-LAND**, which was that held without writing.

BODIANO, in *Ichthyology*, the name of an *American* fish, of the size of a perch, with a purple back, and yellow sides and belly. It is more usually known among authors by the name of **PUDIANO**.

BODLEIAN Library. See **LITERARY**.

BODY, in *Zoology*, the name of a species of *American* snake of the *amphisbæna* kind, called also **IBIJARA**.

BODY, in *Physics*, a solid, extended, palpable substance; of itself merely passive, and indifferent either to motion or rest: but capable of any sort of motion, and of all figures and forms.

The word alludes to the *Saxon* *bodige*; *stature*; and to the *Belgic* *boode*, a cover, q. d. *the tabernacle of the soul*.

Body is composed according to the *Peripatetics*, of *matter, form, and privation*; according to the *Epicureans* and *Corpuscularians*, of an assemblage of hooked, heavy atoms; according to the *Cartesians*, of a certain quantity of *extension*; according to the *Newtonians* of a system or association of solid, massy, hard, impenetrable, moveable particles, ranged or disposed in this or that manner; whence result *bodies* of this or that form; distinguished by this or that name.

These elementary or component particles of *bodies* must be infinitely hard; vastly harder than the *bodies* compounded of them; nay, so hard as never to wear, or break in pieces.

"This, *sir Isaac Newton* observes, is necessary in order "to the world's persisting in the same state, and *bodies* "continuing of the same nature and texture in several "ages."

BODIES, *motion of*. See **MOTION**.

BODY, *affections of*. See **AFFECTION**.

BODY, *modes of*. See **MODE**.

BODY, *elements of*. See **ELEMENT**.

BODIES, *the existence of*, is a thing incapable of being demonstrated: the order in which we arrive at the knowledge of their existence seems to be this.—We first find we have sensations; we then observe we have not those sensations when we please; and thence conclude, we are not the absolute cause thereof but that there is required some other cause for their production. Thus we begin to know, that we do not exist alone, but that there are several other things in the world together with us.—But this, *Dr. Clarke* owns, comes far short of a demonstration of the existence of a corporeal world: he adds that all the proof we have of it is this; that God would not create us such, as that all the judgments we make about things existing without us, must necessarily be false. If there be no external bodies, it follows, that it is God who represents the appearance of *bodies* to us; and that he does in such a manner as to deceive us.—Some think this has the force of a demonstration: "It "is evident God cannot deceive us; it is evident he does "deceive and delude us every moment, if there be no *bodies*; it is evident, therefore, there must be *bodies*."—But the minor of this argument may be denied without any suspicion of scepticism.

"In effect, were it possible for *bodies*, i. e. solid figured, &c. substances to exist without the mind, "corresponding to those ideas we have of external objects, yet how were it possible for us to know it? "Either we must know it by sense, or reason; as for "our senses, by them we have only the knowledge of "our sensations or ideas: they do not inform us, that "things exist without the mind, or unperceived, like "those which are perceived. It remains, therefore, that "if we have any knowledge at all of external things, it "must be by reason inferring their existence from what "is immediately perceived by sense. But how shall "reason induce us to believe the existence of *bodies* "without the mind, when the patrons of matter themselves deny, that there is any necessary connection betwixt them and our ideas? In effect, it is granted "on all hands, and what happens in dreams, phrensies, "deliriums, extasies, &c. puts it beyond dispute, that "we might be affected with all the ideas we have now, "though there were no *bodies* existing without, resembling them. Hence, it is evident, the supposition of "external *bodies* is not necessary for the production of our "ideas." *Berkley's Princ. of Human Knowledge*, p. 59. See **ABSTRACTION** and **EXISTENCE**.

Body generally stands contradistinguished from *spirit*; though

though in Spinoza's and the Chinese system, this difference is set aside, and *body* and *spirit* supposed to be the same substance under different modifications. Mr. Hobbes likewise affirms *spirits* to be *bodies*, the existence of any substance not corporeal being rejected by him. See also Dr. Priestley on Matter and Spirit.

The Chinese philosophers reason thus: among an infinite number of properties all equally contained in the nature of being, we are sometimes affected with its extension, mobility, solidity, figure, and colour; in which case we call it simply *body*, or MATTER. Sometimes we add moving force to the former, which constitutes what we call a living being. Sometimes, again, we consider it as possessed with sense, will, and understanding: in which case we allow it a soul, mind, or spirit. On this footing, the several properties of being, however different from each other in the impressions they make on us, are no ways different as to their real nature; since they all exist necessarily with an infinity of others, and partake alike of one and the same infinite and unalterable existence. Mem. Acad. Inscript. tom. ix. p. 364.

The true notion of *body* is hard to frame, and philosophers are not yet agreed on it; the rather as the pursuit leads to the perplexing controversy *de compositione continui*. Some place the essence of *body* in solidity, or impenetrability; others in weight or gravity; others in extension; others in mobility. According to the first of these, *body* is defined as somewhat that perfectly fills a determinate quantity of space or extension, so as necessarily to exclude all other *bodies* from being comprehended within the same dimensions. According to the second, *body* is defined as a thing which is receptive and communicative of motion or progression. Sir W. Petty represents *body* as matter under some figure. The Cartesians define it any thing extended every way, or towards all sides. According to Wolfius, the essence of *body* consists in its composition, or mechanism of parts, from which all its other properties result, even extension itself, since we cannot conceive a compounded *body* otherwise than as extended, or consisting of parts, at least possible if not actual ones.

The first or internal PRINCIPLES of *bodies*, which are not resolvable into others, are called ELEMENTS.

LIGHT or FIRE is found an ingredient in all *bodies*; which some indeed, especially among the chemists, make to be the same with the principle SULPHUR.

The Peripatetics maintain, that besides the common matter of all *bodies*, there is something in every species, which discriminates it from every other, and makes it what it is: this they call *form*; which, because all the qualities, and other accidents of the *body*, must depend on it, they also imagine to be a substance, and indeed a kind of soul, that, united to the gross matter, with it composes a natural *body*.

The motion of *bodies* is either *local* or *intestine*. The latter is not sensible; but may be inferred from a great number of operations. Dr. Hooke does not despair, but that, under farther helps and improvements of the organ of hearing, we may come at length to discern the intestine motions of *bodies* by the ear.

As to the colours of *bodies*, sir Isaac Newton shews, that *bodies* appear of this or that colour, as they are disposed to reflect most copiously the rays of light originally endued with such colours. But the particular constitutions, whereby they reflect some rays more copiously than others, remain yet to be discovered. However, some of the laws and circumstances thereof he delivers in the following propositions.

1. Those surfaces of transparent *bodies* reflect the greatest quantity of light, which have the greatest refracting power; i. e. which intercede mediums, that differ most in their refractive densities: and in the confines of equally refracting mediums, there is no reflexion. 2. The least parts of almost all natural *bodies* are in some measure transparent; and the opacity of those *bodies* arises from the multitude of reflexions caused in their internal parts. 3. Between the parts of opaque and coloured *bodies* are many spaces, either empty, or replete with mediums of different densities; as water between the tinging corpuscles wherewith a liquor is impregnated, air between the aqueous globules that constitute clouds or mists: and even spaces void both of air and water, between the parts of hard *bodies*, are not wholly void of all substance. 4. The parts of the *bodies*, and their interstices, must be less than of some definite bigness, to render them opaque and coloured. 5. The transparent parts of *bodies*, according to their several sizes, reflect rays of one colour, and transmit those of another; for the same reason that thin plates or bubbles do reflect or transmit those rays: and this appears to be the ground of all their colour. 6. The parts of *bodies*, on which their colours depend, are denser than the medium which

pervades their interstices. 7. The bigness of the component parts of natural *bodies*, may be conjectured from their colours; on this principle, that transparent corpuscles, of the same thickness and density with a plate, do exhibit the same colour. 8. The cause of reflexion is not the impinging of light on the solid or impervious parts of *bodies*, as commonly believed. 9. *Bodies* reflect and refract light, by one and the same power variously exercised, in various circumstances. See COLOUR.

BODY, *solid*, that whose particles cohere, or are some way connected to each other. See SOLID.

BODY, *fluid*, that whose particles easily slide over each other, and are of a fit size to be agitated by heat; or that whose particles do not cohere, but are easily put in motion by the smallest force.

BODY, *rough*, that whose surface is beset alternately with eminences and cavities, in contradistinction from a smooth *body*.

BODIES, *ductile*, those which being stretched, do not break, but extend one way as much as they shrink another. Of these some are hard and malleable, as metals; others, soft or viscid, as glues, gums, &c. Mem. Acad. Scien. an. 1713. p. 268.

BODIES, *flexible*, those which admit of being bent without breaking: such are thread, wire, fibres, and even glass, when spun very fine. These are contradistinguished from brittle *bodies*.

BODIES, *specific gravity of*. See GRAVITY, and WEIGHT.

BODY, *dense*. See DENSITY.

BODY, *rare*. See RARE.

BODY, *luminous* or *lucid*, that which emits its own rays, or shines by its own light.

BODY, *illuminated*, that which diffuses the light of another by reflection, or which shines by borrowed light.

BODY, *opaque*, that which intercepts the rays of light, or prevents their passage through it.

BODY, *transparent*, *diaphanous*, or *pellucid*, that which transmits the rays of light. See TRANSPARENCY.

BODY, *the inertia of*, denotes that power whereby it resists motion. See VIS INERTIA.

The mutual ACTION of *bodies* on each other is by Bacon resolved into a principle of assimilation; by Hooke, into congruity and incongruity; by Newton, into that of attraction and repulsion; and by others, into that of affinity, or similarity and dissimilarity, &c. See Mem. Acad. des Scien. an. 1718. p. 2560.

BODIES, *simple*, those which are not compounded of others: such are the four elements, and the celestial *bodies*, supposed to be.

BODIES, *mixt*, those formed of a mixture of the ELEMENTS. These are divided by philosophers into perfectly and imperfectly mixed.

Others divide mixt *bodies* into *simple* and *organical* MIXTS.

BODIES, *inorganical*, or *simply mixt*, are those, whose properties, powers, and actions depend solely on the temperature of the elements they are composed of: such are minerals.

BODIES, *organical mixt*, those whose functions are performed by means of the mechanical structure of the parts: such are vegetables and animals.

BODY, *simple organical* that which is not composed of any other organical *bodies* or parts.

BODY, *compound organical*, that whose component parts are organical *bodies*, being compound beings; and every compound being a machine, it follows, that every body is a machine. On which principle is founded the modern mechanical philosophy.

We may add, that what the Peripatetics call *mixt bodies*, some late writers, after Becker and Stahl, call *compound bodies*; which they subdivide into *aggregates*, *mixt*, and *compounds* properly so called.

Thus, *mixed bodies*, according to these writers, are those composed merely of principles; *compound bodies*, those formed immediately of mixts into any determinate single things; *aggregate bodies*, those formed of several compounds into any entire parcel or system. See AGGREGATE.

BODIES, *homogeneous*. See HOMOGENEOUS.

BODIES, *congruous*, those whose particles have the same magnitude and velocity, or at least harmonical proportions of magnitude and velocity.

BODIES, *incongruous*, those which have neither the same magnitude, nor the same degree of velocity, nor an harmonical proportion of magnitude and velocity.

BODY, *hard*. See HARD.

BODY, *volatile*, that which rises by the force of heat. See VOLATILE.

BODIES are divided into *animate* and *inanimate*; i. e. into those informed by a soul, and those which are not; or those that have life and those that have none.

Some consider *bodies*, either as *natural* and *sensible*; viz. as formed by physical causes, and clothed by physical qualities (in which sense, *body* makes the object of

PHYSICS); or, as *intellectual* or *quantitative*, in the general or abstract; and according to three dimensions: in which sense, *body* makes the subject of geometry.

BODIES, *alkaline, consistent, elastic, fixt, heterogeneous, atmosphere of, descent of, mercury of.* See the several articles.

BODY, with regard to animals, is used in opposition to *soul*; viz. for that part of an animal, composed of bones, muscles, canals, juices, nerves, &c.

In which sense, *body* makes the subject of comparative anatomy.

BODY, *the human*, considered with regard to the various voluntary motions it is capable of performing, is an assemblage of an infinite number of levers, drawn by cords: if considered with regard to the motions of the fluids it contains, it is another assemblage of an infinity of tubes, and hydraulic machines. Lastly, if considered with regard to the generation of those same fluids, it is another infinite assemblage of chemical instruments and vessels; as, philtres, alembics, recipients, serpentine, &c. and the whole is a compound which we can only admire, and whereof the greatest part escapes our admiration itself.—The principal chemical apparatus in the whole *body*, is that wonderful laboratory the brain: it is in this, that precious extract, called animal spirits, the only material mover of the whole fabric, is secreted from the blood.

In the machine of the *animal body*, the retainers to the doctrine of trituration maintain the brain to do the office of the beam of a press; the heart, of a piston; the lungs, of a bellows; the mouth, of a mill-stone; and the teeth, of pestles; the stomach, of a press; the intestines, of a reservoir: the vessels, of sieves or strainers: and the air, of a *pondus*, or spring, that sets the machine a-going.

The soul, Rohault observes, is not the form of the human *body*, as the Peripatetics assert. So far is animal life from depending on the soul, because of its ceasing when the soul is separated, that, on the contrary, the continuance of the soul depends entirely on the state of the *body*; the former never quitting the latter, till its æconomy or order is interrupted.

The Cartesians maintain the soul and *body* to be too disproportionate, for thoughts or ideas of the soul to be caused by the motions of the *body*, and *vice versa*: thus their reciprocal motions, not being able to be the direct cause of the one and the other, are only deemed the occasion, or occasional cause. God, on occasions of the motion of a *body*, impresses an idea or sensation on the soul; and again, on occasion of an idea of the soul, communicates a motion to the *body*: of consequence, God is the only agent in the whole intercourse between soul and *body*.

According to Mr. Locke, there is no contradiction in supposing, that the first eternal thinking Being should, if he pleased, give to certain systems of created senseless matter, put together as he thinks fit, some degrees of sense, perception, and thought: though it is no less than a contradiction, to suppose that matter (which is evidently in its own nature void of sense and thought), should be that eternal first thinking Being. Essay on Hum. Understand. book iv. chap. iii. § 6.

Physicians divide the *body* into solids and fluids.—Also into venters, or cavities, the head, *thorax*, and lower venter.

The rest of the *body* they call members, or extremities. It appears that both the height and the breadth of the human *body* are actually different in different parts of the day; ordinarily it is an inch more in the morning than at night. The *body* ceases to grow in height, when the bones are arrived at a degree of firmness and rigidity which will not allow of farther extension by the effort of the heart, and motion of the blood. Phil. Trans. abr. vol. vii. N° 383.

The alternate increase and decrease of our *bodies* depends very much upon sleep, meals, exercise, &c. and is greatly *involuntary*; but M. L'Abbé de Fontenu, discovered by attention, that there are also alternate increases and diminutions both of the height and breadth of our *bodies*, that may be said to be *voluntary*, because they do not depend so much on sleep, eating, &c. but only on the different postures into which we put ourselves. V. *ut supra*; and Mem. of the A. D. S. an. 1725. H. 16.

BODY, *faculties of the*, see FACULTY.

BODY is also applied by anatomists to several particular parts of the animal fabric.—As, the callous *body* of the brain, the cavernous or spongy *bodies* of the penis, &c. See CORPUS callosum, CORPORA cavernosa, &c.

BODY, *reticular*. See RETICULAR.

BODY, in speaking of a horse, denotes the chest, but chiefly the flanks.

A horse is said to have a good *body*, when he is full in the flank; a light *body*, when he is thin or slender in the flank. If the last of the short ribs be at a considerable distance from the haunch-bone, though such a horse may have a tolerable *body* for a time, if he be much laboured, he will lose it. It is a general rule never to buy a horse that is light-bodied and fiery, because he will presently destroy himself.

BODY of a piece of ordnance, that part comprehended between the centre of the trunnions and the cascabel. It ought always to be more fortified than the rest. See CANNON.

BODY of a pump, the thickest part of the barrel or pipe of a pump, within which the piston moves.

BODY, in Geometry, denotes the same with SOLID.

BODIES, *regular* or *platonian*, are those which have all their sides, angles, and planes, similar and equal.

Of these there are only five; viz. the *tetrahedron*, consisting of four angles; the *octahedron*, of eight; the *icosahedron*, of twenty; the *dodecahedron*, of twelve pentagons; and the cube of six squares. See TETRAHEDRON, &c.

BODIES, *celestial*, are by some divided into two kinds, *solid* and *fluid*. See observations on their figures, by M. Maupertuis, in the Mem. of the A. D. S. ann. 1734. p. 55.

Celestial solid bodies, are those which appear or are sensible to us, either by their own light, or the light of others reflected from them.

Celestial fluid bodies, are only different kinds of ÆTHER, of which Hook makes several, some more fluid and subtle than others.

BODY, *spiritual* or *pneumatic*, that which is not palpable or gross enough for our feeling, as the air, light, &c.

BODY, in Law.—A man is said to be bound or held in *body* and goods; that is, he is liable to remain in prison in default of payment.

In France, by an ordonnance of 1667, all restraints of the *body*, for civil debts, are null after four months, unless the sums exceed two hundred livres.

A woman, though in other respects she cannot engage her person but to her husband, may be *taken by the body*, when she carries on a separate trade.

BODY of the place, in Fortification, denotes either the buildings inclosed, or more generally the inclosure itself. Thus, to construct the *body* of the place, is to fortify or inclose the place with bastions and curtains.

BODY is also used for an assemblage of several different things collected into one; more particularly a number of persons united into a company or college.

A state or nation, under the administration of one sovereign, is called a *body politic*. All large empires are unnatural, because the relation between the head and limbs is here too remote. No *body*, either natural or politic, can long remain sound without exercise. See CORPORATION.

BODY, *corps*, in War, is an aggregate or assemblage of forces, horse and foot, united and marching under some chief.

An army, ranged in form of battle, is divided into three *bodies*: the van-guard, the rear-guard, and the main *body*; which last is ordinarily the general's post.

BODY of reserve, in the Military Art, a draught or detachment of a number of forces out of an army, who are only to engage in case of necessity.

BODY, in matters of Literature, a name given to a collection of whatever relates to any particular science: thus we say, the *body* of the canon law; the *body* of the Saxon law. King James I. had a design to compile a *body* of the English law.

The *body* of the civil law consists chiefly of the Institutes, Pandects, Code, and Novels. A *glossated BODY*, is that to which glosses are added in the margin, composed by several lawyers.

BODY is also used figuratively for consistence, solidity, and strength. In this sense, we say the *body* of a cloth, wine, &c.

Vintners have divers arts of increasing or diminishing the *body* of wine.

BODY, among Painters.—A COLOUR is said to *bear a body*, when it is capable of being ground so fine, and mixing with the oil so entirely, as to seem only a thick oil of that colour; as white lead, lamp-black, vermillion, lake, indigo, &c. But verditers, smalts, &c. will not embody with the oil, but are still apt to separate from it in working.

BOEDROMIA, in Antiquity, from βοὴδρόμος, *helper*, derived from βοῶν, *I cry*, and δρέμω, *I run*, solemn feasts held at Athens, in memory of the succour brought by Ion to the Athenians, when invaded by Eumolpus, son of Neptune, in the reign of Erectheus. Plutarch gives another account of the *Boedromia*, which, according

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according to him, were celebrated in memory of the victory obtained by Theseus over the Amazons, in the month *Boedromion*; which was, in the ancient chronology, the third month of the Athenian year. It consisted of thirty days, and answered to the latter part of our August and beginning of September.

BOERHAAVIA, in *Botany*, see HOG-WEED.

BOG, a moist, rotten spot of earth, which sinks and gives way to the weight of the body, formed of grass and plants putrified by some spring; frequent especially in Ireland.

The word may be derived from the Italian *bucca*, a hole; or rather from the Belgic *boogen*, to bend, on account of its giving way when trod upon.

In this sense, *bog* amounts to much the same with what in other places are called *mosses*, *marshes*, *fens*, &c.

In Ireland they distinguish between a *turf-bog*, called also *red-bog*, out of which turf or peat is dug; and a *quaking-bog*, which will sink under a man in the place where he stands to a considerable depth, and rise before and behind proportionably: underneath, is frequently clear water, into which a person often slips to the middle, upon breaking the surface. — *Quaking bogs* frequently turn into *turf-bogs*.

Every *red-bog* is encompassed with a deep marshy sloughy ground, called the *bounds of the bog*. Horns and skeletons of moose-deer are sometimes found in *bogs* fourteen feet deep.

The inconveniences of *bogs* are, that a considerable part of the kingdom is rendered useless by them: they also keep people at a distance from each other, and thus hinder business from going forward. They occasion the roads to be crooked and circuitous to avoid them: they are a great destruction to the cattle, the chief commodity of Ireland; which are encouraged by the grass growing on the edges of the *bogs*, to venture in, where they are lost. The smell and vapour arising from them is accounted unwholesome, and the fogs putrid and stinking. Add, that they corrupt the water, both as to its colour and taste.

Bogs have also their uses: most of the people in Ireland have their firing from them; the wood being impolitely destroyed, and little pit-coal yet discovered. The Irish could hardly do without some *bogs*. — The natives had anciently another advantage from *bogs*; viz. that by means of them they were preserved from the conquest of the English: and it seems to be from the remembrance of this that they still chuse to build near *bogs*.

As to the origin and formation of *bogs*, it is to be observed, that there are few places, in the northern world, which have not formerly been as famous for them as Ireland now is: every wild ill-inhabited country has them: the *loci palustria*, or *paludes*, to which the ancient Gauls, Germans, and Britons retired when beaten, appear to be no other than what we now call *bogs*. The like may even still be found in the barren parts of Italy, as Liguria.

Boggy lands upon levels are generally called *fens* with us: and what our farmers particularly understand by the term *bog-land*, is that sort of *bog* which lies among hills, or between two eminences, and has descent enough to drain it, if the water could get off.

The true cause of *bogs*, then, seems to be the want of industry: at least it is certain industry may remove, and much more prevent them. There are many *bogs* of late standing in Ireland, formed through the miseries of the times, and the desolation of civil war. — It is no wonder if a country remarkable for laziness should abound with them.

To shew how want of industry causes *bogs*, it must be remembered, that Ireland abounds with springs; that these springs are dry, or nearly so, in the summer-time; and that the grass and weeds grow thick about the places where they burst out: in the winter the same springs swell again, and run, and soften and loosen the earth about them; and the sword, or scurf of the earth, which consists of the roots of grass, being lifted up and made fuzzy by the water, becomes dried against the spring; and does not fall together, but withers in a tuft, and new grass springs through it; which, the next winter, is again lifted up: thus the spring is more and more stopt, and the scurf grows thicker and thicker, till it first makes what we call a *quaking-bog*: and as it grows higher and drier, and the grass-roots and other vegetables become more putrid, together with the mud and slime of the water, it acquires blackness, and grows into what we call a *turf-bog*.

What confirms this account is, that *bogs* are generally found higher than the land about them, and the highest in the middle; the chief springs which cause them being commonly about the middle; from whence they dilate

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themselves by degrees, as one would blow a bladder; but not always equally, because they sometimes meet with greater obstacles on one side, than on the other. — Add, that if a deep trench be cut through a *bog*, you will find the original spring, and vast quantities of water will run from it, and the *bog* will subside; sometimes a dozen or fifteen, some even say thirty feet. — Lastly, those hills which have no springs, have no *bogs*; and those which have springs, and want culture, are never without them. In brief, wherever *bogs* are, there are great springs: the turf generally discovers a vegetable substance; it is light, and impervious to water, while the ground under it is very pervious.

It is true, there are some *quaking-bogs* caused otherwise: as, when a stream or spring runs through a flat; if the passage be not tended, it is filled up with weeds in summer, trees fall across it, and dam it up; then, in winter, the water stagnates farther and farther every year, till the whole flat be covered; next, there rises a coarse kind of grass peculiar to these *bogs*; it grows in tufts, and the roots consolidate together, and yearly grow higher, inasmuch as sometimes to reach the height of a man: this grass rots in winter, and falls on the tufts, and the seed with it, which springs up next year, and thus makes a new addition: sometimes the tops of flags and grass are interwoven on the surface of the water, and become by degrees thicker, till they lie like a cover on the water; other herbs take root in it, and by a plexus of those roots it becomes strong enough to bear the weight of a man.

Another cause of *bogs* is moss, with which Ireland abounds extremely. — That which grows in *bogs* is remarkable; the light spongy turf above mentioned being nothing but a congeries of the threads of this moss, which is sometimes in such quantities, and so tough, that the turf-spades cannot cut it. In the north of Ireland they call it old wives tow; not being much unlike flax. The turf-holes in time grow up with it again, and all the little gutters in *bogs* are generally filled with it. In reality, to this the red or *turf-bogs* seem to be chiefly owing.

For the draining of *bogs*, to render them fit for pasture or arable, it is not impossible; the same having been performed in England, France, Germany, &c. — People commonly distinguish between *bogs* which have no fall to carry away the water from them, and those which have: the last are reputed drainable, the former not. But Mr. King assures us he never observed one *bog* without a fall sufficient to drain it, nor does he believe there is any. In reality, the great objection against draining is the charge; which, it is commonly reckoned, will amount to much more than would purchase an equal quantity of good ground: for an acre of this last, in most parts of Ireland, is not worth above 4s. *per annum*, and fourteen or fifteen years purchase; so that three pounds will buy an acre of good land: and it is very doubtful with most, whether that sum will reduce a *bog*: this reasoning passes current, and is the great impediment of this work.

To this it is answered, that *quaking-bogs*, though land be ever so cheap, never fail to be worth draining: one trench will drain many acres; and when dry, it is generally meadow, or the best grazing ground. Again, the bounds of a *red-bog* never fail to be worth the draining; being done by one deep trench drawn round the *bog*. By this, cattle are kept out of the *bog*, and the bounds turned into meadow. — Add, that even *red-bogs* might be made fit for grazing at a much cheaper rate than has hitherto been done, by a proper conduct in the digging of trenches, particularly described by Mr. King, Phil. Trans. N^o 170. p. 948. See also N^o 330. p. 305; and N^o 314. p. 59. Plott's Hist. Oxf. chap. ix. § 81, &c.

In rushy grounds, the springs are commonly found to lie within a foot or two of the surface, when any thing of stoniness or small gravel is to be found, and sometimes considerably lower in a hungry gravel; but it is always lower in *boggy* ground than in rushy, and is deep, according to the weight of earth that pens it in. The best way is to begin the drains at the lowest place, and so carry it in towards the spring-head, where there must be made such trenches, either round or cross the *bog*, as shall be found necessary to the draining of it thoroughly.

If it be necessary to make such large and deep drains, that there is danger of the cattle's falling into them, they may be filled up with stones or brick-batts, and these covered with boards, and the turf laid over them. The cavities among the stones will give passage to the water, and the turf will grow at top, as if nothing had been done.

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It is a common practice to make a bank with the earth dug out of the trench, laying it on the side; but this is extremely wrong. If the trench be small, the earth dug out of it should be carried away in wheel-barrows; and if large, it should be spread upon the lowest places of the bog, where there is room for it.

Another excellent method is to make the trenches about a yard deep, and two feet wide, laying at the bottom of them green black-thorn bushes, and over these a stratum of large and round stones, or at least of such as cannot lie close; over these lay another stratum of thorn-bushes, and then place a quantity of straw, to keep the dirt from falling in and filling them up. By this means the trench will be kept open, which otherwise will naturally swell, and fill up of itself.

Bog, moving or migrating. These soft masses of earth have been sometimes known to move out of their place. An instance of this there was in Ireland, in the year 1697. about Charleville in the county of Limerick. There was heard for some time a noise under ground like that of thunder at a great distance, or almost spent; and soon after this the earth of a large bog in the neighbourhood began to move, and a hill or rising situated in the middle of it stood no longer above the level of the rest, but sunk flat.

The bog not only moved itself, but moved with the neighbouring pasture-lands, though separated by a large and deep ditch; the motion continued a considerable time, and the surface of the moving earth rose into a sort of waves, but without breaking up or bursting any where. The pasture-land rose very high, and was carried on in the same motion till it rested upon a neighbouring meadow, the whole surface of which it covered, remaining sixteen feet deep upon its surface. The whole quantity of the bog was torn from its former seat, and left great gaps in the earth where it had joined, which threw up foul water, and very stinking vapours. Phil. Trans. N° 233.

All the country came in to see so strange a sight at this, for it continued moving a long time; but few guessed the true cause of it, which was this: a more than ordinary wet spring occasioned the rising of the bog to a great height in one part, and thence propagated itself though the whole bog; so that the hill in the midst was undermined, and naturally sunk flat; this and the more than ordinary weight of this large bog pressing upon the adjoining pasture-land, forced up its foundations, which were only a loose sand. This was pushed on sideways, where there was a descent from the bog, and at length having given the bog more room, all was quiet and remained in that state. The bog was more than forty acres of ground.

Bog-bean, see **BOG BEAN**.

Bog-berry, see **WHORTLE-berry**.

Bog-wood, see **WOOD subterraneous**.

BOGA, in *Zoology*, a name given by many to a fish caught in the Mediterranean, and sold at Naples and Messina, called among authors **BOOPS**. It is a species of the **SPARUS**.

BOGOMILI, or **BOGARMITÆ**, a sect sprung from the Manichees, or rather from the Massalians, toward the close of the twelfth century; whose chief, Basil, was burnt alive by order of the emperor Alexius Comnenus.

Du-Cange derives the name from two words in the Bulgarian language; *Bog*, *Deus*, and *milvi*, *miserere*, have mercy.

The *Bogomili* denied the Trinity; maintaining that God had a human form; that the world was created by evil angels; and that it was the archangel Gabriel that became incarnate. They rejected the books of Moses, and only admitted seven books of scripture; they maintained the Lord's prayer to be the only eucharist; that the baptism of the Catholics was only that of St. John, and theirs that of Jesus Christ; and that all those of their sect conceived the Word, or *Logos*, as much as the Virgin, denying the reality of Christ's body. Lastly, that there was no other resurrection but repentance.

BOHEA, see **TEA**.

BOHEMIAN Brethren, is an appellation anciently given to the protestants of Bohemia.

Lafitius has a treatise *De Gestis Fratrum Bohemicorum*. Camerarius has also given the history of the *Bohemian brethren*, from whom ecclesiastical historians have derived a large train of sects, as the Hussites, Adamites, Taborites, Calixtins, &c.

BOHEMIAN chatterer, in *Ornithology*, a bird that visits this island perhaps once in twenty years. See Phil. Trans. vol. lxii. N° 20. p. 315. an. 1772.

It is also called **AMPELIS**, **GARRULUS**, and **ROLLER**.

BOJA, in *Antiquity*, a collar or chain fastened about the necks of criminals, to prevent their escape.

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The word is also written *boga*, *bodia*, and *baga*.

BOICININGA, in *Zoology*, a name by which the Brasilians call the **RATTLE-SNAKE**.

BOIGUACU, in *Zoology*, the name of a species of serpent called also *iiboia*, and by the Portuguese *cobra de veados*. This is the largest of all serpents, growing to twenty-four feet long and more, and preying on large animals. It is very thick in the middle of the body, and smaller both at the head and tail. It is of a very beautiful variegated colour. Down the middle of the back runs a chain of black spots, a hand's breadth distant from one another, each having a spot of white in its middle; and below these are two other rows of smaller black spots towards the belly. It has in each jaw two rows of very sharp teeth, white as pearl. Its head is very broad, over the eyes it rises in two protuberances; and in some of this species there are two claws, like those of birds, behind the anus, towards the tail.

This is a very terrible creature, and will seize on a man, and either lies in ambush in thickets or on the branches of large trees, from which it throws itself on its prey. It has no venom in its bite; and its flesh is eaten, and esteemed a great delicacy.

This serpent is common in the Brasils. Authors give surprising accounts of its size: Borritius preserved the skin of one which himself had killed, which was twelve yards long; and relates, that there was once a serpent of this kind killed in Java, which was thirteen yards and a half long, and had, when killed, a boar in its belly. And De Laet relates, that in the Rio de la Plata, there are some of them so large, that they will swallow a stag whole, horns and all. The natives and the Hollanders make them a part of their food.

BOIL, or **FURUNCLE**, in *Medicine*, is a small resisting tumor, with inflammation, redness, and great pain, arising in the *membrana adiposa* under the skin. As there is no part of the body free from being the subject of this tumor, so the whole body is sometimes so miserably infested with them, that the patient knows not how to stir, or on what part to lie. Young infants and adults are equally liable to this disorder: and though in adults there is seldom any great danger in it, yet it sometimes happens, when they are very numerous in tender infants, that they not only excite violent pains, restlessness, and tossings, with great weakness, convulsions, and epilepsies, but death itself sometimes follows them.

The principal cause of *boils*, is a too glutinous and inspissated state of the blood, and the cure of them principally depends upon the restoring the blood to its due consistence and proper circulation. People who are very subject to these tumors, should bleed and take purging medicines at proper intervals, and drink plentifully of warm and weak liquors, abstaining from wine, strong spirituous liquors, and from the use of tobacco.

When the disorder is recent or not habitual, external remedies alone are sufficient for the cure: honey mixed to a proper sharpness with spirit of vitriol, is a very good external application. The touching the *boil* with spirit of vitriol alone, is often also of great service; and sometimes the discutient plasters are to be applied, as the diachylon, spermaceti, and soap-plaster. If these applications, however, do not prove successful in the dispersing a *boil*, the only method to be taken, is that of bringing it to suppuration. This, however, in some cases is no easy task, but the tumor remains sometimes very hard and troublesome, even after a proper treatment of many weeks, and sometimes the humour that occasions it becomes so acrimonious, by its long tension, and great inspissation, that it produces ulcers, which grow gradually worse and worse, till at length they end in incurable *fistulæ*. To promote and quicken the suppuration, it is generally found of great service to apply plasters of diachylon with the gums, and of honey and flour mixed, and made to a proper consistence; and where these prove insufficient, maturing cataplasms are to be applied, and very frequently repeated. When the *boil* is sufficiently matured by one or other means, which will be known from the softness and yellowness of its head, it must be opened by incision; and when the matter it contained is discharged, the ulcer must be daily cleansed, till perfectly freed from all malignity, and then healed with the vulnery balsams.

When infants which suck are afflicted with *boils*, the proper method is, to give cooling medicines and purges to the nurse, and enjoin her a due regimen in diet; and the infant should at the same time be got to take some gentle laxative, and the absorbent powders, as those of crab's-eyes and the like, to allay the acrimony of its juices.

BOILS, gum, see **GUM**.

BOILED, or **BOILED silks**, those which have been put, while in the balls, into hot water, to make them wind the better.

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In which sense, *boiled silk* stands opposed to raw.
BOILER, or **BOYLER**, a large copper vessel, wherein things are exposed over the fire to be boiled.

The *boiler* in the alum-works is a vessel, in which the liquor is evaporated to a consistence, and is made of lead. The general size is about eight feet square, and they contain about twelve tuns each.

They make them in this manner: first, they lay long pieces of cast-iron, twelve inches square, as long as the breadth of the *boiler*, and at about twelve inches distance from one another. These are placed twenty-four inches above the surface of the fire. On these massy bars of iron they lay, cross-wise, the common flat bars of iron, as close as they can lie together, and then make up the sides with brick-work. In the middle of the bottom of this *boiler* is laid a trough of lead, wherein they put at first about a hundred pound weight of the rock. They use Newcastle coals in the **BOILING**; and if they find the liquor not strong enough, they add more of the rock at times, as it boils. Phil. Trans. N^o 142.

The *boiler* for making colours, &c. must be made of pewter; because iron and copper will be corroded by the saline substances used in the manufacture of them.

BOILERY, or **BOILARY**, in the *Salt Works*, denotes a salt-house, pit, or other place, where **SALT** is made.

BOILING, or **BOYLING**, *ebullition*, in *Physics*, the agitation of a fluid body, arising from the application of fire, &c.

The *phenomenon* of *boiling* may be thus accounted for: the minute particles of the fuel being detached from each other, and impelled in orbem, with a great velocity (i. e. being converted into fire), pass the pores of the containing vessel, and mix with the liquid. By the resistance they here meet withal, their motion is destroyed; i. e. they communicate it wholly to the quiescent water: hence arises, at first a small intestine motion in the water, and from the continued action of the first cause, the effect is increased, and the motion of the water continually accelerated: so that the water by degrees, becomes sensibly agitated. But now the particles of the fire striking on those in the lower surface of the water, will not only give them an impulse upwards, contrary to the laws of *æquilibrium*, but will likewise render them specifically lighter than before, so as to determine them to ascend according to the laws of *æquilibrium*; and this, either by inflating them into little vesicles, by the attraction of the particles of water around them; or by breaking and separating the little spherules of water, and so increasing the *ratio* of their surface to their solid content. There will therefore be a constant flux of water from the bottom of the vessel to the top, and consequently a reciprocal flux from the top to the bottom; i. e. the upper and under water will change places; and hence we have the reason of that *phenomenon*, of the water's being hot at top sooner than at bottom.

Again, an intense heat will diminish the specific gravity of water, so as not only to make it mount in water, but also in air; whence arise the *phenomena* of vapour and smok; though the air inclosed in the interstices of the water must be allowed a good share in this appearance: for that air being dilated, and its spring strengthened by the action of the fire, breaks its prison, and ascends through the water into the air; carrying with it some of the contiguous spherules of water, so many as shall hang in its *villi*, or can adhere immediately to it.

The particles of air in the several interstices of the fluid mass thus expanded, and moving upwards, will meet and coalesce in their passage; by which means great quantities of the water will be heaved up, and let fall again alternately, as the air rises up, and again passes from the water: for the air, after coalition, though it may buoy up a great heap of water, by its elasticity while in the water; yet cannot carry it up, together with itself, into the atmosphere; since, when once got free from the upper surface of the water in the vessel, it will unbend itself in the atmosphere; and so its springs and force will become just equal to that of the common unheated air. Add to this, that were the spring and motion of the air sufficient to carry up the water with it, yet it would not have that effect; but the water would run off at the extremities of the air; all except so much as should be either entangled in its *villi*, or immediately adhere to its surface by attraction: and hence we see the reason of the principal *phenomenon* of *boiling*, viz. the fluctuating of the surface of the water. Boiling water disposes it to freeze more readily. See **WATER**.

We generally annex the idea of a certain very great degree of heat to the *boiling* of liquids; but this does not seem to be a connection of nature's making, but of our own. It is reported by many, that a vessel of tar being set over the fire till it *boils*, a person may, while it is *boiling*, put his hand into it without any injury; and that

the artificers who use and prepare this commodity, know this property of it so well, that they usually take the skum from their pots off it, while *boiling*, with their naked hands.

Water, in the receiver of an air-pump, when exhausted, will *boil* without any great heat. The receiver, should for this experiment, be one part full of water, and three empty: in this case, the flame of a candle being placed under the vessel, the water will *boil* violently, while the glass itself is scarce warm; and when the water has been thus kept *boiling* a quarter of an hour, the glass will scarce be any thing the hotter for it. When the candle is taken away, the water will still continue a great while *boiling*; and when it ceases first, will renew itself again from time to time to a very great ebullition. All the bubbles that rise out of the water on this occasion, do not raise the mercury in a gage to any sensible height.

Spirit of wine, in the same manner, *boils* much sooner *in vacuo* than the water, and in this state will raise the mercury in the gage to an inch higher than its former standard. If the receiver containing it in this *boiling* state, be plunged into cold water, the liquor instead of becoming calm, *boils* more strongly than before. It might be supposed that this *phenomenon* was owing to a *peristalsis*; but we have more grounds to say it came from hence, that the vapours of the spirit were more condensed, and so made the receiver more empty, which is sufficient to make the spirit of wine *boil*, though it were not hot, as liquors usually do when put into the engine, and the air exhausted. In all these, and many other cases, *boiling* is induced without that heat, which is supposed a necessary concomitant of it. Phil. Trans. N^o 122.

ALABASTER, in *boiling*, will swell a sixth or eighth part above the top of the pot.

Different fluids require different degrees of heat to make them *boil*. Dr. Freind gives a table of the different times required to make several fluids *boil* by the same heat.

WATER, when once brought to *boil*, is not susceptible of any farther degree of **HEAT**, however the fire be increased: but this differs according to the weight of the atmosphere, and the purity of the water.

BOILING of silk with soap, is the first preparation in order to dyeing it. Thread is also *boiled* in a strong *lixivium* of albes, to prepare it for **DYING**.

Boiling is also a part of the process of **BLEACHING** warp linen.

BOILING to death, *caldariis decoquere*, in the *Middle Age*, a kind of punishment inflicted on false coiners, thieves, and some other criminals.

This punishment was inflicted on those who were guilty of murder by poison, 22 Hen. VIII. cap. 29. but this act was repealed by 1 Edw. VI. cap. 12.

BOILING is also a method of trying or assaying the goodness or falseness of a colour or a dye, by *boiling* the stuff in water with certain drugs, different according to the kind or quality of the colour, to try whether or no it will discharge, and give a tincture to the water.

With this intention, red crimson silks are *boiled* with alum, and scarlets with soap, in quantity equal to the weight of the silk.

BOILING waters, in *Natural History*. See **SPRING**, and **WATER**.

BOIOBA, in *Zoology*, the name of a species of serpent found in America, and called by the Portuguese *cobra de verd*. It is about an ell in length, and of the thickness of a man's thumb, and is all over of a very beautiful and shining green. Its mouth is very large, and its tongue black. It loves to be about houses, and never injures any creature unless provoked or hurt; but it will then bite, and its poison is very fatal. The natives take, as a remedy against its poison, the root *CAA-APIA* bruised, and taken in water.

BIOQUIRA, in *Zoology*, a name by which the natives of some parts of America call the **RATTLE-SNAKE**.

BOITIAPPO, in *Zoology*, is a serpent of Brasil, called by the Portuguese *cobra de cipo*. It is seven or eight feet long, as thick as a man's arm, round and pointed toward the tail, like a shoe-maker's awl. It is covered with fine, and as it were, triangular scales; and is of an olive colour, and yellowish. It lives upon frogs, &c. and its bite is dangerous, like that of many other serpents.

Its flesh might be as effectually used as that of the viper, for purifying the blood; and as an alexipharmic.

BOLBONACH, in *Botany*. See **HONESTY**.

BOLE, in *Medicine*, is applied to several kinds of earths that enter some of the Galenical compositions.

Boles are native fossile earths, usually somewhat unctuous; so that when mixed up with water, they may be wrought into a paste; but are not soluble either by water or fire: such are argill, or white clay, *axungia terræ*, or *axungia lunæ*, *cimolia*, fuller's earth, *boles* white and Armenian, the

the Chian, Eretrian, Lemnian, and Maltese earths, ruddle, Samian, Silesian, Toccavian, Bohemian, French, and all the sealed earths. But there are others of a dryer and leaner kind as chalk, ochre, and marle.

The *boles* are slightly ductile but not viscid; nor do they burn to such a stony substance as the clays, which are the distinguishing characteristics between the *boles* and the *CLAYS*. Mr. Da Costa distributes them, according to their colour, into the white, the ash-coloured, the red, the yellow, the brown, and the green; and he again subdivides each sort into such as are not acted upon by acids and the alkaline *boles*.

The chief medicinal uses of *boles* are as astringents to stop bleedings. They are generally hurtful in fevers, especially epidemical ones, and externally in the hæmorrhoids, &c.

Bole earths seem divisible into two species, according as they are more or less tenacious; in which view loam and clay may represent them all. Even these two seem only to differ in respect of the fineness or coarseness of their component parts, which renders them more or less tenacious, clinging, or adhesive. To make a true judgment of the quality of this kind of earth, the following experiment may be useful.

Common loam was mixed into a mass with water, and then dried; to shew that, compared with clay, it would easily break, crumble, and fall to powder; but beating some loam fine in a mortar, and mixing it well with water, it clung like clay; and when dried adhered more tenaciously than before.

This shews that, not only loam and clay, or all the *bolar* earths, are nearly the same thing, when their component parts, or gravelly and sandy matters, are reduced to the same degree of fineness; but also supplies us with a plain and simple rule for the improvement of the art of pottery, and the imitation of China ware; and perhaps certain curious *boles* may afford very delicate matters for pottery wares; and even of various colours not less curious than the white: nor is it altogether clear, why that colour alone should be made the chief basis of this art. The rule is, to grind or beat the earths employed, to an extreme degree of fineness; and accordingly porcelaine has been imitated in Europe by tobacco-pipe clay, and other earths, exceedingly fine ground, mixed into a paste with water, and properly baked and burnt.

Marles, or *boles*, also afford a fit matter for the making of crucibles, retorts, &c. They likewise serve to procure the discontinuation and division of certain salts, and other materials that would otherwise rise, and boil over in the operation. These are, therefore, employed in the distillation of NITRE, TURPENTINE, WAX, &c.

They contribute likewise more materially, more intimately, and essentially as to quantity, in the fixation of certain bodies in chemistry; as of oils for example, of common sulphur, and even of mercury: for which, see Becher's first Supplement to his *Phylica Subterranea*.

There are chiefly two sorts of *bole* used in medicine; the *Armenian* and the *common*.

BOLE Armoniac, or the *Armenian BOLE* is a soft, friable, fatty earth, usually of a pale red colour; though there are two other kinds, a yellow and a white. They are all easily pulverized, and adhere to the tongue.

This, popular, though corruptly, called in English *bole Armoniac*, is called by the naturalists, *Armenia terra*, or *Armenian clay*.

The true history of this substance, is this: there are three kinds of it; the white, the yellow, and the red, which have been all in repute in different ages of medicine, but of which the last only is now thought of. The first or *white BOLE Armenic* was in use very early in the world, though under a different name, the ancients calling it the *white Eretrian EARTH*. This was used in the times of Dioscorides. The second or *yellow* was introduced by Galen, and given in the great plague at Rome in his time. The third or red kind is the *BOLE Armenic* of Avicenna; which we also pretend at this time to use; but very little of it is to be found genuine among us.

The *white BOLE Armenic*, called *white Eretrian EARTH* by Dioscorides, to distinguish it from the grey earth of the same place, which was recommended as a noble astringent and sudorific, and highly valued on account of its peculiar alkaline quality, is a fine, soft, and pure earth, moderately heavy, and of a close compact texture, of a clear, bright-white colour, adhering firmly to the tongue, insipid to the taste, and melting, like butter, in the mouth. It burns to a stony hardness without changing colour, and makes no effervescence with acid menstrua. This seems, of all fossile substances, to approach the nearest to the nature of pure earth. This *bole* was in high esteem among the Greek and Roman painters: it is now dug in the eastern part of Armenia; but is found in no great plenty, there being only one stratum known of it, and that not very thick. It is now chiefly supplied from Norway, and places nearer of access.

This is esteemed a sudorific, and by some astringent; but without foundation; for, as it appears from Neumann's experiments, that it differs from the two other kinds, in containing no iron matters; it must want also their astringency; and from the same experiments it appears, that it can be no more absorbent than the other *boles*; and just as little pretence have any of them all to the antipestilential and alexipharmic qualities, for which they have been celebrated. See an account of their examination, both by acids and distillation, in Neumann's Works, p. 22, & seq.

Some have a method of recovering the lustre of pearls, especially the Scotch ones, by warming them a little over the fire, and rubbing them with powdered *white BOLE*. Neumann.

The *yellow BOLE of Armenia*, or the *BOLE Armenic* of Galen, is a very fine and beautiful earth, of a close compact texture; naturally of a smooth surface, and very hard. It is heavier than any other of the yellow earths; and is very soft to the touch. It is readily diffusible in water, and remains long suspended in it, adheres firmly to the tongue, melts slowly in the mouth, and is of a very manifestly astringent taste. It ferments very briskly with acid menstrua, and does not become red on burning. There have been many disputes about the place whence this excellent drug was brought: Aëtius will have it to be from the mountain Bagonosa in Armenia; Cardan, only from the island of Samos; and others, from other places: but it is found to this day in Armenia, to the north-east of Erzeron, in vast abundance. It seems the most valuable of all the medicinal earths. Experience proves it to be a very noble astringent. Many authors extol it highly as a sudorific and alexipharmic; and Galen reports of it, that it often suddenly cured the plague, and that those whom it did not cure, were relieved by no other medicines. It would be extremely worth while to encourage the use of this drug, as it may be had in any quantities; for much of it is carried to Germany every year, and sometimes a little of it is brought to us; and when this is the case, our druggists not being used to a *yellow BOLE Armenic*, sell it under the name of *BOLE of Blois*. The *red BOLE of Armenia*, or *BOLE Armenic* of Avicenna, and of most authors since his time, is the hardest of all the earths of this kind. It is very pure and fine, and in colour is of a strong, but somewhat yellowish red, much approaching to that of saffron in the cake. It is of a surface the least smooth and glossy of all the *boles*. It stains the fingers in handling, and is not readily diffusible in water. It adheres firmly to the tongue, melts readily in the mouth, and is of a very manifestly astringent taste. It does not ferment with acids, and becomes harder and of a brighter colour in burning. These are the several characters by which the *Armenian BOLES* may be distinguished from all other earths of the same colours. This last species is what we now pretend to use. It is found in vast plenty in the north-east parts of Armenia, and is sometimes used in Germany, but scarce ever seen in England. What is called *bole Armenic* in our shops being no other than a bad composition of no better materials than common tobacco-pipe clay, and an ochre known among painters by the name of Spanish-brown.

BOLE, Armenian, is used in diarrhoeas, dysenteries, catarrhs, &c. Some also give it an alexipharmic virtue, efficacious in pestilential diseases; but its use, in this intention, is at best dubious. See above.

The Germans for the *Armenian BOLE*, use that of Tockay, in Upper Hungary, which Crato holds preferable to it. The French use a like clay, found in divers provinces of that kingdom; and the English, *FULLERS-EARTH*.

BOLE, common. This is a ponderous brittle earth, of a colour between yellow and red, of an astringent taste, and is found in many parts of France. It has the same virtues with the former, and is to be met with in the shops. As both these *boles* are frequently mixed with sand and grit, the apothecaries prepare them in the following manner. They dissolve them in water; and after the sand is subsided, they pour the turbid solution into another vessel, where it remains till the water is clear; being poured off, the sediment is dried in little cakes, and kept for use.

They may be prescribed to be taken inwardly, either alone, or mixed with the sealed earths.

BOLE of the Levant is a medicinal earth brought from the Levant, nearly of the same nature; and having the same uses with the *bole Armoniac*.

BOLE is also used for the body or trunk of a tree; and hence *boling trees* are those whose heads and branches are cut off.

BOLE, Bolus Blefensis. See *BLESENSIS*.

BOLE, Bohemic, *Bolus Bohemica*; is a medicinal earth dug in many parts of the kingdom whose name it bears. It is a pure and fine *bole*, of a dense and compact texture, of a yellowish pale red colour, with some yellowish veins, heavy,

heavy, of a smooth shining surface ; it easily breaks between the fingers, does not readily melt in the mouth, leaves no grit when melted, and is of an astringent taste. It does not effervesce with acids, and in the fire acquires little hardness without change of colour. In the German practice it is used for hæmorrhages, &c. and esteemed to possess an alexipharmic virtue.

BOLE, *Bolus Etrusca*, the same with *ETRUSCA terra*.

BOLE, *Bolus Gölbergenfis*, the same with *terra GOLTBERGENSIS*.

BOLE, *Bolus Lemnia*, the same with *LEMNIAN earth*.

BOLE, *Bolus Livonica*, the same with the *LIVONICA terra*.

BOLE, *Bolus Lusitanica*. See *LUSITANICA*.

BOLE, *Bolus Noccriana*, the same with *NOCERIANA terra*.

BOLE, *Bolus Veneta*. See *VENETA bolus*. See also *TERRA*, and the references under that article.

BOLE of *Virginia*, *Bolus Virginiana*. See *VIRGINIANA*.

BOLENIÆ, or **BOLÆ**, in *Natural History*, a name given by ancient writers to a sort of stone of a roundish figure and marked with several ridges and lines. They are supposed to be the same with those called *BRONTIÆ* and *OMBRIÆ*, both being imagined to fall from the clouds in time of thunder-storms ; but they are really no other than a common species of *ECHINITÆ*.

BOLETO LICHEN, a name given by M. Jussieu to a plant, which partakes of the nature of the *morille* and of the *liverwort*, and which he has accurately described in the *Memoirs of the Academy of Sciences at Paris*, 1728.

The whole plant has the smell of the common mushroom, and, when young, has a viscous liquid contained under the foldings of its head, which finally, when the plant is arrived at maturity, dries into the form of an extremely subtle yellow powder, which is the seed.

BOLETUS, in *Botany*, a word used by Linnæus to express a genus of *FUNGUSES*, belonging to the class of *cryptogamia*, usually comprehended by authors under the name of *AGARICS*, though very different from them. The *AGARICS* and *boleti* are both horizontal mushrooms ; that is, they have no pedicle, but grow to trees, &c. by their side ; but the first are lamellated underneath, in the manner of the common mushrooms ; the *boleti* are all porous underneath.

The species of *boletus*, enumerated by Mr. Tournefort are seven.

The *boletus* is a kind of wood-mushroom, almost round, of a white colour, spotted with yellow and brown marks ; by some naturalists called *FUNGUS nemorum*.

The *boletus* is the most exquisite fo all the *FUNGUS-kind*. The Roman epicures were particularly fond of it. Nero used to call it the food of the gods. The emperor Claudius is said to have been poisoned with a medicated *boletus*, given him by his wife.

BOLINTHOS, in *Natural History*, a name given by Aristotle, and some of the other ancient Greeks, to the *monops* of *Ælian*, that is, the *BONASUS*.

BOLLANDISTS, in *Literary History*, a denomination given to certain Jesuits of Antwerp, who have been a considerable time employed in collecting the lives and acts of the saints.—Thus called from F. Bollandus, one of the first and chief of the association.

BOLLARDS, large posts set in the ground on each side a dock. On docking or undocking ships, large blocks are lashed to them ; and through these blocks are reeved the transporting haulers to be brought to the capstans.

BOLLITO, in the *Glass Works*, a name by which the Italians called a sea-green colour or artificial crystal.

To prepare this colour you must have in the furnace a pot filled with forty pounds of good crystal, first carefully skimmed, boiled, and purified, without any manganese ; you must then have twelve ounces of the powder of small leaves of copper, thrice calcined, half an ounce of zaffer in powder ; mix them together, and put them at four times into the pot, that they may the better mix with the glass ; stirring them well at each time of putting in the powder, lest they should swell too much and run over.

BOLLOS, in the mines of Peru, a denomination given to the ingots or bars of silver procured there from the ore by the operation of the fire, and the use of *aqua fortis*.

BOLOGNA-bottles. See *UNANNEALED bottles*.

BOLOGNIAN stone. See *BONONIAN*.

BOLSTER, among *Surgeons*, a soft yielding substance either laid under the head or a broken limb.

BOLSTER is also used for a stuffing, intending to fill out or raise a flat, sinking, or hollow part.

In which sense *bolsters* are contrived for crooked, bunched, and other distorted backs, shoulders, &c.

BOLSTERS of a saddle, in the *Manege*, those parts which are raised on the bows, both before and behind, to rest the rider's thighs, and keep him in a posture of withstanding the disorders which the horse may occasion.

Common saddles have no *bolsters* behind, or even before.

BOLSTERS, in *Sea Language*, small cushions or bags, filled

with tarred canvass, and laid between the collars of the stays, and the edge of some piece of wood on which they lie ; they are designed to preserve the stays from being chafed by the motion of the masts, as the ship rocks at sea.

BOLT, in *Building*, an iron fastening for a door, moved with the hand, and catching in a staple or notch made to receive it.

Bolts are chiefly of three kinds : *plate*, *round*, and *spring-bolts*.

BOLT of a lock is the piece of iron which, entering the staple, fastens the door ; being the part which is moved backwards and forwards by turning the *KEY*.

Of these there are two sorts ; one shuts of itself by only putting to the door, and is called a *spring-bolt* ; the other, which only moves when the key opens or shuts it, is called a *dormant-BOLT*.

BOLT is also used for a large iron pin, having a round head at one end, and at the other a key-hole or slit, wherein to put a pin or fastening, serving to make fast the bar of a door, window-shutter, or the like.

This is more particularly called a *round BOLT*, or *window-BOLT*.

BOLTS, in *Gunnery*, are of several sorts ; those which go betwixt the cheeks of a carriage to strengthen the transoms are called *transom-BOLTS*. The large iron bolts or knobs on the cheeks of a carriage, keep the hand-spike from sliding, when it is pointing up the breech of the piece. The two short bolts that being put one in each end of an English mortar-carriage, serve to traverse her, are called *traverse-bolts*. The bolts that go through the cheeks of a mortar, and, by the help of quoins, keep her fixed at the elevation given her, are called *bracket-bolts*. And the four bolts that fasten the bracket or cheeks of a mortar to the bed, are called *bed-bolts*.

BOLTS, in *Carpentry*, denote pieces of wood cleft with wedges, in order to be split into laths.

BOLTS, or iron pins, in a ship, are of several sorts, frequently distinguished according to the places where they are used ; as, *chain-bolts*, bolts for carriages, &c. *ring-bolts*, serving for the bringing-to of the planks, &c. *drive-bolts*, used to drive out others ; *set-bolts*, employed for forcing the planks, and other works, and bringing them close to one another ; *rag-bolts*, on each side full of jags or barbs, to keep them from flying out of their holes ; *clench-bolts*, those which are clenched or fastened at the ends where they come through ; *fore-lock-bolts*, made like locks with an eye at each end, whereunto a fore-lock of iron is driven to prevent starting out ; *fend*, or *fender-bolts*, made with long and thick heads, struck into the outermost bends or wales of a ship, to save her sides from bruises and hurts.

BOLT is also used for a measure or certain quantity of canvas, amounting to twenty-eight ells.

BOLT of silk or stuff denotes a long narrow piece, of indefinite measure.

BOLT, *pease*, in *Essex*, denotes the pease-straw, when the grain is thrashed out of it.

BOLT, *thunder*. See *THUNDER-bolt*.

BOLT-rope, in *Sea Language*, is that to which the edges or skirts of the sails are sewed, to strengthen and prevent them from rending.

BOLTED flour, that which has passed through the *BOLTER*.

BOLTEL, in *Building*, any prominence or jutting out, as of a piece of timber, end of a beam, or the like, advancing beyond the naked of the wall.

BOLTERS, or *BOULTERS*, a kind of sieves for meal, having the buttons made of woollen, hair, or even wire.

The word seems derived from the German, *beutel*, a sieve ; whence also *beutel*, to bolt.

The bakers use *bolters*, which are worked by the hand ; millers have a large sort, wrought by the motion of the mill.

BOLT-HEAD, the same as *MATRASS* ; a vessel used by the chemists.

BOLTING, or *BOULTING*, the act of separating the flour from the bran, by means of a sieve or *BOLTER*.

BOLTING-cloth, or *BOLTER-cloth*, sometimes also called *bulting-cloth*, denotes a linen or hair-cloth for sifting of meal or flour.

BOLTING-mill, a versatile engine for sifting with more ease and expedition. The cloth round this is called the *BOLTER*.

BOLTING, or *BOULTING*, among *Sportsmen*, signifies rousing or dislodging a coney from its resting place.

They say to *bolt* a coney, *start* a hare, *rouse* a buck, &c.

BOLTING, a method of pleading, or arguing, in use in the inns of court ; inferior to mooting. The case is argued first by three students, then by two barristers ; a *senior* sitting judge.

The word comes from the Saxon *bolt*, a house ; because done privately within doors, for instruction.

B O M

BOLUC *bassi*, in the *Turkish Affairs*, denotes the chief of a company, or a captain who has the command of an hundred janizaries.

BOLUS, in *Medicine*, an extemporaneous form of remedy; of a soft consistence, somewhat more so than that of an electary, and of the quantity of one dose, or morsel, to be swallowed down; contrived principally for the sake of such as have an aversion to potable medicines: as also for the better conveyance of certain preparations of mercury, antimony, &c. which by their weight would sink to the bottom of the glass; were they given in draughts.

There are *boluses* of various kinds, made with electaries, confections, conserves, pulps, powders, salts, oils, essences, extracts, syrups, &c. some of which ingredients must always have solidity or dryness enough to give a consistence to those that are liquid.

Boluses are chiefly denominated from their intentions, as emetic *boluses*, purgative *boluses*, astringent, anodyne, anti-febrile, alexipharmic, &c. *boluses*.

The choice of the proper ingredients for a *bolus* is regulated by the following considerations: a due cohesion, softness, and equable mixture, are essentially necessary to a *bolus*; for this reason, dry substances must be put to liquid ones, and liquid ones to dry, to produce the proper consistence; but the thicker electaries, conserves, and robs, are themselves naturally in form of a *bolus*.

Acrid substances, and such as are offensive either to the smell or taste, or are of a very viscid nature, are much more properly exhibited in form of *boluses* than of powders; since their offensive qualities are by this means concealed. The drastic purges, and mercurial preparations are therefore very properly given in *boluses*.

Balsams, and other such liquid substances, are best mixed into a *bolus* with sugar, because it not only is the means of their going down easily, but it assists their dissolution in the stomach. The alkaline, fixed and volatile salts, and all other substances which soon become liquid, are very improperly made ingredients in *boluses* which are to stand any time; since they spoil the form of the medicine, and lose their own virtues; and for the same reason, such substances as will ferment when brought together are very improper for *boluses* unless they are to be swallowed as soon as made up. To this may be added, that the number of ingredients in a *bolus* should never exceed three, or at the most four.

The number of *boluses* made up at once ought only to be one, or at the utmost two; but the apothecaries have got an almost universal custom at present of sending in four at a time; by which means, the last which are taken, are usually too hard to be swallowed, and often have lost all their virtues.

It is the common custom to wrap up *boluses* in leaf-gold, or in a wafer; but some choose neither of these, but will dissolve them in some liquor before they are taken. The signature on each *bolus* is to express its nature and design, the liquor to be taken with, or after it, and the regimen to be used; and it is highly necessary to give a convenient liquor after some of them, if we suspect they are made of ingredients which will not easily dissolve in the stomach: and this caution is to be regarded principally in those of the terebinthinous and other balsamic kinds. *Boluses* are a form of medicines almost universally useful. All we have to consider in regard to the taking of them is whether the patient is in a condition to swallow a solid morsel or not; and from hence it is easily inferred, that they are not to be given in quinsies, or in ulcers of the fauces; apoplexies, epilepsies, and syncopes, also render them very improper.

BOM, in *Zoology*, the name of an American serpent, remarkable for its noise, which is like the sound of the word used as its name. It grows to a vast size, and is perfectly harmless, never hurting any one.

BOMARIN, in *Zoology*, a name used by some for the *hipopotamus*, or river-horse.

BOMB, in the *Military Art*, a hollow iron-ball, or shell, filled with gun-powder, and furnished with a vent for a fusee, or wooden tube, filled with combustible matter; to be thrown out from a mortar.

The word *bomb* comes from the Latin *bombus*, *crepitus*, or *sibilus ani*: by reason of the noise it makes.

The method of preparing a *bomb* is as follows: a hollow iron globe AB (*Tab. Gunnery*, fig. 4 & 5), is cast pretty thick, having a round aperture A, by which it may be filled and lighted; and circular ansæ C, D, of hammered iron fixed in the mould when they are cast, for the commodious putting it into the mortar. In France the handles are cast iron.

It has been usual to make the lower part of the *bomb* the thickest, that it may fall on that side, and never on the fusee, and that it may also better resist the impression of the powder by which it is discharged from the mortar; but M. Muller thinks that neither of these considerations is

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is of any great importance, and recommends rather to make them every where equally thick, because they would thus burst into a greater number of pieces. *Artillery*, p. 151. in his system, &c. vol. v.

To prove whether it be staunch, after heating it red-hot on the coals; it is exposed to the air, so that it may cool gently: for since fire dilates iron, if there be any hidden chinks or perforations, they will be thus opened and enlarged; and the rather, because of the spring of the included air, continually acting from within. This done, the cavity of the globe is filled with hot water, and the aperture well stopped, and the outer surface washed with cold water and soap; so that if there be the smallest leak, the air, rarefied by the heat, will now perspire, and form bubbles on the surface.

If no defect be thus found on the globe, its cavity is filled with whole gun-powder; the most proper quantity of powder is probably two thirds of the weight which would fill the cavity. A little space or liberty is left, that when a fusee or wooden tube *a, c*, of the figure of a truncated cone, is driven through the aperture, and fastened with a cement made of quick lime, ashes, brick-dust, and steel-filings; worked together in a glutinous water; or of four parts of pitch; two of colophony, one of turpentine, and one of wax; the powder may not be bruised. This tube is filled with a combustible matter, made of two ounces of nitre; one of sulphur, and three of gun-powder-dust well rammed.

This fusee is set on fire, burns slowly till it reach the gun-powder, which goes off at once, bursting the shell to pieces with incredible violence; whence the use of *bombs* in besieging towns.

Special care, however, must be taken, that the FUSEE be so proportioned, as that the gun-powder do not take fire before the shell arrives at the destined place; to prevent which, the fusee is frequently wound round with a wet clammy thread.

The fusees are driven into the shell so as that only about an inch and a half comes out beyond the fusee-hole; and then the shell is said to be fixed: They are charged long before there is occasion to use them; and in order to secure the composition with which they are filled, the two ends are covered with a composition of tallow, mixed either with pitch or bees-wax. When the fusee is to be put into the shell, the little end is opened or cut off; but the great end is never opened till the mortar is to be fired. *Bombs* being made of different magnitudes, it may be proper to exhibit some of their dimensions; as in the following table.

Diam. of Bomb.	Thickness of Metal.	Diam. of Apert.	Quan. of Gunpow.	Weight of Bomb.
17, In. 10	2 In. 2. 10	,20	48lb.	490lb.
11 " 8	1 " 18	,16	15	130
8 " 8	0, 10	,13	4	40

Others make the thickness of the *bomb* $\frac{1}{8}$ or $\frac{1}{10}$ or $\frac{1}{15}$ of the whole diameter; and the diameter of the aperture $\frac{1}{5}$ or $\frac{1}{7}$ of the same.

Mr. Muller gives the following proportions, from the 13 inch *bombs* now commonly used, and observes that they may be easily adjusted to any other calibre in making the diameter of the shell to 30, as any part expressed by inches, to the same part expressed in parts of the diameter divided into 30 equal parts.

Diameter of the bore	—	—	30
Diameter of the shell	—	—	29.5
Diameter of the hollow sphere	—	—	21
Thickness of the metal at the fusee hole	—	—	3.5
Thickness at the opposite part	—	—	5
Diameter at the fusee-hole	—	—	4
Weight of the shell unloaded;	—	—	$\frac{d}{11.7}$
Weight of the powder contained in the shell	—	—	$\frac{d}{236.5}$

N. B. The letter *d* denotes the cube of the diameter of the bore.

Bombs only differ from GRANADOS, in that the latter are much less; and instead of mortars are thrown out of the hand.

Bombs may be used without mortar-pieces, as was done by the Venetians at Candia, when the Turks had possessed themselves of the ditch, rolling down *bombs* upon them along a plank set sloping toward their works, with ledges on the sides to keep the *bomb* right forwards. They are sometimes also buried under ground to blow up. See CAISON.

M. Blondel, who has wrote on the art of throwing *bombs*, observes that the first *bombs* were those thrown into the city of Watchtendonch, in Guelderland, in 1588, though others pretend they were in use a century before, viz. at the

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the siege of Naples by Charles VIII. in 1495. But they came not into common use before the year 1634, and then only in the Dutch and Spanish armies. One Malthus, an English engineer, is said to have first carried them into France, where they were put in use at the siege of Colliouze, in 1642.

The art of throwing *bombs* makes a branch of GUNNERY, founded on the theory of PROJECTILES, and the laws and quantities of GUN-POWDER.

Mess. Blondell, Guisnee, de Reffons, de la Hire, and others, have written expressly on the art of throwing *bombs*.

BOMB-battery. See BATTERY.

BOMB-chest, is a kind of chest filled usually with *bombs*, sometimes only with gun-powder, placed under ground, to tear and blow it up in the air, with those who stand on it.

Bomb-chests were formerly much used to drive enemies from a post they had seized, or were about to take possession of: they were set on fire by means of a *sauciffée* fastened at one end, but they are now much disused.

BOMB, water. See WATER-bomb.

BOMB-vessels, which are small ships formed for throwing *bombs* into a fortress, are said to be the invention of M. Reyneau, and to have been first used at the bombardment of Algiers. Till then, it had been judged impracticable to bombard a place from the sea. See KETCH.

BOMBARD, BOMBARDA, a piece of artillery anciently in use, exceedingly short and thick, and with a very large mouth, by some also called *basilisk*, by the Dutch *donderbus*. Some derive the word, by corruption, from *Lombard*, as supposing this piece first used in Lombardy. Du-Cange, after Vossius, derives it from *bombus* and *ardeo*; Menage, from the German *bombarden*, the plural of *bomber*, *balista*. But we doubt whether the Germans knew any such word. It is no unusual thing with Menage, and many other etymologists, to give derivations from words of their own making.

There were some of these pieces said to have carried balls of 300 pounds weight; Froissart mentions one of fifty feet long. To load them, they made use of cranes, &c. The *bombard* is supposed to have been in use before the invention of cannon.

Bombards can hardly be supposed to have been of metal, nor charged with gun-powder. They were rather a sort of *balistæ* for throwing stones, and were played with ropes.

BOMBARDIER, an engineer, or person, whose business is to take care of the firing and throwing *bombs* out of mortars.—He first drives the fusee, then fixes the shell, points, loads, and fires.

BOMBARDIER, in *Zoology*, a name given to a species of the insect called BUPRESTIS; the wings of which are inclosed in a kind of case to cover or wrap them up. It keeps itself concealed among the stones, and seems to make little use of its wings; it moves by a sort of jump, and when touched makes a noise resembling the discharge of a musket in miniature, during which, a blue smoke may be seen to proceed from its anus. It may be made at any time to play off its little artillery, by scratching its back with a needle. Rolander, who first made these observations upon it, says it can give twenty discharges successively. A bladder placed near the anus is the arsenal whence it derives its store, and this provision and furniture afford its chief defence against an enemy; although the smoke emitted seems to be altogether inoffensive, excepting it be by causing a fright, or concealing its course.

BOMBARDING, the art or act of attacking a city or fortress, by throwing bombs into it, in order to ruin or set on fire the houses and magazines, and do other mischiefs. *Bombarding* is not reckoned the most honourable method of making war, as it rather tends to do mischief to the inhabitants than to the works.

BOMBASINE, in *Commerce*, a kind of silk-stuff manufactured at Milan, and thence sent into France and other countries. The French also use the word *bombasine* for stuff made of cotton, more properly called dimity.

BOMBAST, in *Rhetoric*, denotes a STYLE too high and pompous for the subject and occasion; or a certain manner of elocution and action, which is grand when supported by dignity in the sentiment, and force in the expression, but never fails to appear ridiculous where the sentiment is mean, and the expression flat.

BOMBAX, in *Botany*, the silk-cotton tree, a genus of the polyandria monogynia class of plants. The characters are, that the flower is quinquefid and spreading; that it hath many stamina which are the length of the petal; that a round germen is situated in the centre; and that the empalement afterward becomes a large, oblong, turbinated capsule, having five cells which are ligneous, containing many roundish seeds, wrapped in a soft down. There are three species, which grow naturally in both the Indies.

These plants require a large stove, where they may have room to grow; but as they are several years old before

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they flower in the countries where they grow naturally; there is little hope of their producing any in England.

The seed is the only part used in medicine, which is of a balsamic nature, used in coughs, shortness of breath, and soreness of the lungs, causing expectoration, and freeing them from tough phlegm. It is also restraining, and good to stop fluxes of all sorts.

BOMBINA, in *Zoology*, a species of the RANA belonging to the order of reptiles.

BOMBUS, in *Music*, an artificial motion with the hands; imitating; in cadence and harmony, the buzzing of bees. The word is originally Greek, and signifies the buz or noise of bees, gnats, and the like.

In this sense, *bombus* made one of the species of applause used by the ancient auditories.

BOMBUS, in *Medicine*, denotes a murmuring noise, as of wind breaking out of a narrow into a larger cavity, frequently heard in the thick intestines.

The *bombus* heard in the ears, in acute diseases, is laid down by Hippocrates as a sign of death.

BOMBYCINUM, in *Ancient Writers*, properly denoted a species of silk, brought from Assyria and the island of Cos. In which sense, it stood distinguished from SERICUM, another sort of silk brought from the Indies.

BOMBYCINUM velamentum. See VELAMENTUM.

BOMBYLIUS, in *Natural History*; the name of the common humble-BEE, of which we have a great variety of species, many of them very beautiful.

Mr. Ray, in his History of Insects, mentions no less than nineteen species, all wholly different from one another.

In the Linnæan system, it is a genus of the order of diptera.

BOMBYLOPHAGES, *humble-bee eater*; in *Natural History*, the name of a fly of the TIPULA; or father-long-legs kind, which is larger and stronger than the common kinds; and loving honey, without knowing how to extract it from the flowers, it seizes on the *humble-bees*, and destroys them, in order to get at the bag of honey which they contain. It is of a blackish colour in the body; its head is of a bright red, and the eyes very large and prominent. It is chiefly found in mountainous places.

BOMBYLUS teredo, in *Natural History*, the name of a species of *humble-bee*, which eats its way into wood, and there makes its nest.

BOMBYX, in *Natural History*, a name given by some authors to a species of winged insect, armed with a sting in the manner of the bees and wasps. It is of the shape of a wasp, but all over black in colour; it stings very severely, always leaving the sting in the wound. It builds its nest of clay, which it works up to a very hard consistence, and finally fastens to a stone.

BOMBYX is also a name given to the SILK-worm.

BOMEYX, in the *Ancient Music*, a kind of instrument, which, in Aristotle's time, was made of a reed, *calamus*, and, by reason of its length, was difficult to play on.

The word seems also to have been used for a contrivance of horn, for shutting and opening the holes of wind instruments.

BOMBYX, in the *Ancient Naturalists*, signifies indifferently either silk or cotton.

BOMONICA, in *Antiquity*, an appellation given, at Sparta, to the children who, in the sacrifices of Diana, strove who should receive the greatest number of stripes with rods, which they sometimes continued to do the whole day, and even, as Plutarch relates, to death itself.

The word is formed from *βωμος*, altar, and *νίκη*, victory; importing as much as *victor ad aras*, or conqueror at the altars.

BON, or BAN, in *Botany*, a name given by some authors to the tree, the kernel of whose fruit is the coffee. The fruit is, by the same authors, called *buna*.

BON is also the name of a yearly feast celebrated by the Japanese in honour of the dead.

BONA fides, or *BONA fide*, is used in speaking of things done with an honest intention, in opposition to those done with a design of fraud and deceit, said to be *mala fide*. In this sense, we say, a grant, a conveyance, *bona fide*.

In many cases, in the civil law, the *bona fide* of an action excuses the want of some of the customary forms.

Contracts *bona fidei*, among *Civilians*, stand contradistinguished from those *stricti juris*; the former being gained by plain honesty and conscience, which sometimes include several things not expressly mentioned; whereas the latter are restrained to the express terms of the deed.

A buyer *bonæ fidei*, is he who really believed the thing to belong to the seller at the time when he purchased it.

A possessor *bonæ fidei*, is he who is in possession of a thing belonging to another, but which he truly believes is his own. To be entitled to the benefits of next accession, it is requisite the persons have possessed the thing *bona fide*, or really thought themselves the proprietors.

PRESCRIPTION cannot arise from acts done *mala fide*; since what was unjust in its origin, can never be made just by time and continuance.

BONÆ fidei Actions, those wherein for farther light, the judge

judge might take cognizance of things not mentioned between the parties.

BONA fide Judgment, that wherein the parties are obliged to pay each other what is due *bona fide*, i. e. justly and equitably; and the judge has a power of estimating what is thus due to the actor or plaintiff; a power given him by the formula of the *prætor*, viz. *Ex fide bona, vel quantum æquius melius*.

BONA gratia, a phrase anciently used in speaking of divorces, which were brought amicably about for some just reason, with the consent of both parties, and without any crime on the part of either, as in case of old age, disease, barrenness, monachism, captivity, or the like.

BONA defuncti ad colligendum. See **COLLIGENDUM**.

BONA mobilia. See **MOBILIA**.

BONA notabilia, in Law. Where a person dying has goods, or good debts, in another diocese, but within the same province, besides his goods in the diocese where he dies, amounting to the value of five pounds, at least; he is said to have *bona notabilia*: in which case, the probate of his will, &c. belongs not to the bishop of the diocese where he dies, whose jurisdiction cannot extend beyond the bounds of his own diocese, but to the archbishop of the province.

Though if a person happens to die in another diocese than that wherein he lives, on a journey; what he hath about him above the value of five pounds, &c. shall not be *bona notabilia*.

BONA patria, a JURY or ASSISE of countrymen, or good neighbours.

BONA peritura, perishable goods. By stat. 13 Ed. I. cap. 4. the cargo of a ship that hath been cast away shall be kept for a year and a day, and restored to the rightful owner; but if the goods be such as will not endure so long, they are *bona peritura*, which the sheriff is allowed to sell, and to account in money for the value.

BONA vacantia, goods; such as royal fish, shipwrecks, treasure-trove, waifs, and estrays, in which no one can claim a property. These goods, by the law of nature, and by the imperial law, belonged to the first occupant or finder; but in the modern constitutions of European governments, they are annexed to the supreme power by the positive laws of the state.

BONIS arrestandis, ne dissipentur. See **ARRESTANDIS**.

BONIS, non amovendis, a writ directed to the sheriffs of London, &c. where a writ of error is brought, to charge them that the person against whom judgment is obtained be not suffered to remove his goods, till the error is tried and determined.

BONIS, Terris, & catallis rehabendis post purgationem. See **TERRIS**.

Arresto facto super BONIS mercatorum. See **ARRESTO**.

BONORUM attachiamenta. See **ATTACHIAMENTA**.

Summum BONUM. See **SUMMUM**.

BONASIA, in Ornithology, a species of the **TETRAO**.

BONASUS, in Zoology, the name of a species of wild-ox of the size of the tame kind common with us, but of a thicker body, and having on its neck a mane like that of a horse, and horns very short and crooked, so as to be of no use to him in fighting.

When he is urged, he is able to throw out his dung a great way, and it is then of a hot and corrosive nature, though not so at other times; and this is the method of defending himself: a thing hardly credible, as Mr. Ray justly observes, if we had not instances of other animals, which possess the like faculty. See **GLAMA**.

BOND. See **COUNTER-BOND**, and **OBLIGATION**.

BOND-tenants, are the same, in respect to the nature of their tenure, with *copy-holders*, and *customary-tenants*. Blackstone's Comm. vol. ii. p. 148.

BOND, in MASONRY and Brick-laying, is when bricks or stones are, as it were, knit and intewoven; and when they say, make good bond, they mean that the joints are not made over, or upon other joints; but reach at least six inches, both within the wall and on the surface, as the art of building requires.

BONDAGE properly denotes a state of servitude or slavery.

BONDAGE, *bondagium*, in English Law Writers, the same with **VILLENAGE**.

Tenants in *bondage* paid heriots, and did fealty; they were not to fell trees in their own garden, without licence of the lord.

The widow of a tenant in *bondage* held her husband's estate, *quamdiu vixerit sine marito*.

BONDAGE, by the forelock, or *bondagium per anteriores crines capitis*, was when a freeman renounced his liberty, and became slave to some great man; which was done by the ceremony of cutting off a lock of hair on the forehead, and delivering it to his lord; denoting, that he was to be maintained by him for the future.

Such a *bondman*, if he reclaimed his liberty, or were fu-

gitive from his master, might be drawn again to his servitude by the nose; whence the origin of the popular menace, *to pull a man by the nose*.

BONDMAN, *bondus*, in the English Law, is used for a **VILLAIN**, or tenant in **VILLENAGE**.

The Romans had two kinds of *bondmen*; one called *servi*, who were those either bought for money, taken in war, left by succession, or purchased by some other lawful acquisition; or else born of their *bondwomen*, and called *vernæ*. Both are called in our law *villains in gross*, as being immediately bound to the person and his heirs. We may add a third kind of *bondmen* mentioned by Justinian, called *adscriptitii glebæ*, or *agricensiti*; who were not bound to the person, but to the ground or place, and followed him who had the land. These, in our law, are called *villains regardants*, as belonging to the manor or place.

In the English as well as Scottish laws, those called by the Romans *vernæ*, are sometimes also denominated *nativi*, as being born on the land.

The word is formed from the Saxon *bond*, signifying a fetter.

BONDUC, in Botany, the name given by Plumier to a genus of plants, afterwards characterised by Linnæus under the name of **GUILANDINA**.

BONDUCH, in the *Materia Medica*, a name by which many authors have called the Molucca, Marfao, or Bezoar nuts.

BONE, in Anatomy, a white hard, brittle, insensible part of the BODY, framed for the defence of the soft parts; and the support of the whole fabric. See **BODY**, **PART**, &c.

Bones are divided according to the parts wherein they are found, into the bones of the head, the feet, the thorax, &c. From their offices, figures, &c. many have likewise proper names, as the *os sacrum*, *jugale*, *lacrymale*, *coecundix*, *pubis*, &c. Spongy bones, *ossa spongiosa*, are those full of large pores, formed like honey-combs. Bones have their vessels and circulating fluids, and, in short, the same general texture which other parts have; solidity, and the stronger cohesion of parts, are the only evident distinguishing character of the composition of bones. Monro. Med. Ess. Ed. vol. v. art. 24.

There is at least one artery for each bone, several having more, for the conveyance and secretion of the medullary matter. After the ingress of the artery into the bone, it divides into a number of branches, which are distributed *quaqua versum* on the internal membrane. The blood, which remains after the secretion of the marrow, is returned by proper veins, some of which pass out of the bone either at the same hole whereby the artery entered it, or very near it.

In a bone we consider divers things; the body, which is the middle or greater part, called by Galen *diaphysis*; the heads, which are the great protuberances at the ends; the neck, the part immediately under the head; *supercilia*, the extremities of the sides of a cavity at the end of a bone; ridges, the prominent, salient parts in the length of the body of the bone.

Some cavities are formed for articulation, called *cotyles* and *glews*, which contain a mucilaginous humour, separated from the glands of that name; others, not subservient to articulation, receive different names, according to their figures; some being called *foramina*, or holes; others, *fossæ*, or trenches; others, *sulci*, or furrows, &c. Heister. Comp. Anat. § 45, &c.

Bones, with regard to their form and structure, may be divided into flat or broad, which have thin solid sides, and a thick intermediate spongy part; and round, which are more hollow, having the solid part thicker and stronger.

Bones may be divided with regard to their consistence; 1. Into rocky, *ossa petrosa*, which are hardest of all; as the temple-bones, those of the ear, the thigh-bone, *tibia*, &c. 2. Soft bones, *ossa mollia*; as the *ethmoides vertebræ*, *carpus*, *tarsus*, and the *epiphyses*. 3. Solid bones, *ossa solida*, those without any cavities; as the *omoplatæ*, *ischion*, the teeth, &c.

The bones, in respect of their internal structure, may be divided into those which have a considerable cavity within, filled with marrow, as the bones of the arms and legs; and those which have no such cavity, or marrow, as the bones of the skull and ribs, &c.

Little bones are denominated **OSSICLES**.

The bones are all covered with a peculiar membrane, called the *periosteum*; and are most of them hollow, and filled with an oily substance called marrow.

Dr. Havers, describing the texture of the bones, observes, that they consist of *lamellæ*, or plates lying one upon another; and those, again, of fibres running lengthwise, some to the extremities of the bones, others not so far, but none of them terminating there in distinct ends, as

they seem to do; but, in lieu of that, continued transversely, and as it were arched: the fibres of one side meeting and uniting with those of the other; and this at each extremity. So that the fibres are a continuation of each other; though not in the same uniform order, but in very long ellipses; not all of a length, however, but in each plate shorter and shorter than in another.

These *lamellæ*, or plates, are differently disposed, in different bones; v. gr. in those that have a large cavity, they are contiguous on each side, and very closely united; in those again, whose cavities are small, or which are altogether spongy within, many of the internal *laminae* are placed at a distance from each other, having betwixt them little bony cells; and even in bones that have a larger cavity, some of these lesser cells are usually found at each extremity. In such bones as have their plates contiguous, there are pores through and between the plates, besides those made for the passage of the blood-vessels: the first penetrate the *laminae* transversely, and look from the cavity to the external surface of the bone; the second run longitudinally between the plates: the first are found in every one of the *laminae*; though the nearer the cavity, the greater the number of pores; but they do not lie directly over one another, so as to form any continued passage from the cavity to the surface: the second are seldom found but by good glasses; a medullary oil is diffused, by these, throughout the plates; and to those, the first kind seems only subordinate, serving to bring the oil into them.

On viewing the bones with the assistance of good glasses, their superficial part is found to consist of a great many small vessels, and some few of a larger size; which last, when they come to the surface of the bone, appear invested with either a membrane or a bony substance, perfectly transparent. The inside of the bone is a spongy or cellular substance, consisting of long particles closely united; and these are composed of numberless small vessels, closely united, and some running lengthways, others taking their course toward the side of the bony fibres; which, notwithstanding their great number of apertures, are extremely hard, and lie some parallel, and others perpendicular to the length of the bone. Mr. Leewenhoeck discovered once, in a small bit of a thin bone, four or five vessels, with apertures large enough for a silk to pass through, each whereof seemed furnished with a valve, disposed in such a manner as to let out what was contained in the vessel, but suffer nothing to return into it.

The way to examine the bones, is to shave off, with a very sharp pen-knife, extremely thin pieces, lengthwise, crosswise, and obliquely, and these from the outside, inside, and middle of the bone, and apply these, some dry, others moistened with water, to the focus of the double microscope; and thus the vessels will be seen in all directions: but the best way of seeing the bony structure, is by putting the bones in a very clear fire till they are red-hot, and then taking them out carefully, you will find the bony cells, though tender, perfect and entire; and, being now quite empty, they may be viewed with ease and pleasure. Baker's Microsc. p. 143.

The marrow in the cavity of the bones is invested with a membrane wherein are included little bags, or lobules; and in these bags are *vesiculæ*, or glandulous bladders, serving both for the secretion of the medullary oil from the blood, and for the reception and conservation of the same. They seem to have passages into each other, as have also the bags; whereby the oil has a freer course to the joints and substance of the bone. The use of the marrow is to oil the substance of the bone, and to prevent its being too dry and brittle; it also lubricates the articulation of the bones, and hinders their ends from being worn, or over-heated with motion; and it moistens the ligaments by which they are tied to each other: in which it is assisted by the mucilaginous glands, found in all the articulations of the bones.

The bones are generally bigger at their extremities than in the middle, that the articulations might be firm, and the bones not so easily dislocated: but to render the middle of the bone strong withal, so as to sustain its allotted weight, and resist accidents, the fibres are there more closely compacted together, and support one another; to which it may be added, that the bone, being hollow, is not so easily broken, as if it had been solid, and smaller; for of two bones of equal length, and of equal numbers of fibres, the strength of the one to the strength of the other, will be as their diameters.

The bones are joined and connected together various ways, according to the various purposes they are to serve: some being intended for motion, others for rest, and the support of the incumbent parts only.—That jointure intended for motion, is called *DIARTHROSIS*, or articulation separated; that for rest, *SYNARTHROSIS*,

or articulation conjoined; and each of these again is subdivided into several others. See *ARTICULATION*.

Besides the articulation of the bones, where is also their union or connection, called by the ancients *SYMPHYSIS*. The number of the bones is various in various subjects: ordinarily it is about 242; some say 300; others 307; others 318: but the later writers fix it at 249 or 250; 61 of which are in the head, 67 in the trunk, 62 in the arms and hands, and 60 in the legs and feet: the variations are in the number of the *sesamoidæ*, the teeth, and the *sternum*.

The bones of the human skeleton, enumerated by Winslow, are 54 in the head, without reckoning the *os hyoides*, and bones of the ear; 54 in the trunk, taking the *coccyx* for one bone, and the *sternum* for two; 124 in the extremities, leaving out all the *sesamoidal bones*; so that the whole number is 232, to which adding the eight bones of the ear, and the five principal pieces of the *os hyoides*, we shall have in all 245, the *sesamoidal bones* being still omitted. Winslow's Anat. vol. i. p. 4.

The names of the several bones are given in the following table; their figures and places are represented in *Tab. Anat. P. 1. (Osteol.)* and particular descriptions of each are given under their proper heads.

<i>Os Frontis</i>	1	<i>Vertebrae Cervicis</i>	7	<i>The Os Femoris</i>	2
<i>Occipitis</i>	1	<i>Dorsi</i>	12	<i>Patella</i>	2
<i>Os Parietalia</i>	2	<i>Lumborum</i>	5	<i>Tibia</i>	2
<i>Temporum</i>	2	<i>Os Sacri</i>	6	<i>Fibula</i>	2
<i>Os Ethmoides</i>	1	<i>Os Coccygis</i>	3	<i>Os Tarfi</i>	14
<i>Sphenoides</i>	1	<i>Scapula</i>	2	<i>Metatarsi</i>	10
<i>Os Mala</i>	2	<i>Clavicula</i>	2	<i>Digitorum</i>	28
<i>Maxillaria</i>	2	<i>Costae</i>	24		
<i>Unguis</i>	2	<i>Sternum</i>	1		60
<i>Nasi</i>	2	<i>Os Innominata</i>	2		
<i>Palati</i>	2				
<i>Vomer</i>	1		64		
<i>Maxilla inferior</i>	1	<i>The Humerus</i>	2		
<i>Dentes Incisivi</i>	8	<i>Ulna</i>	2		
<i>Canini</i>	4	<i>Radius</i>	2		
<i>Molares</i>	20	<i>Os Carpi</i>	16		
<i>Os Hyoides*</i>	1	<i>Metacarpi</i>	8		
		<i>Digitorum</i>	30		
	61		60		

In all 245

Beside the *Os Sesamoidæ*, which are said to be found to the number of 48. Of the bones, the least is the *ORBICULARE*; the biggest, the *FEMUR*.

* To which may be added the two *ossa convoluta*, or lower shells of the nose. See *CONCHÆ Narium*.

The blood-vessels of the bones Dr. Havers divides into nutritious and medullary; the one furnishing matter for the nutrition, the other for the lubrication of the bones. The chief of the nutritious enter the ends of the bone, viz. the arteries at one end, and the veins at the other. The medullary commonly enter the sides of the bone, and that obliquely; but both by the same foramen.

The medullary oil is dispensed from the cavity where it is deposited throughout the whole substance of the bone; passing first through the transverse pores of the first internal *laminae* into the longitudinal ones; where it proceeds till it finds other transverse pores, when it alters its course again, and exudes farther: thus it passes alternately through and between the plates, till it is diffused throughout. This is the method of its conveyance in bones, whose plates are contiguous: where the plates are at a distance, as in bones that have no great cavity, the small caverns above mentioned contain medullary glands; whence the plates have the benefit of the marrow without the former method of conveyance.

Thus are all the bones stocked with pores, &c. excepting the *TEETH*; which have this farther distinction, that they have nerves inserted into them: whereas, in all the other bones, the nerves go no farther than the *periosteum*.

Besides the large cavities in the inside, most bones have superficial cavities, or *sinuses*, which may be distinguished into *sulci*, or furrows, the longer sort; and *foveæ*, pits, the shorter ones.

On the outside are also observed prominences, whereof there are two kinds; the one a continued part of the bone, jutting apparently above its plain surface, for the more commodious insertion of the muscles, &c. called *apophysis*, or *processus*; the other an additional bone, growing to another by mere contiguity, being generally more soft and porous than the other, and called an *epiphysis*, or *appendix*. If the protuberance be round, it is called the *caput*, under which is the *cervix*; if flat, *condylus*; if sharp, *corona*.

The natural colour of the fresh bones of an adult human body is whitish, with a small mixture of pale red. This red colour is more considerable in children, but decreases by degrees as they grow up, and is lost in old age. It is

is owing to the blood-vessels of the *bones*, which are larger, and less surrounded by the bony juices in infancy than in age; so that the colour of the blood appears through the substance of the *bones*. Winslow.

The general use of the *bones* is to support and strengthen the body, like beams and pillars in a building; to defend some of the more essential parts, as the brain, &c. to give shape to the body, and to assist in motion.

It is demonstrable, that of whatever figure *bones* are, and in whatever manner their fibres are disposed, their strength must always be in a *ratio* compounded of their quantity of bony matter, and of the distance of their centre of gravity from the centre of motion.

Hence, on a double account, the parts of a *bone*, formerly fractured, must be stronger than any other part of that same *bone*, because the diameter is enlarged, and the quantity of matter is increased.

The human *bones* have been sometimes known to grow soft and flexible, so as to bend any way with less difficulty than the muscular parts of a healthy person's leg. Phil. Transf. N^o 470. sect. 3.

Bartholin gives an instance of an *anosteus* or boneless child, shewn at Bristol, whose arms and legs were flexible like a glove.

Bones have sometimes been found incruited with stone, which has given rise to accounts of skeletons petrified. Phil. Transf. N^o 477. p. 55, &c.

Bones are totally soluble in concentrated acids of vitriol, nitre, and sea-salt, and may be softened by these or acetic acids diluted. Gradual heat renders them opaque, white, and friable; but if they are first urged with a strong fire, such as is sufficient to melt iron or copper, they become hard, semi-transparent, and sonorous.

By distillation in a retort, the *bones* resolve into phlegm, spirit, volatile salt, fetid oil, and *caput mortuum*, which, calcined in an open fire, leaves a white earth, without any fixed salt. This last appears to be the proper constituent part of the *bones*, since after the other principles are separated, the earth still retains the former shape of the *bones*, though it be so brittle, that, on the least touch, it moulders into dust. When moistened with a little water or oil, it recovers some degree of tenacity again; but cannot be restored to its former firmness.

The origin and formation of *bones* is generally traced from cartilages, which all *bones* are supposed once to have been; or, according to others, membranous tendons. Some deduce these further from gellies; and others from mere fluids; which successively arriving at greater and greater consistency, become first gelatinous, then tendinous, then cartilaginous, and lastly bony. Phil. Transf. N^o 54. N^o 71. and N^o 81.

Hence the different states of the *bones* in different ages, sexes, and the like; which, in children, are found soft, moist, and cartilaginous; in aged people, hard, dry, and inflexible; the very cartilages in these frequently becoming bony.

Bones have been regenerated. See Phil. Transf. vol. lix. N^o 6. an. 1769. p. 41, &c.

Dr. Nisbet, in his Human Osteology, undertakes to demonstrate, that the motion of all, or any *bones*, being originally cartilaginous, is without foundation in nature. Some consider the membrane wherewith the *bones* are lined, as a kind of *periosteum internum*, if the expression may be allowed; which, according to Havers, takes its origin from the muscular coats of the medullary artery. Be this as it will, it is contiguous with the whole internal surface of the *bones*, and enters the transverse pores as the external *periosteum* does the sinuosities of the *bones*; though it does not adhere so close thereto as the external does. Monro, Osteology, p. 19, &c. &c.

The *bones* are usually capped at the ends with CARTILAGES, and to them are also annexed LIGAMENTS.

The doctrine of the *bones* makes a particular branch of Anatomy, under the denomination of OSTEOLOGY, or OSTEOGRAPHY.

The formation or genesis of the *bones* is called OSSIFICATION, or OSTEOGONY.

A system of the several *bones* of a body, dried, whitened, and joined together in their natural order by art, is called a SKELETON.

Animals without *bones*, are said to be *anostei*; such are all the species of reptiles, insects, &c.

BONES, extraneous or preternatural, have been found in the meninges, the duplicatures of the *dura mater*, between the *cerebrum* and *cerebellum*, of the matrices of women, does, hares, cows, omentum of sows, &c. Hist. Acad. Sc. an. 1711. 1713. Plott's Hist. Staff. ch. vii. § 56. 63. and 74.

BONES, diseases and injuries of the.—Those to which the *bones* are subject, are fractures, luxations, fissures, caries, cancers, nodes, rickets, topi, exostoses, or excrescences, &c. To which may be added other less usual disorders, as preternatural hardnesses, almost to a degree of petre-

faction; and stiffnesses to the condition of wax, unions or coalitions of all the *bones* of the body into one, cracking of the *bones* in scorbutic cases; worms in the cavities of the *bones*, &c. Mr. Petit gives an instance of the carnification of the *bones*; wherein, by a change contrary to that of their first formation, they were reconverted from *bones* to flesh, or cartilages. Phil. Transf. N^o 251. N^o 379. Mem. Acad. Scien. an. 1720.

The operations practised in diseases of the *bones*, are excision, amputation, perforation, trepanation, setting or replacing, exfoliation, shaving, filing, &c.

BONES, wounds of.—As blunt instruments usually make fractures of the *bones*, so sharp ones, such as swords, spears, &c. do, properly speaking, sometimes wound them; and these wounds cannot be suffered, without a great variety of symptoms, which are often very dangerous, according to the size and depth of the wound, and the nature of the wounded part. Such slight wounds as do not penetrate deep into the *bone*, are often attended with no great danger, especially if proper care be taken in dressing of them, and the injured *bone* be as much as possible kept covered with its integuments, from the injuries of the external air. All fat and oily medicines must be wholly rejected in wounds of this kind, as great enemies to the *bones*. But when wounds of this kind penetrate deep, and wholly divide the *bone*, and its adjacent parts, or violently affect any of the organs necessary to life, in the head, neck, back-bone, or breast, with a puncture or division of the longer veins, arteries, nerves, and tendons of the upper and lower limbs, the danger is always great, the cure difficult, and death too often the consequence. Petit has advised, that, in wounds of the *bones*, if the solution be inflicted lengthwise, the lips of the wounds are to be closed and united by the uniting bandage; but if the wounds are very oblique, or wholly transverse, then they are to be joined together by future, and the eighteen-headed bandage; but this is certainly a wrong method in many cases of this kind. Indeed, in the first kind of these wounds, and when they are very slight, as when the skull is not wholly, nor indeed very deeply penetrated, and that without contusion, nor the brain much hurt, this method may do very well; but when the contrary of these mild symptoms are the case, a very different method of cure is to be attempted; the wound is to be kept open with lint, and not healed up till thoroughly cleansed; for, by a too speedy closure of such wounds, the very worst symptoms, and even death very often, are brought on.

So also, in slight, oblique, or transverse wounds of the *bones*, the future, or the eighteen-headed bandage, may be used with safety and success; but these are seldom necessary; and in oblique wounds of the head, forehead, and *cranium*, if not violent ones, the parts may be much easier closed and retained by a common bandage and plaster, than by futures with the needle, or the eighteen-headed bandage; but when the divided part hangs down, the future may indeed be necessary.

If the *bones* of the fingers are thus wounded, or wholly divided by a sword, they may be happily cured without the future, by the following method. First, accurately replace the divided *bone*, then secure it in its place, by winding round a slip of plaster, and, over this, applying a compress dipped in spirit of wine, and laying over all little slips of paste-board, by way of splints; then binding up the whole with a proper narrow bandage, and hanging the arm in a sling from the neck. Once, in about three days, the dressing is to be removed, and the wound treated with vulnerary essence; and in a month the cure will be perfected.

If either of the *bones* of the *cubitus* be divided, it usually is the *ulna*, as that is most exposed to the sword in fighting. This case requires neither the future nor eighteen-headed bandage; but the wound, being cleansed, is to be treated with some vulnerary essence or balsam, and with lint dipped in the same essence; after which are to be laid on, in order, the plaster, compress, and paste-board splints, wetted with spirit of wine, which are to be bound round the thick part of the *cubitus* near the wound, with a long bandage, that, as they dry, they may accommodate themselves the better to the figure of the part; and, lastly, the arm is to be suspended in a sling hung round the neck: after this, the wound is to be dressed every day, or every other day, in proportion to the discharge, and a cure without the help of the future will be easily effected; the future, in such cases, being not only unnecessary but pernicious. But if both *bones* are divided, then indeed the eighteen-headed bandage may be necessary, and used with advantage; but, even in this case, the future is much better let alone: for it is always to be avoided, except when perfectly necessary, from the dangers of inflammation, convulsions, and other bad symptoms that too naturally attend it.

If the thigh-bone, however, should be cut with a sword, in that case the bloody future will be of service, and is even necessary to close and retain those very strong muscles: the wound is, in this case, to be carefully treated, and the limb laid up in a case of straw, as in other fractures. So also, if the bone of the humerus, or arm, should be penetrated with a sword, that wound also should, for the same reason, be treated by the future; but then it is not to be dressed with the eighteen-headed bandage, but with the common long and narrow bandage used in other fractures of the arm; the limb is afterwards to be supported by a short napkin, fastened about the neck, by which means the muscles will be brought to a more ready union, and the cure sooner perfected.

If it should happen that both bones of the cubitus or leg should be divided by a sword, so as to leave the limb hanging only by the flesh, skin, and blood-vessels, which is a case that very rarely happens, without wholly amputating the limb, then also the future, with the eighteen-headed bandage, are the necessary applications; the future, however, can be of no service in a case of this kind, when the flesh and blood-vessels are divided, and the limb so far cut off, as to hang only by a skin, especially when the part is so considerable as the leg or arm; for, in these cases, the limb must be taken off, and the stump dressed as in other amputations.

When the lower jaw is so cut by a sword, that the piece separates, and cannot be otherwise retained, then also the future may be used, adding a proper compress, plasters and the suitable bandage. If the clavicle, or acromion scapulae, should in like manner be wounded by a sword, the treatment and bandage are to be of the same kind, gently unbending, cleansing, and dressing the part either every day, or every other day, as the discharge shall require, till the cure is perfected. Heister.

No medicines so effectually prevent the corruption of bones laid bare, and assist to cover them so soon with flesh, as ointments, balsams, and dressing seldom, in order to have the assistance of the most effectual balsam of all, pus. With these we see the extremities of amputated bones covered over with flesh, part of the skull, tibia, and other solid bones, covered in a little time with granulated flesh, after they have been laid quite bare by wounds, made even with bruising instruments; and likewise after their curious surface had been cut off, and a complete cure made, without the least exfoliation. Monro, Med. Ess. Edinb. vol. v. art. 24.

BONE-setting, the art or act of replacing dislocated bones, and the parts of fractured ones.

The Spaniards call their bone-setters *algebrafists*.

Bone-setting, by some called *συνθεσις*, *synthesis*, includes the four operations of extension, coaptation, deligation, and REDUCTION or reposition.

FRACTURES and DISLOCATIONS of bones are so frequent, that it seems surprising the setting them should so long have been left to quacks and ignorant persons. It is about 150 years since the methodical surgeons have applied themselves to this art; which they have carried to a degree of perfection beyond what it ever arrived at among the Greeks.

A bone-setter should possess a perfect knowledge of anatomy, and mechanics; the former, to inform him of the state and situation of the fractured or dislocated bones; the latter, to furnish machines, whereby to reinstate them. The famous bench of Hippocrates was once held the most perfect engine of this kind. See AMBE.

M. Petit has contrived another, which not only seems more handy and portable, but more powerful, as well as less painful to the patient. By means of it, the operator is fully master of the powers that pull it, and may proportion them to the strength and weakness of the subject, and that of the muscles or tendons which are to be replaced. Add, that as it is necessary, the power which retains the body be equal to that which pulls the dislocated member: in this machine, the same rope which pulls the limb, repels the body; and that the machines hitherto contrived, have only served for luxations of the shoulder, and that of the hip, which are made upwards, and where the members are shortened; whereas this serves for FRACTURES as well as LUXATIONS, and not only where the members are shortened, but where they are longer. Mem. Acad. Scienc. ann. 1716, p. 330, &c.

The replacing a dislocated bone of a horse, is a work of much difficulty, and requires great force: they usually cast the beast on a soft place, put four strong pasterns on his feet, and draw him from the ground, that his whole weight may, in a manner, rest on the disjointed member. Some tie a leathern thong about the pastern, fastening the other end of it to a yielding shrub, and thus whip the creature to make him strain with all his force, till the bone fly into its place.

BONES, boiling and whitening them, are necessary operations in making SKELETONS: the method of doing which is thus described by Simon Pauli. They must first be well boiled, and afterwards exposed day and night in the open air for a considerable time. The best season for this operation is in wet stormy weather, especially in the months of January, February, March, &c. the air being then impregnated with a nitrous salt, which contributes much to give them a bright white colour. If it does not rain, they must be sprinkled with a brush dipt in rain-water; and even rubbing them gently with the brush may be of use.

In exposing them, care must be taken to place them on a fir-board, by no means an oak one; which should be covered with a stratum of slate-stone, first well soaked in water; next a fine sea-sand is to be sprinkled on, an inch or two deep. The use of the sand is to imbibe what marrow or fat remains in the bones after boiling.

BONES, colouring and staining of.—The bones of living animals are capable of acquiring colour by the circulation of the blood and juices from their aliment; many instances of this kind in which they have been changed into a deep red by madder-root, are recorded both in the Philosophical Transactions, and in the Memoirs of the French Academy. Bones and horns may be likewise artificially stained with a variety of colours by steeping or boiling them in decoctions of the vegetable or animal substances which are used for dying. They may be stained also, without heat, by metallie solutions, and in this way may be spotted or variegated at pleasure. This solution of silver in *aqua fortis* gives a brown or a black, according to its quantity; solution of gold in *aqua regia*, or in spirit of salt, a fine purple; solution of copper in the acetic acid, a fine green; and solutions of the same metal in volatile alkalies, a blue, which is at first deep and beautiful, but changes on being exposed to the air, into a green or bluish-green. If the bone or horn is only touched with the two first solutions, and exposed to the air, it does not fail to acquire the colour in a few hours: in the two latter, it requires to be steeped for a day or longer, in order to its imbibing the colour. In these and other cases, where immersion is necessary, the bone may be variegated, by covering such parts as are intended to remain white, with wax, or any other matter, which the liquor will not penetrate and dissolve. Phil. Trans. ab. vol. ix. p. 104, &c. Neumann's Works, by Dr. Lewis, p. 519. Lewis's Com. Phil. Techn. p. 97. 435. See DYING and IVORY.

BONES, in the funeral solemnities of the ancients.—Divers usages and ceremonies relating to the bones of the dead, have obtained in different ages; as gathering them from the funeral pile, washing, anointing, and depositing them in urns, and thence into tombs; translating them, which was not to be done without the authority of the pontiffs; not to say worshipping of them, still practised to the bones of the saints in the Romish church. Among the ancients, the bones of travellers and soldiers, dying in foreign countries, were brought home to be buried, till, by an express S. C. made during the Italic war, it was forbid, and the soldiers bones ordered to be buried where they died: the reason was, lest the melancholy sight should discourage the people from venturing their lives. Antiquaries are divided as to the manner of distinguishing the bones of the deceased, from those of the beasts and slaves who were sacrificed at his funeral, and thrown into the same fire: probably it was done by disposing the body of the dead in the middle of the pile, and the others towards the sides. Potter's Archæol. tom. ii. lib. iv. cap. 6.

The Romans had a peculiar deity, under the denomination *Osifago*, to whom the care of the induration and knitting of the human bones was committed: and who, on that account, was the object of the adoration of all breeding women. Pitisc. Ant. tom. ii. p. 341.

BONES, in Commerce, are very useful articles, for making different kinds of toys; and also in several of the chemical arts; as for making cast iron malleable, for absorbing the sulphur of sulphureous ores, for forming tests, and COPPELS, or vessels for refining gold and silver with lead; for burnt bones compose a mass of a porous texture, which absorbs vitrified lead and other metals, while the unvitrescible gold and silver remain entire behind. They are used for the preparation of milky glasses and porcelains, for the rectification of volatile salts, and of empyreumatic oils, and for making of glue. The bones of different animals are not equally fit for different uses; even the glue or gelatinous part of the bones of one animal, is notably different both in quantity and cohesiveness, from that of another. Neumann's Works, p. 518.

The bones of the cuttle-fish is used by the goldsmiths for making moulds; those of bullocks for painters black; also, in lieu of ivory, for toys and cutlers work; where, if they

they be less white than ivory at first, they do not so soon turn yellow.

Papin has given a method of turning *bones* to food. Phil. Transf. N^o 187, p. 329.

The Turks are said to have applied *bones* to building, and to have built a wall with the *bones* of the Christians killed at the siege of Philadelphia.

A piece of this *bone* wall was sent to Dr. Woodward, who found the tradition to be an error; the substance not being *bone*, but a loose, soft porous earth, formed in an old aqueduct, now in the wall; or rather, an incrustation of several bodies, chiefly vegetable, cemented together by sparry and stony matters, found in the spring.

BONES, *fossile*, or *petrified*, are those found in the earth, frequently at great depths, in all the *strata*; even in the bodies of stones and rocks.

There are divers sorts of *fossile bones*; some of a huge size, usually supposed to be the *bones* of giants, but more truly of elephants, or hippopotami; other smaller, as *vertebræ*, teeth, and the like.

It has been disputed whether these be really animal substances, or mineral, that is, stones thus figured. Modern naturalists generally allow them to be animal, not merely on account of their figure and resemblance, but of their chemical principles, which are found to be wholly of the animal kind. It is supposed they were repositied in those *strata* at a time when all things were in a state of solution, and that they incorporated and petrified with the bodies where they happened to be lodged.

BONE, is also applied abusively in speaking of other matters which bear some analogy, either in respect of structure or office, to the *bones* of animals.

In this sense rocks are sometimes called the *bones* of the earth. Divers species of figured stones, as the *cephalites*, *cardites*, &c. are denominated mineral *bones*, *enosta*, *osteocolla*, &c. Some naturalists consider shells as a species of *bones*. The lobster, according to Fontenelle, is an animal which carries its *bones* on its outside.

BONES, *Giants*. See **GIANTS** *bones*.

BONES, *Mammout*. See **MAMMOTH**.

BONE-fire. See **Bone FIRE**.

BONE-lace. See **LACE**.

BONE, *hurle*, *Neper's*, *quitter*, *ring*, *whale*. See the several articles.

BONGO *pala*, in *Botany*, a name by which some authors have called the tree which produces the nutmeg.

BONIFACIA, in *Botany* a name used by John Bauhine, and some others, to express the broad-leaved *RUSCUS*, or *BUTCHER'S-broom*, commonly called the Alexandrian bay.

BONITO, in *Ichthyology*, the name of a fish of the tunny or *TRACHURUS* kind, and called by some *curvata pinima*. It is a large sea-fish, with a long, broad, and thick body: its eyes are large, as are also its gills, and the greater part of its body is free from scales. It is a fish of very great beauty. It is an extremely common fish in some seas; our East India ships usually fall in with immense shoals of them.

BONNA, in *Natural History*, a name given by Pliny, and some other of the ancient Latin writers, to the *BONASUS*.

BONNET, in a general sense. See **CAP**, **HAT**, &c.

BONNET, in *Fortification*, a kind of little ravelin, without a ditch, having a parapet three feet high; anciently placed before the points of the salient angles of the *glacis*; being palisadoed round: of late also used before the angles of bastions, and the points of ravelins, and *traversebrayes*. See *Tab. Fortif. fig. 21. lit. m.*

The *bonnet* has two faces, from ten to fifteen, or more rods long: the parapet is made of earth, from thirty to thirty-six feet thick, and from nine to twelve feet high: it is environed with a double row of palisadoes ten or twelve paces distant from each other; hath a parapet three feet high, and is like a little advanced *corps du guard*.

BONNET à prêtre, or *priest's CAP*, is an outwork, having at the head three salient angles, and two inwards.

It differs from the *double TENAILLE* only in this, that its sides, instead of being parallel, grow narrower, or closer at the gorge, and open wider at the front; on which account it is also denominated *QUEUE D'ARONDE*, or swallow's tail.

BONNETS, in *Sea-Language*, small sails, set on the courses on the mizen, main-sail, and fore-sail of a ship, when these are too narrow, or shallow to clothe the mast; or in order to make more way in calm weather.

Bonnets are commonly one third of the depth of the sails they belong to.

What the *bonnet* is to the course, that is the drabler to the *bonnet*; being only in use when the course and *bonnet* are too shallow to clothe the mast: there are also *bonnets* in form of sheaths, being small sails fastened by the narrow

end to each extremity of the yards, wider at bottom than at top, of good use, when the sea is smooth.

The words are, *lace on the bonnet*, that is, fasten it to the course; *shake off the bonnet*, that is, take it off the course.

BONNET *pepper*. See **CAPSICUM**.

BONNY, in *Mineralogy*, a name given by our miners to a bed of ore found in many places in hills, not forming a vein, nor communicating with any other vein, nor terminating in strings, as the true veins do; it is a bed of ore of five or six fathoms deep, and two, or somewhat less than that, in thickness, in the larger sort; but there are smaller, to those of a foot long. They have their trains of *SHOAD-stones* from them, and often deceive the miners from the expectation of a rich lead vein. They differ from the *SQUATS* only in being round beds of ore, whereas those are flat. Phil. Transf. N^o 69. p. 2098.

BONO *et malo*, *Writ de*; a special writ of goal-delivery was anciently used for each particular prisoner under this title: but these being found inconvenient and oppressive, a general commission for all the prisoners has long been established in their stead. 2 Inst. 43.

BONONIAN *stone*, a small, grey, soft, glossy, fibrous, ponderous, sulphureous stone, about the bigness of a large walnut: when broken, having a kind of crystal, or sparry talc within; found in the neighbourhood of Bologna, or Bononia in Italy; and, when duly prepared, making a species of **PHOSPHORUS**.

This stone is found in divers parts of the country, particularly in a river at the foot of Mount Peterno; where a chemist, one Vincenzo Casciarolo, having gathered some pieces, and carried them home, in hopes by the fire to draw silver out of them, instead of what he expected, found that admirable phenomenon they exhibit, which consists in this, that having been exposed to the light, they retain it, and shine for the space of six or eight hours in the dark. This discovery was made about the year 1630.

M. Homberg is said to be the first person who taught us the true manner of preparing and calcining the *Bononian stone*, having made a journey to Italy on purpose to learn it.—Though others alledge, that the true art of preparing and calcining the stone is lost; there having been but one, an ecclesiastic, who had the true secret, and who is since dead, without communicating it to any person. See Phil. Transf. N^o 21.

This property of affording a phosphorus by calcination, is common to the other gypsums, when pure from metallic, or other heterogeneous mixtures; the artificial gypsums succeed equally with the natural, and it is found to belong to a variety of other substances. M. Margraaf observes, that all substances which have this property, contain a vitriolic acid, united to an alkaline or calcareous earth.

M. Elpigni observes, that one Zagonius had a method of making statues and pictures of the *Bononian stone*, which would shine variously in the dark; but he adds, the person died without discovering his secret. See Phil. Transf. N^o 134.

For the method of preparing this phosphorus, and other observations upon it, see **LAPIS Bononiensis**. See also the articles **LIGHT**, and **PHOSPHORUS**.

BONOSIANI, or **BONOSIACI**, an ancient branch of **ADOPTIANI**, in the fourth century, denominated from their leader Bonosus, a bishop of Macedonia.

BONPOURNIKEL, a denomination given to a coarse kind of **BREAD** used in Westphalia.

BONS-hommes, or **BON-hommes**, a sort of hermits of St. Augustin, founded by F. de Paula. They were brought over into England in 1283, by Edmund, earl of Cornwall, and settled at Ashrug, in Bucks, besides which they had only one house more at Edington in Wiltshire. They followed the rule of St. Austin, and wore a blue habit.

The name is said to have arisen from Louis the XI. of France, who used to call F. de Paula, prior of the order, *le bon homme*. Till then they had been called the *Minimi* or order of Grammont. See **ALBIGENSES**.

BONT-visch, in *Ichthyology*, the name given by the Dutch to an East Indian fish seeming to approach to the nature of the European **TURDUS**, but that it has no scales. See *Tab. V. of Fish*, N^o 64.

BONTIA, in *Botany*. See *Barbadoes wild OLIVE*.

BONZES, or **BONZUS**, a name given to the priests and religious of China, Japan, and Tonquin.

The *bonzes* are the great adversaries of the missionaries; and to their influence are attributed the persecutions which have been raised in those countries against the Christians.

They generally live in a sort of community, in places apart, or consigned wholly to them. The island Pou-to near Chusan, is a famous seat of *bonzes*, being wholly inhabited by them, to the number of 3000, all of the sect of Hofhang, or unmarried *bonzes*.

They live a kind of Pythagorean life, and have not less than four hundred pagods, or temples, in this little island. They have also female *bonzes*, a sort of nuns. Phil. Trans. N^o 280.

In order to distinguish themselves from the laity, they wear a chaplet round their necks, consisting of a hundred beads, and carry a staff, at the end of which is a wooden bird; they live upon the alms of the people, and yet are very charitably disposed, maintaining several orphans and widows out of their own collections.

The *bonzes* of China are the priests of the Fohists, or sects of Fohi; and it is one of their established tenets, that there are rewards allotted for the righteous, and punishments for the wicked, in the other world; and that there are various mansions, in which the souls of men will reside, according to the different degrees of merit. The *bonzes* of Pegu are generally gentlemen of the highest extraction.

BOOBY, in *Natural History*, the name of a bird common about Jamaica, and in several other parts of the world. It is described by sir Hans Sloane, in his history of Jamaica, under the name of *avis fusca anseri bassano affinis*. It feeds upon fish, and dives under water after them, but is often robbed of its prey by another voracious bird, called the *albatrosse*, or the man of war bird. The frequent contest between these two birds are very diverting, the one being as unwilling to part with the prey it has so dearly earned, as the other resolute to have it; but the *ALBATROSSE* generally succeeds.

BOOK, a writing composed on some point of knowledge by a person intelligent therein, for the instruction or amusement of the reader.

The word is formed from the Saxon *boc*, which comes from the Northern *buech*, of *buechaus*, a *beech* or *service-tree*, on the bark of which our ancestors used to write.

Book may be defined more precisely, a composition of some man of wit or learning, designed to communicate, to prove, or illustrate some science, art, truth, or invention.

Book is distinguished from **PAMPHLET**, or single paper, by its great length; and from **TOME** or **VOLUME**, by its containing the whole writing. Isidore makes this distinction between *liber* and *codex*; that the former denotes a single book, the latter a collection of several: though according to Scipio Maffei, *codex* signifies a *book* in the square form; *liber*, a *book* in the roll form.

We say an old *book*, a new *book*; a Latin, a Greek *book*; to read, to write, to publish a *book*; the **PREFACE**, the **TITLE**, the **DEDICATION**, the **INDEX** of a *book*. To *collate* a *book*, is to see that it be perfect, and that none of the sheets be either wanting or transposed. Bookbinders speak of *folding*, *sewing*, *beating*, *pressing*, *covering*, *gilding*, and *lettering* of *books*. See **BOOKBINDING**. A large collection of *books* is called a **LIBRARY**. An inventory of a library, in order for the reader's finding any book, is called a **CATALOGUE**.

The *history* or *notitia* of *books* makes the first part, according to some the whole, of the literary science.—The principal points of the *notitia* of a *book* are, its *author*, *date*, *printer*, *edition*, *versions*, *comments*, *epitomes*, *successes*, *eulogies*, *censures*, *condemnation*, *suppression*, *adversaries*, *vindicators*, *continuators*, and the like.

The *history* of a *book* is either of its *contents*, which is given by analysing it, as is done by journalists; or of its *appendages* and *accidents*, which is the more immediate province of those called *literators*, and *bibliothecarians*.

The *contents* of a *book* are the matters delivered in it; which makes the province of the author. Of these there is one principle matter, called the *subject*; in respect of which the rest are only *incidents*.

The *appendages* of a *book* are, the *title*, *preface*, *epistle dedicatory*, *summaries*, *table of contents*, *index*, and the like, which are the proper province of the editor, unless perhaps the title page, which is frequently usurped by the bookseller.

In the *composition* of a *book*, there occur *sentiments*, which are also the materials of it; *method*, the order wherein these are disposed; and *style*, or *expression*, which is the language wherein they are clothed.

The giving of *histories*, *catalogues*, and *bibliothecas* of *books*, is said to have been first introduced by the Germans: we may add, that they have best succeeded in them; and to them the chief works of this kind are owing. I. Alb. Fabricius has given us the *history* of the Greek and Latin *books*; Wolfius, that of the Hebrew *books*; Boecler, of the principal *books* in each science and faculty; Struvius, of the *books* of *history*, *law*, and *philosophy*; the abbot Fabricius, of the *books* of his own library; Lambecius of those in the Vienna library; Le Long, of the *books* of *Scripture*; Mattaire, of the *books* printed before the year 1550; and Morhoff, a general literary *history* of this kind, under the title of *Polyhistor*. The various *catalogues* of choice libraries are useful and necessary for the same purposes; so are

likewise the *Relationes*, &c. and the *Reviews* which have been periodically published.

As to the *materials* of *books*, they were first written on stones, witness the Decalogue given to Moses (which is the oldest *book* we have any warranted account of); then, on the parts of plants, e. gr. the leaves, chiefly of the palm-tree; the rinds and barks especially of the *tilia* or *philyra*, and the Egyptian **PAPYRUS**. By degrees, wax, then leather, were introduced, especially the skins of goats and sheep, of which, at length, parchment was prepared: then lead came in use: also linen, silk, horn, and, lastly, **PAPER** itself.

The parts of vegetables continued long the common matter of *books*; inasmuch that most of the names and terms belonging to *books*, in most languages, are taken thence; as the Greek *biblos*, the Latin *liber*, *codex*, *folium*, *tabula*, and the English *book* itself. We may add, that vegetable barks appear still in some measure retained for *books* in certain of the Northern countries, as among the Calmuc Tartars, where a library was discovered by the Russians, of an unusual form as well as matter: the *books* were exceedingly long, but of no breadth: the leaves very thick, and made of barks of trees, smeared over with a double varnish; the ink, or writing, being white on a black ground. Hist. Acad. R. Inscr. t. iii. p. 6.

BOOK, *everlasting*. We find in Signior Castagnatta's account of the **ASBESTOS**, a scheme for the making of a *book*, which from its imperishable nature, he is for calling the *book of eternity*: The leaves of this *book* were to be of the **ASBESTOS** paper, the covers of a thicker sort of work of the same matter, and the whole sewed together with thread spun from the same substance. The things to be commemorated in this *book* were to be written in letters of gold, so that the whole matter of the *book* being incombustible and everlastingly permanent against the force of all the elements, and subject to no changes from fire, water, or air, must remain for ever, and always preserve the writing committed to it.

BOOKS, *form of*. The first *books* were in form of blocks and tables, of which we find frequent mention in Scripture, under the appellation *sepher*, which the Septuagint render *αἱ σελαι*, q. d. *square tables*: of which form the *book* of the covenant, *book* of the law, *book* or bill of divorce, *book* of curses, &c. appear to have been. As flexible matters came to be wrote on, they found it more convenient to make their *books* in form of rolls, called by the Greeks *ροῦλα*, by the Latins *volumina*, which appear to have been in use among the ancient Jews as well as Grecians, Romans, Persians, and even Indians. And of such did the libraries chiefly consist, till some centuries after Christ. The form which obtains among us is the square, composed of separate leaves; which was also known, though little used, among the ancients; having been invented by Attalus, king of Pergamus, the same also who invented parchment: but it has now been so long in possession, that the oldest manuscripts are found in it. Montfaucon assures us, that of all the ancient Greek manuscripts he has seen, there are but two in the roll form; the rest being made up much after the manner of the modern *books*. See **BOOK-BINDING**.

The rolls, or volumes, were composed of several sheets, fastened to each other, and rolled upon a stick, or *umbilicus*; the whole making a kind of column, or cylinder, which was to be managed by the *umbilicus*, as a handle; it being reputed a kind of crime to take hold of the roll itself. The outside of the volume was called *front*; the ends of the *umbilicus*, were called *cornua*, *horns*; which were usually carved, and adorned likewise with bits of silver, ivory, or even gold and precious stones. The title *συλλαβος*, was stuck on the outside. The whole volume, when extended, might make a yard and a half wide, and fifty long. Fabric. Bibl. Antiq. c. 19. § 7. p. 607.

To the form of *books* belongs also the *economy* of the *inside*, or the order and arrangement of points and letters into lines and pages, with margins, and other appurtenances. This has undergone many varieties: at first, the letters were only divided into lines, then into separate words; which, by degrees were noted with accents, and distributed by points and stops into periods, paragraphs, chapters, and other divisions. In some countries, as among the Orientals, the lines began from the right, and ran to the left; in others, as in Northern and Western nations, from the left to the right; others, as the Grecians, followed both directions alternately, going in the one, and returning in the other, called *boustrophedon*. In the Chinese *books*, the lines ran from top to bottom. Again, the page in some is entire, and uniform; in others, divided into columns; in others, distinguished into text and notes, either marginal, or at the bottom: usually it is furnished with signatures and catch words; also with a register to discover whether the *book* be complete. To these are occasionally added the apparatus of summaries, or side notes; the embellishments

linaments of red, gold, or figured initial letters, head-pieces, tale-pieces, effigies, schemes, maps, and the like. The end of the *book*, now denoted by *finis*, was anciently marked with a \triangleleft , called *coronis*, and the whole frequently washed with an oil drawn from cedar, or citron chips, strewed between the leaves to preserve it from rotting. There also occur certain *formulae* at the beginning and end of *books*: as among the Jews, the word יְהוָה , *esto fortis*, which we find at the end of the *books* of Exodus, Leviticus, Numbers, Ezekiel, &c. to exhort the reader to be courageous, and proceed on to the following *book*. The conclusions were also often guarded with imprecations against such as should falsify them; of which we have an instance in the Apocalypse. The Mahometans, for the like reason, place the name of God at the beginning of all their *books*, which cannot fail to procure them protection, on account of the infinite regard had among them to that name, wherever found. For the like reason it is, that divers of the laws of the ancient emperors begin with the *formula*, *In nomine Dei*. At the end of each *book* the Jews also added the number of verses contained in it, and at the end of the Pentateuch the number of sections; that it might be transmitted to posterity entire. The Masoretes and Mahometan doctors have gone farther; so as to number the several words and letters in each book, chapter, verse, &c. of the Old Testament, and the Alcoran. See AL-CORAN, MASSORA, &c.

The kinds and denominations of *books* are various. With regard to their use and authority, *books* may be divided into *human* and *divine*, also called *sacred* and *inspired books*.

BOOKS, Sibylline, those composed by certain pretended prophetesses, deposited in the Capitol, under the care of *duumviri*. See SIBYLS.

BOOKS, Canonical, those received and allowed by the church as parts of holy scripture. Such are the *books* of the Old and New Testament, as commonly bound up together.

BOOKS, Apocryphal, those excluded out of the canon, yet received and read in some churches.

BOOKS, Authentic, those which are decisive, and of authority: such, in the civil law, are the Code, Digest, &c. in our law, the Statutes, &c. Bacon, de Augm. Sc. l. 8. c. 3.

BOOKS, Auxiliary, those less essential, yet of use, as subservient to the others: as in the study of the law, *books* of Institutes, *Formulae*, Maxims, Reports, &c.

BOOKS, Elementary, those which deliver the first principles of sciences: such are those under the titles of Rudiments, Methods, Grammars, &c. by which they stand distinguished from *books* of a superior order, which aim at making farther advances in the science.

BOOKS, Library, such as are not ordinarily read over, but turned to, and consulted occasionally; such are Dictionaries, &c.

BOOKS, Exoteric, those intended for the use of popular and ordinary readers.

BOOKS, Acroamatic, those containing more secret and sublime matters, calculated for adepts and proficients in the subject.

BOOKS, Public, the records of past times and transactions kept by public authority.

BOOKS, Church, or Ecclesiastical, those used in the public offices of religion.

BOOKS, again, with regard to their scope and subject, may be divided into *historical*, those which relate facts, either of nature or mankind; *dogmatical*, those which lay down doctrines, or general truths; *miscellaneous*, those of a neutral kind, containing both facts and doctrines; *historico-dogmatical*, those which only rehearse doctrines, or, at most, indicate the arguments by which they are proved, as Mallet's Geometry; *scientifico-dogmatical*, those which not only recite the doctrines, but demonstrate them, as Euclid's Elements. Wolf. Phil. Rat. § 3. c. 1. § 744, 750, 751, &c.

BOOKS, Pontifical, among the Romans, were those appointed by Numa to be kept by the *pontifex maximus*; describing all the ceremonies, sacrifices, feasts, prayers, and other religious matters, with the manner, and circumstances, wherewith each was to be celebrated: these were also called *indigitamenta*, as containing the names of all the gods, and the occasions, and *formulae* of invoking each. Liv. i. p. 23.

BOOKS, Ritual, those which directed the order and manner of founding, building, and consecrating cities, temples, and altars; the ceremonies belonging to walls, gates, tribes, *curiae*, camps, and the like.

BOOKS, Augural, called by Cicero, *reconditi*, were those wherein the science of foretelling futurity, from the flight and chattering of birds was contained. Cicer. Orat. pro domo sua ad pontif. Serv. ad Æn. l. 5. v. 738. Lomei, de Bibl. c. 6.

BOOKS, Aruspicine, those wherein the mysteries of divining from the entrails of victims are prescribed.

BOOKS, Acherontic, those wherein the ceremonies and discipline of Acheron were contained; sometimes also called *libri Etrusci*, as being supposed to have been composed by Tages the Etrurian; though others pretend, that he had received them from Jupiter himself: some suppose these to have been the same with the *libri fatales*; others, with the *libri aruspicini*. Serv. ad Æn. l. 8. v. 398. Lomei, ubi supra.

BOOKS, Fulgural, those written touching thunder and lightning, and their interpretation. As that composed by the Tuscan nymph Bigois, preserved in the temple of Apollo. Serv. ad Æn. l. 6. v. 72.

BOOKS, Fatal, those wherein the ages, or terms of the life of men were written, according to the Etrurian discipline. These were consulted by the Romans in all public calamities; and instructions taken from them, how to expiate the offended deities. Censor. de Die. Natal. c. 14.

BOOKS, Black, those which treat of necromancy and witchcraft; or those which are printed in the old black letter, the Celtic character, now only retained by the Germans. The same denomination is also given to some other *books*, on account of the colour of their backs; or the dismalness of their contents; whence also *Red-book*, and *Domesday book*.

BOOKS, Good, in the common usage, are those of devotion and piety, as soliloquies, meditations, prayers, &c. Vide Shaftesb. Charact. tom. i. p. 165. idem. tom. iii. p. 327. A *good book*, in the bookseller's language, is a saleable one; in the language of the curious, a scarce one; in that of men of sense, an useful and instructive one.

Among five principal things which Rabbi Akiba recommended to his son, one was; that if he studied the law, he should take care to do it in a *good book*, lest he should be obliged to unlearn all again. Vide Cren. de Furib. Librar. See also farther, on the head of judging and choosing of Books.

BOOKS, Spiritual, those which treat more expressly of the spiritual or Christian life, and their exercises, as contemplation, &c.

BOOKS, Profane, such as do not treat of matters of religion.

BOOKS, with regard to their authors, may be divided into *anonymous*, those without any author's name; *cryptonymous*, those whose author's names are concealed in some anagram, or the like; *pseudonymous*, those which bear false names of authors; *posthumous*, those published after the author's death; *genuine*, those really written by the persons whom they pretend for their authors, and still remaining in the state wherein they were left by them; *spurious*, or *supposititious*, those pretended to be written by others than their real authors; *interpolated*, those which since their composition have been corrupted by spurious additions or insertions.

BOOKS, with regard to their qualities, may be divided into *clear* or *perspicuous*, which, in the dogmatical kind, are those where the authors define all their terms accurately, and keep strictly to those definitions in the course of their works: *obscure*, those where words are used vaguely, and without defining: *prolix*, those which contain more things than were necessary to the author's design; as if in a *book* of surveying, a man should give all Euclid; *useful*, those which deliver things necessary to be known, either in other sciences, or in the business of life: *complete*, those which contain all that is known concerning the subject: *relatively complete*, those which contain all that was known concerning the subject, at a certain time; or, if a book were written with any particular design, or view, it may be said to be *complete*, if it contain neither more or less than is necessary for the accomplishing of that end: in contrary cases, *books* are said to be *incomplete*.

BOOKS, with regard to the matter they consist of, may be divided into *paper-books*, those written either on linen and cotton paper, or on the PAPHOS, of which last kind few are now remaining. Montfaucon Pal. Græc. l. i. c. 2. p. 13. *Parchment-books libri in membrana*, those written on skins, or pelts, chiefly of sheep. *Linen-books, libri lintei*, among the Romans, were those written on blocks, or tables, covered with a linen cloth. Such were the Sibylline *books*, and divers ancient laws, epistles of princes, leagues, annals, &c. Plin. Hist. Nat. l. xiii. c. 2. — *Leathern books, libri in corio*, mentioned by Ulpian, are by Gulandinus taken for such as were written on barks, different from that usually written on; which was the *tilia*: by Scaliger, with more probability, for such as were written on certain skins, or certain parts of skins, different from those commonly used, which were the pelts, or back-parts of sheep. Ulp. l. 52. Guilard. Papyr. Membr. 3. n. 50. Scaliger, and Guilard. *Black-books, libri in schedis*, those written on wooden planks, or tablets, smoothed for that purpose with an *ascia*, and a plane. Such were the ordi-

ordinary books among the Romans. *Waxen-books*, *libri in ceris*, mentioned by Pliny, have occasioned some dispute. Herm. Barbarus suspects the term to be a corruption, and inclines to read *in schedis* instead of *in ceris*, on the authority of some ancient MSS. Others see no need of the emendation, since it is known the Romans sometimes covered their planks or *schedæ*, with a thin skin of wax, to make them susceptible of erasements and amendments, which the *libri in schedis* were not, and consequently were less fit for works that required elegance and accuracy than the waxen ones, which are also called *ceræ* or *libri cerei*. *Elephantine books*, according to Turnebus, were those written on thin slices, or leaves of ivory; according to Scaliger, those made of the guts of elephants; according to others, those wherein the acts of the senate, relating to the emperors, were written; according to others, certain huge or bulky books, consisting of 35 volumes, containing all the names of the 35 tribes. Salmuth. ad Pancirol. p. ii. p. 255. Guiland. Pap. Mem. 2. n. 48. Scal. ad Guil. p. 16. Calv. Lex. Jur. p. 534. Fabr. Descrip. Urb. c. 6.

Books, with regard to their manufacture and commerce, may be divided into *manuscript*, those written with the hand, whether originally by the authors, called *autographi*, or at second hand by *librarii*, or *copists*. *Printed* those wrought off from the press. *Books in quires*, or *sheets*, those not bound, or stitched. *Books in folio*, those wherein a sheet is folded but once, or makes two leaves; or four pages; *books in 4^o*, where it makes four leaves; in 8^o, where eight; in *duodecimo*, where twelve; in 16^o, where sixteen; in 24^o, where twenty-four.

Books, with regard to circumstances and accidents, may be divided into *lost*, those which have perished by the injuries of time, or the malice or zeal of enemies. Such are divers even of the ancient books of Scripture, written by Solomon, and others of the prophets. Fabr. Cod. Pseud. Vet. Test. tom. ii. p. 171. p. 247. *Books promised*, those which authors have given expectations of, which they have never accomplished. Janf. ab Almeloveen has given a Bibliotheca of books promised, but still latent, or not published. *Books fictitious*, those which never existed: to which may be added divers feigned titles of books. Loescher has published a great number of plans, or projects of books, many of them good and useful enough, if there were but books written corresponding to them. M. Dugono has a whole volume of *schemes*, or *projects of books*, containing no less than 3000.

Books in *Ana*, *Anti*, &c. See *ANA*, *ANTI*, &c.

The scope, or design of books is various; that of some is to trace the origin of things discovered; of others, to fix and establish some truth, or raise some doctrine to a higher pitch or subtilty; of others, to remove some scruple, or prejudice, which had before obtained, or fix more accurate and precise ideas of things: of others, to explain the names and words used in different nations, ages, and sects; of others, to improve our knowledge of facts, and events, and shew the order and ways of Providence; lastly, others aim at divers, or all of these ends. The uses of books are numerous: they make one of the chief instruments, or means of acquiring knowledge: they are the repositories of laws, and the vehicles of learning of every kind: our religion itself is founded on books: "Without them," says Bartholin, "God is silent, justice dormant, physic at a stand, philosophy lame, letters dumb, and all things involved in Cimmerian darkness." De Libr. Legend. Diss. i. p. 5.

The eulogiums which have been bestowed on books are infinite: they are represented, "as the refuge of truth, which is banished out of conversation; as standing counsellors, and preachers, always at hand, and always disinterested; having this advantage over oral instructors, that they are ready to repeat their lesson, as oft as we please." Books supply the want of masters and even, in some measure, the want of genius and invention: and can raise the dullest persons, who have memory, above the level of the brightest, without them. An author who wrote not inelegantly, though in a barbarous age, sums up all their praises. Vide Lucas de Penna ap. Morhoff. Polyhist. lib. i. cap. 3. p. 27. *Liber est lumen cordis, speculum corporis, virtutum magister, vitiorum depulsor, corona prudentum, comes itineris, domesticus amicus, congerro talentis, collega & consiliarius presidentis, myrothecium eloquentiæ, hortus plenus fructibus, pratum floribus distinctum, memoriæ penus, vita recordationis; vocatus properat, justus festinat, semper præsto est nunquam non morigerus, rogatus confestim respondet: arcana revelat, obscura illustrat, ambigua certiorat, perplexa resolvit, contra adversam fortunam defensor, secundæ moderator, opes adauget, jacturam propulsat, &c.*

Perhaps their greatest glory is, the affection borne them by many of the greatest men in all ages: M. Cato, the elder Pliny, the emperor Julian, and others, are on record for an excessive devotion to books. The last has perpetuated his passion by some Greek epigrams in their

praise. Richard Bury, bishop of Durham, and lord chancellor of England, has a treatise express on the love of Books. Philobiblion, sive de Amore Librorum. Vide Plin. Epist. vii. lib. iii. Cato's attachment to books may be observed in the following paragraph.

M. Catonem vidi in bibliotheca sedentem multi circumfusus Stoicorum libris. Erat enim, ut scis, in eo inexhausta aviditas legendi, nec satari poterat: quippe qui, ne reprehensionem vulgi inanem reformidans, in ipsa curia solet legere, sæpe dum senatus cogretur, nihil operæ reipublicæ detrahens. Vide Cic. de Divin. lib. iii. n. 11. See also Cic. Orat. pro Arch. tom. iv. p. 2182.

The ill effects objected to books are, that they employ too much of our time and attention; engage us in pursuits of no use to the commonwealth, and indispose us for the functions of civil life; that they render men lazy, and prevent their exerting their own talents, by furnishing them, on every occasion, with things the growth of others; and that our natural lights become weakened and extinguished, by inuring ourselves to see only with foreign lights: besides, that ill men are hereby furnished with means of poisoning the people, and propagating superstition, immorality, enthusiasm, or irreligion, which will always spread faster, and be received more greedily, than lessons of truth and virtue. Many other things are added concerning the emptiness of books, and the errors, fables and follies they are fraught with; which, together with the multitude and perplexity of them, are such, that it may seem easier to discover truth in the nature and reason of things, than in the uncertainty and confusion of books. Add, that books have turned the other instruments of knowledge out of doors, as experiments, observations, furnaces, and the like, without which the natural sciences can never be cultivated to purpose; and that, in mathematics, books have so far superseded the exercise of invention, that the generality of mathematicians are now contented to learn the solution of problems from others; which is to relinquish the chief end of their science: since what is contained in mathematical books is properly the history only of mathematics, not the science, art, or talents of solving questions; which is hardly to be had from books, but only from nature and meditation.

For the art of writing or composing books, we have much fewer helps and instructions than for the art of speaking; though the former be the more difficult of the two; as a reader is not so easy to be imposed upon, but has better opportunities of detecting faults than a hearer. A great cardinal, indeed, reduces an author's business to a few heads; were they but as easily practised as prescribed; "Let him consider who it is writes, what, how, why, and to whom." August. Valer. di Caut. in edend. lib. The conditions required in a book are, according to Salden, "solidity, perspicuity, and brevity." the first will be best attained, by keeping the piece long by us, often reviewing and correcting it by the advice of friends: the second, by disposing the sentiments in a due order, and delivering them under proper and usual expressions: the third, by throwing every thing aside that does not immediately concern the subject.

Were these rules observed, it would scarce be possible for any, except an angel from heaven, to write many books. *Vix totidem quot Thebarum portæ vel divitiis æstia Nil.* The custom is much altered since the times of the ancients, who carried their scrupulousness into what relates to the composition of books beyond all that has been above expressed: so august was the idea they formed of a book, that nothing would suffice less than its being a treasure: *thesaurus oportet esse non libros*: no labour, no assiduity and exactness, were thought enough to fit a work for the public view: every sentiment and expression were to be maturely weighed, and turned on all sides; and not suffered to pass, unless every word were a pearl, and every page beset with gems. So that they put the reader in possession in a single hour, of what had cost them perhaps ten years intense thought and application. Such were those books, which were reputed *cedro digni*, fit to be anointed with cedar-juice, and thus rendered incorruptible, for the instruction of all future ages.

Books, for the origin of, we have nothing that is clear: the books of Moses are doubtless the oldest of all that are extant; but there were books before them, for Moses cites several.

A book of Enoch is cited in the epistle of Jude, v. 14. and 15. from which some endeavour to prove the reality of antediluvian writings; but the book cited by that apostle is generally allowed, both by ancient and modern writers, to be spurious.

Of profane books, the oldest extant are Homer's poems, which were even so in the time of Sextus Empiricus; though we find mention in Greek writers of about seventy others prior to Homer; as Hermes, Orpheus, Daphne, Horus, Linus, Musæus. Palamedes, Zoroaster,

&c. but of the greater part of these, there is not the least fragment remaining; and of the others, the pieces which go under their names are generally held by the learned supposititious. F. Hardouin goes farther; charging all the ancient *books*, both Greek and Latin, except Cicero, Pliny, Virgil's *Georgics*, Horace's *Satires* and *Epistles*, Herodotus, and Homer, as spurious, and forged in the thirteenth century, by a club of persons under the direction of one Severus Arcontius. Fabr. Bib. Græc. lib. i. cap. i. § 1. § 6. tom. i. Hardouin, de Num. Herod. in Prolus. Act. Erud. Lips. an. 1710. p. 70.

Among the Greeks, it is to be observed, the oldest *books* were in verse, which was prior to prose; Herodotus's history is the oldest *book* extant of the prosaic kind. Strabo. Geog. lib. i. Heuman. Via ad Hist. Liter. § 20. p. 50. § 21. p. 52.

Books, the multitude of, has been long complained of: the complaint is as old as Solomon, who lived three thousand years ago: they are grown too numerous, not only to procure and read, but to see, to learn the names of, or even to number. England has more to fear on this score than other countries; since, besides our own produce, we have, for some years past drained our neighbours. However, as bishop Caramuel's scheme miscarried, which was, to write about a hundred volumes in folio, and then prevail on the civil and military powers to oblige all their subjects to read them; we need not much regret the multitude of *books*.

In reality, there are few of the immense number of *books* which deserve seriously to be studied: for the rest, part of them, like this, are only to be occasionally consulted, and the rest read for amusement. A mathematician, for instance, ought not to be entirely ignorant of what is containing in the mathematical *books*; but then a general knowledge is sufficient, which may easily be had by running over the chief authors; out of whom references may be made, directing to the places where they may be found, when wanted. For there are many things which are much better preserved in *books* than in the memory; as astronomical observations, tables, rules, theorems, proportions, and in fine, whatever does not spontaneously adhere to the memory, when once known. For the less we crowd that faculty, the readier and freer will the genius remain for inventing.

Thus, a few *books* well chosen, and thoroughly studied, may suffice. It may be added, that as knowledge is naturally advantageous, and as every man ought to be in the way of information, even a superfluity of *books* is not without its use, since hereby they are brought to obtrude themselves on us, and engage us when we had least design. This advantage, an ancient father observes, we owe to the multiplicity of *books* on the same subject, that one falls in the way of one man, and another best suits the level, or the apprehension, of another. "Every thing that is written, says he, does not come into the hands of all persons: perhaps some may meet with my *books*, who may hear nothing of others which have treated better of the same subject. It is of service, therefore, that the same questions be handled by several persons, and after different methods, though all on the same principles, that the explications of difficulties, and arguments for the truth, may come to the knowledge of every one, by one way or other." Add, that the multitude is the only security against the total loss, or destruction of *books*: it is this that has preserved them against the injuries of time, the rage of tyrants, the zeal of persecutors, and the ravages of barbarians; and handed them down, through long intervals of darkness, and ignorance, safe to our days. *Solaque non norunt hæc monumenta mori.* Bac. de Augm. Sc. lib. i. August. de Trin. lib. i. cap. 3. Barthol. lib. cit. Diff. i. p. 8. &c.

To judge of a *book*, those who have treated of the subject direct us to observe the title, the author's or editor's name, the number of the edition, the place where, and year when it is printed (which in old *books* is frequently marked at the end), and the printer's name, especially if it be a celebrated one: proceed then to the preface, and look for the author's design, and the occasion of his writing: consider also his country (each nation having its peculiar genius), which may sometimes be learned from the dedication: if his life be annexed, run it over, and note his profession, what rank he was of, and any thing remarkable that attended his education, studies, conversation, or correspondences with learned men: not forgetting the eulogies which have been given the author, which often occur at the beginning, or even any critique or censure, especially if made by a man of judgment. If the preface does not give an account of the method of the work, run briefly over the order and disposition of it, and note what points the author has handled; observe whether the things and sentiments he produces be trite and vulgar, or solid, and fetched from greater depths.

Note, whether he go in the common road, or make any innovation, and introduce any new principle.

But it is a small number of *books* we have opportunity of thus judging of by perusing them; besides, when we have read a *book* over, the judgment comes too late for many purposes: it seems necessary therefore to have other indications, whereby to prevent our being at the charge of procuring, or the pains of perusing a worthless *book*. Divers rules of this kind are given by Baillet, Struvius, Stollius, and others; which though, in reality, no more than presumptions, and frequently liable to be falsified, are not without their use. The journalists de Trevoux objected to them all: "The shortest way, say they, to judge of a *book* is to read it, if you be qualified in the subject; otherwise to refer yourself to those who are so". Heuman is somewhat more explicit; making it a mark that "a *book* is good, when it is esteemed by persons intelligent in the subject it treats of; and when those who commend it receive no advantage from the applause they bestow on it, nor are leagued with the author in any cabal, for espousing any particular principle, system, or party, in religion, or learning." Baillet. Jugem. des Scav tom. i. b. 2. p. 121. Struv. Introd. at Not. Rei Liter. cap. 5. § 3. p. 390. Stoll. Introd. Hist. Liter. p. i. § 11. p. 9. Budd. de Criteriis boni Libri, passim. Mem. de Trev. an. 1712. Art. 17. Heuman. Consp. Reipubl. Liter. cap. vi. § 11. p. 280.

But more particularly, it is an indication that a *book* is good, 1. If the author be known to excel in that talent more immediately necessary for such a subject; or have already published any thing on the same that is esteemed. Thus we may conclude, that Julius Cæsar will teach us the art of war better than Peter Ramus; Cato, Palladius, and Columella, agriculture better than Aristotle; and Cicero, oratory better than M. Varro: add, that it is not enough the author be skilled in the faculty, but that he be so in the particular branches of it he treats of; some for instance, excel in the civil law, yet not in the public law: Salmasius proved himself an excellent critic in his *Exercitatio* Plinian. but was much inferior to Milton in his *Defensio Regia*. 2. If the *book* be on a subject that requires great reading, it may be presumed good, if the author had a copious library, or could have access to one; or if he lived in a place where *books* were not wanting; though here is danger too of running into excess in quotations; especially, says Struvius, if the author be a lawyer. 3. A *book* which took up a long time in composing, cannot often fail of being good. 4. *Books* on points of doctrine by eclectic writers, are to be presumed better than those writ by the retainers to particular sects. 5. The age of a writer may also give us some indication: *books*, which require labour, are usually better performed by younger persons than those who are far advanced in years. 6. Another indication may be taken from the author's state and condition; thus history written by a person who was an eye-witness to what he relates, or is concerned in public affairs, or has access to the public records, or other monuments, from whence intelligence may be drawn; who is not biased by party, or any other indirect or sinister motive, will be supposed to be good. Thus Sallust and Cicero were well able to write the history of Cataline's conspiracy. D'Avila, de Comines, Guicciardin, Clarendon, &c. were present in the civil wars they describe: Xenophon, having an employment in the Spartan state, has treated excellently of that commonwealth; and Amelot de la Houffaye, by living long at Venice, was enabled to explain the secrets of their policy. Camden wrote annals of the affairs of his own time; Thuanus had correspondence with the best writers in every country; and Puffendorf had access to the public archives. So in literary matters, we give credit to those who have the direction of libraries. 7. The time or age wherein the author lived may give some light, every age having, according to Barclay, its peculiar genius and excellency. See Bartholin. Struv. Budd. Heuman. Baill. lib. cit.

Some judge by the bulk or size of *books*; following the grammarian Callimachus's rule, that every great *book* is of course an ill one, *μεγα βιβλιον, μεγα κακον*; a single leaf of the Sybil was doubtless preferable to the vast annals of Volusius; yet Pliny's observations will nevertheless held true, that "a good *book* is so much the better by how much it is bigger." Plin. Epist. 20. lib. i. Martial prescribes a remedy against the largeness of a *book*, when that is the only complaint, read but a little of it:

*Si nimius videar, seraque coronide longus
Esse liber, legito, pauca libellus ero.*

Yet is the smallness of a *book* a real presumption in its favour: he must be a poor author who cannot furnish a pamphlet, or loose sheet, with things curious, and written with spirit: but to support the same through a

volume in folio, requires very extraordinary abilities indeed. Addis. in. Spec. N^o 124.

See farther concerning *books*, in the writers on literary history, libraries, studies, learning, arts, and sciences; more especially in Salden, Bartholin, Hodannus, Sacchinus, Baillet, Buddeus, Saalbach, Putherbeus, Raynaud, Schufner, Lauffer, Schwartzius, Crenius, Morhoff, and others, who have written treatises expressly concerning *books*.—Christ. Liberius, i. e. Gul. Saldenus, *Bibliotheca, sive de Libris scribendis & legendis*, Ultraj. 1681, 12^o. & Amstel. 1688, 8^o. Struv. Introd. ad Hist. Liter. c. 5. § 21. p. 454. Th. Bartholini. de Libris. legendis, 1678, 8^o. & Francof. 1711, 12^o. Struv. loc. cit. Jo. Fred. Hodanni. Dissert. de Libris legendis, Hanov. 1705, 8^o. Fr. Sacchini. de Ratione Libros cum profectu legendi, Lips. 1711, 12^o. Baillet Jugemens des Sçavans sur les principaux Ouvrages des Auteurs, tom. i. Car. Frid. Buddeus, de Criteriis boni Libri, Jen. 1714. Chr. Saalbach. Schediasma de Libris veterum. Gryphis, 1705, 4^o. Fabric. Bibl. Ant. cap. 19. § 7. p. 607. Reimm. Idea Syst. Antiq. Liter. p. 229, seq. Gab. Putherbeus, De Tollendis & expurgandis malis Libris, Par. 1549, 8^o. Theoph. Raynaud. Erotemata de bonis ac malis Libris, Ludg. 1653, 4^o. Morhof. Polyhist. Liter. lib. i. cap. 16. n. 28. p. 177. Schufner. Dissert. Acad. de Multitudine Librorum. Jenæ, 1702, 4^o. Lauffer Dissert. advers. nimiam Librorum Multitudinem. Vide Jour. des Sçav. tom. lxxv. p. 572. Chr. Got. Schwartzius. de Ornamentis Librorum apud Veteres, Lips. 1705. & 1707. Tho. Crenius de Libris Scriptorum optimis and utilissimis. Ludg. Bat. 1704, 8^o. an extract of which is given in Act. Erud. Lips. an. 1704. p. 526, seq.

The importation of *books* first printed in this kingdom, and reprinted abroad, is prohibited. Vide Stat. 12 Geo. II. c. 36. § 1.

There was a clause in the statute of the 8th of Q. Anne, ch. 19. empowering the chancellor, and some other great officers of state, to set the price of *books*, but this is now repealed by 12 Geo. II. ch. 36. sect. 2.

Books, burning of, was a kind of punishment much in use among the Romans, by legal sentence; sometimes the care of the execution was committed to *triumviri* appointed on purpose; sometimes to the prætors, and sometimes to the ædiles; Labienus, whom from his satirical spirit some have called *Rabienus*, is said to have been the first who underwent the severity of it. His enemies procured a *senatusconsultum*, whereby all his *books*, published during several years, were ordered to be collected and burnt: "The thing (says Seneca) then appeared new and strange to take revenge on learning!" *Res nova & insueta! Supplicium de studiis sumi.* Cassius Servius, a friend of Labienus, hearing the sentence pronounced, cried aloud, "That they must burn him too, since he had got all the *books* by heart." *Nunc me vivum uri oportet, quia illos didici.* Labienus could not survive his *books*, but shutting himself up in the tomb of his ancestors, pined away, and was buried alive.

Divers other ancient testimonies concerning the burning of *books* are given in Reimm. Idea Syst. Antiq. Liter. p. 389.

Books, censors of, see CENSOR.

Books, privileges of, see PRIVILEGE.

Book, common place, see COMMON-PLACE.

Book, text, see TEXT.

Book is also used for a part or division of a volume, or large work.

In this sense we say the *book* of Genesis, the first *book* of Kings, the five *books* of Moses, &c.—The Digest is contained in fifty *books*, the Code in twelve *books*.

Books are usually subdivided into chapters, sometimes into sections, or paragraphs: accurate writers quote chapter and *book*.

Book is also used for a list or catalogue of persons names.

—Such among the ancients were the *censofial books*, being tables or registers containing the names of all those who were censured or taxed under Augustus. Tertullian assures us, that our Saviour's name was found in the *censofial book* of Augustus. Adv. Marcion. lib. iv. cap. 7. See CENSUS.

Books, in *Matters of Commerce*, denote the several registers wherein merchants and other dealers keep their accounts.

We say, such a person's *books* are in good order: merchants cannot possibly do without *books*; they are even obliged by the laws to keep *books*. But more or fewer are required, according to the nature or extent of their dealings, or the precision and exactness they desire therein.

The ancients had also their *books* of accounts; witness the *codex accepti & expensi*, so often mentioned in Roman writers; and the *patrimonial books*, which were rentals,

containing an account of the lands, goods, and chattels; and other effects belonging to each person.

Book-Keeping, the art of keeping ACCOUNTS; that is, of recording the transactions of a person's affairs in such a manner, that the true state of any part, or of the whole, may be thereby known with the greatest clearness, exactness, and ease.

By the *transaction of one's affairs* are meant, either such as relate to the persons with whom we deal, or the things in which we deal; which last are either money, the principal means of commerce, or goods, comprehending all other effects.

All authors agree, that the Italians, particularly those of Venice, Genoa, and Florence, first introduced the method of *keeping books* double, or in two parts, probably about the middle of the fifteenth century; hence, among us it is called the *Italian method*: though it was not introduced into England till a century later, the first *book* on this art having been published in London in 1569, by James Peele.—Stevin apprehends, that the art of *book-keeping* by double entry, was known to the Romans, and originally received from the Greeks.

Books, merchants, may be generally divided into *essential* and *auxiliary*—*Essential* or *necessary*, are those without which regular accounts cannot be kept; in which number some include the *journal*, *waste-book*, and *ledger*; others only the two latter. Vide Malc. Treat. of *Book-Keeping*, chap. i. sect. 2. p. 3.

Subsidiary or *auxiliary*, are separate *books*, wherein particular accounts are kept more distinctly, for easing the ledger. Such are the *cash-book*, *debt-book*, *book of expences*, &c.

These *books* are kept in the same manner, in effect, in most trading cities in Europe; but not as to coin: each being regulated by that sort of coin which has course in the state where they are.

In England, *books* are kept in *pounds, shillings, and pence*: in France, in *livres, sols, and deniers*: in Holland, Flanders, Zealand, and Brabant, in *ponden, pounds, schellingen, shillings, and grofs, groot*; they also keep them in *guilders, stivers, and penningen*: at Dantzick, and in all Poland, in *rix-dollars, grofs, and deniers*; they are likewise kept in *florins, grofs, and deniers*: through most parts of Germany, in *florins cruizers, and pennings*: at Ham-burgh, in *marks, sols, and deniers lub*s: at Lisbon, in *rees*: at Florence, in *gold crowns, sols, and deniers*: in Spain, in *maravedis*; sometimes in *rials*, or *pieces of eight*: at Messina, and through Sicily, in *ounces, tarins, grains, and piccolis*: at Venice, in *ducats*: at Muscovy, in *rubles, altins, and grives*: through all the states of the Grand Signior, in *piasters, abouquelles, and aspers*.

Book, waste, is the first, and most essential: in this, all kinds of matters are mixed together; no order but that of time being preserved; it being a diurnal register of occurrences in business, to be afterwards separated and transferred into the others so that this may be said to contain the elements of all the rest. It may be kept two ways; the first, by entering things down simply as they happen; v. gr. *Bought of such a one, sold to such a one, paid such a one, lent so much*, &c. the second, by entering at once each article, debtor and creditor: this last is esteemed the best; because, forming a kind of little journal, it saves the keeping of any other.

The *waste-book* begins with the inventory of a merchant's effects and debts; the difference between these is what the merchant calls his neat stock; and contains a complete record of every transaction of his affairs, with all the circumstances, in a plane narration of matter of fact, every transaction following another in the order of the dates.

This *book* is in reality a journal, or day-book; but that name being applied to another, the name *waste-book* is given to this by way of distinction: though what relation the word *waste* bears to the nature of this *book*, is not very obvious. Some authors better call it the *memorial-book*, or *memorandum-book*, as its principal use is for taking memorandums.

Book, journal, or *Day-Book*, is that wherein the affairs of each day are entered orderly down, as they happen, from the *waste-book*.—Each article of this *book* is to consist of seven parts; viz. the date, debtor, creditor, sum, quantity and quality, how payable, and the price.

The journal, so far as it differs from the *waste-book*, is only a *book* of aid to the ledger.—There are two different methods of keeping it: in the first, which is that hitherto chiefly in use, the journal is a complete transcript of the *waste-book*, in the same order or time, but in a different style; because the *waste-book* expresses every transaction in a simple narration of what is done: whereas the *journal* distinguishes the debtors and creditors, as a preparation for the ledger; thus, when any transaction is to be transferred from the *waste-book* into the *journal*, they examine

amine it by the rules of the ledger, as if it were to be entered immediately there; and, finding the debtors and creditors to which it belongs, these are distinctly marked by their denominations of *debtor* and *creditor*, in the style of the journal; at least, the accounts that are

debtors are expressly so named; and by their being directly connected debtor to some other accounts, these are sufficiently determined to be the creditors, though the word *creditor* be not written.

Model of an article in the Journal.

15th July, 1723			l.	s.	d.
Wine Dr. to Cash	L. 160 : — : —	Bought of Duval, ready Money, 16 Pipes			
of Burgundy at	— L. 10 — —		160	0	0

The other form of a journal, which Mr. Malcolm judges preferable in certain respects to the former, makes the journal a complete transcript of the waste-book, without any alteration, leaving on the left side of every page a large margin, about a third part of the page; on which, against every transaction, are to be written the names of the debtors and creditors of that transaction, with their titles of debtor and creditor, and sums of money; observing, that where there are sundry debtors or creditors to one creditor, or debtor, they write their names next each other, and the name of the one corresponding debtor or creditor, against the total of the other sums; by which means the balance and connexion appear at sight. Then when the transaction is transferred to the ledger, they write on this margin the numbers of the folios where the account stands in the ledger; for the purposes already mentioned in speaking of the former method.

This book may be called either the *waste-book* or *journal*, being in reality both; not only as every *waste-book* is a *journal*, but as there is here also that which distinguishes both a *waste-book* and a *journal*.

By an ordinance of the year 1673, all traders in France, whether by wholesale or retail, are obliged to keep a journal, containing all their affairs, debts, active and passive, bills of exchange, &c. For want of keeping this, and surrendering it on a failure, they are to be reputed fraudulent bankrupts, and subjected to the penalties thereof.

Ledger, or *Ledger-Book*, sometimes also called the *great-book*, and the *post-book*, is a large volume, containing all the transactions of a man's affairs in such order, as that those belonging to every different subject lie together in one place; making so many distinct or several accounts. The ledger is only the waste-book, still farther digested; being extracted either immediately from it, or from the journal. It is usually ruled in six columns. In it all the accounts dispersed in the journal are drawn out and stated in debtor and creditor. To form each account two pages are required opposite to each other; that on the left serving for debtor, the other for creditor: each article to consist of five parts, or members; the date, the person whom we credit, or are credited by; the subject, i. e. the thing credited or indebted for; the page where it is found, and the sum or amount of the article. Two instances, the one of an article of credit, the other of debt, will illustrate the form and use of this book.

Model of an article in debtor.

May 14.	Anthony Roberts Dr.	l.	s.	d.
1701.	To Cash, paid by his order to Wilks.	Fo. 16.	1900	0 0

Model of an article in creditor.

Cr.	l.	s.	d.
By Cash, for his remittance on James	Fo. 16.	1900	0 0

The management of the ledger being of great importance in accounts, we will subjoin from Mr. Malcolm the following cases relating to it.

1. That for every distinct subject, with which you have an account (i. e. for every person with whom you deal, on mutual trust and credit, or who, by any means becomes your debtor, or you his) as well as for every thing you deal in, there must be a certain separate space, or portion, allowed: wherein are to be written all, and only the transactions relating to that subject, whose name is to be inscribed or written on the head thereof; making thereby distinct particular accounts.

2. Every account is to be distinguished into two parts, taking for each an equal portion (less or more, as you think fit) of right and left pages, of one *folio* or opening; the name of the subject being written on the head of the account, on both sides, which are distinguished by the words *debtor* on the left side, and *creditor* on the right, for the uses following: to which the columns explained below are subservient.

3. Every personal account to contain, on the debtor side, all the articles which that person owes you, and the payments you make of your debts to him: and on the creditor side, all that you owe to him, and the payments

he makes of his debts to you. Or, because this rule considers payments under the notion of mutual opposite debts upon the receiver, if this be once supposed, the rule may be briefly expressed thus: every person is debtor for what he owes me, and creditor for what I owe him.

4. Every real account ought to contain, on the debtor side, the quantity and value of what was upon hand at the beginning of the account, and what was afterwards received, with all costs and charges; and on the creditor side, the quantity and value of what is disposed of, or any way taken away, or gone out of it, with all the returns that subject makes me. Or, more briefly, thus: it is debtor for all received, first costs and charges: and creditor for all gone out of it, with the returns.

5. Every transaction must be entered in the *ledger-book*, with a balance of debt and credit, i. e. so as that every article be placed on the debtor side of one account, and the creditor side of some other, making thereby equal debt and credit in the ledger; and where the personal and real accounts concerned in the transaction do not, in the articles belonging to them, make this balance (as they will in most cases), then some imaginary account must be used to supply the defect.

6. Those accounts, whose articles of debt and credit, in any transaction, balance one another, are, in the ledger, to be connected together in the style of every article, as mutual and corresponding debtors and creditors; by writing in each of the corresponding accounts the name of the other, after the particle *to* in the debtor's account, and *by* in the creditor's, which connects the two; the name of the account, in which the articles are written; with its quality of debtor and creditor, being understood as joined to, and so is read before the word *to*, or *by*, in every article (though it be written only once for all upon the head of the account.) Then after the name of the corresponding creditor or debtor, follows a brief narration of the fact; the date and other numbers being placed in their proper columns. Hence we find the use of the column, that stands next to the money columns; which is this, to write in it the number of the folio where stands the corresponding account, with which the account, in which you write, is connected in every article.

To facilitate the use of the ledger, there is an alphabet to serve as an index, or repertory, consisting of twenty-four leaves, each cut on the edge, and marked with one of the twenty-four letters; wherein the initial letters of the persons names, with whom you have accounts, are inserted, with the folio of the ledger, where the account is stated,

The more exact book-keepers extend the index to the things or commodities a man has dealings in; as well as the persons he deals with. Generally, it is a letter of a man's surname, and the proper name of the thing, that directs its place in the index: thus John Gordon is put under G; and claret wine under C, unless all sorts of wines be comprehended in one account, in which case it is put under W.

BOOK, *debt*, BOOK of *payments*, or *Bill-Book*, a book wherein is entered the day whereon all sums fall due, whether to be paid, or received by bills of exchange, merchandizes, or otherwise: to the end that by comparing receipts and payments, provision may be made; in time, of a fund for payment, by receiving bills, &c. due; or taking other precautions.

Two models will suffice for the use and form of this book: it is only to be observed, that, like the ledger, it must be on two opposite pages; moneys to be received on the left hand, those to be paid on the right.

Model of the page of payment.

Jan. 1708.	To pay	l.	s.	d.
1	To Charles Horn, for a purchase of the 1st of July.	700	0	0
	To R. Hart, a note under hand of the 5th of August.	40	0	0
2	Remittance of Lucas, of 15th of December, to Hall.	1700	0	0
	My own bill of 25th of October, to bearer.	100	0	0

Model

B O O

Model of the page of receipt.

May 1708.	To receive	l.	s.	d.
1	Remittance of J. Vaffor, of the 10th of March, on Pitts. Of Cade, for wool sold the 6th of July. —	600	0	0
2	Of Dykes by bond of 23d of May last. —	150	0	0
	Remittance of Price, of 23d of October on Page.	2000	0	0
		170	0	0

BOOK, *cash*, is the most important of all the auxiliary ones: it is so called, because it contains, in debtor and creditor, all the cash that comes in, or goes out, of the merchant's stock.—In this are entered all the sums received and paid daily; those received on the left hand, with the person's name of whom received, for what, for whom, and in what species; those paid on the side of of creditor; mentioning likewise the species, the reason why, the person to whom, and for whom; the payment is made: For instance:

Model of an article in debt.

Cash. Dr.

June 29th, 1708	l.	s.	d.
Reced. of Paul Simon, for 2 tons of wax, sold the 6th instant,			
A purse of — L. 1000 : — : —			
Pieces of eight, L. 108 : — : —	1108	0	0
L. 1108 : — : —			

Model of an article in credit

Cr.

May 14th, 1711.	l.	s.	d.
Paid. To Tim. Hall, for 2 tons of wax, bought the 2d instant.			
A purse of — L. 1000 : — : —			
Pieces of eight, L. 300 : — : —	1300	0	0
L. 1300 : — : —			

The better to conceive the nature of this *book*, it is to be observed, that in business, where cash happens to be an account which has numerous articles, it is convenient to keep a particular account thereof, in a *book* distinct from the ledger; and for this reason called the *cash-book*. This is formed, in all respects, like the cash-account in the ledger, with a debtor and creditor side; in which all the cash received and given out is entered; either in a simple style, or in that of the ledger; but which way soever the narration is made, every article must be duly entered on the opposite side of the corresponding account in the ledger; with a reference to the ledger account of cash: for such an account there must also be, into which the sums of the debtor and creditor sides of the particular account must be transferred once a week or month, as is found convenient: thus, in the *cash-book*, the sums being written down against them, write, transferred to the ledger, and mark the folio; and in the ledger account, enter the sum with the date of the transfer, debtor to and creditor by, fundry accounts as *per cash-book*. The cash account in the ledger is necessary for the balance of the whole; and the convenience of the separate account of all the particulars is, that we have them all together in one continued account: whereas, the rule of the ledger being not to allow more than one folio for one account, till that be filled up, the account might hereby lie in several different folios.

BOOK of *invoices*, a *book* to save the journal from the erasures inevitable in taking accounts or invoices of the several goods received, sent, or sold: where it is necessary to be very particular, and to render those invoices easier to find than they can be in the *waste-book* or *journal*. The invoices here entered are to be those of goods bought, and set to account of some other; those of goods sold by commission; of goods sent away to be sold on our own account; and those of goods sold in partnership, whereof we have the direction, or whereof others have the direction.

This *book* contains an account or invoice of all the goods which a person ships off, either for his own account or for others in commission, according to the bills of lading; with the whole charges till on board; every invoice following after another, in order as they happen.

The invoice *book* is only a copy of what is written in the *waste-book*, in those cases. After the date, the narration is to begin thus:—Shipped aboard the ship — A. B. master; bound for —, the following goods; consigned to — for my account, or by order, and the account of — Or, it may be begun thus:—Invoice of goods shipped aboard — &c.

The design of this *book* is for the more ready finding out these invoices than can be done in the *waste-book*.

BOOK, *factor*, or *Book of sales*, is an account of what a person receives to sell in commission for others, and of the disposal thereof. It is numbered and distinguished

B O O

into folios, like the ledger; on the left-hand side is written, in a plain narrative style, an account of the goods received with all charges: and, on the opposite side, an account of all the sales and disposals of those goods. So that this is only a copy of the employer's account of goods in the ledger, in the style of the *waste-book*. Where a person does little in commission, a separate *book* for this purpose is needless.

BOOK of *accounts current* is kept in the form of debtor and creditor, like the ledger; and serves for accounts sent to correspondents, to be regulated in concert with them, before they are entered in the ledger. This is properly a duplicate of the accounts current, kept to have recourse to, on occasion.

BOOK of *commissions, orders, or advices*, is a *book*, in which are entered all the commissions, orders, and advices, which a person receives from his correspondents. This should have a broad margin for receiving the entry of remarks concerning their execution.

BOOK of *acceptances* is destined for the registering all bills of exchange, notified by letters of advice from correspondents; so that the merchants may know, when the bills are presented, whether they have orders to accept them or not. When they choose to decline accepting a bill, against the article thereof in the *book*, they put P. i. e. protest: that on offering the bill, the bearer may be told he may protest it: on the contrary, if they accept it; they write against it an A; adding the date, or day of acceptance. And this, upon being transferred to the debt-*book*, is cancelled.

BOOK of *remittances* serves to register bills of exchange, as they are remitted by correspondents, to require the payment thereof. If they be protested for want of acceptance, and returned to those who remitted them, mention is made thereof against each article, by adding a P. in the margin, and the date of the day when they were returned, then cancelled.

The *books* of acceptances and remittances have so near a relation to each other, that many merchants, &c. make but one of the two, which they keep in the form of debtor and creditor; putting acceptances on the side of the debt, and remittances on that of credit.

BOOK of *copies of letters*, serves to keep copies of letters, which a merchant writes to his correspondents, that he may have recourse to them, as occasion requires.

BOOK of *expences*, a detail of the petty expences, both domestic and mercantile; which at the end of each month are summed up, and make an article for the *cash-book*.

This *book*, being a separate account of all the expences of living, serves to keep both the profit and loss account and also the *cash-book*, more distinct: the greater and more considerable articles are to be placed here particularly; but the several small articles, of daily disbursements, only in totals: though under what denominations, and how general or particular the articles of this *book* are to be made, must be left to every one's choice. All that is necessary to observe here is, that the cash paid out, on such accounts, must be carefully entered here; and thence, once a week or month, be transferred to the *cash-book*, and to the profit and loss account of the ledger; which is debtor to cash for it.

BOOK of *numeros or wares* is kept for the easy knowledge of all the goods brought in, sent out, or remaining in a warehouse. On the left-hand page are entered the quantity, quality, and number or mark, of the goods brought in; on the right, the discharge of the goods out of the warehouse, against the respective articles of the first. Thus,

N ^o	1	A bale of white pepper — weighing	400 lb
	2	A piece of crimson damask — ells	63

March	1	Sold to Charles Mitchell.
Apr.	10	Sent to Nichols of Bristol.

BOOK, *month*, is numbered in folios like the ledger, and divided into spaces, on the top of each of which are the names of the twelve months of the year; January, February, &c. allowing a whole folio, or what you please, to each month; and a different set of 12 spaces for every different year. On the left hand page enter the payments to be made to you, in that month; and on the right-hand page the payments you are to make. Make a column likewise on the left-hand of every page; in which write the day of payment; and after this the name of the debtor or creditor; and draw the sum into the money-columns.

There are also *pocket memorandum-books*, published annually, digested into *weeks* and *days*, properly divided, for the clear and methodical entry of occasional memorandums.

BOOK of *vessels* is kept in the form of debtor and creditor; a particular

particular account be kept for each vessel. To the side of debtor are put victualling, fitting out, wages, &c. To the side of creditor are put every thing the vessel has produced; whether by way of freight or otherwise. Lastly the total of each is entered in the journal, upon balancing the accounts of each vessel.

Book of workmen is particularly in use among manufacturers, who have considerable works in their hands. It is kept in form of debtor and creditor for each workman employed. On the side of debt are put the matters given them to work; and on that of credit, the work they return.

Book of cargo or loading, livre de bord, is kept by the clerk or purser of the ship; wherein are entered all the goods aboard the vessel, whether those only for freight, or for sale, or exchange; the whole according to the specification in the master's bills of loading.

Book, bank. In cities where there are public banks, or bankers, as at Venice, Amsterdam, Hamburg, and London, a *book* is necessary wherein to keep an account of the sums paid to, or received from the bank, or bankers.

Book, absolutely used, denotes the waste-book, sometimes the journal, or day-book.

In this sense it is, they say, I have put down such a sum in my *book*; you shall have an extract of my *book*, &c.

Book-keeping, though chiefly in use among merchants and great dealers, is yet applicable with advantage to persons of all other conditions; as retailers, stewards, gentlemen of land-estates, &c. with this only difference, that the narrower their affairs and transactions are, the fewer *books* they need to keep, and *vice versa*. The same ways of accounting, which in great and diffused trade prevent confusion, by an artful and regular disposing of things, if applied to mean and narrow dealings, will create confusion, at least will be attended with needless trouble; since a few things shew themselves readily, and are examined by mere inspection: supposing no other method but a waste-book record; every corner whereof in very small dealings, the owner's eye is acquainted with, so that he can readily turn to what he wants: but this, in larger accounts, is impossible; which makes order, the strictest form, and much writing, absolutely necessary. Yet this one rule must be indispensably observed in all cases; viz. that a true and exact memorial of every thing belonging to the account be made, just as things occur; and if business increase, so that a nearer approach to the perfection of accounting be necessary, this will serve as a ground-work, on which you may raise the account to what form you please. But the least a man can do, will be some part of the method explained under the article *Books*; of which all methods whatever are a part; as comprehending the greatest simplicity in the waste-book, and art in the ledger.

For a person in a single state, who has no business, but the receiving at certain times in the year a sum of money, which he lays out again for his private and personal expences, a pocket-book is sufficient.

For one in a married state, whose fortune consists also of money, as he has a greater variety of expences, he must be careful to keep an exact account of what cash he receives and pays: and to make this account more distinct and orderly, it will be best to keep the particulars of the payments in a separate *book*, and to bring them into a cash-book once a week, in totals digested under such denominations as he thinks fit, as *bread, beer, flesh, coals, candles*, &c. Things thus brought into the cash-account, may be again drawn into an abstract, shewing the total of each kind of expences for every month, by dividing a page into twelve columns, with the names of the twelve months; and then in so many articles on the margin, setting the names of the several heads of expences, and against each, under the respective month, the sum of that kind of expences in that month; then will the sum of the money in the columns under each month be the total expence of that month, and the aggregate of these sums the year's expences.—

For artificers, handicrafts-men, and the like, they may keep accounts of the expences of living, as above; but it also will be necessary to make a distinct account of the charges and profit of their business, which may easily be done, by an exact account of all they pay or owe for the materials and instruments of their work, with servants wages, and taxes upon their trade; and of all they receive or that is due for their work. They may conveniently keep accounts for the materials of their work, to satisfy them of the disposal thereof, and to serve as a check on servants who have access to those things; and they must keep accounts for the persons they deal with, both in buying and selling. As for petty traders, who deal in some hundreds of trifling wares, and make sales to the value of a farthing or halfpenny, these cannot pretend to keep orderly accounts; the best they can do is to be careful

that servants do not wrong them; for they have no account of goods; and if you ask what of any kind remains with them, they must examine, if their memory fails. These can only have a cash-account; which they are to charge once a week with the money received, and discharge for what they give out: it is not convenient that they should touch the cash-box, or till, oftner than once a week, when it is completed; but if they do, they must keep a separate account of what they take out, to know what was received. Besides which, they should have a

Book, Memorandum, or Day-Book, wherein all things delivered on credit are to be entered, and from thence transferred to a ledger; in which an account is opened for every debtor or creditor, with a debt and credit both on one side with a double money column.

As for more considerable shop-keepers, who commonly deal in only a few different species of goods, as drapers, mercers, &c. they usually keep a ledger for persons and wares distinct, without any formal connection or reference of the accounts, in their several articles; whereby there can no regular balance be made: In the accounts of persons they use the formality of a debtor and creditor style, which is mere shew, without the real value of a regular account; there being no opposite corresponding debtor and creditors to be found: For their ledger of wares, as they call it, contains nothing of this; and is but an imperfect contrivance, which they satisfy themselves with, to know how much remains. But the worst is that, in allotting spaces for the accounts of wares, they frequently allow no more than they suppose may serve for the retail of the quantity first entered on that space; and when this is disposed of, take a new space for a new parcel: which, in a quick trade, is not only troublesome, but confused, if there be any of the old parcels remaining, unless they carry it to the new account. In reality, dealers in retail, if considerable in their way, ought not to come short of the utmost pitch of art: at least they should keep three grand *books*, a *waste, journal, and ledger*; unless they should think fit to join the first two into one. The *waste-book* is to contain every thing done in the shop, both what is sold on trust, and for cash. This and the *journal* may be made in one, by marking the debtors and creditors on the margin, against every transaction of value. For the *ledger-book*, because there are commonly many articles of debt to one of credit, on men's accounts with whom they deal, and many articles of credit for one of debt upon account of wares, they may keep the debt and credit both on one side, by double money columns; in one of which let the debt, and in the other the credit be set.

For gentlemen of landed estates, the *books* necessary to be kept are, 1. A great *waste-book*, containing a plain narrative of all things as they occur; as receipts and payments, every thing given and received; and, in short, whatever is done relating to any thing or person they are concerned with: out of which are to be made up, 2. A *cash-book*, containing in a plain narrative style, upon the debtor-side, all receipts of money; and upon the creditor-side, all payments; and though there be several articles received or paid together belonging to the same account, which are entered particularly in the waste, yet they may be set down here in a total sum: for example, there is paid 26*l.* for divers pieces of household furniture, all particularly mentioned in the *waste-book*, yet in the *cash-book* there needs no more than to say, *paid for household furniture, &c.* 3. A *book* of accounts with tenants, where, in distinct places, every one's charge and discharge may be fairly written, without any great formality of style: and if it hath a shew of debtor and creditor side, it will be the more distinct. 4. A *book* of petty accounts with servants and workmen, &c. 5. A *book* of real accounts; containing an account of cattle, corn, and other stock of furniture, to know at all times what you have, and how it is disposed of. If a gentleman advances no nearer to the artificial part of accounting, he must keep an account with every person, with whom he has dealings; which may be done in the same *book* with his tenant's accounts, only allotting distinct parts for them; the last will take no great room compared with the other; these *books* of accounts must have indexes.

For factors or stewards on land estates, a general *waste-book* will be necessary, to contain all matters transacted, relating to the master's concerns, under their management. Out of which let them make a *cash-book*, in the manner above directed; also a *book* of real accounts, that they may know what real effects, beside money, they have the charge of, and how it is disposed of; particularly the corn rents, which have been delivered by the tenants, and put in the granaries under their charge, to

be disposed and given out according to order. Malcolm's *Treatise of Book-keeping*, append. p. 7. 30.

Book of rates, is a book established in parliament, shewing at what value goods, which pay POUNDAGE, are to be reckoned at the CUSTOM-HOUSE. See CUSTOM, DUTY, POUNDAGE, and TONNAGE.

The *book of rates* annexed to the act of TONNAGE and POUNDAGE made in the 12th year of king Charles II. is subscribed with the hand of sir Harbottle Grimstone, then speaker of the house of commons. An additional *book of rates* of goods and merchandizes usually imported, and not particularly rated in the former, with rules, orders, &c. is signed by Spencer Compton, esq. speaker of the house of commons, 11 Geo. I. c. 7.

BOOK-BINDING, the art of sewing together the sheets of a book, and securing them with a back, and strong paste-board sides, covered with leather, &c.

Binding is distinguished from *stitching*, as in the latter the leaves are only sewed, without bands, or backs.

We say, French-binding, law-binding, marble-binding, binding in parchment, in sheep, in calves leather, &c. also half-binding, wherein the leaves are generally left uncut, and only the back covered with leather, the paste-board sides being covered with marbled, or blue paper. Dutch-binding, is where the backs are of vellum. The Italians are still contented to bind in a coarse, thick paper, called *binding alla rustica*, the inconvenience of which is its being liable to wear out without careful use. Without doubt, the art of *binding* is almost as ancient as the science of composing books; and both the one and the other followed immediately the first invention of letters. Whatever the matter might be, on which men first wrote, there was a necessity of uniting the several parts together; as well for the making them of one piece, as for the better preserving them: hence the origin of *book-binding*.

According to Olympiodorus (apud Phot.) it was one Phillatius, a learned man at Athens, who first taught the use of a kind of glue, to fasten the several leaves together; on which account a statue was erected to him.

Books, the manner of binding in volumes, i. e. of gluing the leaves together; that of rolling them on round pieces, or cylinders of wood, appears the most ancient; though that of binding them square, and of sewing several quires one over another, lays claim to considerable antiquity. The first of the two, which we call *Egyptian-binding*, held a long time after the age of Augustus; but it is now disused, excepting in the Jewish synagogues, where they continue to write the books of the law on vellum sewed together; making, as it were, only one long page, with two rollers and their clasps of gold and silver, at each extremity.

The form now in use is the square binding, which is said to have been invented by one of the Attali kings of Pergamus; to whom we likewise owe the manner of preparing parchment, called in Latin, from the name of his capital, *Pergamena*, or *Charta Pergamea*.

Books, manner of binding. The first operation is to fold the sheets according to the form, viz. into two for folios, four for quartos, eight for octavos, &c. which the workmen do with a slip of ivory or box, called a *folding-stick*: in this they are directed by the catch-words, and signatures at the bottom of the pages. The leaves thus folded, and laid over each other in the order of the signatures, are beaten on a stone with a heavy hammer to make them solid and smooth, and then pressed. Being thus prepared, they are sewed in a *sewing-press*, upon pack-threads or cords, which are called *bands*, at a proper distance from each other, and in a convenient number; which is done by drawing a thread through the middle of each sheet, and giving it a turn round each band, beginning with the first, and proceeding to the last. The common number of bands is six in folios, and five in quartos, octavos, &c. Sometimes they use a saw to make places for the bands, which are sunk into the paper, so that the back of the book, when bound, is smooth, without any appearance of bands. After this the backs are glued, the ends of the bands being opened, and scraped with a knife, for the more convenient fixing of the paste-boards; then the back is turned with a hammer, the book being fixed in a press between boards, called *backing-boards*, in order to make a groove for admitting the paste-boards. The boards being then applied, holes are made for drawing the bands through, the superfluous ends being cut off, and the parts hammered smooth. Then the book is pressed in order for cutting; which is performed by a particular machine called a *plough*, to which is fixed a knife. After this the book is put into a press called the *cutting-press*, betwixt two boards, the one lying even with the press, for the knife to run upon; the other above it, for the knife to cut against.

The book being cut, the paste-boards are squared with a proper pair of iron shears; and it is then ready for sprinkling, gilding, blacking, or marbling the leaves. The colours with which it is sprinkled, are usually vermillion, or sap-green; which is done with a brush made with hog's bristles, holding the brush in one hand, and moving the hair with the other.

In the French-binding, a book is put in parchment, i. e. a slip of parchment is applied over the back, between each band, and the ends pasted on the inside of each paste-board. This preparation, called *indorsing*, seems peculiar to the French binders; who are enjoined by ordonnance to back their books with parchment on the penalty of 30 livres, and the re-binding of the book: it is done in the press, where the back being grated to make the paste take hold, the parchment is applied; and they afterwards add glue to fortify it.

Manner of gilding books on the edges. The book, being put tight into the press, between two boards, is scraped with a knife called a *scraper*; and after that with another called a *smoother*, in order to take out all scratches. Being thus made smooth, they scrape a little yellow ochre upon the book, wet it with a little size-water, and rub it off with some clean shavings. The gilding size is made with the white of an egg, mixed with water, and beat well together. The leaves being wetted with the size-water, with a brush, the gold is then laid upon it, and afterwards dried before the fire. When dried it is burnished off with a dog's tooth set in a handle. Blacking the leaves is done with fine antimony, the leaves being wet, and the antimony rubbed upon them until quite dry, when it is burnished like the gold.

The head-band is now added which is an ornament of thread or silk, of two or three colours, placed at each extreme of the back, across the leaves, and woven or twisted, sometimes about a single, and sometimes a double piece of rolled paper, or, what is more lasting, of glued pack-thread.

For the covers; the skins used undergo several preparations, which we shall explain in calf, as being the leather most used; and as being that to which all the rest with a little variation may be referred. The calf-skin, being moistened in water, is cut to the size of the book, and the thickness of the edges pared off on a marble stone kept for that purpose. The cover is next smeared over with paste, made of wheat-flour; then stretched over the past-board on the out-side, and doubled over the edges within-side. They then cord the book, or bind it firmly between two boards, to make the cover stick the stronger to the paste-boards and the back; on the exact performance of which depends a great part of the truth and neatness of the book. The back is then warmed at the fire to soften the glue, and the leather of the back is rubbed down, with a folding-stick or bodkin, to set and fix it close to the back of the book. It is now set to dry, and when dry, uncorded: the book is then washed over with a little paste and water, the edges and squares blacked with ink, and then sprinkled fine with a brush, by striking it either against the hand, or a stick; or with larger spots mixed with vitriol, which is called *marbling*. Two blank leaves, on each side, are then to be pasted down to the cover; and, when dry, the leaves are BURNISHED in the press, and the cover rolled on the edges.

The cover is now glazed twice with the white of an egg; it is then filleted plain, or with gold; and at last polished with a polishing iron, passed hot over the glazed colour. If the book be required to be lettered, they paste a piece of red Morocco on the back, between the first and second band to receive the title in gold letters; and sometimes a second between the next bands underneath, to receive the number of the volume.

The plain binding, properly so called, is now complete; the gilding on the back and cover, as it makes a part of the book-binder's business among us (though, with the French, &c. it is a distinct profession), we shall here subjoin.

Manner of gilding books on the back and covers. In ordinary binding, they gild little else but the backs, and the outward edges of the cover. On the backs are gilt the title of the book, &c. with flowers, roses, knots, stars, &c. between the bands: on the covers are sometimes added compartments, arms, &c. All these ornaments are made with each its several gilding tool, engraved in *relievo*; either on the points of puncheons, as those of letters, roses, stars, &c. or around little cylinders of brass, as the lines, embroideries, &c. The puncheons make their impression, by being pressed flat down; and the cylinders by being rolled along by a handle, to which they are fitted on an iron stay, or axis.

To apply the gold, they glaze those parts of the leather, whereon the tools are to be applied, three or four times with

with a liquor made of the whites of eggs diluted with water by means of a sponge; and, when near dry, they slightly oil them, and then lay on pieces of leaf-gold, and on these apply the tools, with a careful even pressure of the hand, or roll the cylinders, both the one and the other, reasonably hot. If the figures be large, and require a great *relievo*, as arms, &c. they are beat or pressed down. The gilding thus finished, they rub off the superfluous gold, and polish the whole; the gloss of which is greatly assisted by a final pressing between horns peculiar for the purpose.

Our *book-binders*, for gilding on rough leather, make use of resin dried and powdered, instead of whites of eggs; and the gold leaf, first cut to a proper size, is laid on a hot somewhat oiled stamp, and pressed down: and thus the resin melts only in those parts where the hot stamp is applied, and the gold fixes on it, whilst the other parts of the leather remain rough as at first. Dr. Lewis's Com. Phil. Tech. p. 615. See GILDING.

Ahas. Fritsch, chancellor of the university of Jena, has a dissertation express concerning BOOK-BINDERS, *De Bibliopægis*; wherein he treats of the laws prescribed by these artificers, and the tax or price settled by the magistrate for *binding books*, of every sort in sheep-skin, vellum, &c.—The rates fixed for *binding* in sheep, throughout the electorate of Saxony, are, for large folios, 1 guilder or florin, three grosches; common folio, 1 florin; large quarto, 12 grosches; common quarto, 8 grosches; large octavo, 5 grosches; common octavo, 4 grosches; duodecimo, 3 grosches; sedecimo, 2 grosches.

BOOK-LAND, see BOOK-land.

BOOK-SELLER, a professed trader in *books*; whether he prints them himself, or procures them to be printed by others, for sale.

Book-sellers, among us, are the same with *bibliopolæ* among the ancients, whose office was distinct from that of *librarii*. Petty dealers or venders of small ware, like our publishers, were more particularly denominated *libelliones*. At Rome, the Argiletum was the mart of *books*, as Paul's Church-yard, or Fleet-street, and Pater-noster row, have been among us; whence that of Martial.

*Argiletanas mavis habitare tabernas,
Cum tibi, parve liber, scrinia nostra vacent.*

Book-sellers are a kind of agents, or curators in the republic of letters: in many places they are ranked among the members of universities, and entitled to the privileges of students: as at Tübingen, Saltzburg, and Paris, where they have always been distinguished from the vulgar and mechanical traders, and exempted from divers taxes and impositions laid on other companies.

Formerly, the offices of *book-sellers* and printers were united in the same persons. Labbe gives a list of learned *book-sellers*; most of whom were also authors. Of late days, *book-sellers* have drawn their business into less compass, and leaving the labour of composing *books* to one set of persons, and that of printing them to another, content themselves with the gainful part; thus ministering to the republic of letters not with the head, or the hand, but the purse only.

In this view, they have been very important and useful agents between authors and the public; and have contributed, in no small degree, to the encouragement of genius and literary industry, and the spread of science. There are few authors, who have undertaken the printing and publishing of any work likely to be transmitted to posterity, without being connected with some *book-seller* or *book-sellers*, eminent in their profession.

The fairs of Frankfort and Leipzig are famous for the resort of *book-sellers*, not only from all parts of the empire, but Holland, Flanders, &c. They have each their shop or warehouse, over which is inscribed the name of some celebrated *book-seller* of former times; *officina Elzeviriana*, *Frobeniana*, *Morelliana*, *Jansoniana*, &c.

An acquaintance with the *book-sellers* marks or signs, frequently expressed on the title pages of their *books*, is of some use; because many *books*, especially in the last century, have no other designation either of printer, *book-seller*, or even city. The anchor is the mark of Raphaelengius at Leyden; and the same with a dolphin twisted round it, of the Manutii at Venice and Rome; the *Arion* denotes a *book* printed by Oporinus at Basil; the *caduceus*, or *pegasus*, by the Wecheliuses at Paris and Francfort; the *cranes*, by Cramoisy; the *compass*, by Plantin at Antwerp; the *fountain*, by Vascosan at Paris; the *sphere* in a balance, by Janson or Blaew, at Amsterdam; the *lily*, by the Juntas at Venice, Florence, Lyons, and Rome; the *mulberry-tree*, by Morel at Paris;

the *olive-tree*, by the Stephenfes at Paris and Geneva, and the Elzevirs at Amsterdam and Leyden; the *bird between two serpents*, by the Frobeniuses at Basil; the *truth*, by the Commelins at Heidelberg and Paris; the *Saturn*, by Collinaeus; the *printing-press*, by Badius Ascensius, &c.

Chevillier shews, that the university of Paris had formerly the sole power of creating and appointing *book-sellers*, who were to take an oath to the university; and were reputed part of the academical body, and as such entitled to the exemptions of the other members thereof. They were to give security to the university for their behaviour, and produce attestations of their capacity for the discharge of their office: the university also deposed and expelled them at discretion: they were obliged to appear at all assemblies of the university, when summoned, and assisted at the public processions thereof: they were obliged to lend their *books* to be read, or even copied by such as were disposed to borrow, on certain conditions, prescribed by the university. If they kept any *books* by them which were not correct, the university punished them: they were not allowed to buy any *book* of a student, without leave of the rector: nor were they allowed to gain above four *deniers* in a *livre*, by any copies sold to the members of the university. Every *book-seller* was obliged to have a catalogue of all his *books* hung up in the shop, with the prices as rated by the university: no *book-seller*, who had not taken the oaths to the university, might sell a *book* of above ten *sols* value. Diff. de l'Orig. de l'Imprim. l. iv.

This state lasted from the thirteenth century to the invention of printing, and even till the end of the fifteenth century; during which time there were only allowed twenty-four *book-sellers*, two binders, two illuminers, and two sworn *book-writers*, or copists.—But from that time the kings of France began to take cognizance of them; Lewis XI. thought fit to prescribe some new regulations in 1467: under Francis I. the *book-sellers* were brought wholly under the royal authority, and received statutes from the king.

The chief science of *book-sellers*, is the knowledge of the titles, different editions, prices, and scarcity of *books*, without regard to their contents, or qualities, otherwise than as these affect the sale of them.

BOOK-WORM, is an insect of the mite kind, which afterwards becomes a fly, bred from eggs deposited in the month of August in *books*, especially in the leaves nearest the covers. It is not unlike the mite or BLATTA found in corn. When the time of its transformation approaches, the insect seeks to get into the air, and eats every thing which it finds in its way, till it gets to the extremity of the *book*. The mixture of juice of wormwood and other bitter ingredients in their paste, which is an expedient used by book-binders for this purpose, is no security to *books* against *book-worms*. The best and the only security is from mineral salts, which all insects hate. For this purpose book-binders, ought to mix with the paste employed in binding, the salt which is known under the name of ARCANUM duplicatum, alum, and vitriol: with this precaution, *books* may be perfectly guarded from all injury and insult from this mischievous little creature. We cannot take too much care to preserve what only can transmit our knowledge to posterity. M. Prediger, among other instructions to German book-binders, printed at Leipzig in 1741, recommends their making paste of starch, instead of flour: he wishes them to powder slightly the *books*, their covers, and the shelves on which they stand, with a mixture of powder of alum, and fine pepper; and is also of opinion, that in the months of March, July, and September, *books* should be rubbed with a piece of woollen cloth steeped in powdered alum. Melanges d'Hist. Nat. tom. v. p. 296.

BOOKING, among Merchants, &c. the making an entry of any matter in the journal. See BOOK, BOOK-KEEPING, and JOURNAL.

BOOM, in the Sea-language, a long pole, wherewith they spread out the clue of the spreading-sail, sometimes also that of the main-sail and fore-sail, to make them broader, and receive more wind.

Booming of the sail is never used but in quarter-winds, or before a wind. By a wind, studding sails, and booming the sails is not proper.

When a ship is said to come booming towards us, it imports as much as that she comes with all the sail she can make.

BOOM also denotes a pole with a bush or basket on the top, placed to direct ships how to steer into a channel; otherwise called a beacon.

BOOM likewise is used, in Marine Fortification, to denote a cable or cables stretched athwart the mouth of a river, or harbour, with yards, top-masts, battlings or spars of wood,

wood, lashed to it; and girded with iron hoops rivetted together and nailed to the spars, to prevent an enemy's entering. Such a *boom* M. Chateau Renault had with diligence and art prepared at Vigo, for the defence of the plate fleet lying there in 1702; but how strong forever, it was forced by sir Thomas Hopson. The cables of which the *boom* is formed, are bent to a pair of sheet-anchors on each side of the channel. Other cables are sometimes fastened to that within the *boom*, and bent to anchors laid down the stream; and these cables are prepared with spars like the other; where wood is scarce, the *boom* is prepared with old ropes, &c. and iron hoops; every part of it being well covered with pitch strewed with gravel. The *boom* is generally so contrived, as to open at one end for the passage of vessels.

BOOMITES, a term used by some authors to express a kind of agate, of a very remarkable brightness and transparency, which represents the figures of shrubs, trees, mosses, &c. in the manner of the *dendrachates*, a common *mocho-stone*. This is however very different in the degree of transparency and brightness.

BOOMKIN, see **BUMKIN**.

BOOPHTHALMUS, derived from *βοας*, an ox; and *οφθαλμος*, eye, *Ox-eye STONE*, in *Natural History*, a name given by Scheuchzer to a peculiar AGATE, in which there frequently appear circles of considerable size, resembling some large animal's eyes. The ground colour of the stone is grey, and the circles of a deep bluish black.

BOOPS, in *Ichthyology*, the name of a fish caught in the Mediterranean, and sold at Naples, Messina, and Genoa. It is a small fish, seldom exceeding five inches in length, and very remarkable for the largeness of its eyes; and a species of the SPARUS. It is of a rounded, not flat shape, and its scales are large. See *Tab. V. of Fish*, N. 56. Besides this, which is the common species of the *boops*, there are two other kinds, the one commonly called *BOUGE-ravel*. The other a small kind, not above three inches in length, and without scales. Its mouth is small, and its eyes extremely large. Its tail is broad and thick. This, in the taste and consistence of its flesh, no way differs from the common *boops*.

BOOPS is also the name of a species of the WHALE.

BOOR-worm in *Natural History*, a name given by Rumphius, to the *solen lignorum*, a sea-worm, which bores the bottoms of ships.

BOOT, a leathern cover or defence for the leg, used on horse-back, both to keep the body more firm, and defend the part from the injuries of the weather.

Boots seem to have been called thus from their resemblance to a sort of jacks, or leathern bottles, formerly in use, and called *bottæ*, in the old French *bouts*. Borel derives the name from the ancient French word *bot*, a *slump*, because the *boot* gives the leg this appearance.

It is not long that the *boots* used on horse-back have been called by this name. In the reign of Charles VII. of France, they were called *houfes*, *hose*.

The ancient monks usually wore *boots* that is, the denomination *bottæ*, or *botti*, was given to their buskins.

The Chinese had a kind of *boots* made of silk, or fine stuff, lined with cotton, a full inch thick, which they always wear at home and abroad.

There are also surgical *boots*, for the cure of *vari* & *valgi*, or crooked and distorted legs.

The *boot* was much used among the ancients, by the foot as well as horsemen.

The *boot* is the same with what was called by the ancient Romans, *ocrea*; in middle-age writers, *greva*, *gamberia*, *bainberga*, *bembarga*, or *benberga*. Du-Cange Lat. Gloss. The *boot* is said to have been the invention of the Carians; it was at first made of leather, afterwards of brass and iron, and was proof both against cuts and thrusts. It was from this that Homer calls the Greeks *brazen-booted*. Plin. Hist. Nat. lib. vii. cap. 56. Homer. Il. vii. v. 41.

The *boot* only covered half the leg, some say only the right leg, which was more exposed than the left, it being advanced forwards in an attack with the sword; but in reality it appears to have been used on either leg, and sometimes on both. Those who fought with darts, or missile weapons, advanced the left leg foremost; so that this only was *booted*. Veget. lib. i. cap. 20. Pitisc. Lex. Ant. tom. ii. p. 309. and Aquin. Lex. Mil. tom. ii. p. 102.

Boots, *fishing*, are a thick strong sort used in dragging ponds, and the like. *Hunting-boots*, a thinner kind, used by sportsmen. *Jack-boots*, a kind of very strong *boot*, used by the troopers.

BOOT, *bordequin*, is likewise a kind of torture for criminals; to extort a confession, by means of a *boot*, stocking, or busking of parchment; which being put on the leg moist, and brought near the fire, in shrinking squeezes the leg violently, and occasions intolerable pain.

There is also another kind of *boot*, consisting of four

thick strong boards bound round with cords; two of these are put between the criminal's legs, and the two others placed one on the outside of one leg, and the other on the other; then squeezing the legs against the boards by the cords, the criminal's bones are severely pinched or even broken, &c.

The *boot* is now disused in England; but it subsists still in some other countries.

BOOT-housing, see **HOUSING**.

BOOT-last, a wooden cylindric instrument, used by shoemakers for widening the leg of a *boot*. It is slit in two parts, between which a wedge is driven when it is put into the *boot*.

BOOT-topping, in *Sea-Language*, the act of cleaning the upper part of the ship's bottom, or that part which lies immediately under the surface of the water, and daubing it over with tallow, or with a coat or mixture of tallow, sulphur, resin, &c.

BOOTES, in *Astronomy*, a constellation of the northern hemisphere, whose stars, in Ptolemy's catalogue, are 23; in Tycho's 28; in Bayer's 34; in Hevelius's 52; and in Mr. Flamsteed's catalogue, 54. Their longitudes, latitudes, magnitudes, &c. are as follow:

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
		♈	10 51 56 28	11 26 06	
			9 43 34 30	32 06	
			9 29 53 33	59 20 06	
Middle of three in the fore-leg.	τ		13 37 30 26	32 8 4	
Southern.	υ		14 51 57 25	12 47 4	
5.			12 26 17 30	14 28 5 6	
			14 50 20 27	31 38 7	
Northern of the leg.	η		14 58 32 28	7 35 3	
			11 0 38 36	33 10 5	
10.	ε		14 27 1 31	28 30 7	
			12 13 5 36	53 16 7 6	
	d		15 43 4 35	41 3 5	
	ι		27 9 24 56	34 48 6	
	κ		22 8 42 24	51 0 6	
			23 26 33 22	15 30 6	
15.					
Bright one betwixt the thighs, } <i>Arcturus</i> .	α		19 53 52 30	57 0 1	
Preced. in the north hand.	π		25 36 39 58	54 44 4	
	μ		23 23 52 25	10 15 6	
In the preced. arm.	λ		2 37 58 54	39 20 4	
			21 11 11 28	27 0 5	
20.					
Middle one in the hand.	ι		26 46 0 53	51 50 4	
	f		22 38 0 31	45 14 5	
Last of the three in the hand.	θ		28 14 0 60	10 4 4	
	g		1 35 46 58	55 5 6 7	
Preced. of the two in the girdle.	δ		18 25 50 42	27 57 4	
25.					
In the left shoulder.	γ		22 49 58 35	6 13 7	
Second of two in the girdle.	σ		13 18 18 49	33 0 3	
	π		19 31 33 42	8 24 5	
In the right heel.	ζ		27 30 6 30	23 18 4 5	
	ς		28 40 21 27	53 42 3	
30.					
	ι		0 53 28 22	41 32 5	
	κ		29 37 33 25	59 55 6	
	b		9 58 2 55	27 39 6	
			23 36 22 40	0 9 6	
	ο		28 27 45 31	17 7 4 5	
35.					
Against posterior thigh, under } the girdle.	ε		23 44 35 40	38 21 3	
	ζ		29 10 33 33	47 28 4	
	2		11 2 48 57	54 1 6	
	b		8 17 10 60	4 0 6	
			20 6 1 52	58 40 6 7	
40.					
In the right hand.	ω		29 26 43 40	11 33 5	
In the head.	β		19 53 41 54	10 38 3	
First of the two in the wrist.	ψ		29 10 20 42	11 40 5	
			13 26 11 60	32 37 6	
In the extremity of the handle } of the staff.	c		0 54 38 40	29 15 5	
45.					
Second of two in the wrist.	b		0 34 22 41	54 43 6	
			One, long. & at. under.		
Northern of two in the staff.	χ		0 51 10 45	4 7 5	
In the right shoulder.	δ		23 48 8 49	0 10 5	
Under the shoulder in the staff.	ι		0 54 25 49	10 10 5	
50.					
North of the middle ones in } the staff.	μ		28 51 13 53	26 56 4	
	1		28 9 25 57	5 54 6	
In the extremity of the staff.	2		28 22 27 57	14 17 9	
	φ		0 45 23 57	14 46 6	

This constellation is called by divers others names, as *Arctophylax*, *Bubulcus*, *Bubulus*, *Thegnis*, *Clamator*, *Vociferator*, *Plorans*, *Plaustris-Custos*, *Philometus*, *Arcas*, *Icarus*, *Lycaon*, and *Arcturus Minor*; by others, *Septentrio*, *Lanceator*, *Ceginus*; by Hesychius, *Orion*; by others, *Canis*, *Latrans*; by the Arabs, *Aramech*, or *Arcamech*. Schiller, instead of *Bootes*, makes the figure of St. Sylvester; Sickhard, that of Nimrod; and Weigelius, the three Swedish crowns. Wolf. Lex. Math. p. 266.

BOOTH, *Botha*, denotes a stall, or standing in a fair or market: the term is also applied to any temporary structure formed of boards and boughs, and designed for shade and shelter.

BOOTY, the moveables taken from an enemy in war.

Among the Greeks, the *booty* was divided in common among the army, the general only claiming a larger share. By the military discipline of the Romans, spoils taken from the enemy belonged to the republic, particular persons had no right to them. The generals who piqued themselves on their probity, carried it wholly to the public treasury. Sometimes, indeed, they divided it among the soldiery, to animate them, and serve in lieu of reward. But this distribution depended on the generals, who were to conduct themselves herein with great equity and moderation; otherwise it became a crime of peculation to lay hands on the pillage, as regularly belonging only to the state. The consuls Romulus and Veturius were condemned for having sold the *booty* taken from the *Æqui*. Liv. lib. iii.

Among the Jews, the *booty* was divided equally between the army and the people, though under the kings a different kind of distribution obtained. Numb. xxxi. 27.

Among the Mahometans, two thirds of the spoils are allowed to the army; the other third to God, to Mahomet, and his relations, and to the orphans, the poor, and the pilgrims. Calmet. Dict. Bib. tom. i. p. 321.

Among us, formerly, the *booty* was sometimes divided among the soldiery. If the general be in the field, every body takes what he can lay hold on: if the general be absent, the *booty* is distributed among the soldiers, two parts being allowed to the cavalry, and one to the infantry. A captain is allowed ten shares, a lieutenant six, and a cornet four. See PRIZE.

BOQUINII, a sort of Sacramentarians, who asserted that the body of Christ was present only in the eucharist to those for whom he died, that is the elect.

They took the denomination from one Boquinus, a Lutheran divine, who was one of the chief of the party.

BORA, in *Natural History*, the name of the *BUFONITE*, in some authors; these are supposed by many to be real stones, but are truly the teeth of a fish.

BORAGO, in *Botany*. See BORRAGE.

BORAK, among *Mahometans*, a fabulous animal, supposed to be of a middle kind between an ass and a mule, whereon the prophet was carried in his nocturnal flight from Jerusalem into the Heavens.

This animal the Arabs called *Al Borak*, q. d. *shining*. The night when the journey was performed is called *Leilat al Meerage*, i. e. *the night of ascension*; and the flight itself *Al Mejra*, concerning which, there is a multitude of traditions.

BORAMETZ. See ZOOPHYTE.

BORASSUS, in *Botany*, the names of a genus of plants, described by Linnæus, but not classed, and called in the *Hortus Malabaricus* *ampana*, and *carimpana*. The characters are these: the male and female flowers grow on separate plants, and give the plant such a different figure, that they are called by the two names before mentioned: the male being the *ampana*, and the female the *carimpana*. The male, or *ampana*, has for the cup of its flower the whole compound *spatha*, which is amentaceous and imbricated: the flower is divided into three segments, the petals being hollowed, and of an oval figure: the stamina are six thick filaments, and the *antheræ* are thick and striated. In the female, the cup is the same as in the male, but the petals of the flower, which is divided into three parts, in the manner of the male, are very small, of a roundish figure, and remain when the pistil, &c. fall off. The germen of the pistil is roundish; the styles are three in number, and small, and the stigmata are small; the fruit is a roundish obtuse berry, of a rigid structure, and containing only one cell; the seeds are three in number, and are of an oval compressed figure.

BORAX, a saline matter, with all the properties of a neutral salt, chiefly used in soldering, and fusing of metals; sometimes also in medicine, as an emetic, and promoter of delivery.

The word *borax* is formed from the modern Greek, *βοραξις*, and this, probably, from the Arabic, *bauracon*, nitre, as being reputed a species of that salt.

The *borax* now used in Europe, is prepared or refined from the *TINCAL* that is brought from the East Indies.

Dr. Lindolff thinks it might be made in Europe without tincal, by alum, soap, and a strong alkaline ley. D. W. Linden thinks that Dr. Lindolff is well acquainted with the nature of *borax*, and that it might be made after his method; but that it would be too expensive, and not supersede the importation of tincal. He therefore recommends the sour and acid water that comes out of coal mines, train oil, or any other fish oil, or indeed any fat that could be had cheap; the strongest alkali of kelp; and all these ingredients to be worked in a liquid state, till they are well mixed, and crystallize like a salt, which he thinks would answer all the ends of *borax*.

Borax is soluble with difficulty, in water, and crystallizable as alum, only that it requires more water for its solution, and retains less of it in its crystallization. It suffers no decomposition by fire; but may be decomposed by vitriolic, nitrous, and marine acids, which unite with the saline alkaline matter that is its basis, and form with it the same neutral salts exactly, as those that are produced from the union of these acids with the marine alkali; i. e. the vitriolic acid forms Glauber's salt, the nitrous acid forms cubic nitre, and the marine acid forms sea-salt. Acids thus combining with the basis of *borax*, separate from it a saline substance, singular, and little understood, called *SEDATIVE* salt.

This was first discovered by Homberg, who obtained the sedative salt by dissolving it with vitriol; but the younger Lemery discovered that the same salt might be also obtained by the nitrous and marine acids: these chemists used, for this purpose, the embarrassing and tedious operations of distillation and sublimation: but Mr. Geoffroy has shewn the method of obtaining the same salt from *borax* by acids with evaporation and crystallization only, in greater quantity and with less trouble. He has also demonstrated that *borax* contains the basis of sea-salt. M. Baron has shewn, that *borax* yields the sedative salt by means of vegetable acids; and that the salt is a constituent part of the *borax*, and only disengaged from the alkaline matter with which it is united by the acids, and that it may be reunited with its alkali, and again form *borax*. Macquer. Dict. Chem. and Mem. Acad. Sc. An. 1728, 1729, 1732.

Borax is usually supposed to have been known to the ancients under the denomination *chrysocola*: though Mr. Geoffroy gives good reasons for believing the modern *borax* a different thing from the *CHRYSOCOLLA* of the ancients.

Pliny divides the ancient *borax* or *chrysocola* into *natural* and *artificial*: the natural, according to him, is only a slimy humour running in mines of gold, silver, copper, and even lead; which, being congealed and hardened by the winter's cold, becomes of the consistence of pumice stone. See BAURAC.

For the *artificial*, it is made by letting water run in the veins of the mine, all the winter long, till June; and letting the mine dry the rest of the year.—So that artificial *borax* is no more than the mineral putrified and corrupted.

The same naturalist distinguishes it into *black*, *green*, *yellow*, and *white*; which assume their several colours, as well as values, from the different mines wherein they are formed. The moderns also distinguish two kinds of *borax*; *natural*, which is crude; and *artificial*, which is purified and refined. Crude, or natural *borax*, *borace non rifatto*, is a mineral salt, dug out of the earth in several parts of Persia; and found also at the bottom of a torrent, running in the mountains of Purbeth, near the frontiers of White Tartary: when taken up, it is exposed to the air: where it acquires a reddish fatness, which serves to feed it, and prevent its calcining. When in its perfection, it is sent to Amadavat, in the territories of the Great Mogul, where the European merchants buy it.

In those places whence it is brought, it is said that there oozes out of the sides of the hills, containing metals, and particularly copper, a thick turbid water, of a bluish grey colour, and of a brackish bitter taste. The course of this water is directed into wide and shallow pits, lined with a stiff clay; here it is left exposed, in order to evaporate; and the grey fine mud left in its passage is daily mixed with it, till it acquires the consistence of a soft pap; and then a large quantity of some animal fat melted over the fire is thrown into it, in the middle of a hot day: is then well stirred, and covered with sticks and branches of trees; and over these is laid a crust of any common clay. In this state it is left, till it becomes quite dry: it is then sifted, and what remains in the sieves is sent to us under the name of *rough borax*; however, it is not yet certainly known whether this matter be a natural or an artificial substance, nor whence, nor how it is obtained. Dict. Chem.

There is also another kind of natural *borax*, drier, and

B O R

of a greenish colour, like English copperas; only differing from the former by its being longer exposed to the air. As for *artificial* or *refined borax*, *borace rifatto*, the Venetians first found out the art of preparing it; or rather, of purifying the natural: it is said to be done by dissolving it in water; then filtrating and crystallizing it; using, for that purpose, cotton matches; about which the *borax* crystallizes like sugar-candy and verdigrise on wood. — The Dutch, who are now the only masters of this manufacture, after refining it, reduce it into little pieces, like tagged points: and is thus commonly used. It is said to be refined by lime-water.

Borax, refined, either in the Dutch or Venetian manner, should be clear and transparent, almost insipid to the taste; and above all, care must be taken to have no mixture of English alum. In this state it consists of large, white, eight-sided crystals, each of which is composed of small, soft, bitterish scales.

Borax is of great use in collecting the particles of any metal over the fire, and running them into a mass; and this, with very little diminution of their weight. Dirt or ashes, though in ever so small a quantity, will certainly hinder some small particles of gold and silver from running together into a mass over the fire; but if they are so disposed by a very strong fire as to meet into a regulus, a great part of the metal will always adhere to the dirt that is thrown away. The less perfect metals not only suffer the above mentioned accidents, but their surfaces being greatly increased, copper and iron turn entirely into a *scoria*, and are destroyed, and lead and tin are so in great part. It is therefore very detrimental when these baser metals are mixed in any, even in ever so small a quantity, with gold or silver; for in the melting, there come upon the surfaces light *scoria*, in which part of the gold or silver is retained, as in the pores of a sponge, and prevented from running into a regulus.

To remedy this mischief, *borax* is added, because as it helps the melting of metals and of all bodies by fire, its bringing the whole mass into a quick fusion, gives the metals an opportunity to sink together in a mass to the bottom, and vitrifies the lightest *scoria*, throwing them off the surface; and the use of this salt is not restrained to gold and silver, but takes place as well in regard to iron as copper.

This salt also causes metals to melt in a much less fire than they otherwise would, and is of very singular use in preserving the less perfect metals while in fusion. It flows over them, and covers their surface while tortured in the fire, as if it were a kind of very thin glass, which defends them against the combined force of the fire and air, so destructive of the imperfect metals.

The assayers have a custom of rubbing with *borax* the insides of vessels, in which the more precious metals are to be melted, which always fills up the small cavities in their sides, that might otherwise take in a part of the metals. When gold is melted with *borax* alone, it makes it pale; but this is obviated by the adding a small quantity of nitre, or of *sal ammoniac*. Care must be taken, however, not to add both these salts together, because they would cause a detonation. The above mentioned use of *borax* has caused it to be reckoned, by some writers, among the reducing bodies; that is, such bodies as restore metals, however destroyed, to their pristine form: but this is an error; for *borax* does not reduce the destroyed metals, but only the scattered particles of them, while they yet retain their true metallic form.

BORAX is also used by the dyers to give a gloss to silks; in Italy by the ladies as a cosmetic; and in making **GLAUBER'S SALT**. See A. D. S. an. 1732, p. 398. H. 52.

A principal use of *borax* is to facilitate the soldering of metals, by accelerating the fusion of the surfaces of the metals to be joined, and clearing them of any calx or other matter by which they might be prevented from being perfectly applied to each other.

BORAX, in *Medicine*, is used to promote delivery. Med. Ess. Edinb. vol. i. p. 341.

The use of *borax* is that of an incisive and aperient salt, by virtue of which it is effectual against diseases which proceed from an inspissation of the humours, and obstructions thence arising. The dose is a dram.

Its stimulus, however, is too weak to be depended upon for present relief in a difficult birth, unless it be joined with other ingredients of more efficacy. For this reason, *borax* is commonly given in powder mixed with saffron, myrrh, oil of cinnamon, castor, the volatile salt of amber, and the like.

Some advise a few grains of it to be taken in a poached egg, as a provocative to venery.

Borax calcined, is reckoned of specific virtue in fluxes of the belly, or the *semen*, as being a kind of styptic earth. The dose is from a scruple to half a dram.

Borax is of some farther use in medicine, as it enters the

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composition of the *unguentum citrinum*. It is also used in the preparation of a *fucus* for the ladies.

BORAX, *glass of*, is obtained by melting the crystals of this salt; and it is the only salt that assumes a vitreous appearance from fire without addition. The glass becomes opaque, and pulverizes in the air. *Borax* forms with earths different sorts of glass, which are in general very hard and compact, and at first extremely transparent; but they are liable to become cloudy and opaque by being long exposed to the air.

It is also used in preparing the imitations of precious stones.

BORAX is also a name given by some to the **BUFONITES**, or toad-stone; a kind of **BEZOARD**, said to be found in the head of the **TOAD**.

BORBONIA, in *Botany*, a genus of the *diadelphia decandria* class of plants. The characters are these: the flower hath five leaves, and is of the butter-fly shape; the standard is obtuse and reflexed; the wings are heart-shaped, and shorter than the standard: the keel hath two obtuse lunulated leaves; it hath nine stamina joined in a cylinder, and one upper, standing single; in the centre is situated a germen, which afterwards becomes a round-pointed pod, terminated with a spine, having one cell inclosing a kidney-shaped seed. There are three species, which are natives of the Cape of Good Hope; and as they do not perfect their seeds in this country, are with difficulty propagated here.

BORBONIA *Astra*, a denomination formerly given by some writers to the *solar FACULÆ*, on a supposition that they were satellites, or secondary planets.

Fromundus mentions a Frenchman, named Tarde, who had written a book express under the title **ASTRA BORBONIA**. Phil. Trans. N° 330. p. 287.

BORBORITÆ, or **BORBORIANI**, a branch of the ancient Gnostics, in the 11th century, who, to the other errors of that sect, added this, of denying a future judgment. Their name is divided from *Βορβορος*, *filth*, on account, as it is said of a custom they had of besmearing their faces and bodies with it. Epiphan. Heres. 25, an. 26. August. de Heres. c. 5.

Some also have given this appellation, by way of reproach to the **MENNONITES**.

BORBOTHA, in *Ichthyology*, a name given by some authors to the *MUSTELA fluviatilis*, or eel-pout. See **GADUS**.

BORDAGE, the condition or service of the *bordarii*. Dugange. Gloss. Lat.

BORDARII, often mentioned in the Domesday inquisition, were distinct from the *servi* and *villani*, and seem to be those of a less servile condition, who had a *bord* or cottage, with a small parcel of land, allowed to them, on condition they should supply the lord with poultry and eggs, and other small provisions for his board and entertainment. Though, according to Spelman, the *bordarii* were inferior to *villani*, as being limited to a small number of acres.

BORDARII also denotes servants, or workmen, employed about the house in the necessary offices of fetching wood, drawing water, grinding corn, cleaning yards, and the like: by which they stand distinguished from **VILLANI**, employed in the tillage of lands. See **VILLAIN**.

BORDAT, a small narrow stuff, which is manufactured in some parts of Egypt, particularly at Cairo, Alexandria, and Damietta.

BORDER, in *Gardening*, denotes a narrow bed adjoining to a walk, serving to bound and inclose the parterres, and prevent their being injured by the feet.

The use of *borders* is to enclose parterres. They ought always to be laid with a rising in the middle, by which they will have a better effect to the eye than if quite flat, and their breadth should be between four and six feet.

Some are continued about parterres, and are wrought with a sharp rising in the middle, and planted with low shrubs and flowers. Others have only a verge of grass in the middle, being edged with two small paths, raked smooth and sanded; these are sometimes adorned with vases of flowers, of large growth, or flowering shrubs, along the middle verge of grass. Others are quite plain, and are only sanded, as in the parterres of orangeries; and are filled with cases ranged with regular order along those *borders*, which are edged with box on the sides next the walks, and on the other with verges, and grass-work next the parterre. Sometimes a yew is planted between each case, which makes the *border* appear richer, and the parterres handsomer during the winter season.

The florists make *borders* in any part of their gardens, which they usually edge with green boards; and this gives them a very neat look: in large parterres, all that is to be expected, is to stock them well with flowers, that will succeed one another during the summer season. Miller.

BORDER, in *Heraldry*. See **BORDURE**.

BORDERS,

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BORDERS, among *Florists*, are such leaves as stand about the middle thrum of a FLOWER.

BORD-FREE. See **FREE**.

BORD-HALFPENNY, or **BROD-HALFPENNY**, money paid in markets and fairs, for setting up boards, tables, and stalls, for the sale of wares.

BORD-LANDS, the demesnes anciently kept by the lords in their hands for the maintenance of their *board* or table. This was anciently called *bordage*.

BORD-SERVICE, called also **BORDAGE**, the tenure of lands on condition of furnishing provision for the lord's board or table.

Some lands in the manor of Fulham, and elsewhere, are still held of the bishop of London, by the service, that the tenants pay six pence per acre in lieu of finding provision for their lord's table.

BORDURE, or **BORDER**, in *Heraldry*, a kind of addition on the limb of a shield, in form of a hem, or girdle, encompassing it all round, and parallel to the boundary of the escutcheon, and serving as a **DIFFERENCE**. See *Tab. Herald. fig. 10.*

The *bordure* must be about one fifth part of the breadth of the field.

Simple bordure is that which is of the same colour of metal throughout; and is the first addition of younger brothers—There are others, *compound*, *countered*, *engrailed*, *indented*, and *charged* with other pieces; which make different additions for younger brothers, in several degrees.

If the line which constitutes the *bordure* be straight, and the *bordure* plain, as they call it in blazoning, the colour of the *bordure* alone is named; as, he beareth gules, a *bordure* or.—If a *bordure* be charged with any parts of plants or flowers, they say, *verdoy* of trefoils, or of such vegetables and flowers, whatever they be. If it consists of ermines, vairy, or any of the furs, the term is, *per-flew* of ermines: if the *bordure* be charged with martlets, the word is, *charged* with an *enaluron* of martlets: *enurny* is used for beasts; and *entoyre* for things inanimate. A *bordure* is never of metal upon metal, and seldom of colour upon colour; but of the same tincture with the principal bearing or charge.

BORE.—The *bore* of a gun, or piece of ordnance, is used for the chase or barrel; though it seems rather to denote the diameter of the chase. See **CALIBER**, and **CANNON**.

BORE, *square*, in *Smythery*, denotes a square steel point, or shank, well tempered, fitted in a square socket in an iron wimble, serving to widen holes, and make them truly round and smooth within.

BOREA, an ancient name for a species of **JASPER**, of a bluish green colour.

BOREAL Signs, in *Astronomy*, the first six signs of the zodiac, or those on the northern side of the equinoctial.

BOREALIS, *Aurora*. See **AURORA Borealis**.

BOREAS, a Greek name now in popular use, for the north wind. Etymologists usually derive the word from *Bon*, *clamor*, *noise*; or from *βορρα*, *food*, because it creates an appetite.

Pezron observes, that anciently, and with much greater propriety, *Boreas* signified the north-east wind, blowing at the time of the summer solstice: he adds, that the word comes from the Celtic *bore*, *morning*; because their principal light, in that season, came from that quarter, whence also the winds then usually blew.

The Greeks erected an altar to *Boreas*. He is represented on the temple at Athens with his robe before his mouth, as if he felt the cold of the climate over which he presides, agreeably to the description of Ovid, who calls him *gelidus tyrannus*, the *shivering tyrant*. Met. vi. ver. 711. But he is usually described by the Roman poets as violent and impetuous. Ibid. ver. 686—ver. 707.

The qualities allowed by naturalists to this wind are coldness and dryness.

BOREASMI, were feasts instituted at Athens in honour of **BOREAS**.

BORECH, in *Natural History*, a kind of salt brought from Persia.

BORECOLE, in *Botany*, a species of the **BRASSICA**, or cabbage. Of this there are three sorts; the common, the green, and the Siberian or curled colewort, called by some Scotch kale. The two former are sown about the middle of April, and are fit for transplanting about two months after. The latter kind may be sown in the middle of July, and will be fit for use from Christmas till April.

Borecole has lately been found to be an excellent food for cattle. See **CABBAGE**.

BOREE, or **BOUREE**, a kind of dance, composed of three steps joined together by two motions; and begun with a crotchet, rising. The first couplet contains twice four measures, and the second twice eight. It consists of a balance-step and coupee: it is supposed to come from Auvergne: others say from Biscay.

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BORING, the act of perforating a solid body, or making a hole throughout its whole length or thickness.

Surgeons speak of *boring* the bones of the skull, properly called **TREPANNING**.

BORING birch, and other trees, is practised in the spring for their juice, called also **TAPPING** and *bleeding*. Phil. Trans. N^o 44. p. 880.

BORING, in *Farriery*, an operation sometimes practised for the cure of horses whose shoulders are wrenched. The method is thus: they cut a hole through the skin in the middle of the shoulder, and with the shank of a tobacco pipe, blow it as a butcher does a shoulder of veal; then they run a cold flat iron, like a horseman's sword-blade, eight or ten inches up, between the shoulder-blade and the ribs, which they call *boring*; after that they burn him round his shoulder with a hot iron. This, says Bartlett, is an absurd and useless, as well as a cruel practice.

BORING of cannon, in *Foundery*. See **CANNON**.

BORING of masts, from top to bottom, is proposed by Dr. Hook, as a means of strengthening and preserving them; as this would make them dry and harden the better, and prevent their cleaving and cracking. For want of this, the outside drying, when the inside does not, the former shrinks faster than the latter; the consequence of which is prejudicial.

BORING, in *Mineralogy*, a method of piercing the earth by a set of scooping irons, made with joints so as to be lengthened at pleasure. The skilful mineralist will be able to guess where a vein of ore may lie, though there are none of the common outward signs of it upon the surface of the earth; and in this case he has recourse to *boring*, the scooping irons are drawn back at proper times, and the samples of earth and mineral matters they bring up, are examined; and hence it is known whether it will be worth while or not to open a mine in the place.

BORING of water-pipes. The method of *boring* alder poles for water-pipes is thus: being furnished with poles of a fit size, horses, or treffels, are procured of a due height, both to lay the poles, and rest the augre on in *boring*; they also set up a lath, whereby to turn the lesser ends of the poles and adapt them to the cavities of the greater ends of others, in order to make the joint shut each pair of poles together. The outer, or concave part, is called the female, and the other, or inner, the male part of the joint. In turning the male part, they make a channel or small groove in it, at a proper distance from the end; and, in the female part, bore a small hole to fit over this channel; they then bore through their poles, sticking up great nails at each end, to guide them right; but they commonly bore a pole at both ends; so that if it be crooked one way, they can nevertheless bore it through, and not spoil it. Neve Build. Dict. in voc. Alder. This operation is now performed with a horse-mill, as at Dorset Stairs for the New River company.

Belidor, in his *Hydraulics*, has described a machine, in which a water wheel is made use of both to turn the augre, and to bring forward the carriage on which the pipe to be *bored* rests. This machine (See *Tab. II. Mechanics, fig. 67.*) is put into motion by the water-wheel A, in the axis of which there is a cog-wheel B, that turns the lanterns C and D; the trundles of D turn two small wheels E and F; the first of which is vertical and turns the augre; the other is horizontal and moves the carriage by means of the two arms H and I. H draws the wheel G towards F; and I pushes it in a contrary direction; and these combined actions cause the carriage to advance towards F, and the augre to bore the pipe. The augre being about 12 feet long and proportionally heavy, is supported by the pieces L, L; and they are prepared so as to give no obstruction in the following manner: C, C, *fig. 68*, are two planks of wood which are fastened to the timber-work of the mill; these encompass another plank, hung by a cord, at the bottom of which are fixed the pieces b, b, with joints at e and e: and, that they may not move out of the vertical plane, they are joined by tenons to the plank a, in which they may work freely: on the side of one of these pieces is fixed a spring g, in order to hinder them from uniting, by forcing them into a mortice in d; in this situation the two pieces are penetrated with a hole through which the augre is to pass. The cord is fastened to the plank a, as in *fig. 69*, and goes over the two pullies b, b: at the other end of the cord there is hung a weight e, resting on the piece N, which is supported at one end by the piece O, and fixed to the other by a joint to the lever K, which has its centre of motion in the piece of wood H; so that, leaning against the extremity M of the lever, N quits the support O, the weight sinks down, and draws up the piece a; then the sides b, b, *fig. 68*, quit the mortise d, and the spring g separates them: and thus the

supporter

supporter does not in the least hinder the motion of the augre.

BORITH, in the holy Scriptures, an herb thought to be the *kali* or saltwort; of the ashes of which some make soap, and a very good ley to wash linen with. It is mentioned in Jeremiah, chap. ii. ver. 22.

BOROLIBICUS, the wind which blows in the middle between the north and west points; called also the north-west wind.

BOROUGH, BURROUGH, BOROW, or BURGH, is frequently used for a town, or corporation which is not a city.

Borough, in its original Saxon *borge*, or *borgh*, is by some supposed to have been primarily meant of a tithing or company consisting of ten families, who were bound or combined together as each other's pledge.

Afterwards, as Verstegan informs us, *borough* came to signify a town that had something of a wall or inclosure about it: so that all places which among our ancestors had the denomination *borough*, were one way or other fenced or fortified.

But in later times, the same appellation was also bestowed on several of the *villæ insigniores*, or country towns of more than ordinary note, though not walled.

The ancient Saxons, according to Spelman, gave the name *burgh* to those called, in other countries, cities. But divers canons being made for removing the episcopal sees from villages and small towns to the chief cities, the name *CITY* became attributed to episcopal towns, and that of *borough* retained to all the rest; though these too had the appearance of cities, as being governed by their mayors, and having laws of their own making, and sending representatives to parliament, and being fortified with a wall and castle, and the like.

BOROUGH, or *burgh*, is now particularly appropriated to such towns and villages, as send burgesses or representatives to parliament.

Boroughs are equally such, whether they be incorporate or not; there being great numbers of our English *boroughs* not incorporated; and, on the contrary, several corporations that are not *boroughs*; e. gr. Kingston, Deal, Kendal, &c.

Boroughs are distinguished into those by charter or statute; and those by prescription or custom.

The number of *boroughs* in England and Wales, including cities and cinque ports, which elect members, is 215; some whereof send one, some two representatives.

BOROUGHs, Royal, in Scotland, are corporations made for the advantage of trade, by charters granted by several of their kings; having the privilege of sending commissioners to represent them in parliament, besides other peculiar privileges.

These form a body of themselves, and send commissioners, each, to an annual convention at Edinburgh, to consult the benefit of trade, and the general interest of the *boroughs*.

According to Chamberlayne, they have the sole power of trade and merchandize, exclusive of all others, a power of holding courts, exercising the JURISDICTION of sheriffs, making bye-laws, &c.

The company of merchants in a *royal borough* make what is called a *GILD*; the chief of which is a dean of *GILD*, who is next magistrate to the bailiff.

The *royal boroughs* are not only so many distinct corporations, but do also constitute one entire body, governed by, and accountable to one general court, anciently called the *court of four boroughs*, held yearly to treat and determine concerning matters relating to the common advantage of all *boroughs*.

The *four boroughs* which composed this court were Edinburgh, Stirling, Roxburgh, and Berwick; which two last falling into the hands of the English, Linlithgow and Lanerk were put in their places; with a saving to the former, whenever they should return to their allegiance.

But this court not being sufficient to answer the necessities of the *royal boroughs*, they were all empowered, under James III. in 1487, to send commissioners to a yearly convention of their own, which was then appointed to be held at Inverkeithing, and is now held at Edinburgh, under the denomination of the *convention of boroughs*, vested with great power.

BOROUGH-Courts are certain courts held in *boroughs*, by prescription, charter, or act of parliament: such are the sheriff's court, and court of hustings in London.

BOROUGH-English, denotes a customary descent of lands or tenements in certain places, whereby they come to the youngest, instead of the eldest son; or if the owner hath no issue, to the youngest, instead of the eldest brother; because the youngest is supposed, in law, the least able to shift for himself. 1 Inst. 140. b. And in support of this reason, other usages in favour of the youngest are alleged, as that in Kent, where the lands being equally

divided among all the sons, the youngest is to have the privilege of alre or hearth in the mansion-house, in his share, as being supposed the tenderest, and more in need of warming. Others, notwithstanding, suspect a different reason for the rise of *Borough-English*, viz. the places where this custom now obtains, were anciently liable to that custom granted the lords of manors in Scotland by king Eugenius, who had the privilege of enjoying the first night of their tenants' brides; so that the eldest son being presumed to be the lord's, they usually settled their lands on the youngest son, whom they thought their own; which being practised a long time, grew at length into a custom. The custom, however, never obtained in England, though it did in Scotland till it was abolished by Malcolm III. Perhaps, says judge Blackstone, the origin of this practice, may be illustrated by that of the Tartars, mentioned by Du-Halde, among whom the same custom of descent to the youngest son prevails. As the nation is composed of shepherds and herdsmen, the eldest sons migrate from their father with an allotment of cattle, to seek a new habitation. The youngest son, continuing latest with his father, is naturally the heir of his house. This custom of migrating obtained in many other northern nations; and *Borough-English* may be a remnant of that pastoral state of our British and German ancestors, which Cæsar and Tacitus describe. Blackstone's Comm. vol. ii. p. 83. 84.

Borough-English obtains only in some ancient *boroughs* and copyhold manors.

BOROUGH-Head, or Head-BOROUGH, is the chief man of the *decenna* or *hundred*; chosen by the rest to speak and act in their behalf.

In many parishes, *Head-borough* also signifies a kind of head-CONSTABLE, where there are several chosen as his assistants, to serve warrants, &c.

BOROUGH-Holders, in *Ancient Law Writers*, the head-men or chief pledge of a tithing, chosen by the rest to speak and act in their common behalf.

The word is formed from *borae-caldar*, as being the senior man of the *borough* or tithing.

Borough-holders are the same with what are otherwise written *borsholders*, *bursholders*, *boholders*, *borrow-holders*, *borghealders*, *burghesaldi*, and *borgesaldrii*; of later days, *borough heads*, and *HEAD-BOROUGHs*.

BOROUGH, or Borge, denotes a pledge or security for another's keeping the peace, and conforming to the laws.

The word is Saxon, and is sometimes also written *borough*: in Latin writers, *borgha* and *burgba*.

BOROUGH-breach, Borge fractura, in *Ancient Law Writers*, denotes a breaking of the pledge or security given by the members of tithings for the behaviour of each other.

This is the same with what is otherwise called *borg-brege*, *borgh-brege*, *barg-breche*, and *borghi-fractura*.

BOROUGHs, Law, or Borrows, in the law of Scotland, the same with what in England is called *binding to the PEACE*. In case of a contravention of *law-boroughs*, the surety or cautioner is equally liable with the principal for the penalty specified therein; the one half to the king, and the other to the complainer.

BOROW-holes, the holes, in the remotest corner of which the female rabbits deposit their young, to prevent the males from eating them.

BORRAGE, *borrago*, in *Botany*, a genus of the *pentandria monogynia* class of plants. Its characters are these: the flower is of one leaf, having a short tube, and spread wide open above; the chaps of the flower are crowned by five prominences; it hath five stamina, which are joined together; and four germina situated in the centre, which afterward become so many roundish rough seeds, inserted in the cavities of the receptacle. There are four species; the first of which is the common *borrage*, whose flowers are used in medicine, and the herb for cool tankards in summer. If the seeds are permitted to scatter, plants will come up in plenty.

The common *borrage* has long held its rank as a cordial of the first class, though perhaps it would not be easy to say on what foundation. Its flowers are of the number of the four cordial ones of the shops, and it has been recommended as a medicine of great efficacy in malignant and pestilential fevers, and against the bites of poisonous animals. By the experiments of M. Margraaf, Mem. de Berlin, 1747, it appears that the juice affords a true nitre.

BORRALISTS, a sect or sort of Anabaptists in Holland, who allow of no use of sacraments, public prayers, or other external worship, nor of any human gloss or explication of Scripture; but profess to adhere to the faith and manners of the New Testament times in all their simplicity.

They took their denomination from their founder, *Borrel*, a person of great learning in the Hebrew, Greek, and

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and Latin tongues; and brother of M. Borrel, ambassador of the States to the French king.

BORSELLA, in the *Glass Works*, an instrument where-with they extend or contract the glasses at pleasure; also smooth and levigate them.

BOS, the *ox*, in the Linnæan system of *Zoology*, a genus of quadrupeds of the order of *pecora*; the characters of which are, that the horns are hollow and turned forward, bent like crescents, and smooth on the surface; the fore-teeth are eight in number, and there are no canine teeth. Of this genus, beside the common tame one, there are four sorts naturally wild; the **BISON**, **BONASUS**, **BUBALUS**, and **URUS**.

Bos grunniens, or *grunting ox*, so called because it grunts like a hog, is a species of the ox, with a mane on the neck and the whole body covered with long hair, a hunched back, and tail like that of a horse; it is found in the country of the Calmucs. Pennant.

Bos Indicus, or *Indian ox*, is another species with a large lump on the shoulders, and short horns, bending close to the neck in some of the species, and almost upright, bending a little forward in others. In Surat there is a small kind, not bigger than a great dog, with a fierce look, which is used for drawing children in small carts. See *Tab. Quadrupeds*, fig. 6.

Bos, in *Antiquity*, was peculiarly used for an ancient Greek silver coin, which was *didrachmus*, or equivalent to two drachms.

BOSA, in the *Egyptian Medicine*, denoted a mass prepared of the flower of the lolium, hemp-seed, and water; of the same inebriating virtue with the *assis*, or opium.

BOSCAGE, denotes a place set with trees, a grove, or thicket.

BOSCAGE, *boscagium*, in a *Law sense*, signifies *mast* or such sustenance as woods and trees yield to cattle.

BOSCAGE among *Painters*, is said to denote a picture or landscape representing much wood and trees.

BOSCAGE sometimes denoted a tax or duty laid on wood brought into the city.

BOSCHAS, in *Zoology*, the name of our common wild duck, called also by some, *anas torquata minor*, or the smaller ring duck.

BOSCO. See *ATTACHIAMENTA de bosco & spinis*.

BOSCOI, or **BOSCI**, in *Ecclesiastical History*, denotes a species or tribe of monks in Palestine, who fed on grass like the beasts of the field.

The word is Greek, *βοσκον*, q. d. *grazers*; formed from *βοσκειν*, *pasco*, *I feed*.

The *Boscoi* are ranked among the number of Adamites, not so much on account of their habit as food. They took no care about provision; but when eating-time came, or any of them were hungry, went into the fields, with each his knife in his hand, and gathered and eat what he could find.

BOSCUS, in *Ancient Law-Writers*, signifies a wood of any kind. The word is also written corruptly *buscus*, *buscaria* and *buscale*. It is formed from the Greek, *βοσκω*, *I feed*, as serving for pasture. In which sense, *boscus* amounts to the same with the Italian *bosco*, and French *bois*. *Boscus* is divided into high wood, or timber, called also *saltus*, and *haut-bois*; and *coppice*, or underwood, *sub-boscus*, or *sub-bois*.

BOSEA, in *Botany*, or *yerva mora*, a genus of the *pentandria dyginia* class of plants; commonly called the *golden rod-tree*. Its characters are these: the flower hath no petals, but five stamina, which are as long as the em-palement; in the centre is situated an oval, oblong, pointed germen, which afterwards becomes a globular berry with one cell, including one pointed seed. We have but one sort of this plant, which is a native of the Canary islands. They have not been known to flower in this country, nor will they endure the open air, through the winter.

BOSPHORICUM Marmor, a name given by the ancients to a species of marble, of a yellowish white colour, with beautiful veins of a somewhat darker hue; called also, from its transparency, *phengites*.

BOSPHORUS, or **BOSPORUS**, in *Geography*, a long and narrow sea which it is supposed a bullock may swim over; in a more general sense, a long narrow sea running in between two lands, or separating two continents, and by which two seas, or a gulf and a sea, are made to communicate with each other.

In which sense *bosphorus* amounts to the same with what we otherwise call an arm of the sea; channel, or strait; the Italians, *faro*; the Latins, *fretum*, and the French, *pas*, *manche*.

The word is Greek, *βοσπορος*, formed from *βας*, *bos*, and *πορος*, *passage*.

The name *bosphorus* is chiefly confined to two freights, in the Mediterranean sea, viz the *Bosphorus of Thrace*, commonly called the *Streights of Constantinople*, or *Channel of the Black Sea*; and the *Cimmerian* or *Scythian Bosphorus*, Vol. I. N° 45.

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so called, it seems, from its resemblance to the Thracian; now more commonly the *Streights of Kapha*, or *Kiderleris*, from two cities standing on it.

The origin of the name is better agreed on than the reason why it was first given to the Thracian *Bosphorus*. Nymphius tells us, on the authority of Accarion, that the Phrygians, desiring to pass the Thracian freight, built a vessel, on whose prow was the figure of a bullock, and which was hence called *βας*, *bullock*; and served them for a ferry-boat.—Dionysius, Val. Flaccus, Callimachus, Apollodorus, Marcellinus, &c. say, that Io, being transformed into a cow by Juno, passed this freight swimming, which hence was called *Bosphorus*.—Arrian tells us, that the Phrygians were enjoined by the oracle, to follow the route which a bullock should mark out to them; and that upon stirring one up, it jumped into the sea to avoid their pursuit, and swam over this freight. Others say, that an ox, tormented by a gad-fly, threw itself in and swam over: and others, that anciently the inhabitants of these coasts, when they would pass over, joined little boats together, and had them drawn over by bullocks; &c.

Some late writers rather suppose *Bosphorus* to have been so called, because here was anciently the beast-market. Tournef. Voyag. tom. ii. let. 12. and let. 14.

BOSQUETS, in *Gardening*, a term for groves included in gardens.

The word is derived from the Italian, *boschetto*, which is a diminutive of *bosco*, a wood or grove.

These are small compartments of gardens, which are formed of trees, shrubs, and tall flowering plants, set in quarters, and either placed regularly in rows, or disposed in a more irregular manner. These quarters should be surrounded with evergreen hedges; and the entrances made into porticos with yews. In the inside there must be some walks, either strait or winding. These, if the quarters are large, should be eight feet wide, and laid with turf, and kept well mowed and rolled. The hedges of these quarters should be kept low, that the heads of the shrubs may be seen from the outside. There is a great deal of fancy to be employed in the planting of these *bosquets*, which should be shewed in setting to view at once such shrubs as have the most differently shaped, and differently coloured leaves that may be; as the long, the round and the jagged, and the various shade of deep and lighter green, and the mealy or hoary white leaves. Besides, there is also a very great variety of beautiful fruits, which these shrubs produce in autumn, which give a very elegant and pleasant prospect even after the leaves are fallen. The shrubs which produce these, are, 1. The euonymus, or spindle-tree. 2. The opulus, or water-elder. 3. The cock-spur hawthorn. And, 4. The flowering-ash, as it is called; besides a great number of others. But it is a good rule in this kind of plantation, never to mix the ever-green trees with those which lose their leaves in winter. These *bosquets* are only fit for large gardens. Miller.

Bosquets are generally laid out into some regular figure, as a circle, square, polygon, or the like, and make a considerable article in the decoration of a fine GARDEN.

BOSS, or **BOSSE**, in *Sculpture*, signifies *RELIEVO*, or prominence.

The word is French, *bosse*, which signifies the same; whence also to emboss. See *EMBOSSING*.

Boss of a buckler, among the *Ancients*, the *umbo*, or *οὐροσφα*, which juts out in the middle.

Boss, among *Bricklayers*, denotes a wooden utensil wherein the labourers put the mortar to be used in tiling. It has an iron hook, whereby it may be hung on the laths, or on a ladder.

BOSSAGE, a projecting stone in *Architecture*, laid rough in building, to be afterwards carved into mouldings, capitals, arms, or the like.

BOSSAGES also denote stones which seem to advance beyond the naked of a building, by reason of indentures, or channels left in the joinings; used chiefly in the corners of buildings, and thence called *rustic quoins*.

The cavities or indentures are sometimes round, sometimes square, sometimes chamfrained, or bevelled, sometimes in the diamond form: sometimes they are enclosed with a cavetto, sometimes with a listel.

BOSTANGI-Baschi, in the *Turkish Affairs*, an officer in the grand signior's household, who has the superintendence of all the gardens, water-works, and houses of pleasure, with the workmen employed therein. The post of *bostangi-baschi*, or chief gardener, is one of the most considerable in the Turkish court. He has the emperor's ear, and on that account, is much courted by all who have business depending at the Porte; he is governor of all the villages on the channel of the Black Sea and has the command of above ten thousand *bostangis*, or gardeners, in the seraglio, and other places about Constantinople. But that which gives him the

greatest éclat is the honour he has of holding the rudder whenever the fultan takes his pleasure on the water.

BOSTRYCHITES *lapis*, derived from *βοστρυχίς*, *I fold the hair in braids*, in *Natural History*, a name given by some to a stone supposed to contain women's hair included in it; some have understood by it, these pieces of crystal which have accidental foulnesses in them, resembling hair, or pieces of hair, caused by earthy or metal-line matter; others call by this name those German agates, which contain either the conservæ or other capillary water-plants, or other foulnesses running into their form: the first of these very frequently have the conservæ of a great length, and variously undulated and turned about, so as very elegantly to represent a loosely flowing lock of hair.

BOSTRYCHITES is also a name given by some authors to a species of pyrites, whose irradiations were supposed to imitate hair.

BOTABOTA, in *Natural History*, a name given by some writers, to that species of sea-swallow, whose nests are so famous for soups in China, and in some parts of Europe. The nests are supposed to be restorative, and greatly provocative to venery; for which last quality it is that the eastern nations in general are so fond of them.

BOTAGIUM, in *Middle Age Writers*, a fee paid for wine sold in *botæ*, or *buts*.

Wine that tastes of the cask is called *vinum botatum*.

BOTALE *foramen* in *Anatomy*, an aperture in the heart of a **FOETUS**, whereby the blood is enabled to circulate, without going into the lungs, or the left ventricle of the heart. See **FOETUS**, **CIRCULATION**, and **HEART**.

BOTANIST; a person who understands the nature, history, and distinction of vegetables, on settled and certain principles, and can call every plant by a distinct, proper, and intelligible name. Linnæi Fundam. Botan. p. i. See **BOTANY**.

BOTANOPHILI, among the writers on the subject of vegetables, those who have treated of them, not as botanists, on their natural and established distinctions, but in regard to different operations, as gardeners, physicians, &c.

BOTANY, the science of plants; or that part of physiology which treats of plants, their several kinds, forms, virtues, and uses.

The word comes from *βοτάνη*, *herb*; and that from *βοτῶς*, of *βω*, *I feed*; because most animals feed on herbs. See **PHYTOLOGY**, &c.

Authors are divided about the precise object and extent of *Botany*, which some will have to include the whole province of plants, in all their states, uses, and relations; others restrain it to the knowledge of the classes, genera, species, external figures, and description of plants, exclusive of their origin and generation, which belong to *Physiology*; of their culture and propagation, which belong to *Gardening* and *Agriculture*; and of their virtues, which are the objects of consideration in *Physic* and *Pharmacy*.

This science was cultivated in some degree among the ancients; but chiefly with respect to its medical application and use. However as they adopted no regular system of distribution and arrangement, they made a slow progress, and the knowledge they gained was soon and easily lost. If we except Solomon, of whom we read that he spake of trees from the cedar-tree that is in Lebanon, even unto the hyssop that springeth out of the wall, 1 Kings, chap. iv. ver. 33. and begin only with those writers on the subject of *botany*, any of whose writings now remain; the first, in order of time, is Hippocrates, who flourished in the fifth century before Christ, and who has enumerated about 250 different plants. Aristotle also may be mentioned, though there is reason to doubt whether the books concerning the generation of plants, which some have ascribed to him, are his, or a collection by some late writer from the works of Theophrastus. Theophrastus, the disciple of Aristotle, is therefore properly the next to Hippocrates, on the genuineness of whose writings we can depend; he flourished about 300 years before Christ; there remain nine books of his on the history of plants, and six on the causes of them: he reckons about 500 plants.

Among the Romans, Cato, Varro, Virgil, and Columella might be mentioned; but the most eminent were Dioscorides, who lived under Anthony and Cleopatra; he is called the prince of botanists, and yet the number of plants which he has described amount only to 600; and C. Plinius Secundus, under Vespasian and Titus, who enumerates more than 1000 plants. Galen, of Pergama in Asia, who lived at Rome about the year 133, though he did not write professedly on *botany*, has introduced many incidental observations on this subject; and other physicians prosecuted this study, as far as it was immediately connected with that of their profession,

from the second to the sixth century of the Christian æra; such as Oribasius, Aetius, Trallianus, and P. Ægineta. The principal Arabian *botanists*, who mostly with the same views cultivated this science from the eighth to the twelfth century, were Mesue, Serapio, Razis, Avicenna, and Averrhoes. The succeeding period, till the fifteenth century, was very unfavourable to every kind of science; however, in this century, and especially in the next, *botany* was industriously revived by means of numerous and laboured commentaries on Theophrastus, Dioscorides, Pliny, Cato, Avicenna, and Mesue: and the principal persons who were employed in this way were Leoniceus, Brasavolus, Cordus, Fuchsius, Bodæus, Matthiolus, and Dalechampius. Turner, Gerard, and Trädescant were the first *botanists* in England; they applied themselves to the culture of medical and rare plants towards the close of the sixteenth century. It was after this period that *botany* began to acquire a considerable degree of importance and reputation; and that ingenuity and industry were employed in collecting and classing new species of plants. It would be tedious so much as to recount all the names of those who are distinguished in this respect; let it suffice to mention Gesner, Dodonæus, Cæsalpinus, Prosper Alpinus, the two Bauhins, Columna, Parkinson, Plukenet, Morrison, Malpighi, Grew, Hermannus, Ray, Magnol, Tournefort, Sloan, Sherrard, Linnæus, and Miller. In a word, *botany* is arrived at a degree of perfection among the moderns, to which the ancients were strangers; not only as to the method of classing, distributing, and characterising plants, but also as to the *copia* or number of plants known and described. The numerous travels and voyages of *botanists* have very much contributed to the extent of this science.

This article will terminate with a brief account of the principal systems, that have been established by *botanical* writers. Nothing has been more conducive to the successful cultivation of this science than a clear and distinct method of arrangement, whereby the several classes, genera, species, and varieties, may be readily distinguished; and it is easy to foresee, that in proportion as the Linnæan system prevails, and different writers agree in adopting the same language, the study of *botany* must be greatly facilitated and promoted. Linnæus distributes the systems which have already obtained into *heterodox* and *orthodox*. The former are founded in an alphabetical arrangement; in the structure of the root; in the different species of flowers: in the *habit* of plants; their time of flowering; their native soil and climate; their medicinal use, and the order of the dispensaries. The *orthodox* systems, as he calls them, are either universal or partial; such as belong to plants in general, or such as are accommodated to the nomenclature and arrangement of particular kinds. The universal systems are four; though, by various modifications, this number has been considerably augmented. Linnæus has distinguished the several patrons of them under the classes and appellations of *Fruetistæ*, *Corolistæ*, *Calycistæ*, and *Sexualistæ*. The *Fruetistæ* are such as form the several classes of vegetables from the *pericarpium*, the *seed*, and the *receptacle*; of this number are Cæsalpinus, Morrison, Ray, Knaut, Hermann, and Boerhaave. The *Corolistæ* distinguish the several classes by means of the *corolla* and *petals*; such are Rivinus and Tournefort, and their disciples. The *Calycistæ* distribute them from the *calyx*, as Magnol; and the *Sexualists* found their system on the different sexes of plants. To this compendious abstract of the history and principal systems of *botany*, it may be proper to add, that Cæsalpine, who was an Italian physician in 1583, was the first systematical writer, and he distributed plants into classes, according to the form of their seeds: Ray, from being first a *Fruetist*, became afterwards a *Corolist*: Boerhaave endeavoured to combine the systems of Hermann, Ray, and Tournefort; but as the system of the latter was at one time very generally received, and notwithstanding the prevalence of the Linnæan or sexual system, has still some advocates, it may be proper to observe, that Tournefort considers plants as composed of five parts. viz. roots, stalks, leaves, flowers, and fruit; neglecting the three former parts, he distributes them into various *classes*, according to the disposition and structure of the flower; and in resolving them into genera, he takes into consideration both the flower and fruit. Mr. Ray, urged chiefly by the short duration of the flower, sought the characters of the several genera, not merely in the flower and fruit, but in the figure of the organical parts, as the leaves, stalks, and roots, and in their colour, smell, taste, and the outward surface of the whole plant. See *FACE of a plant*.

See a farther account of these systems under **PLANTS**, and **PETAL**.

The classes, according to Tournefort's distribution, are the

BOTANY

Linnean System.



MONANDRIA.



DIANDRIA.



TRIANDRIA.



TETRANDRIA.



PENTANDRIA.



HEXANDRIA.



HEPTANDRIA.



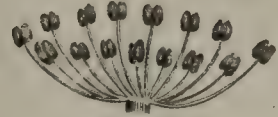
OCTANDRIA.



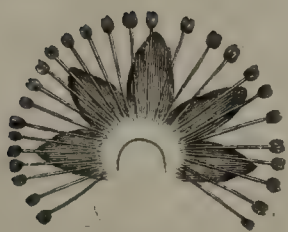
ENNEANDRIA.



DECANDRIA.



DODECANDRIA.



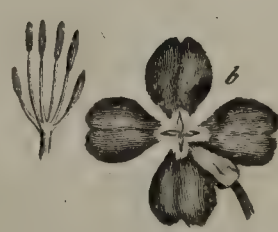
ICOSANDRIA.



POLYANDRIA.



DIDYNAMIA.



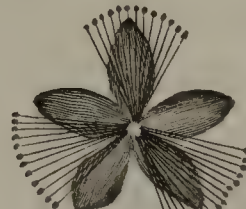
TETRADYNAMIA.



MONADELPHIA.



DIADELPHIA.



POLYADELPHIA.



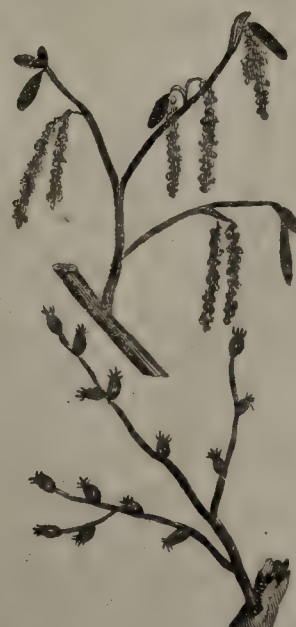
SYNGENESIA.



GYNANDRIA.



MONOECIA.



DIOECIA.



POLYGAMIA.



CRYPTOGAMIA.

BOTANY, TAB. II.

Linnean System.



MONOGYNIA



DIGYNIA



TRIGYNIA



TETRAGYNIA



PENTAGYNIA



HEXAGYNIA



HEPTAGYNIA



DECAGYNIA



DODECAGYNIA



POLYGYNIA



GYMNOSPERMIA



ANGIOSPERMIA



SILICULOSA



SILIQVOSA



POLYGAMIA AQUALIS



POLYGAMIA SUPERFLUA



POLYGAMIA FRUSTANEA



POLYGAMIA NECESSARIA



POLYGAMIA SEGREGATA



POLYGAMIA MONOGAMIA



TRIOECIA



FILICES



MUSCI



ALGAE



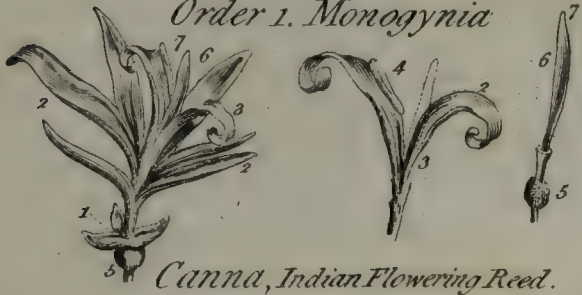
FUNGI

BOTANY Tab. III. Linnean System.

ORDERS OF FLOWERS.

Class I. Monandria. One Stamen on the Hermaphrodite Flower.

Order 1. Monogynia



Canna, Indian Flowering Reed.

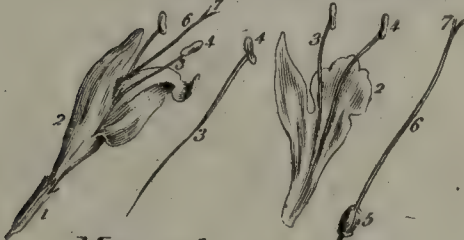
Order 2. Digynia.



Blitum, Virgate Strawberry Blite.

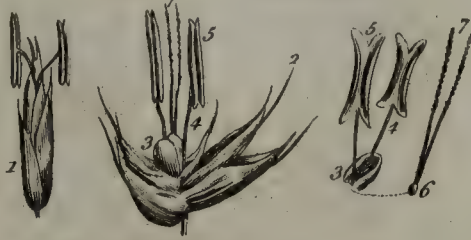
Class II. Diandria. Two Stamens in the Hermaphrodite Flower.

Order 1. Monogynia.



Monarda, Oswego Tea.

Order 2. Digynia.



Anthoxanthum, Vernal Grass.

Order 3. Trigynia.



Piper, Black Pepper.

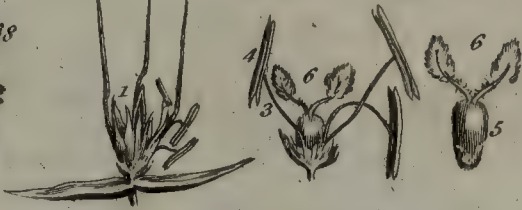
Class III. Triandria. Three Stamens in the Hermaphrodite Flower.

Order 1. Monogynia.



Crocus, Garden Crocus.

Order 2. Digynia.



Avena Fatua, Wild Oat.

Order 3. Trigynia.



Mollugo, verticillate

Class IV. Tetrandria. Four Stamens in the flower with the Fruit

Order 1. Monogynia.



Dipsacus, Lacinated Teasel.

Order 2. Digynia.



Hamamelis, witch Hazel.

Order 3. Tetragynia.



Potamogeton, Pond weed.

Class V. Pentandria. Five Stamens in the Hermaphrodite Flower.

Order 1. Monogynia.



Nerium, Rose Bay

Order 2. Digynia.



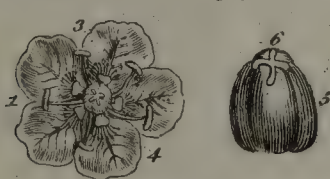
Anethum, Common Fennel.

Order 3. Trigynia.



Turnera.

Order 4. Tetragynia.



Parnassia, Grass of Parnassus.

Order 5. Pentagynia.



Crassula, Navelwort.

Order 6. Polygynia.



Myosurus, Mouse Tail.

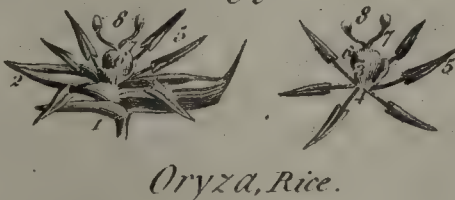
Class VI. Hexandria. Six Stamens in the Hermaphrodite Flower.

Order 1. Monogynia.



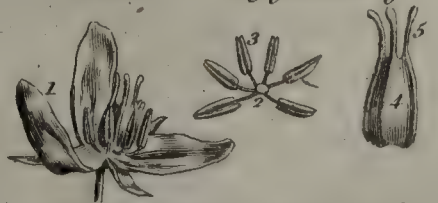
Amaryllis, Belladonna.

Order 2. Digynia.



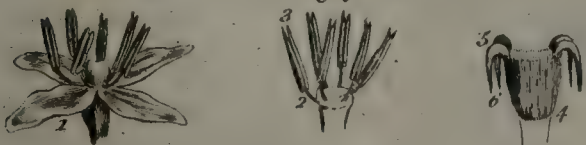
Oryza, Rice.

Order 3. Trigynia.



Rumex, great curled Dock

Order 4. Tetragynia.



Petiveria.

Order 5. Polygynia.



Alisma, great water Plantain.

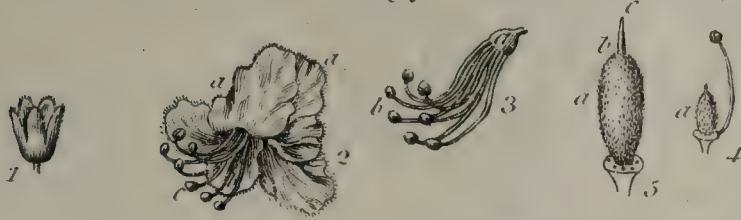
BOTANY Tab. IV.

Linnean System.

ORDERS OF FLOWERS.

Class VII. Heptandria. Seven Stamens on the same Flower with the Pistil.

Order 1. Monogynia.



Aesculus Horse Chestnut

Order 3. Tetragynia.



Saururus, Lizards Tail

Class VIII. Octandria. Eight Stamens in the same Flower with the Pistil.

Order 1. Monogynia.



Oenothera, Tree Primrose.

Order 2. Digynia.



Galenia

Order 3. Trigynia.



Polygonum, Buck-wheat

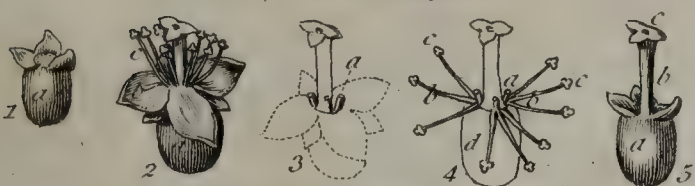
Order 4. Tetragynia.



Adoxa, Tuberous Marsh-mal

Class IX. Enneandria. Nine Stamens in the Hermaphrodite Flower.

Order 1. Monogynia.



Cassia, (Berry-bearing)

Order 2. Trigynia.



Rheum, Palmated Rhubarb

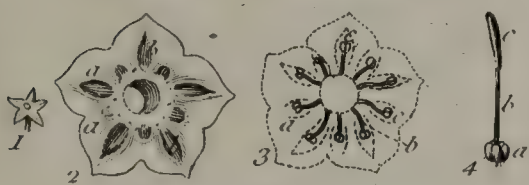
Order 3. Hexagynia.



Butomus, Flowering Rush.

Class X. Decandria. Ten Stamens in the Hermaphrodite Flower.

Order 1. Monogynia.



Kalmia, (Narrow leaved)

Order 2. Digynia.



Saxifraga

Order 3. Trigynia.



Stellaria, Greater Stitchwort

Order 4. Pentagynia.



Oxalis, Wood Sorrel.

Order 5. Decagynia.



Phytolacca, American Nightshade

Class XI. Dodecandria. Stamens from twelve to nineteen in the Hermaphrodite Flower.

Order 1. Monogynia.



Asarum, Asarabacca

Order 2. Digynia.



Agrimonia.

Order 3. Trigynia.



Euphorbia, (Lathyrus)

Order 5. Polygynia.



Sempervivum, Houseleek.

Class XII. Icosandria. the Stamens inserted (not in the Receptacle but in the Inside of the Calyx & Commonly Twenty often more.

Order 1. Monogynia.



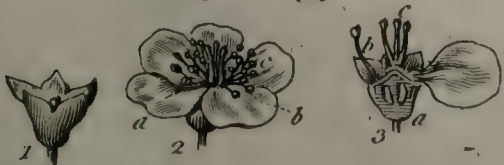
Punica, Pomegranate

Order 2. Digynia.



Crataegus, Bean-Tree

Order 3. Trigynia.



Sorbus, Quicken-Tree.

Order 4. Pentagynia.



Pyrus, Codlin Apple.

Order 5. Polygynia.



Rubus, Bramble.

BOTANY Tab.V.

Linnean System.

ORDERS OF FLOWERS.

Class XIII. Polyandria. The Stamens, from Twenty to a Hundred in the same Pistil with the Flower.

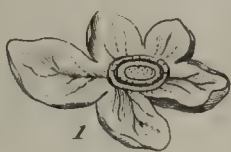
Order 1. Monogynia.

Order 2. Dyginia

Order 3. Trigynia



Sarrazenia



Pæonia, Piony



Aconitum Napelshane

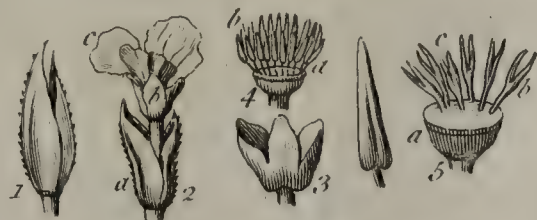
Order 5. Pentagynia

Order 6. Hexagynia

Order 7. Polygynia



Aquilegia, Columbine



Stratiotes Water Aloe



Ranunculus, Crowfoot

Class XIV. Didynamia. Four Stamens, two are close together and longer.

Order 1. Gymnospermia

Order 2. Angiospermia



Melittis



Melianthus, Honey flower

Class XV. Tetradynamia. Six Stamens, four long, the two opposite short.

Order 1. Siliculosa

Order 2. Siliquosa



Lunaria Honesty

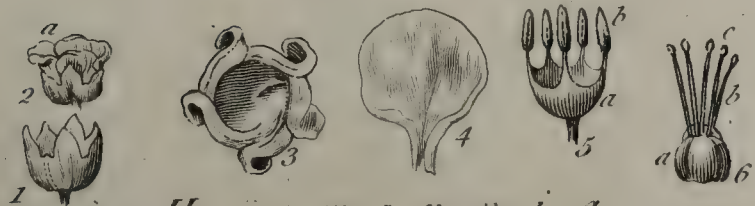


Cheiranthus Stock July flower

Class XVI. Monadelphica. The Filaments of the Stamens grown together into one Body.

Order 1. Pentandria

Order 2. Decandria



Hernandia



Geranium, African Cranes-bill

Order 4. Dodecandria

Order 5. Polyandria



Pentapetes, Indian vervain Mallow



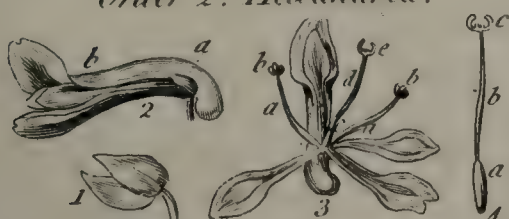
Alcea, Rose-Mallow

Class XVII. Diadelphica. The Filaments of the Stamens grown together into two Bodies.

Order 2. Hexandria.

Order 3. Octandria.

Order 4. Decandria.



Fumaria, yellow Fumitory



Polygala, Milkwort



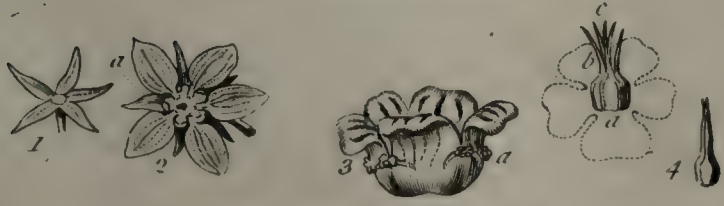
Lathyrus, everlasting Pea

Class XVIII. Polyadelphia. The Filaments of the Stamens grown together into three or more Bodies.

Order 1. Pentandria

Order 2. Icosandria.

Order 3. Polyandria.



Theobroma



Citrus, Orange.



Hypericum, St. John's-wort.

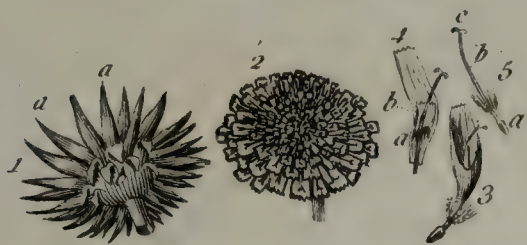
BOTANY Tab. VI.

Linnean System.

ORDERS OF FLOWERS.

Class XIX. Syngenesia. The Stamens & Antheras grown together in Form of a Cylinder (having rarely Filaments.)

Order 1. Polygamia Aequalis



Leontodon, Dandelion

Order 2. Polygamia Superflua.



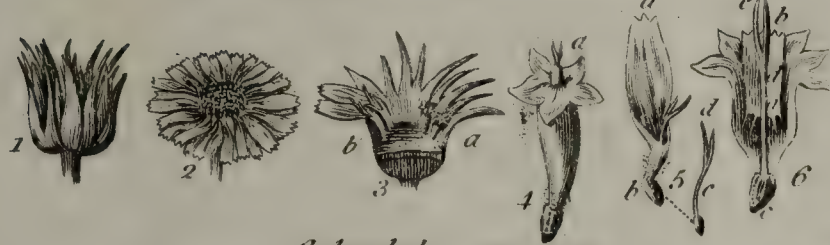
Xeranthemum

Order 3. Polygamia Frustanea



Helianthus, Sun-flower.

Order 4. Polygamia Neccessaria



Calendula, Marygold

Order 5. Polygamia Segregata



Echinops, Globe Thistle

Order 6. Monogamia



Lobelia, Cardinal Flower

Class XX. Gynandria. The Stamens inserted on the Pistil (not on the Receptacle)

Order 1. Diandria.



Orchis.

Order 2. Triandria.



Sisyrinchium, Bermudiana.

Order 4. Pentandria.



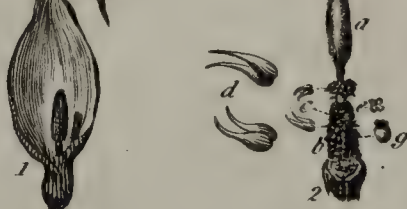
Passiflora, Passion Flower.

Order 5. Hexandria



Aristolochia, Birthwort

Order 7. Polyandria.



Arum, Cuckow Pint.

Class XXI. Monoeceia. Male & Female Flowers on the same Plant.

Order 1. Monandria.



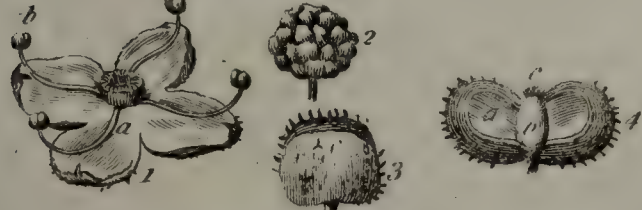
Zanthoxylum, Triple-headed Pondweed

Order 3. Triandria.



Tripsacum.

Order 4. Tetrandria.



Urtica Roman Nettle

Order 5. Pentandria.



Parthenium.

Order 8. Polyandria.



Juglans, Walnut

Order 9. Monadelphica.



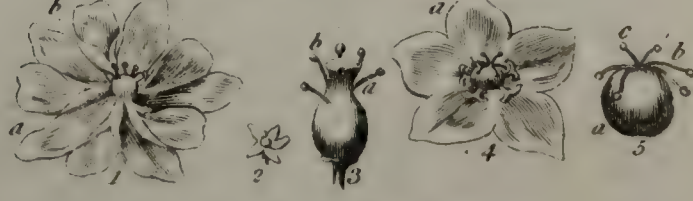
Pinus Scotch Fir.

Order 10. Syngenesia



Momordica, Male Balsam Apple.

Order 11. Gynandria



Andrachne, Bastard Orpine

BOTANY Tab. VIII.

Linnean System.

ORDERS OF FLOWERS.

Class XVII. Dioecia. The Male Flowers on a different Plant from the Female.

Order 2. Diandria.



Salix, brown Willow.

Order 3. Triandria



Empetrum, Lion-berry.

Order 4. Tetrandria



Viscum, white Mistletoe.

Order 5. Pentandria



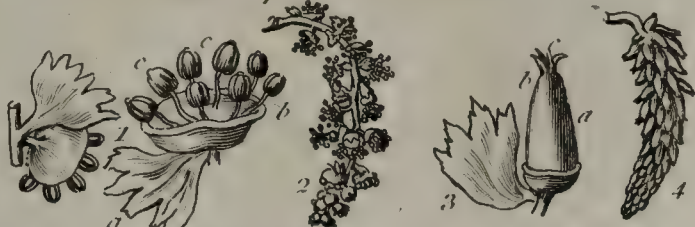
Humulus, Hop

Order 6. Hexandria.



Tamus, black Bryony

Order 7. Octandria.



Populus, black Poplar

Order 8. Enneandria.



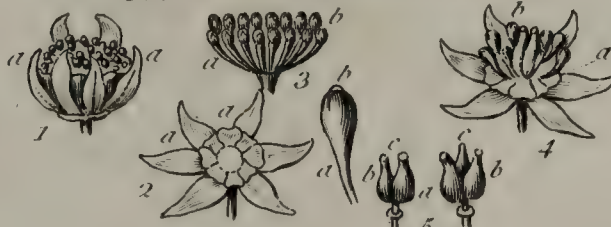
Mercurialis, Dog-Mercury

Order 9. Decandria



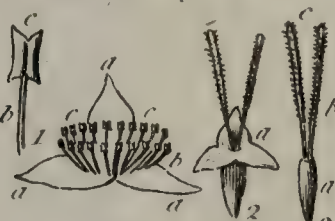
Kiggelaria.

Order 10. Dodecandria



Menispermum, Moon-seed.

Order 11. Polyandria



Cliffortia.

Order 12. Monadelphica.



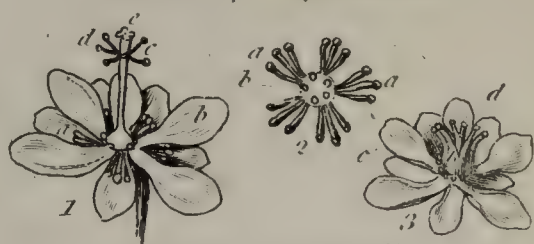
Juniperus, Juniper.

Order 13. Syngenesia.



Ruscus, Butcher's Broom.

Order 14. Gynandria



Clusia Pulchella.

Class XVIII. Polygamia. Hermaphrodite, or Male & Female Flowers on the same Plant.

Order 1. Monoecia.



Veratrum, white Hellebore.

Order 2. Dioecia.



Fraxinus, flowering Ash.

Order 3. Trioecia



Ficus, common Fig

Class XXIV. Chryptogamia. The Flowers within the Fruit or imperceptible to the Eye.

Order 1. Filices



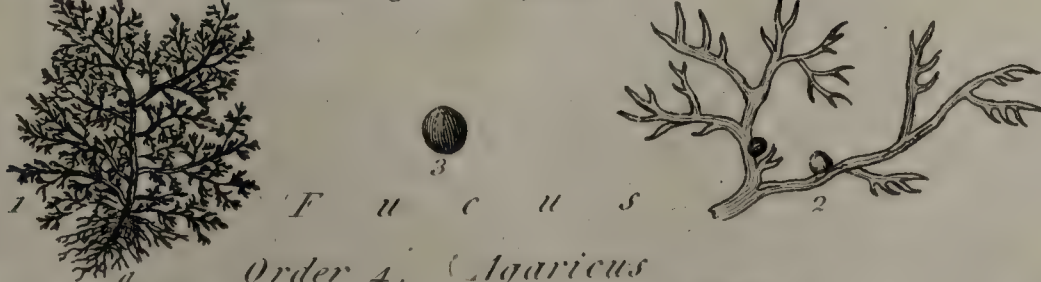
Polypodium

Order 2. Musci



Bryum (matted)

Order 3. Algæ



Fucus

Order 4. Agaricus

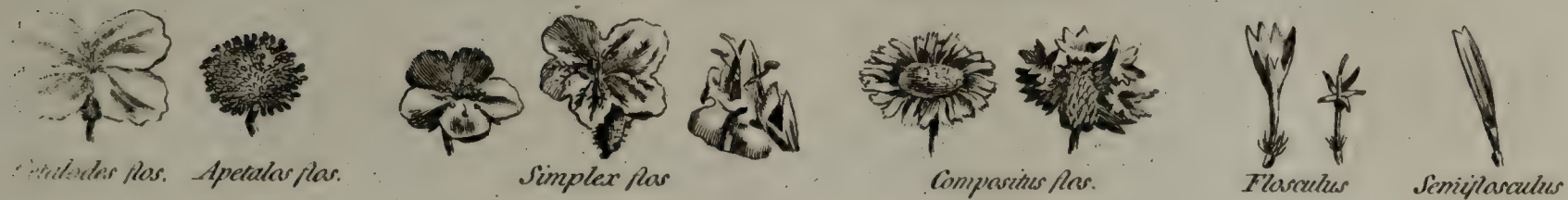


Agaric (Field)

BOTANY. Tab. VIII.

Tournefort's System.

GENERAL CHARACTERS of FLOWERS.

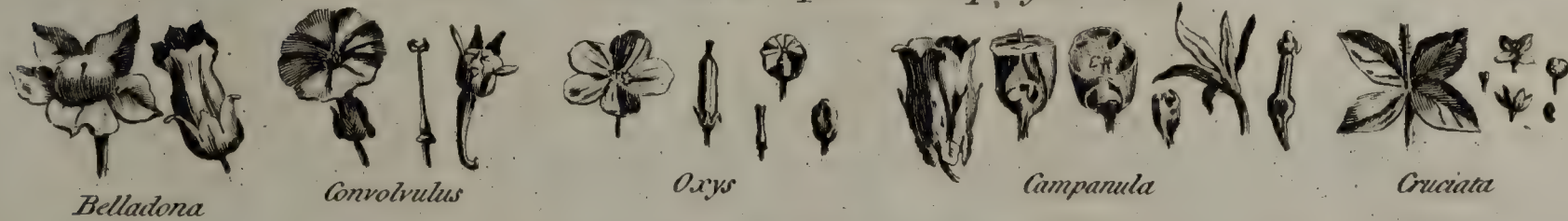


CLASSICAL CHARACTERS of FLOWERS.



GENERA of PLANTS.

CLASS I. Plants with Monopetalous Campaniform Flowers.



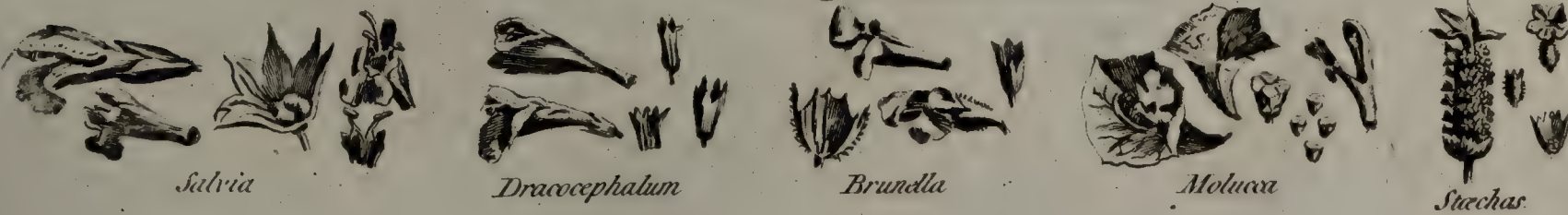
CLASS II. Plants with Monopetalous Infundibuliform & Rotated Flowers.



CLASS III. Plants with Monopetalous Anomalous Flowers.



CLASS IV. Plants with Monopetalous Labiated Flowers.



CLASS V. Plants with Cruciform Polypetalous Flowers.



BOTANY. Tab. IX

Scam

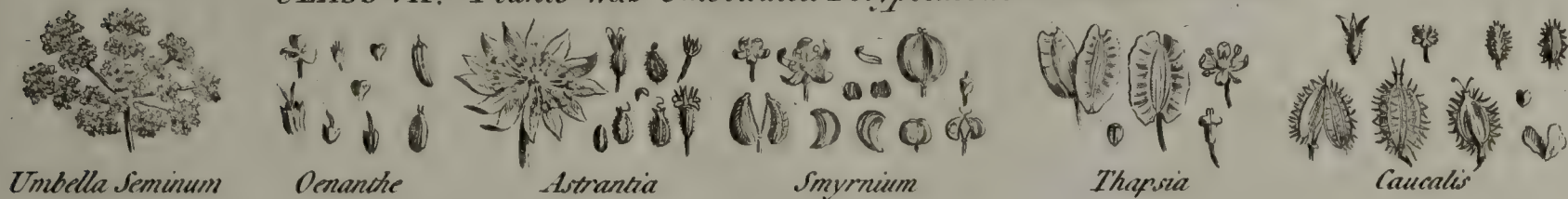
Tournefort's System.

GENERA of PLANTS.

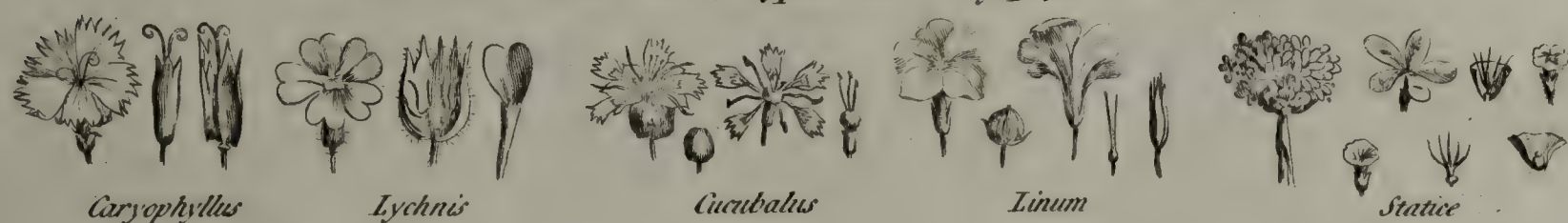
CLASS VI. Plants with Rosaceous Flowers.



CLASS VII. Plants with Umbellated Polypetalous Rosaceous Flowers.



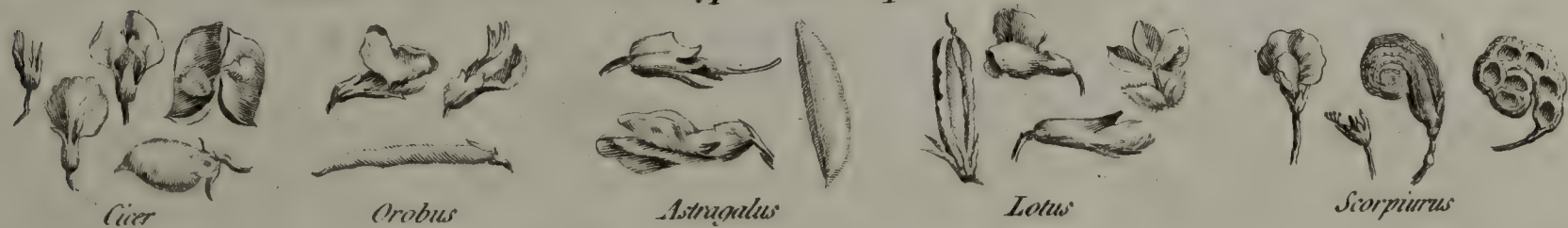
CLASS VIII. Plants with Polypetalous Caryophylleous Flowers.



CLASS IX. Plants with Liliaceous Flowers.



CLASS X. Plants with Polypetalous Papilionaceous Flowers.



CLASS XI. Plants with Polypetalous Anomalous Flowers.



CLASS XII. Plants with Flosculous Flowers.



CLASS XIII. Plants with Semiflosculous Flowers.



BOTANY. Tab. X.

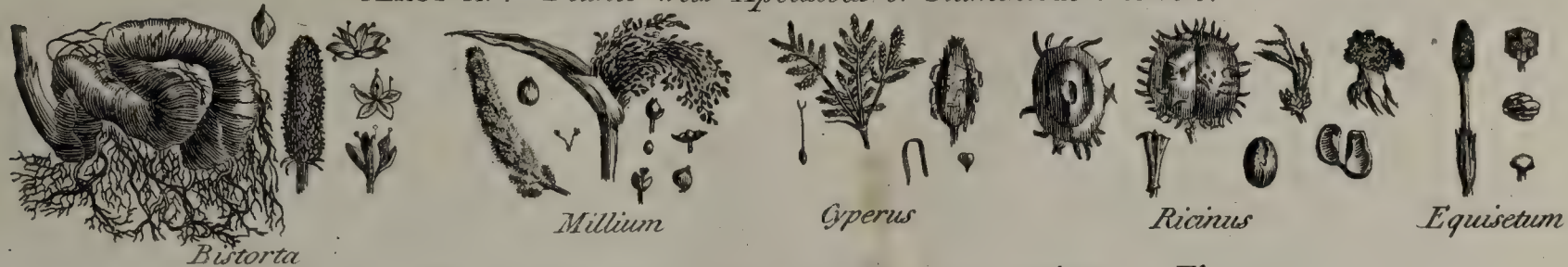
Tournefort's System.

GENERA of PLANTS.

CLASS XIV. Plants with Radiated Flowers.



CLASS XV. Plants with Apetalous or Staminate Flowers.



CLASS XVI. Plants which have Seeds but seem to have no Flowers.



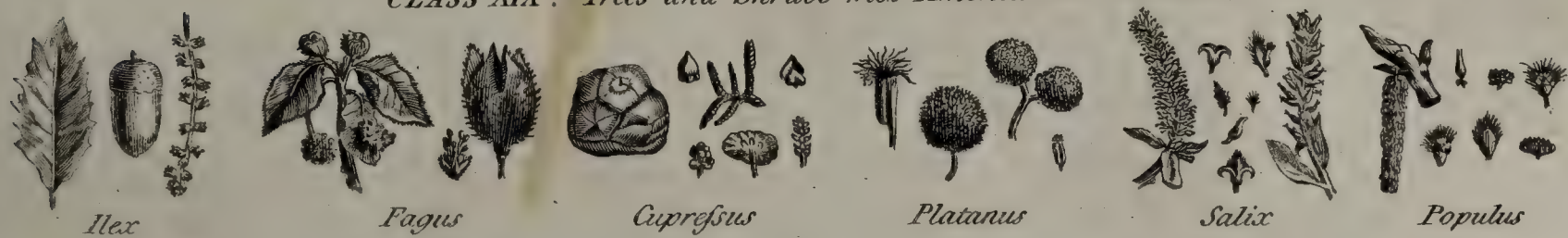
CLASS XVII. Plants which seem to have neither Flowers nor Seeds.



CLASS XVIII. Trees and Shrubs with Apetalous Flowers.



CLASS XIX. Trees and Shrubs with Amentaceous Flowers.



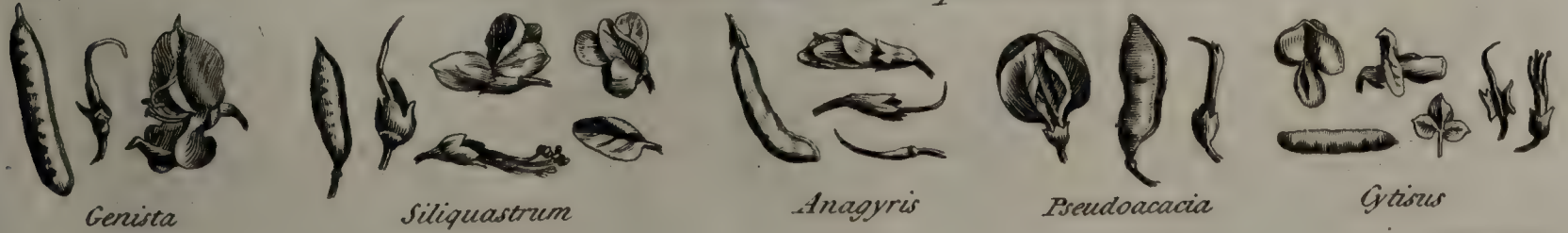
CLASS XX. Trees and Shrubs with Monopetalous Flowers.



CLASS XXI. Trees and Shrubs with Rosaceous Flowers.

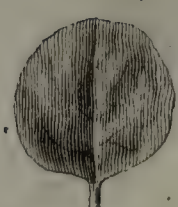


CLASS XXII. Trees and Shrubs with Papilionaceous Flowers.



BOTANY *Tab. XI.*

Leaves



Orbiculate



Subrotund



Ovate



Oval



Oblong



Lanceolate



Linear



Subulate



Reniform



Cordate



Lunulate



Triangular



Sagittate



Cordato-sagittate



Hastate



Obversely-cordate



Trilobate



Palmose



Lobate



Quinqueangular



Eroded



Palmated



Pinnatifid



Laciniated



Sinuate



Dentato-sinuate



Retrorso-sinuate



Partite



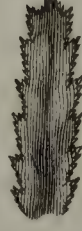
Repandose



Dentated



Serrated



Duplicately-serrate



Duplicately-crenate



Cartilaginous



Acutely-crenate



Obtusely-crenate



Plicate



Crenate



Curled



Obtuse



Acute



Acuminate



Obtuse with a Point



Acute and Emarginate



Cuneiform and Emarginate



Retuse



Pilose



Tomentose



Hispid



Ciliate



Rugose



Venose



Nervose



Papillose



Linguiform



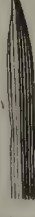
Acinaciform



Dolabriliform



Deltoide



Triquetrous



Canaliculate



Rounded



Sulcate



Bilobate



Ternate sessile



Ternate petiolated



Digitated



Pedate



Pinnate with an Odd Leaf



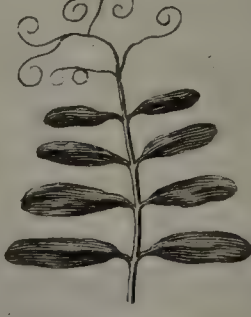
Pinnate abrupt



Pinnate alternately



Pinnate interruptedly



Pinnate and Cirrhose



Pinnate conjugately



Pinnate decursively



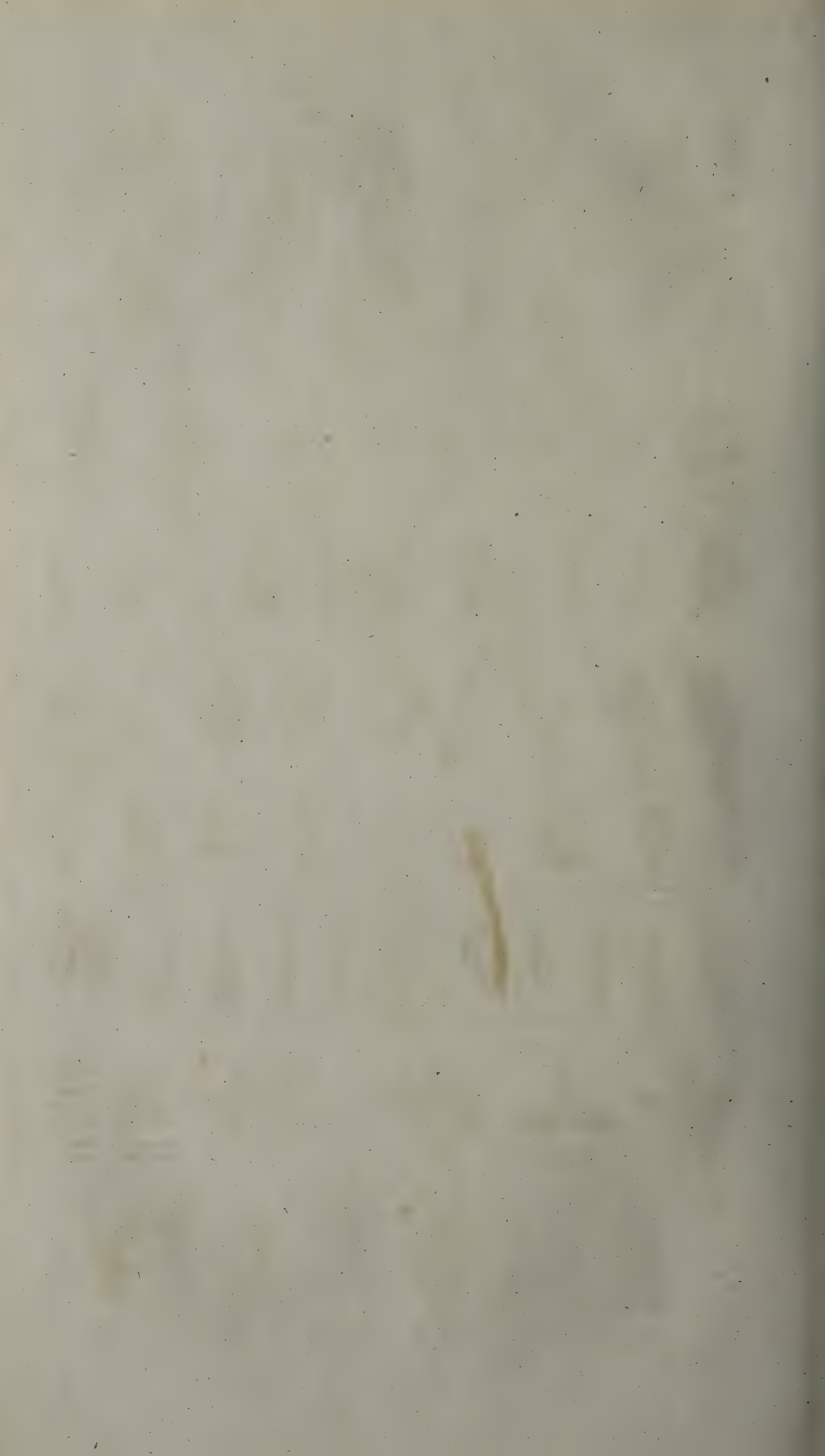
Pinnate articulately



Lyrated



Duplicately-ternate





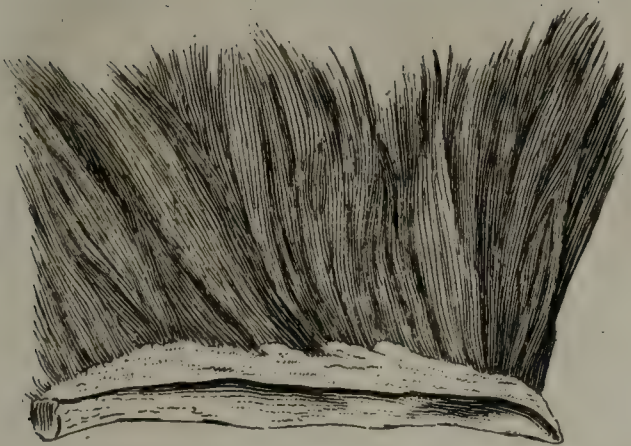
Parts of Cups, Flowers & Fruits.



BOTANY. *Tab. XIII*

Genera of MOSSES.

1



2



BYSSI



CONFERVÆ

3



TREMELLÆ



4



USNEÆ



5



CORALLOIDES



7

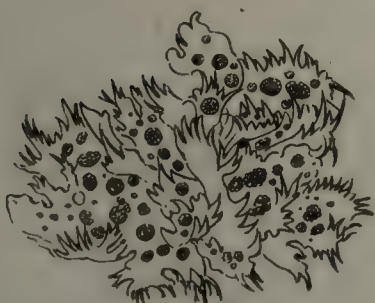


MNIUM

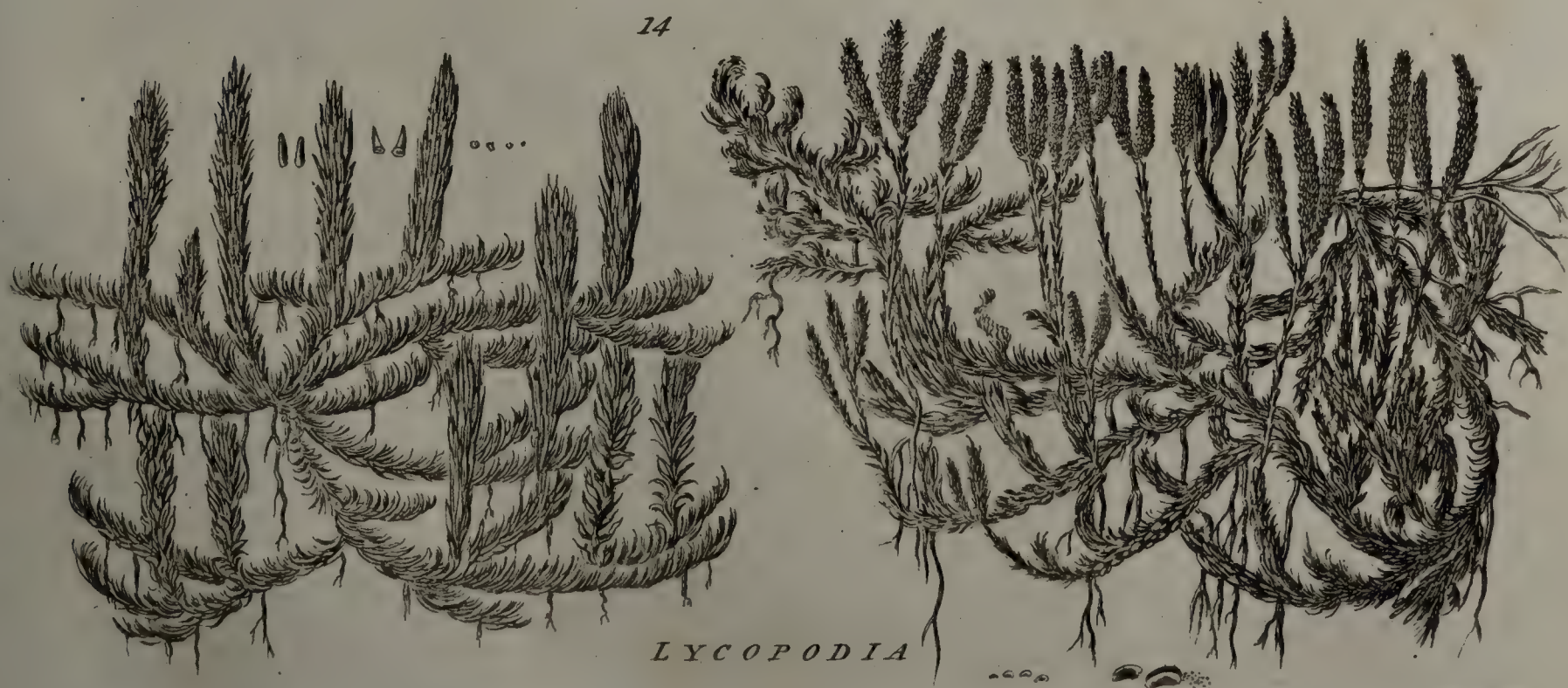
8



SPHAGNUM

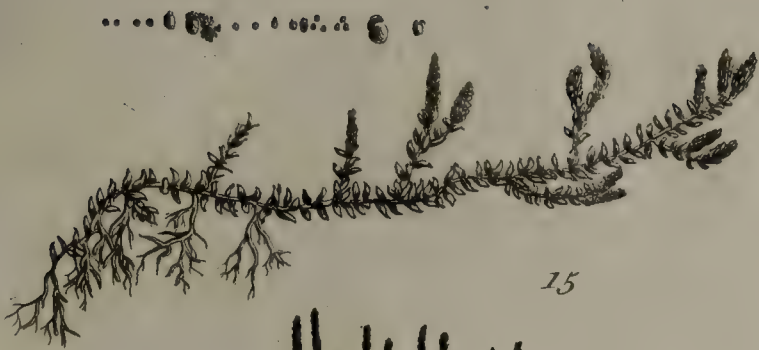


LICHENOIDES



B. O T A N Y. *Tab. XV.*

Genera of MOSSES.



15



LYCOPODIODES



16

SELAGINOIDES



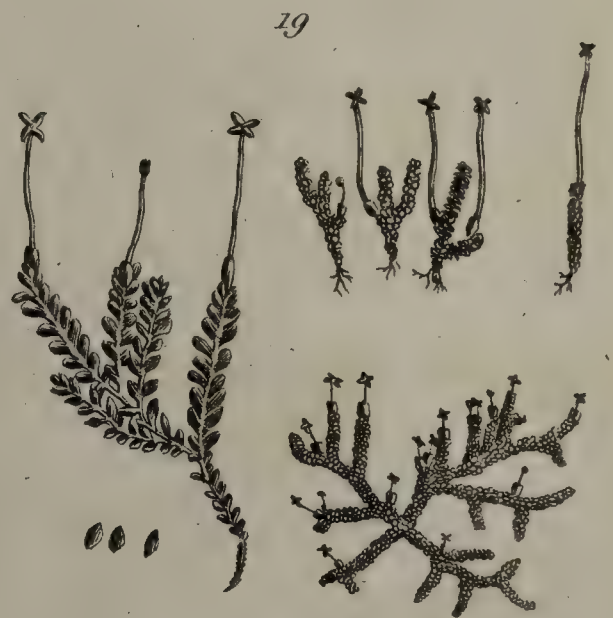
17

PORELLA



18

ANTHOCEROS



19

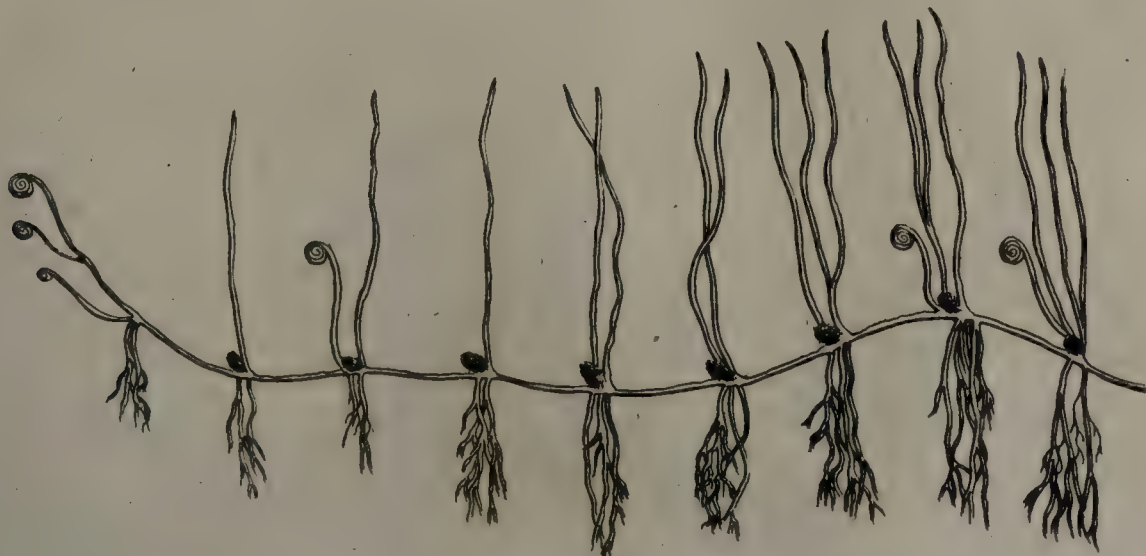
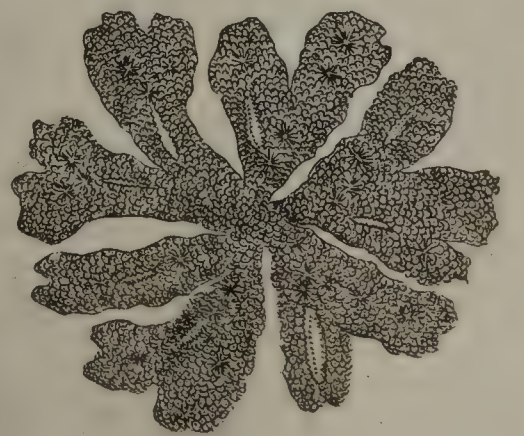
LICHENASTRA



20



LICHENES



21

PILULARIA

the following twenty-two; viz. 1. Plants with monopetalous, campaniform, or bell-fashioned flowers. 2. Those with monopetalous, infundibuliform, or funnel-like flowers. 3. Plants with anomalous, monopetalous flowers. 4. Plants with monopetalous, labiated flowers. 5. Plants with polypetalous, cruciform flowers. 6. Plants with polypetalous, rosaceous flowers. 7. Plants with polypetalous, rosaceous, and umbellated flowers. 8. Plants with caryophyllous, or pink-like polypetalous flowers. 9. Plants with liliaceous, or lily-like flowers. 10. Plants with polypetalous, papilionaceous flowers. 11. Plants with polypetalous, anomalous flowers. 12. Plants with flosculous flowers. 13. Plants with semi-flosculous flowers. 14. Plants with radiated flowers. 15. Plants with stamineous flowers. 16. Plants without flowers, but having visible seeds. 17. Plants with neither visible flowers nor seeds. 18. Trees with apetalous flowers. 19. Trees with apetalous, amentaceous flowers. 20. Trees with monopetalous flowers. 21. Trees with rosaceous flowers. 22. Trees with papilionaceous flowers. For a description of which, see the several articles AMENTACEOUS, APETALOUS, &c.

Each class in this system contains several genera, amounting in the whole number to 673, and comprehending 8846 species, to which the author afterward added 1300 more, referring them to the proper genera in his system. Those who are desirous of farther information with regard to the history and various systems of Botany are referred to the preface of Johnson's Herball, fol. 1636; Linnæus's Philosophica Botanica, 1751; Tournefort's Itagoge in Rem Herbariam apud Institutiones, &c. tom. i. ed. Paris. 1719. For a particular account of the Linnæan sexual system, see FRUCTIFICATION, and SEXUAL System. See also PLANTS, VEGETATION, &c. &c.

BOTANY, *terrestrial*, that employed about the plants growing on the surface of the earth.

BOTANY, *marine*, that concerned in the consideration of sea plants, as fucuses, alcyonia, algæ, &c.

BOTANY, *subterranean*, that about the plants under ground, as the tubera terræ, or truffles, &c.

BOTARGO, a sort of sausage, made of the roes of the mullet-fish; much used on the coast of the Mediterranean, as an incentive to drink.

The manner of preparing *botargo*, as practised at Martegu, in Provence, is described by Mr. Ray.—The mullets, *mugiles*, are taken in *burdigoes*, which are places in the shallows inclosed with hedges of reeds. The male mullets are called *alletants*; the female *boter*, of the roes or spawn of which the *botargo* is made, thus.

They first take out the spawn entire, and cover it round with salt for four or five hours; then they press it a little between two boards or stones; then they wash it, and at last dry it in the sun for thirteen or fourteen days, taking it in at night. Ray. Trav. p. 396, seq.

The people of Provence call it *bou-argues*. The best is brought from Alexandria and Tunis. There is also a manufacture of it near Marseilles. It is much used throughout all the Levant.

BOTATRISSA, in *Ichthyology*, a name given by Bellonius, Gesner, and other authors, to that species of the *GADUS* called by authors the *lota* and *mustela fluviatilis*; by us, the *EEL-pout*. It is distinguished from the other *gadi*, by having two fins on the back, and the two jaws of equal length, with beards at the mouth.

BOTAURUS, in *Ornithology*, a name by which several have called the bird known among us by the name of *but-ter-bump*, *BITTERN*, or *mire-drum*.

BOTE, *BOTA*, in our old *Law-Books*, signifies *compensation*, *recompense*, or *amends*, for any injury done. See *ESTOVERS*.

Hence *man-bote*, satisfaction due for a man slain.

Hence also *boteless*, where no judgment or favour will acquit a man; as, v. gr. for sacrilege, &c. And hence our common phrase to *boot*, speaking of something given by way of compensation.

BOTE, *cart*, *fire-bote*, *hay-bote*, *house-bote*, *kin-bote*, *plough-bote*, *theft-bote*. See the adjectives.

BOTENALKAITOS, a star in the constellation *CETUS*, called also *BATENKETOS*.

BOTESCART, in *Ancient English Writers*, the same with *BOATSWAIN*.

BOTHAGIUM, *bothage*, or *boothage*, customary dues to the lord of the market, for the liberty of pitching and standing of *BOOTHs*.

BOTHNA, *buthna*, or *bothena*, in the *Scotch Law*, a park or field wherein cattle are inclosed, and fed.

The word is also written *barthena*; formed from the ancient Scottish *buth*, a flock of sheep.

BOTHENA is also used for a barony, lordship, or sheriffdom.

In which sense it is ordained by statute, that the king's

moot or court of each *bothena*, that is, each sheriffdom, shall be held within forty days.

BOTHRION, *βοθριον*, denotes the *ALVEOLUS* or socket of a tooth.

BOTHRION is also used to denote a small, narrow, but deepish ulcer of the cornea of the eye, resembling a round puncture.

The word is also written *bothrias*; by others corruptly, *botryon*. In Latin writers it is sometimes called *fossula*.

BOTIA, *bocia*, or *botus*, among *Chemists*, a glass vessel with a round belly and long narrow neck, otherwise called *egg*, *ovum sublimatorium*, *cucurbita*, and *urinale*.

BOTIA, in *Medicine*, the same with *STRUMÆ* and *SCROPHULÆ*.

BOTIN, or *BUTINE*, among *Alchemists*, denotes turpentine, or balsam of turpentine, when gathered under the proper influence.

BOTONOMANCY, from *βοταν*, herb, and *μαντεία*, divination, an ancient species of divination, by means of plants; especially sage, and fig-leaves.

The manner of performing it was thus: the persons who consulted, wrote their own names, and their questions, on leaves, which they exposed to the wind; and as many of the letters as remained in their own places, were taken up, and being joined together, contained an answer to the question. Potter. Arch. Græc. lib. ii. cap. 18. tom. i.

BOTONTINI, in *Middle Age Writers*, denote mounts or hillocks, raised to serve as land-marks, or boundaries of grounds.

The word is also written *botantonæ*, *botanes*, and *bodonæ*. Du-Cange Gloss. Lat.

BOTOTOE, in *Natural History*, a name given by the people of the Philippine islands to a very beautiful bird of the parrot kind; it is somewhat smaller than the common parrot, and is all over of a fine deep blue colour.

BOTRYITES, in *Natural History*, a stone of the gem kind, resembling a branch of young grapes.

The word is formed from *βοτρυς*, a grape. In English writers, it is sometimes called the *grape-stone*.

BOTRYITES, or *BOTRITES*, also denotes a sort of burnt *CADMIÆ*, found somewhat in the form of a bunch of grapes adhering to the upper parts of furnaces, where that mineral is calcined.

It differs from the *placites*, which is that gathered on the lower parts of the furnace; though Schroder gives a different distinction, viz. into *botrites*, found in the middle of the furnace, *placites* in the upper, and *ostracites* in the lowest part.

BOTT, among *Bone-lace Weavers*, a kind of round cushion of light matter placed on the knee, whereon they work or weave their *LACE* with bobbins, &c.

Among the French the *bott*, called *oreiller*, is a little square wooden frame or desk, covered ordinarily with green stuff.

BOTTLE, a small vessel proper for holding liquors.

The word is formed from *butellus*, or *botellus*, used in barbarous Latin writers, for a lesser vessel of wine; being a diminutive of *bota*, which denoted a butt or cask of that liquor.

We say a glass bottle, a stone bottle, a leathern bottle, a wooden bottle, a sucking bottle.

The ancient Jewish bottles were cags made of goats or other wild beasts skins, with the hair on the inside, well sewed and pitched together; an aperture in one of the animal's paws serving for the mouth of the vessel. Calmet. Dict. Bib. tom. i. p. 323.

Glass bottles are better for cyder than those of stone. Foul glass bottles are cured by rolling sand or small shot in them; musty bottles, by boiling them. See *GLASS*.

Bottles are chiefly made of thick coarse glass; though there are likewise bottles of boiled leather made and sold by the case-makers.

Fine glass bottles covered with straw or wicker, are called *flasks*, or *betties*.

The quality of the glass has been sometimes found to affect the liquor in the bottle. Mem. Acad. Scienc. 1704.

BOTTLE is also a measure at Amsterdam, the same with the *MINGLE*.

BOTTLE-flower, in *Botany*, see *CENTAURY*.

BOTTLE-head, a species of whale.

BOTTLE-nose, in *Ornithology*, a name by which the people in some parts of England call the *anas arctica Clusii*.

BOTTLING, or *BOTTELING*, the operation of putting up liquors in bottles corked, to keep, ripen, and improve.

The writers on good husbandry, give divers rules concerning the bottling of beer, cyder, and the like. The virtues of Spa, Pyrmont, Scarborough, and other waters, depend on their being well bottled and corked, otherwise they lose both their taste and smell. To preserve them, it is necessary the bottles be filled up to the mouth,

mouth, that all the air may be excluded, which is the great enemy of bottled liquors. The cork is also farther secured by a cement. Some improve their bottled beer, by putting crystals of tartar and wine, or malt spirits; and others, by putting sugar boiled up with the essence of some herbs and cloves, into each bottle.

Cyder requires special precautions in the *bottling*; being more apt to fly, and burst the bottle, than other liquors. The best way to secure them, is to have the liquor thoroughly fine before it be bottled. For want of this, some leave the bottles open a while, or open them after two or three days *bottling*, to give them vent. If one bottle break, through fermentation, it is best to give them all vent and cork them up again. Mean cyder is apter to break the bottles than rich. Some soak the corks in scalding water, to render them more pliant and serviceable. See CYDER.

Another particular to be observed is, to lay the bottles so as that the liquor may always keep the cork wet and swelled. Something also depends on the place where the bottles are set, which ought to be such as exposes them as little as possible to the alterations and impressions of the air: the ground is better for this purpose than a frame; sand better than the bare ground, and a running water, or a spring often changed, best of all.

To hasten the ripening of bottled liquors, they are sometimes set in a warm place, or even exposed to the sun, when a few days will bring them to maturity.

BOTTOM, the lowest part of a thing, as contradistinguished from the top.

Hydrostatical writers speak of the pressure of fluids, on the *bottom* of vessels; in which case, the law of gravitation is, that the altitude remaining the same, the pressure will be as the *bottom*. M. Leibnitz has asserted, that a body in falling through a fluid, does not press on the *bottom*, that is, does not increase the pressure on it; which is found to be false. Phil. Trans. N° 351. p. 570. A. D. S. an. 1692. p. 16.

When water boils, the *bottom* of the vessel is found considerably colder than it was some time before boiling; inasmuch that the hand may bear it in the former case, not in the latter. Hist. Ac. Sc. ann. 1703. p. 29.

BOTTOM, in Navigation, denotes the ground or surface of the earth under the water.

They say, a rocky, sandy, gravelly, clayey *bottom*; a *bottom* with good hold, with a bad hold, &c.

The *bottom* of the sea, Ray observes, is level, i. e. the descent from the shore to the deep is equable and uniform: but the *bottoms* of some seas are found higher than of others. Count Marfigli has made divers enquiries into the structure of the *bottom* of the sea, and its beds of stones, salt, bitumen, &c. Ray, Wisd. of Creat. part i. p. 84. See SEA.

Over the natural *bottom* of the sea is formed an accidental *bottom*, by the mixture of different matters, sand, shells, mud, &c. strongly compacted by the glutinous quality of the sea-waters, almost to a degree of petrification. These incrustations being necessarily formed in *strata*, there are some places wherein the fishermen can distinguish the annual augmentations. Hist. Acad. Sc. 1710.

BOTTOM of a ship.—Merchant ships are much broader *bottomed* than frigates; men of war are a mean between the two. Sir William Petty presented the model of a double *bottomed* ship.

BOTTOM is also used to denote a whole ship, or rather vessel.

In this sense we say, English *bottoms*, foreign *bottoms*. By the act of navigation, certain commodities imported in foreign *bottoms*, pay a duty called petty custom; from which they are exempt; if imported in English *bottoms*.

BOTTOM is also used for what remains at the bottom of a vessel. In this sense, Paracelsus calls the sediment of urine, *fundus urinæ*.

BOTTOM-stone, a kind of iron-stone, or ore, in the Staffordshire mines.

BOTTOM-nails. See NAIL.

BOTTOMRY, in Navigation and Commerce, the act of borrowing money on a ship's *bottom*; that is by engaging the vessel for the repayment of it, so as that, if the ship miscarry the lender loses the money advanced; but if it arrives safe at the end of the voyage, the borrower is to repay the money lent with a certain premium or interest agreed on; and this on pain of forfeiting the ship. See ASSURANCE and POLICY.

The rate or interest of money, taken on *bottomry*, follows that of insurance. In queen Anne's war, when insurance to the East Indies and back was 16 per cent. *bottomry* was 45 per cent. And in king William's war, when insurance to the same place was 22 per cent. *bottomry* was 55.

Bottomry, if considered only as hiring money, would be illegal, and fall under charge of usury, on account of the excessive interest: but it is not a mere hiring of money, since the lender likewise stands to the hazard of the voy-

age: The money here advanced is called *pecunia trājectitia*, as being carried on the lender's hazard or adventure beyond the seas; so that, if the ship be lost, the lender loses all; whereas, when money is lent at interest, it is delivered at the peril of the borrower. And the profit here is merely the price of the loan; but the profit of the other is a reward for the danger and adventure of the sea which the lender takes on himself, and makes the interest lawful.

If money be lent on ship-board by a merchant or passenger, and before the day of payment the ship happens to be cast away; if there be such a saver as will admit of a contribution, the party lending is not to have his whole money, but it shall come into the average; because if that money had been so lent, it would have been in common danger with the rest: but, if the time appointed were past before the misfortune happened, then the borrower must repay the lender his whole money, free from contribution. Therefore by the maritime laws, in case the borrower detains any money thus lent, beyond the appointed time for the repayment, he shall at his return from the voyage, not only pay the profit agreed on before, but be obliged also to augment the same, according to the longer time accrued since the day of payment.

A master of a ship hath no power to take up money on *bottomry* in places where his owners dwell, unless he is a part owner, and in that case he may take up so much only, as his part will answer in the said ship: for if he exceeds that, his own estate shall stand liable to make satisfaction. But when a master is in a strange place, where he hath no owners, nor any goods of theirs or of his own; and for want of money, which he cannot procure by exchange or otherwise, his voyage might be retarded, there money may be taken upon *bottomry*, and all the owners are liable for it; that is, they are answerable by their vessel, but not in their persons, by the act of the master: and the owners may have their remedy against such master, whom they put in trust.

When a master or owner of a ship takes up money on *bottomry*, and buys in lading, but endeavours to defraud the prince or state of their customs, or puts such goods on board as incur a forfeiture of the ship; in such case the borrower only runs the hazard, not the lender. And where bonds or bills of *bottomry* are sealed, and the money is paid, if the ship receives injury by storm, fire, enemy, or any other accident, before the commencement of the voyage; then the person borrowing shall only run the hazard, unless it be otherwise provided, by particular words, that the contract is to have its beginning from the time of the sealing. But if the condition be, that if such shall sail from London to a port abroad, and shall not arrive there, &c. then, &c. here the contingency begins not until the departure.

BOTTOMRY, bill of, is a contract between two persons, the one borrowing, and the other lending a sum of money, by which the borrower setting forth his intention to make a voyage in a certain ship therein named, acknowledges the receipt of a certain sum of money from the lender, on this condition, that if the ship does happily perform her voyage, without any disaster by enemies or otherwise, then he is to restore that sum to the lender, with an additional sum, therein expressed, for the interest, within a certain time after his return; but that if the ship be lost, or taken by enemies or pirates, then the person of the borrower to be for ever discharged, and the lender to bear the loss.

BOTTONY, or BOTONE, in Heraldry, is used in speaking of a cross, which terminates at each end in three knots or buttons, resembling, in some measure, three-leaved grass.

A *cross bottony*, is the same with what Segon terms *croix trefflée*; and Baron, *globosa crux*. Gibbon, the better to explain the form, renders it, *Crux ad singulas ejus extremitates in tres gemmas, vel nodos, pro trifolii specie terminata*. He bears argent a cross *bottony*, fable, by the name of *Winwood*. Vide Tab. Herald. fig. 11.

BOTTRYS, in Botany, a name given to a species of the *chenopodium*. See GOOSE-foot.

BOTRYTIS, in Botany, see BYSSUS.

BOTTS, in Zoology, a species of worms which infest horses and other cattle. See HORSE-worms.

The name is also given to a sort of grubs which destroy the grass in bowling-greens, &c.

BOVATA terra, in Ancient Law-Writers, signifies an oxgate of land, or so much as may be ploughed in a year with one ox; by some reckoned at fifteen acres, by others at eighteen, by others at twenty, and by others at thirteen or twenty shillings yearly rent.

This is otherwise called *bovatus*, and *bovariata terra*.

BOVEY coal, see COAL.

BOUCHE of court, the privilege of having meat and drink at court scot-free.

The word is also written *bouge*, *bouge*, and *budge*; it is mere French, where it signifies *mouth*.—The French still use the phrase, *Avoir bouché à la cour*; that is, *to have table or diet at court*.

This privilege is sometimes only extended to bread, beer, and wine: it was a custom anciently in use, as well in the houses of noblemen as in the king's court.

Thomas earl of Lancaster retained sir John de Ewre, to serve him with ten men at arms in time of war, allowing them *bouge of court*, with livery of hay and oats, horse-shoes and nails. Sir Hugh Merrill had the same privilege for life, on condition of serving king Edward II. Kennet. Gloss. ad Paroch. Ant. p. 378.

BOUDS, a name given in some countries to the WEEVILS. BOUGE-*ravel*, in *Ichthyology*, the name of a fish of the BOOPS kind, caught into the Mediterranean, and brought to some of the Italian markets. Its nose is long and pointed; its back is of a reddish blue, its tail red, and its belly of a fine silvery white. Its whole body is shorter and broader than the common kind of *boops*. Willughby.

BOUGH, in *Antiquity*.—Green *boughs* made part of the decorations of altars and temples, especially on festival occasions.

Oaken *boughs* were offered to Jupiter; those of laurel to Apollo; of olive to Minerva; myrtle to Venus; ivy to Bacchus; Pine to Pan; and cypress to Pluto.

BOUGEOIR, the French name for wax candlesticks.

BOUGIE, in *Surgery*, a kind of large medicated tent, worn in the urethra, for the cure of a gonorrhœa, &c.

There was no occasion for *bougies* till towards the middle of the sixteenth century, when the *gonorrhœa virulenta* appeared as a symptom of the *lues venerea*. An. 1551, Andreas Lacuna of Castile, published at Rome, in twelve pages, the Method of knowing and extirpating Caruncles in the Neck of the Bladder, which he owns he learned from a Portuguese quack of the name of Philippus; he believed him to be the inventor of the *bougies* so employed, and that he had cured some people of *fashion* in Rome by means of them. Dr. Fordyce. See Review of the Venereal Disease, Edit. 3. and Dr. Astruc, &c. De Morbis Ven. 2d. Edit. 4to. Lat. Par. an. 1740.

The properties requisite in the *bougie*, are a sufficient degree of firmness, that it may be introduced with some force; a suppleness and tenacity, that it may conform to the motions of the body without breaking; a lenient suppurative disposition, to bring on a discharge without pain; and lastly, a smoothness of surface, that it may not only be introduced with more ease, but that it may lie easy in the passage, until it begins to dissolve.

The best basis of such a *bougie*, is *diachylon simplex*, which may be rendered efficacious by a great variety of mixtures; but though an addition of certain gums, or of the mucilage plaster, will alone answer the purpose in some disorders of the urethra; yet, as a long use of mercurial applications is almost a specific for venereal ulcers, and has also a powerful effect on every other species of stubborn ulcers, our experiments are naturally directed to mercurial preparations.

Perhaps we may discover hereafter the due proportion of quicksilver to the plaster; at present, half an ounce to every ounce of plaster, renders it much more mercurial than any plaster now in use. The *diachylon* must be made with oil, and a little *pix Burgundica* added to it, that it may be sufficiently tenacious; to every ounce of plaster, it is proper to add two drams of crude antimony finely levigated, which greatly conduces to the smoothness and good consistence of the *bougie*; besides that it may possibly have other virtues. Upon this plan the prescription stands thus:

Diach. cum pice Burgund. 3ii.

Argent. viv. 3j.

Antim. crud. pulv. 3½.

The quicksilver, whether it be divided into balsams, sulphur, or honey, must not be put into the plaster until the moment before the *bougies* are made; nor must the plaster be boiling hot at that time, lest by the heat the quicksilver should separate from the body it is divided in, and fall down to the bottom in form of globules. When the quicksilver is mingled with the plaster, moderately hot, slips of fine rag must lie ready to dip in the composition. These slips must be of different lengths, from six to nine or ten inches, and about three inches broad; roll them up loosely, and taking hold of one extremity with the left hand, let it fall upon the surface of the plaster, and then draw it out gently. As it is drawn out it will unroll, and take up a quantity of plaster on the surface, equal to the thickness of a silver groat; though, to facilitate the unrolling of the rag, it will be proper to assist its motion with the end of the *spatula*, or some other instrument. The plaster, however, must be hot enough to soak through, and discolour the rag, otherwise it will not make so good a *bougie*.

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If the cloth be exactly three inches broad, it will make six *bougies* of a moderate size; but their size may be suited to the occasion. It is generally advisable that the *bougie* should be smaller at the end which is introduced through the strictures, than at that which is left out at the *penis*. For that purpose many cut off a part of the oblong square before mentioned, in such manner as to reduce it almost into the shape of a long right-angled triangle; but as this way of cutting it weakens the *bougie* exceedingly, and as it is not at all necessary that the *bougie* should be taper from one extremity to the other, it is much better to cut off a little slope of about an inch and a half long from the end that is to be passed into the urethra, which will lessen it where it is necessary to be small, and leave it strong in the other part, where the diminution is not necessary.

The plaster taken up by the cloth, when dipped, will have little bubbles upon its surface, and not be so smooth as if it had been spread: therefore an iron *spatula* a little warmed, may be passed over the plaster before it be cut into *bougies*, which will render it more compact and even. It is a much more exact and speedy method to cut the *bougies* off with a knife and ruler than with scissars. When they are rolled up, it must be with that side outward which is covered with plaster; and they must first be rolled by hand as close as possible, before they are rolled upon a board or marble; for upon this circumstance the neatness of the *bougie* depends.

BOUILLON, among *Farriers*, a lump or excrescence of flesh, growing either on or just by a horse's frush, and making him halt.

BOVINA *affectio*. See AFFECTIO.

BOVISTA, in *Botany*, a term used by some authors to express puff-ball, or dusty mushrooms, which are sometimes vulgarly called the devil's snuff-boxes.

BOULCOLACA, among the modern Greeks, denotes the spectre of some wicked person who died excommunicated by the patriarch, re-animated by the devil, and causing great disturbance among the people; of which many strange stories are told.

The word is Greek, and is sometimes written *βεγκολακος*, *broukolakos*; and supposed to be derived from *βεγκος*, or *βεννα*, mud, and *λακος*, a ditch, on account of the filthiness of the fight.

BOULDER *walls*, a kind of walls built of round flints or pebbles, laid in a strong mortar; used where the sea has a beach cast up, or where there are plenty of flints.

BOULIMY, in *Medicine*. See BULIMY.

BOULINIS, or BOULIGNIS, a copper coin struck at Bologna in Italy, equivalent to the BAIOTTO.

BOULTINE, or BOLTEL, in *Architecture*, the workman's term for a convex moulding, whose periphery is just $\frac{1}{4}$ of a circle placed next below the plinth, in the Tuscan and Doric capitals.—See *Tab. Archit. fig. 5*.

BOULUKE, in the *Military Orders of the Turks*, a body of the janizaries, with an officer in the place of a colonel at their head, sent upon some particular enterprize; they are selected out of the body for this, and, as soon as the business is over, are received again into their former companies.

BOUNCE, in *Ichthyology*, a name given by the people of the western parts of England to a species of the *SQUALUS*, distinguished by Artedi by the name of the reddish variegated *squalus*, with the *pinna ani* in the middle space between the *anus* and tail. This is the fish called *scymnos* and *scylius* by the old writers, and *CATULUS major* by the later writers. The Italians call it *scorzone*.

BOUND, in *Dancing*, a spring from one foot to the other by which it differs from a hop, where the spring is from one foot to the same. It also differs from a half *coupée*, as, in the latter, the body always bears on the floor, either on one foot or the other; whereas, in the *bound* it is thrown quite from the floor.

BOUND-*masonry*. See MASONRY.

BOUND, *hide*. See HIDE-bound.

BOUND, *hoof*. See HOOF-bound.

BOUND-*bailiffs*. See BAILIFF.

BOUNDS of an *eclipse*. See ECLIPSE.

BOUNDS of *lands*. See ABUTTALS.

BOUNDARY-*column*. See COLUMN.

BOUNTY, in *Commerce*, denotes a premium paid by the government to the exporters of certain commodities, on their taking oath, or, in some cases, giving bond, not to reland the same in England.

There are divers *bounties* settled by act of parliament, as a *bounty* of one penny per ell on the EXPORTATION of British sail-cloth; and the like on silk ribbands and stuffs, on silk stockings, on fish and flesh, on gold and silver lace of British manufacture; and on several species of corn, when not exceeding certain prices, at the port of exportation.

BOUNTY, *Queen Anne's*, for augmenting poor livings under 50*l. per annum*, consists of the produce of the first fruits and

and tenths, after the charges and pensions payable out of the same are defrayed. A corporation for management of the same was settled, &c. in 1704. See AUGMENTATION.

BOURDIN, with the epithet *grand*, a name given by Bellonius to a genus of univalve shell-fish, commonly known among authors by the name of *auris marina*. See *EAR-shell*.

BOURDONNE, in *Heraldry*, is understood of a cross, whose extremities are turned round like the ends of a pilgrim's staff; more frequently called *pometé*, *globatus*.

BOUGER-mestres. See *BURGER-masters*.

BOURGUIGNOTTE, a defensive weapon wherewith to cover the head; being a kind of cask, open before, and proof against either pike or musket: its name arose from the *Bourguignons*, who first introduced it.

BOURIGNONISTS, a name given the followers of Antoinette Bourignon, who set up a kind of *QUIETISM* in the Low Countries; pretending to be guided by an immediate revelation.

BOURREE. See *BOREE*.

BOUSTROPHEDON, in *Literature*, is used in speaking of the ancient method of writing among the Greeks, wherein the lines were continued forwards and backwards, like the furrows in ploughing.

The word is compounded of *βους*, *bullock*, and *στροφή*, *I turn*.

Pausanias mentions several ancient inscriptions written in this manner: the laws of Solon are also said to have been thus written; which, as the author last cited explains it, is when the second line is turned on the contrary side, beginning at the end of the former, thus:

ΕΚ ΔΙΟΣ ΑΡ

ΒΟΤΡΕΜΟΧ

Potter. Arch. Græc. lib. i. cap. 26. tom. i.

BOUTADE, in *Musick*, an irregular flight or movement, without art or study.

The word was also formerly used for a *solo* on the *viol di gamba*, thus called as being supposed to be extemporaneous.

Richelet speaks of a dance called *boutade*, invented by the famous Bocan, in the reign of Lewis XIII. so called from the brisk humorous manner of its beginning; but now out of use.

BOUTAEL, in *Ichthyology*, the name of an East-Indian fish of the *LAMPREY* kind, called also *neegen oogen*, and by Mr. Ray, *lampetra Indica*. It is caught in lakes, ponds, and other standing waters, and is a very wholesome and well-tasted fish.

Its general description seems to make it rather of the *mustela* than the *lampetra* kind; but if, as its name expresses, it has several apertures for the gills, its Dutch name signifying nine eyes, it is absolutely a new *GENUS* of fishes.

BOUTANT, in *Architecture*.—An *ARC-BOUTANT* is an arch or buttress, serving to sustain a vault; and which is itself sustained by some strong wall, or massive pile.

The word is French, and comes from the verb *bouter*, to but, or abut.

A pillar **BOUTANT** is a large chain, pile of stone, made to support a wall, terrace, or vault.

BOUTÉ, in the *Manège*. A horse is called *bouté*, when his legs are in a strait line from the knee to the coronet; short-jointed horses are most apt to be *bouté*.

BOUTS-rimes, a popular term in the French poetry; signifying certain *rhymes*, disposed in order, and given to a poet, together with a subject, to be filled up with verses ending in the same words, and the same order.

The invention of the *bouts-rimes* is owing to one Du Lot, a poet, in the year 1649. In fixing the *bouts*, it is usual to chuse such as seem the remotest, and have the least connection.

Some good authors fancy, that these rhymes are of all others the easiest, that they assist the invention, and furnish the most new thoughts of all others. Sarasin has a poem on the defeat of the *bouts-rimes*.

The academy of Lanternists at Tholouse have contributed towards keeping in countenance the *bouts-rimes*; by proposing each year a set of fourteen, to be filled up on the glories of the grand monarch: the victorious sonnet to be rewarded with a fine medal.—An instance hereof may be given in the following one, filled up by P. Commire.

Tout est grand dans le roi, l'aspect seul de son
Rend nos fiers ennemis plus froids que des
Et Guillaume n'attend que le tems des
Pour se voir succomber sous un bras si
Qu'on ne nous vante plus les miracles d'
Louis de bien rognier lui feroit des
Horace en vain t'egale aux dieux dans ses
Moins que mon heros il étoit sage &

buste
glaçons.
moissons,
robuste.
Auguste;
leçons:
chançons:
juste, &c.

BOUVIERA, in *Ichthyology*, a name given by some to a small

broad, and flat fresh-water fish, called more usually *BU-BULCA*.

BOW, *Arcus*, a weapon of offence made of wood, horn, or other elastic matter, which, after being strongly bent by means of a string fastened to its two ends, in returning to its natural state, throws out an arrow with great force.

It is also called the *long-bow*; by way of distinction from the *cross-bow*, or *arbalet*.

The *bow* is the most ancient, and the most universal of all weapons. It has been found to obtain among the most barbarous and remote people, and who had the least communication with the rest of mankind.

The use of the *bow* and arrow was first abolished in France under Lewis XI. in 1581, and in their place was introduced the Swiss *ARMS*, that is, the halbard, pike, and broad-sword.

The *long-bow* was formerly in great vogue in England; most of our victories in France were acquired by it; and many laws were made to regulate and encourage its use.

The parliament under Henry VIII. complain "of the disuse of the *long-bow*, heretofore the safe-guard and defence of this kingdom, and the dread and terror of its enemies." 33 Hen. VIII. cap. 6.

By this act, all men, under sixty years of age, are commanded to exercise shooting with *long-bows*, and to have a *bow* and arrows always ready. Children from seven years old to seventeen, are also enjoined to be bred up in shooting. Servants were not excused, but to be supplied with a *bow* by their masters, and the price to be deducted out of their wages. Aliens were forbid the use of the *long-bow*, without a special licence from the king.

The art of using *bows* is called *ARCHERY*, and those practised therein, *ARCHERS*, or *bowmen*.

The two ends or extremities of a *bow*, to which the string is fastened, are called its horns, *cornua*.

The strength of a *bow* may be calculated on this principle, that its *SPRING*, i. e. the power whereby it restores itself to its natural position, is always proportionate to the distance or space it is removed therefrom.

The most barbarous nations often excel in the fabric of the particular things which they have the greatest necessity for in the common offices of life. The Laplanders, who support themselves almost entirely by hunting, have an art of making *bows*, which we, in these improved parts of the world, have never arrived at.

Their *bow* is made of two pieces of tough and strong wood, shaved down to the same size, and flattened on each side; the two flat sides of the pieces are brought closely and evenly together, and then joined by means of a glue made of the skins of pearch, which they have in great plenty, and of which they make a glue superior in strength to any which we have.

The two pieces, when once united in this manner, will never separate, and the *bow* is of much more force to expel the arrow than it could possibly have been under the same dimensions, if made of only one piece.

Among the ancients, the *bow-string*, called *τρίχωσις*, was made of horses hair, and thence also called *σπινθία*; though Homer's *bow-strings*, are frequently made of hides cut into small thongs; whence *τοξά βόσια*. The uppermost part of the *bow* to which the string was fastened, was called *κορυμή*, being commonly made of gold, and the last thing towards finishing the *bow*. The Grecian *bows* were frequently beautified with gold or silver; whence we have mention of *aurei arcus*; and Apollo is called *Αργυροτοξος*. But the matter of which they were ordinarily composed seems to have been wood; though they were anciently, Scythian like, made of horn, as appears from that of Pandarus in Homer. *Iliad*. δ. v. 105. Potter. Arch. Græc. tom. ii. cap. 4.

There are two kinds of *bows*, different in structure and manner of use, viz. 1. The common or *long-bow* among us, best made of Spanish or English yew, sometimes of withen or elm, which is inferior to the former; the shaft is made of birch or brazil, with grey or white feathers. 2. The *cross-bow*, chiefly used when, through any imbecility of the arm or back, the former cannot be managed.

The invention of the *bow* is usually ascribed to Apollo, and was first communicated to the primitive inhabitants of Crete, who are said to have been the first of mortals, who understood the use of *bows* and arrows. And hence even in latter ages, the Cretan *bows* were famous, and preferred by the Greeks to all others. Some, however, rather chuse to honour Perseus, the son of Perseus, with the invention of the *bow*; while others ascribe it to Scythes, son of Jupiter, and progenitor to the Scythians, who were excellent at this art, and by many reputed the first masters of it. From them it was derived to the Grecians, some of whose ancient nobility were instructed by the Scythians in the use of the *bow*, which in those days

B O W

days passed for a most princely education. It was first introduced into the Roman army, in the second Punic war. Potter Arch. Græc. tom. ii. lib. iii. cap. 4. Aguin. Lex. Milit. tom. ii. p. 260.

The Indians still retain the *bow*. In the repository of the Royal Society, we see a West Indian *bow* two yards long.

The Scythian *bow* was famous for its incurvation, which distinguished it from the *bows* of Greece and other nations; being so great as to form an half-moon, or semi-circle: whence the shepherd in Athenæus, being to describe the letters in Theseus's name, and expressing each of them by some apposite resemblance, compares the third to the Scythian *bow*; meaning not the modern character Σ, but the ancient C, which is semicircular, and bears the third place in ΘΗΕΥC.

Bow, *cross*, is also called ARBALET; which word is derived from *arbalista*, i. e. *arcubalista*, a *bow* with a *slings*.

The *arbalet* consists of a steel-bow, set in a shaft of wood, furnished with a string and a trigger; and is bent with a piece of iron fitted for that purpose.—It serves to throw bullets, large arrows, darts, &c.

The ancients had large machines used for throwing many arrows at once, called *arbalets*, or BALLISTÆ.

Bow, in *Musical*, denotes a machine that serves to play, or give the sound to VIOLS, VIOLINS, and other instruments of that kind, by drawing it gently over the strings thereof.

The *bow* consists of three parts; the first is the stick, or wood, to which the hair is fastened; the second is composed of about eighty or an hundred horse-hairs, or filaments of silk; the third is the nut, a sort of half-wheel, which serves to keep the hairs in the due degree of tension.

The ancients do not appear to have been acquainted with *bows* of hair: in lieu of these they struck their instruments with a PLECTRUM; over which our *bows* have great advantage, for giving long and short sounds, and other modifications, which a plectrum cannot produce.

Bow, in *Trade and Manufactures*, denotes a flexible instrument consisting of a piece of steel or iron, to the two ends of which is fastened a cat gut, used by smiths, watch-makers, and other artificers, for the piercing and turning of divers sorts of works.

This is more peculiarly called a DRILL-bow.

It is sometimes also made of wood, whalebone, and the like.

Operators in mosaic have a sort of *bow* made of a piece of elastic wood, with a brass wire fastened to the ends of it which serves to saw hard and precious stones. Letter-casters have also a *bow* wherewith to keep the *matrix* even. See FOUNDERY.

Bow, among *Builders*, denotes a beam of wood, or brass, with three long screws, that govern or direct a lath of wood or steel to any arch; chiefly used in drawing draughts of ships, and projections of the sphere, or wherever it is requisite to draw large arches.

Bow is also the name of an instrument formerly used at sea for taking the sun's altitude; consisting of a large arch of 90 degrees graduated, three vanes, a shank or staff, a shade-vane, a sight-vane, and an horizon-vane.—But it is now out of use.

Bow-bearer, an under-officer of the forest, who is to observe and take notice of all manner of trespass against vert or venison; and to attach, or cause to be attached, the offenders, in the next court of attachment.

Bow-cap, among *Botanists*, one of the forms or positions of the LEAVES of FLOWERS, wherein the leaves are laid somewhat converfely over each other, but not plaited.

Bow-compass. See COMPASS.

Bow-dye, a new kind of scarlet-red, superior to madder; but inferior to the true scarlet-grain, for fixedness and duration. It was brought into England, and first practised at the village of Bow, near London, by Kephler, a Dutchman, in the year 1643.

Bow of the gills, a term used by some *Ichthyologists*, to express the convex part of each GILL, each being a long semi-circle, terminated by many *laminæ*, which form what is called the *leaf*.

Bow-grace, in the *Sea-Language*, a frame or composition of old ropes, or junks of cables, used to be laid out at the bows, stems, and sides of ships to preserve them from great flakes of ice; chiefly when they sail in high north or south latitudes.

Bow-net, or *wheel*, an engine for catching fish, chiefly lobsters and craw-fish, made of two round wicker-baskets, pointed at the end, one of which is thrust into the other; at the mouth is a little rim, four or five inches broad, somewhat bent inwards. It is also used for catching sparrows.

Bow, rain. See RAIN-bow.

Bows of a saddle, are two pieces of wood laid archwise,

B O W

to receive the upper part of a horse's back, to give the saddle its due form, and to keep it tight.

The *fore-bow*, which sustains the pommel, is composed of the WITHERS, the BREASTS, the POINTS or toes, and the CORKING.

The *hind-bow* bears the TROUSSEQUIN, or quilted roll.

The *bows* are covered with sinews, that is, with bulls pizles beaten and so run all over the *bows*, to make them stronger. They are likewise strengthened with bands of iron, to keep them tight. It is on the lower side of the *bows* that the saddle-straps are nailed; the use of which is to make fast the girths.

Bow of a ship, is the rounding part of a ship's side forward, or that part of her which is broadest before: it begins at the place where the planks arch inwards, and compating about towards the stem, ends where they close at the stem or prow.

If a ship has a broad round *bow*, they call it a *bold* or *bluff bow*; if she has a narrow thin *bow*, they say she has a *lean bow*.

The proportioning of the *bow* is of great importance to the sailing of the ship; it being this part that first breaks off the sea, and on which is, in a manner, all the bearing of the ship. If the *bow* be too broad, the vessel will not make her way easily through the water, but carry a great load of dead water before her; and if it be too lean or thin, she will pitch or beat much into a hollow sea, for want of breadth to bear her up.

Bouguer observes, that a *bow* which meets with the least resistance and in a direct and oblique course, has also the additional property of driving the least to leeward. *Traité du Navire*.

The piece of ordnance that lies in this place is also called the *bow-piece*; and the ANCHORS that hang there, are called her *great and little BOWER*.

Bow, *on the*, in the *Sea Language*, denotes an arch on the horizon, comprehended between some distant object, and that point of the compass which is right a-head, and to which the ship's stem is directed.

Bow-sprit, or **BOLT-SPRIT**, a kind of mast in a vessel, standing foremost on the prow, and projecting slopeways over the stem: its lower end is fastened to the partners of the fore-mast, and farther supported by the fore-stay: it serves to carry the sprit-sail, sprit-top-sail, and jack-staff.—*Vide Tab. Ship. fig. 1. n. 124. fig. 2. n. 16.*

The *bow-sprit* should be two-thirds of the length of the main-mast, and its thickness equal to the mizen-mast: when it is twelve fathoms five foot long, its yard must be eight fathoms two foot long; and the top-mast of the *bow-sprit*, three fathoms one foot.

To the *bolt-sprit* are fastened all the stays belonging to the fore-mast, fore-top-mast, and fore-top-gallant, &c. with their bow-lines and jacks, besides the riggings which belongs to its own sails.

If a ship spends her *bolt-sprit*, or, as the term is, if the *bolt-sprit* drop by the board, the fore-mast will quickly follow, if it be a rough sea, especially in sailing by a wind.

Bow-slaves. See GARBLING of Bow-slaves.

Bow-saw. See SAW.

BOWELLING, *exenteratio*, the act of pulling out the intrails of an animal.

Bowellling makes part of the progress of EMBALMING.

BOWELLING is also a part of the punishment of traitors in England, who are to have their *bowels* ripped open, torn forth, and burnt before them. *Fractioni, suspendio, decollationi, exenterationi, & quaterizationi adjudicavit*. Knight. sub Edw. II. in the sentence of Hugh Spencer.

BOWER. See ANCHOR.

BOWER, in *Gardening*, a shady place, under covert of trees or branches interwoven.

A *bower* differs from an ARBOUR, in that the latter is always built long and arched, but a *bower* either round or square at the bottom, and made with a sort of dome or cieling at the top.

BOWER, *Lady's*, in *Botany*. See VIRGIN's Bower.

BOWET, or **BOWESS**, among *Falconers*, denotes a young hawk when she draws things out of her nest, and covets to clamber on the boughs.

BOWGE of court. See BOUCHE of Court.

BOWL, denotes either a ball of wood for the use of BOWLING; or a vessel of capacity for holding liquors.

BOWL-wassel. See WASSEL-Bowl.

BOWLDER-stones, a species of small stones, of an indeterminate texture and figure, generally roundish, found on the shores of the sea and banks of rivers.

Boulders, or *boulder-stones*, are only lumps and fragments of stones or marble, broken from the adjacent cliffs, and rounded by being bowled, and tumbling to and again by the action of the water; whence the name *boulder-stones*, as being formed by an action like that of a bowl; and thereby reduced to the shape of one.

Neither the *boulders* nor rubble-stones, are ever invested with

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with an exterior strong crust or skin: it is plain from the manner of their formation they cannot. This is one mark by which they are distinguished from flints, pebbles, or the other native nodules, which were formed before the subsid- ing of the matter of the *strata*, and are always covered with such a crust or skin, unless it has been worn off.

BOWLING, or **Bow-line**, in *Sea Language*, a rope fasten- ed to the middle of the leech, or perpendicular edge of the square sails of a ship, serving to make the sail stand sharper or closer by a wind.

The *bow-line* is fastened by two, three, or four ropes, called bridles, like a crow's foot, to as many parts of the sail; only the *mizen-bow-line* is fastened to the lower end of the yard.

The *bow-line* belongs to all sails, except the sprit-sail, and sprit-top-sail; where it is omitted for want of room to hale it forwards by; and thence it is, that those sails cannot be used close by a wind.

The ancients appear to have been acquainted with the use of the *bow-line*, which is the reason they always failed be- fore the wind.

By means of this rope, a sail may be drawn away, and the wind, when received sideways, prevented from swelling it too much, which would hinder the ship's run instead of forwarding it: it also serves to hinder the wind from escaping or blowing by on the side they are drawn on.

The phrases peculiar to this rope are; *sharp the bow-line*; i. e. hale it taught, or pull it hard; *hale up the bow-line*, i. e. pull it harder forward on; *check, ease, or run up the bow-line*; i. e. let it be more slack.

Bow-line-bridles, are the ropes by which the *bow-line* is fastened to the leech of the sail.

Bow-line-knot, denotes a knot that will not slip, by which the *bow-line-bridle* is fastened to the crengles.

BOWLING, among *Gamesters*, the act or art of throwing bowls.

Bowling, among us, is chiefly the name of a game or exer- cise, practised either in open places, as *bares* and *bowling- greens*, or in close *bowling-alleys*.

The skill of *bowling* depends much on a knowledge of the ground, and the right choice of a bowl suitable to it: for close alleys the flat bowl; for green swards plain and level, the bowl as round as a ball is preferred.

The terms used in *bowling*, are, to *bowl wide*, which is when the bias does not hold, or is not strong enough; *narrow*, when it is too strong, or holds too much; *finely bowled*, is when the ground is well chosen, and the bowl passes near the block, even though it goes much beyond it; *bowling through*, or *a yard over*, is done in order to move the block: an *over-bowl*, that which goes beyond it; a *bowl laid at hand*, is that put down within the gamester's reach, to be in the way of the next bowler, and hinder his having the advantage of the best ground; *bowling at length*, neither *bowling through* nor short; *a dead length*, a just or exact one; *throwing or flinging*, is discharging a bowl with a strength purposely too great for a length, in order to carry off either the block or some near bowl; *bowl-room*, or *missing-wood*, is when a bowl has free pas- sage, without striking on any other; *get off*, is when a bowl being narrow, is wanted to be wider; *bowl best at block*, that nearest the block; *drawing a cast or bowl*, is to win it by *bowling* nearer, without stirring either the bowl or block; a bowl is said to *rub*, when it meets with some obstacle in the ground which retards its motion, and weakens its force; *it is gone*, when far beyond the block. *Block* signifies a little bowl laid for a mark, also called a *JACK*.

Mark, is a proper *bowling* distance, not under so many yards; and being at least a yard and a half from the edge of the green.

Ground, a bag or handkerchief laid down to mark where a bowl is to go.

Lead, the advantage of throwing the block, and *bowling* first.

Cast, is one best bowl at an end.

End, a hit, or when all the bowls are out.

The *game*, or *up*, is five casts, or best bowls.

OWLING-green, in *Gardening*, a kind of parterre in a grove, laid with fine turf, requiring to be frequently mowed, laid out in compartment of divers figures, with dwarf-trees, and other decorations.

Bowling-greens are of English origin, but have been adopt- ed by the French and Italians, who have them only for ornament; being unacquainted with, or not fancying the exercise, on account of which they were first made in England.

BOWSE, a sea-term, signifying as much as *hale*, or pull to- gether.

Thus, haling upon a tack is called *bowling upon a tack*; and when they would have the men all pull together, they cry, *bowse away*.

B O X

Bowse is chiefly used by the gunners when they hale upon their tackles, to thrust a piece out of a port; in which case they cry, *bowse ho*, i. e. pull more upon the tackle; also when there is occasion to pull more on the tackle than otherwise, they say, *bowse upon the tackle*.

BOWYERS, artificers whose business is to make bows.

In which sense, *bowyers* stand distinguished from fletchers who made arrows.

The *bowyers* company was incorporated in 1620, and con- sists of a master, two wardens, twelve assistants, and thirty on the livery.

BOX, *Buxus*, in *Botany*, the *box-tree*; a genus of the *mo- noecia tetrandria* class of plants, the characters of which are these. It hath male and female flowers on the same plant; the male flowers having a three-leaved, and the female, a four-leaved empalement. The male flowers have two, and the female three, concave petals. The male flowers have four upright stamina, with the rudi- ment of a germen, but no style or stigma; the female flowers have a roundish, blunt, three-cornered germen. The empalement afterward becomes a roundish capsule, shaped like an inverted pottage-pot, opening in three cells, each having two oblong seeds. There are three species; the *box-tree* with oval leaves, the narrow-leaved *box*, and the dwarf, or Dutch *box*.

The two first sorts has been frequently raised from seeds, and constantly produced plants of the same kinds with those from which the seeds were taken. The dwarf *box* will never rise to considerable height with any culture; nor has it been seen to flower, where the plants have been encouraged to grow many years in the greatest luxuriance.

The seasons for planting this are the autumn, and very early in the spring. And the best species for this pur- pose, is the Dwarf Dutch *box*. The edgings of *box* are now only planted on the sides of borders next walls, and not as was sometimes since the fashion, all round bor- ders or fruit-beds, in the middle of gardens, unless they have a gravel-walk between them, in which case it serves to keep the earth of the borders from washing down on the walks in hard rains, and fouling the gravel.

In the last age, it was also a very common practice to plant borders, or edgings, of aromatic herbs, as thyme, savory, hyssop, lavender, and the like; but these are all apt to grow woody, and to be in part, or wholly, de- stroyed in hard winters. Daisies, thrift, or sea-july- flower, and chamomile, are also used by some for this purpose; but they require yearly transplanting, and a great deal of trouble, else they grow out of form; and these are also subject to perish in very hard seasons.

Box is cultivated for the ornament of gardens, chiefly for hedges and borders, the smallness of its leaf making it cut very close and even. Its wood is yellow, hard, close, even, very heavy, and easily taking a polish: whence its use in making musical instruments, combs, spoons, tooth-pick-cases, and other Tunbridge ware. It does not swim in water, nor is it liable to rot, or to be worm eaten; whence its uses for the axle-trees of wheels. It yields a chemical oil and spirit by distillation, of some use in medicine, and its decoction is by some held equal in virtue to *guaiacum*.

Among the ancients, the *box-tree* was consecrated to Cy- bele, because flutes were then made of its wood, as is done to this day. Pitscus imagines it was also sacred to Bacchus, from a passage in Statius, *Cum Bacchia mugit buxus*; but without much foundation, the word *buxus* here only denoting flutes, as being the matter they were usually made of; not that the tree was consecrated to Bacchus.

The honourable Daines Barrington is of opinion, that it is not indigenous in Great Britain. See his paper on this subject, Phil. Trans. vol. lix. N^o 5. an. 1769.

Box-tree, *sand, Hura*, in *Botany*, a genus of the *monocia adelphia* class of plants. Its characters are these: it hath male and female flowers on the same plant; the male flowers have no petals, but a column of stamina, which are joined at bottom into a cylinder. The female flowers have a swelling empalement of one leaf, with one tu- bulous petal; the roundish germen is situated in the bot- tom of the empalement, which after becomes an orbicular ligneous fruit, depressed at top and bottom, having twelve deep furrows, with so many cells, which open at the top with an elasticity, each containing one round flat seed. We know but one species of this ge- nus which grows naturally in the Spanish West Indies. The fruit of this plant, if it remains on until it be fully ripe, will burst in the heat of the day, with an explosion like the report of a pistol; by which the seeds are cast round to a considerable distance; these seeds, when green, vomit and purge, and are supposed to be somewhat akin to the *nux vomica*.

This fruit is by the inhabitants of the West Indies cut open on the side where the footstalk grew, and the seed

care-

Carefully taken out; the shell is used as a standish to contain sand for writing, which gave occasion for the name of *sand-box* tree.

As this plant has ample leaves, which are of a beautiful green colour, it makes an agreeable variety among other tender exotic plants in the stove; for where they are kept warm, and duly refreshed with water, they retain their leaves all the year in verdure. Miller.

Box-tree, AFRICAN, *Myrsine*, a genus of the *pentandria monogynia* class of plants, the corolla of which has five petals; the filaments are joined to the top of the petals; and the capsule is muricated, and contains five cells, with a single seed in each.

Box is also used to denote a case for holding things; of which there are several kinds, as a *salve-box*, *pyxis unguentaria*, that used by surgeons to carry with them.

Box is sometimes also used for a kind of measure, though variable according to the commodity. Thus the *box* of quicksilver contains from one to two hundred weight; of prunellas, about fourteen hundred; of rings for keys, two gross, &c.

Box, *coach*, a place under the coachman's seat, wherein he puts what may be wanted for the service of the coach or horses.

Box, *dice*, a narrow deep cornet, channelled within, wherein the dice are shaken and thrown.

This answers to what the Romans called *fritillus*; whence *crepitantes fritilli*, and, in Seneca, *resonante fritillo*. The same author also uses *concutere fritillum*, figuratively for playing.

Besides the *fritillus*, the Romans, for greater security, had another kind of *dice-box*, called *pyrgus*, and sometimes *turricula*. It was placed immovable in the middle of the table, being perforated or open at both ends, and channelled also within: over the top was put a kind of funnel, into which the dice were cast out of the *fritillus*; whence descending, they fell through the bottom on the table; by which all practising on them with the fingers was effectually prevented. For want of some contrivance of this kind, our sharpers have opportunities of playing divers tricks with the *box*, as palming, topping, flabbing. Hyde. Hist. Nerdilud. § 5. p. 27, 28.

Box-iron, a kind of case wherein the heaters are enclosed for ironing linen.

Box-money, at Hazard, is that which is paid the box-keeper, or him who furnishes the *box* and dice. Betterers have the advantage over casters, as they have no *box-money* to pay, which at long run would beggar the most fortunate player. Hence some gamesters will never cast, to save the expence of *box-money*.

Box of a plough, a name by which the farmers call that cross-piece in the head of the *plough*, through which the spindle of the two wheels passes, and to which are fastened the two crow-staves, serving, by their holes, to regulate the height of the beam, the tow-chain below, the stake which supports the bridle-chain above, and the gallows behind, into which are fixed the wilds with the crooks of iron, for the drawing the whole plough along. This part of the plough is placed cross-wise with the beam, and stands much below it, and not far from the ground.

Box, *strong*, a coffer of iron, or of thick wood, secured with iron plates, and a lock with several bolts, difficult either to be opened or forced; chiefly used for putting money in.

Box, in *Ichthyology*, a name given by some authors to a small fish caught in the Mediterranean, and more usually known by the name of *boops*, from the largeness of its eyes.

Box and needle, in *Navigation*, is the same with the *COMPASS*.

Box of a watch, the outer case or cover.

Box of a wheel, the aperture wherein the axis turns.

Box-galls. See *GALLS of the box*.

Box-puceron. See *GRUB of the box*.

Box-thorn, in *Botany*. See *Box THORN* and *LYCIUM*.

Box-hauling, in *Sea Language*, a particular method of veering a ship, when the swell of the sea renders tacking impracticable. It is performed by putting the helm *a-lee*, to throw the head up to windward, when by the action of the waves on the weather-bow, it falls off or turns to leeward; the after-sails are at this time diminished, that they may not prevent the ship from turning: but they are again extended as soon as the ship, in veering, brings the wind on the opposite quarter, in order to assist her motion of wheeling. See *VEERING*.

Boxes in a play-house, are little apartments behind and aside of the pit. We say, the *front-boxes*, the *stage-boxes*, &c.

BOXERS, a kind of *athletæ*, who combat or contend for victory with their fists.

Boxers amount to the same with what, among the Romans, were called *pugiles*.

The strange disfigurements these *boxers* underwent were such, that frequently they could not be known, and ren-

dered them the object of many raileries. In the Greek anthology, there are four epigrams of the poet Lucilius; and one of Lucian, wherein their disfigurements are pleasantly enough exposed. Anthol. Græc. lib. ii. Ep. 1, 2, 3, 10, 14.

BOXING, the exercise of fighting with the fists, either naked, or with a stone or leaden ball grasped in them: In which sense, *boxing* coincides with the *pugillatus* of the Romans; and what, on our amphitheatres, is sometimes called *trial of manhood*.

When the champions had *σφαίραι*, or balls, whether of lead or stone, it was properly denominated *σφαίρομαχία*; Potter. Arch. Græc. lib. ii. cap. 21. vol. i.

The ancient *boxing* differed from the *pugna cæstruum*, in which the combatants had leathern thongs on their hands, and balls to offend their antagonists; though this distinction is frequently overlooked, and fighting with the *cæstrus* ranked as a part of the business of *pugiles*.

We may distinguish three species of *boxing*; viz. where both the head and hands were naked; where the hands were armed and the head naked; and where the head was covered with a kind of cap called *AMPHOTIDES*, and the hands also furnished with the *cæstrus*.

Boxing is an ancient exercise, having been in use in the heroic times, before the invention of iron or weapons.

Those who prepared themselves for it, used all the means that could be contrived to render themselves fat and fleshy, that they might be better able to endure blows: whence corpulent men or women were usually called *pugiles*, according to Terence: *Siqua est habitior paulo, pugilem esse aiunt*. M. Burette has given the history of the ancient pugilate, or *boxing*, with great exactness. Mem. Acad. Inscript. tom. iv. p. 353, &c.

BOXING, among *Sailors*, is used to denote the rehearsing the several points of the compass in their proper order.

Boxing likewise denotes an operation performed, by laying the head sails aback, in order to receive the wind in a direction perpendicular to their surfaces, that the ship's head may hereby be thrown back into the line of her course, after she had inclined to windward of it by neglect of the helmsman, or otherwise. Falcon. Mar. Dict.

BOXING is also used for the tapping of a tree, to make it yield its juice. See *BLEEDING* and *SAP*.

The *boxing* of maple is performed by making a hole with an ax or chissel into the side of the tree, about a foot from the ground; out of it flows a liquor from which *SUGAR* is made. Phil. Trans. N° 364.

BOXUS, in *Natural History*, a name given by some authors to the common *MISLETOE*.

BOYAR, or *BOIAR*, a term used for a Russian lord, or grandee.

According to Beeman, *boyars* are what, in other countries, are called the upper nobility: he adds, that the czar of Muscovy, in his diplomas, names *boyars* before *WAYWODES*.

BOYAU, in *Fortification*, a branch of the trenches; or a line or cut, which runs from the trenches to cover some spot of ground; being drawn parallel to the defence of the place, that it may not be enfiladed, that is, that the shot from the town may not scour along it.

BOYER, in *Navigation*, a kind of Flemish sloop, or small vessel of burden, having a boltsprit, a castle at each end, and a tall mast; chiefly fit for the navigation of rivers, and, in many of its parts, resembling a *SMACK*.

The *boyer* has a double bottom, and a forked mast, that it may run better with the bowling-line, without driving.

BOYES, an order of American priests, or magicians, used by the savages for calling up their gods, either to be revenged on those who have done them any injury, or to be cured of some disease, wherewith they are infected, or to drive out some devil.

They are also consulted with regard to the event of their wars. Each *boye* has his peculiar duty: who is invoked by certain forms of words, sung in a quaint tone, accompanied with the fumes of tobacco.

BOYEUPECANGA, in *Zoology*, the name of a very large serpent, distinguished by this name on account of certain prominences on its back. It is a very large and remarkably thick serpent, and of very fatal poison. Ray.

BOYLE's Lectures, a course of eight sermons or lectures, preached annually, set on foot by the honourable Robert Boyle, esq. by a codicil annexed to his will in 1691; whose design, as expressed by the institutor, is, to prove the truth of the Christian religion against infidels, without descending to any controversies among Christians; and to answer new difficulties, scruples, &c.

For the support of this lecture, he assigned the rent of his house in Crooked-lane, to some learned divine within the bills of mortality, to be elected for a term not exceeding three years, by the late archbishop Tennison, and others. But the fund proving precarious, the said archbishop procured a yearly stipend of 50 pounds, for ever, to be paid quarterly; charged on a farm in the parish of Brill, in the county of Bucks.

To this appointment we are indebted for many elaborate defences both of natural and revealed religion.

BOYLING. See BOILING and EBULLITION.

BOYUNA, in *Zoology*, the name of an American species of serpent. It is very long and slender, and all over of a black colour. It has exactly the smell of a fox, but so strong that no body can endure to be near it. Ray.

BRABANCIONES, in *Middle Age Writers*, a kind of Netherland soldiery, infamous for rapine, being little better than commissioned *banditti*, who hired themselves to fight for any that could pay them best.

The word is variously written by the historians of those days; all given them from the country of Brabant, which was the chief nursery of those troops. They are also frequently confounded with the *Routiers*, *Roturiers*, *Rup-tarii*, *Ruterarii*, *Coteraux*, &c. Daniel. Hist. de la Mil. Franc. liv. iii. chap. 8.

BRABE, an herb mention by Oribasius; the description he gives of which is, that it grows a cubit high, shooting forth branches on each side, with leaves resembling those of the *lepidium* in shape, but softer and whiter, and at the top bearing an umbel of flowers like the elder.

BRABEJUM, in *Botany*, *African almond*, a genus of the *tetrandria monogynia* class of plants. Its characters are these: the flower is composed of four narrow obtuse petals, which are erect, and hath four slender stamina; in the centre is a small hairy germen, which afterwards becomes an oval, hairy, dry berry, enclosing an oval nut. We have but one species of this plant, which is a native of the country about the Cape of Good Hope.

In Europe it seldom grows above eight or nine feet high; but in its native soil, it is a tree of a middling growth: as it is too tender to live through the winter in the open air, so we cannot expect to see it grow to a great size.

BRABEUTES, or BRABEUTA, in *Antiquity*, an officer who presided at the public games, and decreed the prizes to the victors.

The word is formed from *βραβετον*, prize or reward.

The Latins called him *designator* and *munerarius*.

The generality of writers confound the *brabeutes* with the *AGONOTHEA*, between whom there however appears to have been this difference, that the former presided at the gymnastic combats, the latter at the sacred ones.

BRACE, in *Writing*, a term used to signify a certain crooked stroke or figure of a pen, made at the end of two or more lines in an account, which express two or more articles charged with one and the same sum at the end, which is usually placed in the centre of the *brace*.

Debts due to me, some of which are good, others dubious.

Good Debts.

Bad Debts.

From Mr. James* 300	} 500	From Mr. John** 400	} 900
From Mr. Peter* 200		From Mr. Nicolas* 500	

BRACE is commonly taken for a couple, or pair; and in this sense is applied by huntsmen to several beasts of game; as a brace of bucks, foxes, hares, &c.—They also say, a brace of greyhounds.

BRACE, in *Architecture*, denotes a piece of timber framed in with bevel-joints; serving to keep the building from swerving either way.

When a brace is framed into a king-piece, or principal rafter, it is called by some a *strut*.

BRACE, BRACCHIO, or BRASSE, also denotes a foreign long measure, answering to our FATHOM.

BRACE is also used for a measure taken from the length of the arm when extended; and is used in divers cities of Italy, in lieu of the foot or yard. Its length is various; the *brace* of Bergamo, according to Scamozzi, is nineteen Paris royal inches, and a half; according to M. Petit, sixteen inches two-thirds; the *brace* of Bologna is fourteen inches; that of Bresse, seventeen inches seven lines and a half, according to Scamozzi; and according to M. Petit, seventeen inches five lines; the Mantuan *brace* is seventeen inches four lines; that of Milan, twenty-two inches; those of Parma, twenty inches one third; of Sienna, twenty-one inches two thirds; of Florence, twenty inches two thirds, according to Maggi; twenty-one inches four lines and a half, according to Lorini; twenty-two inches two thirds, according to Scamozzi, and twenty-one inches one third, according to Picart.

BRACED, in *Heraldry*, is used in speaking of chevrons which are intermingled. He bears azure a chief or, and three chevrons *braced*, in the base of the escutcheon, by the name of *Fitz-Hugh*.—See *Tab. Herald. fig. 17*.

BRACELET, an ornament usually worn round the wrist. The word is French, *bracelet*; which Menage derives further from *braceletum*, a diminutive of *bracile*, a word occurring in writers of the Justinian age; all formed from the Latin *brachium*, arm.

Bracelet amounts to the same with what was called by the ancients, *armilla*, *brachiale*, *occabus*; in the middle age, *boga*, *bauga*, *armispatha*.

Among the ancient Romans, the men as well as the women, wore *bracelets*; but the latter, it is to be observed, never wore them till they were betrothed.

Bracelets were at first properly military ornaments or rewards, frequently conferred among the ancients, by generals and princes, on those who behaved gallantly in fight. They became afterwards arbitrary decorations, assumed at pleasure; and are sometimes said to have been worn for health as well as ornament; and particularly as AMULETS, to break the force of charms and fascinations. Among the Romans we meet with divers species and denominations of *bracelets*; as the *brachiale*, which covered the whole length of the arm; the *dextrale*, or *dextrobrachium*, only the wrist, and that only of the right arm; *viria*, or *viriola*, peculiar to the male sex; *spinther*, to the women, being worn on the left arm; *verua*, used as an AMULET; *amphidion*, worn either on the arm or about the neck; *calbeum*, or *galbeum*, worn by generals in their triumphs. Pitisc. Lex. Ant. tom. i. & ii. Du-Cange. Gloss. Lat. tom. i. & ii. Kennet. Rom. Ant. Not. P. II. lib. iv. cap. 16.

Bartholin has a treatise on the *bracelets* of the ancients. The northern people used also to swear on their *bracelets*, to render contracts more inviolable.

Bracelets are still much used by the savages of Africa and America, made of metal, glass-beads, shells, and the like.

BRACELET is also used, in *Anatomy*, to denote the circular ligament which invests the *carpus*, called also *ligamentum annulare*.

BRACELETS, in some *Ancient Law Books*, denote beagles, or hounds of the smaller kind.

BRACES, in the *Sea Language*, are ropes belonging to all the yards of a ship, except the mizen, two to each yard, except those of the top-gallant and sprit-sail-top-sail yards: being reeved through blocks fastened to pendants seized to the yard arms.—See *Tab. Ship. fig. 1. n. 11. 21. 50. 68. 89. 11. 130. 139*.

The use of *braces* is, to square the yard; that is, to set it square.—Hence, to brace the yard, is to bring it to either side. To traverse the yard, is to set it any way overthwart.—To right the yard, is to bring it so as it may stand at right angles with the length of the ship.

All *braces* come aftward on; the main *brace* comes to the poop, the main-top-sail *brace* to the mizen-top, and thence to the main-shrouds; the fore and fore-top-sail *braces* come down by the main and main-top-sail stays, and so of the rest.

The mizen-bowline serves for a brace to that yard; and the cross-jack *braces* are brought forward to the main-shrouds, whenever a ship sails close by a wind.

BRACHERIUM, or BRACHERIOLUM, a kind of steel-bandage worn about the hips, and used for the retention and cure of ruptures. Du-Cange Gloss. Lat.

BRACHIÆUS, or BRACHIALIS, a name given to two muscles of the arm, the one external, the other internal. *Brachiaeus* is a name given by Spigelius and others to a muscle of the arm, now geneally known under the name of *brachialis*, or *brachiaeus internus*.

BRACHIÆUS externus arises about the middle and posterior parts of the *humerus*. It joins its fibres with the *musculus longus* and *brevis*; and being externally tendinous, they, together, cover all the elbow, and are inserted into the *olecranon*.—See *Tab. Anat. (Myol.) fig. 7. n. 12*. ANCONÆUS externus, and sometime the *internus*, is called by this name.

BRACHIÆUS internus lies partly under the *biceps*; it rises by a fleshy beginning from the middle and internal part of the *humerus*; and is inserted into the upper and fore-part of the *cubitus*, by a very short, but strong tendon: it serves to bend the arm.—See *Tab. Anat. (Myol.) fig. 1. n. 25. fig. 2. n. 14. fig. 7. n. 11*.

The upper part of this muscle is forked, or sloped, and, at the bending of the joint of the elbow, the lower part of it contracts. It is fixed to the surface of the *os humeri* by a great number of fleshy fibres, from the lower insertion of the *deltoides* almost down to the two *fossæ* at the lower extremity of the bone, and from one edge of the fore-side of this lower extremity to the other. The fibres are for the most part longitudinal; those nearest the surface of the muscle being longest, the more internal grow gradually shorter.

The lateral fibres are a little oblique, and this obliquity increases as they descend lower. These lateral fibres are partly fixed in the intermuscular ligaments of the *os humeri*; of which ligaments, that which lies toward the internal condyle is longer and broader than that toward the external. The lowest of these fibres are very oblique, and form on each side a kind of small separate *fasciculus*. In passing over the joint, all these fibres contract in breadth, and afterwards end in a strong flat tendon, inserted in the muscular impression, which is directly below the *coronoide apophysis* of the *ulna*.

The sloped or forked extremity of this muscle embraces the large tendon of the *deltoides*; the internal part of the

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fork meets the inferior insertion of the *coraco-brachialis*, and the foreside of the whole muscle is covered by the two fleshy bodies of the *biceps*. Winslow.

BRACHIAL *nerves*. See NERVE.

BRACHIALIS, *coraco*. See CORACO-BRACHIALIS.

BRACHIONUS, in *Zoology*, the name of a genus of ANIMALCULES of the ARTHRODIA kind, containing all the WHEEL animals.

BRACHITÆ, a branch of MANICHEES, who appeared in the third century.

BRACHIUM, in *Anatomy*. See ARM, and HUMERUS.

BRACHIUM, the *arm*, in *Botany*, is the tenth degree in the Linnæan scale for measuring plants, being twenty-four Paris inches.

BRACHIUM *moventium secundus*, in *Anatomy*, a name given by Vesalius, and other of the old writers, to the muscle now generally called *deltoides*.

BRACHIUM *movens quartus*, in *Anatomy*, the name by which Vesalius calls the muscle now generally known under the name of *latissimus dorsi*. Fallopius, and many others, have also called it *quartus humeri*.

BRACHII *tertius*, in *Anatomy*, a name given Vesalius and others to a muscle since called, from its shape, *teres major*, and *rotundus major*.

BRACHMANS, a branch of the ancient gymnosophists, or philosophers of India, remarkable for the severity of their lives and manners.

The Greeks usually give them the name *gymnosophists*; though Clemens, Porphyry, &c. make the *brachmans* only a branch of the gymnosophists, whom they divide into two sects, *Brachmanes*, and *Samanæi*.

There are some in the Indies who still bear the name, and live in the same manner as the ancient *brachmans*: the Portuguese call them *bramanes*, or *bramenes*; we usually, *bramins*.

Some say, they derive their name from the patriarch Abraham, whom, in their language, they call *bachma*, or *brama*. Others deduce it from the name of their God, *Brachma*; which some again take to be the same with Abraham; whence Postel calls them *abrachmanes*. F. Thomassin derives the word from the Hebrew *barach*, to *fly* or *escape*; because the *brachmans* retire into the country, and live in deserts. The same author gives us another derivation, viz. from the Hebrew *barach*, *benedicere*, or *orare*, to *bless*, *pray*; because this is their principal occupation.

Porphyry observes that the ancient *brachmans* succeeded into the order, by right of family; whereas the *Samanæans* were elected into it: the former therefore were all of the same family, the latter of various.

The *brachmans* were perfectly at liberty, paid no taxes, nor were under the command of any person: they lived on herbs, pulse, and fruits; abstaining from all animals, and thinking it an impiety to touch them. The greatest part of the day and night they spent in singing hymns in honour of the deity; praying and fasting continually. The greatest part of them lived in solitude, without marrying, or possessing any estates. There was nothing they appeared to wish for so earnestly as death; looking on life as a burthen some thing, and waiting with impatience for the separation of their soul and body. This is the account Porphyry gives them.

Kircher observes, that the *brachmans* held the opinion of Pythagoras, relating to the soul and its transmigration; and led a life in all respects agreeable to his: or rather, it was from the *brachmans*, that Pythagoras borrowed his opinions, his manner of living, &c.

The modern *brachmans* are the successors of the ancient, and the priests or divines of the idolatrous Indians.

Rogers distinguishes six sorts of them; the *Weistnowa*, the *Seivia*, the *Smaerta*, the *Schaerwaecka*, the *Pasenda*, and the *Tscheetca*.

These are much conversant in astrology and astronomy. They have so great a veneration for cows, that it is said, they look on themselves as blessed, if they can but die with the tail of one of them in their hand. They sometimes make a procession of four hundred leagues, drawing after them whole cities and towns; feeding the people, when stopped at the passage of rivers overflowed, in a manner which is said to be miraculous; by giving them every thing they desire, without making any provision.

Mr. Marshall observes, that whenever they write any thing, they put a figure of 1 in the first place; to shew, as they say, that they acknowledge but ONE GOD. They account the world the body of God, the highest heavens his head, the fire his mouth, the air his breath, the water his seed, and the earth his legs and feet. They maintain a pre-existent state; and, from that, account for the tempers and manners of men in this: they also maintain the *metempsychosis*, but in a grosser sense than Pythagoras; believing that the souls of ill-men pass into reptiles, insects, and vegetables, for their punishment and purgation.—They compute the world to be about

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3892850 years old; and seem to have some obscure traditions of the Mosaic paradise, Adam, Eve, and the deluge. They have also a notion of God's being incarnate, and living some time among men.

Their religion consists in leading a pure life, washing away their sins in the river Ganges, muttering over divers prayers, and doing strange and incredible penances.—They burn their dead with much ceremony; and strewing the ashes on the place where the deceased first lay after his death, they judge from some figure or impressions pretended to be made on it, into what body his soul is gone; viz. if the impression of the foot of a dog or ox, &c. appear, they give out he is transmigrated into one of those animals; if there be no impression, he is then gone to the starry region.

They have also abundance of cabbalistic notions; v. g. say they, if the numbers 28,35,2,7—6,3,32,31—34,29,8,1,—4,5,30,33 be written in the same order in the squares of a square figure, and your enemy's name written under it, while you wear it, he cannot hurt you, &c. Phil. Trans. N^o 268.

The *brachmans* of Indostan have a language peculiar to themselves, which they call *hanscrit*; in which they have several ancient books, written, as is alledged, by their great prophet *Brahma*; as the *shastram*, which is their bible, and *porane*, a history which they esteemed sacred, and pretend to have been dictated by God himself.

The *brachmans* of Siam and Coromandel maintain, that the earth will be destroyed by fire; and the former assert, that another will arise out of its ashes, in which there shall be no sea, nor any change of seasons, but an eternal spring; and the latter maintain a plurality of worlds, which are alternately destroyed and renewed.

Robert de Nobili, an Italian Jesuit, and one of the Indian missionaries, in the beginning of the seventeenth century, in order to secure success to his mission, assumed the title and appearance of a *brachman*, and at length persuaded the credulous people, that he was, in reality, a member of that venerable order. He forged a deed in the ancient Indian characters, shewing that the *brachmans* of Rome were older than those of India, and that the Jesuits of Rome descended in a direct line, from the god *Brahma*. He farther declared on oath, that he derived his origin from this Indian deity. By this imposture he proselyted twelve eminent *brachmans*, whose influence proved very favourable to his mission. After his death, the Portuguese Jesuits carried on the imposture with very considerable success. These missions however, were suspended and abandoned, in consequence of a papal mandate, issued out in the year 1744, by Benedict XIV. who declared his disapprobation of the artifices that had been used in the conversion of the Indians. Mosheim's Eccles. Hist. vol. iv. p. 211, &c. 8vo. edit.

The modern *brachmans* own a Supreme Being, who created *Brahma*, and gave him a power to create the world. They have also their subaltern deities, their pagods or temples, and idols, whom they fan to defend from flies, dancing before them, &c.

They hold a feast in honour of the sun, considered as the source of heat and light, whereby all nature is fecundified.

BRACHURI, in *Zoology*, a name given by Dr. Hill to a genus of ANIMALCULES of the tailed kind.

These *animalcules* are of a roundish figure, with tails shorter than their bodies; their skin is perfectly smooth, thin, and colourless. They are frequent in water-ponds, in pepper-water, and many other infusions of vegetable substances.

BRACHYCOLON, from *βραχυς*, *short*, and *κλον*, *member*, is when one member of a period is shorter than another.

In which sense, the word stands contradistinguished from *isocolon*, where the members are equal, or consist of the same number of syllables.

BRACHYGRAPHY, (from *βραχυς*, *short*, and *γραφω*, *scribo*, I write) denotes the art of short-hand writing, called also TACHYGRAPHY.

BRACHYLOGY, from *βραχυς* and *λογος*, *expression*, in *Rhetoric*, BREVITY, the expressing any thing in the most concise manner. This, so far as consistent with perspicuity, is a virtue and beauty of style; but if obscurity be the consequence, which is often the case, it becomes a blemish and inexcusable defect.

Quintilian gives us an instance of *brachylogy* from Sallust: *Mithridates corpore ingenti perinde armatus*; Mithridates, as it were armed with the hugeness of his stature. Inst. Or. lib. viii. cap. 3.

BRACHYPOTÆ, or BRACHYPOTI, from *βραχυς* and *ποτος*, *drinker*, those who drink but little and at long intervals.

The word sometimes also signifies those who drink seldom, though in greater quantity.

BRACHYPTERA, in *Ornithology*, the name of a genus of birds,

birds, of the class of the hawks, distinguished by the shortness of their wings.

The word is derived from *βραχυς*, *short*, and *πτερον*, a *wing*.

The hawks of this genus have their wings so short, that, when folded, they do not nearly reach to the end of the tail. Of this genus are the goshawk, the sparrowhawk, and the three kinds of the butcher-bird. Willughby, *Ornith.* p. 36.

BRACHYPYRENIA, from *βραχυς* and *πυρην*, *nucleus*, in *Natural History*, a genus of fossils of the class of *SEPTARIÆ*.

The *brachypyrenia* have a short roundish *nucleus*, inclosed by and contained within the body of the mass.

BRACHYTELOSTYLA, in *Natural History*, the name of a genus of crystals.

The word is derived from *βραχυς*, *short*, *τελειος*, *perfect*, and *στυλος*, a *column*, and expresses a perfect crystal, with a short intermediate column.

The bodies of this genus are crystals composed of a short hexangular column, terminated at each end by an hexangular pyramid. Of this genus there are six known species. Hill's *Hist. Fossils*, p. 163.

BRACKET, in *Building*, denotes a kind of wooden stay, in form of a knee or shoulder, serving for the support of shelves, &c. or a cramping iron, which serves as a stay in timber-work.

The word is also written *braget*, and seems derived from the Italian *brachetto*, a diminutive of *braccio*, *arm*.

MODILLIONS are a sort of *brackets* to the *corona* of an entablature.

BRACKETS, in *Artillery*. See *CHEEKS of a Mortar*.

BRACKETS, in a ship, are small knees usually carved, and serving to support the *GALLERY*.

The timbers which support the gratings in the heads, are also called *brackets*. See *CHEEKS*.

BRACTEA, a thin flake or spangle of any substance; it is used by many authors in the same sense with the word *lamina*, but usually in a sort of diminutive sense, expressing a small plate.

BRACTEA, in *Botany*, denotes the floral leaf.

BRACTEARIA, in *Natural History*, the name of a genus of fossils of the talc class; the characters of which are, that they are composed of small plates in form of spangles, and each of these, naturally very thin or fissile, into very thin ones.

The word is derived from the Latin *bractea*, a *spangle*, or small and thin glittering particle of any thing.

There are many species of this genus denominated from the variety of their colours; as *MICA aurea*, or gold-glimmer, and *MICA argentea*, silver-glimmer, cat's-silver, &c.

BRACTEATED, among *Antiquaries*, denotes a coin covered over with a thin plate, or leaf of some richer metal. See *MEDAL*.

Bracteated coins, or medals, *nummi bracteati*, are usually made of iron, copper, or brass, plated over, and edged with gold or silver-leaf, and then stamped with the hammer or mill.

Medalists find some *bracteated* pieces even among the truly ancient coins. The French call them *fourrées*.

BRADS, a slender kind of *NAIL*, used in building, having no spreading heads as other nails have.

Of these, some are called *joiners brads*, and are for hard wainscots; others *batten-brads*, for soft wainscot; and some *bill-brads*, or *quarter-heads*, used when a floor is laid in haste or for shallow joists subject to warp to.

BRADYPEPSIA, from *βραδύς*, *slow*, and *πενω*, *I digest*, in the *Medical Writings of the Ancients*, the name of a distemper, which consisted in a slow, weak, and languid concoction of the food.

It is caused by a diminution of the force or heat of the stomach, or a defect in the gastric liquors. See *DIGESTION*.

BRADYPUS, in *Zoology*, the name given to a genus of quadrupeds of the order of Linnæus, called *ANTHROPOMORPHA*, otherwise termed *ignavus*, and in English the *SLOTH*. Its characters are, a mouth without fore-teeth, the canine teeth are obtuse and longer than the grinders, of which there are five on each side; the body is covered with hair; the feet have no great toe, and are made for climbing; and only two paps upon the breast. Of this genus there are known two species; the one is called the American *SLOTH*, with a short tail, and three toes on each foot; the other is named the Ceylon *SLOTH*, with only two toes to each foot, and no tail.

BRAG, a name given to a game at cards, from the nature of it; the principal stake being won by him who *brags* with most confidence and address; i. e. who challenges the other gamesters to produce cards equal to his. In this game a pair of aces is the best *brag*, a pair of kings the next, and so on: and a pair of any sort wins the stake from the most valuable single card. The knave of

clubs pairs with any other card in hand: but a hand of cards of less value in this game has sometimes gained the stake from one of superior value, by the confidence and art of *bragging*: the contest being given up on the part of the latter through fear of losing. One stake is gained by the highest card, that is turned up in dealing, three cards being dealt round to each person and the last turned up; the highest card is the ace of diamonds: the other stake is won by the person, who first makes up the cards in his hands one and thirty; each dignified card passing for ten, and drawing from the pack. Each gamester deposits three stakes, one for each card.

BRAGGOT, a sort of drink made in some parts of England, of malt, with honey, spices, and other ingredients.

It is derived from the old British word *brag*, which signifies *malt*, and *gots*, a *honey-comb*.

BRAILS in a ship, small ropes used in furling the sails across. The *brails* are reeved through blocks, which are seized on either side the ties, a little distance off upon the yard, so that they come down before the sails of a ship, and are fastened at the skirt of the sail to the crenegles.—Their use is, when the sail is furled across, to hale up its bunt, that it may the more readily be taken up, or let fall. See *Tab. Ship. fig. 5. n. 6*.

These *brails* belong only to the two courses and the mizen-sail.

They say, *hale up the brails*, or, which is all one, *brail up the sails*; the meaning of which is, that the sail is to be haled up, in order to be furled, or bound close to the yard.

BRAIN, in a general sense, is that large, soft, whitish mass, inclosed in the *cranium*, or skull; wherein all the organs of sense terminate, and the soul is supposed principally to reside. See *Tab. Anat. (Osteol.) fig. 4. lit. a. a. a. d. d. d. fige 5. lit. a. a. b. b.*

The *brain* is encompassed with two *meninges*, or membranes, called *dura* and *pia mater*.

Its figure is the same with that of the bones that contain it, viz. roundish, oblong, and flat on the sides: it is divided into three principal parts; viz. the *cerebrum*, or *brain strictly so called*, the *CEREBELLUM*, and the *MEDULLA OBLONGATA*; to which some add a fourth, viz. the *MEDULLA spinalis*, which is a continuation of the latter.

BRAIN, in a more proper sense, is that large globulous part which fills the fore and upper part of the skull.

It is divided by a duplicature of the *dura mater*, called from its figure *falx*, into two equal parts, called *right* and *left hemispheres*; though the figure of the *brain* be pretty far from a sphere; and these parts are more like quarters of an oblong spheroid. It is also separated from the *CEREBELLUM* by another duplicature of the same *dura mater*.

It consists of two kinds of substance; the one cineritious, or ash-coloured, soft and moist; which, being the exterior, is also called the *cortex*, or *CORTICAL* part of the *brain*: the thickness of this is about half an inch, though by reason of the sinuses and futures in the *brain* it appears more.—The other, or inner substance, is white, more solid, as well as more dry than the *cortex*, and is called the *marrow* or *medullary*, and sometimes the *fibrous* part, in contradistinction to the other, which is also called the *glandulous* part.

The *cortex*, according to Malpighi, is formed from the minute branches of the carotid and vertebral arteries; which, being woven together in the *pia mater*, send from each point thereof, as from a basis, little branches, which, being twisted together into the form of a gland, inclose the *medulla*, ordinarily to the thickness of half an inch; but in some places make deeper sinuses and furrows within it. These branches make circulations like the intestines; each of which may be resolved into others, like, but less than the first.

This part, therefore, most authors take to be glandulous; or an assemblage of innumerable minute glands, contiguous to each other, destined for the secretion of animal spirits from the blood, brought hither by the carotids, &c. These glandules, Malpighi observes, are of themselves oval, but by their mutual compressure they become angular; and run waving within each other: several of these connected form others larger, and these again unite into others, from the aggregate whereof are formed tubes, of which the outer *cortex* is composed. These little glands consist of the branches of the arteries which bring the blood; of the veins arising at their extremities, which carry it back again; of secretory tubes secreting the animal spirits, and of excretory ducts for discharging them into the *medulla*: though these are too minute to have ever been seen.

The inner, or medullary part of the *brain*, consists of a number of infinitely fine fibres, arising from the least and minutest branches or filaments of the glands of the

cortex; as is distinctly seen in the CEREBELLUM, though scarce visible in the cerebrum: these receive the fluid separated and subtilized, from the glands of the *cortex*, and by means of the nerves, which are no more than productions of this part, distribute it all over the body. Authors here, however, are divided; the generality, with Malpighi, making the substance of the *cortex* glandulous, as above; others, with Ruysch and Lewenhoeck, deny any thing like glands in it; and allow nothing but little *cryptæ*, or sinks opening laterally to the arteries; and thence receiving a juice already secreted from the blood, and transmitting it to the MEDULLA. This doctrine, it seems, is the result, of anatomical injections, and microscopical observations; but the other, appearing the most consistent with the œconomy of nature in other things, is generally adhered to.

The *cortex* covers the whole medullary substance both of the brain and CEREBELLUM; so that wherever the cortical substance ends, there the medullary commences; and this in the appendices, ventricles, interstices, and sinuses of the MEDULLA, as well as in the external surface. Something medullary, therefore, arises from every point or the *cortex*; at its first rise, it must needs be exceedingly fine and slender: but, being joined with other parts of the same kind, it gradually thickens, and at length becoming sensible, constitutes the *medulla cerebri*; the *corpus callosum*, the MEDULLA *oblongata*; and its *crura*, the *thalami* of the optic nerves, the MEDULLA *cerebelli*, and its production into the MEDULLA *oblongata*; which, with these additions forms the *corpora pyramidalia* and *olivaria*, and is extended into the spinal marrow. And from the same medullary substance, both in the *cranium*, and in the case formed by the union of the *vertebræ*, arise all the nerves.

Though the primary *fibrillæ*, or filaments, when united, seemed to form one compact body or mass; yet Boerhaave shews, they are really distinct and separate from each other: that thus arising from each part of the *cortex*, and tending, as it were, to the centre of the sphere, they first form the *medulla*; that others, reflected hence and collected above, form the *corpus callosum* and *forix*; and below, form the *corpus callosum* and legs, of the MEDULLA *oblongata*; that the like *fibrillæ*, arising from the CEREBELLUM, join with them: the result of which juncture is the MEDULLA *spinalis*. And lastly, that the like *fibrillæ* arising from the *cortex*, continued within the cavities of the MEDULLA, join with them, and add fresh consistence to them.

Hence we see the reason of the bulk, figure, and position of the *cortex* of the brain, as well as the use and necessity of the cavities called *ventricles* of the brain: of these ventricles there are four; one in each hemisphere, separated by a thin transparent substance, running all along from the FORNIX under the *corpus callosum*, and distinguished by the name of the *septum lucidum*: these two are called the *lateral ventricles*.

The third is under the FORNIX, and called *rima*: the fourth between the CEREBELLUM and MEDULLA *oblongata*.

From the whole, it appears past doubt, that the fibres of the brain are exceedingly minute canals; that they receive an humour, infinitely the most subtle, fluid, and moveable, of any of the whole body; prepared and secreted by the artful structure of the *cortex*, driven into these tubules by the force of the heart, and from every part hereof collected into the MEDULLA *oblongata*. And this is what some call *animal spirits*, others the *nervous juice*: the great instrument of sensation muscular, motion, &c.

In the space between the two hemispheres of the brain, under the *falx*, or rather under the longitudinal sinus of the *dura mater*, is a white substance, of a texture more compact than the rest of the *medulla* of the brain; and for that reason called *corpus callosum*; which runs along the whole tract of the *falx*, and receives from each side the terminations of the MEDULLA, interspersed between the several windings of the *cortex*, and supposed by some to be a kind of base or support to it. The manner wherein this is formed is shewn above: we shall only add, that, on occasion thereof, some authors, M. Astruc for instance, instead of two substances, viz. the CORTEX and MEDULLA, divide the brain into three; viz. the uppermost, or *cineritious*, which constitutes the *cortex*; the middle, which is whiter and denser than the first, and therefore called the *callous*; and the lowest and inmost, which being intermixed with *radii* or *striæ* of the white and cineritious substance, he calls the *striated part*: Astruc adds, that the fluid secreted in the *cortex* is conveyed into innumerable minute hollow medullary *fibrillæ*, of the same nature with the callous substance, and contiguous thereto. This middle, or callous part he observes, is not distinguished by any appearance of fibres, but is uniform, homogeneous, elastic, and not

unlike the pith of the elder-tree: for which reason, he thinks it may be probably conjectured to consist of innumerable cells, communicating with each other; divided by the interposition of membranaceous, flexible, elastic, vibrative parietes or columns; which being flowed over by the spirits, and continually exposed to the shakings thereof, constitute the fibres of the brain.

Now the secreted fluid flowing equally from each point of the cineritious substance into the callous; must equally fill and distend the cells thereof: and lest any place should want its share, provision is made for a strict communication; not only by the apertures of the cells into each other; but also by the structure of the brain; the upper part communicating with the under, by the *septum lucidum*: the lateral with the lateral, by the *lata commissura*; lastly, the fore-parts with the hind-parts, by the *crura*, *brachia*, and roots of the *forix*. These cells, he continues, being filled, the spirits will proceed to the contiguous *striæ* of the medullary substance; which, arising from the *cortex*, compose the striated part of the brain: and these *striæ* rendered narrower and slenderer, and passing without the surface of the brain, constitute the first principles of the nerves, &c.

The other parts of the brain are the FORNIX, a production of the MEDULLA: which, at its extremity next the CEREBELLUM, sends out two processes or legs, by whose juncture is formed a kind of arch, thence called *forix*, which separates the third ventricle from the two upper ones. At the bottom of the *forix* are two holes, by which the third ventricle has a communication with the others; that before is called *vulva*, and that behind *anus*. The third ventricle, or *rima*, which is in the MEDULLA *oblongata*, has likewise two apertures; the one the orifice of the *infundibulum*, or funnel, which is a canal reaching to the *glandula pituitaria*: the other is a duct, whereby the third ventricle communicates with the fourth in the MEDULLA *oblongata*, under the CEREBELLUM. That fourth ventricle is in the form of a quill, whence it is sometimes called *calamus scriptorius*.

In the lateral ventricles are found the *plexus choroides*, which is an assemblage of minute veins and arteries; and four eminences, the first the *corpora striata*, the others the *thalami nervorum opticorum*.

At the entrance of the canal reaching from the third ventricle to the fourth, is situated the *pineal gland*; so called from the figure of a pine-apple, which it resembles: this gland Des Cartes, supposes to be the seat of the soul. Behind the pineal gland are four eminences; two upper and greater, called *NATES*; and two smaller and lower, called *TESTES*. See MEDULLA *oblongata*; to which all these parts properly belong.

The vessels of the brain are nerves, arteries, and veins. By turning up the brain, the origin of the nerves proceeding from it is distinctly seen: these are in number ten pair, viz. the olfactory, optic, movers of the eyes, pathetic; the fifth pair, called *nervi innominati*, or *trigemini*, and sixth pair, called also the *motores oculorum externi*, or *oculares externi*, the auditory nerves, *PARVAGUM*, and the ninth pair. See NERVE.

The blood-vessels of the brain are the two internal carotid, and the vertebral arteries. The first, piercing the *dura mater*, communicate with the cervicals, and proceeding thence send a branch to the *plexus choroides*; till arriving at the *pia mater*, and making several turns and circumvolutions thereon, they terminate, at last, in the little glands that constitute the *cortex*. The vertebral arteries, passing the *dura mater*, go along the under side of the MEDULLA *oblongata*; till giving branches to the spinal arteries, they join in one branch called the cervical artery, which communicates with the *carotides* by two branches, as before. The veins of the brain do not run along by the sides of the arteries, as in other parts of the body, but rise from their extremities in the *cortex*; whence they discharge themselves into the sinus of the *dura mater*.

For the great bulk of the brain, this reason may be assigned; viz. that on account of the exceeding subtilty and fineness of the animal spirits, and the slowness in which their secretion must be effected; together with the great quantity of them required in discharging the animal functions; there must of necessity be an infinite number of glands to separate and prepare them. From the same principle, we see why the brain is much bigger in men than in other animals: and in other animals, why, *cæteris paribus*, it is generally biggest in those which discover the greatest share of sagacity, v. gr. in monkeys; because a considerable stock of animal spirits is to be employed in the affairs of cogitation, memory, &c. Accordingly, anatomists observe, that in fools the brain is smaller (*cæteris paribus*) than in men of sense: this some may account for, by supposing it the cause of the folly; a sufficient stock of spirits being wanting to reason strongly: and others from the œconomy of nature

ture, which proportioned the stock of spirits to the expence that would be required.

From the texture, disposition, and tone of the fibres of the *brain*, philosophers ordinarily account for the phenomena of sensation and imagination. Dr. Astruc goes farther, and from the analogy between the fibres of the *brain*, and those of musical instruments, solves the phenomena of judgment and reasoning, and the defects and perfections of both. He lays it down as an axiom, that every simple idea is produced by the oscillation of one determinate fibre; and every compound idea from contemporary vibrations of several fibres: that the greater or less degree of evidence follows the greater or less force where the fibre oscillates.

He takes occasion to observe, that the fibres of the *brain*, from their natural analogy to those of musical instruments, may be perverted several ways; viz. by being rendered too dry or too moist, too stiff or too lax, &c. In a phrensy, he thinks the fibres too dry, and too much distended by the heat of the blood, &c. In a *mania*, these fibres he thinks too rigid, as well as too dry and distended. In a lethargy, they are too much softened by phlegm; in idiocy, or foolishness, they are sometimes too soft, and sometimes too hard. Lastly, he thinks that in melancholy, by the repeated successive vibrations which the attentive meditation of a thing induces, two or more fibres, which of themselves exhibit dissimilar and unequal ideas, are (the other parts remaining sound) sensibly brought to an isochronism: so that the soul, judging well in other respects, yet in this always makes a false judgment.

Dr. Hartley has likewise founded his theory on vibrations excited in the medullary substance of the *brain*, spinal marrow, and nerves. Observations on Man, &c. vol. i. See ASSOCIATION, and VIBRATION.

The generality make wit and genius to depend on the conformation, magnitude, and quality of the *brain*. Des Cartes supposes the pineal gland, Vieussens the *centrum ovale*, to be the part of the *brain* where the soul more immediately resides. Willis lodges common sense in the *corpora striata*, the imagination in the *corpus callosum*, and the memory in the *cortical* substance. Dr. Hook endeavours to shew how all ideas may be disposed and mechanically laid up in the *brain*, for the use of the MEMORY. Phil. Trans. N^o 67. Hook. Posth. Works, p. 140.

We find great diversities in respect of figure, structure, bulk, &c. in the *brains* of different animals. The *brains* are divided into two parts, with an interval between, as is well known to mountebanks, who, in virtue thereof, sometimes raise an opinion of their skill in the vulgar, by running a pin through the middle of a cock's head, without damage to the bird.

Through the whole bird kind, the cortical part of the *brain* is extremely over-proportioned to the medullary; ten times more in proportion than in men; add, that it is usually also smooth, and without sinuosities. Dr. Willis, who dissected a great variety of *brains*, observed a near resemblance between the *brains* of men and quadrupeds, and between those of birds and fishes; though M. Steno observes, that the *brains* of birds and fishes are not at all like those of men. Winflow.

The *brain* is subject to divers disorders, as wounds, contusions, depressions, constipations, inflammations, petrifications, disruptions, &c. Phil. Trans. N^o 228. Med. Ess. Edinb. tom. ii. p. 245. Hist. Acad. Scienc. an. 1703. 1710. 1722.

A watery *brain* appears to be the cause of the epilepsy; and an extremely dry or rigid one, of the phrenzy; and these have been found to be the states of the *brain*, in dissections of persons affected with these diseases. Paracelsus even attributes leprosy, consumptions, and jaundices, to disorders of the *brain*. Hist. Ac. Sc. an. 1705, 1706. Cast. Lex. Med. p. 159.

Bartholin speaks of divers extraneous bodies found in the *brain*; particularly a point of a dart, an inch long, which remained there, without much inconvenience, fourteen years, and was at length expelled by suppuration at the *fauces*. Act. Med. Hafn. tom. ii. art. 132.

Anatomists, in their figure and descriptions of the *brain*, only represent the cavities which are seen upon separating the hemispheres, and taking away the *corpus callosum*, without observing that the *crura fornicis* sink down, and then turn forwards on each side of the *medulla oblongata*, in cavities which are extended far forwards, under the commonly known anterior ventricles. In these inferior cavities, the *crura fornicis* are of a beautiful form, resembling a white silk-worm, or sea-horse; on which account they were called *hippocampi* by Julius Cæsar. Arantius is the only author that has given any description of them, till lately Mr. Du Verney has revived them by an exact description and delineation. He observes likewise, that the *septum lucidum* between the an-

terior ventricles, has a cavity between the two *lamellæ* of which it is composed, in which he has often found water; and that the internal side of the *septum* is made rough by a great many small grains and *papillulæ*. Comm. Acad. Petrop. tom. iv. p. 130.

Some are of opinion, that the motion of the *brain* is owing to the air entering by the olfactory nerves into the ventricles of the *brain*; which air, rarefied by the heat, loses its spring, and is expelled by the elastic contracting *dura mater*. Med. Ess. Edinb. vol. ii. p. 481.

The *brain* does not appear absolutely necessary to animal life. We have several instances in authors, of children brought forth alive, and surviving their birth for some time, without any *brain*: and there are some anatomical instances, of animals surviving the loss of their *brain*. To which may be added, many instances given by Mr. Boyle, not only of animals living a long time after the separation of the head from the body, but even of the copulation and impregnation of some insects under those circumstances: whence it appears, that the spinal marrow is sufficient, on occasion, for the business of sensation, motion, secretion of animal spirits, &c.

The *brains* of birds were a great delicacy among the ancients, who yet never touched those of other animals. Some vainly prescribe hares *brains*, as a remedy against difficult dentition. Among the Greeks, calves' *brains* were used as a sort of charm to excite love.

The accurate Mr. Lewenhoeck examined, on several occasions, the *brains* of different creatures by his microscope; as that of the Indian hen, the sheep, the ox, the sparrow, &c. He could there always distinguish multitudes of vessels so extremely small, that if a globule of blood (a million whereof exceed not a grain of sand in bigness) were divided into five hundred parts, those parts would be too large to pass into such vessels. He observed also, that these vessels in the *brain* of a sparrow, were as large as in that of an ox; and argues from thence, that there is really no other difference between the *brain* of a large animal and that of a small one, but only that the one contains a much greater number of these vessels than the others, and that the globules of the fluid passing through them, are in all animals of the same size.

In examining the *brain*, of several sorts of fowls, particularly the turkey, what is commonly called the cortical part of the *brain*, consists of a very clear and transparent oily matter, which would be much better denoted by the term vitreous than cortical, but a great number of small blood-vessels are found spread through every part of this; and where a small parcel of it is cut for a microscopic examination, there flows a small globule of a pellucid fluid from it. And Mr. Lewenhoeck thinks, that notwithstanding the minuteness of these vessels, there is a circulation carried on through them, and that of a red fluid; for wherever they lie three or four together, without any intervening matter, the congeries of them always appear red.

The medullary part of the *brain* of the same animal appears like a fisher's net, between all the meshes of which there is placed a very pliable ball-like substance, which change its figure into a round or oval, according as the meshes happen to be pulled or relaxed: these balls seemed to consist of a clear and watery fluid, contained in a case or capsule of a membranous matter. Phil. Trans. N^o 168. p. 884.

See further concerning the *brain* in anatomical and medical writers, particularly Steno, Ridley, Willis, and Vieussens, who have treatises express a this subject. Phil. Trans. N^o 215. N^o 51. p. 1034.

BRAIN, *fungus of the*. See FUNGUS.

BRAIN, *traces of the*. See TRACE.

BRAKE, in the *Country Language*, denotes a place where female FERN grows, and sometimes the FERN itself.

BRAKE is also used for a farrier's instrument, otherwise called BARNACLES.

The word also occurs for a baker's treading-trough.

BRAKE, in the *Hempen Manufacture*, denotes a wooden-toothed implement, wherewith to bruise and break the bun of hemp, and separate it from the rind.

BRAKE of a pump, signifies the handle whereby it is wrought.

BRAMA, BREAM, in *Ichthyology*, a river-fish of the leather-mouthed kind, esteemed a species of carp, and called by the generality of authors *cyprinus latus*.

It is a very broad and thin fish; the head is small, the back of it broad and flat, and the back rising from the head and tail toward the middle, like that of a hog.

BRAMA *Saxatilis*, in *Ichthyology*, the name of a sea-fish, resembling the common fresh-water BREAM in shape, but growing to three or four feet long. Its eyes are large: its snout of a pale red, as are also its belly-fins and its tail. It is caught among the rocks in deep water, and seldom is taken any other way than by hooks, and is a very

very well tasted fish. It is found in Surinam. This fish is a species of the SPARUS.

BRAMBAS, in *Natural History*, a name given by the people of Guinea, and some other parts of Africa, to a peculiar species of lemon-tree. The leaves of this are of a deep green, and of an admirable fragancy, when rubbed between the hands. The fruit is very small, and has a remarkable thin skin. The juice is used in dying. Phil. Trans. N° 103.

BRAMBLE, or **BRAMBLING**, in *Ornithology*, the common English name of the MONTIFRINGILLA, or *orospiza*, called in some places the mountain-finch a small bird, somewhat resembling the chaffinch. Ray.

BRAMBLE-bush, in *Botany*, a species of the *rubus*. See RASPBERRY-bush.

BRAMBLE-galls. See GALLS of the Bramble.

BRAMBLE-net, otherwise called *ballier*, is a net used by bird-catchers, of several sizes.

BRAMICIDE, the crime of killing a bramin, reputed in the East-Indies one of the five most enormous sins.

BRAMINS. See BRACHMANS.

BRAN, the skins or husks of corn, especially wheat, ground, separated from the *farina* or flour, by a sieve or boulder.

Of *wheat-bran* it is that starch-makers make their starch, which is nothing else but the *fecula* remaining at the bottom of the vessels, wherein the *bran* has been steeped in water.

Bran is held detergent, and, on that account, is of some medicinal use in gargarisms and glysters. It is also a chief ingredient in the composition of cataplasms. Some apply it hot against the pleurisy; boiled, it purges scurf and dandriff, and cleanses the hands in lieu of soap. Among the ancients, it was also used as an erotic, to excite love.

Dyers rank *bran* in the number of non-colouring drugs; because it yields no colour of itself. It serves for the making of their four waters, used in preparing stuffs to take the dye.

This water is made by boiling wheaten *bran*, and into the decoction putting a little leaven.

BRANC *ursine* in *Botany*. See BEAR's-breech.

BRANCA, in *Middle Age Writers*, the paw, or extreme part of the foot of a wild beast, or bird of prey. Du-Cange.

BRANCA, or **BRANCHIA**, also denotes a right of lopping or cutting off branches of trees in the forest for firing. Du-Cange.

BRANCH, in *Botany*, an arm of an tree or a part which, sprouting out from the trunk, helps to form the head, or crown thereof.

The word, according to Salmassius, comes from the Latin *branca*; in the lower Latin, they said *barga*. Others derive it from *brachium*, an arm; and others, from *branchia*, the gills of fishes.

The *branches* of trees, some have observed almost constantly to shoot from the trunk at an angle of 45 degrees: the reasoning is, that the whole spreading being generally confined with an angle of 90 degrees, as the most becoming and useful disposition; that space could not be well filled up any other way, than by forming all the intersections which the shoots and *branches* make, with angles of 45 degrees only.

According to M. Dodart, however, the *branches* generally sprout out of the trunk horizontally, or at right angles with the trunk; but in their ascent, they affect perpendicularity as much as possible, though not in the same degree with trunks.

Branches are distinguished into various kinds:

BRANCH wood, according to Quintiny, is such an one as, shooting out from a cut of the preceding year, is naturally of a considerable thickness.

BRANCH fruit, is that which shoots out, of a moderate length and breadth, from the same cut or pruning.—*Fruit-branches*, he adds, have large eyes, and are very near each other.

BRANCH half wood, is that which, being too slender for a *wood-branch*, and too big for a *fruit-branch*, is cut off, at the length of two or three inches, to make it produce a better shoot, whether wood or fruit.

BRANCHES, *spurious wood*, are such as come contrary to the order of nature; or otherwise than from cuts of the preceding year; or which, coming on such cuts, are big in the place where they should be small.

To understand this order of nature, it must be observed, 1. That *branches* should never come, except on those of the last cut; such, therefore, as shoot from other parts, are spurious. 2. The order of the new *branches* is, if there be more than one, that the extreme *branch* be thicker and longer than that immediately under it; and this bigger and longer, again, than the third, &c. Hence, if any be big where it should be small, it is called *spurious*.

There are, however, some exceptions: in trees that are

vigorous, and yet bear a handsome figure, there cannot well be too many *fruit branches*, provided they make no confusion; but for *wood-branches*, there should not ordinarily be above one suffered to grow, of the several which shoot from each cut of the preceding year. See PRUNING.

BRANCHES, *engrafting of*. See ENGRAFTING.

Branches of trees bear a near analogy to limbs of animals; and, in certain cases, the amputation of them is found necessary. A. D. S. ann. 1707, p. 366.

Some consider *branches* as a sort of roots in the air: in reality, they are only prolongations of the roots; but being united in the trunk, are redivided in the *branches*. What shews the conformity between the two species of roots is, that the ends of *branches* being set in the ground, while yet adhering to the mother-tree, they will take root, grow on their own bottom; and, what is more, there are divers trees, which, if planted upside down, the roots turn to *branches*, with leaves and fruit, and the *branches* to roots and fibres; but whether the *branches*, while such, do the office of roots, and receive any fine kind of nutriment from the air, Mr. De la Hire, Mr. Brotherson, and others, have asserted, is a question not yet fully decided. Mr. Perrault supposes the *branches* to convey a sap for the nourishment of the root, as the root does for the rest of the plant. Phil. Trans. N° 43, and N° 187.

Branches do not spring out of the mere surface of the trunk, but are profoundly rooted therein, so as not only to penetrate the cortical, but also the woody substance, and even the pith.

Anciently, *branches* were carried in the hands at the processions and ceremonies of the gods; whence the *thallophori*, or *branch-bearers*.

The Thespians adored a *branch*. The olive-*branch* was the symbol or ensign of peace. The natives of the islands in the South Seas use green boughs, &c. for the same purpose at this day.

BRANCH is also applied to the parts or ramifications of divers other bodies, which, in respect hereof, are considered as stems. Thus chemists speak of the *branches* of their metalline vegetation, *branches* of the *arbor Dianæ*, *arbor Martis*, &c. Phil. Trans. N° 286. Mem. Acad. Sc. 1692. 1710.

BRANCH, in *Anatomy*, denotes a division of a vein, artery, or nerve. All the veins in the body are only *branches* of the *vena cava*.

BRANCH is also used in the *Military Art*, in speaking of trenches, mines, and their several ducts, ways, returns, and the like, between one well and another. See GALLERY.

BRANCH is also used in speaking of the veins in mines of gold, silver, or other metals, which divide like the veins in the body.

BRANCH, in *Genealogy*, is applied to the several lines or successions arising out of the same stock or origin.

In which sense, *branches* amount to much the same with cadets.

BRANCH also denotes a complex metalline kind of candlestick, contrived for the reception of a number of candles. These, in ancient writers, are called *phari*, *cantharæ*, *jesse*; when made of glass, *lustres*; the richer sort, *girandoles*.

BRANCH of the trenches, in *Fortification*. See BOYAU.

BRANCH-stand, in *Falconry*, signifies to make a hawk leap from tree to tree, till the dog springs the partridge.

BRANCH, in *Scripture*, is an appellation peculiarly given to the Messiah, as being of the *branch* or house of David.

BRANCHES of vaults, are sometimes used to denote the ARCHES of them.

BRANCHES of arches, denote several portions of arches springing all from the same summer.

BRANCHES of ogives, in *Architecture*, the reins or arches of Gothic vaults; which traversing from one angle to another, diagonal-wise, form a cross between the other arches which make the sides of the square, whereof those arches are diagonals.

BRANCHES of a bridle, in the *Manège*, are too crooked pieces of iron which support the mouth-bit, the chain, and the curb: and which are fastened on one side to the head-stall, on the other to the reins; serving to keep the horse's head under command.

What way soever, the *branches* of the bit incline, the horse's mouth goes to the contrary. The duke of Newcastle is very particular on the head of *branches*; explaining their several kinds and their effects, which are reducible to those of a lever.—The *branch* is always to be accommodated to the design, either of bringing in, or raising a horse's head, and to the necessary degree: accordingly, we have strong and hardy *branches*, gentle *branches*, rude *branches*, &c.

With regard to their form and structure, *branches* are either strait, in form of a pistol, for young horses to form their mouth; or, after the constable of France's fashion,

fashion for horses that already carry the head well: others are in a form of a gigot, or leg; others of a bent knee; others in the French fashion, &c.

These are laws in the *Manege*: 1. That the farther the branch is from the horse's neck, the more effect it will have. 2. That short branches, *cæteris paribus*, are ruder, and their effects more sudden, than those of longer. 3. That the branch is to be proportioned to the length of the horse's neck.

That part of the branch of a *bridle*, whereby we judge of its effects, and which discovers its strength or weakness, is called the *line of the banquet*.

A strong and hardy branch, is that whose sevil-hole, at the lower-end of it, is placed on the outside of the line of the banquet.

A gentle branch is that, the sevil-hole of which is set on the inside of the said line.

A rude and hardy branch will bring in a horse's head, proportionably as it is more or less hardy; whereas a gentle branch, by diminishing the effect of the bit-mouth, makes a horse more easily to bear the pressure thereof, who before could hardly endure it.

BRANCHED velvet. See **VELVET**.

BRANCHER, among *Fowlers* and *Falconers*, denotes a young bird well fledged, which having quitted the nest, is not yet in a condition to fly far, or shift for itself, but still keeps in the bushes or branches about its native dwelling, where it is fed by the dam.

The *branchers* of hawks are also called *ramage falcons*; those of nightingales, *pushers*: because, as some say, they are thrust out of the nest by the old ones. Canary birds of the first year are called *branchers*; when just flown, and unable to feed themselves, *pushers*.

BRANCHERY, in the *Anatomy of Vegetables*, denotes the vascular parts of divers fruits, as apples, pears, plums, and berries.

In which sense the *branchery* stands contradistinguished from the acétary, skin, pulp, &c.

The *branchery* of an apple is only the ramifications of the ligneous body through all the parts of the *parenchyma*; the greater branches being likewise, by the inoculations of the lesser, united together. Grew. *Anat. of Plants*, lib. i. cap. 6. § 2.

BRANCHIA, *βραγχία*, a name given, by the *Ancient Naturalists*, to the *GILLS* of fishes; which are parts composed of cartilages and membranes, in form of leaves; and serving instead of lungs to perspire by.—See *Tab. Anat. (Splanchn.)* fig. 14.

The *branchia*, Galen observes, are full of little *foramina*, big enough to admit air and vapours, but too fine to give passage to water. Pliny held, that fishes respired by their gills; but he observes, that Aristotle was of another opinion: to whom we may add, among the moderns, Dr. Needham.

The cetaceous fishes, as they have lungs, have none of these apertures of the *branchia*; and in all those fishes that have them, the larger they are, the sooner the fish dies, on being taken out of the water. See **GILLS**.

BRANCHIALE, in *Natural History*, a name given by Mr. Lhuyd to a peculiar species of *FUNGITÆ*, which being of a deeply striated texture, is supposed to resemble the gills of a fish.

BRANCHIDÆ, in *Antiquity*, priests of Apollo serving in his temple at Didyma in Miletus; which was famous for its oracle.

The denomination is taken from *Branchus*, or *Branchides*, an epithet given to Apollo as worshipped here; though on what account the title was given, is not agreed on.

In the time of the Persian war, the *branchidæ* betrayed the temple and its oracle into the hands of the Persians, who pillaged it. They transported themselves into the farthest parts of Asia, to be out of the reach of punishment from the Greeks; which yet they are said to have met with from Alexander, who demolished their city, and put all the inhabitants to the sword. Strabo, lib. xiv. Potter. *Arch. Græc.* lib. ii. cap. 9.

BRANCHING, the *ramification* or *sprouting* of the *HORNS* of deer, &c. which bears an analogy with the vegetation of plants. Phil. *Trans.* N° 227.

The *HAIR* at the ends is apt to *branch*, or split and divide into whole brushes, which are easily visible by a microscope.

BRANCHIOSTEGI, in *Ichthyology*, a term used to express one of the general classes of fishes; the characters of which are, that the rays of the fins are of a bony substance; but these fish have no bones or *ossicula*, at the *branchia*, as the malacopterygious and acanthopterygious fishes all have.

The word is derived from *βραγχία*, gills, and *οσιον*, a bone.

BRANCHUS, *βραγχος*, in *Medicine*, a species of **CATARRH**, affecting chiefly the jaws, throat, and *aspera arteria*. *Branchus* amounts to the same with what is called, by

the Latins, **RAUCEDO**, *raucitas*, sometimes also *ravis*. See **HOARSENESS**.

BRANCHUS, or *branchæ*, also denotes a kind of glandular tumor in the *fauces*, resembling two almonds, which render the breathing and hawking difficult.

BRAND-herring, a kind of herring caught by the Dutch.

BRAND-Sunday, *Dimanche des Brandons*, in *French Ecclesiastical Writers*, denotes the first Sunday in Lent; which is thus called on account of an ancient practice in the Lyonnais, where the peasants, in the night of this day, walked about their orchards, gardens, &c. with torches lighted, or *fire-brands* in their hands; in which plight they visited every tree, and addressing themselves to them one after another, threatened that if they did not bear fruit well the ensuing season, they should be cut down to the ground and burnt. This is evidently a relic of paganism; the like of which was practised by the ancient idolaters in the month of February; hence called *Februarius*, à *februando*. Menestr. *Hist. de Lyon*. p. 279. Menag. *Orig.* p. 126. & Du-Cange *Gloss. Lat.* tom. i. p. 610.

BRANDARIS, a species of the *strombus*, in the order of *testacea*.

BRANDEUM, in *Ecclesiastical Writers*, a linen cloth or veil put over the tombs of the apostles St. Peter and St. Paul, and left there for some time: by which it is supposed to acquire a degree of sanctity, so as to be worshipped as a relic; and for that purpose frequently sent by the pope as a present to some prince. Fleur. *Hist. Eccl.* lib. xxxv. p. 93. Du-Cange *Gloss. Lat.* tom. i. p. 909.

In this sense, *brandeum* amounts to the same with what was otherwise called *sanctuarium*, *judarium*, *orarium*, and *velum*.

The use of *brandea* was introduced as a means of diffusing and propagating the virtues and influences of **RELICS**, without moving or any way impairing the substance of them; the translation of **RELICS** in early days being forbidden.

BRANDING in the face, or *hand*, denotes a punishment inflicted by law on various offences, by burning with a hot iron, after the offender has been once admitted to benefit of clergy. Blackstone's *Comm.* vol. iv. p. 360.

BRANDRITH, denotes a trevet or other iron stand, whereon to set a vessel over the fire.

BRANDRITH, among *Builders*, denotes a fence or rail about the mouth of a well.

BRANDY, properly denotes a proof-spirit, obtained by simple distillation from real wines, or fermented juices of grapes. The vessels used herein, are usually of copper; and distillers, to cool the liquor more readily, make the neck of the matrafs, which is very long, and winding like a serpent, pass through a vessel of cold water.

Brandy differs from wine spirit, in that the former is drawn from the poorer and thinner sorts of wines, the latter from the richer and fuller bodied wines.

Brandy also differs from spirit of wine, as the former is only what they call proof high, or half pure spirit, half phlegm; whereas spirit of wine is raised higher, or carried by rectification to a farther degree of purity.

Brandy also differs from strong waters, as the latter is a compound, whereof the former, or pure spirit of wine, is only one ingredient.

The Portuguese are lately coming into the way of making brandy. The Greek *brandies* are the worst, though made of the best wines.

The too free and frequent use of brandy is attended with ill effects, as it attenuates the body, and impairs the strength, and stupifies the brain. In persons who have died hereof, the blood has been found thick and coagulated; the *pancreas* dried; the liver scirrhus, and almost petrified: the glands tumefied beyond their natural bulk, &c. But what shall we say to the Parisian woman, who was burnt to ashes with a fire only kindled from the brandy in her body? Conringius even attributes the degeneracy of the modern from the ancient Germans, to the prevalency of drinking this liquor. Phil. *Trans.* N° 97.

In the hot climates of America, they are said to make clysters of brandy. A person who had experienced the use of one of these fiery *inematæ*, made of a pint of brandy, assures us, it not only made him dead drunk, but raving mad. Phil. *Trans.* N° 37.

Brandy is also applied, in a less proper sense, to all spirituous inflammable liquors, drawn from vegetables by distillation. In which sense brandy includes all ardent, or inflammable spirits, used in the way of beverage. Dr. Shaw adds, a further limitation to brandy spirits, viz that they be proof high, or consist of equal quantities of water and alcohol. On which footing, spirits, either above or below proof, do not come under the appellation of brandies. But in the popular use this distinction is not observed.

Arac, rum, malt, and melasses spirit, in this sense, are *brandies*, though under another denomination.

In the island of Andros, they make *brandies* from the fruits of the arbutus and mulberry-trees.

A patent was some time ago obtained for making *brandy* from carrots and parsneps: the latter of which is said to have nearly resembled French *brandy*. Of late we meet with frequent advertisements of raisin-*brandy*, which, if really made of that fruit, is nearest akin to wine-*brandy*. Apple, or cider-*brandy*, is also praised by some.

Cider is found to yield an eighth part of good spirits, and if close kept a year or two in a cool place, much more.

Brandy is also used to denote certain compound liquors, whereof *brandies* are the basis. Such are raspberry-*brandy*, cherry-*brandy*, gooseberry-*brandy*, &c.

The French method of distilling *brandies* is the same with that practised by our distillers in working from wash or wines; only that the former throws a little of the natural lee into the still along with the wine, which gives the spirit a flavour, on which a great part of its merit depends.

When *brandies* prove foul, seedy, or retain the taste of certain weeds, apt to grow among the vines, they draw them over again, in order to cleanse them of that adventitious flavour: in which operation they leave out the faints, or rather change the receiver, as soon as the stream begins to run proof. Then mixing together all that run off before, they call it *trois cinque*, that is, *brandy* consisting of five parts alcohol, and three of phlegm; beyond which the French *bruleurs*, or common distillers, rarely go.

The yearly export of *brandies* from France is said to amount to 25000 tons; an article of itself sufficient to enrich a moderate country. While the duty on French *brandy* continued at 9*l.* the ton, the English alone took ten or eleven thousand tons off their hands; but now that the duty is raised to 52*l.* the ton, the importation is greatly reduced, to the advantage of the English distillery, except that smuggling still intervenes.

The colour of their *brandies* is acquired from the cask, and the length of time they usually lie in them, which is sometimes twelve or eighteen months, and often two or three years; during which, it is no wonder if they acquire a yellow or brownish cast. Their lying thus long, as it were in a state of slow digestion, wonderfully takes off from that hot, acid, and foul taste, peculiar to all spirits, or *brandies*, newly distilled; and gives them a coolness and a softness, not easily introduced by art. And on these properties are founded several methods of trying their goodness, or discovering whether they are debased or adulterated by the admixture of coarser spirits. Phil. Trans. N^o 391.

Brandies are rarely adulterated in France, where they have no cheaper spirits with which to debase them; and the like holds, in great measure, in favour of the Dutch, though otherwise suspected to be great adulterators. The chief temptations for adulterating are in England, where the duties are high, and where there are various kinds of spirits in plenty to mix with them, as malt, melasses, cider, and sugar spirits, with all which they are often sophisticated, and so dextrously, as frequently to escape all the ways of detection. *Brandy* may be imitated, by adding to very pure malt spirits, some dulcified spirit of nitre.

The chief use of *brandy*, is as a drink; especially in the cold northern countries; among the negroes in Guinea, who sell one another for a few bottles of *brandy*; and among the savages of Canada, and other parts of North America, who are extremely fond of it. It is of some use too in medicine; being said to strengthen the nerves: and in dying, when raised into rectified spirit of wine, being one of the dyers non-colouring drugs.

BRANDY, to distil, they fill the cucurbit half full of the liquor from which it is to be drawn; and raise it, with a little fire, till about one sixth part be distilled, or till they perceive, that what falls into the receiver is not at all inflammable.

For this operation they use stoves built with bricks or stone, which are made either round or square: when they use bricks, they bind them with a strong fine clay, mixed with horse dung or cow's hair.

These stoves must always have two bottoms, the uppermost to put the fuel on, and the lowermost to receive the ashes. They have also the precaution to contrive three or four vents round the copper, which they open or shut, as they would forward or retard the distillation. For want of a stove, they sometimes use an iron trivet to set the copper on, and only put wood under it: but this method is very defective; nor can good distillations ever be made, if the operator is not master of the fire, to manage it with judgment and dexterity, which cannot be done in this last method in the open air.

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In order to make good *brandy*, there must be used a large copper cucurbit, to which the head must be properly adapted; and having filled it half full with wine, which must be neither sour, nor vented, nor corrupted, the cucurbit must be covered with its head, which must be exactly luted to it with paper and paste, or rather with a wet bladder, folded several times. Then the cucurbit must be put into the stove, and the branch or neck through which the *brandy* is to distil, must be made to pass through a tun with one bottom only, filled with fresh water; for which purpose the neck must be three or four feet long, composed of a long tube which must pass obliquely through the tun, and winding again, must meet a tube which issues out of the head of the cucurbit: these two tubes entering one into the other, must also be luted together with paper and paste, or a wet bladder as above, to prevent the evaporation of the spirits during distillation. Care must also be taken to keep upon the head of the cucurbit a wet cloth, to make the spirit condense. As soon as you observe that some drops begin to fall at the end of the long tube, you must suffer about fifty to fall down, after which a recipient must be adapted to that end of the tube, capable of receiving the *brandy* which is going to distil. The distillation must not be hastened by too fierce a fire.

The liquor, thus distilled the first time; is called *brandy*; which spirit, purified by another, or several more distillations, is what we call SPIRIT of wine rectified.—The second distillation is made in *balneo Mariæ*, and in a glass cucurbit; and the liquor put therein is distilled to about one half the quantity; which half is farther rectified, as long as the operator thinks fit.

To abridge these several distillations, which are long and troublesome, they have invented a chemical instrument, whereby the rectification of spirit of wine is performed, at one single distillation: the description and figure of such instrument may be seen in Glaeser's Chemistry.

To try the goodness of rectified spirit of wine, it must be lighted into a blaze; if then it consumes wholly, without leaving any impurity behind; or, which is surer still, if after putting a little gunpowder in the bottom of the spirit, the gunpowder take fire when the spirit is consumed; the liquor is good.

Those who deal in *brandy* (we speak only of that made with wine), choose it white, clear, of a good taste, and such as will bear the test, or proof; i. e. such as in pouring into a glass, forms on the top of it a little white lather, which, as it diminishes, makes a circle, called by the French *brandy*-merchants the *chapelet*, by the English the *bead*, or *bubble*; there being no *brandy* but that which is well dephlegmated, and which retains no superfluous humidity, wherein the bead will be entirely formed. For various methods of ascertaining the strength and goodness of *brandy* and other spirits, see *Proof SPIRITS*. Before we finish this article, we shall give an account of the manner of extracting *brandy* from the husks or skins of grapes, after the pressing; because the benefits that arise from this distillation, deserve some attention.

After the grapes have been pressed, what remains in the press is coarsely separated into small particles with the hand, and afterward thrown into large tubs, where they press it very hard, mix a little water with it, and cover it very closely with clay: in that condition they leave it to ferment during four or five weeks, observing, however, to shut the crevices which might happen to open in the clay, to prevent the evaporation.

After that time they fill a very large copper half full with that mixture, cover it with its head, lute it, and distil the whole after the same manner as they do *brandy*. By this work they make a great advantage of a matter which they were used to cast on a dunghill. If this *brandy* be not so palatable as that which is made of wine, it is excellent for making spirit of wine. Both these liquors are a considerable branch of trade.

The greatest part of the *brandies* in use, and those too the best, are prepared in France: of the French *brandies*, those of Nantes and Poictou are the most esteemed; as being of a better taste, finer and stronger, and enduring the bubble-proof longer than any of the rest: those of Anjou, Touraine, Orleans, Bourdeaux, Rochelle, Cognac, &c. claim the second place. They are chiefly sent to Paris and Flanders by the river Loire.

Brandy, in Law-language, is denominated either single or double, when it is under or above proof. By the several acts 12 Car. II. c. 23. c. 24. 4 and 5 W. c. 3. 4 Ann. c. 6. 6 Geo. II. c. 17. every gallon of spirituous liquors imported is charged excise as follows: single *brandy*, spirits, or *aqua vitæ*, 4*s.* 8*d.* double *brandy*, spirits, or *aqua vitæ*, 8*s.* 8*d.* And by the 32 Geo. II. c. 10. an additional duty of 12*d.* in the pound, according to the value in the BOOK of rates, is laid on all foreign *brandy* and spirits, rum from the produce of the British sugar plantations excepted. And by the 33 Geo. II.

c. 9. 6 Geo. III. c. 47. and 20 Geo. III. c. 23. a duty of 2s. 6d. on every gallon of single *brandy*, &c. and of 5s. on every gallon of double *brandy*, &c. besides the additional duty of 5l. per cent. of 19 Geo. III. c. 25.

Of *brandy*, both plain and rectified, are prepared various kinds of strong liquors, with the addition of other ingredients, sugars, spices, flowers, fruits, &c. which are afterwards clarified, by passing them through a straining bag, or filtering them through brown paper.—Such are cinnamon waters, aniseed waters, fennel waters, celery waters, citron waters, &c. A great part of these are brought from Montpellier; where they are supposed to be better prepared than any where else. Savar. Dict. Commerce.

BRANDY, *cherry*. See CHERRY.

BRANK, the same with *buck-wheat*.

BRANLIN, an English name for a species of fish of the salmon kind, called also in some places *fingery*.

They obtained this last name from some singular marks they have, which are five or six transverse black streaks upon each side, appearing as if made by the impression of so many fingers, and each marked with a single red spot. The tail of this fish is forked like that of the common salmon, and it is supposed they are all males; they seem to impregnate the spawn of the common salmon, and are found in waters of so rapid a current, that scarce any other fish could live in them. They never grow to any great size. Willughby, Hist. Pisc. p. 193

BRASEM, in *Ichthyology*, a name by which some have called an American fish of the SMARIS kind, more commonly known among authors by its Brazilian name of *acaropeba*.

BRASIDIA, in *Antiquity*, anniversary feasts held at Sparta in honour of Brasidas, the son of Tellus, famous for his great achievements in favour of that state.

The *Brasidia* were celebrated with sacrifices and games, at which none were allowed to contend but free-born Spartans. To be absent from these solemnities, is said by some to have been held criminal, and punished with fines. Meurs. Græc. Ferial. Potter. Arch. Græc. lib. ii. cap. 20.

BRASIL, and BRAZILETTO. See BRAZIL, and CÆSALPINIA.

BRASMA, in the *Medical Writings of the Ancients*, a name given by Dioscorides and others to a light, empty, and good for nothing kind of black pepper. This was no peculiar species of pepper, but, as John Bauhine has well observed, it was the same with the pepper we now frequently meet with, which has decayed upon the plant. Diosc. lib. ii. cap. 189.

BRASS, a factitious metal, composed of copper fused with *lapis calaminaris*, which gives it a hardness and yellowness. The manner of making *brass* is said to have been kept a secret in Germany for many ages.—The method of preparation among us is as follows. The *lapis CALAMINARIS* being calcined, and ground as fine as flour, is mixed with a third or fourth part of ground charcoal; and incorporated, by means of water, into a mass. To this composition of calamine and coal, some manufacturers add common salt, by which the process of making *brass* is said to be hastened: thus prepared, about seven pounds of the calamine is put into a melting pot of about a gallon; and over it about five pounds of copper, either in plates or grains, which is let down into a *wind-FURNACE* eight feet deep, remaining there about eleven hours; in which time it is converted into *brass*.—After melting, it is cast into plates, or lumps: forty-five pound of crude calamine produce thirty pounds burnt, or calcined; and sixty pounds of copper make, with calamine, an hundred pounds of *brass*.

The proportion of calamine, and the increase which the copper receives from it, are different in different works; and hence arises the deeper or paler colour of *brass*. The quantity of *brass* obtained by the process for making it, has been considerably augmented since the introduction of the method now commonly practised, of using granulated copper. See GRANULATION.

The finer and more malleable kinds of *brass* are made of the purest calamine and copper, by cementing the *brass* a second time with calamine and charcoal, and sometimes adding to it old *brass*, by which the new is said to be meliorated.

The word *brass* seems to have been formed from *bracium*, a cant term among alchemists for *copper*.

They sometimes use *brass-shruff* instead of copper; but that is not always to be procured in quantities sufficient; being no more than a collection of pieces of old *brass*.

Brass may be cleansed, first by rubbing it with a cloth dipped in equal quantities of *aqua fortis* and common water; then with an oily cloth, and lastly with a dry one dipped in *lapis calaminaris*.

The best *brass* guns are not made of pure copper and calamine alone; but it is necessary to add coarser metals, to make it run close and sounder; such as lead, and pot-metal.

The best proportion for gun-metal, it is said, is for eleven or twelve thousand weight of metal, to use ten thousand pounds of copper, nine hundred pounds of tin, and six hundred pounds of *brass*; but the proportion is variable, according to the quality and goodness of the copper.

Brass is somewhat lighter, harder, and more sonorous than pure copper. It melts more easily, and does not scorify so soon in a moderate red heat. It is ductile only whilst cold; heated a little, it cracks: and ignited, it falls in pieces under the hammer. This imperfection it derives from the zinc of the calamine; pure copper being malleable when hot, as well as when cold. The beautiful colour of *brass*, its hardness, its malleability, its fusibility, and its quality of being less subject to rust or verdigris than copper, render it fit for the fabrication of many utensils.

Brass is tinged of a gold colour, first, by burning, then dissolving it in *aqua fortis*, and, lastly, reducing it to its metalline state. It may be whitened by heating it red-hot, and quenching it in water distilled from *sal ammoniac*, and egg-shells. It is silvered, or coloured superficially white, by rubbing it with balls made of silver dissolved in *aqua fortis*, with powder of white tartar, sufficient to absorb all the moisture thereof.

BRASS, in *Antiquity*. See ÆS.

BRASS, in a more extensive sense, includes copper, and all the mixtures or alloys of copper with other minerals. In which sense, *brass* amounts nearly to the same with the Roman Æs, and the French *airain*.

BRASS, in the *Glass Trade*. Thrice calcined *brass* is a preparation which serves the glass-men to give many very beautiful colours to their metal. The manner of preparing it is this: place thin plates of *brass* on tiles on the leer of the furnace near the occhio; let it stand to be calcined there for four days, and it will become a black powder sticking together in lumps. Powder this, and sift it fine, and recalcine it four or five days more; it will not then stick together, but remain a loose powder, of a russet colour. This is to be calcined a third time, in the same manner; but great care must be taken, in the third calcination, that it be not over-done, nor under-done; the way to be certain of making it right, is to try it several times in glass while melting. If it makes the glass, when well purified, to swell, boil, and rise, it is properly calcined; if not, it requires longer time. This makes, according to the different proportions in which it is used, a sea green, an emerald green, or a turquoise colour.

Brass, by a long calcination alone, and without any mixture, affords a fine blue or green colour for glass; but they have a method of calcining it also with powdered brimstone, so as to make it afford a red, a yellow, or a chalcedony colour, according to the quantity, and other variations in the using it. The method of making the calcination is this: cut thin plates of *brass* into small pieces with shears, and lay them *stratum super stratum*, with alternate beds of powdered sulphur, in a crucible; calcine this for twenty-four hours in a strong fire, then powder and sift the whole; and, finally, expose this powder upon tiles, for twelve days, to a reverberating furnace; at the end of this time, powder it fine, and keep it for use.

The glass-makers have also a method of procuring a red powder from *brass*, by a more simple calcination, which serves them for many colours. The method of preparing it is this: they put small and thin plates of *brass* into the arches of the glass-furnaces, and leave them there till they are sufficiently calcined, which the heat in that place, not being enough to melt them, does in great perfection. The calcined matter, powdered, is of a dusky red, and requires no farther preparation. Neri's Art of Glass.

BRASS-lumps, in *Mineralogy*, a common name given by the miners and diggers of coal, &c. to the globular pyrites. This stone, when kept in the air, often sends forth its efflorescences of salt, in form of small and slender fibres, perfectly transparent, and sometimes near an inch long. The place where these stones are exposed to the air, will greatly alter the figures and colours of their efflorescences; if they are laid in a cellar, the shoots will be shorter, and green, like the common copperas; and if laid in the way of the sunshine, they will be white and dusky. Both are the same salt, which is the true green vitriol or copperas, and both will, in the same manner, turn a decoction of galls into ink. The white salt is only the green powdered and calcined by the sun's heat. the figure of the fibres of these efflorescences is not easy to be determined; sometimes they seem round, sometimes angular. These, however, are the natural figures of the salts of these stones; and the other shoots into which they form themselves after solution, and bringing them together in a body by water, are rather their

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their accidental forms, though, under a like course of accidents, they generally appear the same. Phil. Trans. N° 110.

BRASS-wire. See **WIRE**.

BRASSATELLA, **BRASSADELLA**, or **BRASSIDELLA**, in *Botany*, a name given by many authors to the plant more usually known by that of **OPHIOGLOSSUM**, or **ADDER'S tongue**.

BRASSE. See **PEARCH**.

BRASSICA, the cabbage, in *Botany*, a genus of the *tetradynamia filiquosa* class of plants, the characters of which are these: the flower is cross-shaped, having four petals, and four oval nectarious glands; it hath six stamina, which are erect, two of which are opposite, and the other four are longer; it hath a taper germen, of the length of the stamina, which afterward becomes a long taper pod, depressed on each side, and is terminated by the apex of the intermediate partition, which divides it into two cells, filled with round seeds. See **BROCCOLI**, **CABBAGE**, **CAULIFLOWER**, **SAVOY**, &c.

BRASSIDELIC art, a term used by Paracelsus, to denote a method of curing wounds by the application of the herb *brassidella*, or *ophioglossum*, on the fresh wound.

BRAVA *Parcira*. See **PAIREIRA brava**.

BRAURONIA, in *Antiquity*, a feast held every fifth year in honour of Diana, turnamed *Brauronia*, from *Brauron*, a village near Athens, where the famous statue of that goddess, brought from Scythia Taurica, was preserved.

The ceremony of the *Brauronia* was managed by ten men, from their office called *ἑποπται*; the victim offered was a goat, and it was customary for certain men to sing one of Homer's Iliads during the service: other ministers at the solemnity were young virgins, from five to ten years of age, habited in yellow, and consecrated to Diana, under the denomination of *Ἀρσῆαι*. Potter. Arch. Græc. lib. ii. cap. 20.

BRAWN, in the *Culinary Art*, signifies the flesh of a boar, boned, rolled up, or collared, boiled, and lastly, pickled, for the winter's use.

Brawn is made only of the flitches, without the legs; the oldest boars are chosen for this use; it being a rule, the older the boar, the more horny the *brawn*.

There is also *brawn* of pig, which is made by scalding, drawing, and boning the beast whole, except the head; then cutting it in two collars, soaking it in brine, seasoning, rolling, putting it into a cloth, binding it up, boiling it, and when boiled, hooping it up in a frame.

BRAZED, in *Heraldry*, is used in speaking of three chevrons clasping or folding each other.

The word is doubtless formed by corruption from the French word *bras*, arm.

BRAZEN age, is used by the poets to express the third AGE of the world.

BRAZEN-dish, among *Miners*, is the standard by which the other dishes are gauged, and is kept in the king's hall.

BRAZIER, an artificer who makes and sells pans, pots, kettles, and other kitchen utensils and brass ware.

Itinerant braziers, who go about with their tools and knapsacks, are called *tinkers*; by the French, *braziers of the whistle*, *chauderoniers au sifflet*.

BRAZIL, or **BRASIL**, an American wood, commonly supposed to have been thus denominated, because first brought from Brazil; though Huet shews, it had been known by that name many years before the discovery of that country. Vide Huetiana, p. 268.

It is denominated variously, according to the places whence it is brought. Thus we have *brazil* from Fernambuc, *brazil* of Japon, of Lamon, of St. Martha; and, lastly *braziletto*, or Jamaica wood, brought from the Antilles.

The *brazil* tree ordinarily grows in dry barren places, and in the middle of rocks; it is very thick and large, usually crooked and knotty: its flowers, which are of a beautiful red, exhale a very agreeable smell, which strengthens the brain. Though the tree be very thick, it is covered with so gross a bark, that when the savages have taken it off the wood, or trunk, which before was the thickness of a man, it is scarce left equal to that of his leg.

Brazil wood is very heavy and dry; it crackles much in the fire, and scarce raises any smoke, by reason of its extreme dryness. None of the several kinds have any pith, except that of Japon; that of Fernambuc is esteemed the best. It must be chosen in thick pieces, close, sound, without any bark on it; and such as, upon splitting, from pale becomes reddish; and, when chewed, has a saccharine taste.—It is much used in turned works, and takes a good polish; but its chief use is in dyeing, where it serves for a red colour; it is a spurious colour, however, which it gives; and easily evaporates and fades: nor is the wood to be used without alum and tartar. Red ink is made of it, boiled in beer, wine, or vinegar, and the colour fixed with alum.

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Hellot has given a remarkable process, by which both the beauty and permanency of the dye are improved. He likewise directs to fix the colour of *brazil* by astringents; for this purpose the stale decoction of *brazil* is diluted with twice its quantity of water; to which are added, for every pound of cloth, about one ounce of powdered galls, and half an ounce of gum Arabic. The cloth, prepared with alum and tartar, and kept moist for fifteen days, is boiled in this liquor for an hour or two, as the colour is wanted lighter or deeper, and suffered thoroughly to cool before it is washed. Dr. Lewis's edit. 4to. of Neumann's Works, p. 136.

From the *brazil* of Fernambuc is drawn a kind of carmine, by means of acids: there is also a liquid lacca made of it for miniature.

Carnation is dyed with *brazil*, and violets are raised with *brazil*. Acids turn *brazil* yellow, but by adding an alkali, it becomes purple; so that if we put lemon juice, or spirit of vinegar in a decoction of *brazil* wood, it becomes yellow, and, if we add oil of tartar, violet.

Brazil wood differs very obviously from the **SAUNDERS wood**; the former gives out its red colour to water, the latter gives no red tinge to any aqueous liquor. Neumann.

Brazil wood is of some use in medicine; being reputed a species of the **SAUNDERS**, and possessed of the same physical virtues, though rarely prescribed.

BRAZING, the soldering or joining of two pieces of iron by means of thin plates of brass, melted between the two pieces to be joined.

If the work be very fine, as when the two leaves of broken saws are to be joined, it is to be covered with beaten borax, moistened with water, that it may incorporate with the brass-dust, which is here added; and the piece is exposed to the fire, without touching the coals, till the brass be observed to run. To *braise* with a still greater degree of nicety, they use a folder made of brass, with a tenth part of tin; or another, one third brass, and two thirds silver; or borax and rosin: observing, in all these ways of *brazing*, that the pieces be joined close throughout; the folder only holding in those places that touch.

The method of *brazing*, among smiths, farriers, &c. is by beating the two pieces, when hot, over one another; this is more properly called *welding*.

BREACH, in a general sense, denotes a break or rupture in some part of a fence or inclosure, whether owing to time or violence.

The word is formed from the French *breche*, which signifies the same; formed of the German *brechen*, to break.

Inundations, or overflowings of lands, are frequently owing to *breaches* in the dikes, or sea-banks. Dagenham *breach* is famous; it was made in 1707, by a failure of the Thames wall, in a very high tide. The force wherewith it burst in upon the neighbouring level, tore up a large channel or passage for water a hundred yards wide, and in some places twenty feet deep, by which a multitude of subterranean trees, which had been buried many ages before were laid bare. Phil. Trans. N° 335. p. 478.

BREACH, in *Fortification*, is a hole, gap, or aperture, made in any part of the works of a town, either by playing cannon, or springing mines; in order to storm the place, or take it by assault.

They say, make good the *breach*; fortify the *breach*; make a lodgment in the *breach*: to clear the *breach*, is to remove the ruins, that it may be the better defended.

A practicable *breach*, is that where the men may mount, and make a lodgment.—A *breach* ought to be fifteen or twenty fathoms wide.—The assailants make their way to it, by covering themselves with gabions, earth-bags, &c.

When a *breach* in the rampart is practicable, the governor usually capitulates, to prevent the effects of a storm.

Before they mount the *breach*, they frequently widen or enlarge it with fourneaux, and render the access to it practicable, even for cannon, which it is sometimes necessary to plant on the *breach*, in order to ruin the enemies retrenchments on the gorge and epaules of the bastions.

BREACH of close, in *Law*. See **CLOSE**.

BREACH, to batter in, *batre en brèche*. See **BATTER**.

BREACH, mounting the. See **MOUNTING**.

BREAD ordinarily is made of the flour or meal of some farinaceous vegetable, ground, and kneaded with water and yeast.

Bread is usually made of the seeds, sometimes also of the roots, and even of the piths of plants. The Greeks attribute the invention of *bread* to Ceres, the Egyptians to Isis, others to Menes. The first *bread* is supposed to have been made of the plant *lotus*. The poor Tartars, near Shera-

Sherazoul, still live upon *acorn-bread*. Phil. Transf. N° 300. and N° 138. p. 2033, and 943.

In the islands of Banda and Amboyna, they make a kind of *bread* called *saegem*, or *sagoe*, of the pith of a farinaceous tree, whose trunk is the thickness of a man's thigh, ten foot high, and having a round head a-top like a cabbage; in the middle whercof is a white mealy substance, which, being kneaded with water, fermented, and baked on the coals, serves the poorer sort for *bread*. Phil. Transf. N° 26. p. 485.

In the Caribee islands, they make *bread* of the root of a poisonous plant called *manioc*; probably the same with the *CASSADA bread*, which is made of the root of the *yucca Mexicana*. Phil. Transf. N° 33. p. 635. and N° 311. p. 2434.

In Benzoni's time, all the ships bound from Spain to Mexico, when they returned, were victualled with *CASSADA bread*, instead of biscuit.

To the class of *breads* made of roots may also be added *potatoc-bread*, frequent in Ireland, and *turnep-bread*, used in some parts of England. It is made by boiling the roots, and expressing the juice, till they become dry, then beating them in a mortar, and adding wheat-flour, aniseeds, and yeast, moulding up the dough in the usual form, and baking it. It looks and tastes like other *bread*, and is used by some against consumptions. Phil. Transf. N° 205. p. 970.

Among us, *bread* is chiefly divided into *white*, *wheaten*, and *household*; differing only in degrees of purity. In the first, all the bran is separated; in the second, only the coarser; in the third, none at all; so that *fine bread* is made only of flour; *wheaten bread*, of flour, with a mixture of the finer bran; and *household* of the whole substance of the grain, without taking out either the coarse bran or fine flour. Stat. 8 Ann. cap. 18.

We also meet with *symnel bread*, manchet or roll *bread*, and French *bread*; which are only so many denominations of the finest or whitest *bread*, made of the purest flour; except that in roll *bread* there is an addition of milk, and, in French *bread*, of eggs and butter also. To which may be added, *ginger-bread*, made of white *bread*, with almonds, liquorice, aniseed, rose-water, and fugar; and *masfisi-bread*, *panis mixtus*, made of wheat and rye, or sometimes of wheat and barley.

The process of making household *bread* among us, is thus: to a peck of meal they add a handful of salt, a pint of yeast, and three quarts of water, cold in summer, hot in winter, and temperate between the two; the whole being kneaded in a bowl or trough by the fire in winter, from it in summer, will rise in about an hour; they then mould it into loaves, and put it into an oven to bake.

For unleavened *bread*, part of the flour intended for it, being made into dough with warm water and a little salt, is laid in the rest of the flour an hour or more, in which time it rises to three times the bulk; then they mix and knead the whole with more water, till it be brought into a stiff dough; which being formed into loaves, is baked in the oven; though the more usual way is to take a piece of dough kneaded and leave it in the tub till next time, when they break it small and mix it with the meal, adding some yeast. Hought. Collect. tom. i. N° 90. p. 241.

For French *bread*, they take half a bushel of fine flour, ten eggs, and a pound and a half of fresh butter, into which they put as much yeast, with a manchet; and tempering the whole mass with new milk, pretty hot, let it lie half an hour to rise, which done, they make it into loaves or rolls, and wash it over with an egg beaten with milk; care is taken, the oven be not too hot.

In Lancashire, and several other northern counties of England, the people have several sorts of *oaten bread*; as, 1. The *bannock*, which is an oat-cake, kneaded only with water, and baked in the embers. 2. *Clap-bread*, which is made into thin hard cakes. 3. *Bitchinefs-bread*, which is made of thin batter, and formed into thin soft oat-cakes. 4. *Riddle-cakes*, which are thick and sour, and very little different from the hand-hover *bread*, which has but little leaven, and kneaded stiff. And, 5. *Fannock*, which is *oaten-bread* made up into loaves.

In the statute of assize of *bread* and ale, 51 Hen. III. mention is made of *wastel-bread*, *cocket-bread*, and *bread of treet*; which answers to the three sorts of *bread* now in use, called *white*, *wheaten*, and *household-bread*.

In religious houses, they heretofore distinguished *bread* by the names, *esquires-bread*, *monks-bread*, *boys-bread*, and *servants-bread*.

A like distribution obtained in the households of nobles and princes; where, however, we find some other denominations, as *messengers-bread*, that given to messengers, as a reward for their labour; *court-bread*, that allowed by the lord for the maintenance of his household; *elemosynary-bread*, that distributed to the poor in the way of alms. Du-Cange Gloss. Lat. tom. iv.

The quantity of *bread* allowed a soldier for his day's subsistence is called a *RATION*.

For armies the *bread* is either baked in the park of provisions in the camp, or in the town nearest the army; for the conveniency of ovens, an army ought always to have at least four days *bread* before-hand. In some cases, the distance of the places, from whence *bread* is to be had, or the army's march from one country to another, obliges the general to distribute *bread* for six, or even for eight days; a thing never done without absolute necessity, by reason of the abuse which some soldiers make of it, who sell their *bread* without regard to future subsistence. For long marches through an enemy's country, they sometimes, instead of *bread*, make *BISKET*.

BREAD, horse, is made of wheat, oats, and beans, to which sometimes are added aniseed, gentian, liquorice, fennugreek, eggs, and ale; and sometimes rye and white wine are used.

For race-horses, three sorts of *bread* are usually given with success, for the second, third, and fourth fortnights feeding; they are all made of beans and wheat, worked with barm, the difference consisting chiefly in the proportion of the two former. In the first kind, three times the quantity of beans is used to one of wheat; in the second, equal quantities of both; in the third, three times the quantity of wheat to one of beans.

BREAD, sacramental, in the protestant churches, is common leavened *bread*, agreeable to the ancient practice. In the Romish mass, *AZYMUS*, or unleavened *bread*, is used, particularly in the Gallican church, where a sort is provided for this purpose, called *pain a chanter*, made of the purest wheaten flour, pressed between two iron plates, graven like wafer-moulds, being first rubbed with white wax, to prevent the paste sticking.

Ecclesiastical writers enumerate other species of *bread*, allotted for purposes of religion; as, 1. *Calendarius*, that anciently offered to the priests at the calends. 2. *Prebendarius*, the same with *capitularis*, that distributed daily to each prebendary or canon. 3. *Benedictus*, that anciently given to catechumens before baptism, in lieu of the eucharist *bread*, which they were incapable of partaking of. 4. Consecrated *bread* is a piece of wax, paste, or even earth, over which several ceremonies have been performed with benedictions, &c. to be set up in an *agnus dei*, or a relic box, and presented for veneration. 5. Unleavened *bread*, *AZYMUS*. The Jews eat no other *bread* during their passover; and exact search was made in every house, to see that no leavened bread was left. The usage was introduced in memory of their hasty departure from Egypt, when they had not leisure to bake leavened. 6. *Shew-bread* was that offered to God every Sabbath-day, being placed on the golden table, in the holy of holies.

BREAD of St. Hubert, St. Genevieve, St. Nicholas, &c. denote cakes sanctified with certain prayers and invocations of those saints, held by the superstitious to be of great efficacy in the cure of hydrophobias, agues, and other diseases.

BREAD is also used to denote certain foods made of animal, or even mineral matters, serving to supply the place of *bread*.

In divers parts of the North, we read of *fish-bread*, particularly in Iceland, where dried cod is used for *bread*, being first beaten to powder, and made up into cakes. The like obtains among the Laplanders, whose country affords no corn; and even among the Crim Tartars. Phil. Transf. N° 102. p. 35. Sheff. Hist. of Lapl. chap. 14.

BREAD, in a more extensive sense, includes all the necessities of life, as food, raiment, lodging, &c.

Hence also the sabbath is sometimes called, in ancient writers the *day of bread*, by reason the eucharist was then administered every Lord's day.

BREAD, swine, panis porcinus, a denomination given to *TRUFFLES*.

BREAD, sow's, is also applied to the herb *CYCLAMEN*.

BREAD, assize of.—The price and weight of *bread* is regulated by the magistrates according to the price of wheat; and, in order to direct them in their allowance to the baker, they are to take notice, that the peck loaf of each sort of *bread* is to weigh, when well baked; 17 lb. 6 oz. avoirdupois weight, and the rest in proportion; and that every sack of meal, or flour, is to weigh two hundred weight and two quarters, neat; and that from every sack there ought to be made, at an average, twenty such peck-loaves of *bread*.

We have divers tables of the weights of the loaves both of *wheaten* and *household-bread*, at every price of wheat. If *bread* wants one ounce in thirty-six, the baker formerly was to suffer the pillory; now, to forfeit not more than five shillings, nor less than one, for every ounce wanting; and for every defect less than an ounce, not more than two shillings and six pence, nor less than six pence; such *bread* being complained of and weighed before a magistrate within twenty-four hours after it is baked

baked or exposed to sale, within the bills of mortality, or within three days in any other place. Bakers are obliged, under a penalty, to mark their *wheaten-bread* with a large Roman W, and their *household-bread* with an H. See BAKING.

It is to be observed, *bread* loses weight by keeping; in some experiments recited by Bartholin, the diminution was near one-fourth in six months.

By 13 Geo. III. cap. 62. a standard *wheaten-bread* was ordered to be made of such flour as is the whole produce of the grain, the hull only excepted, and to be marked S W, but it is little used.

TABLE of the Affize and Price of *Bread* made of WHEAT.

Price of the bushel of wheat, and bak- ing.		Weight.				Price.											
		The penny loaf Wheat. Housh.				Quartern Loaf Wheat. Housh.				Half Peck. Wheat. Housh.				Peck Loaf. Wheat. Housh.			
s.	d.	oz.	dr.	oz.	dr.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
2	9	22	4	29	4	0	3 $\frac{1}{4}$	0	2 $\frac{1}{2}$	0	6 $\frac{1}{4}$	0	4 $\frac{1}{2}$	1	0 $\frac{1}{2}$	0	9 $\frac{1}{4}$
3	0	20	4	27	1	0	3 $\frac{1}{2}$	0	2 $\frac{1}{2}$	0	7 $\frac{1}{2}$	0	5 $\frac{1}{4}$	1	1 $\frac{1}{2}$	0	10 $\frac{1}{4}$
3	3	18	9	25	4	0	3 $\frac{3}{4}$	0	2 $\frac{1}{2}$	0	7 $\frac{1}{2}$	0	5 $\frac{1}{4}$	1	3 $\frac{1}{2}$	0	11
3	6	17	0	23	3	0	4	0	3	0	8	0	6	1	4	1	0
3	9	16	6	21	6	0	4 $\frac{1}{4}$	0	3 $\frac{1}{2}$	0	8 $\frac{1}{2}$	0	6 $\frac{1}{4}$	1	5	1	1
4	0	15	4	20	4	0	4 $\frac{1}{2}$	0	3 $\frac{1}{2}$	0	9	0	6 $\frac{1}{4}$	1	6 $\frac{1}{4}$	1	1 $\frac{3}{4}$
4	3	14	4	19	1	0	4 $\frac{3}{4}$	0	3 $\frac{3}{4}$	0	9 $\frac{1}{4}$	0	7 $\frac{1}{2}$	1	7 $\frac{1}{2}$	1	2 $\frac{1}{4}$
4	6	13	9	17	15	0	5	0	3	0	10 $\frac{1}{4}$	0	7 $\frac{1}{2}$	1	8	1	3 $\frac{1}{4}$
4	9	12	12	17	1	0	5 $\frac{1}{4}$	0	4	0	10 $\frac{1}{4}$	0	8	1	9	1	4
5	0	12	1	16	6	0	5 $\frac{1}{4}$	0	4 $\frac{1}{2}$	0	11 $\frac{1}{2}$	0	8 $\frac{1}{2}$	1	11	1	5
5	3	11	9	15	7	0	6	0	4 $\frac{1}{2}$	0	11	0	9	2	0	1	6
5	6	11	2	14	10	0	6 $\frac{1}{4}$	0	4 $\frac{1}{2}$	0	11	0	9 $\frac{1}{2}$	2	1	1	7
5	9	10	6	14	4	0	6 $\frac{1}{2}$	0	5	1	11 $\frac{1}{2}$	0	9 $\frac{3}{4}$	2	2 $\frac{1}{2}$	1	8
6	0	10	2	13	9	0	7	0	5 $\frac{1}{2}$	1	12	0	10	2	3 $\frac{1}{2}$	1	9
6	3	9	11	13	1	0	7 $\frac{1}{4}$	0	5 $\frac{3}{4}$	1	12 $\frac{1}{2}$	0	10 $\frac{1}{4}$	2	4	1	9 $\frac{1}{4}$
6	6	9	4	12	10	0	7 $\frac{1}{2}$	0	5 $\frac{3}{4}$	1	13	0	11	2	6	1	10
6	9	9	0	12	1	0	7 $\frac{3}{4}$	0	6	1	13 $\frac{1}{2}$	0	11 $\frac{1}{2}$	2	7	1	11
7	0	8	11	11	9	0	8	0	6	1	14	0	11	2	8	2	0
7	3	8	7	11	2	0	8 $\frac{1}{4}$	0	6 $\frac{1}{4}$	1	14 $\frac{1}{2}$	0	11 $\frac{1}{2}$	2	9	2	1
7	6	8	3	10	11	0	8 $\frac{1}{2}$	0	6 $\frac{1}{2}$	1	15	0	12	2	10	2	2
7	9	7	14	10	6	0	8 $\frac{3}{4}$	0	6 $\frac{3}{4}$	1	15 $\frac{1}{2}$	0	12 $\frac{1}{2}$	2	11 $\frac{1}{2}$	2	2 $\frac{1}{2}$
8	0	7	10	10	2	0	9 $\frac{1}{4}$	0	6 $\frac{3}{4}$	1	16 $\frac{1}{4}$	0	13	3	0 $\frac{1}{2}$	2	3 $\frac{1}{2}$
8	3	7	5	9	15	0	9 $\frac{1}{2}$	0	7	1	17	0	13 $\frac{1}{2}$	3	1	2	4
8	6	7	2	9	9	0	9 $\frac{3}{4}$	0	7 $\frac{1}{4}$	1	17 $\frac{1}{2}$	0	14	3	2	5 $\frac{1}{2}$	
8	9	6	15	9	4	0	10	0	7 $\frac{1}{2}$	1	18	1	3	3	4	2	0
9	0	6	13	8	15	0	10 $\frac{1}{4}$	0	7 $\frac{3}{4}$	1	18 $\frac{1}{2}$	1	3 $\frac{1}{2}$	3	5	2	7
9	3	6	9	8	12	0	10 $\frac{1}{2}$	0	8	1	19	1	5 $\frac{1}{4}$	3	6 $\frac{1}{4}$	2	7 $\frac{3}{4}$
9	6	6	7	8	8	0	10 $\frac{3}{4}$	0	8 $\frac{1}{4}$	1	19 $\frac{1}{2}$	1	4 $\frac{1}{2}$	3	7 $\frac{1}{2}$	2	8 $\frac{3}{4}$
9	9	6	4	8	5	0	11	0	8 $\frac{1}{2}$	1	20	1	4 $\frac{3}{4}$	3	8 $\frac{1}{2}$	2	9
10	0	6	1	8	2	0	11 $\frac{1}{4}$	0	8 $\frac{3}{4}$	1	21	1	5	3	9	2	10
10	3	5	15	7	15	0	11 $\frac{3}{4}$	0	8 $\frac{3}{4}$	1	21 $\frac{1}{2}$	1	5 $\frac{1}{2}$	3	11	2	11
10	6	5	12	7	12	0	12	0	9	2	0	1	6	4	0	3	0
10	9	5	11	7	9	0	12 $\frac{1}{4}$	0	9 $\frac{1}{4}$	2	0 $\frac{1}{2}$	1	6 $\frac{1}{2}$	4	1	3	1
11	0	5	9	7	5	0	12 $\frac{1}{2}$	0	9 $\frac{1}{2}$	2	1	1	7	4	2	3	2 $\frac{1}{4}$
11	3	5	6	7	3	0	13	0	9 $\frac{3}{4}$	2	1 $\frac{1}{4}$	1	7 $\frac{1}{4}$	4	3 $\frac{1}{4}$	3	2 $\frac{1}{2}$
11	6	5	5	7	2	0	13 $\frac{1}{4}$	0	10	2	2 $\frac{1}{4}$	1	7 $\frac{1}{2}$	4	4	3	3
11	9	5	2	6	15	0	13 $\frac{1}{2}$	0	10 $\frac{1}{4}$	2	3	1	8	4	5	3	4
12	0	5	1	6	13	0	14	0	10 $\frac{1}{2}$	2	3 $\frac{1}{2}$	1	8 $\frac{1}{2}$	4	7	3	5
12	3	4	15	6	10	0	14 $\frac{1}{4}$	0	10 $\frac{1}{4}$	2	4	1	9	4	8	3	6
12	6	4	14	6	8	0	14 $\frac{1}{2}$	0	11 $\frac{1}{4}$	2	4 $\frac{1}{2}$	1	9 $\frac{1}{2}$	4	9	3	7
12	9	4	13	6	5	0	15	0	11 $\frac{1}{2}$	2	5	1	10	4	10	3	8
13	0	4	11	6	4	0	15 $\frac{1}{4}$	0	11 $\frac{1}{4}$	2	5 $\frac{1}{4}$	1	10 $\frac{1}{4}$	4	11 $\frac{1}{4}$	3	8 $\frac{1}{4}$
13	3	4	9	6	3	0	16	0	11 $\frac{1}{2}$	2	6	1	10 $\frac{1}{2}$	5	1	3	9
13	6	4	8	6	1	0	16 $\frac{1}{4}$	0	11 $\frac{3}{4}$	2	7	1	11	5	2	3	10
13	9	4	7	5	15	0	16 $\frac{1}{2}$	0	11 $\frac{3}{4}$	2	7 $\frac{1}{4}$	1	11 $\frac{1}{2}$	5	3	3	11
14	0	4	5	5	13	0	17	0	12	2	8	2	0	5	4	4	0
14	3	4	4	5	11	0	17 $\frac{1}{4}$	0	12 $\frac{1}{4}$	2	8 $\frac{1}{4}$	2	0 $\frac{1}{2}$	5	5	4	1
14	6	4	3	5	9	0	18	0	12 $\frac{1}{2}$	2	9	2	1	5	6	4	2

Note: The weight of loaves of any size may be estimated from those of the penny loaf, by simple addition; e. g. the six-penny loaf weighs six times as much, &c. and the wheaten loaves are three-fourths of the weight of the household loaves. See Burn's Justice, vol. i. p. 220.

BREAD, in *Medicine*. Besides alimentary, *bread* has also medical qualities; decoctions, creams, and jellies of *bread*, are directed in some dispensaries.

There are certain medicated *breads*, appropriated to the intentions of physic; as, aniseed-*bread*, turnep-*bread*, and vipers-*bread*; which last is made of the flesh of that animal, with wheat-flour, yolks of eggs, fursaparilla, yeast, and milk, commended in scorbutic habits. Some direct acorn-*bread*, dipped in red wine, to be thrust up the anus, in prolapsuses of that part.

Mr. Boyle assures us he drew a *menstruum* from *bread* stronger than *aqua fortis*, and which would act even upon glass itself. Phil. Works abr. tom. i. p. 34, 49.

Bread made of good wheat well leavened, and thoroughly baked, with a little salt, is the best; that which is not thoroughly baked, ill kneaded, and without salt, is hurtful and unwholesome, especially in smoky cities: so are unleavened *breads* and cakes baked under the ashes.

In general, the lighter the *bread*, the better and more agreeable it is; coarse and barley *bread* is deterfive, and gently purgative, at least to those not used to it. Some recommend it for persons in the gout.

See farther concerning *bread* in the writers on foods and cookery; especially in Hen. Nicolaus, who has a treatise

express on *bread*. Hen Nicolai Tract. de Pane Dantisc. 1651. See also Fabr. Libl. Antiq. cap. 19. §6.

BREAD, in *Chemistry*.—The chemist's art can extract from so mild a subject as *bread*, an acid, which is a powerful *menstruum*. It is done in this manner: put two pounds of coarse *bread*, cut into small pieces, into a glass retort; place this in a sand-heat, and luting on a receiver, distil with a gentle fire, and there will be produced a liquor appearing like water, with a small quantity of oil; separate the oil, and filtre and rectify the liquor by a second distillation in *balneo Mariae*, and afterwards distil it again in a sand-heat, and there will be produced a moderately strong, clear, acid liquor. This is a *menstruum* capable of extracting the red colour from coral, and even from garnets. Common *bread* affords it, but coarse rye-*bread* yields the greatest quantity. Shaw's Lect. p. 104. Oil of vitriol, poured upon crumbs of *bread*, will excite a surprising degree of heat. Boyle's Works abr. vol. i. p. 569.

BREAD, *bonpournichole*, or *bonpournickel*, the name of a very coarse *bread* eaten in Westphalia, and many other places. This *bread* of the Westphalians still retains the opprobrious name once given it by a French traveller, of *bonpournichole*, good for his horse *Nichole*, but is by no means a contemptible kind.

It is far from being peculiar to this age or country: it has been known in distant places, and in different ages, and was called by the ancients *panis furfuraceus*, or *panis impurus*, from its not being so thoroughly cleaned from the husk or bran, as the fine sorts of *bread* are.

The wrestlers of old ate only this sort of *bread*, to preserve them in their strength of limbs; and we may learn from Pliny, that the Romans for three hundred years knew no other *bread*: unquestionably, this coarse *bread* nourishes more, assuages hunger better, and generates humours less subject to corruption, than the white.

The inhabitants of Westphalia, who are a hardy and robust people, and capable of enduring the greatest fatigues, are a living testimony of the salutary effects of this sort of *bread*; and it is remarkable, that they are very seldom attacked by acute fevers, and those other diseases which arise from an ebullition of the humours, and a malignant colliquation of the blood, and of the humours of which it is composed.

It is certain that a less strong diet is more proper to weakly constitutions, and people of sedentary lives, than this; but for those who will use the necessary exercise with it, it is easy to see that it is preferable to all other kinds of *bread*; since it remarkably restores strength, and has another salutary effect, which is, that it renders the belly soluable: this was a quality remarked in coarse *bread*, and highly commended in it, so early as in the days of Hippocrates.

The Germans make two sorts of waters by distillation from this *bread*; the one with, the other without, the addition of a spirituous liquor: to both which great virtues are ascribed. That without any thing spirituous, is made of the juice of craw-fish, May-dew, rose-water, nutmegs, and saffron, distilled from a large quantity of this *bread*. This is esteemed a great restorative, and given in hectic habits. The other is distilled from this *bread* and Rhenish wine, with nutmegs and cinnamon. This is given in all the disorders of the stomach, vomiting, and loss of appetite, and other complaints of the same kind; and besides these, there is a spirit distilled from it by the retort, in the dry way, which, when separated from its fetid oil, is esteemed a powerful sudorific, and very valuable medicine, in removing impurities of the blood. Hoffman.

BREAD, *Indian* or *Cassada*. See CASSADA.

BREAD, *St. John's*. See CAROB.

BREAD-room, in a ship, that in which the *bread* or BISKET is kept.

BREAD-fruit, at Otaheite, in the South Sea, grows on a tree about the size of a middling oak: it is about the size and shape of a child's head; the surface is reticulated, and covered with a thin skin; the eatable part lies between the skin and the core; it is white as snow, and of the consistence of new bread. It has an insipid, sweetish taste, resembling that of the crum of wheaten bread, mixed with a Jerusalem artichoke. It is roasted and baked before it is eaten. Three different dishes are prepared from this fruit, by beating it into a paste with water, or the milk of the cocoa-nut, and mixing it with ripe plantains, bananas, or the four paste which they call *mahie*. Hawkworth's Voyages, &c. vol. ii. p. 80, and 108.

BREADTH. See LATITUDE, DIMENSION, AREA, &c.

BREADTH, *hair's*. See HAIR.

BREADTH, *finger's*. See FINGER.

BREADTH, *hand's*. See HAND.

BREADTH of a ship is the measure of it from side to side in any particular place: accordingly the *main-breadth* is

that part of every timber which incloses the greatest space from the middle line of the ship's length; *top-timber breadth* is the distance between the upper part of the same timber, and the said middle line; and the *extreme breadth* is the distance between her sides in the *main-breadth* of the midship-frame.

BREADTH-sweep, in *Sea-Language*, denotes the radius of the arch which forms part of the curve of a ship's timber in the horizontal plane.

BREAK, in Norfolk, denotes land ploughed or broke up the first year after it has lain fallow in the sheep-walks. In *Architecture* it denotes a recess, or giving back of a part behind its ordinary range or projecture.

In which sense, they say, a *break* of **PEDIMENT**: a *break* of **ENTABLATURES**, whereby it shrinks, as it were, between the columns, is reputed a fault.

BREAK-in, among *Carpenters*, is when they break a hole in brick-walls with their ripping chissel.

BREAK-neck, *Brise-cou*, in *Building*, a fault in a stair-case, as when a step is made higher or lower than the rest, and landing-place too narrow, or the like.

BREAK-water, the hulk or hull of some old ship, sunk at the entrance of a small harbour, to *break* the force of the waves in their passage to the vessels moored within. It is also used for a small buoy fastened to a large one in the water, and designed to shew where it swims. See **BUOY**.

BREAKERS, in *Sea Language*, signify billows that break violently over rocks lying under the surface of the sea.

BREAKING, in *Agriculture*, denotes the ploughing up of grounds, especially such as have lain some time fallow.

BREAKING ground, in the *Military Art*, the beginning of works for carrying on the **SIEGE** of a place; more especially the beginning to dig **TRENCHES**, or approaches.

BREAKING the angles of a battalion, denotes a military evolution, whereby the four angles turn, and make so many fronts towards the enemy; so that the battalion, which before was only a square, becomes an octangle, and can fire on all sides.

This is otherwise called *blunting the angles of a battalion*; by the French, *emousser les angles d'un bataillon*.

BREAKING of measure, in *Fencing*, denotes a moderate retiring, or giving of ground, in order to avoid the adversary's thrust.

Breaking of measure differs much from going back, and losing or yielding of ground; the latter being reputed a great reproach, the former a mark of judgment and adroitness. Some pretend, that a man retiring is obliged to forbear, if his adversary call him to stand.

BREAKING of the sea, **BREAKING of a wave**, or the like, on a rock, a bank, or the like, are a sufficient indication to the pilots, that it is not safe mooring there.

Divers machines and structures have been contrived for *breaking* the force of wind, the stream of water, and the like.

BREAKING is also used for the taming of animals, or reducing them from a wild to a tractable state.

BREAKING of a horse to the saddle. See **BACKING**, and **TRAVICE**.

To *break* a horse for hunting, is to make him acquire the disposition and habit of running. It is a great fatigue to run horses full speed before they are *broken*.

BREAKING herd, among *Sportsmen*, denotes a deer's quitting the herd, and running by itself.

In which sense, the word stands opposed to *herding*.

A deer, when close pursued, is loth to *break* herd. When a hart *breaks* herd, and draws to the thickets and coverts, he is said to *harbour* or take hold.

BREAKING up a deer, signifies the opening or cutting it up.

BREAKING of prison. See **PRISON**.

BREAKING the legs, *crucifragium*, was an appendage of crucifixion, used no where but among the Jews. See **CROSS**.

BREAKING bulk, in the *Sea Language*, signifies taking part of the ship's loading or cargo out of the hold.

BREAKING of hemp. See **BRAKE**.

BREAKING of bread, is sometimes used in *Ecclesiastical Writers*, for celebrating the **EUCCHARIST**.

BREAKING of wine, among *Vintners*.—Wine is said to *break*, when being left some time in the air, in an open glass, it changes colour; an indication that it will not keep.

This is the usual method of trying the goodness of wine, among the merchants and vintners of Paris.

BREAKING is also used in trade, for a person's failing or stopping payment.

In which sense, *breaking* differs from becoming **BANKRUPT**.

Breaking betimes, while there is something left to pay withal, is a mark of honesty; and, generally, entitles the unhappy person to compassion and gentler usage from his creditors, saves his credit, and facilitates his retrieving. A late sensible writer on trade takes great

pains to inculcate this precept, **BREAK EARLY**. Compl. Eng. Tradesman, vol. i. p. 77, 80, &c.

BREAM, in *Ichthyology*, the English name of the **CYPRINUS latus**.

This is but a coarse fish for the table, but it affords great sport to the angler. The best time of angling for *bream* is from St. James's day to Bartholomew-tide; as being then exceeding fat; and the most proper bait is the largest red garden-worms that can be got. See **SPARUS**.

BREAMING. See **BROOMING**.

BREAST, *Mamma*, in *Anatomy*, a prominent fleshy part of the human body, on the outside of the *thorax*, serving to separate the milk.

Anatomists sometimes divide *breasts* into perfect, which are composed of a multitude of glands, interwoven with veins, arteries, and nerves; such as are those of women; and imperfect *breasts*, composed chiefly of fat, with a few glands, such are those of men.

The internal substance of the *breast* is composed of a great number of glands, of various sizes and an oval figure, intermixed with globules and vessels of fat. Their excretory ducts, as they approach the nipple, join and unite together till at last they form seven, eight, or more, small pipes, called *tubuli lactiferi*, which have several cross canals, by which they communicate with one another, to obviate the inconveniences that might accrue from the casual obstruction of one or more of them. These tubes are not every where of equal capacity, but in some places more, in others less, dilated; so as to form cells, which seem contrived to hinder the spontaneous efflux, and to create a necessity of sucking, to fetch out the contents.

Of the concurrence of these *tubuli*, or pipes, is the substance of the *papillæ*, in great measure, formed; among which is interspersed a glandulous substance, serving to keep them from pressing too close on each other: and with it are intermixed abundance of fibres derived from the external teguments of the *papillæ*; by means whereof, the lacteal tubes are constricted, and the motion of the milk is modified.

Besides, these vessels are abundance of fatty globules, called *ductus adiposi*, which some would have only to fill up the interstices of the glands; but Dr. Drake, after Malpighi, thinks they contribute to the composition of the **MILK**: which seems nothing else but water and oil artfully united.

The office of the *breasts* is to secrete the milk from the arteries in their glandulous substance, to collect it in their lacteal tubes, and, at proper seasons, to yield it to the infant through the nipple.

Some, however, assert that the milk is not formed from the blood, but from the chyle, which is immediately conveyed thither by the thoracic, or Pecquet's ducts. And what confirms the suggestion, is the quick supply of milk in nurses, after a draught of cow's milk. The difficulty is to prove, that the thoracic duct reaches to the *breasts*, which some absolutely deny. Phil. Trans. N° 65. and N° 40. p. 1357. and 805.

Swelling *breasts*, especially if there be milk found in them, is generally judged a mark of the loss of **VIRGINITY**, and a proof that a woman has been with child; though, it is said, it does not hold universally.

The swelling of the *breasts* during the time of gestation, is owing to the consent between the *breasts* and the **UTERUS**; there being so near a communication between the mammary vessels, and the hypogastric vessels of the womb, that dilatation in the latter is attended with a similar one in the former. See **PREGNANCY**, &c.

In virgins, the tubes which compose the glands of the *breast*, like sphincter-muscles, contract so closely, that no part of the blood can enter them: but when the womb grows big with a **FOETUS**, and compresses the descending trunk of the great artery, the blood flows in greater quantity, and with a greater force, through the arteries of the *breasts*, and forces a passage into their glands, which being at first narrow, admits only of a thin water; but growing wider by degrees, as the womb grows bigger, the glands receive a thicker serum; and after birth they run with a thick milk; because that blood which before flowed to the *foetus*, and for three or four days afterwards by the *uterus*, beginning then to stop, does more dilate the mamillary glands.

The *breasts*, especially after delivery, are liable to divers diseases; as inflammations, excoriations, indurations, tumefactions, nodes, abscesses, scirrhuses, and cancers; to which may be added, certain peculiar disorders, as the *sparganosis*, *strangalides*, and *gynæcomaston*. See **CANCER**, **SCIRRHUS**, &c.

In men, the *breasts* are very small, and are chiefly for ornament; though physical histories give instances of those who have had milk in them.

The ancients represented Diana of Ephesus with many *breasts*, as appears from several medals of that city; whence

whence she had the epithet *Mammosa*; q. d. having many *breasts*; an appellation which is also given to Isis, and to Ceres.

BREAST, applied to the correspondent parts of other animals, is more properly called *udders*, *dugs*, *ubera*, &c.

BREAST also denotes that cavity or region of the body by anatomists more frequently called **THORAX**. Though, in propriety, the *breast* is rather restrained to the anterior part of the *thorax* where the ribs meet; called also *sternum*, and *pectus*; in English, popularly, the *bosom*.

We say, a flat, a narrow, a strait *breast*; a broad *breast*, not high, is ranked among the signs of longevity. De- fluxions on the *breast* and lungs are dangerous.

Smiting the *breast* is one of the expressions of penitence. In the Romish church, the priest beats his *breast* in rehearsing the general confession at the beginning of mass. Coughs, catarrhs, asthmas, phthises, peripneumonies, &c. are diseases of the *breast*. See **COUGH**, and **ASTHMA**.

Physicians also speak of a dropfy of the *breast*, *hydrops pectoris*. See **DROPSY**.

Medicines for disorders of the *breast* are called *pectorals*. See **PECTORAL**.

BREAST-bone. See **STERNUM**.

BREAST of a CHIMNEY, denotes the fore-part under the mantle or chimney piece, commonly made inclined.

BREAST-fast, or **BREST-fast**, denotes a rope or hawser employed to confine a ship sideways to a wharf or key, or some other ship.

BREAST-hooks, the compassing timbers before, in a ship, which help to strengthen her stem, and all her fore-part.

BREAST-pain, called by the Italians *grandezzo di petto*, is a distemper in horses proceeding from superfluity of blood and other gross humours, which being dissolved by some extreme and disorderly heat, resort downward to the *breast*, and pain them extremely.

The signs of the *breast-pain* are, a stiff, staggering, and weak-going with his fore-legs, besides, that he can hardly, if at all, bow his head to the ground.

BREAST-plate, a piece of defensive armour, wherewith to cover the *breast*.

The *breast-plate* is said to be the invention of Jason. It was originally made of leather, afterwards of mail, and lastly, of a brazen or iron-plate. When made of this last matter, it is more particularly called *clibanus*, by the moderns **CUIRASS**; when made of brass, with a Gorgon's head in the middle, it is denominated **ÆGIS**.

The *breast-plate*, called also by the Romans *pectoralis*, is frequently confounded with the *thorax* and *lorica*; from both which it ought to be distinguished, as being properly a half-*thorax*, or half-*lorica*, covering only the *breast*; whereas the *thorax* invested the body.

As the whole *thorax* might be a temptation to the soldiery to turn their backs, when equally guarded with their *breast*, the *thorax* was thrown away, and the *hemi-thoracium*, or *breast-plate*, only retained. Polyæn. *Stratag.* lib. vii.

BREAST-plate, in the *Manege*, denotes a leathern strap running from one side of the saddle, across the horse's *breast*, to the other; intended to keep the saddle from slipping backwards in mounting up rising-grounds. It is otherwise called *tee*; sometimes the *poitrail*.

BREAST-plate, among *Artificers*, denotes a drill-plate, against which to set the blunt end of the drill.

BREAST-plough, in *Agriculture*, a small plough so constructed, that a man may push it before him. It consists of a cutting-iron about eight or nine inches long, with one of its sides turned up to cut the turf, which is fixed to a pole about five or six feet long, forked at the upper end, with a cross handle. It is used in the operation called **BURN-BAKING**.

BREASTS of a saddle, are part of the bow, being the two sides of it down from the arch or upper part.

BREAST-work, in the *Military Art*. See **LORICA**, and **PARAPET**.

BREAST-work of a ship, is a sort of ballustrade or fence, composed of rails or mouldings, and often decorated with sculpture; it terminates the quarter-deck, and poop at the fore-ends, and incloses the fore-castle both before and behind.

BREATH, the **WIND** or **AIR** which is received and expelled by the mouth and nostrils, in the act of **RESPIRATION**.

In which sense, the word amounts to the same with the Greek *πνευμα*, and Latin *spiritus*.

A stinking *breath*, is one of the symptoms usually preceding the access of an intermitting fever.

In some persons, a stinking *breath* is an indication of the *menfes* being at hand.

It is disputed among the civilians, whether a stinking *breath*, called *scabro*, owing to rotten teeth or gums, should be reputed a disease. Calvin. *Lex. Jur.*

BREATH is more particularly used to denote a strength of lungs, whereby a man is enabled to hold out without taking wind so often.

In this sense, we say, a long, a short *breath*. The ordinary term of holding the *breath* does not exceed one third of a minute. Bacon, *Hist. of Life and Death*. Ap. Works, tom. iii. p. 176.

For the pearl fishery they choose slaves who have the best *breath*, or can continue the longest under water without fetching their *breath*. Pechlin has a dissertation express on living long without *breathing*. J. Nic. Pechlin *De Aeris & Alimenti Defectu, & Vita sub Aquis diuturna*, Meditatio ad Joel Langelot, 1676.

The ancients were very watchful over the last *breath* of dying persons; which the nearest relations, as the mother, father, brother, or the like, received in their mouths. Pitisc. *Lex. Antiq. voc. Spiritus*.

BREATH is also sometimes extended to the odorous **EFFLUVIA** of plants, and even exhalations of minerals.

BREATHING. See **RESPIRATION**.

Fighting a cock to *breathe* him, is called **SPARRING**.

To *breathe* a running-horse, and bring him to his wind, they gave him a **HEAT**.

BREATHING, *exsufflatio*, a ceremony in **BAPTISM**.

BREATHING, *difficuly of*, in *Medicine*, a disease called by physicians **DYSPNOEA**.

BREDEWITE, in *Ancient Law-Writers*, an amercement arising from some default in the assize of bread.

BREECH of a gun, in *Artillery*, denotes the distance from the hind part of the base ring to the beginning of the bore, and is always equal to the thickness of the metal at the vent. See **AC**, fig. 1 *Tab. Gunnery*.

Engineers have contrived a sort of cannons, which are charged by the *breech*.

BREECH-mouldings. See **MOULDINGS**.

BREECHES, a garment worn by males reaching from the girdle to the knees, and serving to cover the hips, thighs, &c.

The ancient Romans had nothing in their dress answering to our *breeches* and stockings; instead of which, under their lower tunics and waistcoats, they sometimes bound their thighs and legs round with filken scarves, or *fasciæ*, called *tibialia* and *femoralia*. Salmuth. ad Panciroll. p. i. p. 161. Kennet. *Rom. Ant. Not.* p. ii. lib. v. cap. 8.

Breeches appear to be a habit peculiar to the barbarous nations, especially those inhabiting the colder countries of the North; whence Tacitus calls them *barbarum tegmen*. We find mention made of them among the ancient Getæ, Sarmatæ, Gauls, Germans, and Britons; they also obtained among the Medes and Persians, as being a people of Scythian origin: they also afterwards got footing in Italy, some pretend as early as the time of Augustus; but without much foundation, that emperor's *breeches*, mentioned by Suetonius, being apparently only swaths tied over his thighs. Tacit. *Hist. lib.* ii. cap. 20. Perf. Sat. iii. ver. 51. Ovid. *Trist. lib.* v. Eleg. 11. Suet. in August. cap. 82.

However this be, *breeches* were at length received into Italy, and grew so highly into fashion, that it was thought necessary under Honorius and Arcadius, to restrain them by law, and expel the *braccarii*, or *breeches-makers*, out of the city; it appearing a thing unworthy, that a nation, which commanded the world, should wear the habit of barbarians.

We find frequent mention of *bracæ*, *braccæ*, or *bracchæ*, in classic writers, but the form of this habit is not agreed on: some will have it to have been a rough party-coloured coat.

BREECHINGS, in the *Sea-Language*, those ropes with which the great guns are lashed, or fastened to the ship's side.

They are thus called, because brought from the *breech* of the piece; they prevent the cannon from recoiling too much in time of battle, and are employed for securing it during the course of a voyage.

BREEDING is used for the care of rearing or bringing up the young of divers animals.

BREEDING, in a moral sense, denotes a person's deportment or behaviour in the external offices and decorums of social life.

In this sense, we say, well-bred, ill-bred, a man of *breeding*, &c.

Good-breeding amounts to much the same with what is otherwise called *politeness*, among the ancient Romans *urbanity*. Good *breeding* is near to virtue, and will of itself lead a man a great part of the way towards the same; it teaches him to rejoice in acts of civility, to seek out objects of compassion, and be pleased with every occasion of doing good offices.

Lord Shaftesbury compares the well-bred man with the real philosopher: both characters aim at what is excellent, aspire to a just taste, and carry in view the model

of what is beautiful and becoming. The conduct and manners of the one are formed according to the most perfect ease, and good entertainment of company; of the other according to the strictest interest of mankind; the one according to his rank and quality in his private station, the other according to his rank and dignity in nature. Horace seems to have united both characters.

Quid verum atque decens curo et rogo, et omnis in hoc sum.

Shaftes. Charact. vol. i. p. 64. vol. ii. p. 242. vol. iii. p. 161. Hor. lib. i. ep. i. ver. ii.

BREEDING-stone, in *Mineralogy*, a sort of mass of pebbles, joined by a sparry cement; frequent in divers parts of Hertfordshire. See **PEBBLE**.

BREEDING of fish. See **FISH-pond**.

BREEDING of horses, dogs, &c. See **HORSE**, &c.

BREEF-cards, denote a kind of false cards, either longer or broader than the rest, whereby they may be known and distinguished.

BREEZE, a shifting wind, blowing from the sea and land alternately, during certain hours of the day or night; only sensible near the coasts.

The sea breeze, Dampier observes, commonly rises in the morning about nine, proceeding slowly in a fine small black curl on the water towards the shore: it increases gradually till twelve, and dies about five.—Upon its ceasing, the land-breeze commences, which increases till twelve; and is succeeded in the morning by the sea-breeze again.

The sea-breezes rule by day, and the land-breezes by night; so that, dividing their empire, they remain as constant as the seasons of the year, or course of the sun, on which they seem alone to depend; not but that they appear sooner or later, stronger or weaker, in some places than others, and vary the alternative according to the several latitudes, situations, soils, mountains, valleys, woods, and other circumstances of the countries where they are found.

In some countries, the sea-breezes appear only to be efforts of the general or trade-wind, as at Barbadoes, and in many places between the tropics, where the general wind, if not impeded by mountains or islands, blows fresh in the day time, but, after sun set, the terrestrial exhalations becoming precipitated, beget a new wind, which is not only able to make head against the trade-wind, but to repel it from their coasts.

The sea-breezes do not all come from the same point of the compass, but from different points as the land lies.

In Brazil, and many of the Caribbee islands, they have no land-breeze, especially if the shores lie low, as at Barbadoes, where the general or eastern wind blows from one end of the isle to the other, and serves instead of the land-breeze. In other places they want the sea-breeze, especially between the tropics, in coasts which lie westerly, as in the western kingdoms of Africa.

If either the easterly or westerly winds blow fresh, they hinder both the land and sea-breezes in the Mediterranean; of which those are always found the weakest which rise latest. In England, in very hot days, and when no other winds are stirring, the like alternation of land and sea-breezes may be observed on our coasts, though with little certitude, any where to the northward of Portugal.

Breezes are more constant in summer than in winter, and more between the tropics than in the temperate zone.

The general cause of those alternate breezes which set on and off the coasts in hot countries, is the greater rarefaction of the air by reflected heat, and by fermenting exhalations over the land than over the water: the denser air from the water becomes a sea-breeze in the day; but this air condensed again by the cold of the night, may then occasion a land-breeze.

Breezes differ from *etesia*, or **TRADE-WINDS**, as the former are diurnal, or have their periods each day; and, besides, they are only perceived near the shore or coast; whereas the latter are anniversary, and blow at a distance from land. Phil. Trans. N° 183. p. 158.

BREEZE, in *Brick-making*, are small ashes and cinders sometimes made use of instead of coals, for the burning of bricks. But as this does not so well answer the end, the use of it was prohibited by 12 Geo. I. cap. 35. but allowed by 3 Geo. II. cap. 22. 10 Geo. III. cap. 49.

BREEZE-fly. See **OESTRUM** and **GAD bee**.

BREGMA, in *Anatomy*, the same with **SINCIPUT**.

The *bregma* consists chiefly of two bones, hence also called *bregma*, or *bregmatis ossa*, which are two bones of the cranium, otherwise called *ossa parietalia*.

Bregma properly denotes the middle and fore part of the head, situate over the forehead, and extending on both sides to the temples.

The origin of the word is obscure, and has been much controverted between Hoffman and Lindenius.

BREHONS, the provincial judges among the ancient Irish,

by whom justice was administered, and controversies decided.

These sages were a distinct tribe or family, to whom competent lands were allowed in inheritance. In criminal cases, the *brehon* had the eleventh part of all fines; which could not be but considerable, at a time when murders, rapes, robberies, and the like offences, were only subject to pecuniary commutations.

BREHON-laws, denote the general maxims, or rules of law, observed by the *brehons*, and having the force of laws throughout all the provinces of Ireland.

Several fragments of the *leges brehonicae* are still extant in public and private libraries. The most complete collection is that belonging to the duke of Chandos, containing twenty-two sheets and an half, close written, full of abbreviated words, and not very legible. The publication of these laws has been much wished for.

By the statute of Kilkenny, 40 Edward III. it is enacted, that no English subject shall submit to a trial by the *brehon* law, on the penalty of high treason. Notwithstanding which, many were still under a necessity of being concluded by the Irish laws and customs, till the whole kingdom was settled on an English foundation under king James I.

BRENNAGE, *Brennagium*, in *Middle Age Writers*, a kind of tribute paid, in lieu of bran, or bran itself, which the tenants were obliged to furnish for support of the lord's hounds.

The word is also written *brenage*, *brenagium*, and *brenaige*, *bernagium*, *brenaticum*, and *brennaticum*. Du-Cange Lat. Gloss.

BRENNING. See **BURNING**.

BRENTA, in *Ornithology*, the name of a fowl of the goose-kind, known among us by that of the *brent-goose*, and, by some, supposed to differ from the barnacle no other way than in sex; but this is erroneous. It is somewhat larger than the barnacle and is longer bodied. Ray. See *Tab. IV. of Birds*, N° 49.

BREPOTROPHIUM, from *βρεπος*, *infant*, and *τροφή*, *I nourish*, an hospital for foundlings, or a place wherein children, exposed by their parents, are brought up at the public charge.

BRESILIA, in *Ornithology*, a species of *tanagra*, in the order of *passeres*.

BRESMA, in *Ichthyology*, a name given by Hildegard, and several other writers on fish, to the **BREAM**, a species of **CYPRINUS**.

BREST, or **BREAST**, in *Architecture*, a term used by some, for that member of a column otherwise called the *Tore*.

BREST-SUMMERS, or **BRESSUMERS**, in *Building*, are pieces of timber designed for the support of the brick-work in the front or rear wall of a building, for carrying arches, &c.

In the inner parts of a building, the pieces into which the girders are framed are called **SUMMERS**.

BRET, a name which the people on the coasts of Lincolnshire give to the common turbot, a fish extremely plentiful with them, and taken in vast abundance. The way of catching them is in a net, trailed on the ground by two horses; the one going up to the middle of his body in the water, the other on the shore.

BRETACHIE, in *Middle Age Writers*, denote wooden towers or castles, wherewith towns or camps were defended. Du-Cange Gloss. Lat.

BRETESSE, in *Heraldry*, a term used to express a line in some coats of arms, of the same nature with what is usually called the *crenelle*, or **EMBATTLED line**; except that this last is only embattled on one side, and the *bretteffe*, or *crenelle* on both sides. Some authors seem, however, to have understood the terms *bretteffe* and *crenelle* as synonymous words, and when they would express such a line, they call it, if embattled on both sides, *contre-bretteffe*.

BRETHREN and Sisters of the Free Spirit, in *Ecclesiastical History*, an appellation assumed by a new sect which sprung up towards the close of the thirteenth century, and gained many adherents in Italy, France, and Germany. They took their denomination from the words of St. Paul, Rom. chap. viii. ver. 2. 14. and maintained, that the true children of God were invested with the privilege of a full and perfect freedom from the jurisdiction of the law. They were enthusiasts to a degree of distraction, both in their principles and practice. They resembled the **BEGHARDS**, by which name they were sometimes called, in their aspect, apparel, and manner of living. Some of their professed principles resembled those of the *Pantheists*; for they held, that all things flowed by emanation from God; that rational souls were portions of the Deity; and that the universe was God; and that by the power of contemplation, they were united to the Deity, and acquired hereby a glorious and sublime liberty, both from the sinful lusts and the common instincts of nature: and hence they con-

concluded, that the person, who was thus absorbed in the abyss of the Deity, became a part of the Godhead, and was the son of God in the same sense and manner that Christ was, and that he was freed from the obligation of all laws, human and divine. They treated with contempt all Christian ordinances, and all external acts of religion, as unsuitable to the state of perfection at which they were arrived. Some of them were honest but deluded enthusiasts: and they endured the torments inflicted upon them by the inquisitors with astonishing calmness and triumph. Others proceeded to the most extravagant licentiousness of conduct. They held their secret assemblies stark naked, and lay in the same beds with their spiritual sisters, and indiscriminately with other women, without the least scruple or hesitation: modesty and decency being, according to their creed, marks of inward corruption. And some of them proceeded still farther, and maintained, that the *divine man*, or believer, could not sin, let his conduct be ever so horrible or atrocious. Many edicts were published against them; but notwithstanding the severities they suffered, they continued till about the middle of the fifteenth century. They were called by several other names, such as Schweftriones, Picards, Adamites, and Turlupins. Mosheim's Eccl. Hist. vol. iii. p. 122, &c. 202, &c. 273, &c.

BRETHREN and *clerks of the Common Life*, a denomination assumed by a religious fraternity towards the latter end of the fifteenth century. They lived under the rule of St. Augustin; and were eminently useful in promoting the cause of religion and learning. Their society was first formed, in the preceding century, by Gerrad de Groote, a native of Deventer; but did not flourish till about the period above mentioned, when it obtained the approbation of the council of Constance, and became very respectable in Holland, the Lower Germany, and the adjacent provinces. It was divided into two classes; the *lettered brethren* or *clerks*, and the *illiterate*: they lived in separate habitations, but maintained the closest fraternal union. The former applied to the study of polite literature, and the education of youth; whilst the later were employed in manual labour, and the mechanic arts. They were frequently called *Beghards*, and *Lollards*, by way of reproach. Mosheim, vol. iii. p. 253.

BRETHREN, *White, fratres albi*, were the followers of a leader about the beginning of the fifteenth century, who was arrayed in a white garment; and, as they were also clothed in white linen, they were distinguished by this title. Their leader was a priest from the Alps, who carried about a cross, like a standard, and whose apparent sanctity and devotion drew together a number of followers. This deluded enthusiast practised many acts of mortification and penance, endeavouring to persuade the European nations to renew the holy war, and pretended that he was favoured with divine visions. Boniface IX. ordered him to be apprehended and committed to the flames, upon which his followers dispersed. Mosheim, vol. iii. p. 275.

BRETHREN, *of the Observance*. See **OBSERVANCE**.

BRETOYSE, or **BRETOIS**, the law of the marches of Wales; in use among the ancient Britons.

BREVE, **BREVIS**, *short*, in *Grammar*.—Syllables are distinguished into *longæ* and *breves*, according as they are pronounced quicker or more slow; the time of a *breve* is half that of a *long*, or, as the grammarians express it, a *breve* is one time, and a *long* two. See **ACCENT**.

BREVE, in *Music*, is a note or character of time, formed square without any tail; and equivalent to two measures, or semibreves. See **CHARACTERS of music**, and **SEMIBREVE**.

BREVE is used in the *Civil Law* for a short note or minute.

In which sense, the word is also written *brevis* (subaude *libellus*) and in English **BRIEF** or *breve*; amounting to much the same with what is otherwise called *schedula* and *brevicula*.

BREVE more particularly denotes a list or register of the names of the soldiers under the command of a general.

BREVE is more particularly used in *Common Law* for a **WRIT** or **BRIEF**. Hence,

BREVE perquirere, is to purchase a writ or licence of trial in the king's courts by the plaintiff; and on this depends the usage of paying to the king in suits for money due on bond, 6s. 8d. when the debt is 40l. and 10s. when it is 100l.

Fitzherbert has given a new *Natura Brevium*; thus called by way of distinction from an Old *Natura Brevium*, composed about the time of Henry III. There is a copy of this book of Fitzherbert's filled with manuscript notes by sir M. Hales, in Dr. Williams's Library in Red Cross Street.

BREVE de recto, see **RECTO**.

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BREVE was, see **VAS breve**.

BREVET, in the *French Laws*, denotes an act issued by a secretary of state, importing a grant of some favour or donation from the king.

The word is formed from the middle age Latin, *brevettum*, of *breve*, *short*.

In which sense, *brevet* amounts to much the same with our **WARRANT**.

They say a *brevet* of nomination, a duke by *brevet*; such a person had a *brevet* of a marshal of France.

BREVET more particularly denotes the commission of a subaltern officer, being only written on parchment, and without seal.

BREVET, in the *Sea Language*, is sometimes used for a **BILL** of lading.

BREVIA, *testata*, mentioned by *Feodal Writers*, were written memorandums, introduced to perpetuate the tenor or the conveyance and investiture of lands, when grants by parol only became the occasion of dispute and uncertainty. To this end they registered in the deed the persons who attended as witnesses, and heard it read without signing their names; the clerk adding their names in a sort of memorandum. Modern *deeds* are an improvement and amplification of these. Blackstone's Comment. vol. ii. p. 307.

BREVIARE, to abbreviate or reduce a thing into a shorter compass.

This is otherwise called *abbreviare* and *inbreviare*.

BREVIARIUM, is more particularly used among Roman writers, to denote a book introduced by Augustus, containing the accounts of the empire.

The design of it was for giving an account to the people how the monies levied on them were applied. The emperor Tiberius laid aside the *breviarium*, but it was resumed by Caligula.

BREVIARY, is an **EPITOME**, and **ABRIDGMENT**, or short state of a thing.

The word is Latin, *breviarium*, though not pure, as appears from Seneca, who observes, that the ancients, in lieu of it, used *summarium*.

BREVIARY was also used among the ancients for the place where the briefs, or what was written abbreviately, were preserved.

BREVIARY, among *Ecclesiastical Writers*, denotes the office or service, both for day and night, as performed in the Roman churches.

BREVIARY is more frequently used for a church-book, containing the office of the *breviary*, that is, the prayers, and other parts of the service, with the several variations to be made therein, according to the several days, canonical hours, feasts, and the like.

D. Mege derives the name *breviary* from hence, that the ancient monks in their journeys, &c. had little books, wherein were the psalms and lessons, read in the choir, collected out of large volumes: and F. Mabillon tells us, he has seen two such books in the archives of Cîteaux; they were not above three fingers broad: their letter was exceedingly small, and consisted mostly in abbreviations, expressing a whole period in a few syllables: whence they had a good title to the appellation of *breviaries*, q. d. *abridgments*.

Some deduce the appellation *breviary* hence, that when the popes resided in the Lateran palace, the office read in the papal palace was much shorter than that said in the other churches of Rome; which office, thus abbreviated, was compiled by Innocent III. and called *officium capellare*, till such time as the Franciscan friars adopting the same, in conformity to the papal chapel, it became denominated *breviarium*, and shortly after was in general use. Marg. Vocab. Ecclesi. p. 38. Menag. Orig. Franc. The first time the word *breviary* occurs, in the sense of a church-book, is in a letter of the archbishop of Lyons to the bishop of Langres, in 1099; or rather by Micrologus, who lived in 1080.

The Roman *breviary* is general, and may be used in every place: but on the model of this have been formed various others, peculiarly appropriated to each diocese, and each order of religious.

The *breviary* consists of the services of matins, lauds, prime, third, sixth, nones, vespers, and the complines, or *post-communio*; that is, of seven different **HOURS**: on account of that saying of David, *Septies in die laudem dixi tibi*.

The obligation of reciting the *breviary* every day, which was at first universal, by degrees was reduced to the beneficiary clergy alone, who are bound to do it on pain of mortal sin, and of refunding their revenues, in proportion as they are delinquent herein. In the fourteenth century, there was a particular reservation in favour of bishops, for passing, on occasion, three days without rehearsing the *breviary*.

The institution of the *breviary* not being very ancient, the

lives of the saints were inserted in it, agreeable to the opinions of the times; i. e. full of ridiculous ill-attested facts; which gave a handle to several purgations, or re-formations thereof, by several councils, particularly those of Trent and Cologne; by several popes, as Pius V. Clement VIII. and Urban VIII. as also by several cardinals and bishops, each of whom lopped off some of the extravagancies, and brought the work nearer to the simplicity of the primitive offices; as acknowledging, that in the ancient church there was nothing read, but scripture itself.—Cardinal Quignon carried the reformation the farthest; leaving out the little office of the Virgin, the verses, responses, and a great part of the lives of the saints.

The *breviaries* now in use are almost innumerable: the difference between them consists principally in the number and order of the psalms, hymns, pater-nosters, ave-mary's, credo's magnificats, cantemus's, benedictus's canticamus's, nunc dimittis's, miserere's, hallelujah's gloria patri's, &c.

The most eminent, after the Roman *breviary*, are, that of the Benedictines, that of the Bernardines, of the Chartreux, of the Præmonstratenses, of the Dominicans, the Carmelites, the Franciscans, and Jesuits; also that of Cluny, of the church of Lyons, the church of Milan, and the Mozarabic *breviary* used in Spain.—But in reality there is scarce a church in the communion of Rome, in France, Flanders, Spain, Germany, &c. that has not something particular in the form and manner of its *breviary*: though the differences are generally inconsiderable. See AMBROSIAN, GALLICAN, &c.

The *breviary* of the Greeks, which they call *ωρολογιον*, *horologium*, q. d. *dial*, is nearly the same, in almost all the churches and monasteries that follow the Greek rite. The Greeks divide the psalter into twenty parts, *καθίσματα*; which are a kind of rests, pauses, or stations: and each pause is again subdivided into three parts.—In general, the Greek *breviary* consists of two parts; the one containing the office for the evening, called *μεσονυκτιον*; the other that for the morning, consisting of matins, lauds, prime, tierce, sixth, none, vespers, and complines.—The *breviary* of the Maronites contains some more considerable variations.

Among the people who speak the Slavonic language, or any of its dialects, the *breviary* is rehearsed in the vulgar tongue; as among the Maronites in Syriac, among the Armenians in Armenian, &c.—Those who rehearse the *breviary* in the Slavonic, are divided as to the rite: some following the Roman or Latin rite, as the inhabitants of Dalmatia, and the neighbouring coasts: whereas those who live farther within the continent as in Hungary Bosnia, Slavonia, &c. and in Poland, Lithuania, and Muscovy, follow the Greek rite.—The *breviaries* of the Copts and Abyssinians are much alike.

BREVIATE, is sometimes used for an ABRIDGMENT, or short extract of a book or paper. Phil. Trans. No 37. p. 2212.

BREVIATOR, an officer under the eastern empire; whose business was to write and transcribe briefs.—At Rome, those are still called *breviators*, or ABBREVIATORS, who dictate, and draw up the pope's briefs.

BREVIER, among *Printers*, is the denomination of a small species of letters between *minion* and *burgeois*. See PRINTING.

BREVIS cubiti, in *Anatomy*, one of the extensor muscles of the cubitus, arising from the external spine of the humerus.

BREVIS radii, one of the supinator muscles of the radius, arising partly from the external condylus of the humerus, and partly from the upper and exterior part of the ulna; and inserted into the superior part of the radius, which it embraces wholly: and serves to turn the palm of the hand upwards.

BREVIS is also used by some for the third of the extensors of the carpus, which, arising from the lower part of the humerus, and running along the radius, terminates in the bone of the carpus which sustains the middle finger. Some anatomists join this with the second EXTENSOR, and call them *bicornis*, or *radialis externus*: others choose to distinguish them because they have different origins, and insertions; and that their bellies are separable.

BREVIS extensor pollicis pedis, see EXTENSOR.

BREVIS flexor pollicis pedis. See FLEXOR.

BREVIS peronæus. see PERONÆUS.

BREVIS pronator radii, see PRONATOR.

BREVITY, in a general sense, that which denominates a thing brief or short.

BREVITY is more particularly used in speaking of the style or composition of discourse. *Brevity* of discourse is by some called *brachylogia*, and *breviloquentia*; sometimes *laconismus*. Tacitus and Perflus are remarkable for the *brevity* of their style. There are two kinds of *brevity*, one arising from dryness, poverty, and narrowness of

genius; the other from judgment and reflection; which latter alone is laudable. *Brevity* is so essential to a tale, a song, and an epigram, that without it, they necessarily languish and become dull.

Rhetoricians make *brevity* one of the principal marks or conditions of eloquence; but the rules they prescribe for attaining it, are difficult to apply, so as still to keep the due medium between too much and too little.

A just *brevity* is attained by using all the words which are necessary, and none but those which are necessary. Sometimes it may also be had, by choosing a word which has the force of several. It is this last kind which Quintilian admires so much in Sallust; and the imitation of which, by other writers, has caused so much OBSCURITY.

BREVIUM custos, see CUSTOS.

BREVIUM falso retorno, see FALSO.

BREWED wine. See WINE.

BREWER, an operator who professes the art of BREWING.

Brewers are called, in *Middle Age Writers*, *brexiatores*, *braciatores*, *braxionarii*, *braxiatrices*, *braxatrices*, and *cambarii*. Du-Cange Gloss. Lat. tom. i.

The *brewers* of London make a COMPANY, incorporated by Henry VI. in 1438, consisting of a master, three wardens, twenty-eight assistants, and one hundred and eight liverymen.

At Paris, they have a company of *brewers*, which is one of the oldest in the city, having statutes as early as 1268.

The apparatus and utensils of a *brewer*, or a *brewhouse*, are a furnace made close and hollow for saving fuel, and with a vent for the passage of the smoke, lest it taint the liquor; a copper, which is preferable to lead; a mask-fat near the head, a cooler near the mask-fat, and guile-fat under the cooler; adjoining to all, are several clean tubs, to receive the worts and liquors.

Brewers use BALLS for fining, feeding, preserving, relishing, and colouring MALT-drinks, wines, and cyders. They are of two kinds, and denominated from their colours *brown* and *pale* BALLS.

The ingredients in the composition of these BALLS, of the brown kind, are as follow:

Alabaster, or marble, calcined into powder, two pounds; oyster-shells a little calcined, and freed from their dirty-coloured outside, one pound; pure fat chalk well dried, one pound; horse-bean flour, freed from the hulls, one pound; red Saunders, four ounces; grains of paradise, half an ounce; Florentine orice-root, half an ounce, coriander seed, one quarter of an ounce; six cloves; half an ounce of hops; two ounces of the best staple incised isinglass; and two pounds of the first runnings of melasses or treacle.

Pale balls are made after the same manner, and with the same quantities of all the ingredients; except that the Saunders is left out, and a pound or two of fine sugar made into a syrup is used in room of the melasses.

The powders are to be very fine, and the BALLS must be dried very gradually without heat for the first three or four days; afterwards they may be put into the sun, or at a proper distance from the fire, in order to be thoroughly dried; the quantity of hops may be omitted or increased at discretion as the liquor requires.

Put as much water to the isinglass as will just cover it in order to open its body, and so let it stand for twelve hours. Add then the following infusion to it, and gradually dissolve the whole over a gentle fire. It is then to be strained off hot, upon some of the powder, the remainder of which is to be added by little and little, with some of the syrup or treacle alternately, till the whole be converted into a stiff mass, of which the BALLS, weighing four ounces each, are to be formed.

To make the infusion before spoken of, a pint of boiling water is to be poured on the coriander seed, and cloves bruised, and on the hops well rubbed. They are then to be close covered, and suffered to stand so for twelve hours, when they may be strained off for the purpose above mentioned.

What follows may serve for a direction with respect to the number of balls which are to be put into casks of different sizes.

Powder one of the balls; and put it into a half firkin; into a firkin, two; into a kilderkin, three; into a barrel, six; and so on, in proportion. It is to be stirred well into the liquor, which should be racked off, if it be of age to bear racking.

BREWING, the operation of preparing ale, or beer, from malt.

The usual process of *brewing* is as follows. A quantity of water being boiled, is left to cool, till the height of the steam be over; when so much is poured to a quantity of malt in the mashing-tub, as makes it of a consistence, stiff enough to be just well rowed up: after standing thus a quarter of an hour, a second quantity of the water

water is added, and rowed up as before. Lastly, the full quantity of water is added; and that in proportion as the liquor is intended to be strong or weak. This part of the operation is called *mashing*. The whole now stands two or three hours, more or less, according to the strength of the wort, or the difference of weather, and is then drawn off into a receiver; and the mashing is repeated for a second wort, in the same manner as for the first; only the water to be cooler than before, and not to stand above half the time.

The two worts are then to be mixed, the intended quantity of hops added, and the liquor close covered up, gently boiled in a copper for the space of an hour or two; then let into the receiver, and the HOPS strained from it into the coolers.—When cool, the barm or yeast is applied; and it is left to work, or ferment, till it be fit to turn up.

For small beer, there is a third mashing, with the water near cold, and not left to stand above three quarters of an hour, to be hopped and boiled at discretion.—For double beer or ale, the two liquors resulting from the two first mashings, must be used as liquor for a third mashing of fresh malt. For fine ale, the liquor thus brewed, is farther prepared with melasses; but liable to a forfeiture of 20*l.* by stat. 1 Anne, cap. 3.

Instead of YEST, some use Castile soap, others flour and eggs, others an essential oil of barley; others a quintessence of malt, others wine, and others the *sal panaristus*.

For the properties of the liquors thus brewed, see MALT-liquor. For duty on ale and beer, see ALE.

Brewing is an art depending on chemistry, and capable of being improved various ways, both with regard to the preparation of the malt, the use of hops, and the management of the working or fermentation. Some have introduced the use of vegetable sap, as birch and sycamore waters, to good purpose, into the art of *brewing*. Honey, treacle, and sugar, are also capable of being applied to advantage in *brewing*. Phil. Transf. N^o 68. p. 2071. N^o 34. p. 917.

The sap or juices of trees is a very valuable article in *brewing*, and not only improves malt liquor, but renders it much cheaper. The sycamore is the best tree for tapping for this purpose; it yields a great quantity, and that without any other trouble than boring a hole properly, and placing a vessel under it. One bushel of malt brewed with this juice, will make as good beer as four bushels in the ordinary way. The best way of procuring the sap is this: take a large auger, and with it bore two holes on the opposite sides of the tree, each so deep as to the pith. Each hole is to be bored sloping upwards, and the best place for it is immediately under a large arm of the tree near the ground; and if the arm be pierced through with the auger in the way to the tree, it will be so much the better: in this manner, there needs no spigot or stone to keep open the hole, or to direct the course of the liquor, for it will of itself run down into a vessel placed to receive it; and one tree will thus, in a few days, yield a sufficient quantity of liquor to brew with.

In order to preserve the sap in a proper condition for *brewing*, what is first gathered must be insulated by a constant exposition of it to the sun, in proper glasses, till the rest be obtained; otherwise the first will contract an acidity that will spoil it. When a sufficient quantity of the sap is thus collected, as much rye-bread must be put into it, cut thin and well toasted, but not burnt, as will serve to ferment it; when it works well, the bread is to be taken out, and, at a convenient time, it is to be bottled up, and will thus afford a pleasant liquor, of considerable strength, without malt or any other addition. Some people add sage to this liquor, baking it in their crusts of rye-bread, till thoroughly dry, and then adding it with the bread to the working liquor. If a few cloves be tied up in a rag, and put into the vessels into which the sap is received from the tree, they will preserve it the year round, without any fermentation: they are very apt to give a taste to the liquor; but if it be so contrived that they are taken out before they give this taste, the liquor will keep as well, without any flavour of them. The adding a few drops of oil of sulphur, will have the same effect; and so will the fuming with sulphur itself. A little spirit of wine, poured on the top of the juice in every bottle, will also be very instrumental in preserving it.

Many people, instead of adding malt, and *brewing* the sap of the sycamore or birch into ale, use raisins, and make a sort of wine of it; and some add sugar. Some have used the rye-toasts with very good success, though they were not put into the liquor, but only hung over it, at such a distance as to give a warmth and motion to the surface. Common ale yeast has been tried by some to ferment the juice of the birch; but it usually spoils it,

turning the liquor into a very bad small beer. The Flemish wheat-ferment would probably in time excellently mature the bottled juice of the birch or sycamore; but it would require a considerable time for it. Cinnamon is worthy to be tried in the room of cloves, as of a much more agreeable flavour. Honey has no effect on cyder at all; for it will not mix with it, though boiled in it to make mead; but after a time, the cyder lets fall the honey, and becomes simple cyder again: it is a question whether it would mix with these juices; but if it would, it might probably make a great improvement in them. The tops and young leaves of birch boiled in the sap, are said by some to preserve it. Phil. Transf. N^o 146.

BREWING, among *Distillers*, denotes the method of extracting the more soluble parts of vegetables with hot water, and thus procuring a solution or decoction fitted for vinous fermentation.

In which sense *brewing* is a necessary step towards DISTILLATION.

A fermentable solution, fit for yielding a spirit, or brandy, is obtainable from any vegetable, under proper management; but the more readily and perfectly the subject dissolves, the better it is disposed for fermentation, and the production of brandies. Thus sugar, honey, treacle, manna, and other inspissated vegetable juices, which totally unite with water, into a clear and uniform solution, are more immediate, more perfect, and better adapted subjects of fermentation than roots, fruits, or herbs, in substance, the grains, or even malt itself; all which dissolve but very imperfectly in hot water.

Yet MALT, for its cheapness, is generally preferred in England, and brewed for this purpose, much after the common manner of *brewing* for beer; only the worst malt will serve for distillation; and the tincture, without the addition of hops, and the trouble of boiling, is here directly cooled and fermented.

The grain intended for *brewing* is previously malted, to prepare it for dissolving more easily and copiously in the water, so as to afford a richer tincture or solution, which, after due fermentation, will yield about one half more of proof spirit than the tincture of an equal weight of unmalted corn.

Brewing is also used, in an ill sense, for the counterfeiting and compounding especially of wines. Vintners and wine-coopers are suspected of *brewing* wines, or mixing divers inferior sorts, to imitate some better kind. The necessity of accommodating their liquors to the palates of their guests, is another cause of *brewing*; inasmuch that some have confessed they commonly draw out of two or three casks for every pint.

BREWING, in *Sea-language*, the appearance of black tempestuous clouds, arising gradually from a particular part of the hemisphere, and indicating an approaching storm.

BRENIA, in *Botany*, a genus of the *polyandria monogynia* class of plants, the characters of which are these: the flower hath four oval petals, which are a little longer than the empalement. It hath a great number of slender stamina. In the centre is situated a slender, oblong, obtuse germen, which afterwards becomes a long soft fleshy pod, opening in two valves with one cell, enclosing a row of fleshy kidney-shaped seeds. There are two species, which being natives of the West Indies, are impatient of the cold, and therefore must be preserved in stoves.

BRIAR, in *Botany*, a name given to many species of the ROSE.

BRIBE, see BRIBERY.

The word is French, *bribe*, which originally denotes a bit, fragment, or relic of meat taken off the table; on which footing, *bribe* imports as much as *panis mendicatus*, and still keeps up the idea of the matter whereof *bribes* anciently consisted. Hence also the Spaniards use *bribar* and *brivar* for begging; and *brivia*, *brivoneria*, and *brivonismo*, for beggary. Menag. Orig. Franc. p. 131. Skinner Etym. in voc.

In *Middle Age Writers*, a *bribe* given to a judge, is called *quota lici*, and the receiver, *campi particeps*, or *cambi particeps*; because the spoils of the field, i. e. the profits of the cause, were thus shared with the giver. Du-Cange, Gloss. Lat. tom. i.

BRIBERY, in *Common Law*, is when a person in judicial places takes a gift or reward of any person who has business before him, for doing his office, or by colour of his office, except the king only, unless it be meat and drink; and it is punishable by fine and imprisonment, and the loss of office: and it was anciently deemed treason in a judge.

In a larger sense, *bribery* denotes the receiving or offering any undue reward, to or by any person concerned in the administration of public justice, as an inducement for acting contrary to duty; and sometimes it signifies the

the taking or giving a reward for a public office. Officers of the customs taking any *bribe*, whereby the crown may be defrauded, forfeit 100*l.* and are rendered incapable of any office. Candidates that *bribe* electors, after the date or *teste* of the writs, or after the vacancy, are disabled to serve in parliament; and he that takes, as well as he that offers a *bribe*, forfeits 500*l.* and is disabled from voting, and holding any office in any corporation; unless, before conviction, he discovers some other offender of the same kind, whereby he is indemnified for his own offence. Blackstone's Com. vol. i. p. 179. vol. iv. p. 139.

BRICIANI, *Knights of St. Bridget*, a military order, resembling that of Malta, established by St. Bridget, princess of Sweden, in 1366, and approved of by pope Urban V. who gave it the rule of St. Augustine.

The arms of the *Briciani* were a cross azure, like that of the knights of Malta; under which was a tongue of fire to express the ardour of their zeal: their office was to fight against heretics, bury the dead, assist widows and orphans, &c.

BRICK, a kind of factitious stone, of a reddish or yellow colour, made of a fatty earth, formed into long squares, four inches in breadth, and eight or nine in length, by means of a wooden mould; and then burnt or baked in a kiln, to serve for the uses of building.

There are also *bricks* of a whitish colour. Wulpit, in Suffolk, is famed for this sort.

Bricks appear to be of a very ancient standing, the tower of Babel and the walls of Babylon being built thereof; as appears both from sacred history, and from the remains thereof, still said to be in being. Under the first kings of Rome, they built with massive squared stones, which they learnt from the Tuscans: towards the latter time of the republic, they began to use *brick*; borrowing the practice from the Greeks; and the greatest, as well as the most durable buildings of the succeeding emperors, as the Pantheon, &c. were built therewith.—In the time of Gallienus, the buildings were composed of a row of *brick*, and a row of soft gritty stone, alternately. After him they laid aside the use of *bricks*, and resumed that of flints.

In the East they baked their *bricks* in the sun: the Romans used them crude; only leaving them to dry in the air a long space of time; viz. four or five years.

The *bricks* used by the Greeks were principally of three kinds: the first called *didapor*, i. e. of two palms; the second *τετραδαפור*, of four palms; and the third *πενταδαפור*, of five palms.—They had other *bricks*, just half each of these, which they joined together to render their work more solid, as well as more agreeable to the eye, by the diversity of figures and sizes of the *bricks*.

Bricks, among us, acquire various names, according to their forms, dimensions, uses, method of making, place, &c. The principal are; *Compass bricks*, of a circular form, used in steening of walls. *Concave*, or *hollow bricks*, on one side flat, like a common *brick*, on the other hollowed, about three quarters of an inch deep, and half an inch broad; used for conveying water under ground: they are usually a foot long, four inches and a half broad, and two and a quarter thick. *Cogging bricks*, used for making the indented work, under the coping of walls built with great *bricks*: they are about ten inches long, four broad, and two and a quarter thick. *Coping bricks*, formed on purpose for coping of walls, are about twelve inches square, and four thick, flat underneath, one third above semicircular, and the two ends flat. *Dutch* or *Flemish bricks*, used to pave yards and stables, and for soap-boilers vats, and cisterns. *Brique de Chantignole*, or *Demibrique*, is that only an inch thick, but otherwise of the same dimensions as the whole *brick*; used in paving between borders of stones, and also for the making of hearths and chimney backs. *Clinkers*, such *bricks* as are glazed by the heat of the fire in making; these lie in the middle of the kiln or clamp; and are the most durable. *Feather-edged bricks*, are made like the common statute *bricks*, only thinner on one edge than on the other, and used to pen up the brick pannels in timber buildings. *Samel*, or *sandal bricks*, are such as lie outmost in a kiln or clamp, and consequently are soft and liable to moulder; as not being thoroughly burnt. *Great bricks*, are those which are twelve inches long, six broad, and three thick: the weight of one being about fifteen pounds: so that 100 weigh 1500, and 1000 of them 15000 pounds; their use is to build fence-walls; together with, *pilaster*, or *buttress bricks*, which are of the same dimensions with the great *bricks*, only they have a notch at one end, half the breadth of the *brick*: their use is to bind the work at the pilasters of fence-walls, which are built of great *bricks*. *Paving bricks*, or *tyles*, are of several sizes in several counties and places, from six to twelve inches square, and one and a quarter, more or less, thick. See PAVEMENT, and TYLE.

Place-bricks, such as are made in a place prepared on purpose for them, near the building in which they are to be used. *Statute*, or *small common bricks*, when burnt, by stat 10 Geo. III. c. 49, ought to be eight inches and a half long, four broad, and two and a half thick: 100 of these usually weigh about 550 pounds; and 1000 5500 pounds; about 407 in number, make a ton weight. These are commonly used in paving cellars, hearths, sinks, &c. Thirty or thirty-two, if true measure, will pave a yard square, and 330 will pave a square of 100 feet laid flat; but if laid edgeways, there must be near double the number. *Stock-bricks* are to be of the same dimensions; only one eighth of an inch thicker; and they are either marle or grey stocks. These and the *samel bricks* are most used in building: *rubbing bricks* are for gauged work; *clinkers* for paving; Windsor and Welsh *bricks* for furnaces, as being the fittest to bear intense heat.

Barbaro, in his commentary on Vitruvius, recommends another form of *bricks*; viz. *triangular* ones, every side a foot long, and only an inch and half thick. These, he observes, would have many conveniences above others; as being more commodious in the management, of less expence, and of fairer shew; adding much beauty and strength to the mural angles, where they fall gracefully into an indented work. Sir H. Wotton wonders they have never been taken into use, being recommended by so great an authority.

The earth whereof *bricks* are made, must not be sandy, which will render them both heavy and brittle; nor must it be too fat, which will make them crack in drying. They should be made either in the spring, or autumnal season; and when made, they must be sheltered from the sun, if it be too hot, and yet be exposed to the air to dry. If they be made in frosty weather, they are to be covered with sand; if in hot weather, with wet straw.

The several steps in the process of our *brick-making*, are basting the clay or earth; treading or tempering the same with water; sanding the *brick*, which is to riddle or cast dry sand on the wet *brick* lying on the ground; raising the *bricks* on one side, that they may dry the better and sooner; walling the *brick*, which is to lay one upon another, after the manner of a wall, to keep them from foul weather, and that they may dry thoroughly; sodding the *bricks*, which is to cover them up with turf; setting the *bricks* in the kiln, or the laying of slack or small coal between every course or row of *bricks*; daubing the kiln, which is the claying of it all about the top, to keep the fire in, and secure the kiln from weather; firing, which is to set the fuel put into the arches on fire; earthing which implies to put earth about it; to stop the arches, that the fire may take upwards to the top of the kiln; cooling the kiln after it has done burning; breaking the kiln; counting of *bricks*; carrying the *bricks*, which is to bring them to the place where they are to be used, either on horseback or in tumbrils.

The burning of *bricks* is performed either in a kiln, or a clamp. In the former the, *bricks* being set in, and the kiln covered with pieces of *bricks*, they put in wood, to dry them with a gentle fire; and this they continue till they are pretty dry, which is known by the smoke's turning from a whitish to a thin black smoak. They then cease to put in wood, and proceed to burn with brush, furze, straw, heath, brake, or fern faggots; having first dammed up the mouth of the kiln with a shingle, i. e. pieces of *bricks* piled upon one another, and closed with wet *brick* earth, instead of mortar: then they continue to put in more faggots, till the kiln and its arches look white, and the fire appears at the top of the kiln: upon which they slacken the fire for an hour, and let all cool by degrees. This they continue to do alternately heating and slacking, till the ware be thoroughly burnt; which is usually effected in forty-eight hours.

About London they chiefly burn in clamps, built of the *bricks* themselves, after the manner of arches in kilns; with a vacancy between each brick's breadth, for the fire to play through; but with this difference, that instead of arching they truss or span it over, by making the bricks project over one another, on both sides of the place, for the wood and coals to lie in, till they meet and are bounded by the *bricks* at the top, which close all up. The place for the fuel is carried up straight on both sides, till about three feet high: then they fill it almost with wood, and over that lay a covering of sea-coal and then over-span the arch; but they strew sea-coal also over the clamp, betwixt all the rows of *bricks*; lastly, they kindle the wood, which gives fire to the coal: and when all is burnt out, they conclude that the *bricks* are sufficiently burnt.

The arches of a kiln of *bricks*, are the hollow places at the bottom where the fire is; *pigeon-holes* are apertures in the fire-arches; *checker-course*, denotes the lower row

of bricks in the arch; *tying-course*, those which cover the top of the arch; *binding-course*, is the laying of bricks over the joints of the under-course; *dividing-course*, is the divisions or parts of a kiln; *flating-course*, is the top of all the kiln: the *wheeler*, is he who carries the clay from the pit to the moulding-board foot, and there turns it off the wheelbarrow; *staker*, he who puts the clay off the ground upon the board; *moulder*, he who works the clay into the brick-moulds, and strikes the superfluous clay off the top of the moulds; *breaker-off*, he who takes the mould, with the clay in it, from the moulder, and lays it on the ground to dry; *moulder*, he who parts off the clay from the mould; *off-bearer*, he who pulls off the empty mould into the tub of water or sand; *taker-up* of the bricks has his work also to dress and smooth them from irregular edges.

In burning bricks, much depends on the alternate raising and abating of the fire. Brick-burners, who continue the heat without intermission, usually make their lower ware extremely hard and good, but the upper bad: and besides, the lower ones will sometimes run so with the excessive heat, as also to unite into one body. Then for cooling kilns of ware, some unwise burners, as soon as the bricks are burnt, immediately stop up the rest of the mouth of the kiln, which was left open above the shin-log, by which means the air being shut out, it is long in cooling; so that such burners are commonly a fortnight, or almost three weeks, in setting, burning, and drawing off a kiln of ware; all which may be done in one week.

By stat. 12 Geo. I. cap. 35. earth or clay, designed for making bricks for sale, shall be dug, and turned at least once between the first of November and the first of February and not be made into bricks till after the first of March: and no bricks be made for sale, but between the first of March and twenty-ninth of September. But by stat. 10 Geo. III. cap. 49. earth may be dug for making bricks, at any time in the year; provided such earth be turned once before it be made into bricks. And by the former statute, no Spanish is to be mixed with the earth; or breeze used in the burning of bricks. And all bricks are to be burnt either in kilns or distinct clamps, each sort by itself.

By stat. 3 Geo. II. cap. 22. there may be mixed with the brick earth any quantity of sea-coal ashes, sifted or screened through a sieve, or screen, half an inch wide, and not exceeding twenty loads, to the making of one hundred thousand bricks: each load not exceeding thirty-six bushels. And breeze may be mixed with coal in the burning of bricks in clamps for sale, &c. Stock-bricks and place-bricks may be burnt in one and the same clamp, so that the stock-bricks be set in one distinct parcel, and not mixed and surrounded with place-bricks.

For the more effectual securing the observation of these laws, it was enacted, by 12 Geo. I. cap. 35. for the better discovering of offenders, that the master and wardens of the company of tylers and bricklayers should have power to search brick kilns, &c. but they having permitted, and even encouraged divers persons to make bricks contrary to the directions in the said act, by 2 Geo. II. cap. 15. they are divested of that power; and any two, three, or more persons appointed by the justices of peace, are empowered, within fifteen miles of London, to go, in the day-time, into any grounds, sheds, or places, where any clay or earth shall be digged, or digging for bricks or pan-tyles; or any bricks or pan-tyles shall be making, or made for sale, and there to view, search, and inspect the same, &c. Offenders to forfeit twenty shillings for every thousand of unstatutable bricks, and ten shillings for every thousand of such tyles: one moiety to the use of the prosecutor, the other to the poor of the parish, where the offence shall be committed. By 17 Geo. III. cap. 42. all bricks made for sale shall, when burned, be not less than $8\frac{1}{2}$ inches long, $2\frac{1}{2}$ inches thick, and 4 inches wide.

Goldman observes, that bricks will have double the strength, if, after one burning, they be steeped in water, and burnt afresh. If the brick earth be too fat, it must be tempered with sand; and that trodden out again, first by cattle, then by men. Bricks made of common earth, melt, nay vitrify, by too much heat: for which reason the kilns are made of stones, that will themselves calcine, that the vehemence of the fire may be broken by them: besides which, they usually place other bricks, made of an argillous earth, which will melt, next the fire.

Brick-work is found stronger and more durable than stone-work; and especially better fitted to resist the force of guns and engines of war. The Greeks are said to have carried brick-makers with them in their armies, to be in readiness for camp works and fortifications. The Romans intermixed brick with their square stone, in order

to strengthen it. In reality, brick buildings were generally considered by the ancients as perpetual; so that, in Rome, abatement was always made for the age of stone building, none for that of bricks. Brick walls are also found warmer and wholesomer than those of free stone and marble, as not being liable to sweat or collect humidities on their surface, which they rather imbibe. We may add, that bricks are found the best materials for vaults and edifices under ground, not only on account of their durability, but the easiness of their expence, and safety from fire. Phil. Trans. N° 93. N° 149.

Sir Henry Wotton speaks of a sort of bricks at Venice, of which stately columns were built; they were first formed in a circular mould, and cut before they were burnt, into four or more quarters or sides; afterwards, in laying, they were joined so close, and the points concentrated so exactly, that the pillars appeared one entire piece. Elem. Archit. lib. ii.

The ordinary Paris brick is eight inches long, four broad, and two thick, French measure. This smallness is an advantage to a building, the strength and firmness of which consist much in the multitude of angles and joints, at least if well laid, and in good bond. The Romans were guilty of a great oversight in this respect; their bricks being above double of the French ones; though they had a better sort, called *lateres bessales*, only measuring eight inches in length: but these were properly only their half-bricks. In England we also sometimes make bricks of an unusual length, measuring twenty-two inches long and only six broad, serving to supply the office of laths or spars in malt kilns.

Bricks may be made of any earth that is clear of stones, even sea-ouse; but all earth will not burn red, a property peculiar to earths which contain ferruginous particles. In England, bricks are chiefly made of a hazely yellowish coloured fatty earth, somewhat reddish, vulgarly called *lean*, which is a mixture of clay and sand. The earth, according to Leyburn, ought to be dug before winter, but not made into bricks till spring.

Worldidge, and others after him, have laboured to excite brick-makers to try their skill in making a new sort of brick, or a composition of clay and sand, whereof to form window-frames, chimney-pieces, door-cases, and the like. It is to be made in pieces fashioned in moulds, which, when burnt, may be set together with a fine red cement, and seem as one entire piece, by which may be imitated all manner of stone-work.

The thing should seem feasible by the earthen pipes made fine, thin, and durable, to carry water under ground at Portsmouth, and by the earthen backs and grates for chimneys, formerly made by sir John Winter, of a great bigness and thickness.

In reality, much might be done towards making chimney-pieces, stone mouldings, architraves, fascias for fronts of buildings, and the like, if men of this profession had a little tincture of chemistry, which would enable them to contrive some good composition of earth, and a proper way to manage it in the moulding, burning, &c. Brick-making, among the Romans, was conducted with great care and choice; by which means their bricks were rendered of much longer duration than ours. In this respect most of our neighbours excel us: the bricks which we import from Holland, Denmark, &c. being better than our own. Phil. Trans. N° 351. Houghton Collect. tom ii. N° 168. p. 26.

With respect to the position, or manner in which bricks are laid, we meet with

BRICKS in bond, *Briques en liaison*, those laid flatwise, and so as to over-reach each other by half their length.

BRICKS, *Floor, briques de champ*, those laid edgewise, to serve as a pavement.

BRICKS, *Spicated, Briques en epi*, those placed diagonal-wise, after the manner of Hungarian point. Such is the pavement of Venice.

BRICK Walls. See WALL.

BRICKS, in Medicine and Chemistry, are not only used in the preparation of the oil, which takes its denomination from them; but heated bricks are frequently added in distillation, to increase the fervour of bodies in boiling. Some adulterate the soda, or kali ashes, for glass, with brick-dust.

BRICKS, *Oil of*, is oil of olive, imbibed by the substance of bricks, and afterwards distilled from it.—The pieces of bricks, being heated red-hot in live-coals, are extinguished in a trough half filled with oil of olives: being then separated, and the brick thus saturated with oil, and grossly pounded, it is put into a retort, and placed in a reverberatory furnace; and thus is drawn an oil, which the apothecaries call *oleum de lateribus*, and some chemists *oil of the philosophers*: it is used for resolving tumors in the spleen, also against palsies, epilepsies, &c. See OIL.

Some extol it as a septic, excellent for taking away cal-
luses, cleansing and removing ulcers, &c. It is now
fallen much into disuse. Juncker. Consp. Chirurg.

BRICK-dust. It is a custom with some persons to reduce
this substance to a very fine powder, and give it, instead
of chalk, in the heart-burn. Many of the lozenges, so
much famed for the cure of this disorder, and sold under
the pompous name of coral lozenges, are only made of
a mixture of this uncouth medicine, and sugar, made into
the consistence of a paste, with gum tragacanth reduced
to a mucilage with rose-water. But it is to be observed,
that this, as well as chalk, is a very dangerous remedy.
It has grown into an opinion, that the sole cause of this
complaint was an acid humour in the stomach, and
thence an absorbent was judged alone sufficient for a
cure: chalk was the first substance pitched upon for this
purpose; but some mischievous events having happened
from the taking of it, recourse was had by some to this odd
medicine. But such should have observed, that as chalk
did all its mischief by being an astringent, this new me-
dicine was qualified to do much more harm, on the same
principle; it being a much more powerful one. Juncker
Med. Cons. p. 589.

BRICK is also used in speaking of divers other matters
made in the form of bricks.

In which sense, we say a penny-brick, or brick-BREAD.
Some also mention brick-TIN, a sort of tin in that shape
brought from Germany; and brick-SOAP, made in ob-
long pieces, from a pound and an half to three pounds.

BRICKS, or BRIQUES, in *Heraldry*, are figures or bearings
in arms, resembling a building of bricks; being of a
square form, like billets and tablets; from which they
only differ in this, that they shew their thickness, which
the others do not.

BRICK, in *Ichthyology*, the name of a sort of lamprey, called
by the writers on these subjects, *lampetra medium genus*;
and distinguished from the other lampreys by having a
number of black transverse spots, very narrow and long.

BRICK earth, in *Agriculture*. See *Brickish SOIL*.

BRICK kiln, a place to burn bricks in.

BRICK-layer, an artificer whose business it is to build with
bricks, or make brick work.

Brick-layers work or business, in London, includes tiling,
walling, chimney work, and paving with bricks and
tyles. In the country, it also includes the mason's and
plasterer's business.

The materials used by *brick-layers*, are bricks, tiles,
mortar, laths, nails, and tile-pins.

Their tools are, a brick-trowel, wherewith to take up
mortar; a brick ax, to cut bricks to the determined
shape; a saw, for sawing bricks; a rub-stone, on which
to rub them; also a square, wherewith to lay the bed or
bottom, and face or surface of the brick, to see whether
they be at right angles; a bevel, by which to cut the
under sides of bricks to the angles required; a small
trammel of iron, wherewith to mark the bricks; a float
stone, with which to rub a moulding of brick to the pat-
tern described; a banker, to cut the bricks on; line-
pins, to lay their rows or courses by; plumb-rule,
whereby to carry their work upright; level, to conduct
it horizontal; square to set off right angles; ten foot
rod, wherewith to take dimensions; jointer, wherewith
to run the long joints; rammer, wherewith to beat the
foundation; crow and pick-ax, wherewith to dig through
walls.

The London *brick-layers* and TYLERS make a regular
company, which was incorporated in 1568, and consists
of a master, two wardens, twenty-eight assistants, and
one hundred and eight on the livery.

A *brick-layer* and his labourer will lay in a day about a
thousand bricks, in whole work, on a solid plane, when
the wall is but a brick and a half, or two bricks thick;
and since a cubic yard contains 460 bricks, he will lay
above two cubic yards in a day: and hence it may be
easily computed how many *brick-layers* are required to
finish a certain piece of work in a given time.

Brick-laying is one of the arts subservient to architecture.
Moxon has an exercise express on the art of *brick-laying*,
wherein he describes the materials, tools, and methods of
working used by *brick-layers*. See *BRICK WALLS*.

BRICKING popularly signifies building a thing up with
brick; but, more properly, the act or art of counterfeit-
ing of brick on plaster, by smearing it over with red
oker colour, and marking the joints with an edged
instrument.

This answers to what the French call *briqueter*, which is
sometimes also performed by using a layer of plaster,
mixed with red oker, and, while it is fresh laid on,
drawing deep lines for joints, and then filling them with
fine plaster. Some even smear bricks themselves with a
red colour, and repair the joints with plaster, to make an
antiquated building look fresh.

When bricks are rubbed to a particular dimension, and

set with a neat joint, this is by way of eminence called
gauged work.

BRIDE, a woman just married, or a wife in the first days
of her matrimonial state. See *MARRIAGE*.

Among the Romans, the maid espoused remained a
bride, sponsa, till she entered the husband's house; from
which time she commenced a wife, *uxor*.

The bridegroom was attended by a brideman, *para-
nymphus*; the bride by a *pronuba*, or bridemaid, whose
business was to instruct her young mistress in the duties
of the genial bed, and to prepare every thing for a pro-
perous copulation.

The ancient ceremonies practised in respect of a *bride*
were numerous; most of them emblematical, or signifi-
cant of some part of her duty: as, dressing her hair after
a peculiar manner, and parting it with a spear; putting
on her a crown; girding her with a girdle, which the
bridegroom was to loosen; putting a yoke on her neck;
dressing her in yellow socks; and veiling her with the *flam-
meum*. She was to seem to be ravished or torn by force
from her mother, in memory of the rape of the Sabines
under Romulus; she was to be carried home in the
night-time to the bridegroom's house, accompanied by
three boys, called *patrimi* and *matrimi*, one of whom
carried a torch, and the other two, called *paranymphi*,
led the *bride*, a spindle and a distaff being carried with
her: she brought three pieces of money, called *asses*, in
her hand to the bridegroom, whose doors, on this occa-
sion, were adorned with flowers and branches of trees:
being here interrogated who she was, she was to answer,
Caia, in memory of *Caia Cæcilia*, wife of Tarquin the
Elder, who was an excellent *lanifex*, or spinstress; for
the like reason, before her entrance, she lined the door-
posts with wool and smeared them with grease.

Fire and water being set on the threshold, she touched
both; but starting back from the door, refused to enter,
till at length she passed the threshold, being careful to
step over, without touching it; here the keys were
given her; a nuptial supper was prepared for her, and
minstrels to divert her; she was seated on the figure of
a Priapus, and here the *patrimi* and *matrimi* resigned her
to the *pronuba*, who brought her into the nuptial cham-
ber, and put her into the genial bed. This office was to
be performed by matrons who had only been once mar-
ried, to denote that the marriage was to be for perpe-
tuity. When the bridegroom was brought to her, to
drown the cries and squalling of a coy maid at the first
conflict, *epithalamia* were sung by the women, who
were divided for that purpose into two bands, one
whereof sung in the evening, the other the next morning;
and, for the like purpose, nuts were also thrown
about for the boys to scramble for. Potter Archæol.
lib. iv. cap. 11. tom. ii. Val. Max. 10. Plut. Quæst.
Rom. 30. Serv. ad Æn. lib. iv. ver. 450. Kenn. Rom.
Ant. p. ii. lib. i. c. 9. Fabr. Bibl. Ant. cap. 10. § 5.

BRIDEGROOM, the spouse or mate of a bride.

Among the Romans, the *bridegroom* was decked to re-
ceive his bride; his hair was combed and cut in a pecu-
liar form; he had a coronet or chaplet on his head, and
was dressed in a white garment. Pitisc. Lex. Ant.
tom. i.

By the ancient canons, the *bridegroom* was to forbear the
enjoyment of his bride the first night, in honour of the
nuptial benediction given by the priest on that day.
Johns. Eccles. Law, ann. 740. § 88.

In Scotland, and perhaps also some parts of England, a
custom called *marchet*, obtained, by which the lord of
the manor was entitled to the first night's habitation
with his tenants' brides. See *BOROUGH English*, and
MARCHET.

BRIDEMID, in the *Persian Tables*, the constellation LU-
PUS, or the Wolf.

BRIDEWELL, in our *Customs*, denotes a work-house,
partly for the correction of vagrants and partly for the
employment of the parish poor.

Bridewell, near Fleet-street, is a foundation of a mixt
and singular nature, partaking of the hospital, the
prison, and work-house; it was founded in 1553, by
Edward VI. who gave the place, where king John had
formerly kept his court, and which had been repaired by
Henry VIII. to the city of London, with 700 marks of
land, bedding, and other furniture.

Several youths are sent to this hospital as apprentices to
manufacturers, who reside there; they are clothed in
blue doublets and breeches, with white hats. Having
faithfully served their time of seven years, they have
their freedom, and a donation of ten pounds each, for
carrying on their respective trades.

BRIDGE, an edifice either of stone or timber, consisting
of one or more arches, erected over a river, canal, or
the like, for the conveniency of crossing, or passing over
from one side to the other.

A *bridge* may be considered as a ROAD over water.

Janus is made, by some learned men, the first inventor of bridges, as well as of ships and crowns: their reason is, that in several ancient Greek, Sicilian, and Italian coins, there are represented on one side a Janus, with two faces, and on the other, a bridge, or a crown, or a ship.

The parts of a bridge are the piers, or legs, *pilæ*; the arches; the pavement, or way over for cattle and carriages; the foot-banks on each side for foot-passengers; the rail or parapet, which incloses the whole; and the butments, or ends of the bridge on the banks.

Bridges are a sort of edifices very difficult to execute, on account of their inconvenience of laying foundations, and walling under water. The earliest rules and instructions relating to the building of bridges, are given by Leon Baptista Alberti. Others were afterwards laid down by Palladio, and Scammozzi; all of which are collected by M. Blondel. The best of them are also given by Goldman and Hawksmoor. Mr. Gautier has a piece express on bridges, ancient and modern. Mr. Belidor has likewise treated on this subject in his *Architect. Hyd.* Mr. Riou published a treatise in 1760, entitled, "Short Principles for the Architecture of Stone-bridges, &c." Muller, Labeleye, Hutton, and others, have written on this subject.

The conditions required in bridges are, that they be well designed, commodious, durable, and suitably decorated. The PIERS of stone-bridges are to be equal in number, that there may be one arch in the middle, where commonly the current is strongest. Their thickness is not to be less than a sixth part of the span of the arch, nor more than a fourth. They are commonly guarded in front with an angular sterling, or spur, to break the force of the current; though this defence is sometimes also turned semicircularly: in the ancient bridges, it is always a right angle: which has the advantage of being stronger and more durable than acute ones; though now seldom used, but in bridges over small rivers, whereby their height and the quantity of masonry are considerably reduced. The strongest arches, according to some, are those whose sweep is a whole semicircle; though others prefer elliptic arches. Others recommend those in form of the CATENARIAN curve. For the rails, the height, ornaments, and the like, they are left to discretion. It is even complained, that no demonstrative reasons are given of the several proportions of the most essential parts of bridges: much of which is still left to the description of the builder, to be regulated according to the circumstances, design, place, magnitude, &c. of the designed edifice. Mr. Gautier wishes, that mathematical persons would take the structure and proportion of bridges into their consideration, in order to bring things to more certainty and precision, founded on invariable geometrical truth. Something of which kind has been attempted by M. de la Hire, in *Mem. Acad. R. Scienc.* an 1712. p. 70. and the Marquis De L'Hopital, in *Act. Erud. Lips.* 1695. p. 56.

The breadth of a bridge, according to Baptista Alberti, ought to be the same as that of the highway which abuts on it: the breadth of the piers is to be one third of the aperture of the arches; the starlings to be one half the breadth of the piers, and to rise above the greatest height to which the water ever mounts.

To secure the piers of bridges, they sometimes diminish the current of the river, either by lengthening its course, by making it more winding (a method sometimes used by the ancients in rendering their rivers navigable), or by stopping the bottom of a rapid river, with rows of banks, stakes, or piles, which break the current.

The piers of a bridge always diminish the bed of a river. Suppose this diminution one fifth, it will follow, that in case of inundations, the bed must be sunk or hollowed one fifth more than before, since the waters gain in depth what they have lost in breadth. Add, that as the quantity of the water remains still the same, it will pass with greater velocity by one fifth in the place where such contraction is: all which conduces to wash away the foundation. The stream, thus augmented in velocity, will carry away flints and stones, which before it could not move.

The foundation of bridges is to be laid at the season of the year when the waters are lowest, as in autumn; and if the ground be rocky, hard gravel, or stony, the first stones of the foundation may be laid on the surface, without digging deeper; but if the soil be soft sand, or gravel, it will be necessary to turn off the water, and dig till you come at a firm bottom; at least, if this cannot be done, part of the water must be carried off, and the rest kept dry, and piled: that side of the river where you are to work, is to be inclosed with coffer-dams, and the current to have its liberty on the other side. Palladio's directions are, first, to make choice of that place

in a river, which has the least depth of water, and where the ground is even and firm, especially rock or gravel stone; secondly, to avoid those places where there are voragos, or whirlpools, and where the bottom is soft sand, or gravel, in regard such matters are easily carried away by the violence of water, which in time alters the bed of a river, and saps the foundation of the piers; thirdly, to pitch on a strait part of a river, since otherwise, the turns and windings being worn away in time, the bridge is in danger of being left insulate; besides being liable to be choaked up with the filth and other matters commonly gathered in the turns of rivers. The building, and repairing of bridges, was one of those services to which all orders and ranks were subject; though the clergy have sometimes got exemptions from it. See PONTAGE.

The structure of the Roman bridges is best described by Bergier; they consisted of *pilæ*, or piers; *formice*, or arches; *sublices*, or butments; *pavimenta*, and *aggeres*; the roads over them in the middle for carriages; on each side whereof were *decurforia*, or banquettes, somewhat higher than the rest, for foot passengers, and separated from it by a *sponda*, or rail, and sometimes even covered over to shelter passengers from the rain, as in the Pons Ælius.

The Trajan bridge, over the Danube, was the most magnificent of all the works of this kind in the world. It was erected by that emperor for the convenience of sending succours to the Roman legions on the other side of the Danube, in case they should be suddenly attacked by the Daci; but demolished by the next successor Adrian, for fear the Barbarians, overpowering the guards set to defend it, should by means of it, pour into Mœsia, and cut off the garrisons there; or rather, as some think, out of envy, as despairing ever to do any thing like it himself. The arches were broken down by Adrian; but the ruins of it are still seen in the middle of the Danube, near the city Warhel in Hungary. The piers were twenty in number, of square stone; each of them 150 feet high above the foundation, 60 feet in breadth, and distant from one another 170 feet; so that the whole length of it was above 1530 yards. Dion Cassius, lib. lxxviii. cap. 13. Modern architects are absolutely at a loss to conceive how the foundation of such a bridge could be laid in so vast and rapid a river, and so deep a channel as the Danube. Scammozzi imagines that the river must have been turned out of its course. But to divert the Danube seems impossible. That author conjectures, that choice was made of some short bend of the river, where it made almost a peninsula, and a canal was cut across the isthmus or neck thereof, through which the river took its course; so that the bridge was built on dry land, and, when finished, the river was returned to its ancient channel. Some writers have added, that this bridge was built in one summer, and that Apollodorus of Damascus was the architect.

The Trajan bridge, at Salamanca, over the river Formus, popularly attributed to the giants, by some to Hercules, appears rather to be a Roman work, though when, and by whom erected, is not known; but it was repaired by Trajan, whose denomination it still bears. It is 1500 feet long; consists of 26 arches, each 72 feet wide; the piers that sustain them being 23 feet thick, and 200 high.

Among the Romans, the building and repairing of bridges was first committed to the pontifices, or priests; then to the censors, and curators of the roads; lastly, the emperors took the care of bridges into their own hands. Thus Antoninus Pius built the Pons Janiculensis of marble; Gordian restored the Pons Cestius; and Adrian built a new one, denominated from him.

In the middle age, bridge-building was ranked in the number of acts of religion; and a regular order of Hospitallers was founded by St. Benezet, towards the close of the twelfth century, under the denomination of *Pontifices*, or *Bridge-builders*; whose chief object was to be assistant to travellers, by making bridges, settling ferries, and receiving strangers in hospitals, or houses built on the banks of rivers. But the order was too good to thrive. We read of one hospital of the kind at Avignon, where the Hospitallers dwelt under the direction of their first superior St. Benezet. The Jesuit Raynaldus has a treatise express on St. John the Bridge-builder.

In France, the Pont de Garde is a very bold work; the piers being only thirteen feet thick, yet serving to support an immense weight of a triplicated arcade; and serves to join two mountains. It consists of three bridges, one over another; the uppermost of which is an aqueduct.

The bridge of Avignon was begun in the year 1176, and finished 1188; consisting of eighteen arches, measuring 1340 paces in length, or about 500 fathoms.

Divers of its arches have been since demolished by the ice, &c. so that only part of it now subsists.

The *bridge* of St. Esprit is the finest and boldest in France, consisting of nineteen great arches, besides seven smaller ones, the aperture of the arches being from fifteen to twenty fathoms, which makes the length of the *bridge* upwards of 400 fathoms.

The famous *bridge* of Venice, called the Rialto, consists but of a single arch, and that a flat or low one; passing for a master-piece of art, being built in 1591, on the design of Michael Angelo; the span of the arch is ninety-eight feet one half, and its height above the water only twenty-three feet. Poulet also mentions a *bridge* with a single arch, in the city of Munster in Bothnia, much bolder than that of the Rialto at Venice. But these are nothing to a *bridge* in China, built from one mountain to another, consisting of one single arch, 400 cubits long, and 500 cubits high, whence it is called the *flying-bridge*; a figure of it is given in the Philosophical Transactions. Kircher also speaks of a *bridge* in the same country 360 perches long, without any arch; supported only by 300 pillars. The accounts given by some of the popish missionaries of *bridges* in China, have much the air of fables.

We have many *bridges* of considerable note in our own country, such as the *bridge* at York, whose master arch in the middle is 82 feet and a half in the clear wide, and 27 feet high. Rochester *bridge* is built in the same style with that of London; it is 550 feet long, and consists of 11 arches, the biggest of which is more than 50 feet. It was erected at the charge of sir Robert Knowles, who died in the midst of the reign of king Henry the IV. The *bridges* at Durham and Bishop-Awland may also be mentioned, whose largest arches are near 90 feet in the clear. The *bridge* at Berwick is an admirable work, begun under queen Elizabeth; it consists of 17 arches, the largest upwards of 80 feet. That of Blenheim consists of three arches, the chief of which spans 101 feet and a half.

There is a *bridge* over the river Don, near Old Aberdeen, very much celebrated, in the taste, and on the plan of the Rialto at Venice. There is also in the same style a very remarkable *bridge* in Wales, built by William Edwards, a country mason, over the river Taaf, near Caerphilly, in Glamorganshire. It is no more than eight feet broad, but it consists of a single arch no less than 140 feet wide, part of a circle of 175 feet diameter, so as to make the altitude 35 feet. The arch of this *bridge* is between 40 and 50 feet wider than the celebrated Rialto of Venice, and probably the widest arch in Europe, if not in the world. In order to lessen the quantity of matter in the abutments pressing upon the arch, and thereby to bring it to an equipoise with that in the crown, he contrived three circular arches in the abutments, which pass through from side to side like round windows, and gradually decrease in the ascent.

The longest *bridge* in England is that over the Trent at Burton, built by Bernard abbot of Burton, in the twelfth century; it is all of squared free-stone, strong and lofty, 1545 feet in length, and consisting of 34 arches. Yet this comes far short of the wooden *bridge* over the Drave, which, according to Dr. Brown, is at least five miles long.

The triangular *bridge* at Crowland in Lincolnshire, which was probably intended as an emblem of the Trinity, is the most ancient Gothic structure, remaining entire, in the kingdom. It was erected about the year of our Lord 860.

London *bridge* consists of 20 locks or arches, whereof 19 are open, and one filled up or obscured; it is 900 feet long, 60 high, and 74 broad, and almost 20 feet aperture in each arch. It is supported by 18 piers or solids, from 34 to 25 feet thick; so that the greatest water-way, when the tide is above the sterlings, is 450 feet, scarce half the width of the river; and below the sterlings, the water-way is reduced to 194 feet. Thus a river 900 feet wide, is here forced through a channel of 194 feet.

London *bridge* was first built with timber, in the reign of Ethelred, between the years 993 and 1016. It was repaired, or rather new built of timber, in 1163. The stone-*bridge* was begun by king Henry II. in 1176, and finished under king John in the year 1209. The architect was Peter of Colechurch, a priest; though he died before it was finished.

For the charge of keeping it in repair, a large house is allotted with a great number of offices, and a vast revenue in land, &c. The chief officers are two *bridge*-masters, chosen yearly out of the body of the livery.

The foundation is said to be on a soft oozy ground. Stow alledges, that during the time of building, the river was turned from Battersea to Rotherhithe; but this is not warranted. Some imagine that the tide did not

then rise so high at the *bridge* as it does now, by which the work would be facilitated. However this be, the piers were erected on wooden piles driven under water, over which planks were laid, and the feet of the piers on the planks. The defects of this *bridge* are the narrowness and irregularity of the arches, and the largeness of the piers, which, together with the sterlings, turn the current of the Thames into many frightful cataracts, which must obstruct and endanger the navigation through the *bridge*.

It is pretty certain, there were no houses on the *bridge* for upwards of 200 years; since we read of a tilt and tournament held on it in 1395. Houses were built upon it afterwards, but being found a great inconvenience and nuisance, they were removed in 1758, and the avenues to it enlarged and made more commodious by stat. 29 Geo. II. cap. 40. This act also directed, that there should be a passage of 31 feet for carriages, and 7 feet on each side for foot-passengers, guarded with stone balustrades. Two of the middle arches were thrown into one semicircular arch, by taking up the pier between them. The repairs amounted to above 80,000/. The sterlings have been added, to hinder the piers from being undermined by the rotting of the piles upon which they are built; for, by means of these sterlings, the piles are kept constantly wet; and thus the timber is kept from decaying, which always happens when it is alternately wet and dry.

One of the noblest *bridges* known is that at Westminster, for the building of which an act of parliament was obtained in the year 1736, and it began to be erected in January 1738; and it was opened the 18th of November, 1750. The whole amount of the neat expence that attended building this *bridge*, was 218,800/.

The breadth of the river Thames, between the Wool-staple dock and the opposite shore, the place where the *bridge* is built, is about 1220 feet. This *bridge* consists of thirteen large arches and two smaller ones, the fourteen intermediate piers, and two abutments.

The length of each abutment is 76 feet; the span or opening of each of the smaller arches of the abutments is 25 feet; the opening or span of the first of the large arches from each shore is 52 feet; the span of the next arch is 56 feet, and so on, increasing by four feet in every arch to the middle arch, the span of which is 76 feet. The transverse section, or breadth of the two first piers on each side, is 12 feet; of the next 13, and so on, to the piers supporting the middle arch, the section of each of which is 17 feet. Thus the length of the two abutments being 152 feet, the section of the fourteen piers 198 feet, and the span or opening of the fifteen arches 870 feet, the whole length of the *bridge*, including abutments, is 1220 feet, which is the breadth of the river.

The arches are semicircular, and spring from about the height of two feet above low-water mark.

These arches give, as has been said, a water way of 870 feet; the proportion of the water-way being so considerable with respect to the breadth of the piers, it follows, that the fall of water under this *bridge* must be very small. And, in effect, those who attempted to calculate it before the *bridge* was built, after making all possible allowance, could never find the perpendicular height of this fall to exceed three inches and three fourths; but, in truth, it now appears by experience, that the height of the greatest fall is scarce half an inch; whereas the height of the fall at London *bridge* is from four feet and nine inches to five feet.

The whole breadth of the *bridge* is 44 feet; which is divided into three walks; the middle one for carriages, &c. is 28 feet broad, and the side walks near 7 feet each in the clear.

The foundation of the piers of Westminster *bridge* are laid on a strong grating of timber, planked underneath, and at least five feet below the surface of the bed of the river. This grating was made at the bottom of a vessel, such as the French call *caisson*; the sides of which were so contrived, that they might be taken off after a pier was finished. The bed of the river was dug to a sufficient depth, and made level, in order to lay the bottom of the *caisson*, and the bottom of the piers, out of all danger; the ground, by all trials that could be contrived, seemed so good, being every where a bed of gravel, that piling was thought unnecessary. Whether there be any softer stratum under this or not, we cannot pretend to determine; neither does it appear from experience, that piling is an absolute security against all accidents. By what Gautier says, it would seem otherwise; for he assures us, that let the architect of a bridge do his best, yet he can no more be sure of the success of his work than a physician is. And, in effect, we find, that notwithstanding the care that was taken in examining the ground on which Westminster *bridge* was built, yet one

of the piers sunk considerably. This damage was repaired, and its beauty and convenience is justly admired. See Labelye's Description of Westminster Bridge.

In the year 1756, an act was obtained for building a new bridge at Blackfryers, from the end of Fleet-ditch to the opposite shore in the county of Surry. It was begun in 1760, and completed in ten years and three quarters; the net expence of building it amounted to 152,840*l*. This bridge consists of nine elliptical arches; the central arch is 100 feet wide, and the four arches on each side, reckoning from the central ones to the shores, are 98, 93, 83, and 70 feet respectively. The breadth of the carriage-way is 28 feet, and that of the raised foot-way on each side 7 feet: the height of the balustrade on the inside is 4 feet 10 inches; and the whole length of the bridge from wharf to wharf is 995 feet. The upper surface of this bridge is a portion of a very large circle; over each pier is a recess or balcony, supported by two Ionic pillars and two pilasters, which stand on a semicircular projection of the pier above high-water mark. The bridge is rounded off at each extremity to the right and left, in form of a quadrant of a circle, whereby the access to it is rendered commodious and agreeable.

BRIDGES, *stone*, are composed of piers, arches, and buttments, made of hewn stone, sometimes also intermixed with brick; as, the bridge of Tholouse, the plinths whereof are of stone, as also the quoins of the arches, and some bonding courses, and copings; but the rest, as the arches, walls, and buttments, of brick.

BRIDGES, *wooden*, called by the Latins *pontes publicii*, consists of beams and joists, sustained by punchions, well cramped and bound together.

Sturmius has a dissertation express on the structure of a wooden bridge.

BRIDGE, *rushen*, *pont de jonc*, is made of large sheaves of rushes growing on marshy grounds, which they cover over with boards or planks. They serve for crossing ground that is boggy, miry, or rotten.

The Romans had also a sort of subitaneous bridges made by the soldiers of boats, and sometimes of casks, leathern bottles, or bags, or even of bullocks bladders blown up, and fastened together, called *ascogephyri*. M. Couplet gives the structure of a portable bridge, 200 feet long, easily taken asunder and put together again, and which forty men may carry. Vid. Du Hamel. Hist. Reg. Acad. Scien. lib. iii. sect. 5. c. 4. p. 273.

Frezier speaks of a wonderful kind of bridge at Apurima in Lima, made of ropes, formed of the bark of a tree.

BRIDGES, *pendent* or *hanging*, called also *Philosophical* BRIDGES, are those not supported either by posts or pillars, but hung at large in the air, only sustained at the two ends or buttments.—Instances of such bridges are given by Palladio and others.

Dr. Wallis gives the design of a timber-bridge, seventy feet long, without any pillars, which may be useful in some places where pillars cannot conveniently be erected. Phil. Trans. N^o 163. p. 714.—Dr. Plott assures us, that there was formerly a large bridge over the castle-ditch at Tutbury in Staffordshire, made of pieces of timber, none much above a yard long, and yet not supported underneath, either with pillars or arch-work, or any other sort of prop whatever.

BRIDGE, *draw*, *pons subduclarius*, is such an one as is made fast only at one end, with hinges; so that the other end may be lifted up or let down by some easy contrivance; the most common way is by a kind of balance called *PLYERS*; in which case the bridge stands upright, to hinder the passage of a moat, or the like. The breadth of this bridge is usually about nine or ten feet, and its length about fifteen feet.

There are others made to draw back, to hinder the passage, and to thrust over again to afford a passage. And others, which open in the middle; half of which turns away to one side, and the other half to the other; being joined again at pleasure: but these have this inconvenience, that one half of them remains on the enemy's side.

The marquis de L'Hopital has given the construction of a curve, in which a weight will always be a counter-balance to a draw-bridge; which the younger Bernouilli has shewn to be no other than the cycloid. Act. Erud. Lips. an. 1695.

BRIDGE, *flying*, *pont volant*, or *pons duclarius*, an appellation given to a bridge made of pontoons, leather boats, hollow beams, casks, or the like, laid on a river, and covered with planks for the passage of an army.

BRIDGE, *flying*, *pont volant*, more particularly denotes a bridge composed of one or two boats joined together, by a sort of flooring, and surrounded with a rail or balustrade; having also one or more masts, to which is fastened a cable, supported at proper distances by boats, and extended to an anchor, to which the other end is fastened, in the middle of the water. By which con-

trivance, the bridge becomes moveable, like a pendulum; from one side of the river to the other, without other help than the rudder. Such bridges sometimes also consist of two stories, for the quicker passage of a great number of men; or that both infantry and cavalry may pass at the same time.

BRIDGE, *flying* or *floating*, is ordinarily made of two small bridges, laid one over the other, in such manner, as that the uppermost stretches and runs out, by the help of certain cords running through pulleys placed along the sides of the under-bridge, which push it forwards, till the end of it joins the place it is designed to be fixed on. When these two bridges are stretched out at their full length, so that the two middle ends meet, they are not to be above four or five fathoms long, because, if longer, they will break.

Their chief use is for surprising out-works, or posts that have but narrow moats.

In the memoirs of the Royal Academy of Sciences, we find a new contrivance of a *floating bridge*, which lays itself on the other side of the river. Vid. Hist. Acad. R. Scienc. an. 1713. p. 104.

BRIDGE of *communication*, is a bridge made over a river; by which two armies or forts, separated by the river, have a free communication with one another.

BRIDGES of *boats* are either made of copper, or wooden boats fastened with stakes, or anchors; and laid over with planks.

One of the most notable exploits of Julius Cæsar, was the expeditious making of a bridge of boats over the Rhine. Modern armies carry copper-boats, called *pontoons*, to be in readiness for making bridges: several of these being joined side by side, till they reach across the river, and planks laid over them, make all plain for the men to march on.

There are fine bridges of boats at Beaucaire, and Rouen, which rise and fall with the water; and that at Seville is said to exceed them both.

The bridge of boats at Rouen, built in lieu of the stately stone-bridge erected there by the Romans, is represented by a modern writer, as the wonder of the present age; it always floats; and rises and falls with the tide, or as land-waters fill the river; it is near 300 yards long, and is paved with stone, just as the streets are: carriages with the greatest burdens go over it with ease, and men and horses with safety, though there are no rails on either hand. The boats are very firm, and well moored with strong chains; and the whole well looked to, and constantly repaired, though now very old.

BRIDGE, in *Gunnery*, the two pieces of timber which go between the two transoms of a gun-carriage, on which the bed rests.

BRIDGE, in *Music*, that part of a stringed instrument over which the strings are stretched.

BRIDLE of an *horse*, is an assemblage of various members, or parts; as the *bit* or *snaffle*; the *head-stall* or leathers, from the top of the head to the rings of the bit; the *fillet*, over the forehead, and under the fore-top; *throat-band*, with buttons from the head-band under the throat; *reins*, the part held in the hand; *nose-band*, going through loops at the back of the head-stall, and buckled under the cheeks: to which add the *trench*, the *cavexan*, *martingal*, and *chaff-halter*.

In lieu of a *bridle*, the masters frequently use the word *band*: thus, for *pull the bridle*, they say, *bear the band*. To cleave to, or hold by the *bridle*, is the fault of a bad horseman, who, when a horse is disorderly, instead of slacking his hand, clings to it, as if it were to the mane or pommel of the saddle; wanting the habit or strength, to keep himself fast by clinging with his thighs.

Checks of the *bridle* are called *EBRILLADES* and *SACCADES*.

The first horsemen being unacquainted with the art of governing horses by *bridles*, managed them only with a rope, or a switch, and the accent of the voice. This was the practice of the Numidians, Getulians, Libyans, and Massilians.

The Roman youth also learned the art of fighting without *bridles*, which was an exercise, or lesson in the *Manege*; and hence it is, that, on the Trajan column, soldiers are represented riding at full speed, without any *bridles* on. Phil. Trans. N^o 322.

BRIDLE, in *Anatomy*. See *FRÆNUM*.

BRIDLE, among *Surgeons*, is a kind of *BANDAGE* contrived for retaining the lower jaw in its place.

BRIDLE, *scolding*.—In Staffordshire, they have a *bridle* for correcting scolding women. It is put in the mouth, and takes particular hold of the tongue, which it effectually keeps from stirring: thus harnessed, the offender is led in triumph through the streets. A figure and description of this Staffordshire *bridle* is given by Dr. Plott, who seems to wish the use of it more universal.

BRIDLE-hand signifies the horseman's left-hand, in respect

of which the right-hand is called the spear or sword-hand.

BRIDLE chain, in *Husbandry*, a name given by our farmers to a part of the structure of their **PLOUGH**. This is an iron chain of several links, fastened at one end to the beam of the plough, near that part where the collar receives the tow-chain, and fastened at its other end to the stake of the plough, or to that upright piece which runs parallel to the left crowstaff, and at its bottom pins in the tow-chain; this stake is fastened to the crowstaff, sometimes by the end of this *bridle-chain*, and sometimes by a wythe or cord.

BRIDLES, in *Sea-language*, denote the upper part of the moorings in the king's harbours, to ride ships of war.

BRIDLES of the bow-line. See *Bow-line*.

BRIDON, or **BRIDON**, in the *Manege*, properly denotes a **SNAPPLE**, in contradistinction from a **BIT** or **BRIDLE**. The French say, that the English use no bridles, but only *bridoons*, except in the army: a horse never goes so well nor so sure with a *bridoon*, unless he has been first broke to the bit.

BRIEF, a thing of short extent or duration.

The word is formed from the French *bref*, of the Latin *brevis*, which signifies the same.

BRIEF is more particularly used for a summary or short state of a thing.

BRIEF is also used for an act or writing drawn up by a notary.

BRIEF, *attested*, *Breve testatum*, a public instrument clothed with the proper formalities.

BRIEF, *of devising*. *Brevis divisionalis*, denotes a last will or testament, or **DEVISE**.

BRIEF of an oath, *Breve sacramenti*, an instrument made on oath, and authenticated by the subscription of witnesses.

BRIEF is also used for a judicial epistle, directed by a lord or other superior, to his subjects or dependents, enjoining something to be done or forbore.

In which sense, we say, the lord's, king's, bishop's, or pope's *brief*.

BRIEF also denotes the territory or district within which the lord's *brief* had course. In which sense, we meet with the bishop's *brief*, *breve episcopi*; the count's *brief*, *breve comitis*, &c.

BRIEF also denotes the yearly revenue arising out of the lands usually described in *briefs*.

BRIEF, *Breve*, in *Common Law*, a writ whereby a man is summoned or attached to answer any action: or more largely, it is taken for a writing issued out of any of the king's courts of record at Westminster, whereby something is commanded to be done in order to justice, or the execution of the king's command.

It is called *brief*, *breve*, *quia breviter intentionem, proferentis exponit*; because couched in a few plain words, without preamble, &c.

BRIEF is also used for a letter patent, granting a licence to a subject, to make a collection for any public or private loss.

BRIEFS, *apostolical*, denote letters which the pope dispatches to princes, and other magistrates, touching any public affair.

They are thus called, as being very concise, and written on paper, without preface or preamble; by which they are distinguished from *bulls*, which are more ample, and always written on parchment, and sealed with lead or green wax; whereas *briefs* are sealed with red wax, and with the seal of the fisherman, or St. Peter in a boat; a seal is never applied but in the pope's presence.

The *brief* is headed with the name of the pope, apart; and commences, with *Dilecto filio salutem, & apostolicam benedictionem*, &c. after which he proceeds directly to the matter in hand, without further preamble.

Briefs are not subscribed by the pope, nor with his name, but with that of his secretary. Pope Alexander VI. instituted a college of secretaries for *briefs*; since which time, they have been made much longer, and more ample than before. See **ABBREVIATOR**.

Formerly *briefs* were only dispatched about affairs of justice; but now they are likewise used in matters of benefices, expective graces, and dispensations.

BRIEFS of the dead, *Brevia mortuorum*, were letters sent by the monks of one monastery to those of another, with whom they were in fraternity, to inform them of the deaths or obits of their monks, for whom they were to say the stated and customary prayers and masses.

These were also called *literæ currentes*, a formula of which we have in the book of the usages of the Cistercian order.

BRIEF of remembrance, *Breve recordationis*, or *rememoratorium*, or *memorable*, denotes a character, otherwise called **NOTITIA**.

BRIG. See **BRIGANTINE**.

BRIG-bote, **BRIGG-bote**, or **BRIGH-bote**, in *Ancient Law*

Writers, signifies a being freed from contributing to the reparation of bridges. See **PONTAGE**.

The word is formed from the Saxon *brig*, a bridge, and *bote*, compensation. It is sometimes also written *brugh-bote*, or *bruch-bote*.

BRIGADE, in the *Military Art*, a party or division of a body of soldiers, whether horse or foot, under the command of a brigadier.

The word is French; some derive it from the Latin *briga*, a *brigue*, or *secret intrigue*: Du-Cange derives it from *brigand*, an ill disciplined soldier, who scours the country, and plunders it of every thing, without waiting for the enemy: as the armies of Arabs, Tartars, &c. The origin of *brigand* is again deduced from *brigandix*, a sort of armour used in the army raised by the Parisians, during the captivity of their king John in England, notorious for their robberies.

There are two sorts of *brigades*, according to the French way of accounting: 1. A *brigade of an army*, which is a body of horse of ten or twelve squadrons: or of foot, of five or six battalions.—And in this way, an army is sometimes divided into eight *brigades*; four of horse, and four of foot.

2. A *brigade of a troop of guards*, which is a third part thereof, when the troop consists of fifty soldiers; but only a sixth, when it consists of an hundred: that is, in the former case, the troop is divided into three *brigades*; in the latter, into six.

BRIGADE-major, in the *Military Art*, an officer chosen from among the most ingenious and expert captains. *Brigade-majors* are to wait, at proper times, to receive the word and orders, which they carry first to their brigadier, and afterwards to the adjutants of regiments at the head of the *brigade*, where they regulate together the guards, parties, detachments, and convoys, and appoint them the hour and place of rendezvous at the head of the *brigade*, where the *brigade-major* takes and marches them to the place of the general rendezvous. A *major of brigade* ought to keep a roll of the colonels, lieutenant-colonels, majors, and adjutants, belonging to the *brigade*. When a detachment is to be made, the major-general of the day regulates with the *brigade-majors*, how many men and officers each *brigade* shall furnish; and they again with the adjutants of the regiments, how many each battalion is to send, which the adjutants divide among the companies. The complements each regiment is to furnish, are taken by the adjutant at the head of each regiment, at the hour appointed, who delivers them to the *brigade-major* at the head of the *brigade*, who again delivers them to the major-general of the day, and he remits them to the officer who is to command the detachment.

BRIGADIER-general, an officer that commands a brigade of horse, or foot, in any army.

The *brigadier* is an officer of importance; being the next in order below a major-general, or, in the French army, to the *mareschal de camp*.

Brigadiers are only general officers in their respective corps. They have no particular command out of their brigades, nor any place or vote in councils of war; they have no aids de camp to carry their orders, but only a major of brigades, to see their orders executed, within the extent only of their own brigade.

Brigadiers of the horse guards command as youngest captains.

Sub-BRIGADIER of a troop of horse-guards, an assistant of the *brigadier*.

BRIGANDINE, a coat of mail; a kind of ancient defensive armour, consisting of thin jointed scales or plates, pliant and easy to the body.

Some confound it with **HABERGEON**; and others with *brigantine*, a low long vessel.

BRIGANDINI, **BRIGANTINI**, **BRIGANDINARI**, or **BRIGANCII**, in *Middle Age Writers*, military thieves, or highwaymen, who infested France and the Netherlands. See **BRABANCIONES**.

BRIGANTINE, a small, light, flat, open vessel, which goes both with sails and oars, and is either for fighting, or giving chase.

It has usually twelve or fifteen benches on a side for the rowers, a man and an oar to each bench. *Brigantines* are principally used by the Corsairs, all the hands aboard being soldiers, and each having his musquet ready under his oar.

But the term is generally used for a merchant-ship with two masts, though mariners of different nations apply it to a peculiar sort of vessel of their own marine. Among English seamen, the *brigantine* is distinguished by having her main-sail set nearly in the plane of her keel, the foremost edge of it being fastened in different places to hoops which encircle the main-mast, and slide up and down as the sail is hoisted or lowered.

BRIGG's

BRIGG's *Logarithms*. See LOGARITHM.

BRIGITTINS, or BRIDGETINS, more properly BIRGIT-TINS, a religious order denominated from their foundress St. *Bridgit*, or *Birgit*, a Swedish lady, in the fourteenth century, whom some represent as a queen; but Fabricius, on better grounds, as a princess, the daughter of king Bigerus, legislator of Upland: she is famous for her revelations.

The *Brigittins* are sometimes also called the *Order of our Saviour*; it being pretended that Christ himself dictated the rules and constitutions observed by them to St. Bridget. In the main, the rule is that of St. Augustin; only with certain additions supposed to have been revealed by Christ; whence they also denominate it the *Rule of our Saviour*.

The first monastery of the *Brigittin* order was erected by the foundress, about the year 1344, in the diocese of Lincopen; on the model of which all the rest were formed.

The *Brigittins* profess great mortification, poverty, and self-denial, as well as devotion; and they are not to possess any thing they can call their own, not so much as a halfpenny, nor even to touch money on any account.

This order spread much through Sweden, Germany, the Netherlands, &c. In England we read but of one monastery of *Brigittins*, and this built by Henry V. in 1413, opposite to Richmond, now called Sion-house; the ancient inhabitants of which, since the dissolution, are settled at Lisbon. The revenues were reckoned at 1945*l.* per annum.

BRIGNOTES, or BRUGNOTES, a kind of dried prunes, brought from Provence, chiefly from the town of Brugnote, from which the denomination is given to them all.

BRILLIANT diamonds. See DIAMOND.

BRIM, the utmost edge of a thing, as of a glass, plate, or the like.

The *brims* of vessels are made to project a little over, to hinder liquors, in pouring out from running down the side of the vessel.

The *briming*, or *brimming* of vessels, was contrived by the ancient potters, in imitation of the supercilium or drip of the cornices of columns; it is done by turning over some of the double matter when the work is on the wheel.

Among florists, the *brim* of a FLOWER denotes the outward edge of the petala, or that part thereof which turns.

A sow is said to *brim*, or go to *brim*, when she takes the boar.

The hart goes to *rut*, the roe to *tourn*, the boar to *brim*.

BRIMSTONE. See SULPHUR.

BRIMSTONE, *flower-of*. See FLOWER.

BRIMSTONE marble, a preparation of *brimstone* in imitation of MARBLE.

BRIMSTONE medals, figures, &c. may be cast in the following manner: melt half a pound of *brimstone* over a gentle fire; with this mix half a pound of fine vermilion, and when you have cleared the top, take it off the fire; stir it well together, and it will dissolve like oil; then cast it into the mould, which must first be anointed with oil. When cool, the figure may be taken out; and, in case it should change to a yellowish colour, you need only wipe it over with *aqua fortis*, and it will look like the finest coral.

BRIMSTONE-wort, in Botany. See Hog's-FENNEL.

BRINDONES, in *Natural History*, the name of a fruit of the East Indies, called by John Bauhine, and some other botanical writers, *Indici fructus rubentes acidi*. It is by many accounted a delicious fruit, notwithstanding its great sharpness; and is used by the dyers, and in making vinegar.

BRINE, water replete with saline particles.

By stat. 1 Ann. cap. 21. are prohibited, *brine* taken out of *brine-pits*, or *brine-pans*, used by some for curing or pickling of fish, without boiling the same into SALT; and rock-salt, without refining it into white-salt.

Brine is either native, as the sea-water, which by coction turns to salt; or factitious, formed by dissolving salt into water.

In the salt-works at Upwick in Worcestershire, there are found, at the same time, and in the same pit, three sorts of *brine*, each of a different strength. They are drawn by a pump, and that in the bottom, first brought up, is called *first man*; the next, *middle man*; and the third, *last man*. Phil. Trans. N° 140.

BRINE, *leach*, a name given to what drops from the corned salt in draining and drying, which they preserve and boil again; being stronger than any *brine* in the pit. Hought. Collect. tom. N° 211. p. 81.

There is sand found in all the Staffordshire *brines* after

coction; but naturalists observe, it did not pre-exist in the water, but rather is the product of the boiling. Phil. Trans. N° 145. p. 96.

The *brine* at Northwich is found to stink of sulphur. *Brine* freezes with great difficulty. Some steep their seed-wheat in brine to prevent the smut. *Brine* is also commended as of efficacy against gangrenes. Phil. Trans. N° 156.

BRINE also denotes a pickle pregnant with salt, wherein things are steeped to keep.

BRINE-pans, the pits wherein the salt-water is retained, and suffered to stand, to bear the action of the sun, whereby it is converted into salt.

There are divers sorts of salt-pans, as the water-pan, second-pan, sun-pan; the water being transferred orderly from one to another.

BRINE-pit, in Salt-making, the salt spring from whence the water to be boiled into salt is taken. There are of these springs in many places; that at Namptwich, in Cheshire, is alone sufficient, according to the account of the people of the place, to yield salt for the whole kingdom; but it is under the government of certain lords and regulators, who, that the market may not be overstocked, will not suffer more than a certain quantity of the salt to be made yearly. See PIT.

BRINE-salt. See SALT.

BRINE-worms, are red-coloured insects, which breed both in summer and in winter, in the strong *brine* of the salt-pans. They never become flies, but are of the class of *APTERÆ*, or *unwinged* insects.

BRINEK, or BRINETI, in *Astronomy*, the bright star in the constellation Lyra; more frequently called *Lucida Lyrae*.

BRINGERS-UP, in a battalion, are the whole last rank of men in it, or the hindmost man in every FILE.

BRINGING-IN, a horse, in the *Manege*, is the keeping down his nose, when he boars, and tosses it up to the wind. A horse is *brought-in* by a strong hard branch.

BRING-TO, in *Sea-language*, signifies to check the course of a ship when she is advancing, by arranging the sails in such a manner, as that they shall counteract each other, and prevent her either from retreating or moving forward. In this situation the ship is said to *lie-by*, or to *lie-to*.

BRINING of corn, in *Husbandry*, an operation performed on the wheat-feed, in order to prevent the smut. A liquor is to be prepared for this purpose, by putting 70 gallons of water into a tub (like a mash-tub used for brewing), and a corn-bushel of unflaked lime-stone. This is to be well stirred till the whole is dissolved, and left to stand for 30 hours; after which it is to be drained off into another tub, in the manner practised for beer. In this way about a hoghead of strong lime-water will be obtained, to which must be added three pecks of salt. The wheat must be steeped in this pickle, by running it gently, and in small quantities, into a broad-bottomed basket of about 24 inches in diameter, and 20 inches deep, and stirring it. The light seed that floats must be strained off with a strainer, and must not be sown. When the basket has been drawn up and drained of the pickle, the wheat will be fit for sowing in two hours after the *brining*.

BRINING of hay-ricks, a practice common in America, of mixing salt with the hay as it is stacked.

BRIONY. See BRYONY.

BRISKET, that part of a horse extended from the two shoulders to the bottom of the chest.

BRISSOIDES, in *Natural History*, the name of one of the genera of the *ECHINI marini*; the distinguishing characters of these are, that they are of an oval figure, and have their backs striated, not furrowed; and their rays smooth, not marked with ridges. Of this genus there are two known species: 1. A flat one, called by some the *cranium*. 2. A high one, called by some the *amygdala*, and usually found fossil, and immersed in flint.

BRISSUS, in *Natural History*, the name of a genus of the *ECHINI marini*; the characters of which are, that they are of an oval figure, and have the aperture for the anus on one of the sides of the superficies; their back is smooth and even, not furrowed; but on the *vertex* they have several very elegant crenated and dotted lines. Their base is as if cut off on the end nearest the mouth, and is not flat as in the *spatangi*, but raised in the manner of a cushion.

BRISTLE, a thick glossy kind of hair, wherewith the swine kind more especially are covered.

The name is sometimes also applied to the quills of porcupines, and the mustaches or whiskers of cats.

Hogs *bristles* are hard, transparent, horny substances, of a prismatical figure, without any appearance of cavities or pores in them, discoverable even by the microscope. Cats *bristles* have a large solid pith in the middle.

BRISTLE-dice, a sort of false dice, furnished with a piece of

of hog's *bristle* stuck in the corners, or other places, to hinder their falling on certain sides, and make them run high or low at pleasure.

BRISTOL flower. See CAMPION.

BRISTOL water. See WATER.

BRITANNIC plague, a name given by some writers to the SWEATING sickness, or *Anglicanus sudor*.

BRITANNICA, in the *Materia Medica of the Ancients*, the name of a plant described as having leaves of a dark colour, very large, and in shape resembling those of the common wild-dock, but somewhat hairy and of an astringent taste; the root small and slender, and the stalk not large. This is the description of Dioscorides, who attributes to its inspissated juice great virtues as an astringent, and a remedy for ulcers of the mouth and tonsils; and Pliny acquaints us of its prodigious efficacy in a distemper attending the army of Germanicus, who, when they had crossed the Rhine, encamped in a place where there was only one spring of water, the drinking of which affected them in a terrible manner in their mouths, and made their teeth drop out; and that the physicians, who called the disease *stomacace* and *scelotyrbæ*, were at length directed to a remedy by the Frisians who were in their camp, which was the herb *Britannica*.

The virtues attributed to this plant are observed, by the later physicians, to agree very well with those of the *hydrolapathum majus*, or great water-dock, a plant produced very abundantly with us, but at present neglected in the practice of physic; and Muntingius, who has written professedly of the *Britannica* of the ancients, is persuaded that this is the true and genuine plant.

There is no doubt but that the real plant is our water-dock; but the commentators on the Greek physicians, and the authors who have written since, and have borrowed the greatest part of their knowledge from them, have occasioned great perplexities to their readers, by supposing that the *Britannica* and *betonica* were the same plant; whereas one was a dock, and the other the plant we call *ferratula*, or saw-wort.

BRITE, or BRIGHT, in Husbandry.—Wheat, barley, or other grain, is said to *brite*, when it grows over-ripe and shatters.

BRITISH crown. See CROWN.

BRITISH language, the same with the Welch.

The ancient *British*, or *Cambro-British*, is a dialect of the Celtic. Some pretend, but with no probability, that the *British* is formed immediately from the Teutonic. Cooper absurdly enough calls the English language the *British*.

BRITTLENESS, in *Natural Philosophy*, that quality of bodies by which they are soon and easily broken by pressure or percussion. It stands opposed to TENACITY. Brittle bodies are extremely hard; the least percussion exerts a force on them equivalent to the greatest pressure, and may consequently easily break them. This effect is particularly remarkable in glass suddenly cooled, the brittleness of which is thereby much increased.

TIN, though in itself tough, gives a brittleness to all the other metals, when mixed therewith.

The brittleness of GLASS seems to arise from the heterogeneity of the parts whereof it is composed, salt and sand, which can never bind intimately together.

In TIMBER, brittleness seems to be connected with durability; the more brittle any sort of wood is, the more lasting it is found. Thus, it is, oak is of so long duration, while beech and birch, as being tough, presently rot, and are of little service for building.

BRITTLENESS of the hoof, in horses. See HOOF.

BRIZA, in the Linnæan system of Botany, the name of that kind of grass called the *tremula*, or quaking-grass. It belongs to the *triandria digynia* class.

BRIZA, in the *Materia Medica*, a name used for the grain of the *zea monococcus*, or St. Peter's corn.

BRIZE, in the Country Language, a sort of ground which has lain long untilld.

BRIZE, or BRISE, in Navigation. See BREEZE.

BRIZE-vents, or BRISE-vents, a kind of shelters used by gardeners, who have not walls on the north-side, to keep the cold winds from damaging their melon beds.

Brize-vents are inclosures six or seven feet high, and an inch thick, made of straw, supported by stakes fixed into the ground, and props across both inside and outside, fastened together with willow-twigs, or iron-wire.

BROACH, BROCHA, in *Middle Age Writers*, denotes an awl or bodkin. Among us, *broach* is chiefly used for a steel instrument wherewith to open holes in metals. It is sometimes also applied to a stick on which thread or yarn is wound; and, in the North, to a sort of wooden needles used in knitting certain coarse things.

See an account of the *broach* used in weaving tapestry, under TAPESTRY.

In some part of England, a spit is called a *broach*.

Hence also to *broach* a barrel, is to tap it. The ancient

lords received from their tenants a fee or tribute; called *pertusagium*, for the liberty of *broaching* a cag of ale.

BROACH-TO, in *Sea-language*, is used for inclining suddenly to windward of the ship's course, when she sails with a large wind; or for deviating from the line of her course, when she sails directly before the wind, so as to bring her side to windward, and expose her to the danger of overfetting.

BROAD-cast, as opposed to the *Drill-Husbandry*, denotes the method of cultivating corn, turneps, pulse, clover, the foreign grasses, and most other field-plants, that are not transplanted, by sowing them with the hand at large; in which method they are sown over the ground at large, and thence said to be sown in *broad-cast*. This is called the *Old Husbandry*, to distinguish it from the *Drill*, *Horse-hoeing*, or *New Husbandry*. See DRILL, and HUSBANDRY.

BROAD-piece, a denomination given to certain gold PIECES broader than a guinea; particularly *Carolus* and *Jacobus*.

BROAD-side, in the *Sea-language*, a discharge of all the guns on one side of a ship at the same time.

A *broad-side* is a kind of volley of cannon, and ought never to be given at a distance from the enemy above musket-shot at point-blank.

BROAD-stone, in *Building*, a species of free-stone, thus denominated because it is raised broad and thin out of the quarries; or not exceeding two or three inches in thickness; chiefly used for paving.

BROAD-worm, *lumbrius latus*, a name given to the TÆNIA, or tape-WORM.

BROCADE, in *Commerce*, a sort of stuff, or cloth of gold, silver, or silk, raised and enriched with flowers, foliages, or other figures, according to the fancy of the manufacturer.

Formerly, the term was restrained to cloths woven either wholly of gold, both of wool and warp, or of silver, or of both together: but by degrees it came likewise to pass for such as had silk intermixed, to fill up, and terminate the flowers of gold and silver.

At present, any stuff of silk, satin, or even simple taffety, when wrought, and enriched with the flowers, &c. obtains the denomination of BROCADE.

Rich *brocades* may be cleaned, and the lustre of them recovered, by washing them with a soft brush dipped in warm spirit of wine.

BROCADE-shell, a name given to a species of the CYLINDRUS. It is of a silver colour, variegated with brown.

BROCARDICS, BROCARDICA, denote maxims or principles in Law; such as those published by Azo, under the title of *Brocardica Juris*.

Vossius derives the word from the Greek *πολαρχία*, q. d. *first elements*. Others, with more probability, from Burchard, or Brochard, bishop of Worms, who made a collection of canons, called from hence *Brocardica*; and as this work abounded much in sentences and proverbs, the appellation *brocardica* became hence extended to every thing.

BROCATELL, called by the French *brocadet*, an ordinary kind of stuff made of cotton, or coarse silk, in imitation of BROCADE; chiefly used for tapestry and other furniture. That manufactured at Venice is the most esteemed.

BROCATELLO, a name given by lapidaries to the white and gold veined red MARBLE.

BROCCOLI, among Gardeners, the shoot of a sort of cabbage. There are several sorts of it, as the Roman, the Neapolitan, and the black; but the Roman is far the best, and is therefore the only sort now in use.

The seeds of this should be sown about the middle of May, in a loose moist soil; when the young plants have eight leaves, they are to be transplanted, and set at three inches distance; and when they have grown there till the middle of July, they will be fit to plant out for standing. They must be now set in some well-sheltered ground, but not under the drip of trees, and at a foot and a half distance from one another. The soil should be light, and about the beginning of December they will begin to shew their heads, which look somewhat like a cauliflower; from this time they will continue eatable to the end of March. When the heads divide, and begin to run up, they are to be cut, with about four inches of the stem to them; and when these are cut off, about a month's time furnishes a fresh crop from the same stock. They are to be stripped of their outer skin, and boiled; and when perfectly fine, they are very little inferior to asparagus. The best way to have them fine, is to get fresh seed every year from Italy; for they are very apt to degenerate.

BROCHOS, in *Surgery*, a name used by some writers for bandages in general: in some of the old writers, the same word is also used to express a person who has a very prominent upper lip, or very prominent teeth, and a thick mouth.

BROCK,

BROCK, among *Sportsmen*, sometimes denotes a badger, otherwise called a grey *brock*. See **BADGER**.

BROCK, and **BROCKET**, is also used to denote a hart of the third year.

BRODIATORES, in the *Middle Age*, a kind of *librarii*, or copists, who did not write the words and letters plain, but variously flourished and decorated, after the manner of embroidery. Du-Cange Gloss. Lat. tom. i.

BRODIUM, a term used by some writers in *Pharmacy*, for a liquor in which any solid substance has been boiled, is to be preserved, or with which a medicine too strong for use alone is to be diluted.

BROGLING, a method of fishing for eels, otherwise called **SNIGGLING**.

BROKEN-backed, in *Sea Language*, denotes the state of a ship which is so impaired, and loosened in her frame, as to droop at each end; a disorder to which the French ships are most exposed, on account of their length, &c.

BROKEN knees. Among *Horse-jockies*, *broken knees* are a mark of a stumbler. A *broken wind* is discovered by a horse's blowing at the nose in the stable, and his flanks beating quick, double and irregular, especially after motion. There are divers ways of concealing a *broken wind*. A quart of new milk given a horse on an empty stomach will elude it for an hour. A brushing gallop discovers it; no medicine can prevent his coughing and wheezing in that case, if his wind be *broken*. This disorder frequently happens to horses which have stood long in the stable, without exercise; and it may be relieved by careful feeding, and moderate exercise. The following ball may be given once in a fortnight, or three weeks, with warm meal and water, whenever it is used, and it may be continued for two or three months, viz. six drams of Succotrine aloes; myrrh, galbanum, and ammoniacum, of each two drams; bay-berries, half an ounce; a spoonful of oil of amber; the whole is to be made into a ball, with a sufficient quantity of syrup of black-thorn. Bartlet's Farriery, p. 68.

BROKEN numbers. See **NUMBER** and **FRACTION**.

Among *Painters*, a colour is said to be *broken*, when it is taken down or degraded by the mixture of some other.

BROKEN ray, in *Dioptrics*, the same with *ray of refraction*.

BROKER. The origin of the word is contested; some derive it from the French *broier*, to grind; others from *brocarder*, to cavil, or riggle; others deduce *broker* from a trader *broken*, and that from the Saxon *broc*, misfortune; which is often the true reason of a man's breaking. In which view, a *broker* is a broken trader, by misfortune; and it is said none but such were formerly admitted to that employment.

BROKERS are of three kinds; *exchange-brokers*, *stock-brokers*, and *pawn-brokers*.

BROKERS, *exchange*, are a sort of negociators, who contrive, make, and conclude bargains between merchants and tradesmen, in matters of money or merchandise, for which they have a fee, or *premium*. See **EXCHANGE**. These, in our old law-books, are called *broggers*, and in Scotland, *broccarii*, i. e. according to Skene, mediators or intercessors in any contract, &c. See **PROXENETA**.

They make it their business to know the alteration of the course of exchange, to inform merchants how it goes, and to notify to those who have money to receive or pay beyond sea, who are proper persons for negotiating the exchange with; and when the matter is accomplished, that is, when the money is paid, they have for brokage, two shillings per 100 pounds sterling.

These, by the statute of 8 and 9 William III. are to be licensed in London by the lord-mayor; and any person acting without such a licence, is liable to the forfeiture of 500*l.* and persons employing them forfeit 50*l.* They are also to register contracts, &c. under the like penalty; and not to deal for themselves on pain of forfeiting 200*l.* They are likewise to carry about with them a silver medal, having the king's arms, and the arms of the city, &c. and to pay 40*s.* a year to the chamber of the city. 6 Ann. cap. 16.

In France, till the middle of the seventeenth century, their *exchange brokers* were called *courtiers de change*; but by an arret of council in 1639, the name was changed for that more creditable one of *agent de change*, *banque*, & *finance*; and in the beginning of the eighteenth century, to render the office still more honourable, the title of *king's counsellors* was added.

At Grand Cairo, and several places of the Levant, the Arabs, who do the office of *exchange brokers*, are called *consuls*: the manner of whose negotiating with the European merchants has something in it so very particular, that we have referred it to a distinct article.

The *exchange-brokers* at Amsterdam, called *makelaers*, are of two kinds; the one, like the English, called *sworn brokers*, because of the oath they take before the *burgomasters*; but the others negotiate without any commission, and are called *walking brokers*.—The first are in number

395; whereof 375 are Christians, and 20 Jews: the others are near double that number; so that in Amsterdam there are near 1000 *exchange brokers*.—The difference between the two consists in this; that the books and persons of the former are allowed as evidence in the courts of justice; whereas in case of dispute, the latter are disowned, and their bargains disannulled.

The fee of the sworn *exchange-brokers* of Amsterdam is fixed by two regulations, of 1613, and 1623, with regard to matters of exchange, to eighteen sols for 100 livres de gros, or 600 florins; i. e. three sols for 100 florins; payable, half by the drawer, and half by the person who pays the money. But custom has made considerable alterations herein.

The Jews, Armenians, and Banians, are the chief *brokers* throughout most parts of the Levant and the Indies. In Persia, all affairs are transacted by a sort of *brokers* whom they call *delal*, i. e. *great talkers*. The manner of making their markets is very singular: after the *brokers* have launched out into long, and usually impertinent discourses, coming towards a conclusion, they only converse with their fingers. The buyer and seller's *broker*, each take the other by the right hand, which they cover with their coat, or a handkerchief: the finger stretched out, stands for six; bent, for five; the tip of the finger for one; the whole hand for 100; and the hand clenched, for 1000. They will express even pounds, shillings, and pence, by their hands. During all this mystic commerce, the two *brokers* appear as cold and composed, as if there were nothing passing between them.

The French distinguish two kinds of *brokers*; one for the service of merchants, the other of manufacturers, artificers, and workmen. The business of the former is to facilitate the sale of goods in the wholesale and mercantile way; that of the other, to procure the goods wanted for manufacturers, artificers, &c. or to sell their goods when made. At Paris there is scarce a company of tradesmen, or even mechanics, but have their *brokers*, who are usually taken out of their body, and make it their sole business to negotiate in the particular kinds of goods to which such company is by statutes restrained. There are *brokers* for drapery, *brokers* for grocery, *brokers* for mercery, &c. There are even *brokers* for tanners, curriers, cutlers, and the like. Dict. of Commerce.

BROKER, cloth.—At Paris they have a regular company of these *brokers* or *frippiers*, who are governed by statutes first given them under Francis I. in 1544.

BROKER, piece, a sort of petty dealers in drapery, who sell fragments or remnants of cloths, stuffs, silks, and the like, at under price.

BROKERS, stock, are those employed to buy and sell shares in the joint stock of a COMPANY or corporation. The negotiations, &c. of these *brokers* are regulated by stat. 6 Geo. I. cap. 18. and 7 and 10 Geo. II. cap. 8. which, among other things, enact, that contracts in the nature of wages, &c. incur a penalty of 500*l.* and by the sale of stock, of which the seller is not possessed, a forfeit of 100*l.* and that *brokers* keep a book, in which all contracts, with their dates, and the names of the parties concerned, shall be entered, on pain of 50*l.* See **SUBSCRIPTION** and **AGENT**.

BROKERS of household furniture. See **APPRAISERS**.

BROKERS, pawn, are persons who keep shops, and let out money to necessitous people upon pledges, for the most part on usurious conditions.

These are more properly called *pawn-takers*, or *tally-men*, sometime *fripers*, or *friperers*.

Of these is to be understood the statute of 1 Jac. I. cap. 21. by which it is enacted, that the sale of goods, wrongfully gotten, to any *broker* in London, Westminster, Southwark, or within two miles of London, shall not alter the property thereof.—If a *broker*, having received such goods, shall not, upon the request of the right owner, truly discover them, how and when he came by them, and to whom they are conveyed, he shall forfeit the double value thereof to the said owner.

But there are several excellent regulations respecting *pawnbrokers*, of later date; for which, see 30 Geo. II. cap. 24, and 32. Geo. II. cap. 24.

In the cities of Italy, there are companies established by authority for the letting out money in pawns: called, *mounts of piety*; an honourable title, like that of the *charitable corporation*, but little becoming such institutions; inasmuch as the loan is not *gratis*.

In some parts of Italy, they have likewise *mounts of piety* of another kind, wherein they only receive ready money, and return it again, with interest, at so much *per annum*.—At Bologna they have several such *mounts*; which are distinguished into *frank* and *perpetual*: the interest of the former is only four *per cent.* in the latter, seven.

BROKERAGE, the fee paid to a **BROKER**.

BROMELIA, in *Botany*, *Plum*; a genus of the *hexandria monogynia* class of plants. Its characters are these: the

flower hath three long, narrow petals, each having a *nectarium* joined to it above the base, and hath six stamina; the germen is situated below the receptacle, which afterward becomes an oblong capsule, divided by a partition in the middle, to which the seeds are fixed quite round; these are smooth, and almost cylindrical. There are two species, which make a pretty variety in the household.

BROMUS, in *Botany*, a name used by some authors for that kind of grass, called by others *festuca* and *ægilops*, or *oat-grass*.

BRONCHIA, in *Anatomy*, the little tubes into which the *trachea* is branched, at its entrance into the lungs; and which are distributed through every part thereof, serving for the conveyance of the air in respiration.

The *bronchia* consists of cartilages like the *trachea*; only here the cartilages are perfectly circular, without any membranous hard part: they are joined together by the membranes that invest them, and are capable of being shot out lengthwise in inspiration; and of being drawn into each other in expiration.

BRONCHIAL artery is an artery of the lungs, which arises from the descending trunk of the *aorta*, or intercostals: and, embracing the *trachea*, pursues the course of the *bronchia*, accompanying all the branches thereof through their whole progress. See *Tab. Anat. (Angeiol.) fig. 1. n. 29.*

BRONCHIAL glands are a soft, succulent, blackish sort of glands, adhering externally to the lower part of the *trachea*, the greatest divisions of the *bronchia* and the *æsophagus*, some larger, some smaller; said to be discovered by Verheyen.

Their use is uncertain; the generality hold them to furnish an unctuous liquor, to moisten and line the inside of the *bronchia*. Verceillon will rather have them to secrete a juice for the service of digestion, conveyed by minute ducts to the *æsophagus* and stomach; which, however, is called in question by Heister.

Verheyen is of opinion, that the hoarseness which arises from a cold, may proceed from an obstruction of these glands; and that the benefit which accrues from taking oil of almonds, or other smooth medicaments, may proceed from their supplying the defect of this juice, and lubricating artificially the inside of the *bronchia*. But it should rather seem, that the humidity furnished the *trachea* and *bronchia*, comes from the milary glands of those parts, which are only lymphatics, and become tumid in morbid cases, inasmuch that they frequently press the wind-pipe, or some of its branches, and cause an **ASTHMA**.

BRONCHIAL vein arises from the intercostals, or the azygos, accompanies the artery, and divides into the same number of branches with it.

The artery brings blood to the *bronchia*, for the nutrition thereof, and of the vesicles of the lungs: and the vein carries it off again to the *cava*, where it soon terminates. The *bronchial* artery is sometimes single, but more frequently double; sometime triple.

BRONCHOCELE, a pendent tumour, with a large round neck, rising on the bronchial part of the *trachea*.

The word is formed from *βρογχος*, wind-pipe, and *κηλη*, swelling.

The *bronchocele* is common in Lombardy, Savoy, and about the Alps; whence Horace,

Quis tumidum guttur miratur in Alpibus

It is commonly supposed to derive its origin from the Alpine waters, which being impregnated and chilled with ice and snow, causes a *lentor* of the *lymphæ*, about the muscles of the throat, whereby the vessels are contracted, and the circulating humours thickened, whence an obstruction, &c. Though there are some species of it supposed also to rise from strains, bruises, and other accidents.

The *bronchocele* has been called by some *hernia gutturalis*, or *bronchialis*, *gutteria*, and *gongrona*. Some medical writers have confounded it with the *struma*, *scrophula*, or king's evil, and others have made it only a species of **STRUMA**. It has been described by Celsus, Albucasis, Heister, and many latter writers. Some ascribe it to a rupture of a lymphatic vessel; others to some extravasated, nutritious juice, converted into a fleshy substance; and the tumour has been observed to consist partly of a fluid, and partly of a more firm and glandular substance; but its consistence is different in different cases.

The English *bronchocele*, as Mr. Prosser has termed it, or as it is otherwise called, the *Derby-neck*, because many of the women in the hills of Derbyshire are subject to it, is a tumour arising on the fore-part of the neck, seated in the body of the neck, between the skin and wind-pipe, in the thyroid gland; and thus differs from the former, or Apline *bronchocele*, which commonly hangs under the chin like dew-laps. Mr. Prosser distinguishes it also from the similar disease, which is caused by loud crying,

coughing, or other means of straining the neck; this he says, is incurable; whereas the other, called the natural or spontaneous *bronchocele*, is easily cured by proper and timely application. Dr. Hunter has observed, that it appears two or three years before or after menstruating; and Mr. Prosser has made the same observation, that it commonly appears first between the age of eight or twelve years. When the menstruation approaches kindly, it sometimes spontaneously disappears. This disease is almost peculiar to women; it is soft, or rather flabby to the touch, and moveable; but when it is continued for some years after the time of its growing, it becomes more firm. It is attended with a considerable difficulty of breathing, in some cases, to such a degree as to occasion a bad wheezing. The situation of this tumor is such that all attempts to extirpate it are extremely dangerous, and therefore the only method of cure is by discussion. The most celebrated remedy for this disorder is one which is prepared and sold at Coventry, and which Mr. Prosser believes consists of equal parts of sponge, cork and pumice-stone, calcined; half a dram of this is mixed with sugar, and made into a bolus, and laid under the tongue every night. Mr. Prosser recommends the following powders:

℞ Cinnab. Antimon. opt. levig. ʒj.
Milleped. pp. & pulv.
Spong. calcin. āā gr. xv. m. f. pulvis.

One of these is to be taken an hour or two before breakfast, for two or three weeks; and after the interval of about a fortnight, they are to be again renewed; and three of the following pills are to be taken at bed-time, during the second course of the powders:

℞ Pil. Mercurial. ph. nov. ʒ ʒ.
Pil. N° 48. æquales.

The dose is to be adjusted to the age and constitution of the patient, who should be prepared for this course by two or three previous purges, and avoid taking cold. If these means are used for about a month or six weeks, without any external application, he has no doubt of success. However, the patient should be under twenty-five years of age. At this age the cure is uncertain; but at a more advanced period of life much more improbable, and seldom or ever succeeds. Gooch, in his *Medical Observations*, mentions an *aqueous BRONCHOCELE*. Phil. Trans. N° 265. p. 631. Prosser's Account and method of Cure of the *Bronchocele*. 1771.

BRONCHOTOMY, in *Chirurgery*, the operation of cutting into the wind-pipe, to prevent suffocation, in the quinsy; or an incision made in the *trachea*, or wind-pipe, between two of its *annuli* or rings, in order to give passage for the breath, when there is danger of suffocation, from an inflammation of the *larynx*, &c.

The word comes from *βρογχος*, wind-pipe, and *τεμνω*, I cut.

Bronchotomy, called also *Laryngotomy*, is thus performed. — The body of the patient being prepared, an incision is made between the third and fourth *annuli*, or rings, of the *asperia arteria*, an inch below the bottom of the *larynx*; the skin and integuments divided, and the muscles removed; a silver tube is applied, and the cause of the disease removed, and the wound healed; nourishing clysters being applied in the mean time, if deglutition be impracticable.

Dr. Musgrave observes, that in all medicine there is not one method that works so great a change, for the better, in so short a time. However, it is seldom practised, because that gap which appears on the cutting a throat (the divided parts being then drawn towards their more fixed ends), together with the great efflux of blood when the jugulars and carotid arteries are also wounded, create in most men a dread of the operation, and make many believe all wounds of the *trachea* mortal. — The same author makes no scruple, however, to say it ought to be practised in quinsies, and other dangers of suffocation from causes of a like nature with them; from an extraordinary cure which he himself had wrought in this way.

Bronchotomy is likewise recommended as the last thing to be done, in order to recover drowned people to life; and to this operation may have been indebted for their recovery.

In the *Philosophical Transactions*, vol. iii. part ii. N° 81. there is an account of the case of a *cut throat*, that may serve to make us somewhat more ready and resolute in the operation of *bronchotomy*, when it is necessary; such is the very inference that Dr. Huxham, who relates it, draws from it. P. 515.

BRONCHUS, in *Anatomy*, properly denotes the lower part of the *aspera arteria*, dividing into *bronchiæ*, or branches. In which sense, *bronchus* stands contradistinguished from **LARYNX**.

The

The name *bronchus* is also extended to the whole *aspera arteria*, or TRACHEA.

BRONCHUS also denotes a person afflicted with a BRONCHOCLE, or tumour of the throat, called by Ulpina *gutturulus*.

BRONCINI, in Zoology, a name given by some to the *lupus*, or sea-wolf, called in English the BASSE.

BRONTEUM, in Antiquity, that part of the theatre underneath its floor, wherein brazen vessels, full of stones and other materials, to imitate the noise of thunder, were kept. Potter. Arch. Græc. lib. ii. cap. 8.

BRONTIÆ, among Naturalists, a kind of figured stones, commonly hemispherical, and divided by five pointed zones.

The word is formed from *βροντη*, thunder; alluding to the popular tradition, that those stones fall in thunder showers: whence they are also denominated thunder-stones, sometimes polar-stones, fairy-stones, and also *ombria*, by naturalists.

Some take the *brontiæ* for the petrified shells of the *echinus spatagus*, or *briscus*, of Aristotle. Dr. Woodward rather supposes them to have been formed, and received their shape, in the shell of the *echinus spatagus*; on which footing they are also ranked in the number of ECHINITES. Dr. Plott contests both.

BRONTIÆ are sometimes also used in England for a kind of figured stones, shaped like arrow-heads, less properly called BELEMNITES, and popularly *thunder-bolts*.

Dr. Woodward takes not these for natural stones, but supposes them to have been fashioned thus by art, to serve as weapons before the invention of iron.

Some also give the denomination *brontia* to the BATRACHITES and CHELONITES.

BRONTOLOGY, books containing the doctrine of thunder, and of the presages drawn therefrom. See THUNDER.

BRONZE, in Chemistry, a factitious metal, compounded of copper and tin, to which sometimes other metallic substances are added, particularly zinc. It is brittle, hard, and sonorous.

The word is French, in which language it has a very extensive signification, including all the compositions of copper or brass, as for guns, bells, pots, or the like.

It is formed from the Italian *bronzò*, which has the same signification. Copper medals are frequently called medals of bronze. Medalists distinguish the large, middle, and little BRONZE.

Bronze is employed for various uses, as for making bells, cannon, and statues; and the proportions of the component metals are varied, to suit the several uses to which it is applied. For the finest statues, the mixture in the composition of bronze is half copper, and half brass, or LATTEN.

The Egyptians, who are said by some to have invented the art of making it, use two thirds of brass, and one third of copper.

The compound of copper and tin, it is observed in the Dictionary of Chemistry, has a greater than the intermediate specific gravity: whence he infers, that in the union of copper and tin there is a penetration of parts; i. e. that one metal enters into the pores of the other, and perhaps even this effect is reciprocal. See on this subject Gellert's Metallurgic Chemistry.

Bronze is less apt to be covered with verdigrise than pure copper is; for as tin is less liable to the action of salts, of moisture, and of the air, than copper, it is also less liable to rust; hence arises one reason why this ALLAY of bronze is used for cannons, statues, and works exposed to the air and weather. The greater fusibility of bronze than of copper, is also an advantageous property, and much facilitates the casting of large works, as statues, bell, and cannon. See BELL-metal.

The operation by which large works of bronze are cast, is sufficiently simple. For this purpose a brick-furnace is used nearly of the shape of an oven for baking bread. The floor of it is concave, and consists of a composition of sand and clay; in which the metals to be fused are put. The furnace has three openings; the first is a lateral mouth, at which enters the flame of wood, placed in a second furnace on one side of the first; the second opening is a chimney placed on the side opposite to the mouth, by means of which the flame is drawn over the metal; the third opening is a hole opened and shut at pleasure, through which the inner part of the surface may be occasionally inspected, that the state of the metal may be observed. When the metal is in the state required, a fourth opening is then unclosed, communicating with the hollow floor, and through which the melted metal flows by channels into the moulds prepared to receive it. Dict. of Chemistry.

BRONZE, in Painting, denotes a colour prepared by the colourmen of Paris, in imitation of bronze. There are two sorts of it, the red and the yellow, or golden: the lat-

ter, the yellow, is made solely of the finest and brightest copper-dust that can be had; and in the former there is only added a small quantity of red ochre, well pulverised. They are both applied with varnish, and, to prevent its turning greenish, the work is dried over a chaffing-dish, as soon as bronzed.

BRONZES. Thus Antiquarians denominate figures of men or beasts, urns, and every piece of sculpture, which the ancients made of the above metal. Statues, busts, &c. cast of this metal, are called by this name, whether they be originals or copies.

BRONZING is the art of imitating bronze. See BRONZE, in Painting.

BROOD, the young of fish and fowls.

The word is derived from the Saxon *bredan*, to breed; which alludes to *βρα*, to be big with young.

Malpighi had the curiosity to break several times all the eggs of a brood, one half an hour after another, and observe with a microscope the successive alterations produced therein till the moment of hatching; of all which he has given figures, curiously engraven.

The word is also used for a set of any young. In which sense we say, a brood of vipers, a brood of oysters. A brood of pheasants is more properly called an eye. Phil. Trans. N^o 369.

BROOD of sea-fish is spawned, and lies in still waters; where it may have rest to receive nourishment, and grow to perfection. And here it is often destroyed by weirs, draw-nets, and nets with canvas, or like engines in the bottoms of them; in harbours, havens, and creeks:—Every weir near the main sea takes, in twelve hours, sometimes five bushels, sometimes ten, sometimes twenty or thirty. For the preventing hereof, by 3 Jac. 1. cap. 12. it is enacted, that none shall erect a weir, or weirs, along the sea-shore, or in any haven, or creek, or within five miles of the mouth of any haven or creek, or shall wilfully destroy the spawn or fry of fish, on pain of 10*l*. to be divided betwixt the king and the prosecutor: Neither shall any one fish in any of the said places, with any net of a less mesh than three inches and an half betwixt knot and knot (except for the taking smoulds in Norfolk only), or with a canvas net, or other engine, whereby the spawn or fry of fish may be destroyed; on pain to forfeit the said engine or net, and 10*l*. in money, to be divided betwixt the poor of the parish and the prosecutor.

BROOD, or BROOD-comb, called by the French *couvain*, is that part of the comb of a bee-hive, which contains in its cells the future progeny of the hive, in the three different states of eggs, worms and nymphs. See BEE; and QUEEN-bee.

BROODING, the act of a hen, or other bird, sitting on a number of eggs, to keep them warm, till they hatch, or produce young ones. See HATCHING. In which sense the word amounts to the same with incubation.

Insects have also a method of brooding on their ova: Some even pretend, that snakes lye on their eggs; which seems without foundation. Phil. Trans. N^o 8.

There is a difference between the brooding of SNAKES and VIPERS; the former being oviparous, and the latter bringing forth their young alive.

BROOKLIME, in Botany, a species of SPEEDWELL:

Brooklime bears a resemblance in its flowers to the *Paul's betony*, though its leaves are larger, and the ridges entire.

Its chief use is to abrade and clear away those little viscidities which obstruct the capillaries, and occasion scabs and blotches, though it has also a diuretic virtue, and serves as a cleanser of all the viscera; whence it is frequently an ingredient in antiscorbutic and deobstruent compositions. Quincy. Disp. p. ii. § 4.

BROOM, single-seeded, *Genisto*, in Botany, a genus of the *diadelphia decandria* class of plants. Its characters are these: the flower is of the butterfly kind; the standard long and wholly reflexed; the wings are a little shorter, and loose; the keel erect, and longer than the standard. It hath ten stamina joined, which are situated in the keel. In the centre is an oblong germen, which afterwards becomes a roundish, turgid pod, with one cell, opening with two valves, enclosing kidney-shaped seeds. There are ten species. It grows plentifully on heathy grounds. See Tab. of Botany, Class 22.

Among Husbandmen, broom is considered as a weed very pernicious to the culture of lands; and on that account, to be grubbed up and destroyed.

It roots deep, and, shedding no leaves, is continually sucking the moisture from the earth. The best method of destroying it, is the burning the land, then plowing it deep, and manuring it very well with dung and ashes; the spreading on the land chalk or marle, or the manuring it with urine. If the ground be designed for pasture-land, it is best to cut it close to the ground in May, when the sap is strong in it. By this artifice, the roots are destroyed

destroyed; whereas, in the common way of pulling up the young plants, some strings will be left, and the least of these will grow. Foddering of cattle upon *broomy* land, is one very good way of destroying the *broom*, their urine killing the roots, and their treading the land making it less proper for the roots of this plant; for the *broom* is never observed to grow in trodden places. This troublesome and pernicious plant is not, however, without its use to the farmer; for when well laid, it will make an excellent and lasting kind of thatch for barns.

Broom-flowers make a principal ingredient in divers medicated ales. Their ashes are extolled for purging off waters in dropsies; in which respect, however, Dr. Quincy assures us, they are no better than any other lixivious ASHES.

Some pickle the yellow buds with vinegar and salt, &c. after the manner of capers, from which they are then scarce to be distinguished.

Broom is an attenuant, abstergent, and aperient. The juice of the green shoots of *broom*, or a strong infusion of them in wine, is an excellent diuretic, and cleanses the ureters and kidneys. If taken in large doses it purges by stool, and therefore is doubly proper in dropical cases. The seed of *broom* is also a purge, and that of no weak kind, a dram and a half of it being a sufficient dose. The *lixivium* of *broom* with white wine is a powerful diuretic, but must be taken with caution.

BROOM, African. See ASPALATHUS.

BROOM, Butcher's, in Botany. See BUTCHER'S *Broom*.

BROOM-flower, gives the denomination to an order of knights instituted by St. Lewis of France, on occasion of his marriage. The motto was, *Exaltat humiles*, and the collar of the order made up of *broom-flowers* and husks, enamelled and intermixed with fleurs-de-lys of gold, set in open lozenges, enamelled white, chained together, and as it hung a *cross florence* of gold. This answers to what the French call *Ordre de la Geneste*, from the name of a species of *broom* so called; different from the common *broom*, as being lower, the stalk smaller, and leaf narrower; the flower is yellow, and bears a long husk.

Some also speak of another order of the *Geneste*, or *Broom*, established by Charles Martel, or rather Charles VI.

BROOM also denotes a well known household besom, or implement wherewith to sweep away dirt, dust, and the like.

We say, a *birch-broom*, a *hair-broom*, a *rush-broom*, a *beath-broom*. The primitive kind of *brooms*, from whence the denomination is given to all the rest, was made of the *genista*, or wild *broom*, growing on commons.

BROOM-gall, in *Natural History*, a name given by authors to a remarkable species of galls found on the *genista vulgaris*, or common *broom*. This is occasioned, like all other galls, by the puncture and eating of an insect, and, when opened, is found to contain a small oblong worm, of a red colour, but whose size requires the use of a glass in order to see it distinctly.

BROOM rape, in *Botany*. See *Broom RAPE*.

BROOM-tree, *Spartium*, *Cytiso Genista*, in *Botany*, a genus of the *diadelphia decandria* class of plants. Its characters are these: the empalement of the flower is heart-shaped; the flower of the butterfly kind; the standard almost heart-shaped, large, and wholly reflexed; the wings are oblong, shorter than the standard, and annexed to the stamina; the keel is oblong, longer than the wings; the borders hairy, and connected together; to which the stamina are inserted. It has ten unequal stamina, nine of which are joined together, and the under stands apart; with an oblong hairy-germen, supporting a rising awl-shaped style, to which is fastened an oblong, hairy, inflexed stigma. The germen afterward becomes a long, cylindrical, obtuse pod, of one cell, opening with two valves, including several globular kidney-shaped seeds. There are eleven species, natives of different parts; the best known of which is the Spanish *broom*, which is common in gardens, and flowers in June and July; the parts in use are the branches, flowers, and seeds, which agree in virtues with the common *broom*; only are more efficacious.

BROOMING, or *BREAMING* of a *ship*, the burning off the filth she has contracted on her sides with straw, reeds, broom, or the like, when she is on a careen, or on the ground. See CAREENING.

BROSSÆA, in *Botany*, the name of a genus of plants of the *pentandria monogynia* class, the characters of which are these: the cup is a one-leaved *perianthium*, divided into five segments, each of which terminates in a long point, of the same length with the petals; the flower is monopetalous, of the shape of a truncated cone, and undivided at the edge; the germen is divided into five parts; the style is pointed, not so long as the flower, and its stigma simple. The fruit is a roundish capsule, divided by five deep furrows into five cells; it is covered with a large cup, which closes over its top; it is succulent and fleshy; and,

finally, opening at the sides, it discharges a great number of minute seeds.

BROTHEL. See STEWS.

BROTHER, *Frater*, a term of relation between two male children, sprung from the same father, or mother, or both. Scaliger and Vossius derive *frater* from *φρατρ*, for *φρατρ*, which properly signifies a person who draws water in the same well; *φρατρ*, in Greek, signifying *well*, and *φρατρια*, a company of people, who have a right to draw water out of the same well.—The word, it is said, came originally from the city Argos, where there were only a few wells distributed in certain quarters of the city, to which those of the same neighbourhood alone repaired. By the civil law, *brothers* and *sisters* stand in the second degree of consanguinity; by the canon law, they are in the first degree.

By the Mosaic law, the *brother* of a man who died without issue was obliged to marry the widow of the deceased. Deuter. xxv. 7. See LEVIRATE.

The ancients applied the term *brother* indifferently to almost all who stood related in the collateral line, as uncles and nephews, cousin Germans, &c.—This we learn not only from a great many passages in the Old Testament, but also from profane authors: Cicero, in his *Philippics*, says, "Antonia was both wife and sister of Mark Antony; because she was daughter of his brother C. Antonius." And as to cousins, Tullius Hostilius, in *Dionysius Halicarnessus*, calls the *Horatii* and *Curatii*, *brothers*; because they were sisters children.

The language of the Jews, bishop Pearson observes, included in the name of *brethren* not only the strict relation of fraternity, but also the larger of consanguinity. We are brethren, says Abraham to Lot, Gen. xiii. 8. whereas Lot was only his nephew.—So Jacob told Rachel that he was her father's *brother*, Gen. xxix. 12. whereas he was only her father's nephew.—This consideration has been urged with good advantage against the Antidicomarianites, who, from the mention made of the *brethren* of Jesus (John ii. 12. Matth. xii. 46.) have impugned the perpetual virginity of the mother of Christ.

Among us, it is customary for kings to give the title *brother* to each other; the unction in coronation being esteemed to create a kind of *brotherhood*. Nor is the custom modern: Menander mentions a letter of Cosroes king of Persia, to the emperor Justinian, beginning thus: Cosroes king of kings, &c. to the emperor Justinian my *brother*.

Kings now also give the same appellation to the electors of the empire; and the like was given, by the king of France, to the late king of Sardinia, while only duke of Savoy.

In the civil law, *brothers*, *fratres*, in the plural, sometimes comprehends sisters: as *Lucius & Titia, fratres*; *tres fratres, Titius, Mævius, & Seia*.

BROTHERS, foster, those which sucked the same nurse.

The French call them *fratres du lait*, or *brothers by milk*; which is most properly used in respect of a person who sucked a nurse at the same time with the nurse's own child.

BROTHERS, German, Fratres Germani. See GERMAN.

BROTHER was also used, in *Middle Age Writers*, for a *comes*, or governor of a province.

BROTHER is applied, in a less proper sense, to denote a person of the same profession. In which sense, judges, bishops, priests, &c. call each other *brothers*.

BROTHER in Christ, frater in Christo, the same with *spiritual brother*, a person admitted into a monastic society or fraternity.

BROTHER is more particularly used to denote the relation between monks of the same convent.

In which sense they say, *brother Zachary*, *brother Bonaventure*, &c. In English, we more usually say, *frar Zachary*, &c. from the French word *frere*, *brother*.

This appellation is borrowed from the primitive Christians, who all called each other *brothers*: but it is principally used for such of the religious as are not priests; those in orders are generally honoured with the title of *fathers*, *patres*, *peres*; whereas the rest are only simply *brothers*.

The monks of St. Dominic are particularly called *preaching brothers*, or *friars predicants*: those of St. Francis, *minor brothers*; those of charity, *ignorant brothers*, &c.

BROTHERS, conscripti, fratres conscripti, denote laymen and others entered in the catalogue of the *brothers* of a monastery, or rather possessed of the fraternity thereof.

BROTHER, outer, frater exterior, sometimes denotes a lay-brother.

BROTHER, strange, frater adveniens, a host or guest belonging to another monastery.

BROTHER, foreign, frater externus, either a monk, priest, or canon of some other monastery, to whom the prayers of the society are granted.

BROTHER, mature, frater maturus, one distinguished by his age, gravity, or probity, above the rest.

BROTHERS, spiritual, laymen admitted into a monastic fraternity.

ternity. The name was also given to those otherwise called *mature brothers*, and sometimes also to a sort of adopted *brothers*, or persons who commenced a kind of *brotherhood*, with the ceremony of breaking bread together in the church before the priest.

BROTHER, *lay*, *frater laicus*, or *conversus*. See **LAY BROTHER**.

BROTHER, *given*, *frater donatus*, among the Carthusians, denotes a young person dressed in minim cloth, and wearing a hat, whose office is to serve in the house, answering to what in other orders is called an offered brother, *frater oblatus*.

BROTHER is also an appellation more peculiarly given to certain orders of religious: thus the

BROTHERS of St. Alexis, in the Low Countries, were an order of persons who attend on those who lay dying, and take care of the burial of the dead.

BROTHERS of Ave Maria. See **SERVITES**.

BROTHERS of Charity, a sort of religious Hospitallers, founded about the year 1297, since denominated *Billetins*. They took the third order of St. Francis, and the scapulary, making three usual vows, but without begging.

BROTHERS of Charity also denote an order of Hospitallers still subsisting in Romish countries, whose business is to attend the sick poor, and minister to them both spiritual and temporal succour.

They are all laymen, except a few priests, for administering the sacrament to the sick in their hospitals. The *Brothers of Charity* usually cultivate botany, pharmacy, surgery, and chemistry, which they practise with success.

They were first founded at Granada, by St. John de Dieu; and a second establishment was made at Madrid, in the year 1553: the order was confirmed by Gregory XIII. in 1572. Gregory XIV. forbade them to take holy orders: but by leave of Paul V. in 1609 a few of the *brothers* might be admitted to orders. In 1619 they were exempted from the jurisdiction of the bishop. Those of Spain are separated from the rest, and they, as well as the *Brothers of France*, Germany, Poland, and Italy, have their distinct generals, who reside at Rome. They were first introduced into France by Mary of Medicis in 1601, and have since built a fine hospital in the Fauxbourg St. Germain.

BROTHERS of Charity of St. Hippolytus, a religious congregation first set on foot by Alvarez, a citizen of Mexico, in 1585, who associated with him several other pious persons to attend on the sick, and founded an hospital without the walls of that city; which being approved of by the pope, and the number of like hospitals increasing, a congregation was formed under the title of the *Charity of St. Hippolytus*, because the first hospital had been dedicated to that saint, on whose feast day the city first fell into the hands of the Christians. Clement VIII. in 1594, granted them all the privileges of the *Brothers of the Charity of St. John de Dieu*.

BROTHERS of Death, a denomination usually given to the religious of the order of St. Paul, the first **HERMIT**.

They are called *Brothers of Death*, *fratres a morte*, on account of the figure of a death's head, which they were always to have with them, in order to keep perpetually before them the thoughts of death.

This order, by its constitutions, made in 1620, does not seem to have been established long before pope Paul V. Lewis XIII. in 1621, permitted them to settle in France. The order was probably suppressed by pope Urban VIII.

BROTHERS of Penitence, or of the *Penitence of Jesus Christ*, a name given at Thoulouse to the religious of the third order of St. Francis, called also *Beguini*; and to a fraternity of Penitents held in the chapel of the church of the third order, under the direction of the *Beguini*. See **BEGUINS**.

BROTHERS, Pyed, *fratres pii*, a denomination given to all monks, whose habit was partly white, partly black; they were otherwise called *Agaches*.

BROTHERS of St. Gregory the Illuminator, a religious order established in Armenia, in the fourteenth century, which being much reduced and decayed by the conquests of the Turks and Persians, was, in 1356, united to the order of St. Dominic.

BROTHERS, Joyful, *fratres gaudentes*, in Italy, denote the knights of the order of the Virgin Mary, first instituted at Bologna in 1261, for whom a rule was prescribed by pope Urban IV.

BROTHERS, poor, in the **CHARTER-HOUSE**, a denomination given to decayed gentlemen, to the number of eighty, who are subsisted with diet, clothing, and lodging on the establishment.

The *poor brothers* are to be gentlemen by descent, come to poverty, or decayed merchants, soldiers, or officers of the king's household. The conditions of admission are that they have no estate for life worth 200*l.* nor coming in, *viis & modis*, 24*l.* *per annum*; and that they be fifty years old, unless they have been maimed in the public service; in which case, the age of forty suffices. They wear a livery-gown within doors.

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BROTHERS, White, the name of a sect which appeared in Russia towards the beginning of the fourteenth century; so called from their white cloaks, on which was a St. Andrew's cross, of a green colour. See **BRETHREN**.

BROTHERS of Arms, an appellation given to those who contract a kind of fraternity in war, obliging themselves to the mutual service and assistance of each other.

In the military orders, the knights are also called *brothers*.

—In the order of **MALTA**, there is a particular class, who are called *serving brothers*; consisting of such as can not give proof of their nobility. In Latin they are denominated *fratres clientes*.

BROTHERS by adoption. See **ADOPTION**.

Two *brothers* who have only the same father, are called *fratres consanguinei*; and those who are only descended from the same mother, *fratres uterini*.

BROTHERS of the rosy cross. See **ROSYCRUSIANS**.

BROTHERS, sworn, *fratres conjurati*. See **FRATRES**.

BROTHERS, in *Alchemy*, lame or maimed, denote the imperfect metals, which are to be cured of their lameness by the perfect elixir; i. e. are to be purified and separated from their dross, &c. by the philosopher's stone.

BROTHERHOOD. See **FRATERNITY**.

BROW-antler, the first branch of the horn of a hart or buck, shooting out from the beam, or main horn, next the head.

Brow post, in *Carpenry*, a beam which goes across or overthwart a building.

BROWALLIA, in *Botany*, a genus of the *didynamia angiospermia* class. Its characters are these: the flower is funnel-shaped, of one leaf, having a cylindrical tube, twice the length of the empalement, the upper part spread open, and divided into five parts; it hath four stamina included in the chaps of the petal, the two upper being very short, and the two under broad and longer; in the centre is situated an oval germen; the empalement afterwards becomes an oval, obtuse vessel, with one cell opening at the top into four parts, and filled with small compressed seeds. One species of this genus grows naturally at Panama; besides which Linnaeus reckons two more.

BROWN, a dusky kind of colour, inclining somewhat towards redness.

Dyers distinguish divers shades and gradations of *brown*, a *sad brown*, *London brown*, *clove brown*, *purple brown*, *walnut-tree brown*, &c.

Spanish brown is a dull red colour, used by house-painters, chiefly for priming, and by colourmen, in preparing cloths for pictures, and other coarse work, as being cheap and easy to work.

It is obtained from a native earth, which is found in the state and of the colour in which it is used. The name seems to import that it was formerly brought from abroad, but that which is now used is dug up in several parts of England.

The method of dying *browns* is by putting the cloth in a boiling bath of red-wood ground, and nut-galls bruised; and when it has boiled for two hours and a half, and has been cooled and aired, it is put again into the same bath, to which a proportionable quantity of copperas has been previously added. Soot communicates a *brown dye*; and is sometimes used by dyers for this purpose.

BROWN bay, in the *Mange*, is understood of horses of a very dark chestnut colour.

BROWN ochre. See **OCHRE**.

BROWN, pink. See **PINK**.

BROWN wort, in *Botany*. See **Self-heal**, and **FIG-wort**.

BROWNEA, in *Botany*, a genus of the *monadelphia enneandria* class of plants, so called in memory of Dr. Patrick Brown, the celebrated English botanist. There are only two species of this genus yet discovered, which are natives of America. It is doubtful whether this plant will vegetate in our stoves, or green-houses; it makes a beautiful appearance with its assemblage of purple or blood-red flowers. Phil. Trans. vol. lxiii. part. i. p. 173.

BROWNISTS, a religious sect, which sprung out of the Puritans, towards the close of the sixteenth century: their leader, Robert Brown, wrote divers books in their behalf; was a man of good parts, and some learning. He was born of a good family in Rutlandshire, and related to the lord treasurer Burleigh. He had been educated at Cambridge: but first published his notions, and began to inveigh openly against the discipline and ceremonies of the church, at Norwich, in the year 1580, from which time he underwent divers persecutions from the bishops; insomuch that he boasted, he had been committed to no less than thirty-two prisons, in some of which he could not see his hand at noon-day. At length, with his congregation, he left the kingdom, and settled at Middleburgh, in Zealand; where they obtained leave of the states to worship God in their own way, and form a church according to their own model; which they had not long done, before this handful of men, just delivered

from the severities of the bishops, began to differ among themselves, and crumble into so many parties, that Brown, their pastor, grew weary of his office; and, returning to England in 1589, renounced his principles of separation; and was preferred to the rectory of a church in Northamptonshire, and died, after leading a very idle and dissolute life, in 1630.

The revolt of Brown was attended with the dissolution of the church at Middleburgh; but the seeds of *Brownism*, which he had sown in England, were so far from being destroyed, that Sir Walter Raleigh, in a speech, in 1592, computes no less than twenty thousand followers of it.

The occasion of their separation was not any fault they found with the faith, but only with the discipline and form of government of the other churches in England. They equally charged corruption on the episcopal form, and on that of the presbyterians, by consistories, classes, and synods: nor would they join with any other reformed church, because they were not assured of the sanctity and regeneration of the members that composed it; on account of the toleration of sinners, with whom they maintained it an impiety to communicate. They condemned the solemn celebration of marriages in the church; maintaining, that matrimony being a political contract, the confirmation thereof ought to come from the civil magistrate. They would not allow any children to be baptized of such as were not members of the church, or of such as did not take sufficient care of those baptized before. They rejected all forms of prayer; and held, that the Lord's prayer was not to be recited as a prayer; being only given for a rule, or model, whereon all our prayers are to be formed.

The form of church government which they established was *democratical*. When a church was to be gathered, such as desired to be members of it made a confession of it; and signed a covenant, by which they obliged themselves to walk together in the order of the Gospel. The whole power of admitting and excluding members, with the decision of all controversies, was lodged in the brotherhood. Their church-officers were chosen from among themselves, for preaching the word, and taking care of the poor, and separated to their several offices by fasting, prayer, and imposition of hands of some of the brethren. But they did not allow the priesthood to be any distinct order, or to give any indelible character. As the vote of the brotherhood made a man a minister, and gave him authority to preach the word, and administer the sacraments among them; so the same power could discharge him from his office, and reduce him to a mere layman again. And as they maintained the bounds of a church to be no greater than what could meet together in one place, and join in one communion; so the power of these officers was prescribed within the same limits. The minister or pastor of one church could not administer the Lord's supper to another, nor baptize the children of any but those of his own society. Any lay-brother was allowed the liberty of prophesying, or of giving a word of exhortation to the people; and it was usual for some of them, after sermon, to ask questions, and reason upon the doctrines that had been preached. In a word, every church on the *Brownists* model, is a body-corporate, having full power to do every thing which the good of the society requires, without being accountable to any classis, synod, convocation, or other jurisdiction whatever. Most of their discipline has been adopted by the Independents, a party which afterwards arose from among the *Brownists*.

The laws were executed with great severity on the *Brownists*; their books were prohibited by queen Elizabeth, and their persons imprisoned, and many of them were hanged. The ecclesiastical commission, and the star-chamber, in fine, distressed them to such a degree, that they resolved to quit their country. Accordingly, many families retired, and settled at Amsterdam, where they formed a church, and chose Mr. Johnston their pastor; and after him Mr. Ainsworth, author of the learned commentary on the Pentateuch. Their church flourished near a hundred years. See Neal, Hist. of New Eng. tom. i. cap. 2. p. 58. and Robinson, Apologia iusta, &c. Brownistarum & Barrowistarum. 12mo. 1619. See INDEPENDENTS.

BROWS, or **EYE-BROWS**, are two hairy arches above the orbits of the eyes, bunching out by means of some fat under the skin in this place.

That end next the nose is called the head, *caput*, the other the tail, *cauda*, of the *eye-brow*.

The use of the *eye-brow* is partly to break the rays of light descending from above, that they may not dart too strongly into the eyes; and partly to be a screen to the eyes from sweat, dust, or other matters descending from the forehead.

BROWSE, the tops of the branches of trees, whereon beasts feed. This is sometimes also called *brouce*, and

bruttie; probably from the French *brout*, which signifies the same.

BROWSE more properly denotes the food which deer find in young copes, continually sprouting anew.

BROWSE, *beasts of*, or **BROWSING** *beasts*, a denomination including all of the fallow-kind, as the deer, roe-buck, rupicapra, &c.

BROWSE-wood, the same with spray or brushwood.

BROWTING, *Brouter*, among the French Gardeners, signifies breaking off the tips of the slender branches of trees, when too long in proportion to their strength.

BRUARIA *turvaria*. See TURBARY.

BRUCHUS, a genus of insects of the order of *coleoptera*, with filiform antennæ. Linnæus enumerates seven species.

BRUISE, in Surgery. See CONTUSION.

BRUISER, in Mechanics, the name of a concave tool used for grinding and polishing the specula of telescopes. It is made of brass, about a quarter of an inch thick, and hammered as near to the gage as possible. It is tinned on the convex side, and made equally broad at bottom and top. This serves to reduce the figure of the HONES, when it is too convex, and to rub down any gritty matter that happens to be mixed with the putty, before the speculum is applied to the POLISHER. See Phil. Trans. vol. lxvii. part i. art. 16. and Smith's Optics, book iii. chap. 2.

BRUISING, in Pharmacy, signifies the operation of breaking or pounding a thing coarsely, or by halves; frequently practised on roots, woods, and other hard bodies to make them yield their juice or virtue more freely than they would do whole.

BRUMALIA, or **BROMALIA**, a feast of Bacchus, celebrated among the ancient Romans, during the space of thirty days; commencing on the twenty-fourth of November, and ending the twenty-sixth of December. Some say this feast was celebrated twice a year, viz. on the twelfth of the calends of March, and on the eighteenth of the calends of September.

The word comes from *bruma*, the day of the winter solstice; in regard of the time when the feast was held: though others derive it from *Brumus*, or *Bromius*, names of Bacchus.

The *Brumalia* were instituted by Romulus, who used, during this time, to entertain the senate.

During this feast indications were taken of the felicity of the remaining part of the winter.

The *Brumalia* were also called *Hiemalia*.

BRUNELLA. See SELF-heal.

BRUNSFELSIA, in Botany, a genus of the *pentandria monogynia* class. Its characters are these: the flower is of one leaf, and funnel-shaped, having a long tube, but spreads open at the top; it hath five stamina of the length of the tube, which are inserted in the petal. In the centre is placed a small round germen; the empalement afterwards becomes a globular berry, with one cell, enclosing a great number of small seeds, which adhere to the skin of the fruit.

We know but one species, which is a native of the sugar islands in America; but is at present very rare in the English gardens.

BRUNIA, in Botany, formerly reckoned a genus in the Linnæan system, but since classed as a species of the *PROTEA*.

BRUSH, an assemblage of hairs or hogs bristles, fastened in the holes of a wooden handle or board, pierced for that purpose, and serving to cleanse divers bodies by rubbing therewith.

We say a round, a flat, or square brush, cloaths-brush, head-brush, horse-brush, beard-brush, comb-brush, weavers-brush, and the like.

The manner of making brushes, is by folding the hair or bristle in two, and bringing it by means of a pack-thread, or wire, engaged in the fold, through the holes where-with the wood is pierced all over, or fastened therein with glue or pitch. When the holes are thus all filled, they cut the ends of the hair to make the surface even.

BRUSH, *Painter's*. See PENCIL.

BRUSH, *sheermens*, is made of wild boars bristles, and serves to lay the wool or nap of cloth, after sheering it for the last time.

The *scab-brush* is of use in medicine, especially in case of rheumatisms, and certain cutaneous disorders. See FRICTION.

The brush is also applied to the soles of the feet of newborn infants, when fainting, to find whether they be alive or dead.

BRUSH, *silver*, in Botany. See LADY'S FINGER.

BRUSH, in Electricity, denotes the luminous appearance of the electric matter, issuing in a parcel of diverging rays, from a point. Beccaria ascribes this appearance to the force with which the electric fluid, going out of a point, divides the contiguous air, and passes through it to that which is more remote. See Tab. Electricity, fig. 8, 9, 10, 11. See STAR.

BRUSHES,

BRUSHES, *wire*, are used by silver-smiths and gilders, for scrubbing silver, copper, or brass pieces, in order to the gilding of them.

There is a method of dying or colouring leather, performed by only rubbing the colour of the skin with a *brush*. This the French leather-guilders call *broussure*; being the lowest of all the sorts of dye allowed by their statutes.

BRUSH of a fox, among *Sportsmen*, signifies his drag or tail, the tip or end of which is called the chape.

BRUSH *iron-ore*, signifies a kind of ORE full of *striae*, resembling the hair of a brush.

BRUSH is also used in speaking of a small thicket or COPPICE. In this sense, the word is formed from the middle age Latin *bruscia*, *bruscus*, which signifies the same.

BRUSH-wood denotes smaller slender wood or spray. See **BROWSE**.

BRUSHING. Among *Fockies*, a *brushing* gallop denotes a brisk one: a horse should have his *brushing* gallop in a morning before watering.

BRUTE, an ANIMAL destitute of the faculty and use of REASON.

In which sense, *brute* amounts to the same with BEAST.

Brutes are the second order of *mammalia* in the Linnæan system; the character of which is, that they have no upper or under fore-teeth; their feet have long hoofs, not formed for swift or stately motion, and they masticate their food. This order comprehends six genera, and seventeen species.

Among *brutes*, the monkey kind bear the nearest resemblance to man; and this, both in the external shape and internal structure, though more in the former than the latter. In the monkey-kind, the highest and the nearest approaching the likeness of man, is the ORANG-OUTANG, or *homo sylvestris*. Phil. Trans. N° 189. N° 256. p. 339. The structure and œconomy of *brutes* make the object of what is called comparative ANATOMY.

Philosophers are much divided about the essential characters of *brutes*. Some define *brute* as an animal not risible, or a living creature incapable of laughter; others, a mute animal, or a living thing destitute of speech; the Peripatetics, an animal endowed with a sensitive power, but without a rational one. The Platonists allow reason and understanding, as well as sense, to *brutes*, though in a degree less pure and refined than that of men. Lactantius allows every thing to *brutes* which men have, except a sense of religion. Some *sceptics* have ascribed religion and virtue to *brutes*; and they say that Solomon seems to assure us, that the souls of men have no pre-eminence over those of *brutes*. Eccles. iii. 18, 19. Laet. Inst. Div. lib. iii. cap. 10. Stanley Hist. of Phil. p. xii. chap. 13. Budd. de Error. Stoic. Exerc. i. § 6. There are different faculties and degrees of knowledge in different species. Some have only the motive and sensitive faculties, as worms; others have also memory, and some imagination and invention, as monkeys and elephants; besides, that in the same species, some in docility and ingenuity exceed others; and that the climate, air, and food, have their influence on the *brute* kind, as on men, so that those of the same species, in different countries, are found to have different qualities; of which English horses, dogs, cocks, &c. are a sufficient proof. It is hard therefore to define any thing universally concerning *brutes*. What agrees to the oyster or star-fish, which differ little from inanimate, will it agree to the ORANG-OUTANG, which scarce differs, except as to speech, from some species of men?

They have sensible knowledge, but want intellectual knowledge; they have apprehension, but not reflection; are capable of prudence, which is only a great pitch of experience, but not a sapience, which can only be the fruit of evidence. Phil. Trans. N° 80. p. 4054, and 4071. Hobbes, Disc. of Hum. Nat. chap. v. § 4. chap. vi. § 4. and chap. ix. § 18.

The chief operation of a rational soul is judgment, by which we distinguish true from false; to which the memory and imagination are subservient. But this cannot be ascribed to *brutes*, since they do not make propositions. They are incapable of science, for want of names and signs whereby to denote abstract ideas; however, there is no talent peculiar to man, which we may not discover some resemblance of in *brutes*, except speech and curiosity. As for speech or enunciative reason, to many it does not seem so necessary, since many of the philosophers condemn it as a vice, and enjoin absolute silence; in reality, supposing a man naturally dumb, does it follow, that he is void of reason? Is it any objection then to the reasoning of *brutes*, that they have not the use of speech, though, as a late author expresses it, they have all the organs necessary for that purpose? Budd. Annal. Phil. p. 102.

Some have pretended, that they have a jargon intelligible to one another; and Porphyry relates, that Tiresias and Apollonius Tyanæus understood their language. There

is at least a similitude of speech in *brutes*, for they know each other by their voices, and have their signs whereby they express anger, joy, and other passions: thus a dog assaults in one strain, fawns in another, howls in another, and cries when beaten in another. It is true, their speech to us appears rude and inarticulate; but perhaps ours is the same in their ears. And if the voice of *brutes* be unintelligible to us, does not the same hold of the language of our own kind, till we have been instructed in it? The language of foreigners, what does it appear to us, but a confused unmeaning heap of sounds? In fine, if laughter be peculiar to men, we see the image of it in *brutes*, signified by the motion of their ears, eyes, mouth, tongues, &c. Lastly, what is so peculiar to man as foresight of futurity; but have not beasts this, which lay up stores with great care in their cells, as the ant, bee, &c. The generality of the ancient philosophers thought that *brutes* reasoned: this, among the heathens, was the opinion of Anaxagoras, Plato, Porphyry, Celsus, Galen, Plutarch, and others. Among Christians, Lactantius, and the whole body of Manichees and Gnostics: among the moderns Valla, Somnertus, Arriaga, Tho. Campanella, Gassendus, F. Daniel, and others, assert the same. Plutarch has a dialogue under this title, that *brutes* use reason. All the sect of Pythagoras should be of the same sentiment, because the *metempsychosis* imports that human souls pass into the bodies of *brutes*. Can any person, says Lactantius, deny that *brutes* have reason, when they often outwit man himself? Inst. Div. liv. iii. cap. 10.

The Stoics, holding that the Divine Being is diffused through all creatures, were necessitated to maintain the souls of *brutes* to be divine, and consequently that they had reason.

The sceptics paralleled *brutes* with men. Sextus, more particularly, gives a comparison between dogs and the human kind. The former excels the latter as to sense; it has a quicker scent, whereby to pursue beasts unseen; it discovers them sooner by the eye, and is more acute to hearing. Sext. Empir. Pyrrhon. lib. i. cap. 13.

A dog is not destitute of logic, as appears from Chrysippus's famous instance, who observed that a hound coming into a road which divides into three, makes choice of the third by virtue of an induction or syllogism; for that having scented the two ways by which the beast did not pass, he runs straight upon the third without scenting it: where the reason is obvious: the beast passed either that way, or that way, or this way; but he neither passed that way, nor that way, and therefore this way. Stanley Hist. Phil. p. 780.

That a dog is possessed of what they call internal reason, appears from his choosing things convenient, flying the hurtful, pursuing his food, and running away from the whip, and when wounded or sick, acting prudently, as the circumstances of his case, and his abilities and opportunities dictate.

Of how many medicines, how many arts, do we owe the invention to *brutes*? It was from the spider, that man learned the art of weaving; from the swallow he borrowed architecture, from the goose swimming, from fish navigation, from silk-worms sowing; to omit many other instance of the like kind alledged by Plutarch, Vossius, and others. Tab. Bib. Græc. lib. iv. cap. 29. tom iv. Plut. de Solert. Animal. p. 974. Voss. de Orig. Idol. lib. iii. cap. 27.

How many actions are to be observed of *brutes*, not to be accounted for without reason and argumentation? If we say that dogs, by long habits and force of rewards and punishment, may be taught many things; do not this teaching, docility, and remembrance of blows, argue memory, fear, and desire, which cannot subsist without knowledge, sense, pleasure, and pain?

And if *brutes* have knowledge, it is allowed they must also have judgment and reason, and a science of universals. Tavern. Trav. Ind. ap. Phil. Trans. No 326. p. 65. Chauvin Lex. Phil. p. 377, &c.

Some speak as if they held *brutes* to be moral beings, and under the obligation of the law of nature. Ulpian, and other civil lawyers, are supposed to be of this opinion; as also the Stoics, from whose school this tenet is said to have been first borrowed. It is alledged, on the other hand, that *brutes* cannot be subject to a law, unless they have a power of knowing him that made the law, judging whether we have a right to command them, and what is contained in the law, that they may direct themselves accordingly; which seem all to be things out of the reach of *brutes*. But Ulpian's definition of the law of nature, *jus naturale est quod natura omnia animalia docuit*, when fairly interpreted, does not imply, that *brutes* have reason and reflection, but may be understood of that natural instinct common to man and *brute*, by which they are impelled to self-defence, propagation of their species, &c. Albertus and Schmidius have dissertations express on the divine honours paid to *brutes*.

BRUTES, mechanism of.—The Cartesians, on the other hand, adopt that strange paradox, of the mechanism of *brutes*; and assert them not only void of all reason and thought, but of all perception. This system is much older than Des Cartes; it was borrowed by him from Gomez Pereira, a Spanish physician, who employed thirty years in composing a treatise, which he entitles *Antoniana Margarita*, from the Christian names of his father and mother. It was published in 1554. See Voss. de Orig. Idol. lib. iii. cap. 41.

This was revived by Des Cartes, and farther asserted by Le Grand, D'Armafon, and others of his followers, who were led to adopt this doctrine, from that principle of his philosophy, that the essence of the soul consists in thinking; so that, supposing knowledge and thought in *brutes*, they must have souls like those of men; the sensitive soul of the Aristotelians being held by him a mere chimera. But Pereira does not appear to have been the first inventor of the doctrine; something like it having been held by some of the ancients, as we find from Plutarch, and St. Augustin. Plut. de Plac. Phil. lib. v. cap. 20. August. de Quant. Animæ. Pasch. Invent. Nov. Antiq. c. 3.

Perhaps the best argument against the system of machines is, that it is contrary to the common sense and apprehensions of all mankind. Ought not those who deny that *brutes* have sense, to be combated with the same weapons that are used against the sceptics, who deny all truth and certitude; and against the immaterialists, who deny the existence of bodies?

Henry More, in his *Enchiridion Metaphysicum*, F. Daniel, in his *Nouvelles Difficultes*, published in 1693, and in his *Voyage du Monde de Des Cartes*, as also F. Pardies, in a treatise of the knowledge of *brutes*, have pressed the Cartesians hard. Paschius has also a disputation on the sense and knowledge of *brutes*, and Willis a treatise on the soul of *brutes*, De Anim. Brut. Oxon. 1672, 4to.

But to say the truth, we are not much wiser for the labours of these learned gentlemen. The common opinion of the untaught and unprejudiced part of mankind seems to be, that *brutes* have sense, imagination, memory, and passion, but that they are void of understanding and reason; that is, in the language of philosophers, they have the inferior faculties of the soul, but not the superior. Nor will the distinction appear groundless to those who attend to the difference between the objects of the mind, and its acts about these objects; as also to the difference between the confused and the distinct comprehension of any thing. See Buffon's Hist. Natur. vol. ii. p. 443. See INSTINCT.

BRUTIA, in the *Medical Writings of the Ancients*, a word used to express the fattest and most resinous kinds of PITCH, and such as was properest for making the oil of pitch, called *oleum picinum*.

The word *brutia* seems to have been an adjective of distinction given to this kind of PITCH by the ancients, from their common custom of naming things from the places whence they were brought; *Brutia* being the name of a country in the extreme parts of Italy. Plin. lib. xv. cap. 7.

BRYGMOS, a kind of convulsion, affecting the lower jaw, and striking the teeth together; most frequently observed in children affected with worms.

The word is formed from *βρυγμω*, or *βρυγμω*, frequently used by Hippocrates for chattering of the teeth.

The *brygmōs*, or chattering of the teeth, is a symptom of the access of an ague, or intermitting fever.

BRYON, in the *Botanical Writings of the Ancient Greeks*, an abbreviation of the word *bryonia*.

BRYONY, in *Botany*, a name usually made to take in two different genera of plants, under the names of *alba* and *nigra*, the white and black kind. Mr. Tournefort, however, has determined this word to express only what we call the white bryony, making TAMUS the name of the black.

In the Linnæan system it is a genus of the *monoecia syn-genesia* class of plants. Its characters are these: it hath male and female flowers on the same plant; the male flowers are bell-shaped, adhering to the empalement, cut into five segments, and have three short stamina; the female flowers sit upon the germen; and the petal is the same with those of the male; the germen, which is under the flower, afterwards becomes a smooth, globular berry, containing oval seeds adhering to the skin. There are six species.

The first sort grows on dry banks under hedges, in many parts of England. The roots of this plant have been formerly, by impostors, brought into a human shape, and shewn about the country for mandrakes, to the common people, who were easily imposed on by their credulity, and the owners got good livings thereby. The method practised was, to find a young thriving bryony plant, and opening the earth all round it, so as not to disturb the lower fibres, they fastened a mould, such as is used by the makers of plaster figures, round the root, with wire; and then filling up the earth again,

left it to grow to the shape of the mould, which it will do in a summer. The leaves of the plant are also often imposed on the people in the market for mandrake leaves, although there is no resemblance in figure, or agreement in quality, between them.

The other kind must be raised in a bark stove, and when they begin to spread, their branches may be trailed against the wall or against an espalier; and when they are full of fruit, they make a pretty variety among other exotics. The root was anciently much used as a powerful purgative, especially of ferocities; but now chiefly retained as an uterine detergent; in which quality it enters the composition of an officinal water, denominated, from it, *aqua bryonia*, generally prescribed against hysteric disorders. M. Boulduc found, by a chemical analysis, that bryony consists only of saline principles, without any resin: wherein it differs from *mechoacan*, which in other respects, it much resembles. He adds, that it has more virtue taken in substance than in any other manner; which is common to this with most other purgatives. From two ounces of bryony, Neumann obtained by water ten grains of gummy extract, and from the same quantity he obtained by spirit two drams, two scruples, and a half of resinous extract. It is a strong purgative, and is such has been strongly recommended in hydropic cases. It appears, however, says Neumann, not to be entirely safe. See his chemical history of this plant, in Dr. Lewis's edition of Neumann's Works, p. 351.

But as this is apt to be too rough in its operation, the several preparations of infusions, decoctions, and extracts, are to be preferred to the substance.

It is, when fresh, full of an useless and redundant moisture, and its dose in infusion, in white wine, which is the best menstruum, is a dram of the dried root, or half an ounce of the green, which is about equivalent in strength. Hist. Acad. Par. 1712.

BRYTIA, among the *Ancient Naturalists*, denotes the must or solid part of grapes, which remain after expressing the juice.

BRYUM. See *Wall Moss*, and *Tab. XIV. Botany*, N^o 11.

BRYUM lactuceæ folio, a name given by some to the oyster-green. See TREMELLA.

BUBALINUS serpens, in *Zoology*, a name given by authors to the *anacandaya* of the Ceylonese, a very terrible SERPENT, common in that part of the world, and very mischievous among their cattle: whence its Indian name, which signifies as much.

BUBALUS, the *buffalo*, a sort of wild bull, a species of the *bos* or *ox*, very common in many parts of Europe, and in the pope's territories kept tame for the sake of the milk of the female, of which the famous cheeses, called *case di cavallo*, are made. They are also commonly employed in the affairs of husbandry, and have for this purpose, a brass or iron ring put through their noses, and, by means of a rope, or thong of leather, put through this, they are managed at pleasure; though if ever so well tamed, they usually keep something of their native fierceness. They were originally brought from India into Lombardy in the reign of king Agilulf, who reigned from 591 to 616.

The Italian *buffalo* is considerably larger than the common bull; his body also is thicker, and his horns very large, straight for a great length from their base, then bending inwards, not round, but compressed, with one side sharp, and of a black colour; the toughness of his skin, of which buff leather is made, is well known.

Besides this, there are other varieties of this species; as the *naked buffalo* of the East Indies, with bristly thin hair, with the rump and thighs quite bare, the first marked with two dusky stripes pointing downwards, the last with two transverse stripes; and with horns compressed sideways, taper, and sharp at the point. The American *buffalo*, or the *BOS BISON* of Linnæus, has horns very closely united at the base, bending inwards and downwards, and turning outwards at their points; they are two feet round at the base, very prominent, sharp at the point, and two feet long; the head and shoulders are covered with long hairs of a dark colour; the body is naked behind, the shoulders high, and the flesh smells strong of musk. It lodges among the high reeds in the *savannas*, in the interior parts of North America; it is very fierce, but capable of being tamed, and will breed with the common kind. Its weight is from 1600 to 2400lb. See *Tab. Quadrupeds*, fig. 12. See BISON.

There is also the *dwarf buffalo*, with horns close at their base, broad and flat at the beginning, receding in the middle, almost meeting at the points, and standing erect. This animal is larger than a roe-buck, but less than a stag; it is compact and well made, with shining hair, of a tawny brown; short legs, thick neck, elevated shoulders, and tail terminated with long hairs. Pennant.

BUBBLES, BULLÆ, in *Physics*, little round drops or vesicles of any fluid filled with air, and formed either on its surface, upon the addition of more of the fluid, as in raining;

raining; or in its substance, upon a vigorous intestine commotion of its parts.

Bubbles are dilatable, or compressible, i. e. they take up more or less room, as the included air is more or less heated, or more or less pressed, from without; and are round, because the included aura acts equally from within all round. Their coat, or cover, is formed of the minute particles of the fluid, retained either by the velocity of the air, or by the brisk attraction between those minute parts and the air. See COLOUR.

These little *bubbles*, rising up from fluids, or hanging on their surface, form the white scum at top; and these same *bubbles* form the steam, or vapour, flying up from liquors in boiling, &c. the manner of which see under BOILING, VAPOUR, &c.

BUBBLE, in *Commerce*, is a cant name given to a sort of projects, for the raising of money on imaginary grounds; very frequent in the years 1720 and 1721.

The pretended design of these undertakings was, to raise a stock, for the retrieving, setting on foot, or carrying on, some promising and useful branch of trade, manufacture, machinery, or the like. In order to which, proposals were given out, shewing the advantages of the design, and inviting persons into it. The sum necessary to carry on the affair, together with the profits expected from it, were divided into a certain number of shares, or subscriptions, to be purchased by persons disposed to adventure therein.—The real design, in some, was to raise a sum for the private advantage of the projectors, to be laid out by them in the South-sea stock, &c. in hopes, by the rise thereof, to be able to refund the subscribers money, with profit to themselves. In others, the design was absolutely to defraud the adventurers of their subscription-money, without any view to restitution.

There was a third kind somewhat different: the projectors of these, to proceed the more securely, proposed to have books opened, and subscriptions taken at some time to come; and in the mean time took money, by way of *premium*, to intitle persons to be admitted subscribers, as soon as the affair should be ripe for dividing into shares. Several thousand shares were thus very frequently bespoke in one day; and *premiums*, from one shilling, to some pounds, paid thereupon, to the profits of the projectors.

The number of *bubbles*, and their qualities, are very extraordinary; some of them, too, authorized by patents; and, in others, the projectors and their proprietors formed into corporations: some for fisheries, some for insurances, some for the digging of mines, &c.

BUBBLING waters. See WATER.

BUBO, in *Zoology*. See OWL.

BUBO, in *Anatomy*, is sometimes used to denote that part otherwise called *INGUEN*, or *groin*.

BUBO, in *Medicine* and *Surgery*, denotes a tumour, sometimes inflammatory, and sometimes schirrhous, gathering chiefly in the glands of the *inguen*, or *groin*.

The word comes from the Greek *βουβων*, *inguen*; the usual place of such tumours.

There are two kinds of *buboes*, the one called *benign*, or *mild*, the other *malignant*.—Mild *buboes* are those which are preceded or attended with no manifest disease in the body; and they are easily cured by gentle mercurials, externally applied, and an occasional purge; or by encouraging suppuration, and proceeding as in a common abscess.—Malignant *buboes* are divided into *pestilential* and *venereal*: the former arise in pestilential fevers, &c. The latter are the product of impure embraces; and frequently the forerunner of the pox.—When a *bubo* is encompassed with a circle of several colours, it is a sign it is pestilential; and it is generally mortal.

By *buboes* in *pestilential* cases, the writers in physic not only express such tumours as arise under the arms, under the ears, and in the groin; but comprehend under this term those also which are situated in the neck, breast, arms, legs, and other fleshy parts of the body, which swell and inflame in *pestilential* fevers, and seem the consequences of the endeavours of nature to throw out the pestiferous matter which lay concealed in the body.

Pestilential buboes are distinguished from other tumours by their happening at a time, and in conjunction with the plague, and from their being accompanied by the symptoms proper to that disease. These tumours appear sometimes sooner, sometimes later, in the course of the disease; in some they appear before the patient knows he has the infection, and in others two or three days elapse before their appearance: they are very seldom known to appear later than on the fourth day, and are sometimes joined with carbuncles; but though the *buboes* frequently appear without these, yet the carbuncles never appear without tumours.

Persons who have these tumours come on without any very bad symptoms, and have them matured speedily, are in general the soonest freed from the distemper, inasmuch, that the best method of giving relief in this terrible dis-

ease, consists in the carefully promoting and keeping up the *buboes* and tumours. All discutient or dispersing medicines are carefully to be avoided, and the physician's business is to assist nature in the throwing out, and most speedily bringing these tumours to suppuration.

The patient is to be confined to his bed, on the first appearance of these, and with the help of internal medicines proper to hasten the suppuration of tumours, the parts affected are to be rubbed pretty strongly with the hands or cloths, and external, maturing, and emollient cataplasms, to be applied; of this kind is that of yeast, salt, and mustard-seed, all mixed together, or of yeast alone: by means of these the tense parts are relaxed and stimulated, and the suppuration greatly promoted; as also by the cataplasms of roasted onions, with Venice treacle and butter; or of crumb of bread, with milk and saffron. Plasters are also very useful on some occasions, in these cases, as the frequent renewal of the cataplasms exposes the patient too much to the external air, and these are not attended with that inconvenience.

The most famed plasters on these occasions are that of Barbet, made of the *diachylon*, with the gum and mucilage plaster, of each half a pound; mustard seed in powder, three ounces; basilicon, four ounces, all mixed and made into a plaster; and that of Dr. Hodges, made of three ounces of *oxycroceum*, an ounce of *galbanum*, the same quantity of *gum caranna*, and two ounces of black pitch, reduced to the consistence of a plaster.

This may be used like the former; nor is that plaster to be esteemed a trifle, which is made of honey, flour, and the yolks of eggs.

In some cases of this terrible distemper, the tumor comes to suppuration in a few days; in others it is some weeks before it can be brought to it, by all that can be done. When thoroughly suppured, it is to be opened with the scalpel, if it does not break of itself; and after thus opening, when the matter has been discharged, it must be well cleansed. The best digestive in this case is the common ointment used on that occasion, mixed with a small quantity of Venice treacle, and balsam of sulphur made with oil of turpentine. At each dressing the matter is to be gently squeezed out of the abscess, and the ointment applied without tents, unless the opening prove very narrow; then applying over all a plaster of the common diachylon, or of honey and flour, the whole may be bound on, and this dressing continued till it is a proper time to heal with some vulnerary balsam.

There has been much dispute between the physicians of different ages about the proper time for opening *buboes* of this kind; some have been for making an immediate incision, and others even for extirpating the whole swelling, as soon as it appeared, by means of the knife; but the first of these methods has been found to be frequently attended with the ill consequences of ill conditioned fistulæ, stiffness, and loss of motion in the limb, and sometimes even with mortifications and gangrene; and the other too harsh and dangerous in many parts of the body; and the present practice universally disallows both methods, being always for bringing the swelling to suppurate. Heister's Surg. p. 200.

The poison of the matter of these sores has been nicely and boldly enquired into, as to its nature and properties; by Dr. Alpranus of Prague, in the time of the plague there in 1680. This gentleman having launched a *pestilential* boil, collected the matter from it, and put it into a retort, luting the junctures with the receiver very closely and exactly, and applying by proper gradation the several degrees of fire; at first there came over a water, then a more fat and viscid liquor, of an oily nature; and lastly, there appeared in the neck of the retort, a salt. The fire being taken away, and the vessels cooled, the doctor prepared himself for the opening of them by stopping his ears with cotton, his nostrils with pessaries, and his mouth with pieces of sponge, all soaked in vinegar and Venice treacle. The moment the vessels were opened, however, there proceeded out of them a stench more horrible than can be conceived, which struck the doctor with an universal trembling, in spite of his defence. He proceeded, however, to break the neck of the retort, and separating the foetid salt from it, he ventured himself to taste it, and desired Mr. Reshel, the person from whom the matter was obtained, to do the same: it was found to have a most dreadfully piercing acrid taste, which the doctor compares to that of *aqua regia*. Hence he infers, that the most terrible symptoms of this fatal disease are to be accounted for: the stomach, wounded by so acrid a juice as this mingled among the blood, nauseates food, and is afflicted with continual vomitings; the guts, infested by the same unwelcome guest, are thrown into violent perturbations, whence arise those diarrhoeas which often accompany the patient to his death; and from the horribly acrid quality of this juice, it is no wonder that such piercing pains are found

in the *buboes*, and such burnings in the carbuncles that attend this disease.

Hence, also, as he observes, it is, that sudorifics are the best remedies, since they allay the acrimony, and tend to expel the venomous juices through the pores. In this sickness at Prague this gentleman observed, that almost all who sweat plentifully recovered, whereas those who did not sweat, were mostly taken off. Hook's Philosoph. Collect. N° ii. p. 18.

BUBOES, *venereal*, are tumors arising principally in the groin, after contracting the venereal disease, and they are sometimes attended with the other symptoms of that disorder, sometimes they are themselves the only symptoms of it. These arise sometimes sooner, sometimes later, after contracting the infection. The tumor first appears with hardness, redness, and pain either in one or both the groins, and sometimes in the arm-pits. Great care is to be taken to distinguish, in those cases, whether the *bubo* be of a benign kind, or be really from a venereal infection; for mistakes of this matter are on both sides very dangerous. If a benign *bubo* be mistaken for a venereal one the patient is usually treated in too harsh a method, and has more trouble and pain than are necessary; and, on the other hand, if a venereal *bubo* be mistaken for a benign one, he is usually treated so improperly as to be brought into a confirmed lues.

The *buboes* are known to be venereal, when they are the consequences of impure embraces, or are accompanied with, or preceded, by gonorrhœas, chancres, and other symptoms of the venereal disease. When from these attendant symptoms, and from the patient's confession, the *bubo* is found to be venereal, a cure is immediately to be set about; for though there is no great difficulty or danger in these cases when taken in time, yet there are few in which delays are of worse consequence; for, from these, from an irregular course of life, or from an improper method of treatment, the cure often becomes extremely difficult, and the patient too frequently gets into a confirmed lues.

It is much disputed whether the cure of these tumors by discussion be safe; many are of opinion, it is by no means to be allowed in these any more than in pestilential *buboes*, since in both cases, by that means, the poison is driven back into the blood. But the case is not parallel, and the truth is, that in these tumors the cure by suppuration is slow, tedious, and attended with many inconveniences, and that much better effects may be produced, and with the greatest safety, by purging and mercurial medicines, with the decoctions of the woods, and other purifiers and sweeteners of the blood.

The best method, whether the *bubo* be attended with a gonorrhœa or not, is to purge frequently, and give proper doses of calomel; for *buboes* can never be safely cured till the body is perfectly freed from the venereal venom; and, by this means, if there be a gonorrhœa in the case also, that is cured at the same time. When there is a great inflammation, and the patient is of a robust plethoric habit, it is always necessary to bleed; while this method is followed, discutient plasters should be applied externally to the tumor, as the mercurial plaster or the like, and the patient should be kept to a regular course of life, and a proper diet. By this method, venereal *buboes*, which are not become inveterate, may be cured with great ease and safety.

But if the surgeon be called in too late; if the *bubo* will not give way to these methods; or if, for any other reason, he determines to bring it to suppuration, the maturation is in this case to be promoted as fast as possible; and one great method to bring on suppuration with speed, is to order the part to be rubbed strongly, and for a considerable time, either with the fingers wetted with a little oil, or with linen rags, till it look very red and inflamed; and this is to be often repeated, applying after each time a plaster of diachylon, with the gums, or some other of the maturing kind. While the patient is able to go abroad, violent exercises of all sorts, as dancing and the like, are extremely proper, and do service in hastening a suppuration. When the pain will not suffer him to walk any longer, then it is proper to keep to the use of cataplasms, instead of the plaster; these are indeed ever much more serviceable to promote suppuration than plasters, and the best on this occasion are those made of onions, roasted under the ashes, or of flour, honey, and yeast, or that of crumbs of bread boiled in milk, with the addition of a little saffron; these are to be applied warm to the parts, and frequently renewed; and it is always best to rub the parts, till they look very red, before the application of them. During the use of these external remedies, the patient should be continually taking decoctions of the woods, and small doses of calomel; for these greatly attenuate the blood, drive it toward the skin, and correct the venereal venom. When these methods have brought the swelling to a perfect

suppuration, the scalpel is to be taken in hand, to make the opening. Great caution is to be used in making the incision, not to hurt the larger blood-vessels, which might occasion very dangerous hæmorrhages. To avoid these mischiefs, the protuberant part of the *bubo* is to be pressed outward by the fingers, before the scalpel is introduced to make the incision. Great caution is also necessary as to the time of opening these tumors; for the doing this either too soon, or too late, are of very bad consequence; the first brings on violent pains and inflammations, and other bad symptoms, and, by the latter, the venom has time given it to mix itself with the blood, and bring on a confirmed lues.

If the patient dreads the knife, the *bubo* may be opened with a caustic; and by whatever means it is done, it must be afterwards well cleansed. The proper dressing on this occasion is the common digestive ointment, with a small quantity of Venice treacle, and a little red precipitate mixed in it; over this is to be applied a plaster of diachylon, with the gums, or the like; by which means the lips of the *bubo* will be sufficiently softened: and when sufficiently deterged in this manner, it may be healed by some vulnerary balsam applied on lint. It sometimes happens, that the ulcerated *bubo* becomes so stubborn, that it will neither incarn nor cicatrize by the help of any medicines, but always discharges a copious quantity of matter. If, in this case, burnt alum and red precipitate prove of no service, the actual cautery ought to be applied, and the lymphatics will by this means have their communications for ever cut off. Heister's Surgery, p. 207.

BUBON, in *Botany*, *Macedonian PARSLEY*; a genus of the *pentandria digynia* class of plants. The characters are these. It hath an umbelliferous flower, and the small umbels have twenty rays; the enframement of the flower is permanent; the flower is composed of five spear-shaped petals, which turn inward, and hath five stamina; the oval germen is situated below the flower, which afterward becomes an oval, channelled, hairy fruit, dividing in two parts, each having an oval seed, plain on one side, but convex on the other. There are four species. This plant in warm countries is biennial; but in England it seldom flowers until the third or fourth year: when the plant flowers it always dies. They make a pretty variety in the green-house.

The seeds of one species of this plant are ingredients in the mithridate and theriaca.

The *galbanum* of the shops is supposed to be procured from two other species indifferently; and upon breaking their leaves, the juice which flows from the wound hath a strong odour of the *galbanum*, which is a confirmation of it.

BUBONIUM, in *Botany*, a name given by some authors to the *Aster Atticus*, or golden STAR-wort.

BUBONIUS lapis, a figured stone, in shape resembling an owl's head, of a stony substance, black within, and cineritious without. It was thus denominated by Dr. Plott, having not been before named by naturalists. Hist. Oxford. chap. v. § 45.

BUBONOCELE, a tumor in the groin; occasioned by the descent either of the *epiploon*, or the intestines, through the perforation of the *musculus obliquus descendens*.

The word comes from the Greek *βελων*, *inguen*, and *κηλη*, *tumor*.

The *bubonocèle* is the same with what is otherwise also called *ramex*, and *HERNIA inguinalis*.

It is a species of rupture; though surgeons call it an *incomplete* one; and is common to women, as well as men.

Some make two kinds of *bubonocèles*; the one owing to a descent of some of the *viscera*, as the *omentum*, or intestines, stopping in the groin, and not falling so far as to the *scrotum*; the other a collection or stagnation of excrementitious humours in the inguinal glands; which latter is more properly called *bubo*, and differs little, except in seat, from the *bronchocèle*.

BUBULCA, in *Zoology*, a small fresh-water fish, called by some *bouviera* and *petense*; it is small, flat, and very short, approaching to a round rather than a long shape, and of a fine silvery whiteness, seldom above two inches in length.

BUCA, in *Natural History*, a name by which some authors call the *buccinum*.

BUCAO, in *Natural History*, a name given by the people of the Philippine islands to a species of *screech owl*, which is of the size of a peacock. It is very common in those islands, but wholly unknown to us, and is a very beautiful bird, but makes a hideous noise in the night.

BUCARDITES, or *BUCARDIA*, in *Natural History*, a name given by many authors to a stone, in some degree resembling the figure of an ox's heart. See *Tab. of Fossils*, *Class* 9.

It is usually of the substance of the coarser stones, and is

no other than a quantity of the matter of such stone received while moist into the cavity of a large cockle, and thence assuming the figure of the inside of that shell, the depression of the head of the cockle, where the *cardo* or hinge of this shell is, makes a long and large dent in the formed mass, which gives it a heart-like shape. Plott mentions a *bucardites*, which he found at Stretford in Staffordshire, which weighed twenty pounds, though broken half away, curiously reticulated, with a white spar-coloured stone. Nat. Hist. Oxf. chap. v. § 145.

BUCARDIUM, in *Natural History*, a name given by authors to a kind of HEART-SHELL, resembling an ox's heart in shape; it is of the genus of the *cordiformes*, or heart-shells, and differs from the other kinds, in being of a more globular figure.

The cabinets of the curious afford us seven species of this shell: 1. A yellow-furrowed one. 2. A grey spinose one. 3. A white-furrowed one. 4. A thicker narrow one. 5. The thick one, with a *cardo* separated from the apex. 6. The thick kind, with the *cardo* at the apex; and, 7. The bastard Noah's ark-shell.

BUCCA FERREA, in *Botany*, a name given by Micheli to a genus of plants, called since by Linnæus *RUPPIA*.

BUCCÆ MUSCULUS, in *Anatomy*, a name given by some to the muscle more usually called the *buccinator*, and *contrahens labiorum*.

BUCCALES GLANDULÆ are small glands dispersed over the inner side of the cheeks and lips, which separate a spittle, useful in mastication and digestion.

Steno, and some other writers, confound the *buccal* with the maxillary glands; from which they are really distinct. Phil. Trans. N^o 304. p. 6.

BUCCANEERS, or **BUCANEERS**, a term frequent in the West Indies, properly used for a kind of savages, who prepare their meat on a grate, or hurdle, made of Brasil-wood, placed in the smoke, at a good height from the fire, and called *buccan*.

Whence, also, the little lodges, raised for the preparation of their food, are called *buccans*; and the action of dressing it *buccaning*.

Meat *buccaned*, is said to have an excellent taste, the vermilion colour of a rose, and a charming smell; all which it retains many months. Oexmelia, from whom we have this, adds, that the neighbouring people send their sick hither; that, by eating their *buccaned* meat, they may be recovered.

The origin of the word is referred to the people of the Caribbee islands, who used to cut their prisoners of war in pieces, and lay them on hurdles with fire underneath, which they call *buccaning*, i. e. roasting and smoking together: hence our *buccaneers* took both their name, and their custom; with this difference, that what the former did to men, these did to animals caught in hunting.

The Spaniards, Savary tells us, call the *buccaneers* in their territories *matadores*, that is, *killers*; and *monteras*, that is, *hunters*: the English call theirs, *cow-killers*.

The *buccaneers* are of two distinct professions: the one only hunt bulls for their skins; the other beasts, for their flesh.

The art of *buccaning*, Oexmelia describes thus: the beast being slain, and the bones stripped out, the flesh is cut into pieces of the length of the arm, and salted, and the next day laid on the *buccan*; which consists of twenty or thirty bars laid across, half a foot from each other: under this they raise a thick smoke, adding the skin and bones of the beast, to heighten it.

This is found vastly better than any simple fowl: because the volatile salts of those parts are by this means communicated to the flesh, and give it such a relish, as that, after a little of this *buccaning*, the nicest palate will eat it without further preparation.

Buccaneers are usually confounded with freebooters, from whom, in strictness, they ought to be distinguished. The ancient inhabitants of Hispaniola, and the other Caribbee islands, after their conquest by the Europeans, consisted of four ranks or order of persons, viz. *buccaneers*, or bull-hunters, who scoured the woods; *freebooters*, who scoured the seas as pirates; *husbandmen*, who tilled the lands; and *slaves*. Of these, the two first distinguished themselves most by their military disposition, and the ravages they made, especially among the Spaniards.

The name is particularly given to the French inhabitants of the island of St. Domingo, whose sole employment is to hunt bulls or wild boars; in order to sell the hides of the former, and the flesh of the latter.

Sometimes the word *buccaneer* signifies also those famous adventurers of all the nations in Europe, who joined together to make war against the Spaniards in America: and, under that name, their history has been published in the year 1686, by Alexander Oliver Oexmelia.

The *buccaneers* sell their meat by the bundle or pack, weighing commonly sixty pounds, at the rate of six pieces of eight per pack. The palmetto leaves serve to pack it

up in, but their weight is deducted; so that there must be in each pack sixty pounds of neat flesh. These *buccaneers* have also a great trade of the lard of bores, which they melt and gather in large pots, which they call *potiches*. This lard, which is called *mantegua*, is also sold for about eight pieces of eight per pot.

There is a great consumption and trade of each of these articles in the French settlements of the islands of St. Domingo, and in those of Tortuga; beside which they send great quantities of them to the Antilles, and even into the continent of French America. There is also a great deal of it sold for the support of the crews of the ships that come from France for trading, or which the privateers of Tortuga fit out, for cruising against the Spaniards.

BUCCEA, or **BUCCELLA**, in *Medicine*, a term used by some to express a fragment of any thing, and others make it the name of what we usually call a *POLYPUS* of the nose.

BUCCELLARII, an order of soldiery under the Greek emperors, appointed to guard and distribute the ammunition-bread.

The word is formed from *buccellus*, a kind of loaf, or cake of a circular figure.

The *buccellarii* were also called, in respect of their country *Gallogræci*, or *Helenogalatæ*, q. d. Greeks of Galatia; sometimes *Maryandini*.

Authors are much divided as to the office and quality of the *buccellarii*: some give the denomination to parasites in the courts of princes and great men, maintained at their table and expence. In reality, among the Visigoths, *buccellarius* was a general name for all clients or vassals, who lived at the expence of their lords. Spelman rather supposes them to answer to what among us are called *tenants by military service*.—Others represent the *buccellarii* as stationary soldiers in the provinces, who, when the emperor commanded, marched before and behind him as his body guard.—According to others, they were men whom the emperors employed in putting persons to death secretly.

BUCCELLATIO, in *Surgery*, a word used by some surgical writers for the stopping the bleeding of an artery or vein, by applying lint to it.

BUCCELLATION, in *Ancient Physic*, the name of a medicine, in which *scammony* was the principal ingredient.

BUCCELLATUM, in *Ancient Military Writers*, denotes *CAMP-BREAD* or *BISKET* baked hard and dry, both for lightness and keeping.

The word is formed from *buccca*, or *buccella*, a morsel, or mouthful of meat.

Soldiers always carry with them enough for a fortnight, and sometimes much longer, during the time that military discipline was kept up.

BUCCINA, an ancient military, or rather musical instrument, used in war; especially for proclaiming the watches of the night, and giving notice to the soldiery when they were to mount, and when to quit the guard.

The word comes from *bucca*, mouth, and *cano*, I sing; because played on by the mouth: others suppose it formed from *βουκων*, or *βουκων*, which signifies the same; formed from *βους*, bullock, and *cano*, I sing; because anciently made of bullocks horns: others from the Hebrew *buk*, a trumpet. Varro will have it to have been originally formed by *onomatopœia*, from *bou bou*, alluding to the sound it gives. Others, with more probability, derive it from *buccinum*, the name of a shell-fish.

The *buccini* is usually considered as a species of *tuba*, or trumpet; from which, however, in propriety, it appears to have differed, not only in respect of figure, which in the *tuba* was strait, and in the *buccina* recurve or crooked, but in sound; that of the *buccina* being sharper and audible to a greater distance than the trumpet-sound.

The *buccina* approached nearest to the *cornu*, or horn: originally the two seem to have been the same; though in after times a difference arose; the name *buccinum* being restrained to the lesser sorts, and the *cornu* to the larger.

—Some also take the *buccina* to have been less crooked than the *cornu*, which made a full semicircle.

Varro assures, that the *buccinæ* were also called *cornua*, horns; because originally made of the horns of cattle as is still done among some people. Servius intimates, that they were at first made of goats or rams horns; and accordingly, in Scripture, the like instruments used both in war, and in the temple, are called *rams-horns*, *kerenjobal*, and *sopheroth hajobelim*, or *buccinæ* of rams.

This instrument was in use among the Jews, to proclaim their feast-days, new moons, jubilees, sabbatic years, and the like. At Lacedæmon, notice was given by the *buccina* when it was supper-time; and the like was done at Rome, when the grandees had a *buccina* blown both before they sat down to table, and after.

The sound of the *buccina* was called *buccinus*, or *bucinus*, and the musician who played on it, *buccinator*.

BUCCINA also denotes the space or extent to which the sound of the *buccina* may be heard.

BUCCINA auris, in *Middle Age Writers*, denotes the *tympa-num* or drum of the ear.

BUCCINATOR, he that sounds or winds the *buccina*.

Among the Romans there was a public slave, denominated *buccinator nominum*, whose office was to attend the public crier.

BUCCINATOR, in *Anatomy*, a muscle on each side the face, common to the lips and cheeks; making the inner substance of the latter.—Its fibres run from the *processus coronæ* of the lower jaw to the angle of the mouth, and adhere to the upper part of the gums of both jaws: through its middle pass the upper *ductus salivaris*. By this is contracted the cavity of the mouth, and the meat thrust forward to the teeth in mastication.

It has its name from *buccina*, trumpet; because, when swelled, it enlarges the cheeks, as in blowing a trumpet.

—See *Tab. Anat. (Myol.) fig. 1. n. 10.*

BUCCINUM, in *Botany*, a name given by some authors to the LARK-SPUR. Ger. Emac. Ind. 2.

BUCCINUM is also used for the TRUMPET-shell. It is a distinct genus of the univalve and spiral *testacea*, in the Linnæan system.

BUCCO, in *Anatomy*, a name given by Riolanus, and some others, to the muscle more usually called *buccinata*, and *contrahens labiorum*.

Bucco, in *Ornithology*, a genus of birds of the order of *picæ*.

BUCCULA, in *Anatomy*, the fleshy part under the chin.

Some extend the name farther to the whole lower part of the face, comprehending the under part of the lower lip, with the chin and the fleshy part under it.

BUCCULA, in *Antiquity*, denotes the *umbo* of a shield, or the part prominent in the middle thereof.

It is thus called, because usually made in the form of a mouth or face, either of a man or some animal. The like figures were sometimes also found on other parts of armour, especially on the *loricæ* and *thoraces*.

BUCENTAUR, the name of a large state-vessel, used by the Venetians in the ceremony of espousing the sea, performed each Ascension-day with much pomp.

The word comes from *βυκενταυρος*; composed of *βε*, a particle of augmentation, used to denote an enormous greatness, and *κентаυρος*, centaur. Justiniani adds two other etymologies: the first from *bis*, and *taurus*, or rather *centaurus*, the name of one of Æneas's vessels in Virgil: the other from *bucentaurus*, for *ducentaurus*, a word forged to signify a vessel capable of holding two hundred men.

P. Justiniani gives a very precise description of the *bucentaur*; and adds, that its origin is carried up as high as the year of Christ 1311, though others trace it higher, to the year 1177, when the emperor Frederic Barbarossa came to Venice, to make peace with the republic and the pope: at which time the pope, in consideration of the services the state had done him, in sheltering him in their city, when he had been driven out of his own, granted them several privileges; and made a present to the doge of a gold ring, which is the origin of that yearly cast by the doge, from the *bucentaur*, into the sea.

It is on ascension-day, that the doge, being advanced in the *bucentaur* a little way into the gulph, throws a gold ring into the sea, and says, "We marry thee, O sea, in token of that true and perpetual dominion which the republic has over thee."

The archduchess Maria Josepha, married to the prince of Saxony, on the day of her entry into Dresden, was received in a magnificent galley, finely rigged, and called a *bucentaur*, because built after the model of that of Venice.

BUCEPHALON, in *Botany*. See TROPHIS.

BUCEPHALUS, *βυκεφαλος*. See HORSE.

BUCEROS, in *Ornithology*, the name of a species of raven found in the East Indies, China, and Tartary. Its head, neck, rump, and tail, are of a glossy black, without the least tinge of any other colour. It is of the bigness of a well grown pullet; its head is remarkably large, as is its beak, which has a considerable gibbosity towards the base, rising above the rest of the surface.

BUCEROS, forms a genus of birds, of the order of *picæ*, in the Linnæan system. The beak is convex, and bent backwards; the upper chap of the beak is longer than the under; the nostrils are near the base of the beak; the tongue is acute and short, and the feet are formed for walking.

BUCHENERA, in *Botany*, the name of a genus of the *didynamia angiospermia* class of plants, the characters of which are these: the *perianthium* is tubular, consisting of one leaf, divided into five segments at the edge, and remaining after the flower is fallen. The flower consists of one petal, which forms a very long and capillary arched tube; its verge is plain and short, and is di-

vided lightly into five segments, which are small at the base, and broader, and figured like a heart at the top. The stamina are four very short filaments; the *antheræ* are oblong and obtuse; the germen of the pistil is oblong and oval; the style is very slender, and of the length of the tube; and the stigma is obtuse. The fruit is a capsule of an oblong oval figure, pointed at the end, containing two cells, and opening at the top into two parts, the seeds are numerous, and of an angular figure.

BUCCIDA, in *Botany*, a genus of the *decandria monogynia* class of plants, the calyx of which is indented in five segments; it has no corolla; and the fruit is a single seeded berry. There is only one species of this genus.

BUCK, a male horned beast of venery or chace, whose female is denominated a *doe*.

A buck the first year is called a *fawn*, the second a pricket, the third a *fore*, the fourth a *stoe*, the fifth a *buck of the first head*, and the sixth a *great buck*. See DEER and HUNTING.

Buck is also applied to the males of the hare and rabbit kind. Hares commonly go to *buck* in January, February, and March, and sometimes all the warm months; sometimes they seek the *buck* seven or eight miles from the place where they sit.

The buck rabbit is said to kill all the young he can come at; on which account the doe is careful to hide her offspring in some remote corner, out of his way.

The doe coney goes to *buck* as soon as she has kindled. She cannot suckle her young till she has been with the *buck*.

When he has bucked, he usually falls backward, and lies as in a trance half dead, at which time he is easily taken.

Buck-mast, is used by some for the mast or fruit of the beech-tree.

Buck-bean. See TRIFOLIUM *palustre*.

This plant, though mentioned by several writers before Simon Pauli, yet was first recommended by him in scorbutic cases. He says it is more subtle and penetrating than *nasturtium*, or cresses.

It seems at present to be coming into great repute in many chronical distempers; and frequently prescribed among alexipharmics.

Many have got it into use in their families in the form of tea, and experience its constant use to be very effectual against scrophulas, the king's evil, and obstinate scorbutic distempers. Its taste, at first, is not very grateful, but time wears off that dislike; its use in shop compositions is not yet known.

Buck-bean serves in Hampshire to a very remarkable use; the brewers using it in their beer in the place of hops. It is as good a preserver of the drink, and is a bitter of as agreeable a flavour: it has this advantage also, that one eighth part of the quantity is sufficient; it is a very harmless plant, and is given by many as an antiscorbutic, and by some in rheumatisms, and other chronic cases. It might be extremely worth while to try this practice in other parts, as the plant might be easily cultivated in any quantity, and with this advantage, that it will grow on the worst kind of boggy land, which will produce nothing else.

Buck-skins. See SKINS.

Buck-stall, in our ancient *Law-books*, a toil wherein to take deer.

By an ancient statute, no person is allowed to keep a *buck-stall*, who has not a park of his own. Stat. 19. Hen. VII.

BUCKET, in *Hydraulics*, a kind of vessel or recipient chiefly of use for the raising and conveyance of water from wells, and other places.

The word is formed from the French *baquet*, a pail or tub.

In an army, *buckets* are carried with the artillery, in the fire-workers stores.

Town *buckets*, for extinguishing fires, are made of thick leather, strongly soaked and boiled.

One method of raising water, described by hydraulic writers, is by the means of a chain of *buckets*.

BUCKET, *sea-gage*. See SEA-GAGE.

BUCKING, among *Miners*. See ORE.

BUCKING, an operation performed on linen cloth and yarn, to render them somewhat white, by working them with lie made of ashes.

Bucking of cloth is the first steep or degree of whitening it. See BLEACHING.

To drive a buck of yarn, they first cover the bottom of the *bucking-tub* with fine ashes of the ash-tree, then spread the yarn thereon, then cover it again with ashes, and thus *stratum super stratum*, till the yarn is all in; when they cover the whole with a *bucking-cloth*, and lay on it more ashes, and pour in warm water, till the tub be full, and let it stand all night. Next morning they let the lie run into another vessel, and, as it wastes, fill up the tub with warm water from a kettle, and, as this wastes, fill it up with the lie that runs from the *bucking-tub*; till ob-

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ferving to make the lie hotter and hotter, till it boils. Thus are both the tub and kettle to be supplied for at least four hours, which is called *driving a buck of yarn*.

BUCKLE, in *Matters of Trade*, a little metalline machine, whereby to retain and keep fast certain parts of the habit, as well as of the harness of horses, &c.

The word is formed from the French *boucle*, and that, according to Casseneuve, from the barbarous Latin *plu-cula*, which signified the same. According to Menage, from *bucula*, the *ansa*, or handle, of a buckler.

The *buckle* is a part of modern dress, corresponding to the *fibula*, among the ancients.

Buckles are of divers sorts, as shoe and garter *buckles*; some round, others square, or oval, or cut, each of which have their respective artificers by whom they are made.

The like may be said of the great variety of *buckles* belonging to the pack and hackney-saddles.

BUCKLE, *girth*, among *Sadlers*, is a four square hood, with a tongue, which is made steady, by going through a hole of leather, and fastened with narrow thongs.

BUCKLER, a piece of defensive armour, used by the ancients to skreen their bodies from the blows of their enemies.

The word comes from the barbarous Latin *bucularium*; of *buckula*, the umbo or middle point of this weapon, which had usually a head, or mouth, represented prominent thereon.

The *buckler* of Achilles is described in Homer, that of Æneas in Virgil, that of Hercules in Hesiod: Ajax's *buckler* was lined with seven bulls hides.

The *buckler* is the same with what we otherwise call shield or target; and by the one or the other we indifferently render what among the ancients were denominated *clypeus*, *scutum*, and *parma*; though the three latter were different from each other. Phil. Trans. N° 241. p. 206.

The ancients were particularly solicitous to preserve their *bucklers* in fight; it being highly infamous, and even penal, to return without them. It was on their *bucklers* that they carried off the bodies of their slain, especially those of distinction. Potter. Arch. lib. iii. cap. 4. & 13.

The Spaniards still retain the *sword* and *buckler* in their night-walks.

Buckler, on medals, are either used to signify public *vows*, rendered to the gods for the safety of a prince; or that he is esteemed the defender and protector of his people.—These were particularly called *votive bucklers*, and were hung at altars, &c.

BUCKLER *mustard*, in *Botany*. See **MUSTARD**.

BUCKLER of a *cask*, denotes a moveable head, whereby to compress the contents of it.

In this sense we say, a *buckler* of **PILCHARDS**.

BUCKRAM, a thick sort of linen or hempen cloth, stiffened with gum, chiefly used in the linings of cloaths, to sustain and make them keep their form.

BUCKS-HORN. See **PLANTAIN**.

BUCKS-HORN *creffes*. See **COCHLEARIA**.

BUCKTHORN, *Rhamnus*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: it hath male and female flowers on different plants, which have no empalements according to some, or petals, according to others. The cover of the sexes is funnel-shaped, cut into four parts at the top, which spread open; the male flowers have four stamina of the length of the tube, terminated by small summits; the female flowers have a roundish germen, supporting a short style, crowned by a quadrifid stigma; the germen afterward becomes a roundish berry, enclosing four hard seeds. There are nineteen species of the *rhamnus*.

The berries of *buckthorn* are larger than elder-berries, round and black, yielding a bitter purple juice, tinged with green, and holding three or four cornered seeds.

The tree grows in woods and hedges, having its branches set with long stiff thorns.

The syrup is the only preparation of those berries now in physical use.

It is a strong purgative, and effectual in evacuating watry and flatulent humours; on which account it is esteemed in dropsies, rheumatisms, and even the gout.

Of *buckthorn* berries are made three several sorts of colours; being gathered green, and kept dry, they are called *sap-berries*; which being steeped in alum-water, give a fair yellow colour, used by painters, book-binders, and leather-dressers; who also make a green colour, called *sap-green*, taken from the berries when they are black.

These being bruised, and put into a brass kettle, and there suffered to remain for three or four days, with some beaten alum put to them, are afterwards pressed, and the liquor usually put into bladders, and hung up till it be dry: this is afterwards dissolved in water or wine, but Canary is the best, to preserve the colour from

starving. The third is of a purplish colour, made of the berries, suffered to grow upon the bushes till the middle or end of November, when they are ready to fall of themselves. Vid. Boyle, Phil. Works abr. vol. ii. p. 76, 77.

BUCKTHORN, *sea*, in *Botany*. See **SEA Buckthorn**.

BUCK-WHEAT. See **WHEAT**.

BUCOLICA, is used by some for the art of managing, feeding, and breeding cattle.

BUCOLICS, *Pastorals*; a kind of poems relating to shepherds, and their flocks.

The word is derived from βας, and κολον, *cibus*, meat; hence βεκολας, to feed cattle; and βεκωλος, *bubulcus*, a herdsman.

Bucolic poetry is the most ancient of all the kinds of poetry; and is supposed to have had its origin in Sicily, amidst the mirth and diversions of the shepherds; and to have been inspired by love and idleness: by degrees, their rural gallantries were brought under rules, and became an art. The concerns of the flocks, the beauties of nature, and the pleasures of a country life, were their principal subjects. Moschus, Bion, and Theocritus, were the most agreeable among the ancient *bucolic* poets.

Fontenelle observes, that Theocritus's style is sometimes a little too *bucolic*. Some authors attribute the invention of *bucolic poetry* to a shepherd called *Daphnis*; and others to *Bucolius*, son of Laomedon: but this appears all fiction.

Some ascribe the invention of *bucolic poetry* to the herdsmen of Laconia, who, not being able to hold the customary feast of virgins in honour of Diana Caryatis, by reason of the war with Xerxes, instituted βεκωλιασμοι, or *bucolic exercises*, in lieu thereof.

Hence also the origin of a sort of poetical champions, called βεκωλιασται, by the Latins *luctiones*, who went about the country contending for the prizes frequently proposed for the conquerors in this kind of combat. Of which rank *Daphnis* was the most distinguished. They not only rehearsed their verses, but played on a kind of *flûta*, or pipe, called *syrinx*. Scal. Poet. lib. i. cap. 4. Pott. Arch. lib. ii. cap. 20. Hist. Acad. Inscr. tom. iii. p. 123, & 131, &c.

Bucolic poetry is by some called *Astrabic*, as being supposed to have first commenced among the ancient herdsmen in riding a sort of waggons called *astrabes*.

It is usually divided into *monoprosopium*, wherein only a single person speaks, and *amæbæum*, or dialogue, wherein are several interlocutors.

Theocritus's **IDYLLIA**, and Virgil's **ECLOGUES**, are the chief of the ancient *bucolics* now extant.

BUCTION, a word used by Severinus, and some others, as a name for that part of the *puendum muliebri* commonly called the **HYMEN**.

BUD primarily denotes that part of a **SEED** which first begins to sprout or germinate.

In which sense, *bud* amounts to the same with germ, germen, gem, or gemma.

In most seeds is found a true *bud*, consisting of perfect leaves, only differing in bigness from those which grow on the stalk. In many seeds this *bud* is very apparent, in others it lies so deep between the lobes, as to be almost indiscernible. In some plants the leaves of the *buds* are but two, in others four, in others six, and in some more.

BUD is also used to denote the beginning of a blossom, or young sprout, whether of a branch, foliage, or flower. The *buds* of flowers and fruits are formed at the same time as the branches themselves on which they arise. Mem. Acad. Scienc. ann. 1711. p. 59, seq.

The *bud* of a branch has its origin from the inner part of the ligneous body next the pith; by which it differs from a thorn, which has its origin from the outer and less fruitful part, and so produces no leaves, being as it were only the male of a *bud*.

Every *bud*, besides its proper leaves, wherein it is couched or folded up, is covered with divers leafy pannicles or furfoils, which serve as a defence to the leaves themselves. Grew. Anat. Veget. lib. i. cap. 4. lib. iv. cap. 1. § 2. & cap. 5. § 3.

The *buds* or knots on branches arise from the inmost part of the branches, the structure of the ligneous fibres and little bladders of the branch being ranged so nicely in this form, that, upon the putting out of the branch, the *bud*, which is composed of the same parts, may likewise shoot with it. Phil. Trans. N° 118. p. 404.

Leewenhoeck assures us, that in the *bud* of a currant-tree, even in winter, he could discover not only the ligneous part, but even the berries themselves, appearing like small grapes.

BUD is used in the country language for a weaned calf of the first year; so called, because the horns are then in the *bud*.

BUDDING, in *Gardening*. See **ENGRAFTING**.

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BUDDLE, in *Mineralogy*, a name given by the English dressers of the ores of metals, to a sort of frame made to receive the ore after its first separation from its grossest foulness.

The ore is first beaten to powder in wooden troughs, through which there runs a continual stream of water, which carries away such of it as is fine enough to pass a grating, which is placed at one end of the trough; this falls into a long square receiver of wood, called the *launder*: the heaviest and purest of the ore falling at the head of the launder, is taken out separately, and requires little more care or trouble; but the other part, which spreads over the middle and lower end of the launder, is thrown into the *buddle*, which is a long square frame of boards, about four feet deep, six long, and three wide; in this there stands a man bare-footed, with a trampling shovel in his hand, to cast up the ore about an inch thick, upon a square board placed before him as high as his middle; this is termed the *buddle head*; and the man dexterously, with one edge of his shovel, cuts and divides it longwise, in respect of himself, about half an inch asunder, in these little cuts; the water coming gently from the edge of an upper plain board, carries away the filth and lighter part of the prepared ore first, and then the metalline part immediately after; all falling down in the *buddle*, where, with his bare feet, he strokes it and smooths it, that the water and other heterogeneous matter may the sooner pass off from it.

When the *buddle* by this means grows full, the ore is taken out; that at the head part, being the finest and purest, is taken out separate from the rest, as from the launder. The rest is again trampled in the same *buddle*; but the head, or, as it is called, the forehead, of this *buddle*, and of the launder, are mixed together, and carried to another *buddle*, and trampled as at first. The foreheads of this last *buddle*, that is, that part of the ore which has fallen at the head, is carried to what they call a drawing *buddle*, whose difference from the rest is only this, that it has no tye, but only a plain sloping board, on which it is once more washed with the trampling shovel. Tin-ore, when it is taken from this, is called black tin, and this is found to be completely ready for the blowing-house. Phil. Transf. N^o 69. See *Dressing of ORE*.

BUDDLING of *calamine*, denotes the operation of cleansing it from filth, by washing and picking it, preparatory to the baking it in the oven. Phil. Transf. N^o. 198. p. 675. See *CALAMINE*.

BUDDLING-*fish*, a small, shallow vessel, like the basons of a pair of scales, for the washing of ores of metals by the hand.

BUDGE. See *BOUCHE*.

BUDGE-barrels, are small barrels well hooped, with only one head, the other end having nailed on it a piece of leather, to draw together upon strings, like a purse.

Budge-barrels are used for carrying powder along with a gun or mortar; as being less dangerous, and also easier than whole barrels. They are also used upon batteries of mortars, for holding meal-powder.

BUDHURS, in *Ichthyology*, a name given by the Irish to a large species of *TROUT*, resembling outwardly the red *GILLAROO*. See Phil. Transf. vol. lxiv. N^o 14, and N^o 15.

BUDLEIA, in *Botany*, a genus of the *tetandria monogynia* class of plants. Its characters are these: the flower is of one leaf, bell-shaped, and quadrifid; and hath four short stamina, which are placed at the divisions of the petal; the oblong germen is situated in the centre, which afterward becomes an oblong capsule, having two cells filled with small seeds. There are two species, which grow naturally in gullies, or other low-sheltered spots in the West Indies; their branches being too tender to resist the force of strong winds, they are rarely seen in open situations.

BUDNÆANS, in *Ecclesiastical History*, so called from the name of their leader, Simon Budnæus. They not only denied all kind of religious worship to Jesus Christ, but asserted, that he was not begotten by any extraordinary act of divine power; being born, like other men, in a natural way. Budnæus was deposed from his ministerial functions in the year 1584, and publicly excommunicated, with all his disciples; but afterwards abandoning his peculiar sentiments, he was readmitted to the communion of the Socinian sect. Crellius ascribes the origin of the above opinion to Adam Neuser. Mosh. Eccl. Hist. vol. iv. p. 199.

BUDUN is the name of one of the Ceylonese gods: he is supposed to have arrived at supremacy, after successive transmigration from the lowest state of an insect, through the various species of living animals. There have been three deities of this name, each of which is supposed to reign as long as a bird removes a hill of sand, half a mile high, and six miles round, by a single grain in a thousand years. See *SAKRADAWENDRA*.

B U F

BUFETAGE, *bufetagium*, or *bufetaria*, a duty paid to the lord for the drinking, or rather selling of wine in taverns.

The word is formed from *buvelage*, or *buvelerie*, of the French *boire*, to drink. Du-Cange Gloss. Lat. tom. i.

BUFF, in *Commerce*, a sort of leather prepared from the skin of the buffalo, or *BUBALUS*.

The skin of the buffalo being dressed in oil, after the manner of shammy, or chamois, makes what we call *buff-skin*; anciently much used among the military men for a kind of coats or doublets; and still retained by some of our grenadiers, as well as the French *gen d'armes*, on account of its exceeding thickness and firmness. It is also used for waist-belts, pouches, &c.

Buff-skins, or *buff-leather*, makes a very considerable article in the English, French, and Dutch commerce, at Constantinople, Smyrna, and along the coast of Africa.

The skins of elks, oxen, and other like animals, when dressed in oil, and prepared after the same manner as that of the buffalo, are likewise denominated *buff*, and used for the same purposes.—In France there are a good number of considerable manufactories employed in the preparation of such skins; particularly at Corbeil, Paris, and Rouen: their first establishment is owing to the Sieur Jabas, a native of Cologne. The manner of preparation see under *SHAMMY*.

The *SKIN* of the American moose deer, when well dressed, makes excellent *buff*. The Indians make their snow-shoes of them. Their way of dressing it, which is reckoned very good, is thus: after they have haired and grained the hide, they make a lather of the moose's brains in warm water, and after they have soaked the hide for some time, they stretch and supple it. Phil. Transf. N^o 368.

BUFF, in *Medicine*, is used to signify that fizy, viscid, tough mass, which forms on the upper surface of the blood; it is what physicians call the *coagulable lymph*, which Dr. Fordyce, in his very excellent *Elements of the Practice of Physic*, says, is not so easily coagulable when the arteries of the perion from whom the blood is drawn, act more strongly than they usually do. See *BLOOD*.

BUFFET. See *BEAUFET*.

BUFFALO, *Bubalus*, in *Zoology*. See *BUBALUS*.

BUFFOON, a droll, or mimic, who diverts the public by his pleasantries and follies.

Menage, after Salmasius, derives the word from *buffo*; a name given to those who appeared on the Roman theatre with their cheeks blown up; that, receiving blows thereon, they might make the greater noise, and set the people a laughing. Others, as Rhodiginus, makes the origin of *buffoonery* more venerable; deriving it from a feast instituted in Attica, by K. Erichtheus, called *BUPHONIA*.

Buffoons are the same with what we otherwise find denominated *scurra*, *gelastiani*, *mimologi*, *ministelli*, *goliardi*, *joculatores*, &c. whose chief scene is laid at the tables of great men.

Gallienus never sat down to meat without a second table of *buffoons* by him; Tillemont also renders *PANTOMIMES* by *buffoons*. In which sense he observes, the shews of the *buffoons* were taken away by Domitian, restored by Nerva, and finally abolished by Trajan. Hist. des Emper. tom. ii. p. 144.

BUFO, in *Zoology*, the name by which many authors call the common *TOAD*, denominated by others *RUBETA*.

BUFONIA, in *Botany*, a genus of the *tetandria digynia* class of plants, the calyx of which is a permanent *perianthium*, consisting of four erect, subulated, carinated leaves; the corolla consists of four oval, linear, entire, erect, equal petals, shorter than the cup; the fruit is an oval, compressed capsule, consisting of two valves, and containing one cell, in which are two oval compressed seeds.

BUFONITA, in *Natural History*, the *TOAD-stone*. This is a fossil that has been received not only among the list of native stones by the generality of authors, but even has held a place among the gems, and is still worn in rings by some people: it is, however, as much an extraneous fossil, as any animal remaining of that kind. There has been a strong opinion in the world, that it was found in the head of an old toad: and that this animal voided it at the mouth, on being put on a red cloth. See *Tab. Fossils, Class 8*.

The general colour of the *bufonita* is a deep, dusky brown; but it varies greatly in this respect in several specimens, some of which are quite black, others of an extremely pale, simple brown, a chestnut colour, liver colour, black, grey, or whitish.

The *bufonita* are usually found immersed in beds of stone; and so little doubt is there of what they have originally been, viz. the petrified teeth of the *lupus piscis*, or wolf-fish, that part of the jaw of the fish has sometimes been

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been found, with the teeth petrified in it. See GRON-
DEUR.

The *bufonitæ* are said to be cordial and astringent: many other fanciful virtues are ascribed to them, which the present practice has rejected.

Dr. Kramer says, *pulvis bufonum*, when applied by way of poultice, with barley-flour and urine, is an excellent remedy for ripening pestilential BUBOES, but that it has no such effect in *venereal*, or any other than pestilential BUBOES.

BUG, in Zoology. See CHERMES, and CIMEX.

BUGA marble, in Natural History, a name given by the Spaniards to a species of black marble, called by our artificers the Namur-marble, and known among the ancient Romans by the name of *marmor Luculleum*. It is common in many parts of Europe, and is used by the Spaniards in medicine as well as in building; the powder of it being said to be an excellent styptic, applied to fresh wounds.

BUGEE, in Zoology, a species of monkey, which we see sometimes brought over for a shew. It is an Indian animal, and a very rare one even there. It is about the size of a beaver, and much of the same colour, but its tail and claws wholly of the monkey-kind.

BUGELUGEY, in Zoology, the name of a large species of lizard, called by Cluvius, and some other authors, by the indeterminate name of *Lacertus Indicus*. It grows to four feet long, and will then measure nine inches round; the tail is very long, and ends in an extremely slender point.

BUGG-caterpillar, in Natural History, a name given by Mr. Bonnet to a small species of caterpillar, which smells exactly like a bug. This is not the only species which yields a sensible smell, for there is one of the middle-sized smooth kinds, which, at the time of the change into the chrysalis state, yields a very pleasant rose-like scent; and their cases, which are made of earth and silk, retain that smell for a long time together, even for several years. There is another, which smells strongly of musk. Phil. Trans. N° 469.

BUGGERS, *Bulgarii*, anciently signified a kind of heretics, otherwise called *Paterini*, *Cathari*, and *Albigenses*. The word is formed of the French *Bougres*, which signified the same, and that from *Bougria* or *Bulgaria*, the country where they chiefly appeared.

The *Buggers* are mentioned by Matthew Paris, in the reign of Henry III. under the name of *Bugares*. *Circa dies autem illos invaluit hæretica pravitas eorum qui vulgariter dicuntur Paterini & Bugares, de quorum erroribus malo tacere quam loqui.*

BUGGER, or BUGGERER, came afterwards to be used for a Sodomite; it being one of the imputations laid, right or wrong, on the Bulgarian heretics, that they taught, or at least practised, this abominable crime. Casen. Orig. p. 27. Menag. Orig. p. 114. Trev. Dict. Univ. tom. i. p. 1149. voc. *Bougre*. Du-Cange, Gloss. Lat. tom. i. p. 637. voc. *Bulgari*.

BUGGER, *Bulgarius*, is also a denomination given to usurers, a vice to which the same heretics are said to have been much addicted. Du-Cange, Gloss. Lat. tom. i. p. 637.

BUGGERY, in our laws, signifies the crime of sodomy.

Sir Edward Coke defines *buggery, carnalis copula contranaturam, & hoc per confusionem specierum* (viz. by a man's or woman's coupling with a brute beast) *vel sexuum*, by a man's having to do with a man, or a woman with a woman.—Each of which is felony, without benefit of clergy. 25 Hen. VIII. cap. 6. and 5 Eliz. cap. 17. In ancient times, such offenders were burnt by the common law.

Buggery is usually excepted out of a general pardon. The practice is said to have been introduced into England by the Lombards; by whom it is usually supposed to have been borrowed from the *Bougres*, or *Bulgarians*.

BUGLE, *Ajuga*, in Botany, a genus of the *didynamia gynnospermia* class. The characters are these: the flower is one leaf, of the lip kind, having an incurved cylindrical tube; the upper lip is very small, erect, and bifid; the under lip is large, open, and divided into three segments. It hath four erect stamina, two of which are longer than the upper lip, and two shorter. In the centre is situated four *germina*, which afterward become four naked seeds enclosed in the empalement.

Bugle is a noted vulnerary, much used in potions of that intention, and also in plasters, especially among the French, with whom it is a proverb, that the person who has *bugle* and fanicle, has no occasion for a surgeon.

It is used both internally and externally for all bruises, wounds, and contusions; for sores and ulcers, spitting of blood, and hæmorrhages from any part; also for the dysentery, *fluor albus*, diseases of the throat, and thrushes in the mouth.

BUGLOSS, in Botany. For the characters, see ANCHUSA.

B U I

Bugloss is usually planted in gardens, and flowers in June and July. The leaves, flowers, and sometimes the root are used.

The flowers of the common *bugloss* stand recommended for the same virtues with those of borragé; they are supposed to be cordials of the very first rank, and to be of great use in hypochondriac and melancholic cases. But these virtues are not well warranted. Tournefort, Hist. Plant, p. 133.

BUGLOSS, *viper's*, in Botany. See VIPER's *Bugloss*.

BUGLOSS, *small wild*. See ASPERUGO.

BUGLOSSUS, in Zoology, a name used by many authors for the seal-fish.

BUILDING, a fabric; or place erected by art, of stone, or timber, either for shelter from the weather, or for security, magnificence, or devotion.

BUILDING, *regular*, is that whose plan is square, its opposite sides equal; and the parts disposed with symmetry.

BUILDING, *irregular*, is that, on the contrary, whose plan is not contained within equal or parallel lines, either by the nature of its situation, or the artifice of the builder; and whose parts have not any just relation to one another in the elevation.

BUILDING, *insulated*, is that which is not attached, joined, or contiguous to any other; but is encompassed with streets, or some open square, or the like; as St. Paul's, the Monument, &c.

A BUILDING is said to be *engaged*, when it is encompassed with others, and has no front towards any street or public place, nor any communication without, but by a back passage.

BUILDING, *an interred*, or *sunk*, is that whose *area* is below the adjacent street, court, or garden, &c. and whose lowest courses of stone are hidden.

Buildings are either public, or private.

BUILDINGS, *public*, according to Daviler, include those belonging to religion, as temples, churches, hospitals, mosques, tombs, &c. those erected for security, as walls, towers, bastions, and other parts of fortification; those serving for utility or convenience, as bridges, causeways, ports, aqueducts, courts, markets, bazars, caravanseras; and lastly, those erected for magnificence, as triumphal arches, obelisks, amphitheatres, porticos, &c. Phil. Trans. N° 200.

BUILDINGS, *private*, those intended for habitation, suitable to the state and condition of persons, as places, hotels, seats, convents, houses of citizens, &c.

BUILDINGS, *rural* or *country*, are those which compose farm-houses, granges, menageries, mills, basse-cours, stables, &c.

BUILDINGS, *hydraulic*, those wherein are enclosed machines for the moving or raising of water, either for use or entertainment, as pumps, fountains, reservoirs, cascades, &c.

BUILDINGS, *marine*, those wherein ships and other vessels are made or preserved; such are arsenals, docks, store-houses, and the like.

BUILDINGS, *subterraneous*, those framed under ground, as labyrinths, grottos, caves, temples cut out of rocks, &c. Some take these to be of the greatest antiquity, and to have given occasion to the first erecting of superterranean edifices: the primitive *buildings* seem rather to have been intended as shelter against the scorching heats of the climate and seasons in Æthiopia, where the mid-day was scarce tolerable without some defence. Phil. Trans. N° 144. p. 344.

BUILDING is also used for the art or act of constructing, or raising an edifice.—In which sense it comprehends, as well the expences, as the invention and execution of the design thereof.

In *building* there are three things chiefly in view, viz. conveniency, firmness, and delight.—To attain these ends, Sir Henry Wotton considers the whole subject under two heads, viz. the *seat* or *situation*, and the *work* or *structure*.

BUILDING, *for the situation of a*, either that of the whole is to be considered, or that of its parts.—As to the *first*, regard is to be had to the quality, temperature, and salubrity of the air; the conveniency of water, fuel, carriage, &c. and the agreeableness of the prospect.

For the *second*, the chief rooms, studies, libraries, &c. are to be placed towards the east; offices that require heat, as kitchens, distillatories, brew-houses, &c. to the south: those that require a cool fresh air, as cellars, pantries, granaries, &c. to the north; as also galleries for painting, museums, &c. which require a steady light.—He adds, that the ancient Greeks and Romans generally situated the front of their houses to the south: but that the modern Italians vary from this rule.—Indeed, in this matter, regard must still be had to the country; each being obliged to provide against its respective inconveniencies; so that a good parlour in Egypt might make a good cellar in England.—The situation being fixed on, the next thing to be considered is the

BUILDING,

BUILDING, *work or structure of the*, under which come first the *principal* parts, then the *accessories* or ornaments. — To the principals belong, first, the materials; then the form, or disposition.

There are three sorts of draughts or representations of a *building* necessary to be made before the construction be begun, viz. an *ichnography* or plan, an *orthography* or profile, and a *scenography* or perspective. See **ICHOGRAPHY**, **ORTHOGRAPHY**, and **SCENOGRAPHY**.

BUILDING, *the materials of a*, are either stone, as marble, free-stone, brick, for the walls, &c. or wood, as fir, cypress, cedar, for posts and pillars of upright use; oak for beams, summers, and for joining and connexion.

BUILDING, *for the form or disposition of a*, it must either be *simple* or *mixed*. — The simple forms are either *circular* or *angular*: and the circular ones either *complete*, as just spheres; or *deficient*, as ovals.

The circular form is very commodious, of the greatest capacity of any; strong, durable beyond the rest, and very beautiful: but then it is found of all others the most chargeable; much room is lost in the bending of the walls, when it comes to be divided; besides an ill distribution of light, except from the centre of the roof; on these considerations it was, that the ancients only used the circular form in temples and amphitheatres, which needed no compartition. — Oval forms have the same inconveniences, without the same conveniences; being of less capacity.

As for angular figures, Sir Henry Wotton observes, that *building* neither loves many nor few angles; the triangle, v. gr. is condemned above all others, as wanting capacity and firmness; as also, because incapable of being resolved into any other regular figure in the inward partitions, besides its own. — As for figures of five, six, seven, or more angles, they are fitter for fortifications than civil *buildings*. There is, indeed, a celebrated building of Vignola, at Caprarola, in form of a *pentagon*; but the architect had prodigious difficulties to encounter with, in disposing the lights, and saving the vacuities. Such *buildings*, then, seem rather for curiosity than convenience; and for this reason, rectangles are pitched on, as being a medium between the two extremes. But again, whether the rectangle is to be just a square, or an oblong, is disputed: Sir Henry Wotton prefers the latter, provided the length doth not exceed the breadth by above one third.

Mixed figures, partly circular, and partly angular, may be judged of from the rules of the simple ones; only they have this particular defect, that they offend against uniformity. Indeed uniformity and variety may seem to be opposite to each other: but Sir Henry Wotton observes, that they may be reconciled; and for an instance, he mentions the structure of the human body, where they both meet. — Thus much for the first grand division, viz. the whole of a *building*.

BUILDING, *the parts of a*, Baptista Alberti comprises under five heads; viz. the *foundation*, *walls*, *apertures*, *compartition*, and *cover*.

For the foundation; to examine its firmness, Vitruvius orders the ground to be dug up; an apparent solidity not to be trusted to, unless the whole mould, cut through, be found solid: he does not indeed limit the depth of the digging; Palladio limits it to a sixth part of the height of the *building*. This Sir Harry Wotton calls the *natural foundation*, whereon is to stand the substruction, or ground-work, to support the walls, which he calls the *artificial foundation*: this then is to be its level; its lowest edge, or row, of stone only, close laid with mortar, and the broader the better; at the least, twice as broad as the wall: lastly, some add, that the materials below should be laid just as they grew in the quarry; as supposing them to have the greatest strength in their natural posture. De Lorme enforces this, by observing, that the breaking or yielding of a stone in this part, for the breadth of the back of a knife, will make a cleft of above half a foot in the fabric above. — For pallification, or piling the ground-plot, so much commended by Vitruvius, we say nothing; that being required only in a moist marshy ground, which should never be chosen: nor, perhaps, are there any instances of this kind, where it was not necessity that drove them to it.

For the walls, they are either entire and continued, or intermitted; and the intermissions are either columns, or pilasters. Entire, or continued walls, are variously distinguished; by some, according to the quality of the materials, as they are either stone, brick, &c. others only consider the position of the materials; as when brick, or square stones, are laid in their lengths, with sides and heads together, or the points conjoined, like a network, &c.

The great laws of muring are, that the walls stand perpendicular to the ground-work; the right angle being

the cause of all stability: that the massiest and heaviest materials be lowest, as fitter to bear than be borne: that the work diminish in thickness, as it rises; both for ease of weight, and expence: that certain courses, or ledges of more strength than the rest, be interlaid, like bones, to sustain the fabric from total ruin, if the under parts chance to decay; and, lastly, that the angles be firmly bound; these being the nerves of the whole fabric, and commonly fortified, by the Italians, on each side the corners, even in brick *buildings*, with squared stones, which add both beauty and strength.

The intermissions, as before observed, are either columns, or pilasters: whereof there are five orders, viz. *Tuscan*, *Doric*, *Ionic*, *Corinthian*, *Composite*; each of which see distinctly considered under its respective head. See also **COLUMN**, **ORDER**, and **PILASTER**.

Columns, and pilasters, are frequently, both for beauty and majesty, formed archwise; the doctrine of which see under **ARCH**.

For the apertures, they are either doors, windows, stair-cases, chimneys, or conduits for the suillage, &c. which see under their heads, **DOOR**, **WINDOW**, &c. Only, with regard to the last, it may be observed, that art should imitate nature in these ignoble conveyances, and separate them from sight, where a running water is wanting, into the most remote, lowest, and thickest part of the foundation, with secret vents, passing up through the walls like tunnels to the open air; which the Italians all commend for the discharge of noisome vapours. See **SEWERS**, &c.

For the compartition, or distribution of the ground-plot into apartments, &c. Sir H. Wotton lays down these preliminaries; that the architect never fix his fancy on a paper-draught, how exactly soever set off in perspective; much less on a mere plan, without a model, or type of the whole structure, and every part thereof, in pasteboard, or wood; that this model be as plain, and unadorned, as possible, to prevent the eye's being imposed on; and that the bigger this model, the better.

In the compartition itself, there are two general views, viz. the *gracefulness*, and *usefulness* of the distribution, for rooms of office and entertainment; as far as the capacity thereof, and the nature of the country, will allow.

The gracefulness will consist in a double analogy, or correspondence; first, between the parts and the whole, whereby a large fabric should have large partitions, entrances, doors, columns, and, in brief, all the members large: the second, between the parts themselves, with regard to length, breadth, and height. The ancients determined the length of their rooms, that were to be oblongs, by double their breadth; and the height by half their breadth, and length, added together. When the room was to be precisely square, they made the height half as much more as the breadth: which rules the moderns take occasion to dispense with; sometimes squaring the breadth, and making the diagonal thereof the measure of the height; and sometimes more. This deviating from the rules of the ancients is ascribed to M. Angelo.

The second consideration in the compartition is, the usefulness; which consists in the having a sufficient number of rooms of all kinds, with their proper communications, and without distraction. Here the chief difficulty will lie in the lights, and stair-cases: the ancients were pretty easy on both these heads, having generally two cloistered open courts, one for the women's side, the other for the men: thus the reception of light into the body of the *building* was easy, which among us must be supplied, either by the open form of the *building*, or by graceful refuges or breaks, by terrassing a story in danger of darkness, and by abajours, or sky-lights. — For casting the stair-cases, it may be observed, that the Italians frequently distribute the kitchen, bake-house, buttery, &c. under ground, next above the foundation, and sometimes level with the floor of the cellar, raising the first ascent into the house fifteen feet or more: which, beside the removing of annoyances out of the sight, and gaining so much room above, does, by elevating the front, add a majesty to the whole. Indeed, Sir H. Wotton observes, that in England, the natural hospitality thereof will not allow the buttery to be so far out of sight; besides, that a more luminous kitchen, and a shorter distance between that and the dining-room is required, than that compartition will well bear.

In the distribution of lodging-rooms, it is a popular and ancient fault, especially among the Italians, to cast the partitions so, that, when the doors are all open, a man may see through the whole house: this is grounded on the ambition of shewing a stranger all the furniture at once; an intolerable hardship on all the chambers, except the inmost, where none can arrive but through all the rest, unless the walls be extremely thick for secret passages:

passages: nor will this answer the purpose, without at least three doors to each chamber; a thing inexcusable, except in hot countries; besides, it being a weakening to the *building*.

In the compartition, the architect will have occasion for frequent shifts; through many of which his own sagacity, more than any rules, must conduct him.

For the covering of the *building*; this is the last in the execution, but the first in the intention: for who would *build*, but to shelter? In the coverings, or roof, there are two extremes to be avoided; the making it too heavy, or too light: the first will press too much on the under-work; the latter has a more secret inconvenience; for the cover is not only a bare defence, but a band, or ligature, to the whole *building*; and as such requires a reasonable weight. Indeed, of the two extremes a house top-heavy is the worst. Care is likewise to be taken, that the pressure be equal on each side; and Palladio wishes, that the whole burden might not be laid on the outward walls; but that the inner might likewise bear their share.—The Italians are very curious in the proportion and gracefulness of the pence or slopiness of the roof; dividing the whole breadth into nine parts, whereof two serve for the height of the highest top, or ridge, from the lowest: but in this point, regard must be had to the quality of the region; for, as Palladio insinuates, those climates which fear the falling of much snow, ought to have more inclining pences than others.

Thus much for the principal or essential parts of a *building*. For the *accessories*, or *ornaments*; they are derived from painting and sculpture. The chief things to be regarded in the first are, that no room have too much, which will occasion a surfeit; except in galleries, or the like: that the best pieces be placed where there are the fewest lights: rooms with several windows are enemies to painters, nor can any pictures be seen in perfection, unless illuminated, like nature, with a single light; that in the disposition regard be had to the posture of the painter in working, which is the most natural for the posture of the spectator; and that they be accommodated to the intentions of the room they are used in. For sculpture, it must be observed, that it be not too abundant; especially at the first approach of a *building*, or at the entrance, where a Doric ornament is much preferable to a Corinthian one; that the niches if they contain figures of white stone, be not coloured in their concavity too black, but rather dusky; the sight being displeased with too sudden departures from one extreme to another; that fine sculptures have the advantage of nearness, and coarser of distance.

As to the stone and stucco used in *buildings*, which are fresh and white at first, and are commonly supposed to be discoloured with the air, moisture, smoke, &c. the true cause thereof is, that they become covered with a minute species of plants, which alter their colour. A sort of lichens, yellowish, brownish, or greenish, which commonly grow on the barks of trees, do grow also on stones, mortar, plaister, and even on the slates of houses, being propagated by little light seeds, dispersed by the wind, rain, &c. The best preservative known, is lime.

BUILDING, to judge of a. Sir H. Wotton lays down the following rules. That before fixing any judgment, a person be informed of its age; since, if apparent decays be found to exceed the proportion of time, it may be concluded, without further inquisition, either that the situation is bad, or the materials or workmanship too slight. If it be found to bear its years well, let him run back, from the ornaments and things which strike the eye first, to the more essential members; till he be able to form a conclusion, that the work is commodious, firm, and delightful; the three conditions, in a good *building*, laid down at first, and agreed on by all authors. This, our author esteems the scientific way of judging. Vassaria proposes another; viz. by passing a cursory examination over the whole edifice, compared to the structure of a well-made man; as, whether the walls stand upright on a clean footing and foundation; whether the *building* be of a beautiful stature; whether, for the breadth, it appear well burnished: whether the principal entrance be on the middle line of the front, or face, like our mouths; the windows, as our eyes, set in equal number and distance on both sides; the offices, like the veins, usefully distributed, &c.

The perfection of *building* consists in its adequate agreement with the intention of the founder; its decoration, in the assemblage of such things as are proper to attract the attention of persons passing by; its strength or firmness, in being free from the danger of coming shortly to ruin or decay; its utility or convenience, that disposition of the whole, and each part, which renders its use to the owner most perfect; its beauty, in the true or apparent perfection of it, considered as seen.

Vitruvius gives a third method of judging; summing up the whole art under these six heads: *ordination*, or settling the model and scale of the work; *disposition*, the just expression of the first design thereof (which two, sir H. Wotton thinks he might have spared, as belonging rather to the artificer than the censurer); *eurythmy*, the agreeable harmony between the length, breadth, and height of the several rooms, &c. *symmetry*, or the agreement between the parts and the whole; *decor*, the due relation between the *building* and the inhabitant; whence Palladio concludes, the principal entrance ought never to be limited by any rule, but the dignity and generosity of the master; and lastly, *distribution*, the useful casting of the several rooms for office, entertainment, or pleasure. These last are ever to be run over, before a man pass any determinate censure: and these alone, sir Henry observes, are sufficient to condemn or acquit any *building* whatever.

Dr. Fuller gives us two or three good aphorisms in *building*; as, 1. Let not the common rooms be several, nor the several rooms common; i. e. the common rooms not to be private or retired, as the hall, galleries, &c. which are to be open; and the chambers, &c. to be retired. 2. A house had better be too little for a day than too big for a year. Houses therefore to be proportioned to ordinary occasions, not extraordinary. 3. Country houses must be substantives, able to stand of themselves: not like city *buildings*, supported and sheltered on each side by their neighbours. 4. Let not the front look a squint on a stranger; but accost him right, at his entrance. 5. Let the offices keep their due distance from the mansion-house; those are too familiar, which are of the same pile with it.

The method of *building*, both in Barbary and the Levant, seems to have continued the same from the earliest ages, without the least alteration or improvement.

The modern *buildings* are much more commodious, as well as beautiful, than those of former times. Of old they used to dwell in houses, most of them with a blind stair-case, low ceilings, and dark windows; the rooms built at random, without any thing of contrivance, and often with steps from one to another; so that one would think the people of former ages were afraid of light and fresh air: whereas the genius of our times is altogether for light stair-cases, fine sash-windows, and lofty ceilings. And such has been our builders industry in point of compactness and uniformity, that a house after the new way will afford, on the same quantity of ground, almost double the conveniences which could be had from an old one.

By acts 11 Geo. I. and 4 Geo. III. for the regulation of *building* within the weekly bills of mortality, and in other places therein specified, party walls are required to be erected of brick or stone, which shall be two bricks and a half thick in the cellar, two bricks thick upwards to the garret floor, &c. and other limitations are enacted respecting the disposition of the timbers, &c. And every *building* is to be surveyed; and the person who offends against the statute in any of the particulars recited, is liable to a forfeit of 250*l.* to be levied by warrant of justices of the peace. The other principal statutes relating to *building* are 19 Car. II. c. 3. 22 Car. II. c. 11. 5 Eliz. c. 4. 35 Eliz. c. 6. 6 Ann. c. 31. 7 Ann. c. 17. 33 Geo. II. c. 30. and 6 Geo. III. c. 37.

For the method of securing *buildings* from lightning, see CONDUCTOR.

BUILDING, *section of a*. See SECTION.

BUILDING, SHIP. See SHIP.

BUILT, in *Sea-Language*, is an epithet applied to ships, denoting their peculiar form and structure, and distinguishing some from others of a different class or nation. Thus we use *frigate-built*, *galley-built*, &c. *English-built*, *French-built*, &c.

BUL, in the *Hebrew Calendar*, the eighth month of the ecclesiastical, and second of the civil year, since called *Marshewan*; it answers to our October, and has nine and twenty days.

BUL, in *Ichthyology*, an English name for the common FLOUNDER.

BULAFO, a musical instrument, much used by the Negroes of Guinea, &c.

It consists of several pipes made of hard wood, set in order; which diminish by little and little in length, and are tied together with thongs of thin leather twisted about small round wands, put between each of the pipes, so as to form a small interspace. They play on it with sticks, the ends of which are covered with leather, to make the sound less harsh.

BULATWÆLA, in *Botany*, a name by which some authors have called the BETEL, an herb the people of the East Indies are fond of chewing.

BULB, **BULBUS**, in *Botany*, a thick root nearly round composed of several skins, or coats, laid one over another.

other; sending forth from its lower part a great number of fibres. Such are the roots of the common onion, the daffodil, the hyacinth, &c.

The same denomination is sometimes also, though improperly, given to tuberous roots, composed of one solid continuous substance, without any skins laid over one another.

Dr. Grew observes, that, in *bulbous* plants, as well as many other perennial ones the root is annually renewed, or repaired, out of the trunk or stalk itself: that is the basis of the stalk continually and insensibly descends below the surface of the earth; and hiding itself therein, is both in nature, place, and office, changed into a true root. Thus in brownwort, the base, sinking by degrees, becomes the upper part of the root; the next year, the lower part; and the next it rots away, a fresh supply coming.

The ancients divided *bulbs* into esculent, as the onion and leek; emetic, as the narcissus; and wild, as the hermodactil. Nothing, Pliny observes, is more prolific than the lily, a single root often producing no less than fifty *bulbs*. Nat. Hist. lib. ii. cap. 5.

Modern botanists distinguish two kinds of *bulbs*, *tunicated* and *squamous*.

BULBS, *tunicated*, are those composed of several coats of tunics laid over each other; such are the roots of onion, tulip, and jonquil.

BULBS, *squamous*, are those composed of several scales, laid in like manner over each other; such is that of the white lily. To which are added, the *solid bulb*, composed of an uniform solid substance; the *articulate bulb*, consisting of *lamellæ* linked together; the *duplicate*, when there are two to each plant; and *aggregate*, when each plant has a congeries of such roots.

Some consider the *bulb* as a real plant, out of which a new stalk is yearly produced; the stalk itself withering and falling away with the flower and leaves. In reality, as the leaves which fall yearly, are not necessary to the integrity of the plant; so neither does the stalk seem to be, which springs out of the *bulb*, and withers away, the *bulb* itself still remaining entire. We may add, that the very leaves and flowers, e. gr. of a tulip, have been distinctly perceived to be contained in its *bulb*. Du Hamel, Acad. Sc. lib. ii. § 3. cap. 1.

BULBS are also taken for the round spired beards of flowers.

BULBINE, in *Botany*. See SPIDER-wort.

BULBOCASTANUM. See PIG-nut.

BULBOCODIUM, in *Botany*, a genus of the *hexandria monogynia* class of plants. The flower is funnel-shaped, and composed of six petals: the fruit is a triangular acuminate capsule, with three cells, containing several angular seeds. There are two species; one of which grows naturally on the Alps, and upon Snowdon in Wales; the other is a native of Spain, and has been long cultivated in our gardens. The root of this plant, according to Lemery, is purgative: Ray says it is emetic, and hurtful to the nerves. Herman recommends the bruised leaves for an erysipelas.

Bulbocodium is also a name used by some authors for *pseudo narcissus Anglicus*, or common wild yellow daffodil.

BULBONAC, in *Botany*, the name by which several authors call the *viola lunaris*, known in our gardens by the names of *saturn* and *HONESTY*.

BULBOUS, or **BULBOSE** plants, those which have a **BULB**.

BULBOUS plants, *flowering of*. See FLOWERING.

BULBUS *vepicatorius*, in the *Materia Medica*, the name used for the root of the *muscari*, or musk grape plant.

BULCARD, an English name for the *gulcetta*, or *alanda non cristata*, of Rondeletius; a small sea-fish caught among the rocks on the Cornish and other shores. Willughby.

BULEF, in *Botany*, a name by which some authors call the willow.

BULEPHORUS, in the court of the eastern emperors, was the same officer with *summæ rei RATIONALIS*.

BULEUTÆ, in the cities of Greece and Asia, were the same with the *DECURIONES* at Rome. Calv. Lex. Jur. p. 128.

The word has been sometimes also used to denote *SENATORS*.

BULGARIAN language, the same with the *lingua Hænetæ*, or *SLAVONIC*.

BULGOLDA *lapis*, the name of the stone taken out of the head of an animal in America, called by the natives *bulgoldalf*. We have no account of this, but that it possesses the virtue of the bezoar, as a cordial and resister of poisons.

BULIMY, an enormous appetite, attended with fainting, and coldness of the extremities.

The word is formed from *βες*, *ox*, and *λῖμῶς*, *hunger*; as importing that the patient has the stomach of an ox. or, as others term it, sufficient to eat up an ox; Varro and Suidas derive it from the particle *βς*, which is prefixed by the Greeks to divers words, only as an intensive; and *λῖμῶς*, *hunger*, q. d. a great hunger.

The perpetual craving of food is sometimes owing to a defect of nourishment, on account of excessive evacuations, by an hæmorrhage, flux of the belly, vomiting, sweating, or the like: or from too great a consumption of the alimentary substance, from various causes, whence the food is hurried out of the stomach with greater speed than it ought to be. Sometimes this affection is owing to worms consuming the chyle.

The diagnostic signs of this disorder are sufficiently evident, as well to the patients as to the attendants, who cannot but observe a depraved and excessive appetite, which compels them to receive into their stomachs an immoderate quantity of victuals, which afterward proving burdensome and oppressive to nature, are thrown up again by vomiting; in which case the distemper is the *fames canina*; or, if there be no vomiting, the patient is seized with a lipothymy, and then it is a *bulimus*.

The different causes of this distemper, are distinguishable by the circumstances which are antecedent, attendant, and consequent to it. Acid evacuations and vomitings, crude stools and want of thirst, are signs of an acid abounding in the stomach. In defect of nutrition, the patients are emaciated: and lastly, the signs of worms are to be taken from their proper symptoms.

As to the prognostics of this disorder, if it depends wholly on external causes, there is no danger, provided these are speedily removed; and what proceeds from worms carries but little danger in it, because the effects cease on their being destroyed. In pregnancy, where an inordinate appetite is frequent, there is no danger to be apprehended from it.

But the distemper is very dangerous, when followed by large evacuations or colliquations of the body: and especially when after receiving food, while the stomach is yet full, the patient is seized with fainting fits: for when those things which ought to give most relief, prove of none, or of ill effect, it is a sign of a great disorder in the tone of the stomach.

So also the *CANINE* appetite, when the vomiting or flux is obstinate, is not void of danger: for it commonly degenerates into a cachexy, dropsy, lenteria, atrophy, and other fatal distempers.

For the methods of cure, while the patient is under the fainting fit, it is usual to have recourse to such things as remarkably affect the sense of smelling: as bread sopped in wine, roasted swines flesh, or kid, and in general all such things as have a nidorous and well-savoured smell. It is sometimes the practice likewise to compress the extremities of the patients, to prick them in every part, rub their ears, pull them by their cheeks, and by the hair. When they are come to themselves from the lipothymy, the most proper thing to give them in the first place, is wine, and after that other food. In our future management, they are to be restored by such meats as are of good and quick nutrition, but difficult of alteration and digestion: they are also to be treated with such things as refrigerate and strengthen. By this method they are generally benefitted, and in process of time are restored to a good temperament.

Evacuation is to be performed, either by vomit or purge; and that by means of such remedies as are proper for those who labour under a want of appetite. For though these affections are contrary to each other, yet they are usually produced by the same humours, differing only in degrees of frigidity, and some very different secondary qualities which affect the stomach after a very different manner. A remedy of this kind, which is very much commended by Galen, is *hiera* made into pills.

Pure wine alone, drank in sufficient plenty, is a most powerful reliever of *HUNGER*, according to the aphorisms of Hippocrates, *xxi. sect. 2.* and the spirit of wine commonly called *aqua vitæ*, has a still more powerful effect that way.

In the Philosophical Transactions, we have an account of a person affected with a *bulimy*, to such a degree that he would eat up an ordinary leg of veal at a common meal, and would feed on sow-thistle, &c. he was cured by throwing up several worms, of the length and thickness of a tobacco-pipe.

BULITHOS, *lapis bovinus*, a calculus or stone found in the gall-bladder, kidneys, or urinary bladder of oxen.

Instances hereof are given by Bromell, the Academy Naturæ Curiosorum, and other naturalists; by which it appears that Aristotle was mistaken in asserting, that man alone is subject to the stone, and inquiring solicitously into the reasons hereof. Arist. Probl. § x. n. 42.

BULK of a ship, denotes her whole content in the hold for stowage of goods.

BULK, to break. See BREAKING.

BULK-heads, are partitions made across a ship, or lengthways, with boards of timber, whereby one part is divided from another.

The *bulk-head* afore, is the partition between the fore-castle

castle and gratings in the head, and in which are the chafe-ports. See *Tub. Ship. fig. 2. n. 11. 24. 48. 85. 95. 99. 102. 115.*

BULL, in *Ecclesiastical Writers*, denotes an instrument dispatched out of the Roman chancery, sealed with lead; answering to the edicts, letters patent, and provisions, of secular princes.

The word *bull* is derived from *bullæ*, a seal; and that from *bullæ*, a drop, or bubble: or, according to others, from the Greek, *βουλή*, council: according to Pezron, from the Celtic *buil*, or *bul*, a bubble.

We met with four kinds of these *bulli* or *bullæ*; golden, silver, waxen, and leaden; all in use among the emperors and kings of the middle and barbarous ages. In some, the impression is made on the solid metal itself; in others on wax; and only enclosed in a metalline box, or case.

Sealing with metals is an illustrious privilege, belonging only to princes, though assumed also by prelates, as princes of the church. The doges of Venice, durst not arrogate this honour, till leave was given them by pope Alexander III. about the year 1170, to seal their diplomata with lead.

The *bull* is the third kind of apostolical rescript, and the most in use, both in affairs of justice and of grace. It is wrote on parchment; by which it is distinguished from a *brief*, or simple *signature*, which is on paper. A *bull* is properly a signature enlarged: what the latter comprehends in a few words, the former dilates and amplifies.

If the *bulls* be letters of grace, the lead is hung on filken threads; if they be letters of justice, and executory, the lead is hung by a hempen cord. They are all wrote in an old round Gothic letter.

The *bull*, in the form wherein it is to be dispatched, is divided into five parts; viz. the narrative of the fact; the conception; the clause; the date; and the salutation, in which the pope takes on himself the quality of *servant of the servants of God*, *servus servorum Dei*.

Properly speaking, it is the seal or pendant lead alone that is the *bull*: it being that which gives it both the title and authority. The seal presents, on one side, the heads of St. Peter and St. Paul; on the other, the name of the pope, and the year of his pontificate.

By *bulls*, jubilees are granted: without them no bishops in the Romish church, are allowed to be consecrated. In Spain, *bulls* are required for all kinds of benefices; but in France, &c. simple signatures are sufficient; excepting for bishopricks, abbeys, dignities, and priories conventual. According to the laws of the Roman chancery, no benefits, exceeding twenty-four ducats per annum, should be conferred without *bulls*: but the French would never submit to this rule, except for such benefices as are taxed in the apostolical chamber: for the rest, they reserve the right of dissembling the value, expressing it in general terms: *Cujus & illi forsan annexorum fractus 24 ducatorum auri de camera, secundum, communem aestimationem, valorem annum non excedunt.*

The *bulls* brought into France are limited and moderated by the laws and customs of the land, before they are registered; nor is there any thing admitted till it hath been well examined, and found to contain nothing contrary to the liberties of the Gallican church; those words, *proprio motu*, in a *bull*, are sufficient to make the whole be rejected in France.

Nor do the Spaniards admit the papal *bulls* implicitly; but, having been examined by the king's council, if there appear any reason for not executing them, notice thereof is given to the pope by a supplication; and the *bull*, by this means, remains without effect: and the like method of proceeding with the court of Rome is observed by most of the other courts of Europe, in the papal communion.

To *fulminate bulls*, is to make publication thereof, by one of the three commissioners to whom they are directed; whether he be the bishop or official. This publication is sometimes opposed; but when it is, the fault is not charged on the pope who issued the *bull*; but an appeal is brought to him against the person who is supposed to make it; thus the fault is laid, where it is known not to be just, to evade affronting the pontiff. See **FULMINATION**.

The *bull in cæna Domini*, is a *bull* read every year on Maunday-Thursday, in the pope's presence; containing various excommunications and execrations, against heretics, those who disobey the see, who disturb or oppose the exercise of ecclesiastical jurisdiction, &c.

After the death of the pope, no *bulls* are dispatched during the vacancy of the see, to prevent any abuses; therefore, as soon as the pope is dead, the vice-chancellor of the Roman church takes the seal of the *bulls*; and in the presence of several persons, orders the name of the deceased pope to be erased; and covers the other side on which are the heads of St. Peter and St. Paul, with a

linen cloth: sealing it up with his own seal, and giving it, thus covered, to the chamberlain, to be preserved, that no *bulls* may be sealed with it in the mean time.

By stat. 28 Hen. VIII. c. 16. all *bulls*, &c. obtained from the bishop of Rome, are void; and by 13 Eliz. c. 2. (see also 23 Eliz. c. 1.) the procuring, publishing, or using of any of them is high treason.

BULL, *golden*, is a denomination peculiarly given to an ordinance, or statute, made by the emperor Charles IV. in 1356, said to have been drawn up by that celebrated lawyer, Bartoli, and still reputed the *magna charta*, or fundamental law of the empire.

It is thus called from a golden seal fixed to it, such as were used by the emperors of Constantinople, annexed to their edicts.

Till the publication of the *golden bull*, the form and ceremony of the election of an emperor was dubious, and undetermined; and the number of electors was not fixed: this solemn edict regulating the functions, rights, privileges, and pre-eminences of the electors.

The original, which is in Latin, on vellum, is kept at Frankfort. On the back-side of it there are several knots of black and yellow silk; to which hangs a *bull*, or seal of gold.

This ordinance, containing thirty articles, was approved of by all the princes of the empire, and remains still in force. The election of the empire is by it declared to belong to seven electors; three of them ecclesiastics, viz. the archbishops of Mentz, Treves, and Cologne; and four seculars, viz. the king of Bohemia, prince Palatine, duke of Saxony, and marquis of Brandenburg.

BULLS, *golden*, were in use among the eastern emperors for a considerable time, leaden ones being confined to matters of a smaller moment. Spelman mentions a *golden bull*, in a treaty of alliance with our Henry VIII. and Francis I. of France: the same author relates, that the instrument, whereby Clement VII. gave king Henry VIII. the title of Defender of the Faith, had golden *bullæ* affixed to it; and there are other instances in Du-Cange and Altaferia.

BULLS, *silver*, were not in so frequent use, though we do not want instances of them.

BULLS, *leaden*, were sent by the emperors of Constantinople, to despots, patriarchs, and princes; and they like were also used by the grandees of the imperial court, as well as by the kings of France, Sicily, &c. and by bishops, patriarchs, and popes.

Polydore Virgil makes pope Stephen III. the first who used leaden *bulls*, about the year 772. But others find instances of them as early as Sylvester, Leo. I. and Gregory the Great. The later popes, besides their own names, strike the figures of St. Peter and St. Paul on their *bulls*; a practice first introduced by pope Paschal II.

BULLS, *waxen*, are said to have been first brought into England by the Normans. They were in frequent use among the Greek emperors, who thus sealed letters to their wives, mothers, and sons. Of these there were two sorts, one red, the other green. Du-Cange, Gloss. Lat. tom. i. & Gloss. Græc. Montfaucon, Palæolog. lib. vi.

BULL, a species of the *ox* or *bos*.

One *bull* suffices for fifty cows, some say sixty. His best age is about two, or from one to three, before he arrives at his full growth, when he grows heavy and sluggish. Hence that old rule among countrymen:

*He that would have his farm full,
Must have an old cock and a young bull.*

From that time, being of no farther use in breeding, he is usually gelt, and makes what they call a *bull-stag*, in the North corruptly a *bull-seg*, to be fatted for the market. When these creatures are intended to breed, the better the land is, the larger sort of beasts are to be chosen, and the greater will be the profit. But of whatever sort the breed is, the *bull* should always be of the same country with the cow, otherwise it never succeeds so well. The *bull* should be chosen of a sharp quick countenance, his forehead broad and curled, his eyes black and large, his horns long, his neck fleshy, his belly long and large, and his hair smooth and like velvet; his breast should be large, his back straight and flat, his buttocks square, his thighs round, his legs straight, and his joints short. This sort of *bull* is the best for breed, and makes the best oxen for draught as well as for fattening.

The cow ought to have a broad forehead, black eyes, great clean horns, the neck long and thin, the belly large and deep, the thighs thick, the legs round, and the joints short; a white large and deep udder with four teats, and large feet. The size must be proportioned to the goodness of the land.

Among the ancients, those who triumphed, sacrificed a *bull*, when they arrived at the Capitol. *Bulls* were offered to Apollo and Neptune. It was held a crime to

sacrifice them to Jupiter, though we do not want instances of that practice.

Bulls were ranked by the Romans in the number of military rewards.

BULL, *African*, in *Natural History*, a small wild *bull*, common in that part of the world, and supposed to be the true *bubalus* of the ancients.

BULL, *Perillus's*, was a hollow brazen engine of torture, in the shape of that quadruped; wherein persons being shut up, and fire applied, their cries imitated the roaring of a bull.

BULLS *blood*, fresh drawn, is a powerful poison, as coagulating in the stomach. This is related on the authority of Pliny, xxviii. 9. and xi. 38. and many persons among the ancients, such as Æson, Midas, Hannibal, and Themistocles, are said to have been poisoned by it. But the fact has been questioned by some, and denied by others. See Apollodorus, lib. i. cap. 27. Strabo, lib. i. p. 106. Plutarch in Flaminio; and Valer. Maxim. vol. vi. ext. 3.

BULLS *gall*, is an intense bitter, more pungent and acrimonious than that of any other animal; whence it is sometimes used to destroy worms.

BULL *bannal*, denotes a *bull* kept by a lord, who has a right to demand all his tenants to bring their cows to be served by him. See **BANNALIS**.

BULL, *free*, according to Du-Cange, signifies the same with *bannal bull*. Hence *tauri liberi libertas*; which, however, should rather seem to denote a privilege of keeping a *bull* independent of the lord.

BULLS, *wild*. The *wild bulls*, now so numerous on the continent of America, are said to have sprung from one *bull* and seven cows, which were carried thither by some of the first conquerors.

In the island of Hispaniola, the French buccaneers pursue *bulls* with dogs, and kill them with fire-arms. At Buenos Ayres, the Spanish toradors chase them on horseback, armed with a long lance, at the end of which is a half-moon of sharp steel. Having drawn a number of the horned kind together, they let the cows escape, but dexterously take the *bulls* with their half-moons on the hind-legs, by which, disabling them from flight, they are easily dispatched.

BULL-fighting, a sport or exercise much in vogue among the Spaniards and Portuguese, consisting in a kind of combat of a cavalier or *torador* against a wild *bull*, either on foot or on horseback, by riding at him with a lance.

The Spaniards have *bull-fights*, i. e. feasts attended with shews, in honour of St. John, the Virgin Mary, &c.

This sport the Spaniards received from the Moors, among whom it was celebrated with great eclat. Some think that the Moors might have received the custom from the Romans, and they from the Greeks. Dr. Plott is of opinion, that the *Ταυροκαταφιων ημεραι* amongst the Thessalians, who first instituted this game, and of whom Julius Cæsar learned and brought it to Rome, were the origin both of the Spanish and Portuguese *bull-fighting*, and of the English *bull-running*. Nat. Hist. Staff. chap. x. § 76.

The practice was prohibited by pope Pius V. under pain of excommunication, incurred *ipso facto*. But succeeding popes have granted several mitigations in behalf of the toradors.

BULL-running denotes a feudal custom obtaining in the honour of Tudbury in Staffordshire, where anciently on the day of the Assumption of our Lady, a *bull* was turned loose by the lord to the minstrels, who, if they could catch him before he passed the river Dove, were to have him for their own, or, in lieu thereof to receive each forty pence; in consideration of which custom, they pay twenty pence yearly to the said lord. Plot. ubi supra.

BULL and boar.—By the custom of some places, the parson is obliged to keep a *bull* and *boar* for the use of his parishioners, in consideration of his having tithes of calves and pigs, &c. Rol. Abr. 559. 4 Med. 241.

BULL, in *Astronomy*, the constellation TAURUS.

BULL's eye, in *Astronomy*. See ALDEBARAN.

BULL's eye in *Meteorology*, a little dark cloud, reddish in the middle, chiefly appearing about the Cape of Good Hope; thus denominated by the Portuguese, who, on the appearance of it, instantly take down their sails, as knowing that a terrible storm of thunder, lightning, and a whirlwind, is at hand.

BULL's eye, in *Sea-Language*, denotes a sort of small pulley in the form of a ring, having a rope spliced round the outer edge of it, and a large hole in the middle for another rope to slide in. It is more commonly used by Dutch than by English seamen.

BULL-finch, a species of the LOXIA. This is a very pernicious bird in gardens and orchards. They feed on the young buds of trees in spring, which contain the blossoms for the summer's fruit. The black-thorn or sloe-tree, is the great favourite of the *bull-finch*, and keeps him employ-

ed in the hedges in mild weather; but if the latter end of the winter hath been severe, and these shrubs are backward with their buds in February, he then comes into the gardens, the trees growing there being forwarder than those in the field in a cold spring; they will sometimes come in such numbers, as to take off all the buds from the currants, plums, &c. in the gardens of a whole town in a few days. These birds are so bold, that no scare crow, or other means that can be devised, can deter them; their great favourite in the garden is the damson-tree, and they will feed upon this while a person comes almost close up to them. It is very easy to shoot these birds; but the buds and young branches are usually much injured by this method, and the best way seems to be to dawb over the twigs in many places with bird-lime.

The wild note of this bird is not in the least musical; but when tamed, it may be taught any tune after a pipe, or to whistle any notes; and it seldom forgets what it has learned. These birds may be taught to speak, and some thus instructed are annually brought to London from Germany.

BULL-frog, a species of the *frog*, common in Sweden, and the northern parts of America, with four divided toes on the fore-feet, and five webbed ones on the hinder. When the limbs are extended, it measures near two feet: it is very voracious, and will frequently swallow young ducks and other fowl: its croaking is so loud, as to resemble the roaring of a *bull*; whence its name. See **FROG**.

BULL-head. the English name given to a small fish of the cottus kind, found very frequently in shallow running waters, and called by the ancients *bætus* and *cætus*; called also MILLER's *thumb*.

BULL-trout, an English name for a fish of the salmon kind, caught in many of the rivers of England, and more usually called the **SCURFF**.

BULL-weed. See **CENTAURY**.

BULLA, in *Antiquity*, a golden ornament of a globular figure, and hollow within, wherein was contained some amulet, to serve as a preservative from witchcraft and envy, hung about the neck by those who triumphed among the Romans; and also by the children of the patricians, and even *ingenui*, as a badge of their hereditary nobility and freedom, by which they might be animated to behave themselves worthy of their birth. Rom. Ant. p. ii. lib. v. cap. 8.

The *bulla* was not allowed to the children of slaves, or even of *liberti*, who, in lieu thereof, wore a leather collar round the neck, much after the manner of the purple string to which the *bulla* was hung. But the great vestal and the Roman ladies, wore a *bulla*; the former by way of distinction, the latter as a piece of dress. We may add, that *bullæ* were sometimes allowed to statues; whence the phrase, *statuæ bullatæ*. M. Lepidus, having killed an enemy, and saved a citizen, even when a boy, had a *bullated* statue erected to him in the Capitol, in memory of the exploit. The Roman youth laid aside the *bulla* together with the *prætecta*, and consecrated it to the *Lares*, when they arrived at their fifteenth year; as appears from the satyrist:

Cum primum pavido custos mihi purpura cessit,

Bullaque succinctis Laribus donata pendit.

Perf. Sat. v. ver. 20. Hist. Acad. Infer. tom. ii. Valer. Max. lib. iii. cap. 1.

BULLA was also a denomination given to divers other metalline ornaments made after the form of *bullæ*.

In which sense, *bullæ* seem to include all golden and silver ornaments of a roundish form, whether worn on the habits of men, the trappings of horses, or the like. Such were those decorations used by the ancients on their belts and doors. Virgil speaking of Pallas's belt or girdle, says:

Notis fulserunt cingula bullis

Pallantis pæuri.

Æneid, lib. xii. ver. 942.

The *bullæ* of doors were a kind of large-headed nails fastened on the doors of the rich, and kept bright with great care. The doors of temples were sometimes adorned with golden *bullæ*.

BULLA also denoted a table hung up in the public courts, to distinguish which days were *fasti*, and which *nefasti*; answering in some measure to our calendar.

BULLA, in *Natural History*, a genus of worms of the order of *testacea*.

BULLACE-tree, in *Botany*, a species of **PLUM-tree**.

BULLARII, in the court of Rome, the makers or drawers of **BULLS** or constitutions.

BULLARY, *Bullarium*, a collection of papal **BULLS**.

We have extant divers kinds of *bullaries*: some containing only the *bulls* of particular popes; such are the *bullaries* of Innocent XII. and Clement XI. Others contain the *bulls* granted to particular communities; such is the *bullary* of the order of Cluny, &c.

A general *bullary* of all the papal constitutions from Gregory

Gregory VII. to Sixtus Quintus, was compiled by order of pope Sixtus Quintus, in 1586; since which has been published a great *bullary*, by Laert. Cherubin, containing the bulls of all the popes from Leo in 440, to Paul V. in 1559; since continued by Ang. Cherubin to the year 1644, and by Ang. a Lantusca and Jo. Paulus to the year 1676; and, lastly, by an anonymous editor to the time of Benedict XIII. under the title of *Bullarium magnum Romanum*. We have the same digested in a new method by Bouchardus; a commentary on it begun by Vinc. Petra, and a summary of it by Novarius. Fabr. Bibl. Med. Ævi. Lat. lib. ii. tom. i. p. 816. 822.

BULLET, an iron or leaden ball, or shot, wherewith fire-arms are loaded.

Some derive the word from the Latin *botellus*, others from the Greek *βαλλειν*, to throw.

According to Merseune, a *bullet*, shot out of a great gun, flies 92 fathoms in a second of time, which is equal to 589½ English feet; and, according to Huygens, it would be 25 years in passing from the earth to the sun: but according to some very accurate experiments of Dr. Derham, it flies, at its first discharge, 510 yards in five half-seconds; or about 7 miles in a minute: allowing therefore the sun's distance 95000000 English miles, a *bullet* would be near 26 years in its passage at the full speed.

Bullets are of various kinds, viz. *red-hot bullets*, made hot in a forge; intended to set fire to places where combustible matters are found.

BULLETS hollow, shells made cylindrical, with an aperture and a fusee at one end, which giving fire to the inside, when in the ground, bursts, and has the same effects with a mine.

Chain-bullets, consisting of two balls, joined by a chain three or four feet apart.

Branch-bullets, two balls joined by a bar of iron five or six inches apart.

Two-headed bullets, called also *angels*, being two halves of a *bullet* joined by a bar, or chain: these are chiefly used at sea for cutting of cords, cables, sails, &c.

The diameter of a leaden *bullet*, weighing one pound, is 1.69 inches, according to sir Jonas Moor; and the diameter of any other *bullet* is found by dividing 1.69 inches by the cube-root of the number, which expresses how many of them make a pound; or by subtracting the third part of the logarithm of the number of bullets in the pound from the logarithm of 1.69, and the difference will be the logarithm of the diameter required.

Thus may be calculated the following table, shewing the diameters of leaden *bullets*, from 1 to 39 in the pound.

	0	1	2	3	4	5	6	7	8	9
0	0	1.69	1.341	1.172	1.064	0.988	0.930	0.883	0.845	0.812
1	0.784	0.760	0.738	0.719	0.701	0.685	0.671	0.657	0.645	0.633
2	0.623	0.612	0.603	0.594	0.586	0.578	0.570	0.563	0.556	0.550
3	0.544	0.537	0.531	0.527	0.521	0.517	0.512	0.507	0.503	0.498

N. B. The upper horizontal column shews the number of bullets to a pound; the second, their diameters; the third, the diameters of those of 10, 11, 12, &c. and the fourth, those of 20, 21, 22, &c. and the last those of 30, 31, 32, &c.

The government allows eleven *bullets* in the pound for the proof of muskets, and 14.5 in the pound, or 29 in two pounds for service; 17 for the proof of carabines, and 20 for service; and 28 in the pound for proof of pistols, and 34 for service. Cannon-*bullets* or balls are of different diameters and weights, according to the nature of the piece.—See CALIBER.

BULLET, quarter. See QUARTER.

Bullets shot into the water undergo a refraction; several experiments concerning which are given by Mr. Carré.—Vide Mem. Acad. Scienc. ann. 1705. p. 277.

The extraction of *bullets* from wounds is an operation described by chirurgical writers. *Bullets* sometimes remain easy in the body during many years.

Swallowing of musket-*bullets* is sometimes practised to remove iliac and colic pains. Mr. Young gives a case wherein this had a terrible effect: the *bullet* happening to miss its way down, instead of the *œsophagus*, got into the *trachea*. Mr. Chirac has a dissertation on the question, which of the two is safer in ILIAC cases, to swallow leaden *bullets*, or crude mercury? he gives the preference to the *bullets*. Phil. Transf. N^o 263.

BULLET-moulds consist of two concave hemispheres, with a handle whereby to hold them; and between the hemispheres is a hole, called a gate, at which to pour in the melted metal. The chaps or hemispheres of *bullet-moulds* are first punched, being blood-red hot, with a round-ended punch, of the shape and size of the intended *bullets*. To cleanse the insides, they make use of a *bullet-bore*.

BULLET-bore, is a steel shank, having a globe at one end, wherewith to bore the inside of a mould clean, of the size intended.

BULLET-iron, a denomination given by some to Spanish or Swedish bars of IRON.

BULLIMENTA, is used by some *Chemists* for the washings and scourings of gold and silver vessels, in proper liquors, to render them brighter.

BULLIMONY, or **BOLLIMONG**, denotes a mixture of several sorts of grain, as oats, pease, and vetches, called also *majlin*, or *mong-corn*.

BULLION, denotes gold or silver in the mass, or billet.

Silver and gold, whether coined or uncoined (though used for a common measure of other things), are no less a commodity than wine, tobacco, or cloth; and may, in many cases, be exported as much to national advantage as any other commodity.—No nation can ever be considerable in trade that prohibits the exportation of *bullion*. And it is more for the public advantage to export gold or silver coined, than uncoined: since, in the former, we have the advantage of the manufacture.

The word is apparently formed from the French *billon*, a mass of gold or silver below standard, which Du-Cange derives farther from *billa*, as being *aurum aut argentum in massam seu billam*, i. e. *baculum conflatum*.

Silver *bullion* is sometimes also denominated **PLATE**.

By the Scottish laws, the customs in the exportation of goods were to be paid in *bullion*.

BULLION is also used for the place where the king's exchange is kept: or where gold and silver are brought in the lump to be tried or exchanged.

BULLITION is used for the effect arising upon the mixture of different liquors, which often is a quantity of bubbles, or froth.

BULLOCK's eye, in *Architecture*. See EYE.

BULLY-tree, in *Botany*. See STAR-APPLE.

BULTEL, the bran or refuse of meal after dressing.

The word is derived from the barbarous Latin, *bultellus*, or *bultellum*, a *searce*, or *boulter*.

BULTEL also denotes a bag wherein meal is dressed, called also a *bulter*, or rather *boulter*.

BULTER-cloth, a linen or hair-cloth for sifting or searcing of meal or flour.

BULTERS, are strong lines, five hundred feet long, with sixty hooks, eight feet asunder, and baited with pilchards or mackerel, which are used on the coast of Cornwall in the fishery of CONGERS. They are sunk to the ground by a stone fastened to them; and sometimes such a number of these are tied together as to reach a mile.

BULWARK, *Propugnaculum*, in the *Ancient Fortification*, amounts to much the same with **BASTION** in the modern. See also **RAMPART**.

BUM-boat, in *Sea Language*, a small boat used to sell vegetables, &c. to ships lying at a distance from the shore.

BUMBUNNY, in *Botany*, a name given by the people of Guinea to a plant common in that place, which serves them as an emetic; they boil a few of the leaves in water, and drink this liquor, which works very easily. Phil. Transf. N^o 232.

BUMICILLI, a sect of Mahometans in Africa, said to be great forcerers: they fight against the devil, as they say; and frequently run about covered with blood and bruises, in a great fright: they sometimes counterfeit combats with him at noon-day, and in the presence of numbers of people, for the space of two or three hours, with darts, javelins, scimitars, &c. laying desperately about them, till they fall down on the ground oppressed with blows: after resting a moment, they recover their spirits, and walk off.

What their rule is, is not well known; but they are said to be an order of religious.

BUMKIN, or **BOOMKIN**, in *Sea Language*, is a short boom or bar of timber, projecting from each bow of a ship to extend the lower edge of the fore-sail to windward. It is secured by a strong rope, which confines it to the ship's bow.

BUN, the dry stalk of HEMP, stripped of its rind.

BUNCH, a cluster or assemblage of certain things, as of grapes.

BUNCH also denotes a TUMOR, or protuberance, natural or preternatural, either on an animal or a vegetable body.—

The *bunch* growing about the GRAFT of a plant is a sort of callus formed by the extravasated sap.

BUNCH of Camels. See CAMELS.

BUNCH, in *Chirurgery*, denotes an elevation of the back, arising from an exterior luxation of the *vertebræ* thereof.

The cure is begun by keeping emollients a long time on the *vertebræ*, whereby to loosen the ligaments, and finished by wearing an iron boddice, which compressing the *vertebræ*, by degrees drive them back to their natural situation.

BUNCHES in horses, called also *knobs*, *warts*, and *wens*, are diseases arising from foul meat, bruises, hard labour, or the like; whereby the blood becoming putrefied and foul, occasions such excrescences.

BUNCED cods, among *Florists*, are those which stand out and wherein the seed is lodged.

BUNCED roots, those round roots which have knobs or knots in them. See **BUL** and **ROOT**.

B U O

BUNG, the stopple of a CASK, barrel, or the like.

The *bung* is a wooden plug, serving to stop the hole left in the top of a vessel to be filled by. It answers to what, among the ancients, was called *epistomium*, and in the middle age *figillus*, the seal of a vessel, because in those days it was usually sealed.

After tunning new wine, or cyder, the *bung* is usually left open for some time, that when the liquor comes to work, there may be vent for the froth or scum, and that the hoops may not be in danger of being burst by the violence of the fermentation. Yet, in some cases, they leave wines to ferment, without giving them vent by the *bung*, in order to render them more brisk and spirituous: in which case, it is necessary the vessel be hooped with iron, and other precautions taken that the *bung* may not fly.

BUNIAS, in *Botany*, corn, or square-podded rocket, a genus of the *tetradynamia filiquosa* class of plants. Its characters are these: the flower hath four petals, placed in form of a cross, joined at their base, and erect; it hath six stamina, two of which are opposite, and shorter than the other; in the centre is situated an oblong germen, which afterward becomes an irregular short oval pod with four angles, one or other of which is prominent and pointed, inclosing one or two roundish seeds. There are six species. *Bunias*, or *naveu*, is sown in gardens, and flowers in April: the root is used in food, and the seed in physic. These seeds are said to be heating, drying, absterging, aperitive, and digestive: and to be enemies to venery.

BUNIUM. See **PIG-NUT**.

BUNK, or **BUNKEN**, a word frequently occurring in the writings of the Arabian physicians. We do not at this time certainly know what it was; but it was evidently an aromatic root used in cardiac, stomachic, and carminative compositions. See **LEUCACANTHA**.

BUNT of a sail, is the middle part of it purposely formed into a kind of bag or pouch, that it may catch and receive the more wind.

The *bunt* is chiefly used in topsails; for courses are for the most part cut square, or at least with a small allowance for *bunt* or compass.—They say, the *bunt* holds much leeward wind; that is, it hangs too much to leeward.

Seamen all agree, that a bellying or *bunting* sail carries a vessel faster to the windward than a straight or fast sail: the contrary of which is asserted by Dr. Hooke, who has a discourse to shew the preference of straight to *bunting* sails.—Vide Hooke's *Posthum. Works*, p. 563, seq.

BUNT-lines, are small lines made fast to the bottom of the square sails, in the middle part of the bolt rope to a crengle; and so are reeved through a small block, seized to the yard: their use is to trice up the *bunt* of the sail for the better furling it up.—See *Tab. Ship. fig. 1. n. 48. 74. 91. 116.*

BUNTINE, a thin woollen stuff, of which the colours and signals of a ship are usually made.

BUNTING, in *Ornithology*, the common English name of the *EMBERIZA alba*, called by others *calandra*, *cenchrarnus alaudæ* congener, and *strozzello*, or *strollozzo*.

The bill of this bird is singularly constructed; the sides of the upper mandible form a sharp angle, bending towards the lower; and in the roof of the former is a hard knob, adapted to bruise corn or other seeds.

BUONACCORDO, a small stringed musical instrument, resembling a spinnet, used by children to learn to play on, because of the shortness of their fingers.

The word is Italian, and properly denotes a **HARPSICORD**.

BUOY, at sea, a block of wood, or cork, sometimes an empty cask well closed, swimming on the surface of the water, and fastened by a chain or cord, to a large stone, piece of broken cannon, or the like; serving to mark the dangerous places near a coast, or rocks, shoals, wrecks of vessels, anchors, &c.

In lieu of buoys, are sometimes placed pieces of wood in form of masts, in the conspicuous places; sometimes large trees are planted in a particular manner; in number, two at least, to be taken in a right line, the one hiding the other; so that the two may appear to the eye no more than one.

BUOY is also used for a piece of wood, or a barrel at sea, fastened so as to float directly over the anchor; that the men, who go in the boat to weigh the anchor, may certainly know where the anchor lies.

Buoys are of various kinds, differing in their construction and use, and bearing different names. *Cone-buoys*, are those in the form of a cone, floating over dangerous banks and shallow places. *Nun-buoys*, are shaped like the middle frustum of two cones, abutting upon a common base tapering at each end. *Wooden-buoys*, are solid pieces of timber, sometimes in the shape of a cylinder, and sometimes of a *nun-buoy*. *Cable-buoys*, are common casks employed to buoy up the cable from rocky ground.

BUOY-rope, the rope which fastens the *buoy* to the anchor. Its length should be little more than the depth of the water, where the anchor lies; and it should be strong enough to draw up the anchor when the cable is broke.

B U R

Buoy, *slings of*, ropes fastened to the *buoy*, by which it is hung, and spliced round it in a manner resembling the braces of a drum.

Buoy, *to stream the*, is to let it fall from the ship's side into the water; which is always done before they let go the anchor.

BUOYANT, denotes a thing floating, or apt to float.

BUPHAGA, in *Ornithology*, a genus of the order of *picæ*, of which there is one species in Senegal.

BUPHONIA, from *Bæ*, ox, and *phôn*, slaughter, in *Antiquity*, an Athenian feast or ceremony, denominated from a bullock slain therein, with quaint formalities.

The *buphonia* was properly a part or appendage of the ceremony of the **DIIPOLIA**.

For the origin of the *buphonia*, we are told it was forbidden by the laws of Attica to kill an ox; but it once happened at the feast of the *diipolia*, that an ox eat the corn, others fly the cakes, which had been dressed for the sacrifice.—Thaulon, the priest, enraged at this, presently killed him, and fled for it. On which the Athenians, fearing the resentment of the gods, and feigning themselves ignorant who had committed the fact, brought the bloody axe before the judges, where it was solemnly arraigned, tried, found guilty, and condemned, and, in memory of this event, a feast was instituted under the denomination of *buphonia*; in which it was still customary for the priest to fly, and judgment to be given about the slaughter of the ox.

BUPHTHALMUM, from *Bæ*, ox, and *ophthalmos*, eye, in *Bæ*-tany. See **Ox-eye**.

BUPHTHALMUS, in *Botany*, a name given by some of the ancients to the common great house-leek, or **SEDUM majus**, from the manner of its growing in clusters resembling the eyes of large animals.

BUPLEURUM. See **HARE's ear**.

BUPRESTES, a sort of oblong cantharides, of a stinking smell, and very severe bite. It is of the same nature with the common cantharides, or Spanish fly, and is said to do great injury to the cattle, which, feeding, chance to eat it. They form, in the Linnæan system, a genus of insects, different from the **CANTHARIDES**, but belonging to the same order of *coleoptera*, and comprehending several species.

BURACO de velta, in *Ichthyology, the name of a fish caught on the shores of the Brasils, and more usually known among authors by its Brazilian name, **GUAIBI-coara**.*

BURBARUS, in *Ichthyology, a name given by Paul Jovius, and some other writers on fishes, to the common **CARP**.—See **CYPRINUS**.*

BURBER, an Egyptian piece of money. It is a thick piece of copper about as broad as a six-pence; twelve of those make a *medine* there.

BURBOT, the English name of the *musfela fluviatilis*; a fish common in the Trent, and many other of our rivers, and called in other places the eel-pout; the *gadus lota* of Linnæus. See *Phil. Trans.* vol. lxiii. part ii. N^o 18.

BURCA, among the Turks, the name of the rich covering of the door of the house at Mecca; it is ten feet long, and five wide; and there are several figures and Arabic letters on it, very richly embroidered in gold, on a ground of red and green. This is carried about in their solemn procession, and is often made to stop, that the people may touch it.

BURDA, in some *Middle Age Writers*, denotes a garment made of rushes.

BURDACK, an Egyptian vessel, which sheep usually drink out of at Cairo. They are made of a peculiar sort of earth, which is supposed to cool the water, and are always set out to the north, to keep the cooler, and covered with a strainer, to prevent any thing falling into the water; they are of so porous a structure, that the water put into them will get through them in a few days.

BURDEN, properly signifies a heavy weight or load.

Ringelberg recommends the bearing of *burdens* as the best sort of exercise, especially to strengthen men of study.—To this end he had a gown lined with plates of lead, which he could just lift with both his hands. This load he bore six or seven days together, either increasing or diminishing it as he found occasion; by which means he could both write and exercise at the same time.

BURDEN also denotes a fixed quantity of certain commodities. A *burden* of gad-steel is 120 pounds.

BURDEN of a ship, is its content, or the number of tons it will carry.

The usual rule whereby a ship's *burden* is estimated, is, that it will commodiously bear a weight equal to that of half the water which would fill its capacity. But this rule is not demonstrative, and some depart from it as unexact, allowing only two-fifths, or even one-third of the water for the ship's *burden*.

To determine the *burden* of a ship, multiply the length of the keel, taken within board, by the breadth of the ship, within board, taken from the midship-beam from plank to plank, and the product by the depth of the hold, taken from the plank below the keelson to the under part

part of the upper deck plank; and divide the last product by 94, and the quotient is the content of the tonnage required. See FREIGHT.

BURDEN, *ships of*, denote those of a larger and heavier sort, carrying 500 tons, or upwards.

BURDEN, or rather **BURDON**, in *Music*, denotes the drone or deepest sound of an organ; being that produced by the thickest pipe.

The word is French, *bourdon*; formed, according to some from the Low Saxon *burden*, *crepitum emittere*, to break wind backwards. Others will have *bourdon* originally to signify *buz*, or *hum*, as that of bees; answering to the Latin *bombus*; and formed by *onomatopœia*.

The modern *bourdon* answers to the note which the Greeks called *πρωταυλαονενδ*.

BURDEN also denotes the pipe or string itself, by which such sound is given.

Matth. Paris will have the name *burden* to have been originally given this pipe; on account of its resemblance to a pilgrim's staff, anciently called also *burdo*.

BURDO, in *Physiology*, a mongrel beast of burden, produced by a horse and she-ass, by which it is distinguished from the **MULE**, which is that produced of a male ass by a mare.

The liver and testicles of the *burdo* are greatly recommended by Aldrovand, and some other authors, as medicines, but now never used.

BURDO or **BURDON**, in *Middle Age Writers*, denotes a pilgrim's long staff, as doing the office on that occasion of a **MULE**, or other vehicle.

BURDOCK, *Arctium*, in *Botany*, a genus of the *syngenesia polygamia equalis* class of plants. Its characters are these: the flower is composed of many florets, which are tubulous and uniform, and cut into five narrow segments at the top; the germen is situated at the bottom of the tube, which afterwards becomes a single pyramidal angular seed, crowned with down. There are three species; the two first of which are common weeds, growing on the sides of roads and foot paths in most parts of England; so are not admitted into gardens. The first is ordered for medicinal use by the college of physicians.

As these plants are seldom cultivated, it is needless to give any instructions for that purpose: but where they are troublesome weeds, it may not be amiss to mention that their roots last but two years; they may therefore be destroyed with much less trouble than such as have abiding roots; for the plants which come up from seed do not flower until the second year, and when their seeds are perfected their roots decay.

The root of the common *burdock* is a very powerful diuretic and diaphoretic. It is given with great success, in decoction, in obstructions of the spleen, and in dropsies. It is also recommended by some in all diseases of the breast and lungs, in asthma, in the stone, and in the sciatica. The seed of it is esteemed by many to be one of the greatest lithontriptics known; and, by the instances that have been produced of its doing service in nephritic complaints, it seems to merit a fair trial. The fresh leaves are by some recommended as a dressing for old ulcers, and for burns and luxations. They are also applied by the good women to the soles of the feet, as a remedy in hysteric complaints.

The section of a *burdock* root, viewed with a microscope, has the appearance represented in *Tab. of Microscopical Objects*, Class 2.

BURDOCK, *lesser*, *Xanthium*, in *Botany*, a genus of the *monœcia pentandria* class. Its characters are these: it hath male and female flowers on the same plant; the male flowers have a common scaly empalement; they are composed of several tubulous, funnel-shaped, florets, which are equal, and disposed in a hemisphere, cut into five segments at the top, and have each five very small stamina, terminated by erect parallel summits; the female flowers are situated under the male by pairs; they have no petals or stamina, but are succeeded by oblong oval prickly fruit, having two cells, each including one oblong seed, convex on one side, and plain on the other. There are four species.

The roots of this plant are of a bitter and acrid taste, and are recommended as of great service in scrophulous cases, taken in decoction. Matthioli gives great praise to the roots dried and powdered, and given in mixture with rhubarb for the leprosy; but they are now rarely used.

BURDONARI, an appellation sometimes given to pilgrims, or those who went out of devotion to the Holy Land.

The word is formed from **BURDO**, an appellation given to the staff wherewith they travelled.

BURDUNCULUS, in *Botany*, a name given by some to the plant known among most of the botanical writers by the name of *buglossum echinoides capitulis cardui benedicti*.

BURFORD saddle. See **SADDLE**.

BURGAGE, a tenure proper to boroughs and towns, whereby the inhabitants held their lands and tenements

of the king, or other lord, at a certain yearly rate. See **BOROUGH English**.

BURGAGE is sometimes used to denote the rent, or quit-rent paid to the chief lord for the houses and tenements in a town or borough.

BURGAGE also obtains in the laws of Normandy: some imagine, that it had its first rise here, and was brought into England by William the Conqueror; others are of opinion, that Rollo, when driven out of England, carried it thence into Normandy.

BURGAGE, *free*, *Burgagium liberum*, denotes a tenure, whereby the tenants, after having paid their rent to the superior lord, were exempted from the service.

BURGAU, in *Natural History*, the name of a large species of sea snail, of the lunar or round-mouthed kind. It is very beautifully lined with a coat, of the nature of the mother of pearl; and the artificers take this out, to use under the name of mother of pearl, though some call it after the name of the shell they take it from, *burgaudine*.

BURGAUDINE, the name given by the French artificers, to what we call mother of pearl. In their works, they do not use the common nacre-shell for this, but the lining of the American bergau. Hence some call the mother of pearl *burgaudine*, and others the *burgaudine* mother of pearl.

BURGEON, in *Gardening*, a knot or button put forth by the branch of a tree in the spring.

The word is formed from the French *burgeon*, which signifies the same, formed from the Latin *burrio*, of *burra*. *Burgeon* amounts to the same with what is otherwise called *eye*, *bud*, or *germ*.

Frosts are chiefly dangerous when the *burgeons* begin to appear.

The *burgeons* have the same skin, same pith, same ligneous body, and the same insertions as the stalk; that is, all the parts are the same in both, only more contracted in the former.

BURGESS, an inhabitant of a borough or a walled town, or one who possesses a tenement therein.

In other countries, *burgess*, and citizen are confounded together; but with us they are distinguished. See **BOROUGH**.

The word is also applied to the magistrates of some towns; as the bailiff and *burgesses* of Leominster.

Anciently, *burgesses* were held in great contempt, being reputed servile, base, and unfit for war; so that the gentry were not allowed to intermarry in their families, or fight with them; but, in lieu thereof, were to appoint champions. A *burgess's* son was reputed of age when he could distinctly count money, measure cloth, &c. Spelm. Gloss. Glanvil. lib. vii. cap. 9.

BURGESS, *king's*, *Burgensis regis*, was he who, though residing in another's jurisdiction, was exempt therefrom, and only subject to the jurisdiction of the king, unless the lord also enjoyed royal jurisdiction.

In statute 5 Rich. II. c. 4 where the several classes of persons in the commonwealth are enumerated, we meet with count, baron, banneret, *chevalier de countee*, *citizen de citie*, and *burgess de bourg*.

BURGESS is now ordinarily used for the representative of a borough town in parliament.

Burgesses are supposed to represent the mercantile part or trading interest of the nation. They were formerly allowed, by a rate established in the reign of Edw. III. two shillings a day as wages. It is much to be regretted, that the members for boroughs bear above a quadruple proportion to those for counties. The right of election of *burgesses* depends on several local charters and customs, though, by 2 Geo. II. c. 24. the right, for the future, shall be allowed according to the last determination of the house of commons concerning it: and by 3 Geo. III. c. 15. no freeman, except such as claim by birth, servitude, or marriage, shall be entitled to vote, unless he hath been admitted to his freedom twelve months before. No person is eligible as a *burgess*, who hath not a clear estate of 300l. a year. Stat. 9 Ann. c. 7. See **PARLIAMENT**.

BURGGRABE, properly denotes the hereditary governor of a castle, or fortified town, chiefly in Germany.

The word is compounded of *bourg*, town, and *graf*, or *grave*, count.

The *burggraves* were originally the same with what we otherwise call *castellans*, or *comites castellani*; but their dignity was considerably advanced under Rudolph of Hapsburg; before this time they were ranked only as counts, and below the princes, but under him began to be esteemed on a footing with princes.

In some parts the dignity is much degenerated, especially in the Palatinate. There were formerly, according to Leti, fifteen families who enjoyed the title of *burggraves*, thirteen of which are now extinct. But this is differently represented by others.

In Bohemia, the title *burggrave* is given to the chief officer,

officer, or to him that commands in quality of viceroy. In Prussia, the *burggrave* is one of the four chief officers of the province.

In Guelderland, the *burggrave* of Nimeguen is president of the states of the province.

BURGH, the same with BOROUGH.

BURGH-bote, is chiefly used for an aid or contribution levied for the repairing a town or castle.

By the law of king Athelstan, the castles and walls of towns were to be repaired, and *burg-bote* levied every year, within a fortnight after Rogation days. No person whatever was exempt from this service; the king himself could not release a man from *burg-bote*: yet, in after-times, exemptions appear to have been frequently granted: inasmuch that, according to Cowel, the word *burgh-bote* came to be chiefly used to denote, not the service, but the liberty or exemption from it.

BURGH-breche, or *breck*, a fine imposed on the community of a town, or *burgh*, for the breach of peace among them.

BURGH-mails, were yearly payments to the crown of Scotland, introduced by Malcolm III. and resembling the *fee farm* rents of *burghs* in England. See MAIL.

BURGH-master, an officer in the TIN mines, who directs and lays out the meers for the workmen, &c. otherwise denominated a *bailiff* and BAR-MASTER.

BURGHMASTER, BOURGERMASTER, or BURG-MESTERS, chief magistrates in the cities of Germany, Holland, and Flanders; to whom belong the giving of orders for the government, administration of justice, policy, and finances of the place: though the authority and office are not every where alike; each city having its particular laws and statutes.

The word is formed from the two Flemish words, *borger*, *burgess*, or *citizen*; and *mesler*, *master*. Some express it in Latin by *consul*, others by *senator*.—M. Bruneau observes, that *burghmaster*, in Holland, answers to what is called *alderman* and *sheriff* in England; *attorney* at Compeigne, *capitoul* at Tholouse, *consul* at Languedoc, &c.

BURGLARY, an unlawful entering into another man's dwelling, wherein some person is, or into a church in the night-time; in order to commit some felony, or to kill some person, or to steal something thence, or do some other felonious act: whether the same be executed or not. The like offence by day we call *house-breaking*, &c.

It is felony at common law, but within benefit of clergy; however, this is taken away from the principals by 18 Eliz. c. 7. and from all accessories before the fact, by 3 and 4 W. and M. c. 9.

BURGMOTE, a borough-court; or court held for a town or borough. See COURT, and MOTE.

The word is also written *burgemotus*, *burgimotus*, *burg-motus*, and *burgemote*, from *burgh*, *oppidum*, and *mote*, or *gemote*, *conventus*.

The *burgmote*, by the laws of king Edgar, was to be held thrice in the year: by those of Henry I. twelve times.

BURGOMASTER of Greenland, in Ornithology, a whimsical name given by the Dutch sailors to a species of *larus* or sea-gull, common on that and many other coasts. It is known among authors by the name of MARTINAZZO.

BURGOO, or BURGOUT, a sea-faring dish, made of whole oatmeal, or greets, boiled in water, till they burst; then mixed with butter. It is made in Scotland and in Wales, by mixing oatmeal and water, and boiling it into a moderate consistence. It is a cheap and strengthening diet.

Burgoo, otherwise called *loblolly*, is held by Cockburn very proper to correct that thickness of humours and consistence to which the other diet of sailors much disposes them. Yet the *burgoo* victualling is the least liked of all their provisions, because of the scanty allowance of butter to it. The same author thinks it might be worth the consideration of those to whom the care of the seamen is committed, to contrive to render this food more agreeable to them.

BURGWARD, *Burgwardus*, or *Burgwardium*, in Middle Age Writers, the same with BULWARK.

The name is also extended to the town, and even the country about such a fortress. It is formed from the Teutonic *burg*, *town*, and *ward*, *custody*, *keeping*.

BURIAL, the act of interring a dead body, and depositing it in the ground.

Burial and baptism are parochial rights, and belong not to chapels of ease, unless by usurpation.

Westminster abbey is the *burial* place of most of our English kings.

The desire of *burial* has been strong in most ages, and the denial of it reputed the last and severest of punishments: yet the Cynics appear to have despised it; and Pliny ranks the concern for it in the number of weaknesses peculiar to man. Pott. Arch. Græc. tom. ii. lib. iv. cap. i. Plin. Hist. Nat. lib. vii. Cic. Tusc. Quæst.

Burial is an office or a debt of humanity. Some found this obligation on the law of nature, others on the law of

nations, and others on the divine law. It is certain it is warranted by them all. One of the seven corporal works of mercy, recited by ancient divines, is *burying* the dead. The primitive Christians ventured on it at the hazard of their lives; they never scrupled it, either in times of persecution, or of the plague, when the greatest dangers attended it. They were always tenacious of the plain way of *burying* by inhumation, and could never be brought to use any other; reckoning it a great piece of barbarity in their persecutors whenever they denied them this decent interment after death, as they sometimes did, either by exposing their bodies to the fury of wild beasts and birds of prey, or burning them in scorn and derision of their doctrine of the future resurrection. They seem to have had a particular aversion to burning; their method was to put the body whole into the ground, or, if there was occasion for any other way of *burying*, they embalmed the body, and laid it in a CATACOMB.

The heathens believed, that the souls of those, who lay unburied, remained in a wandering state during the space of a hundred years.

The invention of *burial* among the Greeks is ascribed to Pluto, who, on this account, was deified, and made to preside over the world of shades. The Rabbins pretend, that the first hint was taken from birds: Adam and Eve, say they, being utterly at a loss what to do with the body of Abel killed by his brother, were relieved under this perplexity, by observing a crow to throw earth and leaves over the body of one of his dead companions. This was enough for the patriarch: he went presently, and did the same to his son. The Egyptians carried their dead for *burial* over a certain lake; for the passage of which one Charon, a farmer under one of the Pharaohs, procured a toll to be imposed, by which he was speedily enriched. Whence the whole tradition of the ferryman of hell. Cicero refers the origin of the vulgar opinion concerning hell to the ancient manner of *burying* the dead by interment: for from hence the earth was considered as the last habitation of mankind, who were here supposed to lead a new life under ground. Diod. Sic. lib. v. cap. 15. Fab. Cod. Pseud. Vet. Test. tom. i. § 38. Hist. Acad. Inscript. tom. ii. p. x. p. 38.

Among the Greeks, drowning was no *burial*; for which reason it was a custom to fasten to some part of their bodies a reward for him that should take them up, and *bury* them in case they were cast ashore. Among us, however, those who die at sea are usually *buried* there, unless they be near land; the ceremony is *short*; the corpse being sewed up in its hammock, or quilt, is thrown over from the star-board, under the discharge of a gun. It is a great disgrace to be thrown over the larboard.

The Arwaces, a people of Guiana, pulverise the bones of their great men and drink them in their liquor.

Some nations among the Brasilians are said to eat their dead, not out of hunger, much less despight, but affection and reverence.

At the same time that the Romans used to burn the bodies of their dead, the custom was to avoid expence, to throw those of the slaves to rot in holes dug perpendicularly, called *puticuli*. Phil. Trans. N^o 265.

They who thought human bodies were compounded of earth, inclined to have them committed to the earth: Heraclitus and his followers, imagining fire the first principle of all things, preferred burning.

The ancients *buried* by day, as deeming the night of ill omen, on account of the evil spirits then abroad: only persons who died in the flower of their days, were *buried* in the morning before sun-rise.

Among the Romans, we find two kinds of *burial*, mentioned in the Theodosian code; one the *burying* of whole bodies in coffins under ground; the other, *burying* the bones and ashes in urns above ground. Both appear to have been used at the same time; though interring appears to be the older practice.

Mr. Monro takes the catacombs about Rome to have been the *burial*-place of the ancient Romans, before burning came into fashion: and which, on the new mode's taking place, fell into disuse, till they were revived by the primitive Christians. See CATACOMB, and Phil. Trans. N^o 265.

The Romans in Britain *buried* their warriors near the *via strata*, or military way, to put their bodies out of danger of insult; and, to prevent the scattering of their ashes in haste, the whole army cast on them grassy turfs: which is the origin of many of the *tumuli* still found among us. As it was the greatest dishonour to lie unburied, it was most glorious to be covered with a large *tumulus*: which might be one reason of the Romans *burying* their generals near public ways, that passengers might be continually adding to the heap, which it was judged a work of piety to do.

The ancient Saxons laid the bodies of those that were slain in the field on the surface of the ground, and co-

vered them with clods of earth; which were raised in proportion to their dignity. See BARROW.

Though burning was the ordinary usage among the Romans, yet some still retained the ancient one of *burying*. The family of the Corneli constantly interred their dead till the time of Sylla the dictator, who, in his will, gave particular order to have his body burnt, probably to avoid the indignities which might have been offered it after *burial*, by the Marian faction; in return for the violence shewn by Sylla's soldiers to the tomb and relics of Marius. *Burial* was denied by the ancients to traitors, proscribed persons, suicides, and even frequently to enemies killed in war; though this was reputed by the more moral and civilized nations, a violation of the laws of nature. Among the Greeks, spendthrifts and insolvent debtors were also refused the rights of *burial*. By the laws of the church this penalty has been carried farther, to persons unbaptized and excommunicated, to those who could not say their creed and pater-noster, to strikers of ecclesiastics, and to those who should omit communicating at Easter. But the prohibition of *burial* is now restricted to persons excommunicate, unbaptized, and that have laid violent hands on themselves, ideots, lunatics, and, in some persons excepted, to heretics, to persons killed in duels, tilts, or tournaments. Potter Arch. Græc. lib. iv. cap. 1. Grot. de Jure Belli, lib. ii. cap. 19. § 2, 3. Seld. de Leg. Nat. lib. vi. cap. 16. Johnf. Eccl. Law. Ann. 960. § 22. Ann. 1138. § 10. Ann. 1378. § 4.

Among the ancient Egyptians, kings themselves were to undergo a trial after their death; and, if their behaviour had been ill, were refused the privilege of Charon's boat, that is, to be carried to *burial*.

The Danes, and northern nations, in their second age, *buried* their dead under earthen hillocks. Sometimes huge pyramids of stone were raised over their bodies, many of which are still remaining in divers parts of England.

In Japan, Peru, Pegu, Mexico, Tartary, Siam, and the Great Mogul's dominions, they burn their dead. For the great ones, the fires are made with aromatic woods, gums, balsams, and oils. The like method obtained among the Jews as early as Saul's time, whose body was burnt at Jabeih, and his bones afterwards *buried*. Afa was burnt in the bed which he had made for himself, filled with sweet odours, and divers kinds of spices. The ancients buried out of cities and towns; an usage which we find equally among Jews, Greeks, and Romans. Among the last, *burying* within the walls was expressly prohibited by a law of the Twelve Tables: *Hominem mortuum in urbe ne sepelito, neve urito*. The usual places of interment were in the suburbs and fields, but especially by the way-sides: partly, says Kennet, to put passengers in mind of their mortality, and partly also to save the best of their land.

Two reasons are alledged, why the ancients buried out of cities; the first, an opinion, that the touch, sight, or even neighbourhood of a corpse, defiled a man, especially a priest: whence the rule in A. Gellius, that the *flamen dialis* might not, on any account, enter a place where there was a grave: the second to prevent the air from being corrupted by the stench of putrefied bodies; and the buildings from being endangered by the frequency of funeral fires. We have instances, however, of persons *buried* in the city. But it was a favour only allowed to a few of singular merit to the commonwealth. Plutarch says, those who had triumphed were indulged in it. Be this as it will, Val. Publicola, and C. Fabricius, are said to have had tombs in the Forum; and Cicero adds Tubertus to the number.

Lycurgus allowed his Lacedæmonians to *bury* their dead within the city, and around their temples that the youth, being inured to such spectacles, might be the less terrified with the apprehension of death.

Burying in churches was allowed for the first three hundred years after Christ; but it was severely prohibited by the Christian emperors for many ages after. The first step towards it appears to have been the practice of erecting churches over the graves of some martyrs in the country, and translating the relics of others into churches in the city: the next was, allowing kings and emperors to be buried in the atrium or church-porch. The reason alledged by Gregory the Great for *burying* in churches, or in places adjoining to them, was, that their relations and friends, remembering those whose sepulchres they beheld, might hereby be led to offer up prayers for them. And this reason was afterwards transferred into the body of the canon law. To this superstition, and the profit arising from it, we may ascribe the original of church-yards. In the eighth century, the people began to be admitted into the church-yards, and some princes, founders, and bishops, into the church. The practice first introduced into the Romish church by Gregory the

Great, was brought over into England by Cuthbert archbishop of Canterbury, about the year 750: and the practice of erecting vaults in chancels, and under the altars, was begun by Lanfranc archbishop of Canterbury, when he had rebuilt the church in this city, about the year 1075. From that time, the matter seems to have been left to the discretion of the bishop. By our common law, no person can be *buried* within the church, without consent of the incumbent, exclusively of the bishop; because the freehold of the church belongs to him, and he is deemed the best judge who are entitled to the favour of being *buried* in the church.

Burying in any shroud, &c. that is not made of sheep's wool only, is by the English law, 30 Car. II. stat. 1. c. 3. subject to a penalty of 5*l*. and an affidavit shall be made to this purpose, either to a magistrate, or the officiating minister. See CEMETERY, FUNERAL, &c.

Burying alive was the punishment of a VESTAL who had violated her vow of virginity. The unhappy priestesses was let down into a deep pit, with bread, water, milk, oil, a lamp burning, and a bed to lie on: but this provision was but show, for the moment she was at the bottom, they began to cast in the earth upon her, till the pit was filled up. Mem. Acad. Inscr. tom. iii. p. 278. Lord Bacon gives instances of the resurrection of persons who had been accidentally *buried* alive.

BURIAL, *Christian*, is often used to denote that which is performed in holy ground, and with the usual service or ceremonies of the church.

BURIAL is also used to denote the dues paid for interment, especially to the minister.

The *burial* fee paid to the priest on opening the grave, was called by our Saxon ancestors *soul-scot*. Phil. Trans. N° 189.

BURIAL of an *afs*, *afini sepultura*, an ignominious kind of *burial* out of holy ground, under the gallows, or in a highway, where several roads meet, and performed by public hangmen, or the like. Such is that of suicides, excommunicated persons, &c. sometimes denominated CANINE *burial*, or *burial* of a dog.

In the middle age we also find mention of a peculiar kind of *burial*, called IMBLOCATION, practised on the bodies of persons excommunicated. Du-Cange.

BURIAL of the *crucifix*, *Sepultura a crucifixi*, denoted a representation of the *burial* of Christ, anciently performed annually in churches on the day of the Parasceue. Du-Cange.

BURIALS, in computations of mortality, denote deaths, and stand opposed to births.

In this sense, we have estimates of the *burials* in Brandenburg, in Francfort, Breslaw, &c. Phil. Trans. N° 261, 229. and 176.

By a statute under king Charles II. a register is to be kept in every parish, of all persons *buried* within the same, or at the common *burial*-places thereof. Stat 33 Car. II. c. 3. See MORTALITY.

BURIAL is also used for the inclosing of vegetable or mineral bodies in the ground, for divers purposes. Lord Bacon gives divers experiments of *burying* fruits, &c. for preservation and condensation, and to give nourishment to their respective trees. Works, tom. iii. p. 80.

Some commend *burials* in the earth, others in wheat, to season TIMBER when first felled, and make it of more durable use. Chemists sometimes *bury* their cements. The Chinese are said to *bury* their porcelain, to give it the greater beauty.

BURIS, a name given by Avicenna, and some other old authors, to a scirrhus hernia, caused by a hard abscess.

BURLAW, or BYRLAW, *burlawa*, in *Middle Age Writers*, denotes country laws, or the laws concerning country affairs. Du-Cange.

BURLESQUE, a jocose kind of poetry, chiefly used in the way of drollery, either to excite laughter merely, or to provoke derision and ridicule.

F. Vavassor maintains, in his book *De Ludicra Dictione*, that *burlesque* was absolutely unknown to the ancients; against the opinion of some others, that one Raintovius, in the time of Ptolemy Lagus, turned the serious subjects of tragedy into ridicule; which, perhaps, is a better plea for the antiquity of farce than of *burlesque*.

The Italians seem to have the justest claim to the invention of *burlesque*. The first author in this kind was Bernia; he was followed by Lalli, Caporalli, &c. From Italy it passed into France, and became there so much the mode, that in 1649 appeared a book under the title of "The Passion of our Saviour in Burlesque Verse." Thence it came into England; but the good sense of the English never adopted, or owned it, notwithstanding one or two have excelled in it.

BURLING of cloth. See CLOTH.

BURMANNIA, in *Botany*, a genus of the *hexandria monoginia* class of plants. The flower is small, and consists of three minute, ovated, oblong petals, situated at the mouth of the cup: the fruit is an involuted capsule, of a

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cylindraceo-trigonal figure, formed of three valves, with three cells, containing many small seeds. There are two species.

BURN, in a medicinal sense, denotes a solution of the continuity of a part of the body by the force of fire.

Of *burns*, physicians usually make several degrees: the first when there are only a few pustules raised on the skin, with a redness, and a separation of the *epidermis* from the genuine skin. The second, when the skin is burnt, dried, and shrunk, but without any crust, or scab. The third is, when the flesh, veins, nerves, &c. are shrunk and form a scab.

Lusitanus recommends an ungent, made of the ashes of laurel leaves burnt, with hog's fat dropped on them, for a *burn*; or, on occasion, the *unguentum populeum*, with vine-leaves laid over it. Panarole observes, that clay laid on a *burn* abates the pain; and that the brewers in Holland use a decoction of ivy for the cure of *burns*.

Burns are likewise divided into dry and humid, from the causes that produce them.

BURNS, *dry*, are those occasioned by the application of naked fire, or ignited body, as coals, flame, red-hot metals, gunpowder, lightning, and the like, which are attended with a corrugation or a shriveling of the part.

BURNS, *humid*, more usually among us called *scalds*, are those occasioned by fluid substances, as hot water, oil, wax, or the like.

Dry *burns* are of a worse kind than moist ones. Of the dry, the worst and most penetrating of all is that of lightning; the next are those caused by melted metals and gunpowder; the next by fats and oily substances; the slightest of all *burns* is that by hot water.

As *burns* nearly resemble inflammatory disorders in their several degrees; so they also do in their method of cure. In the slightest degree of *burns*, the best method is to have recourse to emollients and astringents. The best slight astringent is either common proof spirit, or rectified spirit of wine, or, when it is necessary, spirit of wine camphorated: these may be applied to the part with linen rags, as may also oxycrate, or the pickle of cabbages, or litharge vinegar; and these applications must be repeated as there is occasion. Oil of turpentine has also very good effects if applied in time, and repeated frequently. And the vulgar method of holding the injured part, when that is the hand or finger, to the fire, as long and as near as can be borne, is often attended with success; for the stagnating fluids are, by this degree of heat, driven back into their proper channels, and, by that means, the vesication, and other troublesome symptoms, which naturally succeed, are often prevented. Another remedy, however, there is, very efficacious on the same occasions, though founded on a contrary intention: this is by emollient remedies, which remove the tension of the fibres or vessels, and restore the blood to its natural course before any bad symptoms come on, as the injured part may be fomented with water, made as warm as the patient can bear, till all the pain and heat entirely disappear. Sydenham very highly, and with great reason, extols this method. It is easy, however, to add to the efficacy of it, by giving the virtues of a fomentation to the water before it is used, by boiling in it marshmallows, mallows, mullein, linseed, fenugreek-seed, or quince-seed. Cataplasms made of the same ingredients are also of great service, as are also the emollient oils of linseed, and the like. Whatever remedies are used in this case, should be very frequently repeated; and when it is the face that is burnt, they should be spread on a linen mask, to be kept constantly moist by the application of the same remedy.

When the *burn* is something greater than this, and attended with vesication, or pustules, the pustules are by no means to be opened, which always brings on great pain; some of the remedies before mentioned will always prove of more service, applied while the blisters are whole; and, by the use of them, the heat and pain will quickly go off, and the cuticle will separate from the cutis, without either deformity or pain. But if these remedies do not abate the pain, the part is to be dressed with linseed oil, or the litharge ointment, or the *unguentum diopompholigos*, or something of a like kind. These are to be applied either by rubbing them frequently on the parts, or spreading them on a linen rag, and applying that, and often renewing it. After these, a plaster of the *emplastrum de minio*, or any of a like kind, will keep the skin smooth, and forward the renovation of the cuticle. If the *burn* or scald, whichever it be, be very considerable in extent, and great part of the body be burnt, it is necessary to bleed plentifully, even till the patient faints, and to give a brisk purge. This method will often prevent ill consequences, that too frequently else attend large *burns*: such as foul ulcers, large cicatrices, and sometimes even gangrenes. When infants are the subjects of these accidents, bleeding being not

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so convenient, the revulsion is to be made by repeated purges; and in grown persons, a regularity of diet is above all things to be observed.

In the yet greater degree of *burns*, where the burnt part is covered by a crust or eschar, the cure cannot be performed without suppuration. When this accident happens to the face, great caution is necessary, to avoid making a deformed cicatrix: for this reason, all ointments and plasters whatever are to be forbidden, even though they are the most valuable secrets, as there are in almost all families many such; for the mischief of these remedies is, that they all dry up the wound too fast, and contract the fibres and the skin, and by such means leave an uneven cicatrix. The forwarding the casting off the eschar, is by all means to be attempted, and the discharge of the matter that is contained under it. The easiest and most successful method of doing this, is by the repeated application of emollients. Three or four times every day the dressings are to be changed; and if at any of these times, any part of the eschar is found to be loose, it must be raised by the *forceps*, and removed, if that conveniently may be; at the same time, the rest of the eschar must be anointed with butter, and warm fomentations, made of emollient herbs, &c. applied. Two, three, or four days employed in this manner, generally afford a separation of all the crust or eschar; and the next intention is then to heal the wound. It is first, therefore, to be thoroughly cleansed, by means of some mild digestive mixed with honey of roses, and afterwards healed up with any of the lead or litharge ointments. If the eschar in these cases should not separate in proper time, it will be necessary to make a deep incision through the middle of it, to let out the included sanies. *Burns* of the most extreme and worst kind, where the *burn* has penetrated so deep as to destroy all the parts quite down to the bone, can have no relief from medicines; nor is there any thing in the surgeon's power, but amputating the limb. Heister.

Burns, however, are not only diseases, but in some cases remedies; M. Homberg observes, that in the isle of Java the natives cure themselves of a colic, otherwise mortal, by burning the soles of their feet; and cure themselves of a *panaris*, by dipping their finger in boiling water several times. In the country of the Mogul, the colic is cured by an iron-ring applied red-hot about the patient's navel.

Travellers relate many other cases of other diseases cured by *burning*; and we see the effects of it ourselves, in horses, hounds, birds of prey, &c.

A kind of downy matter, called *moxa*, brought from the Indies, has been likewise used for the gout; applied, by *burning* it on the part affected. Many of the Japanese are covered with scars, arising from the use of the *moxa*. And among these people the whole art of physic consists in the choice of proper places to be burnt; which are varied according to the nature of the disease. *Burning* has been particularly recommended in the gout, as a severe but adequate cure of that stubborn disease.

M. Homberg gives us instances of two women cured, the one of a violent disease in the head and eyes, and the other of a disease in the legs and thighs, by the accidental *burning* of those parts. He adds, that *burning* may cure in three ways; either by putting the peccant humours into a greater motion, and making them take new routes; or by dissolving and breaking their viscosity; or by destroying the canals which brought them in too great quantities.

Burning pyramidal pieces of tow or cotton on the joints, is an ancient practice revived in Europe, chiefly by Fab. ab Aquapendente, and Severinus, against pains of the joints arising from cold and viscous humours impacted in them. The operation is also spoken of by Hippocrates and Celsus; the former of whom recommends the use of raw flax. Severinus calls it the Arabian *burning*, because most frequently used among that people, though common enough also among the Egyptians. Hippocr. App. ult. lib. vi. & de Affat. Text. 30 & 32. Cels. lib. iv. cap. 22. Alpin. de Med. Egypt. lib. iii.

BURN, *heart*. See HEART.

BURNET, **BURNETA**, or **BURNETUS**, in *Middle Age Writers*, denotes brown cloth made of dyed wool.

In which sense, the word stands contradistinguished from *brunus*, which was applied to the wool undyed.

BURNET, in *Botany*. See POTERIUM, and SANGUISORBA.

BURNET *saxifrage*. See Burnet SAXIFRAGE.

BURNING, the action of fire on some pabulum, or fuel, whereby the minute parts thereof are torn from each other and put into a violent motion; and some of them assuming the nature of fire themselves, fly off *in orbem*, while the rest are dissipated in form of vapour, or reduced to ashes.

The appearances of *burning* arise successively, and in a certain order: a heat must precede greater than what suffices to boil oil; the lightest and most volatile parts of the

the body burn the first; the heavier are slower in taking fire, but burn the longest.

Burning is a separation of the parts of bodies made by means of fire. Some consider it as a species of solution, and suppose it effected by a dissolvent power inherent in fire, which acts as a menstruum in respect of the sulphureous parts of bodies.

Dr. Hooke, considering the necessity of air to *burning*, and that heat, however great, does not alone suffice to burn a body, does indeed take *burning* for a solution of the sulphureous parts of bodies; but supposes the menstruum, by which it is done, to be the air, or at least some subtle, saline, nitrous substance diffused in the air. See AIR, CALCINATION, CALX, FIRE, and PHLOGISTON.

BURNING is also applied to the action of divers things which are cold to the touch, or do not contain fire.

In this sense *aqua fortis* is said to burn cloth. There are certain fogs which burn or scorch the corn. Virgil observes that severe cold itself will *burn*, that is, have much the same effects on the parts of the body as fire itself, in causing gangrenes.

BURNING, *extraordinary cases of*.—We have instances of persons burnt by fire kindled within their own bodies. A woman at Paris, who used to drink brandy in excess, was one night reduced to ashes by a fire from within, all but her head and the ends of her fingers. Novum Lumen Phosphor. accens. Amst. 1717.

Signora Corn. Zangari, or, as others call her, Corn. Bandi, an aged lady, of unblemished life, near Cesena in Romagna, underwent the same fate in March, 1731. She had retired in the evening into her chamber, somewhat indisposed, and in the morning was found in the middle of the room, reduced to ashes, all except her face, skull, three fingers, and legs, which remained entire, with the shoes and stockings on. The ashes were light, and, on pressing between the fingers, vanished, leaving a gross stinking moisture behind, with which the floor was smeared; the walls, and furniture of the room, being covered with a moist cineritious foot, which had not only stained the linen in the chests, but had penetrated into the closet, as well as into the room over-head, the walls of which were moistened with the same viscous humour. Mem. de Trev. an. 1731. p. 1293.

Sig. Mondini, Bianchini, and Maffei, have written discourses express, to account for the cause of so extraordinary an event: common fire it could not be, since this would likewise have burnt the bed and the room; besides that it would have required many hours, and a large quantity of fuel, to reduce a human body to ashes; and, after all, a considerable part of the bones would have been left entire, as they were anciently found after the fiercest funeral fires. Sign. Mondini attributes this effect to lightning. A philosopher of Verona maintains, that such a conflagration might have arisen from the inflammable matters wherewith the human body naturally abounds. Sig. Bianchini accounts for it from an internal fire, occasioned by spirit of wine camphorated, which the lady used by way of bath or lotion, when she found herself out of order. Maffei's system is a combination of the three last: he supposes it owing to lightning, but lightning generated in her own body; agreeable to his doctrine, which is, that lightning does not come from the clouds; but is always produced in the place where it is seen, and its effects perceived. The humours of her body, naturally inflammable enough, were become preternaturally so, by her putrid indisposition; and these, by perspiration, had enveloped her body with an atmosphere of the same kind, replete likewise with mineral matters, whereby its activity was heightened. She had probably risen in the night to use her lotion, and, by the friction of her hand, had helped to kindle the flame.

We have various relations of several other persons being burnt to death in this unaccountable manner; as Grace Pet of Ipswich, in 1744; and Mary Clues of Coventry, in 1772. An attempt has been made to establish the opinion, that these destroying internal fires are caused in the entrails of the body by enflamed effluvia of the blood, by juices and fermentations in the stomach, by the many combustible matters which abound in living bodies, for the uses of life, and, finally, by the fiery evaporations which exhale from the settlings of spirit of wine, brandies, and other hot liquors, in the *tunica villosa* of the stomach, and other adipose or fat membranes; within which those spirits engender a kind of camphor, which in the night-time, in sleep, by a full respiration, are put in a stronger motion, and are more apt to be set on fire. See Phil. Trans. N° 476. p. 453, seq. Ibid. vol. lxiv. pt. ii. p. 340.

Others ascribe the cause of such persons being set on fire, to lightning; and their *burning* so entirely, to the greater quantity of PHOSPHORUS, and other combustible matter they contained.

It is well known, that flashes of light have been often produced from the bodies of men, as well as other animals, by a brisk motion. Fortunius Licetus mentions a person, who, by only rubbing his body with his hand, could make fire issue; and Maffei relates the same of Signora Cassandra Buri Rambalda of Verona, who needed only rub her flesh with a linen cloth, to produce flashes of light. See ELECTRICITY, LIGHT, PHLOGISTON, PHOSPHORUS, &c.

BURNING is also a denomination given by physicians to divers disorders, on account of a sensation of heat that attends them. In which sense we say a *burning* FEVER. See CAUSUS.

Among the divers species of madness incident to dogs, one is called the *burning* madness. If a mare which has been covered, and the colt knit within her, be covered by another horse, he is said to *burn* her.

BURNING is more particularly used for the herpes, or *ignis sacer*, called ERYSIPELAS and *arsura*.

BURNING, among Surgeons, denotes the application of an actual cautery, that is a red-hot iron instrument, to the part affected; otherwise denominated cauterization. See CAUTERY.

BURNING, in Antiquity, was a practice much used by the Greeks, Romans, and northern nations; and still retained by many people in both Indies, with respect to their dead. Phil. Trans. N° 126. See BURIAL.

In this sense, *burning* stands opposite to burying; though, after *burning*, the BONES remaining, and ashes, have been usually collected into urns, and deposited in the earth. Phil. Trans. N° 285.

Kings were burnt in cloth made of the ASBESTOS-stone, that their ashes might be preserved pure from any mixture with the fuel, and other matters thrown on the funeral pile. And the like usage is still retained for the princes in Tartary.

Burning is not so ancient among the Greeks as interring; though we find it obtained in the time of the Trojan war. Potter. Arch. lib. iv. cap. 6. tom. ii.

For the manner of *burning* among the Greeks: the body was placed upon the top of a pile, on which were also thrown divers animals, and even slaves and captives, besides unguents and perfumes. In the funeral of Patroclus, we find a number of sheep and oxen thrown in, then four horses, followed by two dogs, and, lastly, by twelve Trojan prisoners. Hom. Il. xxiii.

Eustathius assigns two reasons for the prevalence of *burning* in Greece; the first, that bodies being thought to be unclean after the soul's departure, were to be purified by fire: that the soul, or purer part, being separated by the flames, from the gross inactive matter, might take its flight to the heavenly mansions with more freedom. This latter opinion obtained so much, that the Indian philosophers had not patience to wait for *burning* till after death; they had recourse to it in their life-time; erected themselves piles for the purpose, to loosen their souls from confinement. Calanus, who followed Alexander out of India, finding himself indisposed, obtained that prince's leave to prevent the growth of his distemper, by committing himself to the flames; and Hercules, before his reception into heaven, was purified from the dregs of earth by the same means. Quintil. Declam. x. Potter. ubi supra.

Soldiers usually had their arms burnt with them. The garments worn by the living, were also thrown on the pile with other ornaments and presents; a piece of extravagance, which the Athenians carried to so great a length, that some of their law-givers were forced to restrain them, by severe penalties, from defrauding the living by their liberality to the dead. Virgil. Æn. lib. vi. Potter. lib. cit.

Pliny assures us, that *burning* was first brought into use among the Romans, on occasion of the cruel usage which the bodies of the dead Romans underwent in enemies countries. But this must only be understood in regard of the common usage; since we find mention of *burning* as practised by some even in the earliest ages of Rome: Numa forbade his own body to be *burned*, commanding it to be laid entire in a stone coffin, which shews that the practice of *burning* was not then unknown at Rome. Plin. Hist. Nat. lib. viii. cap. 54. Kenn. Rom. Ant. p. ii. lib. v. cap. 10.

In some cases, *burning* was expressly forbid, and looked upon as the highest impiety. Thus infants who died before the breeding of teeth, were entombed unburnt, in the ground, in a particular place set apart for this use, called *suggrundarium*. The like was practised with regard to those who had been struck dead with lightning, who were never to be *burnt* again.

Some say, that *burning* was denied to suicides as a punishment.

The manner of *burning* among the Romans, was not unlike that of the Greeks: the corpse being brought without the

the city, if they designed to burn it, was carried directly to the place appointed for that purpose; which, if it joined to the sepulchre, was called *buſtum*, if separate from it, *uſtrina*, and there laid on the *rogus*, a pile of wood prepared to burn it on, built in ſhape of an altar, but of different height, according to the quality of the deceased. The wood uſed was commonly from ſuch trees as contained moſt pitch or roſin; and if any other were uſed, they ſplit it for the more eaſy catching fire: round the pile they ſet cypreſs trees, probably to hinder the noiſome ſmell of the corſe. The body was not placed on the bare pile, but on the couch or bed where it lay on. This done, the next of blood performed the ceremony of lighting the pile, which they did with a torch, turning their face all the while the other way, as if it were done with reluctance. During the ceremony, decuſſions and games were celebrated: after which came the *offilegium*, or gathering the bones and aſhes; alſo waſhing and anointing them, and reſoſiting them in urns; which were common to both nations. Tibul. lib. i. Eleg. i. Virg. Æn. lib. vi. Kennet and Potter. lib. cit. It is commonly ſuppoſed the practice of burning ceaſed at Rome under the empire of the Antonines.

BURNING alive, among the Romans, a puniſhment inflicted on deſerters, betrayers of the public councils, incendiaries, coiners, and even Chriſtians: it was called *crematio*.

The Jews had two ways of burning; one called burning of the body, performed with wood and faggots; the other burning of the ſoul, *combustio animæ*, performed by pouring ſcalding hot lead down their throats. The prieſt's daughter, who committed whoredom, he that lay with his own daughter, or grand-daughter, or his mother-in-law, were burnt alive. Phil. Tranſ. N^o 230. Godw. Moſes and Aaron, lib. v. cap. 7.

BURNING, Uſtio, in *Chemistry*, is diſtinguiſhed from **CALCINING**; as the former is performed in cloſe veſſels, and terminates in charring, or reducing the body to a blackneſs; whereas the latter turns them white, being performed in the open air.

It alſo differs from **ROASTING**, *toſtio*, as, in burning the fire is applied in contact with the body; in roaſting, at a diſtance from it.

A dextrous burning volatilizes ſalts, as common ſalt, *ſal alkali*. Burning alſo produces ſomewhat of a mineral ſulphur out of tartar, &c.

BURNING, or BRENNING, in our *Ancient Cuſtom*, denotes an infectious diſeaſe, got in the ſtews, by converſing with lewd women; ſuppoſed to be the ſame that we now call the **VENEREAL diſeaſe**. Whence that diſeaſe is argued to be much more ancient than the common epocha of the ſiege of Naples.

The chief objection againſt burning being the ſame with the venereal diſeaſe is, that the remedies preſcribed againſt the former, would be ineffectual in the latter: but it is not to be expected, the meaſures of the ancient phyſicians ſhould be calculated for the removing of any malignity in the maſs of blood or other juices, as in the modern practice; inasmuch as they looked on the diſeaſe as merely local, and the whole of the cure to depend on the removal of the ſymptoms: beſides this, it is matter of frequent obſervation, that ſome diſeaſes grow more violent, and others more remiſs in courſe of time: ſo that the remedies which might have availed for the ancient *brenning*, may now fail as to the modern *pox*. The proceſs for the cure, as delivered by J. Arden, chirurgion to king Henry IV. is thus: *Contra incendium virgæ virilis interius ex calore & excoriatione, fiat talis ſyringa (i. e. injectio) lenitiva. Accipe lac mulieris maſculum nutritis, & parum ſucarium, oleum violæ & piſaniæ: quibus commixtis per ſyringam infundatur.*

In an ancient MS. written about the year 1390 is a receipt for *brenning of the pyntel yat men clepe the ape galle*; *galle* being an old word for a running ſore. And in another MS. written fifty years after, is a receipt for *burning in that part by a woman*. Simon Fiſh, a zealous promoter of the Reformation, in his Supplication of Beggars, preſented to king Henry VIII. 1530, ſpeaking of the Romiſh prieſts, ſays, "They catch the pocks of one woman, and bare them to another; they be burnt with one woman, and bare it to another; they catch the leproy of one woman, and bare it to another." And Board, a prieſt and phyſician in the ſame reign, begins one of his chapters of his Breviary of Health, thus: "The 19th chapter doth ſhew of the burning of an harlot." The ſame author adds, that if a man be burnt with a harlot, and do meddle with another woman within a day, he ſhall burn the woman he ſhall meddle withal: and, as an immediate remedy againſt the burning, he recommends the waſhing the *puſtula* two or three times with white wine, or elſe with ſack and water.

BURNING of diamonds, is uſed among the Jewellers for putting the **DIAMONDS** into a fierce fire, in order to divest them of a yellow or brown colour.

BURNING on the forehead, *Frontis inuſtio*, was anciently the penalty of a calumniator. In the middle age, we find frequent inſtances of burning in the cheek; a puniſhment allotted to bondmen, or villians guilty of theft.

BURNING-glaſs, or *burning mirror*, a machine whereby the ſun's rays are collected into a point; and by that means their force and effect extremely heightened, ſo as to burn objects placed therein.

Burning-glaſſes are of two kinds: the firſt convex, called *lentes cauſticæ*; which tranſmit the rays of light, and in their paſſage refract, or incline them towards the axis; having the property of lenſes, and acting according to the laws of refraction.

The ſecond, which are the more uſual, are concave; very improperly called *burning-glaſſes*, being uſually made of metal: theſe reflect the rays of light, and, in that reflection, incline them to a point in their axis: having the properties of *ſpecula* or **MIRRORS**, and acting according to the laws of **REFLECTION**.

The firſt, or convex kind, authors ſuppoſe to have been unknown to the ancients; but the latter they are generally allowed to have been acquainted with. Their magnifying power is taken notice of both by Seneca, and Pliny; and their burning power is mentioned in a Treatiſe of Optics, aſcribed to Euclid, theorem 31. It is probable that the Romans had a method of lighting their ſacred fire by means of reflecting concave *ſpecula*. But Porta, and many others, ſuppoſe that the burning mirrors of the ancients were made of metal, in form of a ſection of a parabola, having the vertex cut off; it being the well-known property of this curve, to reflect all rays that fall upon it parallel to the axis into the focus. Hiſtorians tell us, that Archimedes, by means of reflecting mirrors, burnt a whole fleet; and though the effect related be very improbable, yet does it ſufficiently prove ſuch things were then known. The machines then uſed, nobody doubts, were metallic and concave, and had their focus by reflection: it being agreed, that the ancients were unacquainted with the refracted *foci* of convex glaſſes. Yet M. de la Hire has diſcovered even theſe in the Clouds of Ariſtophanes; where Streſiades tells Socrates of an expedient he had to pay his debts by means of a round transparent ſtone or glaſs, uſed in lighting of fires, by which he intended to melt the bond; which in thoſe days was written on wax. The glaſs here uſed to light the fire, and melt the wax, M. de la Hire obſerves, could not be concave; ſince a reflected *focus*, coming from below upwards, would have been exceedingly improper for that purpoſe: and the old ſcholiſt of Ariſtophanes confirms the ſentiment. Pliny makes mention of globes of glaſs of cryſtal, which being expoſed to the ſun, burnt the cloaths and fleſh on people's backs; and Lactantius adds, that a glaſs ſphere, full of water, and held in the ſun, lighted the fire even in the coldeſt weather; which incontestibly proves the effects of convex glaſſes.

Indeed, there is ſome difficulty in conceiving how they ſhould know ſuch glaſſes burnt, without knowing they magnified; which it is granted they did not, till towards the cloſe of the thirteenth century, when ſpectacles were thought of. For as to thoſe paſſages in Plautus, which ſeem to intimate the knowledge of ſpectacles, M. de la Hire obſerves, they do not prove any ſuch thing: and he ſolves this by obſerving, that their *burning-glaſſes* being ſpheres, either ſolid, or full of water, their *foci* would be one fourth of their diameter diſtant from them: if then their diameter were ſuppoſed half a foot, which is the moſt we can allow, an object muſt be at an inch and a half's diſtance to perceive it magnified: thoſe at greater diſtances do not appear greater, but only more confuſed, through the glaſs than out of it. It is no wonder, therefore, the magnifying property of convex glaſſes was unknown, and their burning one known: it is more wonderful there ſhould be 300 years between the invention of ſpectacles and teleſcopes.

Every concave mirror, or *ſpeculum*, collects the rays diſperſed through its whole concavity, after reflection, into a point or focus; and is therefore a *burning mirror*.

Hence, as the focus is there where the rays are the moſt cloſely contracted, if it be a ſegment of a large ſphere, its breadth muſt not ſubtend an arch above eighteen degrees; if it be a ſegment of a ſmaller ſphere, its breadth may be thirty degrees: which is verified by experiment. As the ſurface of a mirror, which is a ſegment of a larger ſphere, receives more rays than another of a leſs, if the latitude of each ſubtend an arch of eighteen degrees: or even more or leſs provided it be equal; the effects of the greater mirror will be greater than thoſe of the leſs. And as the *focus* is contained between the fourth and fifth parts of the diameter, mirrors that are ſegments of greater ſpheres burn at a greater diſtance than thoſe which are ſegments of a ſmaller.

Since, laſtly, the burning depends on the union of the rays

rays, and the union of the rays on the concave spherical figure; it is no wonder, that even wooden mirrors, gilt, or those prepared of alabaster, &c. covered with gold; nay, even that those made of paper, and covered with straw, should be found to *burn*.

Among the ancients, the *burning* mirrors of Archimedes and Proclus are eminent; by one of which, the Roman ships besieging Syracuse, under the command of Marcellus, according to the relation of Zonaras, Tzetzes, Galen, Eustathius, Anthemius, &c. and by the other, the navy of Vitalian besieging Byzantium, according to the same Zonaras, were burnt to ashes.

Many have questioned the fact recorded by several historians concerning the surprising effects of Archimedes's *burning* mirrors; and they have principally urged the impossibility of producing such effects by means of concave specula, the focal distance of which must have been much too small for the purpose. Des Cartes, particularly, discredited the story, as fabulous, on this account; but Kircher made many experiments with a view of vindicating its credibility. Apprehending that the concave specula of the ancients were sections of a parabola, he began with combining several of this figure; but, failing of success in this way, he tried the effect of a number of plane mirrors; and with five mirrors of the same size, placed in a frame, he contrived to throw the rays reflected from them to the same place, at the distance of more than a hundred feet; and by their means he produced such a degree of heat, as led him to conclude that, by increasing their number, he could have set fire to inflammable substances at a greater distance. He likewise made a voyage to Syracuse, in company with his pupil Schottus, in order to examine the place of the supposed transaction; and they were both of opinion, that the galleys of Marcellus could not have been more than thirty paces from Archimedes. M. Buffon, though ignorant of the particular testimonies of ancient writers, relative to the invention of Archimedes, and of the attempts of Kircher above mentioned, has more lately, by a similar contrivance, sufficiently evinced the practicability of the operation.

Dr. Wolfe, in the year 1768, after having given an account of some parabolic mirrors, constructed by M. Hoesen of Dresden, offers a conjecture, that those of Archimedes might be of this kind, since it is not difficult to describe a parabola, whose parameter is 2000 feet; and that rays reflected from such a speculum might be received by a lens, after having been brought to a focus, and transmitted parallel to any distance: but he was not apprized, that Kepler and Dechales had shewn, that no rays could be conveyed parallel to one another, except those which proceeded from the same points in the sun's disk. Dutens du Miroir Ardent d'Archimede. Paris, 1755. Phil. Transf. vol. xlviii. p. 621, &c. Ibid. vol. lix. p. 8.

Among the moderns, the most remarkable *burning* mirrors, are those of Magine, twenty inches in diameter; of Septala of Milan, which was near three feet and a half in diameter, and which burnt at the distance of fifteen feet; of Villette, and Tschirnhausen, and the new complex one of M. Buffon.

Villette, a French artist at Lyons, made a large mirror, which was bought by Tavernier, and presented to the king of Persia; a second, bought by the king of Denmark; a third presented by the French king to the Royal Academy; a fourth has been in England, where it was publicly exposed.—The effects hereof, as found by Dr. Harris and Dr. Desaguliers, are that a silver sixpence is melted in 7" and $\frac{1}{2}$; a king George's halfpenny in 16", and runs with a hole in 34". Tin melts in 3; cast iron in 16", slate in 3"; a fossil shell calcines in 7"; a piece of Pompey's Pillar at Alexandria, vitrifies in the black part in 50", in the white in 54"; copper ore in 8"; bone calcines in 4", and vitrifies in 33'. An emerald melts into a substance like a turquois stone; a diamond weighing four grains, loses $\frac{2}{3}$ of its weight; the *asbestos* vitrifies; as all other bodies will do, if kept long enough in the focus; but when once vitrified, the mirror can go no farther with them.—This mirror is forty-seven inches wide; and is ground to a sphere of seventy-six inches radius; so that its focus is about thirty-eight inches from the vertex. Its substance is a composition of tin, copper, and tin-glass. Phil. Transf. vol. iv. p. 198.

M. Tschirnhausen's reflecting mirror deserves next to be mentioned. The following things are noted of it in the Acta Eruditorum, for 1687, p. 52. 1. Green wood takes fire instantaneously, so that a strong wind cannot extinguish it. 2. Water boils immediately, and eggs in it are presently edible. 3. A mixture of tin and lead, three inches thick, drops presently, and iron or steel-plate becomes red hot presently, and a little after burns into holes. 4. Things not capable of melting, as stones, bricks, &c. become soon red-hot; like iron. 5. Slate

becomes first white, then a black glass. 6. Tiles are converted into a yellow glass, and shells into a blackish yellow one. 7. A pumice-stone emitted from a volcano, melts into white glass; and, 8. A piece of crucible also vitrifies in eight minutes. 9. Bones are soon turned into an opaque glass, and earth into a black one. It is made of copper, and its substance is not above double the thickness of the back of a knife: this was about $4\frac{1}{2}$ French feet in diameter, and it burnt at the distance of twelve feet.

Every lens, whether convex, plano-convex, or convexo-convex, collects the sun's rays, dispersed over its convexity, into a point by refraction; and is therefore a *burning-glass*. The most considerable of this kind known, is that made by M. de Tschirnhausen: the diameters of his lenses are three and four feet; the focus at the distance of twelve feet, and its diameter an inch and a half. To make the focus more vivid, the rays are collected a second time by a second lens parallel to the first; and placed in that place where the diameter of the cone of rays formed by the first lens, is equal to the diameter of the second; so that it receives them all: and the focus from an inch and a half, is contracted into the space of eight lines and its force increased proportionably. It was purchased by the duke of Orleans, who presented it to the French Academy. Its weight was 160 pounds.

Its effects, among others, as related in the Acta Erudit. Lipsiæ, are, that it lights hard woods, even moistened with water, into a flame, instantly; that water, in a little vessel, begins to boil presently; all metals are melted; brick, pumice-stone, delft wares and the *asbestos* stone, are turned into glass; sulphur, pitch, &c. melted under water: the ashes of vegetables, woods, and other matters, transuted into glass; in a word, every thing applied to its focus, is either melted, turned into calx, or into smoke; and the colours of jewels, and all other bodies, metals alone excepted, are changed by it. He observes, that it succeeds best when the matter applied is laid on a hard charcoal, well burnt.

Though the force of the solar rays be here found so stupendous, yet the rays of the full moon, collected by the same *burning-glass*, do not exhibit the least increase of heat. Farther, as the effects of a *burning* lens depend wholly on its convexity, it is no wonder that even those prepared of ice produce fire, &c. A LENS of that kind is easily prepared, by putting a piece of ice into a scuttle, or hollow segment of a sphere, and melting it over a fire, till it accommodate itself to the figure thereof.

Nor will those ignorant of dioptrics be less surprised to see flame, and the effects thereof, produced by means of the refraction of light in a glass bubble with water.

Wolfius tells us, that an artist of Dresden made *burning* mirrors of wood, bigger than those of M. Tschirnhausen or Villette, which had effects at least equal to any of them.—Traberus teaches how to make *burning* mirrors of leaf gold, viz. by turning a concave, laying its inside equally with pitch, and covering that with square pieces of the gold, two or three fingers broad, fastening them on, if need be, by fire. He adds, that very large mirrors may be made, of thirty; forty, or more concave pieces, artfully joined in a turned wooden dish or scuttle; the effects of which will not be much less than if the surface was continuous.—Zahnus adds farther, that Newman, an engineer at Vienna, in 1699, made a mirror of paste-board, covered withinside with straw glued to it; by which all kinds of metals, &c. were readily melted. Sir Isaac Newton's *burning* mirror consisted of seven concave glasses, each of which was eleven inches and a half in diameter, and so disposed as to have one common focus: six of them were placed round the seventh, and contiguous to it, in such a manner as to form the segment of a sphere, whose subtense is about thirty-four inches and a half; the focus is about twenty-two inches and a half distant, and about half an inch in diameter. This speculum vitrified brick or tile instantaneously, and in about half a minute melted gold. M. Zeiher, not long since, made some improvement of this instrument; and formed panes of plain glass into the necessary degree of curvature, by heating them so hot on a dish made of mettle, that they could all assume the same form. M. Buffon has constructed furnaces for converting plain into concave mirrors; the mirrors are exposed to a degree of heat sufficient to soften the glass, in consequence of which it conforms itself to the spherical figure of the mould on which it is placed. This method is subject to many difficulties and accidents; however, out of twenty-four mirrors treated thus, M. Buffon preserved three; two of which are thirty-seven inches in diameter, and the other forty-six inches. The last was tin-foiled, and presented to the French king; and is represented by the maker as the most powerful *burning* mirror in Europe; and yet the moon's light reflected from this concave speculum, on a thermometer placed in the focus, produced no sensible dilatation of the included fluid. M. Buffon

has also made attempts for constructing convex lenses of great power, by fixing two of the above mentioned convex glasses together, and filling the cavity between them with water: one of his glasses broke in the trial; but others have since undertaken to construct these water lenses. He has likewise suggested another improvement in the construction of *burning* glasses, consisting in a contrivance for diminishing the thickness of the middle or central part of the lens, from three inches to one inch; whereby he proposes to prevent the diminution of light occasioned by its passing through the middle part of a lens of large diameter, and short focus, which must be proportionably thick in that part. This new kind of lens is composed of three parts ground to the same radius, or of two circular zones, or bands, surrounding a central or middle part. He computes that the heat in the focus of a lens of this kind, three feet in diameter, will be about four times greater than that produced by any *burning* glass yet known.

But the most considerable improvement which M. Buffon has introduced into the optical apparatus is his machine, consisting of a number of mirrors; whereby he seems to have revived the secret of Archimedes, and to have vindicated the credit of history in this point. In the year 1747 he constructed a machine, with a hundred and forty plain mirrors, each about four inches long, and three broad; these are fixed at about a quarter of an inch distance from each other, upon a large wooden frame of about six feet square. Each of them has three moveable screws, which are so contrived, that the mirror can be inclined to any angle, and in any direction that meets the sun; and by this means, the solar image of each mirror is made to coincide with all the rest. The experiment was first tried with twenty-four mirrors, which readily set on fire a combustible matter, prepared of pitch and tow, and laid on a deal board, at the distance of sixty-six French feet.

He then farther pursued the attempt, and put together a kind of polyhedron, consisting of 168 pieces of plane looking-glasses, each being six inches square; and by means of this some boards of beech-wood were set on fire, at the distance of a hundred and fifty feet, in the month of March, and a silver plate was melted at the distance of sixty feet. This machine, beside other advantages, may be easily moved, so as to burn downwards or horizontally; and it burns either in its distant focus, or in any nearer interval, which our common *burning*-glasses cannot do, because their focus is wholly fixed and determined. This machine, in the next stage of its improvement, contained three hundred and sixty plain mirrors, each eight inches long, and six broad, mounted on a frame eight feet high, and seven feet broad. With twelve of these mirrors, light combustible matters were kindled at the distance of twenty feet; at the same distance, a large tin vessel was melted with forty-five of them, and a thin piece of silver with a hundred and seventeen. When the whole machine was employed, all the metals and metallic minerals were melted at the distance of twenty-five, and even of forty feet. Wood was kindled in a clear sky, at the distance of two hundred and ten feet. The focus, at the distance of fifty feet, is about seven inches broad; and at the distance of two hundred and forty feet, it becomes two feet in diameter. Mr. Buffon afterwards constructed a machine, which contained four hundred mirrors, each half a foot square, with which he could melt lead and tin at the distance of a hundred and forty feet. Phil. Tran. vol. xlv. p. 493. 496. M. de Buffon, Histoire Naturelle, &c. Suppl. vol. i. Montucla, Histoire des Mathematiques, vol. i. p. 246.

There is no solid substance that resists the efficacy of modern *burning*-glass. Messrs. Macquer and Beaumé have succeeded in melting small portions of PLATINA, by means of a concave glass, twenty-two inches in diameter, and of twenty-eight inches focus; though this metal is not fusible by the strongest fire that can be excited in furnaces, or sustained by any chemical apparatus. Yet it was long ago observed by the Academicians del Cimento, that spirit of wine could not be fired by any *burning*-glass which they used; and notwithstanding the great improvements which these optical instruments have since received, M. Nollet has not been able, by the most powerful *burning* mirrors, to set fire to any inflammable liquors whatever. See LENS, MIRROR, &c.

BURNING of land, called also *burn-beating*, and vulgarly *DENSHIRING*, from Devonshire, a county in which it has been long practised, is a method of preparing and fertilizing lands barren, sour, heathy, and rushy, for corn; by paring off the turf, and drying and burning it on the ground. — The same method also obtains for meadows and pasture ground, moist, clayey, or rushy, to improve the hay.

BURNING, in Law. See ARSON, BRANDING, TREASON, &c.

BURNING of metals, ustio metallorum, is either performed by

fire, or by corrosive salts; which latter is also denominated CEMENTATION.

The first preparation of most ores is by *ustion*, or *burning*, whereby to dispose them for fusion. This is usually performed by exposing them, without addition, to the naked fire; sometimes fixed alkalis and absorbents are added, to hinder the avolation of the metalline particles. Some hold *burning* in the stone or glebe most advantageous; others *burning* in the meal. Phil. Trans. N^o 109. The baser metals, tin and lead, may be burnt like plants to ashes. For gold and silver, the case is otherwise.

BURNING mountains. See VOLCANO, EARTHQUAKE, MOUNTAIN, &c.

The ancients describe a meteor under the denomination of *burning buckler*, *clypeus ardens*. Plin. Hist. Nat. lib. ii. cap. 34. Mem. Acad. Inscr. tom. vi. p. 95.

Travellers into Italy describe a *burning* spot of ground at Firenzuolo, in the Appennines, out of which a crackling flame continually arises, yet without any cleft for it to issue out at. Maffei supposes the steams which the place yields, to be a kind of native *phosphorus ardens*, which take fire on their coming in contact with the air.

BURNING, among Painters.—Several of the painters colours require *burning*, to fit them for use, as lamp-black, umber, ivory, &c.

The *burning*, or rather drying, of lamp-black, is performed by setting it over the fire in an iron ladle, or crucible, till no smoke arises from it. To *burn* umber, they put it in large lumps into a naked fire, where it is left till thoroughly red-hot. Ivory must be *burnt*, to make a black, in two crucibles, luted, covered with coals.

BURNING, in Enamel Painting. See ENAMELLING.

BURNING is also an operation in *Pharmacy*. Simples are frequently *burnt* in earthen vessels, either to reduce them to ashes, as in the preparation of vegetable salts, or in order to dry them, that they may be more commodiously pulverized, as is practised in regard of hartshorn, &c.

BURNING phosphorus. See PHOSPHORUS.

BURNING plant, Euphorbia. See SPURGE.

BURNING spring, in Natural History. See SPRING.

BURNING zone, in Geography. See TORRID ZONE.

BURNISHED gold and silver, denote those metals laid on any work or leaves, and afterwards passed over with a burnisher to heighten their lustre.

BURNISHER, a round polished piece of steel, serving to smooth and give a lustre to metals.

Of these there are various kinds, of various figures; straight, crooked, &c. — Half *burnishers* are used to *SOLDER* silver, as well as to give a lustre.

Burnishers for gold and silver are commonly made of a dog's or wolf's tooth, set in the end of an iron or wooden handle. Of late, agates and pebbles have been introduced, which many prefer to the dog's tooth.

The *burnishers* used by engravers in copper, usually serve with one end to burnish, and with the other to scrape.

BURNISHING, the act or art of smoothing, and polishing a metalline body by briskly rubbing it with a *burnisher*.

Bookbinders *burnish* the edges of their books by rubbing them with a dog's tooth. Gold and silver are *burnished* with a wolf's tooth, a dog's tooth, or the blood stone, or by *tripoly*, a piece of white wood, emery, and the like.

Deer are said to *BURNISH* their heads, when rubbing off a white downy skin from their horns against a tree: they thrust them, as is said, into a reddish earth, to give them a new colour and lustre.

BURNT-clay. See MANURING.

BURNT-grain. See SMUT.

BURNT-allum. See ALLUM.

BURNT-lead. See LEAD.

BURNT, in speaking of medicines, imports as much as imperfectly calcined. See CALCINATION.

Burnt bodies are generally dry and astringent. The other medicinal qualities belonging to bodies are frequently destroyed, at least impaired, by the *burning*.

BURNT planet.—A planet is said to be *burnt*, *combustus*, when it is in conjunction, or nearly so, with the sun. Thus Saturn is said to be *burnt*, when not above five degrees distant from the sun, Jupiter, when six, &c. Planets, in this situation, are supposed by astrologers to be much weakened, or enfeebled in their influences.

BURNT way, combusta via, among *Astrologers*, that part of the zodiac from the beginning of Libra to the middle of Scorpio; or, according to others, from the middle of Libra to the end of Scorpio, comprehending 45 degrees; a space supposed very unfortunate, and in which the planets are much enfeebled in their virtues, especially the moon. Vital Lex. Math. p. 118.

BURNT-wine. See WINE.

BURR-PUMP, or BILGE-PUMP, a kind of pump so called, because it holds much water.

BURR, a round knob of a horn next a deer's head.

BURRAS-

BURRAS-pipe, an instrument used by goldsmiths, consisting of a copper box with a spout, having teeth like a saw; sometimes also used by surgeons for the application of certain solid medicines by insersion.

BURREL-fly, in *Natural History*. See **WRINGLE-TAIL**.

BURROCK, a small wear or dam, where wheels are laid in a river for the taking of fish.

BURROUGH. See **BOROUGH**.

BURROUGH-duck, in *Zoology*, a common English name for the **TADORNA**.

BURROWS, holes in a **WARREN**, serving as a covert for rabbits, &c.

A coney's coming out of her *burrow* is called *bolting*. To catch coney, they sometimes lay purse-nets over the *burrows*, then put in a terrier close muzzled, which making the creature bolt, she is caught in the net.

BURROW, or **BARROW**. See **BARROW**.

BURSA, *Burse*, originally signifies a purse.

BURSAM, *revocatio per*, in the *Norman Laws*, is a right belonging to the next akin, to redeem or purchase back, within a year after sale, a fee or tenement alienated by his kinsman, on paying the price it had been sold at. *Du-Cange*.

BURSA is more particularly used, in *Middle Age Writers*, for a little college or hall in an university, for the residence of students, called *burfales*, or *burfarii*.

BURSA, *Burse*, or *Bourse*, in the French universities, still denotes a foundation for the maintenance of poor scholars in their studies.

The nomination of *burfes* is in the hands of the patrons and founders thereof. The *burfes* of colleges are not benefices, but mere places assigned to certain countries and persons. A *burse* becomes vacant by the burser's being promoted to a cure, as being incompatible. In the college of cardinal Maine at Paris, there are two sorts of *burfes*, lesser for young scholars, who can only enjoy them six years, that is, as long as suffices for their rising to the degree of master of arts; and greater, which may be held nine years, or till the students obtain the degree of doctors.

BURSA pastoris. See **SHEPHERD'S Pouch**.

BURSA pastoris minor. See **DRABA**.

BURSALIS musculus, in *Anatomy*, a name given by Cowper and others to a muscle of the thigh, called also *marfjupialis* by the same authors. It is the *obturator internus* of Winslow and Albinus, and is described by Vesalius under the name of *decimus tertius moventium*, and by Spigelius under that of *circumagentium tertius*, or *obturator internus*.

BURSAR or **BURSER**, *burfarius*, is used in *Middle Age Writers* for a treasurer or cash-keeper.

In this sense we meet with *burfars* of colleges. Conventual *burfars* were officers in monasteries, who were to deliver up their account yearly on the day after Michaelmas.

The city of Bern is commanded by four bannerets, who are the heads of the militia of the whole canton; and two *burfars*, who are the treasurers general, one for the German district, the other for the Roman or French.

The word is formed from the Latin *burfa*; whence also the English word *purse*: and hence the like officer, who in a college is called *burfar*, in a ship is called **PURSER**.

BURSARS or **BURSERs**, in *Universities*, also denote those who enjoy certain benefices left for defraying the expences of the education of young men of promising parts, and small fortune. In Scotland and at Paris, all exhibitioners are still called *burfars*, or *bourfiers*. Actions brought for the effects of a college, are entered in the name of the principal and *burfars*. See **BURSA**.

BURSARIA, *Burfary*, in *Middle Age Writers*, denotes the place of receiving and paying money and rents by the *burfars*, or officers of account, in religious houses. See **BURSA** and **BURSER**.

BURSE, in *Matters of Commerce*. See **EXCHANGE**.

The first place of this kind to which the name *burse* was given, Guicciardini assures us, was at Bruges; and it took its denomination from a hotel adjoining to it, built by a lord of the family *de la Bourse*, whose arms, which are three purses, are still found on the crowning over the portal of the house. Catel's account is somewhat different, viz. that the merchants of Bruges bought a house or apartment to meet in, at which was the sign of the purse. From this city the name was afterwards transferred to the like places in others, as in Antwerp, Amsterdam, Bergen in Norway, and London.

BURSE of merchants, *Bourse des marchands*, denotes a court or jurisdiction established in several trading cities of France, for the taking cognizance, at the first instance, of all disputes arising between merchants, bankers, negociants, and the like, and from which no appeals lie but to the parliament.

The *burse* is a kind of consular jurisdiction, the judges whereof are also denominated *priors* and *consuls*.

The *burse* of merchants at Tholouse was established by Henry II. in 1549, after the manner of the judges conservators of the privileges of the fairs at Lyons. The chief officers are a prior and two consuls, chosen yearly; and empowered to choose and associate, to the number of sixty, several merchants to assist them in the decision of differences. These are called judges *conseillers de la senue*. The *burse* of Rouen, or, as it is commonly called, the convention of Rouen, is of some years later standing than that of Tholouse, having only been erected in 1566. The latest of the consular *burfes* is that of Marseilles; established by Louis XIV. in 1691; whose jurisdiction extends through several of the neighbouring dioceses.

BURSER, in the Linnæan system of *Botany*, a genus of the *hexandria monogynia* class. It has a three leaved cup; the flower is composed of three petals, and has three valves, and contains one seed. There is one species. Former botanists have called this the American turpentine-tree, and the American birch. See **MASTIC-tree**.

BURSTEN, a person ruptured, called by physicians *herniosus*; in middle-age writers, *ponderosus*. See **HERNIA** and **RUPTURE**.

BURTHEN. See **BURDEN**.

BURTON, in the *Sea Language*, a small tackle, consisting of two single blocks, capable of being made fast any where at pleasure, for hoisting of small things in or out; and which will purchase more than a single tackle with two blocks. It is generally employed to tighten the shrouds of the top masts.

BURY, is sometimes used to denote the hole or den of some animal under ground. See **BURROW**.

In which sense we say the *bury* of a mole, a tortoise or the like. The *gryllotalpa*, or mole cricket, digs itself a *bury* with its fore-feet, which are made broad and strong for that purpose. Naturalists speak of a kind of urchins in the island of Maraguan, which have two entries to their *buries*, one towards the north, the other to the south, which they open and shut alternately, as the wind happens to lie.

BURYING, the same with interment or **BURIAL**.

BUSELAPHUS, in *Zoology*, the name of an animal of the goat kind, called also *moscholaphus*. It is of a sort of middle shape between the stag and ox kind. Its head and its ears are long, its legs and feet small, its tail about a foot long, and of the shape of that of a heifer; its upper part reddish and very naked, its lower covered with long hairs. The hair of its whole body is of a tawney or reddish yellow colour; its horns are black, smooth at the top, and round every where else. It has two teats, and is an extremely tame and quiet animal; and naturally fond of play. It is extremely swift in running, and in most respects, except in size, greatly resembles the common ANTELOPE. Ray.

BUSH, a tuft or assemblage of boughs or branches.

BUSH-lime, among *Bird-Catchers*, denotes an arm or bough of a bushy-tree, full of thick and long, yet smooth and straight twigs, daubed over with **BIRD-LIME**; and placed on some hedge where birds frequent, used especially for the taking of pheasants and fieldfares.

BUSH also denotes a coronated frame of wood hung out as a sign at taverns. It takes the denomination from hence, that, anciently, signs where wine was sold were *bushes* chiefly of ivy, cypress, or the like plants, which keep their verdure long. And hence the English proverb "Good wine needs no *bush*."

BUSH, *poison*. See **SPURGE**.

BUSHEL, a measure of capacity for things dry; as grains, pulse, dry fruits, &c. containing four pecks, or eight gallons, or one eighth of a quarter.

Du-Cange derives the word from *busfellus*, *bust l'us*, or *bisfellus*, a diminutive of *buz*, or *buzza*, used in the corrupt Latin for the same thing: others derive it from *busfulus*, an urn, wherein lots were cast; which seems to be a corruption from *buxulus*.

Busfellus appears to have been first used for a liquid measure of wine, equal to eight gallons. *Octo libræ faciunt galonem vini, & octo galones vini faciunt busfellum London. quæ est octava pars quarterii*. The word was soon after transferred to the dry measure of corn of the same quantity. — *Pondus octolibrarum frumenti facit busfellum, de quibus octo consistit quarterium*.

By 12 Hen. VII. cap. 5. a *buschel* is to contain eight gallons of wheat: the gallon eight pounds of wheat, troy-weight; the pound twelve ounces troy-weight; the ounce twenty sterlings; and the sterling thirty-two grains, or corns of wheat growing in the midst of the ear.

This standard *buschel* is kept in the Exchequer; when being filled with common spring water and the water measured before the house of commons in 1696, in a regular parallelepiped; it was found to contain 21,456 solid inches; and the said water being weighed, amounted to 1131 ounces and 14 penny weights troy. Greaves, Orig. of Weight, p. 25.

Besides

Besides the standard or legal *busbel* we have several local *busbels* of different dimensions in different places. At Abingdon and Andover, a *busbel* contains nine gallons; at Appleby, and Penrith, a *busbel* of pease, rye, and wheat, contains 16 gallons; of barley, big, malt, mixt malt, and oats, 20 gallons. A *busbel* contains at Carlisle, 24 gallons; at Chester, a *busbel* of wheat, rye, &c. contains 32 gallons, and of oats 40; at Dorchester, a *busbel* of malt and oats contains 10 gallons; at Falmouth, the *busbel* of stricken coals is 16 gallons; of other things 20, and usually 21 gallons; at Kingston upon Thames, the *busbel* contains eight and a half; at Newbury 9; at Wycomb and Reading, eight and three fourths; at Stamford, 16 gallons. Houghton. Collect. tom. i. n. 46. p. 42. At Paris, the *busbel* is divided into two half *busbels*; the half *busbel* into two quarts; the quart into two half quarts; the half quart into two litrons; and the litron into two half litrons. By a sentence of the provost of the merchants of Paris, the *busbel* is to be eight inches two lines and a half high, and ten inches in diameter; the quart four inches nine lines high, and six inches nine lines wide; the half quart four inches three lines high, and five inches diameter; the litron three inches and a half high, and three inches ten lines in diameter.—Three *busbels* make a minot, six a mine, twelve a septier, and a hundred and forty-four a muid.

In other parts of France, the *busbel* varies; fourteen one eighth *busbels* of Amboise and Tours make the Paris septier. Twenty *busbels* of Avignon make three Paris septiers. Twenty *busbels* of Blois make one Paris septier. Two *busbels* of Bourdeaux make one Paris septier. Thirty-two *busbels* of Rochel make nineteen Paris septiers. Oats are measured in a double proportion to other grains; so that twenty-four *busbels* of oats make a septier, and 248 a muid. The *busbel* of oats is divided into four picotins; the picotin into two half quarts, or four litrons. For salt, four *busbels* make one minot, and six a septier. For coals, eight *busbels* make one minot, sixteen a mine, and 320 a muid. For lime, three *busbels* make a minot, and forty-eight minots a muid. See MEASURE and WEIGHT.

BUSKIN, *Cothurnus*, a kind of garment, somewhat in manner of a boot, covering the foot and mid-leg, and tied beneath the knee: very rich and fine, and used principally on the stage by the actors in tragedy.

The *buskin* is said to have been first introduced by Æschylus: it was of a quadrangular form, and might be worn indifferently on either leg. Its sole was made so thick, as, by means hereof, men of ordinary stature might be raised to the pitch and elevation of the heroes they personated: in which it was distinguished from the sock, worn in comedy; which was a low, popular shoe.

Dempster observes, that the *buskin* was not confined to actors only, but girls likewise used it to raise their height; and travellers and hunters to defend themselves from the mire, &c.

As the *buskin* was the distinguishing mark of tragedy on the stage, we find it in classic authors frequently used to signify *tragedy itself*.

BUSS, in *Navigation*, a ship with two masts, used by the English and Dutch in the HERRING-FISHING.

The word is originally Flemish, *buis*, or *buys*, which signifies the same.

The herring-*bus* is usually about 60 ton, and furnished with two small cabbins, one at the prow, and the other at the stern, the former of which is used as a kitchen. The officers on board it are the master or patron, his mate, and a boatswain, who direct the fishermen, barrellers, &c. The only diet in a *bus* is sea-bisket, gruel, and the fish they catch.

Buss, *Busfa*, is also the name of a large sort of vessel of war, in use in the middle age, spoke of by antiquaries and historians under the several denominations of *busfa*, *buscia*, *burcia*, *buzza*, *bucca*, and *bucia*.

BUSSORES, by corruption from *Bazora* in Persia, whence they were originally brought, a name given by some to that species of pigeon called the CARRIER.

BUST, or **BUSTO**, in *Sculpture*, denotes the figure or portrait of a person in *relievo*, shewing only the head, shoulders, and stomach, the arms being lopped off; ordinarily placed on a pedestal or console.

In speaking of an antique, we say the head is marble, and the *bust* porphyry, or bronze, that is, the stomach and shoulders. Felibien observes, that though in painting, one may say a figure appears in *busto*, yet it is not properly called a-*bust*; that word being confined to things in *relievo*.

The *bust* is the same with what the Latins called *herma*, from the Greek *Hermes*, Mercury, the image of that god being frequently represented in this manner among the Athenians.

Bust is also used, especially by the Italians, for the trunk of a human body, from the neck to the hips.

BUSTA Gallica, was a place in ancient Rome wherein the bones of the Gauls, who first took the city, and were slain by Camillus, were deposited. It differed from

BUSTA Gallorum, a place on the Appennines, thus called by reason of many thousands of Gauls killed there by Fabius.

BUSTARD; **OTIS**, in *Zoology*, the name of a large bird. The *otis* is called *tarda* and *otardes* by several authors. See *Tar. III. of Birds*, No 28.

In the Linnæan system of zoology, the *otis* makes a distinct genus of birds of the order of the *grallæ*; the distinguishing characters of which are, that the feet have only three toes each, and those all placed before, the upper mandible of the bill arched, the nostrils ovated, and the tongue blind. There are four species. The common *Bustard* is of the size of the common turkey, its beak is like that of the common gallinaceous fowls; its head and neck are grey; its belly white, and its back variegated with transverse streaks of red and black; it has no hinder toe, by which, and by its size, it is easily distinguished. The male is distinguished from the female by being of a much larger size, and by a tuft of feathers about five inches long on each side of the lower mandible. Besides, the males have a pouch, whose entrance lies immediately under the tongue, which is capable of holding near seven quarts; this secures them against drought, in those dry tracts where they commonly live, and is probably filled with water, to supply the hen when sitting, or the young before they can fly. It feeds on herbs and grain, and earth worms, and eats very greedily the leaves of dandelion, and particularly on the seeds of hemlock, which seems a very strange food. It is frequent in many parts of England, where there are large heaths and plains: they are very bad fliers, and very difficultly raise themselves up from the ground; but they are extremely shy, and if they see a man at a very great distance, they immediately escape as fast as they can. Their flesh is esteemed. The lesser *bustard*, or *otis tetrax* of Linnæus, is about the size of a pheasant.

BUSTARD, *Thick-kneed*. See *Stone-CURLEW*.

BUSTIARI, a kind of gladiators, among the ancient Romans, who fought about the bustum, or pile, of a deceased person, in the ceremony of his obsequies.

The practice at first was, to sacrifice captives on the tomb, or at the bustum, of their warriors; instances of which we have in Homer, at the obsequies of Patroclus, and among the Greek tragedians. Their blood was supposed to appease the infernal gods; and render them propitious to the manes of the deceased.

In after-ages, this custom appeared too barbarous; and in lieu of these victims they appointed gladiators to fight; whose blood it was supposed, might have the same effect.—According to Valerius Maximus and Florus, Marcus and Decius, sons of Brutus, were the first, at Rome, who honoured the funeral of their father with this kind of spectacle, in the year of Rome 489. Some say the Romans borrowed this custom from the Hetrurians; and they from the Greeks.

BUSTUARIE *mæcha*, a kind of public whores, who prostituted their bodies among the *busfa* or tombs, which it seems were ordinarily places of rendezvous for affairs of this kind. Others suppose that these were women hired to attend a funeral, and lament the loss of the deceased.

BUSTUM, in *Antiquity*, denotes a pyramid or pile of wood, whereon were anciently placed the bodies of the deceased, in order to be burnt.

The Romans borrowed the custom of BURNING their dead from the Greeks. The deceased, crowned with flowers, and dressed in his richest habits, was laid on the *bustum*. See BURNING.

Some authors say, it was only called *bustum*, after the burning *quasi bene usum*: before the burning it was more properly called *pyra*; during it *rogus*; and afterwards, *bustum*.

When the body was only burnt there, and buried elsewhere, the place was not properly called *bustum*, but *ustrina*, or *ustrinum*.

Bustum, in the Campus Martius, was a structure whereon the emperor Augustus first, and after him, the bodies of his successors were burnt.

It was built of white stone, surrounded with an iron palisade, and planted within side with alder trees.

Bustum was also figuratively applied to denote any **TOMB**.

Whence those phrases, *facere bustum*, *victare bustum*, &c. **Bustum** of an altar, was the hearth or place where the fire was kindled.

BUTCHER. Among the ancient Romans there were three kinds of established *butchers*; viz. two colleges, or companies, composed each of a certain number of citizens, whose office was to furnish the city with the necessary cattle, and to take care of preparing and vending their flesh. One of these communities was at first confined

fixed to the providing of hogs, whence they were called *suarii*; and the other were charged with cattle, especially oxen; whence they were called *pecuarii*, or *boarii*. Under each of these was a subordinate class, whose office was to kill, prepare, &c. called *lani*, and sometimes *carnifices*. Briffonius, Modius, and others, mention a pleasant way of felling meat, used for some ages among this people: the buyer was to shut his eyes, and the seller to hold up some of his fingers; if the buyer guessed aright, how many it was the other held up, he was to fix the price; if he mistook, the seller was to fix it. This custom was abolished by Apronius, prefect of Rome; who in lieu thereof introduced the method of felling by weight.

Some derive the term *butcher* from *buccarius*, of *bucca*, mouth; others from *caedulus*, killer of cattle.

The French call a place set apart either for the slaughter of cattle, or exposing their flesh to sale, a *butchery*, *boucherie*. The English distinguish, calling the latter a *flesh-bamble*, or *market*, the former a *slaughter-house*.—Nero built a noble edifice of this kind at Rome; on which occasion was struck that medal, whose reverse is a building supported by columns, and entered by a perron of four steps; the legend, MAC. AVG. S. C. *Macellum Augusti Senatus Consulto*.

In London, the furnishing of the markets with *butchers* meat is cantoned into several offices. We have carcass-*butchers*, who kill the meat in great quantities, and sell it out to another sort called retail *butchers*, dispersed in all out-parts, villages, and towns, near the city. There are besides, cow-jobbers, or salesmen, who buy and sell cattle, acting between the *butchers* and the breeders, or feeders. Something like this also obtains at Paris.

The company of *butchers* was not incorporated until the third year of king James I. when they were made a corporation by the name of master, wardens, and commonalty of the art and mystery of *butchers*; yet the fraternity is ancient. Their arms are azure, two axes saltier-wise argent, between three boars heads couped, attired or, a boar's head gules, between two garbes vert.

There are some good laws made for the better regulation, and for preventing the abuses committed by *butchers*. *Butchers*, selling swine's flesh mangled, or dead of the murrain, or that buy flesh of Jews, and sell the same to Christians, for the first time shall be grievously amerced, the second time suffer the pillory, the third time be imprisoned and fined, and the fourth time forswear the town. 17 Edw. II. cap. 7. vide 51 Hen. III.

Stat. 4 Hen. VII. cap. 3. no *butcher* shall slay beasts within the wall of London, upon pain to forfeit for every ox 12*l.* and for every cow and other beast, 8*l.* and this law shall be observed in every city and town walled in England, and in the town of Cambridge; except Berwick and Carlisle.

Stat. 15. Car. II. cap. 8. § 2. no person using the trade of a *butcher*, shall sell or expose to sale, any fat oxen, steers, runts, kine, heifers, calves, sheep, or lambs alive, on pain to forfeit double the value of the cattle.

Stat. 5 Anne, cap. 4. § 2. no person using the trade of a *butcher* shall sell, or offer to sell, within London and Westminster, or within ten miles thereof, to any person using the trade of a *butcher*, any fat cattle or sheep, alive or dead, upon pain to forfeit the value.

Stat. 7 Anne, cap. 6. the clause 5 Anne, cap. 34. § 32. shall not extend to the felling of calves, sheep, or lambs, dead, by one *butcher* to another.

No *butcher* shall kill any calf, to sell, being under five weeks old; nor use the craft and mystery of a tanner.

BUTCHER-bird, in Ornithology, the English name of the *lanius*, the smallest of all the European birds of prey, yet very fierce and destructive. Its beak is all the way straight, except just at the end, where it is slightly hooked, the upper mandible furnished with a sharp process, and its tail fashioned like that of the magpie, the outer feathers being the shortest, the rest gradually longer; for which reason some have called it the *pica*. The ancients called it the *tyrannus*, and in English we sometimes also call it the *shrike*.

There are several species of the *lanius*: the principal are,

1. The common larger kind, called the MATTAGESS.
2. The smaller, called the FLUSHER. And, 3. the *lanius minor*, or grey little *butcher-bird*. See Tab. of Birds, N^o 5.

The *lanus minor cinereus*, or little grey *butcher-bird*, is the name of a very small species of the *lanius*, common in Italy and elsewhere, and is a very great destroyer of the wrens, and other small birds. See WOOD-chat.

BUTCHER'S-broom, *Ruscus*, in Botany, a genus of the *dioecia syngenesia* class. Its characters are these: it hath male and female flowers in distinct plants; the male have erect spreading empalements, composed of six oval convex leaves, whose borders are reflexed; they have no petals, but an oval *nectarium* of the size of the empalement, which is erect and inflated, opening at the mouth: they have no stamina, but each has three spreading summits sitting on the top of the *nectarium*, which are joined at

their base. The female flowers have empalements, but no petals, and *nectariums* like the male; they have no stamina, but have an oblong, oval germen, hid within the *nectarium*, supporting a cylindrical style, crowned by an obtuse stigma, standing above the mouth of the *nectarium*; the germen afterwards becomes a globular berry, with two or three cells, enclosing two globular seeds. Miller enumerates eight, and Linnaeus five species.

The root of *butcher's-broom*, *ruscus aculeatus* of Linnaeus, is one of the five aperient ones, and is celebrated by authors as a very powerful attenuant and resolvent. It is good in all chronic cases, and is frequently prescribed in diet drinks, intended to open obstructions of the *viscera*, or to promote urine. Riverius tells us of an hydropic person who was completely cured by using a decoction of *butcher's-broom* for his only drink, and taking two purges of senna. Lewis.

BUTEO. See BUZZARD.

BUTHYSIA, *βουτυρία*, in Antiquity, a sacrifice of the greatest kind; such were the hecatombs. See SACRIFICE and HECATOMB.

The Greeks frequently prefixed the particle *βυ*, *bu*, to words, to denote things of extraordinary magnitude, as alluding to the bigness of oxen.

BUTIGA, is an inflammation of the whole face, otherwise called *gutta rosacea*.

BUTLER, or **BOTILER**, an officer whose chief charge is over the cellar and drinkables. See ARCH-Butler.

BUTLERS, *buticularii*, among the Normans, denote wine-tasters, appointed to examine liquors, and see that they be right and legal.

BUTLER of France, *buticularius Franciæ*, was one of the four great officers of the household of the ancient kings of that country, who signed all the royal patents, or at least was present at the dispatch of them. His seat was among the princes, and he even disputed the precedence of the constable of France. He had a right of presiding at the chamber of accounts; and in the registers of that office of the year 1397, mention is made that John de Bourbon, grand *butler* of France, was admitted there as first president. But the title is now abolished, and, in lieu thereof, a new office of *grand echançon*, or cup-bearer, erected.

BUTLER'S ale. See ALE.

BUTLER'S stone, a medicinal preparation of which the ancient chemists relate wonders. See Boyle's Works, Abr. vol. i. p. 50.

The inventor, from whom it takes its name, was a Scotchman, in great favour with king James I. and is said to have done wonders with it, not only in the speedy cure of the most dangerous distempers, but in the making of gold out of lead and quicksilver.

The preparation of this stone is given by Morley. Collect. Chym. Leyd. cap. 375.

BUTLERAGE and **PRISAGE**; these were originally the only custom that was payable upon the importation of wines, and were taken and received by virtue of the regal prerogative, for the proper use of the crown: but for many years past, there having been granted by parliament subsidies or aids to the kings of England, and these duties not repealed, but confirmed, they have been pleased to grant the same away to some noblemen, who by virtue of such grant or patent, are to enjoy the full benefit and advantage thereof, and may cause the same to be levied and collected in the same manner as the kings themselves might, and were formerly wont to do. *Butlerage* is a duty of two shillings for every ton of wine imported by merchants strangers; being a composition (in lieu of the prisage payable in kind by English only) in consideration of the liberties and freedoms granted to them by king John, and king Edward I. by a charter called *Charta Mercatoria*. 31 Edw. I. cap. 1. & 2.—27 Edw. III. cap. 26.

BUTMENTS, in Architecture, those supporters or props, on or against which the feet of arches rest.

The word comes from the French *bouter*, to abut or terminate on any thing; or rather from *buter*, to prop.

The name *butment* is also given to little places taken out of the yard, or the ground-plot of a house, for butteries, sculleries, &c.

Butments of arches are the same with buttresses. They answer to what the Romans call *subices*, the French, *culees* and *buttes*.

BUTMENTS, or **ABUTMENTS** of a BRIDGE, denote the two natives at the end of a bridge, whereby the two extreme arches are sustained and joined with the shore on either side.

The *butments* of bridges next the banks should be built more firm and solid, as serving to sustain the whole series of arches, and hinder them from spreading.

BUTOMUS, the flowering rush, in Botany. See RUSH.

BUTORIUS, in Zoology, a name by which some have called the *ardea stellavis*, or BITTERN.

BUTRO, in Natural History, the name of a wild bull. See BISON.

BUTT, in our *Ancient Customs*, denotes a place erected for archers to shoot at, and in which a mark or white was fixed.

BUTT is used for a vessel, or measure of wine, containing two hogheads, or 126 gallons.—Otherwise called **PIPE**.

A *butt* of currants is from fifteen to twenty-two hundred weight.

BUTT, or **BUTT-end**, in the *Sea Language*, denotes the end of any plank, which joins to another on the outside of a ship, under water.

Hence, when a plank is loose at one end, they call it *springing a butt*; to prevent which, ships are usually bolted at the *butt-heads*, that is, at the plank's end.

BUTTER, a fat, unctuous substance, prepared, or separated from milk, by heating or churning it.

The word is formed from *βυτυρον*, a compound of *βες*, cow, and *τυγες*, cheese; q. d. *cow's cheese*.—Some authors, out of regard to this etymon, affect to write the word *buttyr*, and *buiyr*.

It was late ere the Greeks appear to have had any notion of *butter*. Homer, Theocritus, Euripides, and the other poets, make no mention of it; and yet are frequently speaking of milk and cheese: and Aristotle, who has collected abundance of curiosities relating to the other two, is perfectly silent on this. Pliny tells us, that *butter* was a delicate dish among the barbarous nations; and was that which distinguished the rich from the poor. Hist. Nat. lib. xxviii. cap. 35.

The first time the word *βυτυρον* occurs is in Hippocrates, in speaking of the Scythians, from whom the Greeks appear to have first learnt the art of making it. In reality what reason can be given, why Herodotus should describe the Scythians process of making *butter* with so much exactness, if the same had been in use among the Greeks. Herod. Melpom.

It must not be forgot, that the ancient Jews appear to have been acquainted with the method of preparing *butter*. Solomon, Isaiah, and even Moses, speak of it. The last represents it as in use in Abraham's time, unless we should suppose, with some modern writers, that by *butter* in these passages we are to understand *CHEESE*. See Prov. xxx. 33. Isa. vii. 15.

The Romans used *butter* no otherwise than as a medicine, never as a food. Schookius observes, that it is owing to the industry of the Dutch, that there is any such thing as *butter* in the East Indies: that in Spain, *butter* is only used medicinally, for ulcers; and adds, that the best opiate for making the teeth white, is the rubbing of them with *butter*.

Cl. Alexandrinus observes, that the ancient Christians of Egypt burnt *butter* in the lamps at their altars, instead of oil; and the Abyssinians, according to Godignus, still retain a practice much like it. Clemens finds a religious mystery in it. In the Roman churches, it was anciently allowed, during Christmas time, to use *butter* instead of oil; by reason of the great consumption thereof, in other ways.

In the cathedral of Rouen there is a tower called the *BUTTER tower*, *tour du beurre*, because George d'Amboise, archbishop of Rouen in 1500, finding the oil fail in his diocese during Lent, permitted the use of *butter*, on condition that each inhabitant should pay six deniers for the liberty, with which sum this tower was erected. There are other *butter* towers at Notre Dame, Bourges, &c.

Butter is made in the greatest plenty from cows milk, but sometimes also from goats, and the richest from sheeps milk, as is observed by Pliny; though Galen seems to doubt it. Instances have also been known of *butter* made from woman's milk, which is extolled by Hoffman as a sovereign remedy against the *phthisis*. Add, that the ancient Scythians, according to Hippocrates, made *butter* of mares milk; the method of preparing which is described by that author.

If cows feed on short grass, they will yield more *butter*, though less milk, than if they fed on long rank grass. The milk of some cows, though fed on the same grass, will not yield so much *butter* as that of others. In many cases the *butter* is found to retain the taste of the plant on which the cows feed.

Writers on the dairy describe the process of making and ordering *butter*. The chief means whereby *butter* is produced, is a long continued agitation of milk, whereby its texture is broken. After the *butter* is come, as they call it, they take it out, wash it, and beat it, to express the milk. In Bengal, *butter* is easily made, by the slight turning of a stick in milk. Phil. Trans. N° 337. p. 227.

In Barbary, *butter* is made by putting the milk or cream into a goat's skin, suspended from one side of the tent to the other, and pressing it to and fro in one uniform direction. This quickly occasions the necessary separation

of the unctuous and wheyey parts. Shaw's Travels, p. 241.

If the milk be not well wrought out, the *butter* will not keep. When *butter* begins to decay and taste amiss, working it well anew, and washing it with water, will restore it.

In Bengal, to make *butter* pass for fresh when old and rank, they melt it, and pour on it four curdly milk; some hours after which, they strain it through a cloth for sale.

BUTTER, *clarified*, and **TALLOW**, are said to be specifics against the *bloody FLUX*, and defluxions of the eyes and breast. The process of *clarifying butter* is as follows.—Take new-churned *butter*, without salt, melt it over a clear fire, and skim off the curdy part. Two spoonfuls of the clarified remainder are to be given twice or thrice within the day.

This oil of **MILK**, which is naturally distributed through all the substance of the milk, consists of very small particles, which are interposed betwixt the caseous and the ferous parts, among which it keeps itself suspended, by a light adhesion, but without being dissolved. It is in the same state in which oil is in emulsions; hence, the same whiteness in **MILK** and in **EMULSIONS**; and hence by rest, the oily parts separate from both these liquors to the surface, and form a cream. When *butter* is in the state of cream, its proper oily parts are not yet sufficiently united together to form a homogeneous mass. They are still half separated by the interposition of a pretty large quantity of caseous and ferous particles. The *butter* is completely formed by pressing out these heterogeneous parts, by means of continued percussion. It then becomes an uniform mass.

The trade of *butter* is very considerable. It is chiefly made within forty miles round the city. Fifty thousand firkins are said to be sent yearly from Cambridge and Suffolk alone; each firkin containing 56 pounds. Uttoxeter in Staffordshire is a market famous for good *butter*, inasmuch that the London cheesemongers have an established factory here for *butter*. It is bought by the pot, of a long cylindrical form, weighing 14 pounds.

Divers abuses are practised in the packing and salting of *butter*, to increase its bulk and weight, against which we have a statute express. 4 Car. II. cap. 26.

By 13 and 14 Car. II. cap. 26. no *butter* which is old or corrupt, shall be mixed or packed with that which is new and sound.—Nor any *whey-BUTTER* be mixed or packed with *butter* made of cream.—But each sort shall be packed separately.—No *butter* shall be salted or saved with any great salt, but all with small salt.

Butter, as a wholesome aliment, should be fresh and free from rancidity, and not fried or burnt; otherwise the acid being disengaged by age and fermentation, as well as by fire, it will disorder digestion, render it difficult and painful, excite acrid, empyreumatic belchings, and introduce much acrimony into the blood.

Butter is an emollient, and has virtues approaching to those of oil; having a peculiar power of resisting poison, and obtunding the acrimony thereof. By its suppling and relaxing the parts, Dr. Quincy thinks it has a tendency to stop in the capillaries and glands, and foul the viscera; whence proceed blotches, and cutaneous diseases. Some represent it as a diuretic, purgative, and promoter of expectoration.

BUTTER, *May*, **BUTYRUM Majale**, is a medicine in some repute among good women, for strains, aches, and wounds. It is made of *butter* churned at that time, and exposed to the sun of the whole month, till, by repeated fusions, it be brought to a whiteness. Helmont calls it *magistery of grass*. Quincy affirms it is no better than plain lard.

Naturalists speak of showers and dews of *butter*. See **DEW**.

BUTTER-milk, the **MILK** which remains after the *butter* is come by churning.

Butter-milk is esteemed an excellent food, in the spring especially, and is particularly recommended in hectic fevers.

Some make curds of *butter-milk*, by pouring into it a quantity of new milk hot.

BUTTER-bump. See **BITTERN**.

BUTTER-bur, *Petasites*, in *Botany*, an officinal plant, both in figure and virtues resembling *master-wort*. Linnaeus has comprehended this plant under the genus of *russilago*, which belongs to the class of *syngenesia polygamia superflua*. Its characters are these: the flower is composed of several hermaphrodite florets, which are included in one common cylindrical empalement; they are tubulous or funnel-shaped, of one petal, cut into five segments at the brim. They have each five small hair-like stamina, terminated by cylindrical summits, and a short germen, crowned with down, supporting a slender style, crowned by a thick stigma; the germen afterward becomes an oblong

oblong, compressed seed, crowned with a hairy down. There are five species; the first of which is the common *butter-bur*, or pestilent-wort, the *tussilago petasites* of Linnaeus, which grows naturally by the sides of rivers and ditches in most parts of England. It is reputed an alexipharmic and detergent, and used in many compositions, especially with the first of those intentions. There is also a compound water denominated from it, though rejected in the last college dispensatory.

The root is the part principally used; and beside these virtues it has those of an aperient and detergent. It is prescribed in suppressions of the urine and *menfes*, and in coughs, asthma, and other diseases of the breast.

BUTTER-nut, a fruit in New-England, whose kernel yields a great quantity of sweet oil.

BUTTER-wort, *Pinguicula*, in *Botany*, a genus of the *dianthia monogynia* class. The corolla consists of a single ringent petal; the longer lip is straight, obtuse, trifid, and supine; the shorter lip is bifid, more obtuse, and patent; the *nectarium* is corniculated, and produced from the base of the petal; the fruit is an oval capsule, compressed at top, and containing one cell, in which are several small seeds of cylindric figure. There are four species. The common butterwort or *pinguicula vulgaris* of Linnaeus, is found growing on bogs in many parts of England, and flowers in June; but is never cultivated in gardens.

BUTTER, *Butyrum*, is also used to express several chemical substances—as *butter* of ANTIMONY, of ARSENIC, of BEN, of BISMUTH, of CACAO, of FLAX, of SATURN, of TIN, of WAX, &c. on account of their form of consistence resembling that of *butter*.

BUTTER of stone, a kind of mineral drug found on the highest mountains, and hardest rocks of Siberia, being drawn by the sun's heat, in the way of transudation, from the dry substance of the stones themselves, and adhering to the surface thereof like a sort of calx, which having received its full coction, is scraped off by the inhabitants under the name of *kamine masla*. The Russians ascribe many virtues to it. It is much used for the dysentery and venereal diseases; but its operation is so violent, however corrected by other ingredients, that none but the Russians dare use it.

BUTTER-fish, a small fish, common in Cornwall, shaped somewhat like an eel, and distinguished by two rows of black spots along its back, and called *gunellus*.

BUTTER-fly, in *Zoology*. See *PAPILIO*.

BUTTER-fly fish, the English name for the fish called by authors *BLENNUS*, or *BLENNIUS*.

It has its name of the *butter-fly fish* from a spot in the fin, which resembles those in the wings of some *butter-flies*.

BUTTER-fly shell. See *VOLUTA*.

BUTTER-fly, *Satyrion*, in *Botany*. See *ORCHIS*.

BUTTER-jags, flowers of the wild *TREFOIL*.

BUTTERY.—Officers in the king's *buttery*, are a gentleman, yeoman, and three grooms of the *buttery*. The *buttery* among us is usually placed near the cellar; being commonly the room next the top of the cellar stairs.

BUTTING, *imbutare*, in *Middle Age Writers*, is used for tunning of wine, or putting it into butts.

BUTTING-pillar. See *PILLAR*.

BUTTOCK of a ship is her full breadth right aft from the tuck upwards.—According as a ship is built, broad or narrow at the transom, she is said to have a *broad* or *narrow buttock*.

BUTTONS make an article in dress, whose form and use are too familiar to need a description.—The matter whereof they are made is various; as metal, silk, mohair, &c.

BUTTONS, *metal*, are various; both with regard to the matter and manner of making; besides those cast in moulds, much in the manner of other small works (see *FOUNDRY*), there are now made great quantities with thin plates or leaves of gold, silver, and brass; especially of the two last.—The invention of these *buttons* being very late, as not having been set on foot before the beginning of the eighteenth century, and their structure very ingenious, though but of indifferent use, we shall here subjoin it.

BUTTONS, *manner of making plated*. The metal to be used being reduced into thin plates, or leaves, of the thickness intended (either by the goldsmith or brasier), is cut into little round pieces, of a diameter proportionable to the wooden mould they are made to cover: this cutting is performed with a sharp punch, on a leaden block or table.—Each piece of metal thus cut, and taken off from the plate, is reduced to the form of a *button*, by beating it successively in several spherical cavities, with a round piece of iron, in form of a puncheon; still beginning with the flattest cavity, and proceeding to the more spherical, till the plate has got all the relieve required; and the better to manage so thin a plate, they form ten or twelve to the cavities at once; and also boil the metal to make it more ductile.

The inside thus formed, they give an impression to the

outside, by working it with the same iron puncheon, in a kind of mould like the minter's coins, engraven *en creux*, or indentedly; and fastened to a block or bench. The cavity of this mould, wherein the impression is to be made, is of a diameter and depth suitable to the sort of *button* to be struck in it; each kind requiring a particular mould. Between the puncheon and the plate is placed some lead, which contributes to the better taking off all the strokes of the graving; the lead, by reason of its softness, easily giving way to the parts that have relieve; and as easily intinuating itself into the trace, or engraving of the dentures.

The plate thus prepared makes the upper part or shell of the *button*. The lower part is formed of another plate, made after the same manner, but flatter, and without any impression. To this last, is soldered a little eye made of wire, of the same metal, for the *button* to be fastened by.

The two plates are soldered together with a wooden mould, covered with wax, or other cement, between, in order to render the *button* firm and solid; for the wax entering all the cavities formed by the relieve of the other side, sustains it, prevents its flattening, and preserves its boss or design. Ordinarily indeed, they content themselves to cover the naked mould with the shell; and in this case, for the fastening, they pass a thread or gut across the middle of the mould.

Buttons made of hair, or other foreign *buttons*, shall not be imported, on pain of forfeiture, &c. 13 and 14 Car. II. cap. 13.—4 W. and M. cap. 10. Also *buttons* are not to be made of cloth, stuff, or wood, under penalties. Stat. 4 and 5. W. and M.—10. W. III. cap. 2. 4 Geo. I. cap. 7.—7 Geo. I. stat. 1. cap. 12.

BUTTON, in *Botany*, denotes a flower or cluster of leaves not yet expanded; and is much of the same import with *BUD*. The term *button* is chiefly used in speaking of vines and roses; and is otherwise denominated *eye*, *sprout*, *bud*, *button*, &c.

BUTTON, in *Building*, denotes a slight fastening for a door or window, made to turn on a nail.

BUTTON of a lock, denotes a round head serving to move the bolt.

BUTTON, in *Chemistry*, signifies the metal which is collected generally in a roundish mass at the bottom of a crucible after fusion, or which remains in the cupels after cupellation.

BUTTON, in *Fencing*, signifies the end or tip of a foil, being made roundish, and usually covered with leather; to prevent making contusions in the body.

BUTTON of the reins of a BRIDLE, in the *Manege*, is a ring of leather, with the reins put through it, running all along the length of the reins.

To put a horse under the *button*, is when he is stoppt, having no rider on his back, by the reins being laid on his neck, and the button lowered, so far as that the horse's head is brought in by the reins, and fixed to the true posture or carriage.

BUTTON-antennæ, a name given by *Naturalists* to those *antennæ* or horns, as they are called of butterflies, which are slender, and terminated at the top by a sort of *button*, in form of an olive, or part of one. The French naturalists, from Reaumur, call these *antennes a boutons*. See *FEELERS*.

BUTTON-stone, in *Natural History*, a kind of figured-stone, so denominated from its resembling the *button* of a garment.

The *button-stone* is called by *Naturalists*, *porpites*. Some make it a species of *ECHINITES*.

Dr. Hook gives the figure of three sorts of *button-stones*, which seem to have been nothing else but the filling up three several sorts of shells. They are all of them very hard flints, and have this in common, that they consist of two bodies, which seem to have been the filling up of two holes or vents in the shell. *Posth. Works*, p. 284.

D. Plott describes a new species of *button-stone*, finely striated from the top, after the manner of some hair buttons, on which account it may be denominated *porpites*, unless we should rather take it for a new species of *ECHINITES*. *Hist. Oxf.* chap. 5. § 178.

This name is also given to a peculiar species of slate found in the marquise of Bareith, in a mountain called Fichtelberg; which is extremely different from the common sorts of slate, in that it runs with great ease into glass in five or six hours time, without the addition of any salt, or other foreign substance, to promote its vitrification, as other stones require.

It contains in itself all the principles of glass, and really has mixed in its substance, the things necessary to be added to promote the fusion of other stony bodies.

The Swedes and Germans make *buttons* of the glass produced from it, which is very black and shining, and it has hence its name *button-stone*. They make several other things also of this glass, as the handles of knives, and the

the like, and send a large quantity of it unwrought in round cakes, as it cools from the fusion, into Holland.

BUTRON-tree, *Cephalanthus*, in *Botany*, a genus of the *tetrandria monogynia* class. The characters are these: it hath a number of small flowers collected into a spherical head, and each particular flower hath a funnel-shaped empalement, divided into four parts at the top; the flower is funnel-shaped, of one petal, divided at the top into four parts, inclosing four stamina, which are inserted in the petal. The germen is situated under the flower, which becomes a globular hairy capsule, inclosing one or two oblong, angular seeds; these are joined to an axis, and form a round head. Miller mentions two, and Linnæus one species.

BUTTON-tree of Jamaica, *Conocarpus*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flowers are collected in a globular head, each standing in a scaly empalement. At the bottom is situated a large compressed germen, divided into five parts at the top. The flower has one petal, which is cut into five equal parts, and five slender stamina, which extend beyond the petal. The germen becomes a single seed, inclosed in the scale of the fruit, which is shaped like the cone of the alder-tree. Linnæus enumerates three, and Miller two species.

BUTTON-wood. See *SPERMATOCOE*.

BUTTRESS, a *butment*, or mass of stone, or brick, serving to prop or support the sides of a building, wall, or the like, on the outside; where it is either very high, or has any considerable load to sustain on the other side, as a bank of earth, &c. See *ARCH*, and *ARC-BOUTANT*. The theory and rules of *butresses*, or props for easing walls, is ranked among the desiderata of architecture. They are usually placed leaning against the edifice they are to sustain. We find them used against the angles of steeples, churches, and other buildings of stone; also along the walls of such buildings as have great and heavy roofs, which would otherwise be subject to thrust the wall out. They are also placed as supports against the feet of arches turned cross great halls, in old palaces, &c. and are much used in fortification.

BUTRESS, **BUTTRICE**, or **BUTTERIS**, likewise denotes a tool, used by farriers, to pierce the sole of a horse's foot, which is overgrown; to pare the hoof; to fit the shoe; and to cut off the skirts of the sole, that overcast the face.

BUTYROUS, or **BUTYRACEOUS**, something that partakes of the nature or qualities of butter.

BUVETTE, or **BEUVETTE**, in the *French Laws*, an established place in every court, where the lawyers and counsellors may retire, warm themselves, and take a glass of wine by way of refreshment, at the king's charge.

There is one for each court of parliament, but these are only for persons belonging to that body; there are others in the *palais* whither other persons also resort.

BUXBAUMIA, in *Botany*, a genus of the *cryptogamia mosses*.

BUXTON waters. See *WATERS*.

BUXUS, in *Botany*. See *Box-tree*.

BUYER, *Emptor*. See *BUYING* and *EMPTOR*.

BUYING, the act of making a *PURCHASE*, or of acquiring the property of a thing for a certain price.

Buying stands opposed to *selling*, and differs from *BORROWING* or *hiring*, as in the former the property of the thing is alienated for perpetuity, which in the latter is not. By the civil law, persons are allowed to *buy* hope, *specie pretio emere*, that is, to purchase the event or expectation of any thing. E. gr. The fish or birds a person shall catch, or the money he shall win in gaming.

There are divers species of *buying* in use among traders; as *buying* on one's own account, opposed to *buying* on commission; *buying* for ready money, which is when the purchaser pays in actual specie on the spot; *buying* on credit, or for a time certain, is when the payment is not to be presently made, but, in lieu thereof, an obligation given by the buyer for payment at a time future; *buying* on delivery, is when the goods purchased are only to be delivered at a certain time future.

BUYING the refusal, is giving money for the right or liberty or purchasing a thing at a fixed price, in a certain time to come; chiefly used in dealing for shares in stock. This is sometimes also called by a cant name, *buying the bear*.

BUYING the small pox, is an appellation given to a method of procuring that disease by an operation nearly akin to *INOCULATION*; frequent in South Wales, where it has obtained time out of mind.

It is performed either by rubbing some of the *pūs* taken out of a pustule of a variolous person on the skin, or by making a puncture in the skin with a pin dipped in such *pūs*. Phil. Trans. N^o 375. See *INOCULATION* and *Pox*.

BUZ, in *Ichthyography*, the name of a fish more commonly known by that of *ALBULA*, and caught in the German lakes.

BUZIDAN, in the *Materia Medica of the Ancients*, a name given by Avicenna, and others, to a wood produced in Africa, which had the same virtues with the radix behen, or white and red behen, or ben root. We are not acquainted with this medicine at this time, but it appears to have been of the colour of our red saunders; so that it could only serve to adulterate the red ben root; though they say, in general, that it was used to adulterate the ben when scarce.

BUZZARD, **BUTEO**, in *Ornithology*, the name of a bird of prey, of the long-winged hawk kind, belonging to the genus of *FALCON* in the Linnæan system; or which there are several species. 1. The bald *buzzard*, so called from the whiteness of his crown, sometimes called *aprey*. 2. The common *buzzard*, distinguished from the former by the shortness of its wings, and its smaller size. 3. The honey *buzzard*, or apivorous *buzzard*, which feeds its young from the bee-hives. See *APIVORUS Buteo*. 4. The *SOBBUTEO*, the male of which has been usually called the hen-harrier, the female the ring-tail; though by later observations males have been found of this species; and, 5. The moor *buzzard*, common in marshy places, and called *MILVUS ÆRUGINOSUS* by authors.

The common *buzzard* is a bird of the long-winged hawk kind, of the size of a pheasant, or small pullet. It feeds on moles, field-mice, and other small birds, and sometimes will seize on rabbits. In want of better food, it will live on beetles, worms, and the like. Its eggs are white, more or less sprinkled with irregular red spots. In age, or by some other accidents, the head and back in this species, are sometimes found grey.

The moor *buzzard* is a bird of the long-winged hawk kind, smaller than the common *buzzard*, and not so flat on the head. Its beak is large and crooked, covered with a greenish yellow skin near the top, and black in other places. Its mouth is bluish within; its head is of a whitish orange colour, variegated with black streaks; its throat is of the same colour; and all the rest of its body, as well back as belly, is of a dusky rust colour, only that in each wing there is a yellowish white spot; and the feathers at the root of the tail are yellowish. Its legs are long and slender, and of a yellowish colour. The inside of its wing-feathers are whitish. It is common with us about heaths and marshes.

BYAS is used by Petty for the central point supposed in the middle of each *ATOM* or *CORPUSCLE*.

BY-LAWS, **BYE-LAWS**, or **BI-LAWS**, private or peculiar orders and regulations for the good government of a city, court, or other community, made by general consent of the members thereof; being not repugnant to the general laws of the realm.

By stat. 9 Hen. VII. cap. 7. *bye-laws* made by corporations are to be approved by the lord-chancellor, or chief-justices, under penalty of 40*l*.

The word is formed from the saxon *by*, *habitation*, *vill*, and *laxa*, q. d. *lex villa*, or *town-hall*. They are also called *birlaws*, *byrlaws*, and *burlaws*, *bilager*, and *vellagines*. Such is the custom in Kent of deciding controversies among neighbours about boundaries, by the *seneschals*, or *bailiffs*.

In Scotland, those are called *laws of burlaw*, or *byrlaw*, which are made and determined by neighbours, elected by common consent in *burlaw-courts*; wherein cognizance is taken of complaints betwixt neighbour and neighbour—The men thus chosen as judges or arbitrators are called *burlaw-men*, or *byrlaw-men*.

BYRRHUS, in *Natural History*, a genus of insects of the order of *coloptera*, with elevated, almost solid, and compressed antennæ. There are five species.

BYRSODEPSICON, from *byrsa*, *skin*, and *depsa*, *I dress*, an epithet given to *sumach*, denoting its use in dyeing of leather. See *SUMACH*.

BYSSUS, or **BISSUM**, a fine sort of thready matter produced in India, Egypt, and about Elis in Achaia, of which the richest apparel was anciently made, especially that wore by the priests both Jewish and Egyptian.

In reality, the ancients seem to have applied the name indifferently to any kind of matter that was spun and wove finer than wool: so that it was probable there were divers sorts of *byssus*. This is certain, that Aristotle gave the name *byssus* to the hair or silken threads of the *pinnæ marina*; whether it were on account of its resemblance to the *byssus* of which cloths were made, or whether it were that this was the true *byssus* itself. What countenances this latter opinion is, that the *byssus* of the *pinnæ marina* may be spun, and consequently there is little doubt but that in ages when silk was scarce, it might be used in the cloaths of great men. Add, that this *byssus*, though grossly spun, appears much finer and more beautiful than wool, and comes not much short of silk. Stockings and other such manufactures are still made of it, which would be more valuable if silk were less common.

mon. To spin this *byssus*, they leave it some days in a cellar to moisten and grow soft; after this they comb it to get out the impurities, and, lastly, spin it as they do silk.

Authors usually distinguish two sorts of *byssus*, that of Elis, and that of Judea, which was the finest. Of this latter were the priestly ornaments made. Bonfrerius notes, that there must have been two sorts of *byssus*, one finer than the ordinary, by reason there are two Hebrew words used in Scripture to denote *byssus*, one of which is always used in speaking of the habit of the priests, and the other of that of the Levites. See Luke xvi. 19.

It is probable the *byssus* of the ancients was a very fine sort of cotton, or a mixture of linen and cotton. Forster. De Byssio Antiquorum.

Byssus, in *Botany*, a word used to express a genus of mosses, described by some of the ancients under the name of *alcyonium*, and belonging, in the Linnæan system, to the class of *cryptogamia algæ*, the most imperfect of the whole class of vegetables. The characters of this genus are, that the mosses of it are composed of simple and uniform parts, and always appear in form of excrescences, either of a woolly or of a dusty matter. It seems properly a genus of vegetables of a middle kind, between the mushrooms and the mosses, but most approaching to the latter, in that the several species of it

are of a longer duration, and want that fleshy texture which distinguishes the *fungus* class, and in that they never produce heads, nor have any thing of the figure or texture of *fungi*. The *byssi* differ from the *CONFERVÆ*, in that they do not grow in the water, and in their being composed of slenderer and shorter filaments. They have not yet been discovered to have either flower or seed, but appear always in form of threads, or of a light down, or fine powder, on the surfaces of many different bodies, but principally such as are liable to putrefaction. Micheli, in his *Nova Genera Plantarum*, p. 210. mentions the seeds of some of the *byssi*: but later observers, and particularly the indefatigable Dillenius, were never able to observe them. This last author has described twenty species of these small plants. See in the *Philosophical Transactions*, vol. xlviii. part i. N^o 54. an. 1753 an account, with observations, of this genus of plants, which in the order of nature comes between the mosses and the *fungi*. This vegetable is found in England, as well as in many parts of Europe, covering the ground like a carpet. See *Tab. XIII. Botany*, N^o 1.

BYTTNERIA, in *Botany*, a genus of the *pentandria monogynia* class; the corolla is composed of five petals; the capsule has five lobes, and is covered with prickles. There is only one species.

BYZANT. See BESANT.

BYZANTINA blatta. See BLATTA.

C.

C The third letter, or second consonant of the alphabet, has two sounds, one like *k*, as in the word *call*; and the other like *s*, as in *Cæsar*. It has the former sound before *a*, *o*, *u*, or a consonant; and the latter before *e*, *i*, and *y*. *C* is formed, according to Scaliger, from the κ of the Greeks, by retrenching the stem or upright line; though others derive it from the \beth of the Hebrews, which has in effect the same form; allowing only for this, that the Hebrews reading backwards, and the Latins, &c. forwards, each have turned the letter their own way. However, the *C* not being the same as to sound with the Hebrew *caph*; and it being certain the Romans did not borrow their letters immediately from the Hebrews, or other Orientals, but from the Greeks; the derivation from the Greek κ is the more probable. Add, that F. Montfaucon, in his *Palæographia*, gives us some forms of the Greek κ , which come very near that of our *C*; this, for instance, C : and Suidas calls the *C*, the Roman kappa. The second sound of *C* resembles that of the Greek Σ ; and many instances occur of ancient inscriptions, in which Σ has the same form with our *C*. Gruter, vol. i. p. 71. vol. iii. p. 1020.

All grammarians agree, that the Romans pronounced their *Q* like our *C*, and their *C* like our *K*. F. Mabillon adds, that Charles the Great was the first who wrote his name with a *C*; whereas all his predecessors of the same name wrote it with a *K*; and the same difference is observed in their coins.

C was also a numeral letter of the Romans, signifying an hundred: according to the verse,

Non plus quam centum C litera fertur habere.

Some add, that a dash over it, made it signify an hundred thousand.

C is also an ABBREVIATURE.

In proper names *C* is used for Caius; as *C. Cæsar*, &c. Their lawyers use it singly for *Codice* or *Consule*, and double, *CC.* for *Consulibus*.

C was also used in their courts, as a letter of condemnation, and stood for *condemno*; in opposition to *A*, which signified *absolvo*.

C, in *Musick*, denotes the highest part in a *thorough BASS*; and when placed after the *cliff*, it intimates, that the music is in common time.

CAABA, a square stone edifice in the temple of Mecca, supposed to have been built by Abraham and his son Ishmael; being the part principally revered by the Mahometans, and to which they always direct themselves in prayer. See **KEBLA**.

The word is Arabic, *caaba*, and *caabah*, a denomination which some will have given to this building, on account of its height, which surpasses that of the other buildings in Mecca; but others, with more probability, derive the name from the quadrangular form of this structure.

CAAMINA, in *Botany*, a name given by the Spaniards and others to the finest sort of the Paraguay tea. It is the leaves of a shrub which grows on the mountains of Maracaya, and is used in Chili and Peru as the tea is with us. The mountains, where the trees which produce this valuable leaf grow naturally, are far from the inhabited parts of Paraguay; but the people of the place know so well the value and use of it, that they constantly furnish themselves with great quantities of it from the spot. They used to go out on these expeditions many thousands together, and their country was left to the insults of their enemies in the mean time, and many of them perished with the fatigue.

To remedy these inconveniencies, they have of late planted the trees about their habitations; but the leaves of these cultivated trees have not the fine flavour or the

virtues of the wild ones. The king of Spain has permitted the Indians of Paraguay to bring to the town of Saintfoi, twelve thousand arobes of the leaves of this tree every year: but they are not able to procure so much of the wild leaves annually; about half the quantity is the utmost they bring of this; the other half is made up of the leaves of the trees in their own plantations, and this sells at a lower price, and is called *pabos*. The arobe is about five and twenty pounds weight; the general price is four piastras for the arobe; and the money is always divided equally among the people of the colony.

CAA-APIA, in *Botany*, the name of a Brazilian plant, described by Marcgrave, Piso, and others; the root of which so much resembles the ipecacuanha in its virtues, that some have erroneously called it by the same name. It is an astringent and emetic, as the epicacuanha, but it possesses both these qualities in a much weaker degree, and is therefore necessarily given in a much larger dose, a dram being the quantity commonly given at once. The Brazilians bruise the whole plant, and express the juice, which they take internally, and also apply it externally to wounds made by poisoned arrows, and by the bites of serpents. Some have supposed the root of this plant to be the white ipecacuanha; but this is an error, that being little different from the grey. Mem. Acad. Par. an. 1700. p. 134 hist. 69. Geoffroy.

CAAPIBA, in *Botany*, the name given by Plumier to a genus of plants, called afterwards by Linnæus **CISSAMPELOS**.

CAB, or **KAB**, denotes a Hebrew measure of capacity, equal to the sixth part of the seah, or an eighteenth of the **EPHA**. Arbuthnot's Tab. Anc. Coins, &c. n. 14. and 15.

The *cab* of wine contained two English pints; the *cab* of corn, $2\frac{1}{2}$ pints corn measure.

We also find mention of the *cab* as a dry measure, in Grecian and Roman writers: some make it equal to the Grecian **CHOENIX**, and assert it to be the quantity of what a labourer eats per day, as assigned by Cato.

CABAL, a name given to a sort of drink made of dried raisins. The manner in which the Portuguese make *cabal* is this; they take out the stones of about twenty pounds of raisins, and then bruising the raisins a little, they put them into a barrel of white wine, in the month of January or February, and let them stand till about Easter. It is then very clear and rich, luscious and palatable to the taste. It is recommended to stop coughs, and give strength to the stomach. It is worth while to try the experiment with the same proportion of raisins to the same quantity of our English cyder, which would probably prove a fine drink. Phil. Trans. N^o 157.

CABALA vein, in *Natural History*, a name given by our Susssex miners to one kind of the iron ore commonly wrought in that country. It is a stony ore, of a brownish colour, with a blush of red, which is more or less conspicuous in different parts of the same masses. It is usually found in thin strata, lying not far from the surface, and is not very rich in iron, but it runs very readily in the fire.

CABALATAR, in *Natural History*, a name given by some of the chemical writers to nitre, called also *cerberus chemicus*, and *sal infernalis*.

CABALISTE, in *Commerce*, a term used at Thoulouse, and in the whole province of Languedoc; which signifies a merchant who does not trade in his own name, but is concerned in the trade of another merchant in chief. See **ANONYMOUS partnership**.

CABALLEROS, in *Commerce*; wools of *cabaleros*, or *cavalleros*, are Spanish wools of which there is a considerable trade at Bayonne in France.

CABALLI, among *Misic Philosophers*, denote the shades,

or astral bodies of men who died any sudden or violent death, before the expiration of their predestinated term of life.

The *caballi*, called also *cabales* and *cobales*, are supposed to wander as goblins or ghosts over the face of the earth, till their destined term is accomplished; being doomed to live out the time as spirits, which they ought to have spent in the flesh.

CABALLINA, *Aloe*, is a denomination given to the coarsest and rankest kind of *ALOES*, as being little used unless for purging horses. Hist. Acad. Scienc. an. 1708. p. 66.

CABALLINUM, *Sulphur*, denotes common brimstone or *SULPHUR*.

CABALLINE, **CABALLINUS**, from the Greek *καβαλλος*, a horse, something relating to, or partaking of, the nature and qualities of a horse.

CABBAGES, in *Gardening*; for the characters, see *BRASSICA*. The common sorts of *cabbages* are largely cultivated about London. The common white, red, flat, and long-sided ones, are chiefly for winter use. The seeds of these sorts must therefore be sown in the end of March, and beginning of April, in beds of good fresh earth; and in May, when the young plants will have about eight leaves a-piece, they are to be pricked out into shady borders, about three inches square, and, about the beginning of June, they must be transplanted to the places where they are to remain: and this is commonly between cauliflowers or artichokes, at about two feet and a half distance in the rows. They must be watered at times, and the earth must be hoed up about their roots, and kept clear from weeds.

These *cabbages* will be fit for use soon after Michaelmas, and will continue till the end of February, if not destroyed by bad weather; to prevent which, the gardeners about London pull up their *cabbages* in November, and trench the ground in ridges, laying their *cabbages* against the ridges, as close as possible on one side, burying their stems in the ground; and in this manner they let them remain till after Christmas, when they cut them for market.

The Germans make great use of a preparation of *cabbages*, which they call *four krout*, and *CROUTE*.

The Russian *cabbage* is small, and not much cultivated now. It is to be raised as the others, but may be planted nearer, as not so large. It is fit for use in July.

The early and sugar-loaf *cabbages* are sown for summer use, and are commonly called *Michaelmas cabbages*. The season for sowing these is the end of July or beginning of August, in an open spot of ground. The plants are pricked out at three inches distance, when they have eight leaves. It is common to sow spinach in the same beds with these, hoeing it up from about their stalks in spring; in May and June these begin to turn their leaves for cabbaging, and may be brought to it much sooner than naturally they would, by tying them about the top with an ozier band.

The Savoy *cabbages* are for winter use, and are to be sown about the middle of April; they are to be treated as the common *cabbage*, and planted out at two feet and a half distance, in an open place.

The *bore-cole* may be cultivated in the same manner, but must be planted only at one foot distance; these are not fit to cut till the frosts have nipped them. See *BROCCOLI*, and *CAULIFLOWER*.

The method of getting good *cabbage*-seed is this: choose out some fair plants about the end of November, pull them up, and hang them up three days, with the root upward, in a shady place; then plant them under a warm hedge, burying the whole stalk and half the *cabbage* in the earth; cover them with straw or pease haum, if the winter be severe, and in spring they will shoot out many branches. When these begin to pod, the ends of the upper ones should be cut off, to give strength to the other pods. The seed must be preserved from the birds, by fixing some lime twigs about the plants, where the catching of one or two will intimidate the rest. When ripe, it must be threshed out, and kept for use. Miller.

The culture of *cabbages* as food for cattle, makes a very considerable branch of modern husbandry. Those in common use for this purpose are the great Scotch *cabbage*, the turnep *cabbage*, and, on account of its peculiar hardness and duration, the turnep-rooted *cabbage*. By proper management, a succession of different *cabbage* crops may be obtained through the winter. *Cabbages* afford a wholesome and nutritive food for cattle, sheep, horses, and hogs: and if they are cultivated on good ground, well manured, and horse-hoed after the method of Mr. Tull, they produce very large crops, from 30 to 60 tons on an acre. An Irish acre (which is in proportion to the English as 196 to 121) was planted with *cabbages* by Mr. Baker in July, at the distance of two feet from each other, in the middle of ridges five feet asunder, and hoed in Mr. Tull's method, and produced

by December 52,038 lb. weight of *cabbages*, each weighing at an average about 7 lb. 6 oz. The same quantity of ground planted with turnep *cabbages*, and treated in the same manner, yielded in the whole 57,761 lb. each *cabbage* weighing at an average 8 lb. 2 oz. Bore-cole planted in the same manner, and on the same space of ground, yielded 40,096 lb. each plant at an average weighing 5 lb. 10 oz. Mr. Baker, by subsequent trials found, that larger crops might be obtained by planting his *cabbages* on four feet ridges, and eighteen inches distant in the rows: and the smaller kinds at the distance only of one foot.

CABBAGE-shrub, *Anjou*, or *Colewort*, a plant which has been for some time cultivated in France, and lately introduced into England. It is an excellent vegetable for the kitchen, good food for cattle, and greatly increases the milk of cows. The dry stalk of this plant serves for fuel. It will grow in any soil that is well dunged. The seeds are sown in June; and the plants are to be well watered and kept free from weeds, and transplanted into the common field where they are to remain till November. The Marquis de Turbilly, in a letter to Mr. Mills, has given particular directions for the management of them. See *COLEWORT*.

CABBAGE, *Dog's*, *Theligonum*, in *Botany*, a genus of the *monoecia polyandria* class. Its characters are these: it has male and female flowers on the same plant; the male flowers have a turbinated empalement of one leaf, cut into two segments which turn backward. It has no petal, but several erect stamina of the length of the empalement, terminated by single summits. The female flowers have a small bifid empalement of one leaf, which is permanent. It has no petals, but has a globular germen, supporting a short style, crowned by an obtuse stigma. The germen afterwards becomes a thick globular capsule with one cell, inclosing one globular seed. We have but one species, which grows naturally in the south of France, in Italy, and Tartary; and is the *cynocrambe*, or *dog's cabbage* of Dioscorides.

CABBAGE, *Turnep*, is the *Brassica caulescente orbiculari carnosae foliis sessilibus* of Linnæus. It is so called, because the stalk forms an orbicular bunch near the root, but a little above the ground. This plant has been long known in England as an object of curiosity in botanic gardens, or as an esculent herb; but the first person who introduced it into use as an article of husbandry was Mr. Baker, not twenty years ago. It has since been cultivated by many others, and found to be an excellent fodder for cattle in scarce winters, though not so hardy as the species of *cabbage* described in the next article.

CABBAGE, *Turnep-rooted*, or *English sea-cabbage*, is comprehended in the fifth species of *brassica*; denominated by Linnæus *brassica radice caulescente tereti carnosae*. Its root is larger than that of the common turnep, and runs into several ramifications, which are thicker than a man's thumb at their insertion; in taste and consistence it resembles the kernel of the cocoa-nut, being much firmer, more oily, and less succulent than the common turnep. From the root arises a stalk, smooth, round, and branched into several arms. The leaves near the root are like those of the *sea-cabbage*, roundish and jagged: but those which rise from the stalks are oblong, narrow, and sinuated. The flowers are large and yellow, of a deeper colour than those of the common kind of *cabbage*: to these succeed narrow pods about an inch long. This plant has been long cultivated in the more northern parts of Europe; but it was first introduced into England, as an article of agriculture, by Mr. Reynolds, not quite ten years ago. It is a very valuable acquisition on account of its hardness and duration through the whole year; as it may be easily raised on ground not rich and without manure, and as the produce it affords is very considerable, and its quality wholesome and nutritive.

CABBAGE-bark tree of *Jamaica*, in *Botany*, is a species of the *GEOFFRÆA* of Linnæus. The wood of this tree is used in building, but it is chiefly valued for its bark, which is administered in different forms, viz. in decoctions, syrup, powder, and extract, as an anthelmintic medicine. From this medical property it is also called the *worm-bark tree*. The decoction made by boiling an ounce of the bark in a quart of water, is mostly used in Jamaica; and it seldom fails to perform every thing that can be expected from an anthelmintic medicine, by destroying worms in the intestines, and bringing them away in great quantities. This bark is externally of a grey colour, and internally black and furrowed; its taste when fresh, is mucilaginous and sweet, and its smell, which it retains in the decoction, disagreeable. Dr. Wright of Jamaica recommends it as a very valuable remedy. See his description of the tree, with a drawing, and of the method of preparing and administering the bark in the Phil. Transf. vol. lxxvii. pt. ii. art. 28.

CABBAGE-tree. See *PALM-tree*.

CABBAGING, among *Gardeners*, is sometimes used to denote the knitting or gathering of certain pot-herbs into round bunched heads.

In which sense the word amounts to the same with what Evelyn calls *poming*, *pommer*; q. d. appling, or growing applewife. Others call it simply heading or bunching.

To make lettuce *cabbage*, they transplant it, taking care, during the great heats, to water it; otherwise, instead of poming, it runs to seed. To promote the *cabbaging* of cabbage, those who live on the sea-coast, put seaweed, with a little nitre, under their roots.

Cabbage plants of the early kind begin to turn in their leaves for *cabbaging* in May. The Battersea sort cabbage apace when they once begin, and as soon grow hard and burst open; but the sugar-loaf kind is longer before it comes, and is as slow in its *cabbaging*.

CABBALA, a mysterious kind of science, delivered by revelation to the ancient Jews, and transmitted by oral tradition to those of our times; serving for interpretation of the books both of nature and scripture.

The word is also written *Cabala*, *Caballa*, *Kabbala*, *Kabala*, *Cabalistica*, *Ars Cabala*, and *Gabal'a*. It is originally Hebrew, קבלה, *kabbalah*; and properly signifies *reception*; formed from the verb קבל, *kibel*, to receive by tradition, or from father to son, especially in the Chaldee and Rabbinical Hebrew.

Cabbala, then, primarily denotes any sentiment, opinion, usage, or explication of Scripture transmitted from father to son. In this sense, the word *cabbala* is not only applied to the whole art; but also to each operation performed according to the rules of that art. Thus it is R. Jac. Ben Ascher, surnamed Baal-Hatturim, is said to have compiled most of the *cabbalas* invented on the books of Moses before his time.

As to the origin of the *cabbala*: the Jews believe, that God gave to Moses on mount Sinai, not only the law, but also the explication of that law; and that Moses, after his coming down, retiring to his tent, rehearsed to Aaron both the one and the other. When he had done, Aaron standing on the right hand, his sons, Eleazar and Ithamar, were introduced to a second rehearsal; this being over, the seventy elders that composed the sanhedrim where admitted; and lastly, the people, as many as pleased; to all of whom, Moses again repeated both the law and explanation, as he received them from God. So that Aaron heard it four times, his sons thrice, the elders twice, and the people once. Now, of the two things which Moses taught them, the laws and the explanation, only the first were committed to writing; which is what we have in Exodus, Leviticus, and Numbers: as to the second, or the explication of those laws, they were contented to impress it well in their memory, to teach it their children; they, to theirs, &c. Hence, the first part they call simply the law, or the written law; the second, the oral law, or *cabbala*. Such is the original notion of the *cabbala*.

Among these applications of the law, which, in reality, are little else but the several interpretations and decisions of the Rabbins on the law of Moses, some are mystical; consisting of odd obscure significations given to a word, or even to the letters whereof it is composed: whence, by different combinations, they draw meanings from Scripture, very different from those it seems naturally to import. The art of interpreting Scripture after this manner, is called more particularly *cabbala*: and it is in this last sense the word is more ordinarily used among us. This *cabbala*, called also *artificial cabbala* (to distinguish it from the first kind, or simple tradition), is divided into three sorts. The first, called *gematria*, consists in taking letters as figures, or arithmetical numbers, and explaining each word by the arithmetical value of the letters whereof it is composed; which is done various ways. The second is called *notaricon*; and consists either in taking each letter of a word for an entire diction, or in making one entire diction out of the initial letters of many. The third kind, called *themurah*, q. d. *changing*, consists in changing and transposing the letters of a word; which is done various ways.

This is by some called the acroamatic philosophy of Moses, by way of contradistinction from the exoteric or popular doctrine. See **ACROAMATIC**.

The generality of Jews prefer the *cabbala* to the Scripture; comparing the former to the sparkling lustre of a precious stone, and the latter to the fainter glimmering of a candle.

The *cabbala* only differs from *masorah*, as the latter denotes the science of reading the Scripture, the former of interpreting it. Both are supposed to have been handed down from generation to generation by oral tradition only, till at length the readings were fixed by the vowels and accents, as the interpretations were by the *masorah* and *gemara*. Prideaux Conn. p. i. lib. v. p. 506.

The first author who delivered any thing of the *cabbala*

was Joachides, or Simon son of Joachai, who published that famous cabbalistical work intituled Zohar. Some say, he lived about the time of the destruction of Jerusalem by Titus; others, only in the tenth century. Basnage, Hist. of the Jews.

Dr. Burnet examines into the merits of the several parts of the *cabbala*, which he finds to be without rational foundation, and not conducing to any real knowledge. But he conjectures, that the most ancient *cabbala*, before it was confounded and defiled with fables, might contain something of the original of things, and their gradations; particularly, that, before the creation, all things had their being in God; that from him they flowed as emanations: that they will all flow back again into him, when they are destroyed; and that there will succeed other emanations and regenerations, and other destructions and absorptions to all eternity, as they had been from all eternity; that nothing is produced out of nothing; and that the things produced never return to nothing, but always have their subsistence in God. Burn. Archæol. lib. i. cap. 7. Phil. Trans. N° 201. p. 800.

The *cabbala* hitherto spoken of, may be called *speculative cabbala*; in opposition to the following, which may be called *practical cabbala*.

CABBALA is also applied to the use, or rather abuse, which visionaries and enthusiasts make of Scripture, for discovering futurity, by the study and consideration of the combination of certain words, letters, and numbers, in the Sacred Writings. All the words, terms, magic figures, numbers, letters, charms, &c. used in the Jewish magic, as also in the hermetical science, are comprised under this species of *cabbala*. But it is only the Christians that call it by this name, on account of the resemblance this art bears to the explication of the Jewish *cabbala*: for the Jews never use the word *cabbala* in any such sense, but ever with the utmost respect and veneration. It is not, however, the magic of the Jews alone which we call *cabbala*, but the word is also used for any kind of magic.

CABBALIC art, *Ars caballica*, is used by some writers for *ars palæstrica*, or the art of wrestling.

CABBALISTIC art. See **CABBALA**, and **CABBALISTS**. D. Franc. Berlendi, a Theatin of Venice (under the fictitious name of C. Berardo Schinfini), has published a *Caballomachia*, or Refutation of the *Cabalistic Art*.

CABBALISTS, a sect among the Jews, who follow and practise the *cabbala*, or interpret Scripture according to the rules of the literal *cabbala*, above laid down.

The Jews are divided into two general sects; the Karaites, who refuse to receive either tradition, or the Talmud, or any thing but the pure text of Scripture; and the Rabbinites or Talmudists, who, beside this, receive the traditions of the ancients, and follow the Talmud.

These latter are again divided into two other sects; pure Rabbinites, who explain the Scripture in its natural sense, by grammar, history, and tradition; and *Cabbalists*, who, to discover hidden mystical senses, which they suppose God to have couched therein, make use of the *cabbala*, and the mystical rules and methods above mentioned.

There are visionaries among the Jews, who believe that Jesus Christ wrought his miracles by virtue of the mysteries of the *cabbala*. Some learned men are of opinion, that Pythagoras and Plato learned the *cabbalistic* art of the Jews in Egypt; and fancy they see evident footsteps thereof in their philosophy; others, on the contrary, say, it was the philosophy of Pythagoras and Plato, that first furnished the Jews with their *cabbala*. Be this as it will, it is certain, that in the first ages of the church, most of the heretics gave into the vain notions of the *cabbala*: particularly the Gnostics, Valentinians, and Basilidians. Hence arose the *αἰσαχνη*, and the multitude of talismans, wherewith the cabinets of the virtuous were stocked.

See a particular account of the *cabbalistic* art, as practised not only by Jews, but by Heathens and Christians, in Basnage's Hist. of the Jews, book iii. cap. 10—28.

CABBIN. See **CABIN**.

CABEBI, a name given by some authors to the scales of iron. Rulandus.

CABECA, or **CABESSE**, in *Commerce*; the Portuguese who carry on the trade of silks in the East Indies, distinguish them by the names of *cabeça*, and *bariga*; that is to say, head and belly. The *cabeça* silks are the finest; the *bariga* being from fifteen to twenty per cent. inferior to them. The Indian workmen endeavour to mix them together; for which reason the more experienced European merchants, who carry on that trade, take care to open the bales, and to examine the skains.

CABIDOS. See **CAVIDOS**.

CABILIAU, in *Ichthyology*, a name by which some authors have called the common cod-fish, the *marbua* and *afellus* major of other writers.

CABIN,

CABIN, or **CABBIN**, is sometimes used for the huts or cottages of savages, and other poor people.

The habitations of the Indians in Virginia are *cabins*, about nine or ten feet high, which are made after this manner: they fix poles into the ground, and bring the tops of them one within another, and so tie them together; the outside of these poles they line with bark, to defend them from the injuries of the weather, but they leave a hole in the top, right in the middle of the *cabin*, for the smoke to go out; round the inside of their *cabins* they have banks of earth cast up, which serve instead of stools and beds. Phil. Trans. N^o 126.

CABINS, or **CABBINS**, in a ship, are small cells, or apartments for the officers of the ship to lie in; very narrow, and in form of armories or presses; used in several parts of the ship, particularly on the quarter-deck, and on each side of the stowage. The bed-places erected for sailors at the ship's side, in merchantmen, are likewise called *cabins*. The word comes from the French *cabane*, Spanish *cabana*, or Italian *capanna*, a little straw hut; and that from the Greek *καπνιστήριον*, a stall or manger.

CABINET, or **CABBINET**, the most retired place in the finest apartment of a building; set apart for writing, studying, or preserving any thing very precious.

A complete apartment consists of a hall, anti-chamber, chamber, and *cabinet*; with a gallery on one side.

CABINET is sometimes particularly used for a place at the end of a **GALLERY**, wherein are preserved the paintings of the best masters, conveniently ranged, and accompanied with busts, and figures of marble and bronze, with other curiosities.

In this sense, *cabinet* amounts to the same with what is called by Vitruvius, *pinacotheca*. Sometimes there are several pieces or rooms destined for this use, which are all together called *cabinet*, or **GALLERY**.

CABINET also denotes a kind of buffet or chest of drawers, partly for the preservation of things of value, and partly as a decoration of a chamber, gallery, or other apartment. In the repository of the Royal Society is a Chinese *cabinet*, filled with the instruments and samples used by the surgeons of that country. The most remarkable are those which are contrived for scratching, picking, and tickling the ears, in which the Chinese take great pleasure. Phil. Trans. N^o 246. p. 390, seq.

CABINET, in *Gardening*, is a little insulated building in manner of a summer-house, built in some agreeable form, and open on all sides; serving as a place of retirement, and to take the fresh air under cover.

According to Miller, a *cabinet* is a kind of saloon, placed at the end or in the middle of a long **ARBOUR**.

It differs from an arbour, which is long, in form of a gallery, and arched over head; whereas the *cabinet* is either square, circular, or in cants, making a kind of saloon.

CABINET is also used in speaking of the more secret and secret councils of a prince or administration.

Thus we say, the secrets, the intrigues of a *cabinet*.

To avoid the inconveniencies of a numerous council, the policy of Italy, and practice of France, have introduced *cabinet* councils; a remedy worse than the disease.

King Charles I. is charged with first establishing this usage in England. Besides his privy council, that prince erected a kind of *cabinet* council, or *junto*, under the denomination of a council of state; composed of archbishop Laud, the earl of Strafford, and lord Collington, with the secretaries of state.

Yet some pretend to find the substance of a *cabinet* council of much greater antiquity, and even allowed by parliament, who anciently settled a quorum of persons most confided in, without whose presence no arduous matter was to be determined; giving them power to act without consulting the rest of the council. As long since as the 28th of Henry III. a charter passed in affirmance of the ancient rights of the kingdom; which provided that four great men, chosen by common consent, who were to be conservators of the kingdom, among other things, should see to the disposing of moneys given by parliament, and appropriated to particular uses; and parliament were to be summoned as they should advise. But even of these four, any two made a quorum; and generally the chief justice of England and chancellor were of the number of the conservators. Math. Par. 28 Hen. III.

In the first of Hen. VI. the parliament provides, that the quorum for the privy council be six or four at least; and that in all weighty considerations, the dukes of Bedford and Gloucester, the king's uncles, should be present; which seems to be erecting a *cabinet* by law.

CABIRI, in *Antiquity*, certain deities worshipped more especially by the Samothracians, and in the isle of Imbros, and some other parts of Greece.

The *Cabiri*, according to Sanchoniathon, were also adored by the Phœnicians. Diodorus Siculus ascribes to them the invention of fire, and the art of working

iron. Whence it is that on a medal of Gordian, and another of Furia Sabina Tranquillina, both struck at Carrhæ, where the *Cabiri* were worshipped, we find the figure of a *Cabirus* on a column, holding a hammer in his right hand. For the same reason, Herodotus observes, they were represented like Vulcan. Diod. Sic. lib. v. Herod. lib. iii.

The word *cabir*, considered as of Hebrew or Phœnician origin, denotes *great* and *powerful*; and some have supposed that the deities worshipped under this appellation were Ceres, Proserpine, Pluto, and Mercury: whilst others have comprehended under it all the principal heathen deities: though it is disputed who, and how many, the *Cabiri* were, whether they be of Phœnician, Samothracian, or Egyptian origin; and whether the sons of Vulcan or Jupiter.

CABIRI is also used to denote the *Gabri*, or Persian FIRE-worshippers. Hyde de Rel. Persarum, cap. 29. See **GABRES**.

CABIRIA, *Καβίρια*, religious feasts held by the ancient Greeks of Lemnos and Thebes, in honour of the gods *Cabiri*.

These feasts were very ancient, and prior even to the time of Jupiter; who is said to have restored them: they were held by night. Children above a certain age were here consecrated; which consecration was supposed to be a preservative against all dangers of the sea, &c.

The ceremony of consecration called *θρονισμός*, or *θρονισμος*, q. d. *enthronizing*, consisted in placing the initiated youth on a throne, the priests dancing round him: the badge of the initiated was a girdle or scarf.

When a person had committed any murder, the *cabiria* gave him an asylum.—Meursius is very particular in the proof of each of these points.

CABLE, a thick, long, three-strand rope, ordinarily of hemp, serving to hold ships firm at anchor, and to tow vessels in large rivers. In Europe, the cables are commonly made of hemp; in Africa, of long straw or rushes called *bafs*; and in Asia, of a peculiar kind of Indian grass.

The word *cable* comes from the Hebrew word *chebel*, cord. Du-Cange derives it from the Arabic, *habl*, cord; or *habala*, *vincire*: Menage, from *capulum*, or *cabulum*; and that from the Greek *καμηλος*, or the Latin *camelus*. The term *cable* is sometimes also applied to the cordage used to raise massy loads, by means of cranes, wheels, and other like engines; though, in strictness, *cable* is not to be applied to ropes of less than three inches circumference. Every *cable*, of whatever thickness it be, is composed of three strands; each strand of three twists; and each twist of a certain number of caburns, or threads of rope yarn, more or less, as the *cable* is to be thicker or smaller.

To make a *cable*: after forming the strands, they use staves; which they first pass between the strands, that they may turn the better, and be intertwisted the more regularly together. And to prevent any entangling, a weight is hung at the end of each strand. The *cable*, being properly twisted, neither too much, so as to become stiff, nor too little, so as to be weakened, is untwisted again three or four turns, that the rest may the better retain its state. The usual allowance for the diminution of length by twisting, is one third of the whole; so that for a cable of 120 fathoms, the rope-yarn must be 180 fathoms long.

The number of threads which each kind of *cable* is to be composed of, is always proportioned to its length and thickness; and it is by this number of threads that its weight and value are ascertained. Supposing, then, the lengths to be equal, the number of threads and the weights will be as the areas of their bases, or, which comes to the same, as the squares of their circumferences. Having, then, the weight and number of threads of any one *cable*, we may easily calculate the following table:

Circumference.	Threads.	Weight.
3 Inches -	48 -	192 Pounds
4 - -	77 -	308
5 - -	121 -	484
6 - -	174 -	696
7 - -	238 -	952
8 - -	311 -	1244
9 - -	393 -	1572
10 - -	485 -	1940
11 - -	598 -	2392
12 - -	699 -	2796
13 - -	821 -	3284
14 - -	952 -	3808
15 - -	1093 -	4372
16 - -	1244 -	4976
17 - -	1404 -	5616
18 - -	1574 -	6296
19 - -	1754 -	7016
20 - -	1943 -	7772

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Every merchant-vessel, how small soever, has three *cables*; viz. the main or master-cable, which is that of the chief anchor, called the sheet-cable; and the two *bowers*, best and small. The ordinary length of the great cable, is 120 fathoms or braces.

A long cable is not so apt to break as a short one, because it draws more horizontally on the anchor than the other; and a ship will ride more smoothly as well as more safely with a long cable, because she will not be so liable to plunge deep in the water with her fore-part.

By stat. 21 Hen. VIII. c. 12. sect. 2. no person dwelling within five miles of the town of Bridport, in the county of Dorset, shall sell out of the market holden within the said town, any hemp which shall grow within the said five miles, upon pain of forfeiture of the hemp.

Sect. 3. No person other than such as shall dwell within the said town, shall make out of the said town, any cables, hausers, ropes, traces, halters, or other tackle made of hemp, within five miles of the said town; upon pain of forfeiture of the said cables, &c.

Sect. 4. Twenty pound weight shall be accounted the stone.

Sect. 5. Every person dwelling within the said distance, may make cables and other tackle for their own use. This act to endure to the next parliament. Continued indefinitely by 3 Car. I. c. 4. 16 Car. I. c. 4.

Stat. 35 Eliz. c. 8. sect. 3. If any person shall make cables of any old or overworn stuff, which shall contain above seven inches in compass; every person so offending, shall forfeit four times the value; and if any person shall tar any hausers or other cordage made within this realm, of such old and overworn stuff, being of lesser assize, and not containing in compass seven inches; and by retail put to sale the same being so tarred; every person so offending, shall forfeit treble the value, &c.

Sect. 4. Every person who shall offend against this act, shall be imprisoned during her majesty's pleasure.

Stat. 6 Ann. c. 19. sect. 13. Foreign cordage or cable-yarn imported, upon exportation, shall have no allowance or drawback of duties.

CABLE, *stream*, a hauser, or rope, smaller than the *bowers*, used to moor a ship in a river or haven.

The seamen say, the cable is well laid, when it is well wrought or made.

Serve the cable, or *plat the cable*, i. e. bind it about with ropes, clouts, &c. to keep it from galling in the hawse. To *splice a cable*, is to make two pieces fast together, by working the several strands of the rope one into another. To *coil the cable*, is to roll it up round in a ring; of which, the several rolls one upon another are called *cable-tire*.

Pay more cable, *pay cheap the cable*, *veer more cable*; that is, let it more out from the ship, that the boat which carries the anchor may the more easily drop it into the sea.

Heave in the cable; that is, draw it into the ship by winding it about the capstern or windlafs.

When two cables are spliced together, it is called a *SHOT of a cable*.

Bit the cable. See **BITS**.

CABLE, or **CABLE'S-LENGTH**, is also used for a measure of 120 fathoms, being the usual length of the cable.

CABLED, in *Heraldry*, is applied to a cross formed of the two ends of a ship's cable: sometimes also to a cross covered over with rounds of a rope; more properly called a cross corded.

CABLING, in *Architecture*, the figure of a staff, or reed, either plain or carved, in resemblance of a rope, or a rush, wherewith a third part of the flutings of a column are sometimes filled up; hence called *cabled flutings*.

There are also *cablings* in relief without fluting, especially on certain pilasters, as in the church of Sapienza at Rome. See **FLUTES**.

CABLISH, *Cablicia*, in the *Forest Law*, denotes brush or browse wood; though Spelman takes it more properly to signify trees, or branches, thrown down by the wind; from the French *chablis* or *bois chablis*, which denotes the same.

CABOCHED, **CABOSHED**, or **CABOSSED**, in *Heraldry*, is where the head of a beast is cut off behind the ears, by a section parallel to the face; or by a perpendicular section; in contradistinction to *couped*; which is done by a horizontal line; besides that it is farther from the ears than *cabossing*.

The word is formed from the obsolete French *caboche*, from *caput*, head.

CABOCLES, a name given in the West Indies by the Portuguese to those produced between Americans and Negroes.

CABOTE, in *Ichthyology*, the name of a fish of the cuculus kind, more usually known among authors by the name of the **CORAX**.

CABRUSI, in the *Writings of the Ancients*, a word frequently used to express Cyprian, or coming from the island of Cyprus. The ancient Greeks had almost all their vi-

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trials and vitriolic minerals from this island; they therefore sometimes called these *cabrusi*, without any addition. It is very probable that our word *copperas*, the common name of green vitriol, is a false pronunciation of this word *cabrusi*.

CABUI, a West Indian species of hemp, produced in the province of Panama, from a plant somewhat like the *chardon* or *iris*; when ripe, they lay it to steep in water, and after drying it again, beat it with wooden mallets till nothing but the hemp remains, which they afterwards spin, and make thread and ropes of it; the former of which is so hard and tough, that with it they saw iron, by fitting it on a box, and laying a little fine sand over the metal as the work proceeds.

CABURE, in *Ornithology*, the name of a small Brazilian bird of the owl-kind; very beautiful, and very easily tamed. It is of a brown colour, variegated with white, and is feathered down to the toes. The Brazilians keep it tame for its diverting tricks; it will play with people like a monkey, and is perfectly harmless.

CABUREIBA, in *Botany*, a name by which some authors have called the tree which affords the black Peruvian balsam of the shops.

CABURNS, in *Sea language*, denote small lines made of spun yarn, wherewith to bind cables, seize tackles, and the like.

CACABOGA, in *Zoology*, the name of an American species of serpent, by some accounted the same with the **TAREIBOIA**, or black water-snake of that part of the world; but by others described as yellow in colour, living about houses, and doing great mischief among poultry, though not fatal to mankind in its bite.

CACAGOGA, in *Ancient Medicinal Writings*, a word used for certain ointments intended for rubbing on the fundament to procure stools. The most common of these was made of alum mixed with honey, and boiled till the whole was of a tawney colour. This anointed on the fundament, procured a great many stools, but not without some pain.

CACALIA, in *Botany*. See *Foreign COLT'S-FOOT*.

CACAO, in *Botany*, *Theobroma* of Linnæus, the chocolate-nut tree; a genus of the *polyadelphia pentandria* class. Its characters are these: the flower hath five petals, which are irregularly indented; and hath five erect stamina; in the centre is placed the oval germen, which afterward becomes an oblong pod ending in a point, which is divided into five cells, filled with oval, compressed fleshy seeds. We have but one species of this plant, which is a native of America, and is found in great plenty in several places between the tropics; but particularly at Carraca, and Carthagera, on the river Amazon, in the isthmus of Darien, at Honduras, Guatemala, and Nicaragua. At all these places it grows naturally without culture; but it is cultivated in many of the islands possessed by the French and Spaniards; and was formerly planted in some of the islands which are in possession of the English.

The native Mexicans call the cacao-tree, *cucubua guabuitl*; and the Spaniards, *cacaotal*. It resembles our cherry-tree; but is so very delicate, and the soil it grows in so hot, that to guard it from the sun, they always plant it in the shade of another tree, called mother of cacao.

It is very proper to observe, that the chocolate-nut will not retain its vegetative faculty long after they are taken from the trees, so that there is no possibility of transporting them to any great distance for planting; nor should they be kept long out of the ground in the natural places of their growth. In order therefore to cultivate this plant for curiosity in Europe, it will be necessary to have the nuts planted in boxes of earth, in the countries where they grow soon after they are ripe. These plants must be frequently but gently watered, and protected from the sun and the cold, according to the latitudes they pass through; and when arrived, must be carefully preserved in a bark stove.

The fruit is inclosed in a kind of pod, of the size and figure of a cucumber; except that it begins and ends in a point. Within the pod, which is half a finger thick, is formed a plexus of white fibres, very succulent, a little acid, and good to appease thirst. In the middle of these fibres are contained ten, sometimes twelve, and sometimes more, as far as forty seeds, of a violet colour, and dry as acorns. Each seed, which is covered with a little bark or rind, when stripped thereof, separates into five or six unequal pieces, in the middle whereof is a kernel having a tender bud, very difficult to preserve.

Of this seed, with the addition of vanilla, and some other ingredients, the Spaniards, and after their example, the rest of Europe, prepare a kind of conserve, or cake; which, diluted in hot water, makes that delicious, wholesome drink called **CHOCOLATE**.

It is likewise made into a sweet-meat; and there is an oil

oil extracted from it, to which they give the name of butter. That oil is as sweet as the oil of almonds, and is made after the same manner. It is an extraordinary remedy for the cure of burns and scalds. Some of the Creolian ladies use it as a paint, to render their complexion fresh, and their skins smooth.

In some parts of America, the *cacao* seeds are used by the Indians as money; twelve or fourteen are esteemed equivalent to a Spanish real, or six pence three farthings sterling.

There are two kinds of *cacao*: the most common, which is likewise the best, is of a dark colour, bordering on red, and round: the other is called *patlaxe*, which is white, larger, thicker, and flatter; its quality is desiccative. Some druggists, however, sell four kinds; viz. the great and little *caracca*, and the great and little *cacao* of the islands: these, however, may be properly reduced to the two kinds above mentioned; it being only the greatness and smallness that multiplies the name and kinds. They were procured in great plenty from one of the islands called King George's islands, by commodore Byron, in his late voyage through the South Seas, and found to be an excellent antiscorbutic. Many, he observes, whose limbs were become as black as ink, who could not move without the assistance of two men, and who, besides total debility, suffered excruciating pain, were in a few days, by eating these nuts, although at sea, so far recovered as to do their duty, and could go even aloft as well as they did before the distemper seized them. Hawkesworth's voyages, vol. i. chap. x. p. 114.

Cacao is one of the most oily fruits which nature produces; and has this singular advantage, that it never grows rank, how old soever it be, as all other fruits do which have any analogy with this: such as walnuts, almonds, kernels of pine apples, pistacho-nuts, olives, &c. The *cacao* nuts are esteemed by the Mexicans as anodyne; and used, eaten raw, to alluage pains of the bowels.

CACAOTETE, in *Natural History*, the name by which the Brasilians call the **BELEMNITES**, which is very common there as well as with us.

CACATORY fever, a denomination given by Sylvius to an intermittent fever, accompanied with a severe looseness, and sometimes gripes.

CACAVATE, in *Botany*, a name given by some authors to the **COCOA-tree**; which is also sometimes called *cacavera*.

CACAVIA, in *Botany*, a name given by the Greek authors and some of the others to the **LOTUS** or nettle-tree. It obtained this name from the resemblance of its fruit when ripe, to the **HALICACCABUM** or winter-cherry.

CACCALIA, in *Botany*, a name given by some of the old Greek writers to the *halicaccabum* or *alkekengi*, the winter-cherry; a kind of nightshade or plant allied to that family, but distinguished from all the others by the fruit being covered by a membranaceous bag.

CACCABON, in *Botany*, a name given by some authors to the **water-LILY** or *nymphaea*.

CACEDONIUS tartarum, is peccant matter in the human body, generated from separations by the secretive faculty, which are not immediately succeeded by the operation of the expulsive faculty.

CACHALOT, in *Ichthyology*, a cetaceous fish, with teeth in the lower jaws only; classed by Linnæus under the *physeter*. The blunt-headed *cachalot* is one of the species that yields the *spermaceti*: there are besides the round-headed, and the high-finned *cachalots*. See **PHYSETER**.

CACHEF, or **CACHEEF**, in the *Turkish Affairs*, the governor of a city, town, or even a province of Egypt.

The title *cachef* is also given to the captains or commanders of little flying armies, intended to keep the Arabs in obedience.

Egypt is divided by the Turks into thirty-nine *cacheestocks*, or governments.

CACHEXY, in *Medicine*, an ill state or disposition of body; wherein the nutrition is depraved throughout the whole habit; accompanied with a swelling, or bloating of the fleshy parts; a flaccid state of the body, easily perceived externally; and arising from a viscosity of the juices, and a remission of the tonic motions of the parts.

The word is formed from *κακος*, ill, and *εξ*, habit or disposition.

The *cachexy* is distinguished from the *anasarca* by the flesh hanging flaccid and pendulous, and being soft in it; whereas in the *anasarca*, it is often so distended and hard, that the skin shines, and looks as if it would burst. The *anasarca* also usually forms œdematous tumors in many parts of the body, but the *cachexy* never does this. It differs from the *ascites* in that this disease only affects the lower parts of the body, but the *cachexy* the whole; but it differs only from the *chlorosis* as genus from species. Physicians distinguish the *cachexy*, into simple and compound: the first is, when it is combined with no other disease; in the other, it is frequently compounded with the scurvy.

CACHEXY, *signs of the*. There is no disease more readily known than this, as none has such obvious and distinctive symptoms. The face, hands, feet, and legs, are always bloated, and swelled beyond their natural dimensions; the natural heat of the body decreases, and there is an evident and actual sensation of cold in the parts. This is attended with an universal languor, and anxiety of mind, and a painful weakness in going up stairs, or walking up hill; the appetite is very uncertain, and loathings of food are very frequent; after food, there are all the symptoms of a bad digestion, as tensions and oppressions about the stomach and flatulencies. The bowels are in a very uncertain state, sometimes remaining coctive for a long while; and at others, throwing off the food undigested, in the manner of a *lientery*: the patients have all a great propensity to sleep, but they are not refreshed by it. The urine is but small in quantity, and is sometimes crude and reddish; sometimes limpid, but always has a livid appearance. The pulse is languid and weak; and the blood, if it happens to be seen by any accident, is pale and thin, and abounds in ferocities. The patients always complain also of a shortness of the breath, and a difficulty of breathing, especially after the body has been at any time in motion. Heats and flushings come on at times, and the head is always disturbed; always torpid and inclined to sleep, and sometimes vertiginous and violently painful; and œdematous tumors appear in the feet, when the patient is standing up, but disappear again when he lies down.

There is always also a sense of weight and pressure in the abdomen; sometimes in the right hypochondrium, sometimes in the left; and often deeply inward under the navel; sometimes the whole abdomen is inflated and hard, and sometimes it is only partially so; hardnesses and inequalities being sensible to the touch in it.

It most frequently attacks persons of a phlegmatic habit, and is more common among women than men, as well on account of their softer texture, as of the frequent disorders the irregularity of their menstrual discharges throws them into. Women, oftener, however, are brought into it through a defect of the menses than by the excess of their discharge.

Causes of it. Among these are to be reckoned, the living in wet and damp rooms; the leading an idle and sedentary life, and the feeding on viscous things, and drinking great quantities of water. On the contrary, the abuse of spirituous liquors will also occasion it; and the taking of astringent medicines at the times when the blood is in violent emotions, as in hæmorrhages; and acute fevers; the striking in of cutaneous fevers will also sometimes occasion it; and very often the omission or suppression of habitual discharges of blood, by whatever passages. Great loss of blood is vulgarly supposed to be one of the principal agents in bringing on this disease, but improperly; for when this succeeds such discharges, it is rather owing to their being long continued than violent, and to the improper diet of the patient afterwards, which prevents a proper supply of blood again, than from the actual loss of it. Improper treatment of the gout, and the abuse of volatile salts in high fevers, are also too often the cause of this disease.

According to Boerhaave, *cachexies* may arise either from a vitiated state of the nutritious juice, from some disorder of the vessels that are to receive it, or from a defect in the faculty that should apply it. The juices, he observes, may be depraved, either from the quality of the food; as if it be farinaceous, leguminous, fat, fibrous, sharp, aqueous, or viscous; from the want of motion; from the organs being vitiated by too much weakness, or too much strength: and these, again, may be occasioned by immoderate secretions, and evacuations of any kind, the schirrhoty of some of the viscera, or the retention of something that should be secreted: and hence diminution of the solids, or a repletion of the liquids with things that cannot pass; whence arise two notable ill effects of this evil, viz. a leucophlegmatia, and an anasarcaous dropsy. According to the various colour, quantity, tenacity, acrimony, and fluidity of the nutritious liquor, arise also various disorders, as the effects of the *cachexia*; v. g. paleness, yellowness, lividness, greenness, blackness, or redness of the skin; heaviness, windiness, palpitation of the heart and arteries increased with the least motion, crude thin urine, spontaneous watery sweats; and, at length, a leucophlegmatia and dropsy. For the vessels that receive the nutritious juice, there cannot well be assigned any universal fault; unless their too great laxity, and the disorders accruing from them, may be admitted as such. Lastly, nutrition is impeded and perverted, by a defect in the faculty that should apply it; and when the circulating force is either too languid or too violent.

Prognostics. When this disease is plenary, and the whole

crasis of the humours is depraved by it, it is very difficult of cure; it is in general more easily cured in young people than in older; and in these last, it usually degenerates into a dropy, and hectic; and when driven back, it often produces a suffocative catarrh. When the disease is not plenary, or in its full state, but rather may be called a *cachectic* disposition than a *cachexy*, as is frequently the case with young people; particularly with girls, on account of the suppressions of the menses; then it is in general easily cured, unless the bad regimen of the patient for some time before has rendered it more than usually obstinate and violent; in general, the sooner it is undertaken, the more easily it is cured.

The chlorosis of young girls, which seems to be of a middle nature, between a *cachectic* disposition and a confirmed *cachexy*, is a chronic case, and seldom admits of a sudden cure, unless there be a remarkable change of life in the patient, as by marriage. This chlorosis is in itself rather troublesome than dangerous, as it gives an universal languor, both of body and mind, a bad colour, palpitations of the heart, and other painful symptoms; but it sometimes degenerates into a *cachexy*, or a hectic.

Method of cure. The general method must be by correction of the vitiated humours; a relaxation of the viscera; an evacuation of the humours, when thus prepared for it; and, finally, a restitution of the due tone to the solids.

For the first fortnight, the patient should be treated with resolvents and digestives: such as the *tartarum vitriolatum*, and absorbents saturated with acids; as crab's eyes with lemon juice; and with aperient decoctions of the woods of guaiacum and saffra, as the roots of pimpernel, and the like; and either during this time, or afterwards, evacuants are to be given; such as senna, jalap, and dwarf-elder. When the improper treatment of a fever has been the occasion of the malady, the mild alexipharmics are to be given at times; and when an obstruction of the menses is in the case, the time they are to be expected is to be carefully regarded, and emmenagogues and baths for the feet, are to be ordered at those periods. When obstructions of the hemorrhoidal discharges are in the case, then, after the first fortnight, leeches should be applied to the hemorrhoidal veins; and if the disease has arisen from long continued hæmorrhages, then analeptics are to be trusted to, with very gentle correctives, for fear of exciting new commotions in the blood; and in these cases, bleeding in the arm is sometimes found necessary.

It is of the utmost consequence in this case, that a proper diet be observed; all coarse and heavy foods are to be avoided, as also all acid and salt things; and much water is as carefully to be guarded against, as an excessive use of spirituous liquors. Finally, when the disease is cured, its return is to be guarded against, by taking proper purgatives once a month. To this purpose, Stahl greatly recommends a mixture of gum ammoniacum, galbanum, and myrrh, and small quantities of colomel, with the purges. It is too common a practice to give boldly the forcing medicines, as they are called, to young women in *cachectic* complaints; such as myrrh, saffron, savin, and the like; but this very often throws them into an *ascites*, or other disorders, worse than the first.

CACHEXY, *uterine*, a term used by Hoffman for the *fluor albus*.

CACHLEX, in *Natural History*, a name used by some authors for the small pebbles found on the sea and river shores, which being heated red-hot, and quenched in whey, are said to have an astringent virtue.

CACHORRODOMATO, in *Zoology*, the name by which the Portuguese in America call the *TATIBI*; a creature in many respects resembling the opossum, and suspected to be the male of that creature.

CACHRYS, in Botany, a genus of the *pentandria digynia* class. Its characters are these, it hath an umbellated flower, the involucre composed of many narrow spear-shaped leaves, with five spear-shaped erect petals; it hath five single stamens; the turbinated germen is situated under the receptacle; the empalement afterward becomes a large, oval, blunt fruit, dividing in two parts, each having one large fungous seed. Linnæus mentions two, and Miller five species.

The seed of *cachrys*, though not used in the present pharmacy, was recommended by the ancients for its heating and drying qualities; and therefore judged a proper ingredient in smegmas. It also made a good plaster for the head in defluxions upon the eyes, provided it is taken off at the end of three days; and taken with pepper and wine, it was said to be good for the epilepsy. James.

CACHRYS, or **CANCHRYS**, among *Ancient Botanists*, denoted a scaly tuft, growing like a katkin on certain trees; as the oak, beech, pine, and the like; or, according to others, an unseasonable kind of germen or bud, appear-

ing either in the spring, or autumn, and which, after the winter is over, spreads or shoots into branches. The word is sometimes also used for the seed of rosemary, or even the plant itself; sometimes for barley roasted in a furnace, to render it more easy to grind into flour.

CACHU, **CACHOU**, or **CATECHU**. See **CATECHU**.

CACHUNDE, the name of a medicine, highly celebrated among the Chinese and Indians, and made of several aromatic ingredients, the perfumes, medicinal earth, and precious stones: they make the whole into a stiff paste, and form out of it several figures, according to their fancy, which are dried for use: these are principally used in the East Indies, but are sometimes brought over to Portugal. In China, the principal persons usually carry a small piece in their mouths, which is a continued cordial, and gives their breath a very sweet smell. It is a highly valuable medicine also, in all nervous complaints; and is esteemed a proloner of life, and a provocative to venery, the two great intentions of most of the medicines in use in the East.

CACHYMIA, in *Metallurgy*, a term used by Paracelsus for an imperfect metalline ore, as he expresses it, an immature metalline body, which is neither a saline substance nor a metal.

The *cachymia* may be divided into sulphureous, as marcasite; mercurial, as arsenic or orpiment; and saline, as all talcs.

CACOCHYMIA, a vicious state of the vital humours, especially of the mass of blood; arising either from a disorder of the secretions or excretions, or from external contagion.

The word is compounded of *κακος*, ill, and *χυμος*, juice.

Gorræus gives this name to the abundance, or excess of any ill humour; whether it be bile, pituita, or any other; provided there be only one that thus offends in quantity; and *plethora* he calls the abundance, or excess, of all the humours together.

CACODES, in the *Ancient Writers of Medicine*, a name given to several kinds of matter discharged from the human body, which had an ill smell. The offensive matter voided sometimes by vomit, has this name, as also that evacuated by stool, and the discharge of foul ulcers.

CACOETHES, or **CACOETHIA**. See **MALIGNANT**.

CACOPHONIA, in *Grammar and Rhetoric*, the meeting of two letters or syllables, which yields an uncouth, and disagreeable sound.

The word is compounded of *κακος*, evil, and *φωνη*, voice.

CACOPHONIA, in *Medicine*, denotes a vice or depravation of the voice or speech; of which there are two species, *aphonia*, and *dysphonia*.

CACTONITES, in *Natural History*, a name given by some old writers, to a beautiful pale red stone, supposed to be the same with our pale *cornelian*.

CACTUS, in Botany. See **Melon THISTLE**.

CACULE, in the *Materia Medica*, a name given by Avicenna, Serapio, and all the other Arabian writers, to the *cardamom* seeds. They distinguish two kinds of this fruit, a larger, and a smaller. The larger is the grain of paradise, and the smaller the common cardamom seed of these times. They also called the cardamoms, in general, by the name *heil*, and distinguished the small kind, now principally in use, by the word *hilbanc*, which after-writers corrupted into *hilbave* and *hilbula*, or *helbua*.

CADARI, or **KADARI**, a sect of Mahometans, who assert free-will, attribute the actions of men to men alone, not to any secret power determining the will; and deny all absolute decrees, and predestination.

The author of this sect was Mabel ben Kaled Al Gihoni, who suffered martyrdom for it.

The word comes from the Arabic, *قادر*, *cadara*, power, Ben Aun calls the *Cadarians*, the Magi, or Manichees of the Mussulmen.

CADE, a cag, cask, or barrel; used in the book rates for a determinate number of some sorts of fish. Thus a *cade* of herrings is a vessel containing the quantity of five hundred herrings, and of sprats one thousand.

Anciently the *cade* of herrings appears to have contained six hundred fish, reckoning six score to the hundred.

CADE-lamb, a young lamb weaned, and brought up by hand, in a house; called in the North, *pet-lamb*.

CADE-oil, in the *Materia Medica*, a name given to an oil much in use in some parts of France and Germany. The physicians call it *oleum cadae*, or *oleum de cada*. This is supposed by some to be the *posselaum* of the ancients, but improperly; it is made of the fruit of the *oxycedrus*, which is called by the people of these places, *cada*.

CADE-worm, in *Natural History*, a name given by authors to the *phryganium*, a common worm, found in ditches, and used as a bait for fish. The fly produced from this worm has a long body, four brown wings, and a forked tail, and is found in the month of August very frequent on waters.

CADENCE,

CADENCE, in *Mus.*, denotes a kind of close, or rest; either at the end of a song, or some of its parts, into which it is divided as into members, or periods.

The word seems a metaphor drawn from the dancing-school, where it properly signifies a pause, or fall; from motion to rest. A *cadence* is properly when the parts fall and terminate on a chord, or note, the ear seeming naturally to expect it. Regularly it is to be made on the final or dominant, though sometimes also on the mediant, or middle chord of a mode.

Cadences in singing answer nearly to points or stops in discourse. They are rests contrived to favour the weakness of the performers, as well as the hearers, of a musical composition. Men are not able to sustain their attention, or their voice, beyond the space of two measures; even in this short interval we perceive the song to fall, and tend rapidly to a pause, or rest: the notes which introduce these pauses, are called *cadences*, on the proper conducting and expressing of which a great part of the musician's skill depends. The chief *cadence* or close is the key itself, in which the bass must always conclude; the next in dignity is the fifth above, and the next to that the third. Or if the bass be sharp, the fourth or second above the key.

In modulation, *cadences* are made on several keys, though still with some relation to the principal one: the harmony must always return to the key appropriated to the piece, and often terminate there by middle as well as final *cadences*.

Cadences usually occur in every two measures, and always in the note which begins the measure they happen in. It requires a nice taste to distinguish the tonic note on which the *cadences* essentially fall; because they usually seem to fall on another note presented in the song. It is by the natural progression of the fundamental bass that we are enabled to make the discovery. As often as this bass falls a fifth, or rises a fourth, there is a *cadence*. In reality, this disposition imitates a close so well, that when we come to the first sound of this *cadence*, we find ourselves as it were forced to fall on the other, so that it requires an extraordinary effort of the voice to sustain itself on the first, or only to fall a third. Hence it is that the first sound that makes its fifth of the tonic, is called its dominant, being in reality the top, or highest part of the harmonical system, and that farthest from the fundamental sound: thus *sol* is the dominant of *ut*; and *re*, of *sol*. In making a *cadence*, the bass must always fall a fifth, or rise a fourth.

CADENCE, among the French *Musicians*, is used to signify a *trill*, or *shake*, but improperly, according to Brossard. In effect, the *cadence* is properly the transition from the note on which the shake is made, to a note which is a tone lower, or a semi-tone major higher, in the treble parts. See *CADENZA Sfuggita*.

CADENCE, in the *Ancient Music*, denotes a series or succession of musical notes, in certain intervals, which strike the ear agreeably; and especially at the close of a song, couplet, or stanza. In which sense, *cadence* amounts to much the same with *rhythmus*.

CADENCE, in *Oratory*, and *Poetry*, denotes the running of verse or prose; otherwise called the numbers, and by the ancients *ῥυθμός*. See *RHYTHM*.

CADENCE, in the *Modern Dancing*, is when the several steps and motions follow, or correspond to, the notes or measures of the music.

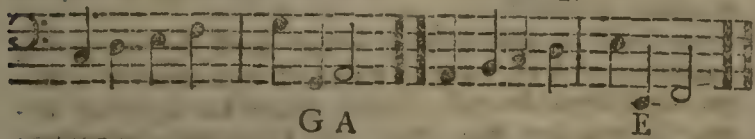
CADENCE, in the *Manege*, denotes an equal measure, or proportion observed by a horse in all his motions, when he is thoroughly managed, and works justly either at the gallop, *terra à terra*, or the airs.

A horse's working in *cadence* imports, that his times or motions are uniform, and that one does not take in more ground than another.

CADENCY, in *Heraldry*, the state or quality of a **CADET**. Nisbet has an essay on the additional figures and marks of *cadency*. See *DIMINUTION*.

CADENZA Sfuggita, in the *Italian Music*, is used when a part instead of ascending or descending the proper interval, to form a *cadence*, proceeds by some other interval. For instance, when the bass, instead of rising a fourth or falling a fifth, ascends only by a tone, or semi-tone major.

Ex. 1. Ex. 2.



Thus, in Ex. 1. where the bass, instead of proceeding to C, the key-note, after G, goes to A. Thus also, in Ex. 2. after E, the ear would naturally expect to hear A the key-note: but this is avoided, and F put in its place.

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CADETS, the younger brothers of a family: a term naturalized in our language from the French.

In Paris, among the citizens; the *cadets* have an equal portion with the eldest: in other places, the eldest has all. According to the custom of Spain, one of the *cadets*, in great families, takes the mother's name.

CADET also denotes a young gentleman soldier, who, to attain to some knowledge in the art of war, and in expectation of preferment, chooses to carry arms as a private man in a company of foot.

Cadet differs from volunteer, as the former takes pay, though only that of a private man, whereas the latter serves without pay.

Formerly there were allowed only two *cadets* in each company. In 1682, the king of France established companies of *cadets*, wherein the young gentry were trained up to war, and taught the arts and exercises belonging thereto, as riding, fencing, mathematics, &c.

CADGE, a round frame of wood, on which falconers carry their hawks when they expose them to sale.

CADI, among the Turks and Saracens, denotes an ordinary judge, who decides in all civil controversies within the district of a town or city, though subject to appeals to superior judges.

The word is Arabic קדי or קדיש, q. d. judge, formed of קדי, to judge. D'Herbelot writes it *cadbi*.

The term *cadi*, used absolutely, denotes the judge of a smaller town or village; those of cities being called *mollas*, or *moulas*, sometimes *mouli-cadis*, or great *cadis*.

We find numerous complaints of the avarice, extortion, and iniquity of the Turkish *cadies*; all justice is here venal; the people bribe the *cadies*; the *cadies* bribe the *moulas*; the *moulas* the *cadilechers*; and the *cadilechers* the *musti*.

It is usually vain to appeal from the sentences of the *cadi*; since the affair is never heard anew, but judgment is passed on the case, as stated by the *cadi*. The *cadies* nevertheless, are often cashiered, and punished for notorious injustice with the bastonade and mulcts; but the law forbids them to be put to death. Constantinople has had *cadies* ever since the year 1390, when Bajazet I. obliged John Palæologus, emperor of the Greeks, to receive *cadies* into the city, to judge all controversies happening between the Greeks and the Turks settled there. In some countries of Africa, the *cadies* are also judges of religious matters. Among the Moors, *cadi* is the denomination of their higher order of priests, or doctors, answering to the rabbins among the Jews.

CADIANG, in *Botany*, a kind of lentiles in Batavia, and the adjacent country, which makes a considerable part of the food of the common people. Dr. Hawke's Account of the Voyages to the South Seas; vol. iii. p. 733.

CADILESCHER, or **CADI-LESKER**, a capital officer of justice among the Turks, answering to a chief-justice among us.

The word comes from the Arabic *kadi*, judge, the particle *al*, and *aschar*, army; as being at their first institution chiefly judges of the soldiery; of whose causes they have still the sole cognizance. D'Herbelot writes the name *cadhi-leskar*, or *cadhi-asker*.

It is said that this authority was originally confined to the soldiery; but that at present it extends itself to the determination of all kinds of law-suits; yet nevertheless subject to appeals.

There are but three *cadilechers* in all the grand signior's territories; the first is that of Europe; the second, of Natolia; and the third resides at Grand Cairo. This last is the most considerable. They have their seats in the divan next the grand visir.

The *cadilechers* have much the same authority in the provinces, that the *mustis* have at Constantinople; they even frequently rise to be *mustis*: their chief study is the Alcoran, which is the code of their civil, as well as canon law. Appeals are sometimes brought to them from the sentences of the *cadies* in civil affairs; and they have the superintendence of all other officers of justice within the empire. They nominate the *cadies*, and *moula-cadies*; but these last only with the consent of the grand signior. On any grievous complaint against the *cadies*, they condemn and depose them. Tournef. Voyage Lev. tom. ii. let. 14. Pococke, Egypt. p. 170.

CADITES, an appellation given by Plott, to a kind of figured stone, resembling a *cadus* or barrel.

The *cadites* swells in the middle, and goes tapering to both ends, being divided lengthwise, with such equidistant lineaments, as are usually made by the staves of a barrel, but without hoops, nor yet hollow.

CADIZADELITES, a sect among the Mussulmen, resembling the ancient stoics, who avoid all feasting and diversion, and affect an uncommon gravity in all they do

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or say. Those of them who inhabit the frontiers of Hungary, &c. agree in many things with the Christians, and drink wine, even in the fast of the Ramazan. They read the Slavonic translation of the Bible, as well as the Alcoran. Mahomet, according to them, is the Holy Ghost, which descended on the apostles at the feast of Pentecost.

CADLOCK, in *Botany*. See **MUSTARD**.

CADMEAN Letters, the ancient Greek or Ionic characters, such as they were first brought by Cadmus from Phœnicia; whence Herodotus also calls them, *Phœnician letters*.

According to some writers, Cadmus was not the inventor nor even the importer of Greek letters, but only the modeller and reformer thereof; and it was hence they acquired the appellation *Cadmean*, or *Phœnician letters*; whereas before that time they had been called *Pelasgian letters*. See **LETTER** and **WRITING**.

CADMIA, in *Pharmacy*, a name which has been variously applied; but it usually denotes a mineral substance, whereof there are two kinds, *natural* and *artificial*.

The *natural cadmia*, again, is of two sorts; the one containing arsenic, and called *cadmia fossilis*, or **COBALT**; the other containing zinc, called *calamine*, or *lapis CALAMINARIS*.

The *artificial cadmia*, called *cadmia fornacum*, is prepared from ores containing zinc, when smelted in furnaces: of this there are five kinds; the first called *botryitis*, as being in form of a bunch of grapes; the second, *ostracitis*, as resembling a sea-shell; the third, *placitis*, because resembling a crust; the fourth *capnitis*, *dusky*; and the fifth *calamitis*: this last hangs round certain iron rods, wherewith the matter of the copper is stirred in the furnace; which being shaken off, bears the figure of a quill, called in Latin *calamus*.

The *cadmia botryitis* is found in the middle of the furnace; the *ostracitis* at the bottom; the *placitis* at the top, and the *capnitis* at the mouth of the furnace.

This *cadmia* is desiccative and deterfive: it is generally used in stinking ulcers: which by means hereof are brought to cicatrize. The *botryitis*, and *placitis*, are also good in diseases of the eyes. See **TUTTY**.

CADMIA is also used by Pliny for copper-ore, or the stone of which copper is made. And hence the several appellations, *cadmia fossilis*, *cadmia fornacum*, *cadmia metallica*, *cadmia atramentosa*, and *cadmia pro cœruleo*. Hist. Nat. lib. xxxiv. cap. 10. cum. Hard. Not.

CADMITES, in *Natural History*, a kind of gem, nearly resembling the **OSTRACITES**; from which it only differs in that the latter is sometimes grit with blue spots.

In some MSS. for *cadmites* we read *calamites*.

CADRITES, a kind of religious among the Mahometans; whose founder was Abdul Cadri, a great philosopher and lawyer; whence they take their name, *Cadrites*.

They live in common, and in a kind of monasteries; which, however, they are allowed to quit, if they request it, and to marry; on condition of their wearing black buttons on their garments, to distinguish them from the rest of the people.

In their monasteries, they pass the greatest part of every Friday night in running round, holding each other's hand, and crying incessantly, *bhai, living*, one of the names of God: one of the number plays all the time on a flute, to animate them in this extravagant dance.

CADUCEATOR, in *Antiquity*, a denomination given to heralds or messengers of peace. See **CADUCEUS**.

CADUCEUS, or **CADUCEUM**, Mercury's rod or sceptre; a wand entwisted with two serpents, worn by that deity as the ensign of his quality and office.

The poets attribute wondrous virtues to the *caduceus*; as that of throwing people into a sleep, raising the dead, &c. It was also used by the ancients as a symbol of peace and concord: the Romans sent the Carthaginians a javelin, and a *caduceus*, offering them their choice, whether of war or peace.

Among that people, those that denounced war were called *seciales*, and those who went to demand peace, *caduceatores*; because they bore a *caduceus* in their hand.

The *caduceus* found on medals, is a common symbol signifying good conduct, peace, and prosperity. The rod expresses power, the two serpents prudence, and the two wings diligence.

Wedelius has given a dissertation expressly on *caduceated* medals.

CADUCEUS is also a name given to a kind of staff covered with velvet, and decorated with *fleurs de lys*, which the French heralds of arms bear in their hands on solemn occasions. That borne by the king at arms has a golden *fleur de lys* at the end, and is by some called sceptre.

CADUCUS morbus, in *Medicine*. See **EPILEPSY**.

CADUS, an ancient liquid measure of capacity, contain-

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ing ten, sometimes twelve *congi*; and sixty, or according to others, seventy-two *sextaries*.

The *cadus* is the same with what is otherwise denominated *metretes*, and *cerameon*, &c. See **AMPHORA**.

CÆCÆ Glandulæ. See **GLANDS**.

CÆCILIA, in *Zoology*, the name of a genus of serpents. See **SLOW-WORM**.

CÆCILIA, in *Ichthyography*, a name used by some authors for the fish more usually known by the name of the **ACUS**.

CÆCILIANA, in *Botany*, a name used by Pliny and some other authors for the *tuisan*, or *androsemum*. Ger. Emac. Ind. 2.

CÆCUM, in *Anatomy*. See **COECUM**.

CÆLATURA, or **COELATURA**, the art of **ENGRAVING** on metals, stones, woods, or the like, with instruments of steel, diamond, &c. See **SCULPTURE**.

CÆLESTIANS, the followers of Cælestius, a monk, who flourished under the empire of Arcadius, about the year 405, and taught much the same doctrines as Pelagius. See **PELAGIANS**.

CÆMENT, in a general sense, any composition of a glutinous or tenaceous nature, proper to bind, unite, or keep things in cohesion.

The word is also written *cement*, and even *ciment*. It is formed from the Latin *camentum*, of *cado*, *I beat*.—Though M. Felibien observes, what the ancient architects called *camentum*, was a very different thing from our *cement*.

The name *cement*, with them, signified a kind of masonry, or manner of laying the stones, and even the quality of the stones; as when the walls were built of rude, unequal stones. In reality, the stones were cut for such work, but not squared nor uniform: so that *camenta* stood opposed to *quadrati lapides*.

CÆMENT is particularly used in *Architecture*, for a strong binding sort of mortar, used to bind, or unite bricks or stones together, for some kinds of mouldings; or to make a block of bricks, for the carving of scrolls, capitals, &c.

It is of two sorts: the *hot cement*, which is the most common, is made of resin, bees-wax, brick-dust, and chalk, boiled together. The bricks to be *cemented* are heated, and rubbed one upon another, with *cement* between.

The *cold cement* is less used; it is made of Cheshire-cheese, milk, quick-lime, and whites of eggs.

Mortar, folder, glue, &c. are *cements*. The **BITUMEN** brought from the Levant is said to have been the *cement* used in the walls of Babylon.

Equal quantities of powdered glass, sea-salt, and iron filings, mixed with loam, make a very hard and durable *cement*.

Mr. Boyle informs us, that the best method to close and repair pipes of subterraneous aqueducts is with tobacco-pipe clay pulverized, and mixed with a large quantity of pulverized flocks, and carefully beat up with linseed oil into a stiff paste. See **MORTAR** and **TARRAS**.

CÆMENT is also used among *Goldsmiths*, *Engravers*, *Jewellers*, &c. for a composition of fine brick-dust, well sifted, resin, and bees-wax; in use among those artificers to keep the metals to be engraven, or wrought on, firm to the block, &c. as also to fill up what is to be chiselled.

The receiver of an air-pump may be fastened to a metal-line plate by means of a *cement* of bees-wax and turpentine, made with equal parts, for the winter; and three parts of the former to two of the latter, for the summer. We have various receipts for making *cements* to mend broken china and glasses: one of the finest, and at the same time strongest, *cements* for this purpose, is the juice of garlick, stamped in a stone mortar; this, if applied with care, will leave little or no mark. Another *cement* for broken glasses, china, or earthen-ware, may be prepared by beating the white of an egg very clear, and mixing it with fine powdered quick-lime; or isinglass, powdered chalk, and a little lime, may be mixed together, and dissolved in fair water; with which the glasses, &c. are to be *cemented*, and then set in the shade to dry.

Drying oil with white lead is also frequently used for this purpose; but where the vessels are not exposed to heat or moisture, isinglass glue, with a small quantity of tripoli, or chalk, is better.

Some have recommended a *cement* made by tempering quicklime with the curd of milk, till it become of a proper consistence for use; but as cheese has a greater degree of tenacity than milk, the following composition will be preferable. Let the thin shavings of sweet cheese be stirred with boiling water; and when the tenacious slime has been worked with other hot water, let it be mixed, on a hot stone, with a proper quantity of unslaked lime, into the consistence of a paste; and it will prove a strong and durable *cement* for wood, stone, earthen-

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earthen-ware, and glass; and it has this advantage, that when it is thoroughly dry, it will receive no injury from water.

A *cæment* may be prepared for chemical glasses that will bear the fire, by mixing equal quantities of wheat flour, fine powdered Venice glass, pulverized chalk, with half the quantity of fine brick-dust, and a little scraped lint, in the whites of eggs: this mixture is to be spread upon a linen cloth, and applied to the cracks of the glasses, and should be well dried before they are put into the fire.

Old varnish will likewise answer the same purpose. A very useful *cæment* for joining alabaster, marble, porphyry, and other stones, may be prepared in the following manner. Melt two pounds of bees-wax, and one pound of resin; add a pound and a half of the same kind of matter pulverized, as the body to be *cemented* is composed of, and stir them well together; let the mass be kneaded in water, and heated when applied to the heated parts of the body to be *cemented*. The colour of this mass may be adapted to that of the body on which it is employed, by varying the proportion of the powdered matter added to the mass of bees-wax and resin.

The best *cæment* for electrical purposes is made with two parts of resin, two of bees-wax, and one of the powder of red ochre. These ingredients are melted, and mixed together in any vessel over the fire, and afterwards kept for use. This adheres well, is less brittle than resin, and insulates as well.

For the manner of preparing a *cæment* to bind together the various embellishments of grottoes, see GROTTO. See also GLUE, PUTTY, and SOLDER.

CÆMENT, in *Chemistry*, is a general name, comprehending all pastes or powders, which, by means of fire, and proper crucibles, are capable of producing changes in any body. See BRASS, STEEL, and PORCELAIN.

It is particularly used to denote a compound mass, or saline powder, used for the purifying of gold, and consuming the improper metals mixed therewith.

The principal *cæment* used for this purpose is composed of four parts of bricks powdered and sifted, of one part of green vitriol calcined, till it becomes red, and of one part of common, or sea-salt. A paste is made of this mixture, by moistening it with water or urine. This is called *royal cæment*, from its use in purifying gold, the king of metals; and because gold, previous to the discovery of platina, was the only metal capable of resisting it. Some writers on this subject recommend a mixture of nitre in substance, with an equal weight of calcined green vitriol, and twice its weight of powdered bricks.

CÆMENT for gilding fish. See GILDING of fish.

CÆMENT, or *ziment copper*, is copper precipitated from vitriolic waters by iron. The name is derived, it is said, from a vitriolic water in Hungary, called *ziment*.

CÆMENT-pots, in *Assaying*, are vessels made for the *cementation* of metals.

These pots are cylindrical vessels, made of potter's clay, with tiles adapted to them, and may be conveniently turned by the potters. The size of these vessels must be proportioned to the quantity of *cæment* to be put in them. It is not prudent, however, to make them of more than eight or ten inches broad, because when they are larger the fire acts but difficultly and unequally upon them, especially on that part of the matter near their centre.

It is to be observed, in the making of these vessels also, that all kinds of clay contract and take up a smaller space in the drying and baking; the purer clay will contract one tenth part of their diameter, but the more sand or other dry powder there is in the mixture, the less it contracts. If a vessel, therefore, of any determinate size is to be made of clay without admixture, it must be made one tenth larger than the expected size; if of clay with these admixtures, experience alone can shew what must be the excess in size, when moist. Cramer.

CÆMENTATION, a manner of purifying gold from other metals, by means of *cæment*. Or, as it is defined by Stahl, a method of corroding metals in a dry form by the fumes of dry salts.

It is performed thus: thin plates, or laminæ, are stratified in a crucible with the royal *cæment*; the crucible is covered up, luted with a mixture of clay and sand, and encompassed with fire for twenty-four hours, till being thus calcined, the salts have imbibed and consumed the impurities of the gold.

The crucible is then left to cool, and the gold is to be carefully separated from the *cæment*, and boiled at different times in a large quantity of pure water. It is often necessary, for the effectual purification of the gold, to repeat the process. This method which has obtained the name of *concentrated parting*, says Dr. Lewis, is incommodious either for purifying gold, or ascertaining its purity, and is therefore now little used. Its prin-

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cipal use is for extracting silver or base metals from the surface of gold, and thus giving superficial purity and high colour to alloyed or pale gold. Lewis's Comm. Phil. p. 155. See DÉPART, GOLD, REFINING, and SILVER.

CÆRITES, or *CÆRITUM tabula*, in *Antiquity*, denote the censors tables, wherein were entered the names of such persons as, for some misdemeanor, were to lose their right of suffrage in elections at Rome.

The original of the appellation arose hence; that during the captivity of Rome under the Gauls, the *Cærites*, or inhabitants of *Cære*, a city in Etruria, preserved their sacred books, and other matters belonging to the worship of the gods, in gratitude for which, the Romans dignified the *Cærites* with the appellation of Roman citizens; but without admitting them into any part of the administration.

CÆRULEUS, in *Ornithology*, a name given by authors to a bird of the thrush or blackbird kind, and somewhat resembling that species of blackbird commonly called the solitary sparrow.

CÆRULEUS is also a name given by Solinus to the great Indian worm described, by Pliny and others, as inhabiting the Ganges. It is probable that all the accounts we have of this monstrous animal are only false descriptions of the crocodile.

CÆSALPINIA, in *Botany*, *Braziletto*, a genus of the *dendrodia monogynia* class, deriving its name from Cæsalpin, the famous botanist and physician to Pope Clement VIII. The characters are these: the flower hath five petals, which are situated like those of the butterfly-flowers; it hath ten declining stamina, which are distinct; it hath an oblong germen; the empalement afterward becomes an oblong compressed pod with one cell, enclosing three or four compressed seeds. There are two species.

The first sort is the tree which affords the braziletto wood, which is so much used in dying. It grows naturally in the warmest parts of America, from whence the wood is imported for the dyers; and the demand for it has been so great, that there are no large trees left in any of the British colonies; the biggest scarcely exceeding eight inches in diameter, and fifteen feet in height. It hath very slender branches, which are armed with recurved thorns.

These plants are propagated by seeds, which should be sown in small pots filled with light rich earth early in the spring, and plunged into a hot-bed of tanner's bark. Being tender, they should always be kept in the bark-stove, and have a moderate share of heat in the winter; and being placed among other tender exotics of the same country, will afford an agreeable variety.

CÆSAR, among the Romans, was a long time used for the heir intended, or presumptive of the empire; as *king of the Romans* is now used for that of the German empire.

The *Cæsars* were a kind of adjuncts or associates of the empire, *participes imperii*. They wore the imperial mantle, purple, and diadem, and walked with other marks of the sovereign dignity: they were created like the emperors, by putting on the purple robe.

The dignity of *Cæsar* remained the second of the empire, till Alexius Comnenus made Nicephorus Melissenus *Cæsar* by contract, and it being necessary to confer some higher dignity on his own brother Isaacius, he created him Sebastocrator, with the precedency over Melissenus, ordering that in all acclamations, &c. Isaacius Sebastocrator should be named the second, and Melissenus *Cæsar* the third.

The title took its rise from the cognomen, or surname of the first emperor, C. Julius *Cæsar*, which by a decree of the senate all the succeeding emperors were to bear. Under his successor, the appellation Augustus being appropriated to the emperors, in compliment to that prince, the title *Cæsar* was given to the second person in the empire, though it still continued also to be given to the first: and hence the difference between *Cæsar* used simply and *Cæsar* with the addition of Imperator Augustus. Authors are divided as to the origin of the word *Cæsar*, the cognomen of the Gens Julia. The more common opinion is, that the word *Cæsar* comes à *cæsa matris utero*; because his mother's womb was cut open to give him birth.

Some pretend that the laurel crown on medals is never given to *Cæsars*, but only to *Augusti*; which is overthrown by a medallion of Maximus; not to mention another medal of the lower empire, wherein Crispus *Cæsar* is crowned with laurel.

Card. Norris observes, that the years of the *Cæsars* were frequently marked on their medals; of which we have instances in the medals of Constantine, Chlorus, and divers others, whose years are expressed on their coins, though they were never more than *Cæsars*.

CÆSARIAN

CÆSARIAN *section*, in *Midwifery*, the operation of extracting the *fœtus* from the mother, whether living or dead, by an incision through the *abdomen* into the *uterus*. Those brought into the world in this manner, are called *Cæsares*, and *Cæsiones*, a *cæso matris utero*; as were C. Julius Cæsar, Scipio Africanus, Manlius, and our Edward VI. See **DELIVERY**.

Many have exclaimed against the cruelty of this operation; and certainly it is too terrible to be used on any but the most emergent occasions: but there seems to be three cases in which it is justifiable, nay absolutely necessary. The first is, when the mother is dead, either in labour, or by some other accident, and the child is perceived to be alive. The second is, when the mother is living, and the *fœtus* dead, and incapable of being extracted by the common passages by any help of the midwife. And the last, when the mother and child are both living, and there is found an utter impossibility of delivery any other way. In all these cases the *Cæsarian* practice is justifiable to save life, that must otherwise be inevitably lost.

In the first case, the operation must be performed immediately after the death of the mother, otherwise it is to no purpose, for the child can live but a very little time afterwards in the body. The surgeon is, in this case, to make a crucial incision, as in the common dissections; or a longitudinal one on one side, without regard to the course of the fibres or vessels: and if the *fœtus* should have fallen into the cavity of the *abdomen*, through a rupture of the *uterus*, it should then be taken out; or if it be yet in the womb, or in the Fallopian tube, these parts must be carefully opened, and the child being taken out, must have Hungary water, or the like, held at some small distance from its nose to revive it, and the navel-string be tied up as usual. The *fœtus* is not always preserved, or found alive after this operation; but as there is often a probability of it, it is certainly better to open an hundred dead women in vain, than to lose the life of one infant.

In the second case, when a dead *fœtus* is contained in the cavity of the *abdomen*, in the Fallopian tube, or in a kind of hernia or sacculus without the *abdomen*, of all which cases there are instances recorded; or when, from the particular structure of the parts, as is sometimes the case in crooked women, and others; and when, as in many instances, there is no possibility of the extraction of the infant, even by incision of it, there is no way but the opening of the *abdomen*, and if necessary, the *uterus* of the mother, and taking out the *fœtus*; and this is often the means of preserving the mother, and when in parallel cases the child is also alive, there have been not a few instances of both being preserved.

The *Cæsarian section* is recommended by several authors, and Mr. Helvetius communicated to the Academy of Sciences at Paris, a well attested history of a woman recovering after the operation had been performed upon her by a midwife. Vide Hist. de l'Acad. des Scienc. 1731.

We have also an account of this operation successfully performed by a midwife in Ireland. See Med. Ess. Edinb. vol. v. art. 37.

There is likewise an account of the *Cæsarian* operation successfully performed by a butcher on a woman in Ireland. Vide Phil. Trans. N^o 461. sect. 17.

Cyprianus, professor at Franeker, gives an extraordinary case of the *Cæsarian* operation, whereby a *fœtus*, which had been dead twenty-one months, was drawn out of the *tuba uteri*, yet the mother preserved. M. Jobert, physician at Chateau Thieri, relates the history of a woman, in the neighbourhood of that place, who was twice delivered of children by the *Cæsarian* operation; the first time in 1682, the second time eleven months after, and recovered from both.

See an account of two cases in which this operation was performed in London, both of which proved fatal to the mothers, with remarks on the history of the operation, in the Medical Observ. and Inq. vol. iv. p. 261. 272. and vol. v. p. 217.—See also enquiries relative to this operation, by Mons. Simon, in the first volume of the Memoirs of the Academy of Surgery at Paris.

CÆSARIANS, or **CÆSARIENSES**, in *Antiquity*, were ministers or officials of the procurator *Cæsaris*, to whom belonged the keeping of the fiscal accounts, and taking possession of effects devolving or escheating to the emperor. These were also called *catholiciani*. From the appellation *Cæsarianus* some deduce the modern word sergeant. See **SERGEANT**.

CÆSARIS, *Emplastrum*, among *Physicians*, a name given to a plaster composed of astringents, to prevent abortion.

CÆSIAS, in *Meteorology*, denotes the north-east wind; called, in the Mediterranean, *vento Græco*, or *Græco levante*.

CÆSTUS, a large leathern gantlet, loaded with lead used in the combats, or exercises, of the ancient athletes. It was called *cæstus*, a *cædendo*, from *cædo*, to strike, or beat.

Calepine says it was a kind of a club with leaden balls hanging from it, suspended by leathern thongs: but he was mistaken, it being only a leathern thong studded with nails of lead or iron; part of it was twisted round the hand and arm, to prevent their being broken or dislocated. See **CÆSTUS**.

CÆSURA, in the *Ancient Poetry*, is when, in the scanning of a verse, a word is divided, so that one part seems cut off, and goes to a different foot from the rest; e. gr.

Menti | ri no | li : nun | quam men | dacia profunt.

Where the Syllables *ri*, *li*, *quam*, and *men* are *cæsures*.

Or, it denotes a certain agreeable division of the words between the feet of a verse; whereby the last syllable of a word becomes the first of a foot: as in

Arma virumque cano, Trojæ qui primus ab oris.

Where the syllables *no* and *jæ* are *cæsures*.

CÆSURE, in the *Modern Poetry*, denotes a rest or pause towards the middle of a long Alexandrine verse; by which the voice and pronunciation are aided, and the verse as it were divided into two hemistichs.

CÆTERIS *paribus*, a Latin term, in frequent use among mathematical and physical writers.

The words literally signify, *other things being equal*; which expresses pretty nearly their meaning as a term. Thus, we say the heavier the bullet, *cæteris paribus*, the greater the range; i. e. by how much the bullet is heavier, if the length and diameter of the piece, and the quantity and strength of the powder, be the same, by so much will the utmost range or distance of a piece of ordnance be greater.

Thus also in a physical way, we say, the velocity and quantity of blood circulating in a given time, through any section of an artery, will, *cæteris paribus*, be according to its diameter, and nearness to, or distance from the heart.

CAFFA, in *Commerce*, cotton cloths painted with several colours, and of divers designs; they are manufactured in the East Indies, and sold at Bengal. The length and breadth are not the same in all pieces.

CAFFACA, in *Natural History*, a name given by the Turks and Tartars to a peculiar kind of earth, of a grey colour, having a light cast of green in it. It is very soft and unctuous, and something resembles our fullers earth; but is more astringent, and adheres very firmly to the tongue; these people bathe very frequently, and they use this earth on those occasions.

CAFFILA, a company of merchants or travellers, or both together, who join company, in order to go with more security through the dominions of the Great Mogul; and through other countries on the continent of the East Indies. There are also such *caffilas*, which cross some parts of the deserts of Africa, particularly what is called the sea of sand, which lies between Morocco, and the kingdoms of Tombut and Gago. This is a journey of four hundred leagues, and takes up two months in going, and as many in coming back; the *caffila* travelling only by night, because of the excessive heat of the country. The chief merchandize they bring back consists in gold-dust.

The *caffila* is properly what is called caravan in the dominions of the grand signior, and other parts of the East. See **CARAVAN**.

On the coast of Guzerat or Cambaya, it signifies a small fleet of merchant-ships.

CASFES, according to Ludolf, an opprobrious appellation given by the Arabs to all those who do not profess the Mahometan religion. It comes from the Arabic word *casir*, which signifies *infidel*, or *unbeliever*.

CAGADO *de agoa*, in *Zoology*, a name by which the Portuguese in America call a species of tortoise common there, and usually known among authors by its Brazilian name **JURURA**.

CAGADO *de terra*, in *Zoology*, the name by which the Portuguese in America call a remarkable species of tortoise, called by the Brazilians **JABOTI**.

CAGANUS, or **CACANUS**, an appellation anciently given by the Huns to their kings.

The word appears also to have been formerly applied to the princes of Muscovy, now called **CZAR**.

From the same also, probably, the Tartar title **CHAM**, or **can**, had its origin.

CAGAO, in *Natural History*, the Indian name for a large bird which inhabits the mountains, and feeds on the pitachia nuts, and many other fruits, all which it swallows whole: it is very voracious, and its food passes off very quickly;

quickly; the pistachias only loose their rind in its stomach, and the almonds their pulpy covering; the kernel and the stone being voided whole: it is of the size of a common hen, but has a longer neck.

CAGASTRUM, is used by Paracelsus to denote a morbidic *semen*, not connate or heredity, but accessional, owing to corruption.

In which sense the word stands opposed to *iliastrum*. The pleurisy, plague, fever, &c. are ranked by that author in the number of *cagastic* diseases.

CAGE, an inclosure made with wire, wicker, or other matter, interwoven latticewise, for the detention of wild beasts or birds.

The word is French, *cage*, formed from the Italian *gaggia*, of the Latin *caveo*, which signifies the same: *a caveis theatralibus in quibus includebantur feræ*.

Beasts were usually brought to Rome shut up in oaken or beechen cages, artfully formed, and covered or shaded with boughs, that the creatures, deceived with the appearance of a wood, might fancy themselves in their forest. The fiercer sort were pent in iron cages, lest wooden prisons should be broke through.

In some prisons there are iron cages for the closer confinement of criminals.

The French laws distinguish two sorts of *bird-cages*, viz. high, or singing cages, and low, or dumb-cages; those who expose birds to sale are obliged to put the hens in the latter, and the cocks in the former, that persons may not be imposed on, by buying a hen for a cock.

CAGES, *caveæ*, denote also places in the ancient amphitheatres, wherein wild beasts were kept, ready to be let out for sport. The *caveæ* were a sort of iron cages different from dens, which were under ground and dark; whereas the *caveæ* being airy and light, the beasts rushed out of them with more alacrity and fierceness than if they had been pent under ground.

CAGE, in *Carpentry*, signifies an outer work of timber, enclosing another within it.

In this sense we say, the cage of a wind-mill.

The cage of a stair-case denotes the wooden sides, or walls which enclose it.

CAGGAW, in *Botany*, a name given by the people of Guinea, to a plant which they boil in water, and use the decoction to wash the mouth with, as a cure for the tooth-ach. The leaves of this are smooth and shining, like those of the laurel, but they are thin, and bend like those of the bay. Phil. Trans. N^o 232.

CAGIT, in *Natural History*, a name given by the people of the Philippine islands, to a species of parrot, very common in their woods; it is of a middling size, and is all over of a fine green colour.

CAGUI, in *Zoology*, the name of a kind of Brazilian monkey, called also *pougi*, of which there are two species, the one larger, the other smaller. The large kind is of a grey colour, with a mixture of black, and its hairs are longer than those of the small species; its face is round, and it has something of the look of a lion; its ears are small, round, black, and naked; its eyes are also black, as is its mouth, and its forehead is covered with a mixture of grey and black hairs; its tail is above a foot long, and is covered with hairs of a tawny colour.

The lesser *cagui* is a small and tender animal, but has the same lion-like face with the larger. Its body is not above six fingers breadth long; its tail about ten fingers; its head is small, scarce so large as a small apple; its nose is small and elate; its eyes very tender, its mouth little, and its teeth extremely sharp; its ears are round, and surrounded with white hairs in a very beautiful order; its hair is all of a reddish tawney toward the body, and toward the ends of a mixture of white and brown; and its tail is variegated with circular rings of white and brown; its voice is extremely shrill; it is naturally an extremely lively and nimble creature, but cannot bear the least cold. Ray.

CAHLLO, in *Ichthyology*, a name given by some authors to the fish usually called the *LUPUS marinus*, or wolf-fish.

CAIA, in the *Turkish Military Orders*, an officer serving in the post of a deputy or steward, and acting for the body of the janizaries.

CAIANI, in *Ecclesiastical Antiquity*, a sort of heretics, thus denominated from one Caianus of Alexandria, their leader, otherwise denominated *APHTHARTOCETÆ*.

The same name is sometimes also given to the sect of Cainians or Cainites.

CAIC, **CAIQUE**, **CAICA**, in *Sea language*, is used to denote the skiff, or sloop, belonging to a galley.

The Cossacks give the same name, *caic*, to a small kind of bark used in the navigation of the Black Sea. It is equipped with forty or fifty men, all soldiers: their em-

ployment is a kind of piracy. The Turks have also a sort of *caics*, which some render by *biremes*.

CAJEPUT, an oil brought from the East Indies. The smell of the oil of *cajeput* resembles that of cardamoms; hence Dr. Trew judges the plant from which it is obtained to be the *elegans meligetta species*, described by Sobelius, or the *granis paradisi five meligetta affinis fructus*. Four or five drops of this oil of *cajeput*, in a proper liquor, are recommended as an excellent nervous medicine, and as of great efficacy in the cardialgia.

CAIMACAN, or **CAIMACAM**, a dignity in the Ottoman empire, answering to that of lieutenant, or vicar, among us.

The word is composed of the two Arabic words, *Caim machum*, q. d. *he who holds the place, or discharges the functions of another*.

There are usually two *caimacans*: one resides at Constantinople, who is the governor thereof; the other attends the grand vizir, in quality of his lieutenant. Sometimes there are three *caimacans*; one constantly attending the grand signior, another the grand vizir, and a third constantly at Constantinople, who examines affairs of policy, and regulates them in great measure. The *caimacan* that attends the vizir, only officiates when at a distance from the grand signior; his function ceasing, when the vizir is with the sultan. The *caimacan* of the vizir is his secretary of state, and the first minister of his council.

CAINITES, or **CAINIANS**, a sect of ancient Gnostics, that sprung up towards the close of the second century, and paid extraordinary honours to those persons represented in Scripture as the worst of mankind; so called from Cain, whom they esteemed their patriarch, and the chief object of their veneration. They held that Cain and Esau, Lot, and those of Sodom, were born of a most eminent celestial virtue; that Abel, on the contrary, was born of a virtue much less eminent: to Cain, and others of the same order, who, according to them, had a mighty knowledge of all things, they associated Judas, whom they held in so much esteem, that they had a book among them called the gospel of Judas. S. Epiphanius relates, and at the same time refutes, their errors.

CAINITO, in *Botany*, the name given by Plumier, to the *Star-APPLE*.

CAINS, in the island of Candia, denote Greeks revolted, and retired to the Venetians, either at Suda or Spina Longa; who, in time of war, burn, pillage, and commit all manner of cruelties on their ancient brethren under the Turks.

When a *cain* or false brother is taken, there is no mercy for him; they either impale him, or put him to the *ganche*.

CAJOU, **CASHEW**, or **CASSU**. See **ANACARDIUM**.

CAIRINA, in *Ornithology*, a name by which some authors have called the Muscovy duck.

CAISSON, in the *Military Art*, is sometimes used for a chest; and in particular for a **BOMB-CHEST**.

The *caisson* is considered as a superficial **MINE**, or *fourneau*.

CAISSON is also a covered waggon to carry bread, or ammunition.

CAISSON is also used for a kind of chest used in laying the foundations of piers of bridges. See **BRIDGE**.

CAITAIA, in *Zoology*, the name of an American monkey, remarkable for its sweet smell; it has indeed somewhat of a scent of musk about it; its hair is long and of a whitish yellow colour; its head is round; its forehead depressed, and very small; its nose small and flattened, and its tail arched. It is easily tamed and kept about houses, but is very clamorous and quarrelsome.

CAKE, a finer sort of **BREAD**, denominated from its flat, round figure.

We meet with divers compositions under the name of *cakes*; as *seed-cakes*, made of flour, butter, cream, sugar, coriander and caraway seeds, mace, and other spices and perfumes, baked in the oven; *plum-cake*, made much after the same manner, only with fewer seeds, and the addition of currants; *pan-cakes*, made of a mixture of flour, eggs, &c. fried; *cheese-cakes*, made of cream, eggs, and flour, with or without cheese curd, butter, almonds, &c. *oat-cakes*, made of fine oaten flour, mixed with yeast, and sometimes without, rolled thin, and laid on an iron or stone to bake over a slow fire; *sugar-cakes*, made of fine sugar beaten and seared with the finest flour, adding butter, rose-water, and spices; *rose-cakes*, *placenta rosacea*, are leaves of roses dried and pressed into a mass, sold in the shops for epithems. See **EPITHEM**.

CAKE-WAX, a denomination sometimes given to the white or virgin **WAX**.

CAKE-soap, stands distinguished from soft-soap and ball-soap. See **SOAP**.

CALABA, in *Botany*, a name given by Plumier to a genus of plants afterwards called by Linnæus *CARYOPHYLLUM*.

CALABASH, in *Botany*. See *MELOPEPO*.

CALABASH-tree, *Crescentia*, in *Botany*, a genus of the *didymia angiospermia* class. Its characters are these: the flower hath one petal which is irregular, having a curved gibbous tube; it hath an empalement of one leaf, cut into two obtuse segments, which are concave; it hath four stamina, two of which are the length of the petal, the other are shorter; with an oval germen, which afterward becomes an oval or bottle-shaped fruit with a hard shell, enclosing many flat, heart-shaped seeds. Linnæus mentions one, and Miller two species, the first of which grows naturally in Jamaica, and in all the Leeward islands; it has a thick trunk, covered with a whitish bark, which rises from twenty to thirty feet high, and at the top divides into many branches, forming a large regular head. From the lower part of the tube of the flower, arises a long slender foot-stalk, supporting an oval germen, which afterward turns to a large fruit of different forms and size, sometimes with a contracted neck like a bottle, and so large that when the pulp and seeds are cleaned out, the shells will contain three pints or two quarts. These fruits are covered with a thin skin of greenish yellow when ripe, which is peeled off, and under it is a large ligneous shell, enclosing a yellowish soft pulp, of a tart unfavoury flavour, surrounded with a great number of seeds. See *BAOBAB*.

These fruits are seldom eaten, but the shell is converted to many useful purposes when dried; and serves to make cups, ladles, and many other articles of household furniture; for cases to put divers kinds of goods in, as pitch, rosin, or the like.

The word is Spanish, *calabaza*, which signifies the same. The Indians also, both of the North and South Sea, put the pearls they have fished in *calabashes*; and the negroes on the coast of Africa do the same by their gold-dust.

The smaller *calabashes* are also frequently used by these people as a measure, by which they sell these precious commodities to the Europeans.

CALABRINI, in *Botany*, a name by which some authors call the rough *SPLEENWORT*, or *lonchitis aspera*. Ger. Emac. Ind.

CALADE, in the *Manege*, a descent or slope in a riding-ground, by which to bring a horse to bend his haunches, and form his stop, with the aids of the calves of the legs, bridle, and cavesson, seasonably given.

The *calade* is also called, by the French, *basse*. They say, to ride or gallop down the *calade*.

CALAE, **CALAEM**, or **CALAEMUM**, denotes a species of Indian tin, which, by force of fire, is transmutable into cerufs, like that made of our lead.

Alchemists also pretend, that it may be converted by cementation into silver; and alledge it as an argument in behalf of a possibility of the transmutation of other metals into gold.

CALAINUS, in *Natural History*, a name given to the substance otherwise called *CALLIMUS*.

CALAMANCO, in *Commerce*, a woollen stuff manufactured in Brabant and in Flanders, particularly at Antwerp, Lille, Tournay, Turcoin, Roubaix, and Lannoy. There are also a great many made in England.

It is commonly woven wholly of wool; there are some, however, wherein the warp is mixed with silk, and others with goat's hair. There are *calamancos* of all colours, and diversly wrought. Some are quite plain, others have broad stripes adorned with flowers; some with plain broad stripes; some with narrow stripes; and others watered. This is also no inconsiderable branch of the woollen manufacture in England, both for home wear and exportation.

CALAMARIÆ, in *Botany*, an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus. See *CULM*.

CALAMBA, or **CALAMBAC**, in *Commerce*, a kind of wood brought from China, usually sold under the denomination of *lignum ALOES*, or *AGALLOCHUM*.

Sir Phil. Vernatii makes *calambac* and *lignum aloes* synonymous. Others seem to distinguish, restraining *calamba* wood to the best sort of aloes wood, growing chiefly in Malacca and Sumatra; and much used in India for making of beads and crucifixes. Phil. Transf. N^o 43. p. 863.

CALAMIFEROUS, a denomination given by some to those otherwise called *CULMIFEROUS* plants.

CALAMINARIS lapis, **CALAMINE-stone**, a kind of fossil of some use in medicine, but of more in foundery; being used to make copper yellow, i. e. to convert it into brass. It is either of a brownish colour, as that of Germany and England; or reddish, as that about Liege, and in some parts of France, which is accounted the best, because it turns yellow by calcination. It is dug out of mines, usually in small pieces; having always eyes, sometimes veins, of lead in it; though it be not always

found in lead-mines. We have mines of *calamine* at Wrington in Somersetshire, and elsewhere. It is generally dug in barren rocky ground; its courses running, usually at six o'clock, as they call it, i. e. from east to west; sometimes at nine, and sometimes at twelve; or perpendicular, which is accounted the best.

Dr. Lawson was the first who publicly proved *calamine* to be the ore of ZINC. It consists, says Mr. Kirwan, of a mixture of quartz and argill, with the calces of iron and zinc: its colour is yellow, red, or brown, and it is moderately hard. Elem. Min. p. 281.

Calamine-stone is a species of fossil *CADMIÆ*; some even take it for the true *CADMIÆ* of Galen and the ancients, to which it is certain it bears a near resemblance: when burnt, its fume gathers and grows on the sides of the chimney.

When dug, it is washed, or budded, as they call it, in a running water, which carries off the impure and earthy parts; leaving the lead, *calamine*, and sparry parts at bottom; they then put it in a sieve, and shaking it well in water, the lead mixed with it sinks to the bottom, the sparry parts get to the top, and the *calamine* lies in the middle: thus prepared, they bake it in an oven or reverberatory furnace four or five hours; the flame being so contrived, as to pass over, and so to heat and bake the *calamine*; stirring and turning it all the while with iron rakes. Or, it may be roasted or calcined by setting fire to a conical pile, composed of horizontal layers of *calamine* and of charcoal placed alternately one upon the other, and of a lower stratum consisting of large pieces of wood; in which lower stratum are four horizontal channels, through which the air maintaining the fire passes to the centre, and it thence arises through a chimney or perpendicular empty space, left for that purpose, along the axis of the conical pile. The length of time and degree of heat for this operation, are different according to the qualities of the mineral. This done, they beat it to powder, and sift it; picking out of it what stones they find. And thus it is fit for use.

For the manner of applying *calamine* in the preparation of brass, see *BRASS*.

Besides the two natural *calamines*, this and cobalt, there are two artificial ones: the best is that called *pompholyx*, the other *tutty*.

Calamine is of some medicinal virtues: being astringent, desiccative, and deterfive; and is much used for taking off films from the eyes of horses, &c.

CALAMINT, in *Botany*, an officinal plant, whose leaves are reputed warm, aperient, and diaphoretic, and enter several alexipharmic compositions. It is enumerated by Miller among the species of *melissa*, or *baum*. For its general characters, therefore, see *BAUM*.

There are three sorts of *calamint* in use. viz. the *silvestris*; the *vulgaris*, or *montana*; and *palustris*, or *aquatica*; of which the first ought to be the officinal sort, though the scarcity of it among us usually brings the second to market in its stead; the third is taken into the college dispensatory, but rarely used. In the college dispensatory, we find a compound powder denominated from *calamint*. See Phil. Transf. vol. xlix. pt. ii. p. 838.

CALAMISTRUM, in *Natural History*, a name by which Linnæus and some authors have called a small plant, known among us by the name of *pepper-grass*, from its having grassy leaves, and round globules at their insertions, resembling pepper-corns. Mr. Vaillant has more properly named it *PILULARIA*.

CALAMITA, or **CALAMITIS**, is used to denote the *MAGNET* or loadstone.

CALAMITA alba, in *Natural History*, the name of an earth dug in Spain and Italy, of a hard texture, a white colour, and styptic taste; they pretend that this attracts flesh in the same manner as the magnet does iron, and thence call it *MAGNES carneus*.

CALAMITA florax. See *STORAX*.

CALAMITES, in *Natural History*, a name given by some to the *osteocolla*, which, when in small pieces, sometimes pretty exactly resembles the barrel of a quill; others have called some of the fossil *coralloides* by this name, there being frequently in them the resemblance of several quills cemented together in stone.

CALAMITES is used for a species of artificial *cadmia*, found adhering to the sticks, ladles, and other utensils where-with they stir the copper when in fusion in the furnace. It is denominated *calamitis*, from the Latin *calamus*, a reed, on account of its resemblance to the figure of a reed cloven in the middle.

CALAMUS, in *Botany*, a genus of the *hexandria monogynia* class of plants: the calyx consists of six leaves; it has no corolla; and the fruit is a single-seeded berry. There is one species.

CALAMUS is commonly used to denote the same with *arundo*, a reed, rush, cane, or flag.

CALAMUS, in the *Pastoral*, denotes a simple kind of pipe, or fistula, the musical instrument of the shepherds and herdsmen; usually made either of an oaten stalk, or a reed.

CALAMUS aromaticus, in *Pharmacy*, a spicy bitterish root, produced by a peculiar kind of water-plant, growing in the Levant, and even in several parts of England. See **ACORUS**.

The best is that which is greyish without, and reddish within; its pulp white, and taste somewhat bitter; but its leaves, as well as roots, sweet-scented.

The agreeable flavour and peculiar taste of the root, are owing to an essential oil. Neumann.

CALAMUS indicus petrificus, in the *Natural History of the Ancients*, a name given to a substance found often in the fossil kingdom, usually of about three inches long, half an inch broad, and one third of an inch thick, and covered all over its surface with large round figures, in form of radiated stars within. This very much resembled in external appearance the root of our common *calamus aromaticus* of the shops turned into stone, and seems to have been vulgarly supposed to be that substance petrified. The more accurate among the early writers, however, have by no means countenanced so wild a conjecture; and Theophrastus, though he records the substance under that name, as it had no other in his time, yet joins it to the corals which, he says, grow in the sea, and are vegetables; and adds, that those and this substance, are properly the substance of another treatise, not of a history of stones. See *Tab. of Fossils, Class 7*.

This author's placing it among the **CORALS** is perfectly right, since the specimens of it now found are plainly no other than corals of the stellated kinds, which have been long buried in the earth.

CALAMUS odoratus, in the *Materia Medica*, the name of a reed of the East Indies, of a very sweet smell. Our **CALAMUS aromaticus**, which is the root of a water-plant, is a very different substance.

CALAMUS scriptorius, properly denotes a reed or rush to write with, answering to the use of the ancient stylus and modern pen.

The ancient Egyptian *calamus* was a sort of *arundo aquatica* growing plentifully about Memphis, and on the banks of the Nile; whence it was also called *calamus Memphiticus*, *Niloticus*, &c.

CALAMUS scriptorius, in *Anatomy*, is a dilatation of the fourth ventricle of the **BRAIN**; so called from its figure, which resembles that of a quill.

CALAMUS aucupatorius, or *calamus struatus*, among *Fowlers*, signifies a *bird-CALL*.

CALAMUS also denotes a sort of measure otherwise called **CANNA**, **CANE**, or **reed**.

CALANDRE, in *Natural History*, a name given by the French writers to an insect that does vast mischief in granaries. It is properly of the scarab class.

The female lays a considerable number of eggs, and the increase of these creatures would be very great, but nature has so ordered it, that while in the egg state, and even while in that of the worm, they are subject to be eaten by mites; these little vermin are always very plentiful in granaries, and they destroy the far greater number of these larger animals.

CALANGAY, in *Natural History*, a name given by the people of the Philippine islands to a species of parrot very common there; it is all over white, and has a crest of white feathers on its head; it is of the size of a pigeon, and is easily kept tame, and learnt to talk. It is called also in some of the Philippines *catatua* and *abacay*.

CALASH, or **CALESH**, a small light kind of chariot, or chair, with very low wheels, used chiefly for taking the air in parks and gardens.

The word is French, *caleche*, which Menage derives from the Latin *carrus*, *carri*, *carriscus*, *carrisca*, *carresca*, *calesea*, *valeche*.

The *calash* is for the most part richly decorated, and open on all sides, for the conveniency of the air, and prospect; or at most enclosed with light mantlets of waxed cloth, to be opened or shut at pleasure.

In the Philosophical Transactions, we have a description of a new sort of *calash*, going on two wheels, not hung on traces, yet easier than the common coaches; having this farther advantage, that whereas a common coach will overturn if one wheel goes on a surface a foot and a half higher than that of the other, this will admit of a difference of three feet and one third, without danger of overturning. Add, that it would turn over and over, that is, after being turned so as that the spokes are parallel to the horizon, and one wheel flat over the head of him that rides in it, and the other flat under him, it will turn once more, by which the wheels are placed in *statu quo*, without any disorder to the horse, or rider. N^o 172. p. 1028.

CALASIRIS, or **CALASSIS**, in *Antiquity*, a linen tunic worn

by the Phœnician, Egyptian, Roman, and other priests. We also find mention of the *calasiris* as worn by the soldiers and by women. In which last sense it seems to have been a knot in the women's gown, whereby it was drawn about the neck.

CALATHIANA viola, in *Botany*, a name given by many writers to a species of **GENTIAN**, called also by others *pneumonanthe*.

CALATHUS, in *Antiquity*, a kind of hand-basket made of light wood, or rushes; used by the women sometimes to gather flowers, but chiefly after the example of Minerva to put their work in.

The figure of the *calathus*, as represented on ancient monuments, is narrow at the bottom, and widening upwards like that of a top. Pliny compares it to that of a lily. Hist. Nat. lib. xxi. cap. 5.

The *calathus*, or work-basket of Minerva, is no less celebrated among the poets than her distaff.

CALATHUS is also used to denote a drinking-cup. Pliny seems likewise to use it for the **CALYX** of a flower. Hist. Nat. lib. xxv. cap. 7.

CALATOR, in *Antiquity*, a cryer, or officer appointed to publish something aloud, or call the people together.

The word is formed from *καλεω*, *voco*, *I call*. Such ministers the pontifices had, whom they used to send before them when they went to sacrifice on *feriae* or holidays to advertise the people to leave off work.

The magistrates also used *calatores*; to call the people to the **COMITIA**, both *curiata* and *centuriata*. The officers in the army also had *calatores*; as had likewise many private families, to invite their guests to entertainments.

CALATRAVA, a military order, instituted in 1158, by Sancho III. king of Castile, on the following occasion. The Moors going to attack the little city *Calatrava*, and the Templars, who held it, surrendered it up to the king, on a suspicion of their inability to defend it; Diego Valesquez, a Cistercian monk, but a man of quality, persuaded Raimond, abbot of Fitero, a monastery of Cistercians, to beg *Calatrava* of the king. He obtained it; and Raimond and Diego put themselves in it; being followed by a great number of people who joined them out of zeal, for the defence of *Calatrava*. The Moors abandoning the enterprize, many of those, who came to the defence of the city, entered the order of the Cistercians; and that under a habit more fit for military than monastic exercise. Accordingly, they began to make excursions on the Moors; and this was the rise of the order of *Calatrava*.

The first grand-master was Garcias; under whose government the order was approved by Alexander III. in 1164, and confirmed by Innocent III. in 1198. In 1489, Ferdinand and Isabella, with the consent of pope Innocent VIII. reunited the grand mastership of *Calatrava* to the Spanish crown: so that the kings of Spain are now become perpetual administrators thereof.

The knights bear a cross gules, fleury with green, &c. Their rule and habit were originally that of the Cistercians, but their dress was a little shortened, on account of their exercises: and in process of time they were permitted a secular habit.

Alphonfus IX. having recovered Alcantara from the Moors, in the year 1212, committed the custody and defence thereof, first to the knights of *Calatrava*; and two years afterwards to the knights of the Pear-tree, another military order instituted in 1170, by Gomez Fernand, and approved by pope Alexander III. under the rule of St. Benedict: upon which they changed their name, and took the denomination of knights of Alcantara.

CALAUDRA, in *Ornithology*, the name of a bird of the lark-kind, and of the shape of the common lark, but considerably larger. This bird is either the same with the common English bunting, called by authors *emberiza alba*, or very like it.

CALAUERITIS, in the *Materia Medica of the Ancients*, a name given to a sort of litharge. We find the litharge made in the same operation will be of different colours, according to the degree of heat it receives; and we have accordingly dignified it with the sounding names of litharge of gold, and litharge of silver: the Greeks went yet farther, and added to these a third kind, which they called a litharge of lead, or *molybditis*. All these sorts of litharge was brought in great abundance from Calauos, a small island near Crete, to the Greeks, for their use in medicine.

CALCADIS, in the *Materia Medica*, a name given by the Arabians to white vitriol, or to some white vitriolic mineral.

CALCAGIUM, in *Middle Age Writers*, a tax or contribution paid by the neighbouring inhabitants towards the making or repairing of a common causeway.

CALCANEUM, or **CALCANEUS**, in *Anatomy*, the same as *calx*, *os calcis*, *calcar*, or the heel-bone.

It lies under the *astragalus*, to which it is articulated by *ginglymus*; behind it is a large protuberance, which makes the heel, and into which the *tendo Achillis* is inserted.

CALCANTHUM, in *Mineralogy*. See **VITRIOL**.

CALCAR, in *Anatomy*, the same with **CALCANEUM**.

CALCAR, in *Glass-making*, is the name of a small oven, or reverberatory furnace, in which the first calcination of sand and salt of pot-ashes is made, for turning them into what they call **FRIT**.

CALCAREOUS, something that partakes of the nature and qualities of *calx*, or lime.

We say, a *calcareous* earth, *calcareous* stone.

Lifter speaks much of a *calcareous* nitre.

Several authors attribute the heat of *thermæ*, or hot springs, to the admixture of a *calcareous* earth or stone, with the water.

Calcareous earths and stones, properly so called, have been found by experiment to consist of the following component parts; viz. quick-lime, or pure *calcareous* earth; fixed air, which, when extricated from them, is permanently elastic; and water. But if the term is more generally applied according to common use, the earths and stones calcined for making quick-lime, are intermixed with various other substances, such as sand, or vitrifiable earth, clay, and metallic calces. These earths acquire causticity, and lose a great part of their weight by calcination, and by dissolution in acids, in consequence of the discharge of a considerable quantity of fixed air. See *AIR fixed*, **PHOSPHORUS**, and **Quick-LIME**.

CALCAREUS lapis, the stone of which lime is made.

The *lapis calcareus* is found unfit for the making of glass, by reason of the acid salt it abounds with.

CALCEARIUM, or **CALCIARIUM**, in *Antiquity*, a donative, or largess, bestowed on the Roman soldiers for buying shoes.

In the monasteries, *calcearium* denoted the daily service of cleaning the shoes of the religious.

CALCEDONIANS, a denomination given by Copt writers to the **MELCHITES**, on account of their adherence to the council of Calcedon. See **COPHTI**, **MONOPHY-SITES**, &c.

CALCEDONY, *Lapis CALCEDONIUS*, one of the lowest-priced among precious stones; diversified with various colours, partly transparent, and partly opaque.

Salmasius derives the word, by corruption, from *carchedonius*; taking the modern *calcedony* to be the same with the *lapis carchedonius* of the ancients.

The *calcedony*, or *calcidony*, nearly resembles the common agate, and is reputed a species thereof: its colour is a misty grey, clouded with blue, yellow, or purple. It is supposed to be the white agate of the ancients; though we sometimes find pieces of it blackish.

It is very fit for the graver; and much used either to engrave arms, &c. upon, as being harder and preferable to crystal, if good, or to paint them on the backside. In some parts, vases, cups, religious beads, &c. are made thereof. The clearest and best is that with a pale cast of blue.

The Italians make it into beads, and both they and the Germans call these *caffidonies*; but they are not determinate in the use of the word, but call beads of several of the agates by the same name.

Many chimerical virtues are attributed to this stone; but its true medicinal virtues seem to consist in its absorbent quality, when reduced to a fine powder, and exhibited like other earthy and absorbent powders. But because apothecaries have other substances of the same virtues, and at the same time far more easily prepared, it is rarely described by the moderns.

Neri shews how to make artificial *calcedonies* of the colour of agate, and oriental jaspers.

CALCEDONIUS is also a term used by the jewellers for a defect in some precious stones; when, in turning them, they find white spots, or stains, like those of the *calcedony*.

This defect is frequent in granates and rubies. The lapidaries usually remedy it by hollowing the bottom of the stone.

CALCENA, a term used by some medicinal writers to denote a morbid tartareous humour in the body.

CALCEOLUS, in *Botany*. See *LADY'S slipper*.

CALCHACCA, in *Botany*, a name by which some authors have called the tree whose bark is the *caffia lignea*, used in medicine.

CALCHOCRUM, in *Botany*, a name by which some authors call the *fumaria* or *fumitory*.

CALCHOPHONOS lapis, among the *Ancients*, a name given to a stone of a black colour, and considerable hard-

ness, which, when cut into thin plates, and struck against by any other hard body, gave a sound like that of brass: it seems to have been one of the hard black marbles.

CALCIFRAGA, in *Botany*, a name given by some authors to samphire.

The ancients also gave the appellation *calcifraga* to the sea-fennel, though on a different account, because of its sprouting up in the middle of stones.

CALCIFRAGUS, *stone-breaking*, an appellation given by some to the *scolopendrium*; by others to pimpnel, on account of their lithontriptic quality.

CALCINATION, the act of reducing any matter into a *calx*, or very subtile white powder, by fire, whereby it is deprived of its volatile or inflammable principles; sometimes also called *chemical pulverization*.

Calcining differs from mere burning, as the latter leaves the bodies of a black colour, the former of a white one. If white wine tartar, or the white crystals of such tartar, are burnt without being truly calcined, the *caput mortuum* will be black. But if the calcination be continued till the tartar is perfectly reduced to ashes, and kept long enough in a strong fire, the remaining *calx* will be white. And so we see, that not only other vegetable substances, but even white woods, as the hazel, will yield a black charcoal, and afterwards whitish ashes. Thus also animal substances, naturally white, as bones, and egg-shells, grow black upon being burnt, and white again when perfectly calcined.

Hence the rule *adusta nigra, perusta alba*; which yet does not hold so universally, but that Mr. Boyle finds several exceptions to it. Lead calcined by a strong fire turns to **MINIUM**; which is of a red colour.

Calcination also differs from mere combustion, or burning, in that the former requires the presence and assistance of the air, whereas the latter may be done without it. Thus a coal kept in a vessel exactly closed, will not be calcined though kept ever so long in a strong fire; but when taken out in the open air, readily falls to pure white ashes, without the help of any new calcination.

By calcination, the parts of bodies are not only much broken, but rarefied and rendered specifically lighter. Thus the gravity of crude lead compared to water, is above eleven to one; of calcined lead, only as nine to one. And the like holds of other metals: yet in some bodies calcination sometimes increases the absolute gravity, while it diminishes the specific: thus four ounces of regulus of antimony, by being kept in fusion an hour and a half, will gain two drams and a half, notwithstanding all that it has lost by evaporation; the reason of which seems difficult to assign.

The increase of weight in **minium**, which is prepared from calcined lead, is said to amount to one fourth the weight of the lead; and the lead recovered from the **minium**, to be one twentieth less than the original weight of the metal: and the quantity of lead recoverable, is less in proportion to the vehemence and continuance of the calcination.

The increase of weight, which the imperfect or calcinable metals acquire by calcination, has been long known to the chemists, though, before the modern discoveries with respect to fixed air, they had not been able to assign any probable cause of it. Dr. Pemberton, in his Chemical Lectures, observed, that the air, by acting on the inflammable substance either in metals or other bodies, expels it from them, and unites itself (in part at least) to the remains of the body: and to this he ascribed the additional weight acquired by their calces; that portion of air which loses its elasticity, and seems to be consumed by burning bodies, being absorbed by them in the process of calcination. It had not escaped the notice of the ingenious Dr. Hales that the calces of metals contain air of some kind or other, and that this air contributes to their additional weight. Many facts have since been alleged in proof of this observation. Dr. Priestley found, that no weight is either gained or lost by the calcination of tin in a close glass vessel; and in an experiment for revivifying the *calx* in lead, he perceived a considerable generation of air; and he afterwards expelled a quantity of air, by heating a small phial filled with red lead, about four or five times the bulk of the lead, together with a small quantity of water; whence he concluded, that the water and air together must be the cause of the addition of weight in the *calx*; and this, he apprehends, is, in some instances, owing to a nitrous acid extracted from the common air in which metallic substances are calcined. M. Lavoisier had about the same time made a similar discovery, and he explains the whole process of calcination by means of the combination of fixed air with metals converted into calces. He observed, that metals cannot be calcined in vessels that are either closely stopped or exhausted of air; that the facility of calcination depends on the extent of surface in the metal

metal, that is exposed to the air; that the effervescence which takes place, when the metallic substance passes from the state of a calx to that of a metal, is no more than the separation of an elastic fluid which before existed under a fixed form, and at this instant recovers its elasticity; and that whenever a metal passes from its metallic state to that of a calx, there is an absorption of the same fluid, and that the calcination is nearly proportionable to this absorption. Dr. Priestley had observed, that a diminution in the volume of air was produced by the calcination of metals; and M. Lavoisier adds, that this diminution is nearly answerable to the augmentation of weight in the metal. He concludes, however, from some subsequent experiments, that the air which may be obtained from all metallic calces, is not fixed, but common air, in a state rather more pure than that which we usually breathe; and that the fixed air, which is produced from reductions in the common method, does not proceed from the calx, but from the charcoal employed in the process: whereas Dr. Priestley found, that several of the metallic calces yielded fixed air by heat only, as we have already observed, without any addition of charcoal. See Pemberton's Course of Chemistry, p. 245. Priestley's Exp. and Obs. on Air, vol. ii. p. 194, &c. Lavoisier's Essays Physical and Chemical, vol. i. pt. ii. chap. 5, 6, 7, and Appendix.

CALCINATION, in a more extensive sense, includes also the solution of metalline bodies by corrosive matters.

In this sense, calcination is divided into *actual*, and *potential*.

CALCINATION, *actual*, is that effected by actual fire, of wood, coals, or other fuel, raised to a certain heat, according to the nature of the substance to be calcined.

Actual calcination is subdivided into *incineration*, and *reverberation*. To this head also belongs the *extinction* of things ignited.

CALCINATION, *potential*, is that procured by potential fire; viz. by salts, sulphurs, and other drugs, which have, as it were, the force of fire; as strong waters, corrosive spirits, &c.

Gold is calcined by reverberatory fire, with mercury, and *sal ammoniac*; silver with common salt, and alkali salt; copper with salt, and sulphur; iron with *sal ammoniac*, and vinegar; tin, with antimony, lead, and sulphur; mercury, with *aqua fortis*; this last, also, as well as most other minerals, calcines with fire alone, without any other ingredient.

CALCINATION, *potential*, *philosophical*, or *chemical*, comprehends AMALGAMATION, PRECIPITATION, EVAPORATION, FUMIGATION, and CEMENTATION; and DETONATION by nitre is also reduced by Libavius to this species of calcination.

CALCINATION by *dry corrosion*, is that effect without moisture, by the application of dry corrosive salts; to which head belongs CEMENTATION.

CALCINATION by *vaporous corrosion*, is when metalline bodies, being reduced to thin plates, are exposed to the action of an acrimonious fume or vapour.

There are divers ways of performing this; sometimes the plates are suspended over *aqua fortis*; sometimes over vinegar, or the recrements of pressed grapes; sometimes, especially the nobler metals, over melted lead or quicksilver, &c.

CALCINATION, *humid*, is either by vapour, or immersion. Iron is calcined to a subtle crocus, by a vaporous corrosion over strong *aqua fortis*. Lead is calcined to cerusse over vinegar, copper over the recrements of grapes.

CALCINATION, *humid*, by *immersion*, is when the body is dipt into the corrosive fluid, and is either performed by amalgamation or precipitation.

CALCINATION, *reverberatory*, properly denotes the solution or reduction of a body into a CALX or impalpable powder; sometimes also denominated ALCOHOL.

CALCINATION of gold and silver by *electricity*, was effected by Mr. Canton, who, by the heat of electrical explosions, produced numberless beautiful globules of transparent glass, and also others tinged with all the varieties of colour from those metals. He made it also probable that the black dust discharged from the brass chain, and other pieces of metal in such experiments, is the calx or glass of the metal reduced to smaller particles than the laws of optics require to produce colour. Hist. of Elect. edit. 1775, vol. ii. p. 292. See ELECTRICAL Battery.

CALCINATUM, A CALX or body which has undergone CALCINATION.

CALCINATUM majus, is used by alchemists for any thing rendered sweet by chemical art, which of its own nature was not so; as *mercurius dulcis*, or *saccharum saturni*.

CALCINATUM minus, denotes a thing which is naturally sweet, as sugar, manna, &c.

CALCIS Os. See Os Calcis.

CALCITRAPA, in Botany. See CENTAURY.

CALCITRAPOIDES, thorny knap-weed, in Botany. See CENTAURY.

CALCULARII, in Antiquity, a sort of jugglers who practised slight of hand. Their art consisted in laying several calculi, or counters on the table, then covering them with cups, and shifting and changing them with dexterity, like what is practised by our jugglers.

CALCULARY of a pear, a congeries of little stony knots dispersed through the whole parenchyma of the fruit.

The *calculary* is no vital or essential part of the fruit; the several knots whereof it consists being only so many concretions or precipitations out of the sap, as we see in urines, wines, and other liquors.

CALCULATION, the act of computing several sums, by adding, subtracting, multiplying, or dividing. See ARITHMETIC.

An error in *calculation* is never protected; or secured, by any sentence, decree, &c. In stating accounts, there is always understood, *salvo errore calculi*.

The word *calculus* is used in this sense, in allusion to the practice of the ancients, who used *calculi*, or little stones, in making computations, in taking suffrages, and in keeping accounts, &c. as we now use counters, figures, &c.

A merchant or trader is said to have been mistaken in his *calculation* or accounts, when he has happened to take false measures, and has not succeeded in his undertakings so well as he expected.

CALCULATION is more particularly used to signify the computations in astronomy and geometry, for making tables of logarithms, ephemerides, finding the times of eclipses, &c.

CALCULATION of clock and watch-work. See CLOCK and WATCH-WORK.

CALCULATOR, a machine contrived and constructed by Mr. Ferguson, in the shape of an orrery, for exhibiting the motions of the earth and moon, and resolving a variety of astronomical problems. See the construction, figure, and use of this machine, in Ferguson's Astronomy, 4to. p. 265, &c.

CALCULATORES, in Antiquity, accomptants who reckoned their sums by *calculi*. There were several servants under this denomination in great families. Children also at school were taught to practise the same.

In the ancient canons we find a sort of diviners, or enchanters, censured under the denomination of *calculatores*.

CALCULUS, primarily, denotes a little stone, pebble, or counter, anciently used in making computations, taking of suffrages, playing at tables, and the like.

Hence the phrase *ponere calculos*, to denote a series of reasons, and a multitude of others alluding to the use of these *calculi* in accounts. Computists were by the lawyers called *calculones*, when they were either slaves, or newly freed men; those of a better condition were denominated *calculatores*, or *numerararii*: ordinarily there was one of these masters in each family of distinction; the title of whose office was a *calculus*, or a *rationibus*.

The Roman judges anciently gave their opinions by *calculi*, which were white for absolution, and black for condemnation.

Hence *calculus albus*, in ancient writers, denotes a favourable vote, either in behalf of a person to be absolved and acquitted of a charge, or elected to some dignity or post; as *calculus niger* did the contrary.

This usage is said to have been borrowed from the Thracians, who marked their happy or prosperous days by white, and their unhappy by black pebbles, put each night into an urn. Hence also the phrases, *signare, notare aliquid albo, nigrove lapillo seu calculo*.

Besides the diversity of colour, there were some also which had figures or characters painted or engraven on them; as those which were in use in taking the suffrages both in the senate and at assemblies of the people.

The letters marked upon these *calculi* were U. R. for *uti rogas*, and A. for *antiquo*; the first of which expressed an approbation of the law, the latter a rejection of it.

Afterwards the judges, who sat in capital causes used *calculi* marked with the letter A. for *absolvo*, C. for *condemno*, and N. L. for *non liquet*; signifying a more full information was required.

We may also mention another species of *calculi* used at the public games, whereby the rank and order in which the athletes were to fight was determined. If for instance they were twenty, then twenty of these pieces were cast into an urn; each ten were marked with numbers from one to ten, and the law was, that each of those

those who drew, should fight him who had drawn the same number.

These were called *calculi athletici*.

CALCULUS is also used in *Ancient Grammatic Writers* for a kind of weight equal to two grains of *cicer*. Some make it equivalent to the *siliqua*, which is equal to three grains of barley. Two *calculi* made the *ceratium*.

CALCULUS *differentialis* is a method of differencing quantities, or of finding an infinitely small quantity, which, being taken infinite times, shall be equal to a given quantity: or, it is the arithmetic of the infinitely small differences of variable quantities.

The foundation of this *calculus* is an infinitely small quantity, or an infinitesimal, which is a portion of a quantity incomparable to that quantity, or that is less than any assignable one, and therefore accounted as nothing; the error accruing by omitting it being less than any assignable one. Hence two quantities, only differing by an infinitesimal, are reputed equal.

Thus, in *Astronomy*, the diameter of the earth is an infinitesimal, in respect of the distance of the fixed stars; and the same holds in abstract quantities. The term infinitesimal, therefore, is merely respective, and involves a relation to another quantity; and does not denote any real ens or being.

Now infinitesimals are called *differentials*, or differential quantities, when they are considered as the differences of two quantities. Sir Isaac Newton calls them *moments*; considering them as the momentary increments of quantities; v. g. of a line generated by the flux of a point; or of a surface by the flux of a line. The *differential calculus*, therefore, and the doctrine of *FLUXIONS*, are the same thing under different names; the former given by M. Leibnitz, and the latter by Sir Isaac Newton: each of them lay claim to the discovery.

There is, indeed, a difference in the manner of expressing the quantities resulting from the different views wherein the two authors consider the infinitesimals; the one as moments, the other as differences: Leibnitz, and most foreigners, express the differentials of quantities by the same letters as variable ones, only prefixing the letter *d*: thus the differential of *x* is called *dx*; and that of *y*, *dy*: now *dx* is a positive quantity, if *x* continually increase; negative if it decrease.

The English, with Sir Isaac Newton, instead of *dx* write \dot{x} (with a dot over it); for *dy*, \dot{y} , &c. which foreigners object against, on account of that confusion of points, which they imagine arises, when differentials are again differenced; besides, that the printers are more apt to overlook a point than a letter. Stable quantities being always expressed by the first letters of the alphabet *da* = 0, *db* = 0, *dc* = 0; wherefore $d(x+y-a) = dx + dy$, and $d(x-y+a) = dx - dy$. So that the differencing of quantities is easily performed, by the addition or subtraction of their compounds.

To difference quantities that multiply each other; the rule is, first, multiply the differential of one factor into the other factor, the sum of the two factors is the differential sought: thus, the quantities being *xy*, the differential will be $x dy + y dx$, i. e. $d(xy) = x dy + y dx$. Secondly, if there be three quantities mutually multiplying each other, the factum of the two must then be multiplied into the differential of the third: thus, suppose *vxy*, let $v x = t$, then $v x y = t y$; consequently $d(vxy) = t dy + y dt$, but $dt = v dx + x dv$. These values, therefore, being substituted in the antecedent differential, $t dy + y dt$, the result is, $d(vxy) = v x dy + v y dx + x y dv$. Hence it is easy to apprehend how to proceed, where the quantities are more than three.

If one variable quantity increase, while the other *y* decreases, it is evident $y dx - x dy$ will be the differential of $\frac{x}{y}$.

To difference quantities that mutually divide each other; the rule is, first, multiply the differential of the divisor into the dividend; and, on the contrary, the differential of the dividend into the divisor; subtract the last product from the first and divide the remainder by the square of the divisor; the quotient is the differential of the quantities mutually dividing each other. See *FLUXIONS*.

CALCULUS *exponentialis*, is the method of differencing exponential quantities, or of finding and summoning up the differentials or moments of exponent quantities; or at least bringing them to geometrical constructions.

By exponential quantity is here understood a power whose exponent is variable; v. g. x^x , a^x , x^y , where the exponent *x* does not denote the same in all the points of a curve, but in some stands for 2, in others for 3, in others for 5, &c.

To difference an exponential quantity: there is nothing required but to reduce the exponential qualities to logarithmic ones; which done, the differencing is managed

as in logarithmic quantities. Thus, suppose the differential of the exponential quality *xy* required, let

$$xy = z$$

Then will $ylx = lz$

$$lx dy + \frac{y dx}{x} = \frac{dz}{z}$$

$$z lx dy + \frac{zy dx}{x} = dz$$

That is; $xy lx dy + y xy^{-1} dx = dz$: Bernouilli Opera, tom. i. p. 183. See *EXPOTENTIAL*.

CALCULUS *integralis*, or *summatorius*, is a method of integrating, or summing up moments, or differential quantities; i. e. from a differential quantity given, to find the quantity from whose differencing the given differential results. The *integral calculus*, therefore, is the inverse of the differential one: whence the English, who usually call the differential method, *fluxions*, give this *calculus*, which ascends from the fluxion, to the flowing or variable quantities, or, as foreigners express it, from the differences to the sums, by the name of the *inverse method of FLUXIONS*.

Hence, the integration is known to be justly performed, if the quantity found, according to the rules of the *differential calculus*, being differenced, produce that proposed to be summed.

Suppose *f* the sign of the sum, or integral quantity; then $\int y dx$ will denote the sum, or integral of the differential $y dx$.

To integrate, or sum up a differential quantity. It is demonstrated, first, that $\int dx = x$: secondly, $\int (dx + dy) = x + y$: thirdly, $\int (x dy + y dx) = xy$: fourthly, $\int (m x^{m-1} dx) = x^m$: fifthly, $\int (n : m) x^{\frac{n-m}{m}} dx = x^{\frac{n}{m}}$: sixthly,

$\int (y dx - x dy) : y^2 = x : y$. Of these, the fourth and fifth cases are the most frequent; wherein the differential quantity is integrated, by adding a variable unity to the exponent, and dividing the sum by the new exponent multiplied into the differential of the root; v. g. the fourth case, by $m - (1 + 1) dx$, i. e. by $m dx$.

If the differential quantity to be integrated, doth not come under any of these formulas, it must either be reduced to an integral finite, or an infinite series, each of whose terms may be summed.

It may be here observed, that, as in the analysis of finites, any quantity may be raised to any degree of power; but *vice versa*, the root cannot be extracted out of any number required: so in the analysis of infinites, any variable or flowing quantity may be differenced; but, *vice versa*, any differential cannot be integrated. And as, in the analysis of finites, we are not yet arrived at a method of extracting the roots of all equations; so neither has the *integral calculus* arrived at its perfection: and as, in the former, we are obliged to have recourse to approximation; so in the latter, we have recourse to infinite *SERIES*, where we cannot attain to a perfect integration.

CALCULUS *literalis*, or *literal CALCULUS*, is the same with specious arithmetic, or algebra, so called from its using the letters of the alphabet: in contradistinction to numeral arithmetic, which uses figures.

In the *literal calculus*, given quantities are expressed by the first letters, *a b c d*; and quantities sought by the last *z y x*, &c. Equal quantities are denoted by the same letters.

CALCULUS, in *Medicine*, the disease of the stone in the bladder or kidneys.

The term is Latin, and signifies a *little pebble*. The *calculus* in the bladder is called *lithiasis*; and in the kidneys, *nephritis*. See *STONE*.

CALCULUS *Minervæ*, among the *Ancient Lawyers*, denoted the decision of a cause, wherein the judges were equally divided. The expression is taken from the history of Orestes, represented by Æschylus and Euripides; at whose trial, before the Areopagites for the murder of his mother, the votes being equally divided for and against him, Minerva interposed, and gave the casting vote, or *calculus*, in his behalf.

M. Cramer, professor at Marburg, has a discourse express, *De Calculo Minervæ*; wherein he maintains, that all the effect an entire equality of voices can have, is to leave the cause *in statu quo*.

CALCULUS *tiburinus*, a sort of figured stone, formed in great plenty about the cataracts of the Anio, and other rivers in Italy; of a white colour, and in shape oblong, round, or echinated. They are a species of the *silice lapideæ*, and generated like them; and so like sugar-plums in the whole, that it is a common jest at Rome to deceive the unexperienced by serving them up at deserts.

CALDA, or CALDUM, in the *Ancient Diet*, denotes hot water,

water, used much among the Romans, anciently as a drink partly for pleasure, and partly for health.

The word is formed from *calidus*, hot; *aqua* being understood; *calda*, q. d. *calida aqua*.

Lipsius, Castalio, Mercurialis, Baccius, and Frienshemius have treated largely *de potu caldæ*, or *caldi*. Act. Erud. Lips. 1721.

CALDARIA *Judiciaria*, the method of trial, or PURGATION by boiling water. See ORDEAL.

CALDARIUM, in the *Ancient Baths*, denoted a brazen vessel or cistern, placed in the hypocaustum, full of hot water, to be drawn thence into the *piscina* or BATH, to give it the necessary degree of heat.

In this sense, the *caldarium* stood contradistinguished from the *tepidarium* and *frigidarium*.

CALDARIUM also denoted the stove, or sudatory, being a close vaulted room, wherein by hot dry fumes, without water, people were brought to a profuse sweat.

In which sense, *caldarium* was the same with what was otherwise denominated *vaporarium sudatorium*, and *lacinium*; in the Greek baths, *hypocaustum ὑποναυσου*.

CALDARIUM *as*, denotes POT-Metal.

CALDRON, a large kitchen utensil, commonly made of copper, having a moveable iron handle, whereby to hang it on the chimney hook.

The word is formed from the French *chaudron*, or rather the Latin *caldarium*.

CALDRONS, *boiling in*, *caldariis decoquere*, is a capital punishment spoken of in the middle age writers, decreed to divers sorts of criminals, but chiefly to debasers of the coin.

One of the torments inflicted on the ancient Christian martyrs, was boiling in caldrons of water, oil, &c.

CALE, or **KALE**, in *Botany*, a species of the BRASSICA, or cabbage. See BORECOLE and COLEWORT.

CALE, *sea*. See CRAMBE.

CALEA, in *Botany*, a genus of the *syngenesia polygamia æqualis* class of plants; the receptacle of which is covered with a hairy down, and the calyx imbricated. There are three species.

CALEDONIANS, in *Antiquity*, the ancient inhabitants of that part of Britain which lies northward beyond Graham's Dyke, or the wall of Antoninus Pius, afterwards called Picts by the Romans and Provincials. The term *Caledonii* became, in process of time, so common among the Roman writers, that they applied it generally to all Britain, and all the forests of Britain.

Camden derives the name from the plural *kaledion*, of the British word *kaled*, hard; whence *Caledonii*, denoting a people *hardy uncivilized*, and *rustic*. Buchanan derives it from the old Scottish word *calden*, hazel-tree.

CALEFACIENTIA, in *Medicine*. The *calefacientia* of the Latins are the same with the *θερμαντικα* of the Greeks; and denote no more than what we commonly call warming medicines. That the natures and qualities of the several medicines coming under this denomination may be the more thoroughly understood, it is necessary to observe, that there may be heat without any external appearance of fire, and that it discovers itself by numberless effects; but in no instance more conspicuously than by the dilatation of the air in the thermometer. Boerhaave's Chemistry, vol. i.

The means then by which warmth is generated in bodies, are the very same with those by which apparent fire is produced. Where there is a heat, there is also a proportionable and correspondent motion and agitation of the parts of the body said to be hot; and, *vice versa*, where there is an agitation of the parts of the body there is a proportionable heat and warmth.

CALEFACTION, a school term for the action of fire in heating a body; or the impulse which the particles of a hot body impress on other bodies around.

The word is particularly used in pharmacy; where *calefaction* is distinguished from coction: the first being applied where the thing is only heated, without boiling.

CALENDAR, **KALENDARUM**, **CALENDARIUM**, or **KALENDAR**, a distribution of time, accommodated to the uses of life; or a table, or ALMANAC, containing the order of days, weeks, months, FEASTS, &c. happening throughout the YEAR. See TIME, MONTH, YEAR, &c. It is called *calendar* from the word *calendæ*, anciently wrote in large characters at the head of each month. See CALEND.

The days in *calendars* were originally divided into octoades, or eighths, but afterwards, in imitation of the Jews, into hebdomades, or seven; which custom, Scaliger observes, was not introduced among the Romans till after the time of Theodosius.

There are divers *calendars*, according to the different forms of the year, and distributions of time, established in different countries. Hence the Roman, the Jewish, the Persian, the Julian, the Gregorian, &c. *calendars*.

The ancient Roman *calendar* is given by Ricciolus, Struvius, Danet, and others; by which we see the order and number of the Roman holy-days, and work-days.

The three Christian *calendars* are given by Wolfius in his Elements of Chronology.

The Jewish *calendar* was fixed by rabbi Hillel, about the year 360, from which time the days of their year may be reduced to those of the Julian *calendar*.

CALENDAR, the Roman, owed its origin to Romulus; but it has undergone various reformatations since his time. That legislator distributed time in several periods, for the use of the people under his command: but as he was much better versed in matters of war than of astronomy, he only divided the year into ten months, making it begin in the spring, on the first of March: imagining the sun made his course through all the seasons in three hundred and four days.

Romulus's *calendar* was reformed by Numa, who added two months more, January and February; placing them before March: so that his year consisted of three hundred fifty five days, and began on the first of January. He chose, however, in imitation of the Greeks, to make an intercalation of forty-five days, which he divided into two parts, intercalating a month of twenty-two days at the end of each two year; and at the end of each two years more, another month of twenty-three days; which month, thus interposed, he calls *Marcedonius*, or the intercalary February.

But these intercalations being ill observed by the pontiffs, to whom Numa committed the care of them, occasioned great disorders in the constitution of the year; which Cæsar, a sovereign pontiff, endeavoured to remedy: to this end he made choice of Sosigenes a celebrated astronomer of those times: who found, that the dispensation of time in the *calendar* could never be settled on any sure footing without having regard to the annual course of the sun. Accordingly, as the sun's yearly course is performed in three hundred sixty-five days six hours, he reduced the year to the same number of days: the years of this correction of the *calendar* was a year of confusion; they being obliged, in order to swallow up the sixty-seven days that had been imprudently added, and which occasioned the confusion, to add two months besides the *Marcedonius*, which chanced to fall out that year; so that this year consisted of fifteen months, or four hundred forty-five days. This reformation was made in the year of Rome 708, forty-two or forty-three years before Christ. See YEAR.

The Roman called also *Julian calendar*, from its reformer Julius, is disposed into quadriennial periods; whereof the three first years, which he called *communes*, consist of three hundred sixty-five days: and the fourth *bissextile*, of three hundred sixty-six; by reason of the six hours, which in four years make a day, or somewhat less; for in one hundred thirty-four years an intercalary day is to be retrenched. On this account it was, that pope Gregory XIII. with the advice of Clavius and Ciacconius, appointed, that the hundredth year of each century should have no bissextile, excepting in each fourth century: that is, a subtraction is made of three bissextile days in the space of four centuries: by reason of the eleven minutes wanting in the six hours whereof the bissextile consists. See BISSEXTILE.

This reformation of the *calendar*, or the new style, as we call it, commenced on the fourth of October 1582, when ten days were thrown out at once; so many having been introduced into the computation since the time of the council of Nice, in 325, by the defect of eleven minutes.

CALENDAR, *Julian Christian*, is that wherein the days of the week are determined by the letters A, B, C, D, E, F, G, by means of the solar cycle; and the new and full moons, especially the paschal full moon, with the feast of Easter, and the other moveable feasts depending thereon, by means of golden numbers, rightly disposed through the Julian year. The CYCLE, and Golden NUMBER.

In this *calendar*, the vernal equinox is supposed to be fixed to the twenty-first day of March, and the cycle of nineteen years, or the golden numbers, constantly to indicate the places of the new and full moons; yet both are erroneous. And hence arose a very great irregularity in the time of Easter. To shew this error more apparently, let us apply it to the year 1715. In this year, then, the vernal equinox falls on the tenth of March; and therefore, comes too early by eleven days. The paschal full moon falls on the seventh of April; and therefore too late, with regard to the cycle, by three days. Easter, therefore, which should have been on the tenth of April, was that year on the seventeenth. The error, here, lies only in the metempsychosis, or post-position of the moon, through the defect of the lunar cycle. If the full moon had fallen on the eleventh of March, Easter would

would have fallen on the thirteenth of March; and therefore the error, arising from the anticipation of the equinox, would have exceedingly augmented that arising from the post-position. These errors, in course of time, were so multiplied, that the *calendar* no longer exhibited any regular Easter. Pope Gregory XIII. therefore, by the advice of Aloysius Lilius, in 1582, threw ten days out of the month of October, to restore the equinox to its place, viz. the twenty-first of March; and thus introduced the form of the Gregorian year, with such a provision, as that the equinox should be constantly kept to the twenty-first of March. The new moons and full moons, by advice of the same Lilius, were not to be indicated by golden numbers, but by epacts. The *calendar*, however, was still retained in England, without this correction; whence there was a difference of eleven days between our time and that of our neighbours. But by 24 Geo. II. cap. 23. the Gregorian computation is established here, and accordingly took place in 1752. See **STYLE**.

CALENDAR, *Gregorian*, is that which, by means of epacts, rightly disposed through the several months, determines the new and full moons, and the time of Easter, with the moveable feasts depending thereon, in the Gregorian year. The Gregorian *calendar*, therefore, differs from the Julian, both in the form of the year, and in that epacts are substituted in lieu of golden numbers; for the use and disposition whereof, see **EPACT**.

Though the Gregorian *calendar* be preferable to the Julian, yet it is not without its defects (perhaps, as Tycho Brahe and Cassini imagine, it is impossible ever to bring the thing to a perfect justness.) For, first, the Gregorian intercalation does not hinder but that the equinox sometimes succeeds the twenty-first of March, as far as the twenty-third; and sometimes anticipates it, falling on the nineteenth; and the full moon, which falls on the twentieth of March, is sometimes the paschal; yet not so accounted by the Gregorians. On the other hand, the Gregorians account the full moon of the twenty-second of March, the paschal; which yet, falling before the equinox, is not paschal. In the first case, therefore, Easter is celebrated in an irregular month; in the latter there are two Easters in the same ecclesiastical year. In like manner, the cyclical computation being founded on mean full moons, which yet may proceed or follow the true ones by some hours, the paschal full moon may fall on Saturday, which is yet referred by the cycle to Sunday; whence, in the first case, Easter is celebrated eight days later than it should be; in the other it is celebrated on the very day of the full moon, with the Jews and Quartodeciman heretics; contrary to the decree of the council of Nice. Scaliger and Calvisius shew other faults in the Gregorian *calendar*, arising from the negligence and inadvertency of the authors: yet is this *calendar* adhered to by the Romanists throughout Europe, &c. and used wherever the Roman breviary is used.

CALENDAR, *reformed*, or *corrected*, is that which, setting aside all apparatus of golden numbers, epacts, and dominical letters, determines the equinox, with the paschal full moon, and the moveable feasts depending thereon, by astronomical computation, according to the Rudolphine tables.

This *calendar* was introduced among the protestant states of Germany, in the year 1700, when eleven days were at once thrown out of the month of February; so that in 1700, February had but eighteen days; by this means the corrected style agrees with the Gregorian. This alteration in the form of the year they admitted for a time; in expectation, that the real quantity of the tropical year being at length more accurately determined by observation, the Romanists would agree with them, on some more convenient intercalation.

CALENDAR, *construction of a*, or *almanac*. 1. Compute the sun's and moon's place for each day in the year; or take them from ephemerides. 2. Find the dominical letter, and, by means thereof, distribute the *calendar* into weeks. 3. Compute the time of Easter, and thence the six other moveable feasts. 4. Add the moveable feasts, with the names of the martyrs. 5. To every day add the sun's and moon's place, with the rising and setting of each luminary; the length of day and night; the crepuscula, and the aspects of the planets. 6. Add, in the proper place, the chief phases of the moon, and the sun's entrance into the cardinal points; i. e. the solstices and equinoxes; together with the rising and the setting, especially heliacal, of the planets, and chief fixed stars; means for each of which will be found under the proper heads.

The duration of the crepuscula, or the end of the evening and the beginning of the morning twilight; together with the sun's rising and setting, and the length of days, may be transferred from the *calendars* of one year into

those of another; the differences in the several years being too small to be of any consideration in civil life.

Hence it appears, that the construction of a *calendar* has nothing in it of mystery, or difficulty; if tables of the heavenly motions be at hand: See **ALMANAC**.

Some divide *calendars* or *almanacs* into public and private; perfect and imperfect; others into heathen and Christian.

Public *almanacs* are those of a large size, usually hung up for common or family use; private are those of the smaller kind, to be carried about either in the hand inscribed on a staff, or in the pocket; perfect, those which have the dominical letters as well as primes, and feasts inscribed on them; imperfect, those which have only the primes and immoveable feasts. Till about the fourth century, they all carried the marks of heathenism; from that age to the seventh, they are generally divided between heathenism and Christianity.

Almanacs are of somewhat different composition, some containing more points, others fewer. The essential part is the *calendar* of months and days, with the risings and settings of the sun, age of the moon, &c. To these are added various parerga, astronomical, astrological, meteorological, chronological, and even political, rural, medical, &c. as calculations, and accounts of eclipses, solar ingresses, aspects, and configurations of the heavenly bodies, lunations, heliocentric and geocentric motions of the planets, prognostics of the weather, and predictions of other events, tables of the planetary motions, the tides, terms, interest, twilight, equation, kings, &c.

CALENDAR, *Gelutcan*, or *Jellutcan*, is a correction of the Persian *calendar*, made by order of sultan Gelaledden, in the 467th year of the Hegira; of Christ 1089. See **EPOCH** and **YEAR**.

CALENDAR is also applied to divers other compositions respecting the twelve months of the year.

In this sense, Spencer has given the shepherd's *calendar*.

Evelyn, and Miller, the Gardener's *calendar*, &c.

CALENDAR is used for the catalogue, or fasti, anciently kept in each church, of the saints, both universal, and those particularly honoured in each church; with their bishops, martyrs, &c. *Calendars* are not to be confounded with martyrologies, for each church had its peculiar *calendar*; whereas the martyrologies regarded the whole church in general; containing the martyrs and confessors of all the churches. From all the several *calendars* were formed one martyrology; so that martyrologies are posterior to *calendars*. See **MARTYROLOGY**.

CALENDAR is also extended to an orderly table, or enumeration of persons or things.

Lord Bacon wishes for a *calendar* of doubts. A late writer has given a *calendar* of the persons who may inherit estates in fee-simple.

CALENDAR, *Kalendarium*, originally denoted among the Romans a book containing an account of monies at interest, which became due on the calends of January; the usual time when the Roman usurers let out their money. Senec. de Benef. lib. vii. c. 10. Idem, lib. i. c. 2. Ejuſd. Epist. 14. Idem, Ep. 87. Fab. Theſ. p. 413.

CALENDAR *months*, the solar months as they stand in the *calendar*, viz. January 31 days, &c.

CALENDAR, *astronomical*, an instrument engraved upon copper-plates printed upon paper, and pasted on board, with a brass slider which carries a hair, and shews by inspection, the sun's meridian altitude, right ascension, declination, rising, setting, amplitude, &c. to a greater exactness than our common globes will shew.

CALENDAR *of prisoners*, is a list of all their names, with their separate judgments in the margin, which the judge signs, and the execution of which is committed to the respective sheriff. In the case of a capital felony, the words "hang by the neck" are annexed to the prisoner's name, instead of "sus. per col." for *suspendatur per collum*, which was the ancient form. Judge Blackstone well observes, that the execution of a man seems to be too important and terrible a task to depend on a marginal note. Blackst. Com. vol. iv. p. 396.

CALENDAR-glass, *vitrum ca'endarc*, a name formerly given by some writers to a thermometer, or graduated tube, whereby to measure the degrees of heat.

CALENDAR-brothers, *fratres calendarii*, a sort of devout fraternities, composed of ecclesiastics as well as laymen; whose chief business was to procure masses to be said, and alms distributed, for the souls of such members as were deceased. They were also denominated *calendar-brothers*, because they usually met on the calends of each month, though in some places only once a quarter.

CALENDARIUM *festum*. The Christians retained much of the ceremony and wantonness of the calends of January, which for many ages was held a feast, and celebrated

brated by the clergy with great indecencies, under the names *festum kalendarum*, or *hypodiaconorum*, or *stultorum*, that is, the feast of fools; sometimes also *libertas decembrica*. The people met masked in the church; and in a ludicrous way proceeded to the election of a mock pope, or bishop, who exercised a jurisdiction over them suitable to the festivity of the occasion: fathers, councils, and popes long laboured to restrain this licence; to little purpose. We find the feast of the calends in use as low as the close of the fifteenth century. Du-Cange.

CALENDER, a machine used in the manufactories, for pressing certain stuffs, silks, and even linens; to make them smooth, even, and glossy. It is also used for watering, or giving the waves to tabbies and mohairs.

The word is formed from the French *calandre*, or Spanish *calandra*, which signify the same; and which some derive farther from the Latin *cylindrus*: because the whole effect of the machine depends upon a cylinder: Borel derives the name from that of a little bird, of the swallow kind; on account of the agreement between the feathers of the bird, and the impression of the machine.

The *calender* consists of two large wooden rollers, round which the pieces of stuff are wound: these are put between two large, close, polished planks of wood, or plates of iron, the lower serving as a fixed base, and the upper moveable, by means of a wheel like that of a crane, with a rope fastened to a spindle, which makes its axis: this upper part is of a prodigious weight, sometimes twenty or thirty thousand pounds. It is the weight of this part, together with its alternate motion, that gives the polish, and makes the waves on the stuffs, by causing the cylinders on which they are put to roll with great force over the lowest board. The rollers are taken off and put on again, by inclining the machine.

At Paris they have an extraordinary machine of this kind, called the *royal calender*, made by order of M. Colbert; the lower table or plank of which is made of a block of smooth marble, and the upper lined at bottom with a plate of polished copper.

This is called the great *calender*: they have also a small one with two tables of polished iron or steel.

There are also *calenders* without wheels, which are wrought by a horse harnessed to a wooden bar, which turns a large arbour placed upright: at the top of which, on a kind of drum, is wound a rope, the two ends of which being fastened to the two extremities of the upper plank of the engine, give it motion. But the horse *calender* is in less esteem than the wheel kind, as the motion of this latter is more equable and certain.

We read of *calendering* worsted. To improve linen farther, the drapers get several sorts of their cloths *calendered*; whereby their threads are made to lie flatter and smoother.

CALENDER also denotes the workman who manages the machine above described; applying the cloth or stuff underneath, after having first wound it on the rollers.

CALENDERS is also the name of a sort of Dervises spread through Turkey and Persia, whose order is not in general esteem among the Mahometans, as being reputed less abstemious and strict in morals than some other orders. They derive their name from *Calenderi*, their founder. See **DERVIS**.

CALENDS, **CALENDÆ**, in the *Roman Chronology*, the first day of every month.

The word is formed from *καλνω*, *I call*, or *proclaim*; because, before the publication of the Roman fasti, it was one of the offices of the pontifices to watch the appearance of the new moon, and give notice thereof to the *Rex Sacrificulus*; upon which a sacrifice being offered, the pontiff summoned the people together in the Capitol, and there, with a loud voice, proclaimed the number of *calends*, or the day whereon the nones would be; which he did by repeating this formula, as often as there were days of *calends*; *Calo Juno Novella*. Whence the name *calendæ* was given thereto, from *calo*, *calare*. This is the account given by Varro. Plutarch, and after him Gaza, derive the word from *clam*; *Quia luna calendis clam fit*: but this is far fetched. Others derive the appellation hence: that the people being convened on this day, the pontifex called or proclaimed the several feasts or holidays in the month; a custom which continued no longer than the year of Rome 450, when C. Flavius, the curule ædile, ordered the fasti, or calendar, to be set up in public places, that every body might know the difference of times, and the return of the festivals.

The *calends* were reckoned backwards, or in a retrograde order: thus, v. gr. the first of May being the *calends* of May; the last, or thirtieth of April, was the *pridie kalendarum*, or second of the *calends* of May; the twenty-ninth of April, the third of the *calends*, or before the *calends*: and so back to the thirteenth, where the *ides* commence; which are, likewise, numbered invertedly to the fifth, where the nones begin; which are num-

bered after the same manner to the first day of the month, which is the *calends* of April. See **IDES**; and **NONES**.

The rules of computation by *calends*, are included in the following verses:

*Prima dies mensis cujusque est dicta calendæ:
Sex Maius nonas; October; Julius; & Mars;
Quatuor at reliqui: habet idus quilibet octo.
Inde dies reliquos omnes dic esse calendas;
Quas retro numerans dices a mense sequente.*

To find the day of the *calends* answering to any day of the month we are in: see how many days there are yet remaining of the month; and to that number add two: for example; suppose it the twenty-second of April; it is then the tenth of the *calends* of May. For April contains thirty days: and twenty-two taken from thirty, there remains eight; to which two being added, the sum is ten.

The reason of adding two is, because the last day of the month is called *secundo calendas*, the last but one *tertio calendas*; &c.

The Roman writers themselves are at a loss for the reason of this absurd and whimsical manner of computing the days of the month: yet it is still kept up in the Roman chancery; and by some authors, out of a vain affectation of learning, preferred to the common; more natural, and easy manner.

CALENDS, *Kalendæ*, are also used in *Church History* to denote conferences anciently held by the clergy of each deanery, on the first day of every month; concerning their duty and conduct, especially in what related to the imposition of penance. Du-Cange.

CALENDS of *January*, in *Roman Antiquity*, was a solemn festival consecrated to Juno and Janus; wherein the Romans offered vows and sacrifices to those deities, and exchanged presents among themselves, as a token of friendship.

It was only a melancholy day to debtors; who were then obliged to pay their interests, &c. Hence Horace calls it *tristes calendæ*. Lib. i. Serm. Sat. 3.

CALENDULA, in *Botany*, the herb, or flower popularly called **MARYGOLD**, used in the shops as a cardiac and alexipharmic, of like, though inferior virtue to saffron.

CALENDULA, in *Ornithology*, a species of the **MOTACILLA** in the order *passeres*, found in Pennsylvania.

CALENTES, in *Logic*, a sort of syllogism in the fourth, commonly called *Galenical* **FIGURE**, wherein the major proposition is universal and affirmative; and the second or minor, as well as the conclusion, universal and negative.

This is intimated by the letters it is composed of, where the A signifies an universal affirmative, and the two E's as many universal negatives. E. gr.

CA Every affliction in this world is only for a time.

LEN No affliction which is only for a time, ought to disturb us.

TES No affliction ought to disturb us, which happens in this world.

The Aristotelians not allowing the fourth figure of syllogisms, turn this word into **CELANTES**, and make it only an indirect mood of the first figure.

CALENTURE, an inflammatory fever, frequent at sea, attended with a delirium; wherein the patients imagine the sea to be green fields; and if not prevented, will leap over-board.

The word *calenture* is Spanish, *calentura*, and signifies a heat, fever, or ague; from the Latin *calere*, to be hot.

Calentures are chiefly found in sailing towards the West Indies, as they approach the tropic. Those affected with them have a fierce look, and are very unruly, being so eager to get to their imaginary cool verdure, and so strong, that six men sometimes scarce suffice to detain them. The disease chiefly seizes the young and strong, especially of a sanguine complexion; the pulse is extremely low. When taken in time, it rarely proves mortal.

The seat of this disorder is in the stomach, and its principal source seems to be the eating of salt provisions for a long time together.

The first step toward a cure is the giving of a brisk vomit; this has the immediate effect of dispelling the fancy of the green leaves and trees in the water; after this, salt of wormwood, a little diascordium, and conserve of roses vitriolated are proper, and bleeding in the arm; and if that does not take effect, the opening of the temporal artery is proper: a thin diet and cream of tartar in water-gruel, after these things, generally remove the remains of the disease.

When they are seized with this violent heat and disorder, which for the most part happens in the night, they

steal privately over-board into the sea, imagining themselves to be going into the green fields. *Calentures* happen oftener by night than by day, because ships are more closely shut up by night, and are less airy than they are in the day-time. Phil. Trans. abr. vol. iv. by Dr. Oliver.

CALESIAM, in *Botany*, H. M. *Arbor baccifera racemosa, vitis floribus acinis oblongis compressis monopyrrenis*. It is a very tall and beautiful tree; the wood is of a dark purple colour, smooth and flexible; the flowers grow in clusters at the ends of the boughs, very like the flowers of vines, and are succeeded by berries in clusters, like grapes or currants, full of a succulent and insipid pulp, enclosing a stone having a white insipid kernel.

It grows common in Malabar, bears fruit once a year, and is fruitful from ten years standing to fifty and upward: of the wood they make sheaths for knives and swords.

The bark, pulverised and made into an ointment with butter, cures the *spasmus cynicus*, and convulsions excited by great wounds; it heals also malignant ulcers, and mitigates the pain in the gout. The juice of the bark cures *aphthæ*; and, taken inwardly, is a remedy for the dysentery. The bark of this tree with that of the codampulli reduced into a powder, purges the belly, and carries off pituitous and atrabilious humours. Half a tea-cup full of the decoction of the leaves and bark in water, is usually given to women just before their labour, to promote an easy delivery.

CALF, *vitulus*, in *Zoology*, the young one of a cow, an animal too well known to need a particular description. There are two ways of breeding *calves* that are intended to be reared; the one is to let the *calf* run with its dam all the year round: this is the method in the cheap breeding countries, and is generally allowed to make the best cattle. The other way is to take them from the dam after they have sucked about a fortnight; they are then to be taught to drink flat milk, which is to be made but just warm for them, it being very dangerous to give it them too hot.

The best time of weaning *calves* is from January to May; they should have milk for twelve weeks after, and a fortnight before that is left off, water should be mixed with the milk in larger and larger quantities. When the *calf* has fed on milk about a month, little whips of hay should be placed all about him in cleft sticks, to induce him to eat. In the beginning of April they should be turned out to grass; only for a few days they should be taken in for the night, and have milk and water given them; the same may also be given them in a pail sometimes in the field, till they are so able to feed themselves that they do not regard it. The grass they are turned into must not be too rank, but short and sweet, that they may like it, and yet get it with some labour.

Calves should be always weaned at grass, for if it be done with hay and water, they often grow big-bellied on it, and are apt to rot. When those among the males are selected which are to be kept as bulls, the rest should be gelt for oxen: the sooner the better. Twenty days old is a very good time, or between that age and ten days. About London, almost all the *calves* are fatted for the butcher. The reason of this is, that there is a good market for them; and the lands here are not so profitable to breed upon as in cheaper countries. The way to make the *calves* fat and fine is, the keeping of them very clean, giving them fresh litter every day, and the hanging of a large chalk-stone in some corner where they can easily get at it to lick it, but where it is out of the way of being fouled by their dung and urine. The coops are to be so placed as not to have too much sun upon them, and so high above the ground that the urine may run off. They also bleed them once when they are a month old, and a second time before they kill them; this is a great addition to the beauty and whiteness of their flesh: the bleeding is by some repeated much oftener: but this is sufficient.

Calves are very apt to be loose in their bowels; this wastes and very much injures them. The remedy is, to give them chalk scraped into milk, pouring it down with a horn. If this does not succeed, they give them bole armenic in large doses, and use the cold bath every morning. If a cow will not let a strange *calf* suck her, the common method is to rub both her nose and the *calf's* with a little brandy: this generally reconciles them, after a few smellings.

Calves, besides their flesh, afford two sorts of commodities for trade, namely, the hide and the hair.

CALF-skins, in the leather manufacture, are prepared and dressed by the tanners, skimmers, and curriers, who sell them for the use of the shoe-makers, saddlers, bookbinders, and other artificers, who employ them in their several manufactures.

CALF-skin dressed in sumach, denotes the skin of this animal

curried black on the hair side, and dyed of an orange colour on the flesh side by means of sumach, chiefly used in the making of belts.

The English *calf-skin* is much valued abroad, and the commerce thereof very considerable in France and other countries; where divers attempts have been made to imitate it, but hitherto in vain.

What is like to baffle all endeavours for imitating the English *calf* in France is, the smallness and weakness of the *calves* about Paris; which, at fifteen days old, are not so big as the English ones when they come into the world.

Golden-CALF. See **GOLDEN**.

CALF, *sea*, in *Zoology*. See **SEA-calf**.

CALF, among *Sportsmen*, is used for a male hart or hind of the first year.

CALF also denotes the young of the **WHALE**.

CALF's snout, in *Botany*. See **SNAP-DRAGON**.

CALI is used to denote pot-ashes, or the salt of the plant **KALI**.

CALIBER, or **CALIPER**, in a general sense, notes the extent of any round thing in thickness, or diameter.

In which sense we say, a column is of the same *caliber* as another, when they are both of the same diameter.

CALIBER more particularly denotes the bore, or width of a piece of ordnance, or other fire-arms; or the diameter of the mouth thereof; or the ball it carries:

The *caliber* is the rule by which all the parts of a cannon, or mortar, as well as of its carriage, are proportioned.

CALIBER-compasses, a sort of compasses made with arched legs, to take the diameter of convex or concave bodies.

Caliber-compasses are chiefly used by gunners, for taking the diameters of the several parts of a piece of ordnance, or of bombs, bullets, &c. Their legs are therefore circular, and move on an arch of brass; whereon are marked the inches, and half-inches; to shew how far the points of the *compasses* are opened asunder.

Some are also made for taking the diameter of the bore of a gun or mortar.

The gaugers also sometimes use *calibers* to embrace the two heads of any cask, in order to find its length.

The *caliber*, used by carpenters and joiners, is a piece of board notched triangular-wise in the middle, for the taking of measure.

CALIBER, **CALIBER-rule**, or **Gunner's CALLIPERS**, is an instrument, wherein a right line is so divided, as that the first part being equal to the diameter of an iron or leaden ball of one pound weight, the other parts are to the first as the diameters of balls of two, three, four, &c. pounds, are to the diameter of a ball of one pound. The *caliber* is used by engineers, from the weight of the ball given to determine its diameter, or *caliber*; or *vice versa*.

The gunner's *callipers* consist of two thin plates of brass joined by a rivet, so as to move quite round each other: its length from the centre of the joint is between six inches and a foot, and its breadth from one to two inches: that of the most convenient size is about nine inches long. Many scales, tables, and proportions, &c. may be introduced on this instrument; but none are essential to it, except those for taking the *caliber* of shot and cannon, and for measuring the magnitude of salient and entering angles. The most complete *callipers* is exhibited *Tab. Gunnery, fig. 2.* the furniture and use of which we shall now briefly describe. Let the four faces of this instrument be distinguished by the letters A, B, C, D; A and D consist of a circular head and leg; B and C consist only of a leg.

On the circular head adjoining to the leg of the face A are divisions denominated *shot diameters*; which shew the distance in inches and tenths of an inch of the points of the *callipers* when they are opened; so that if a ball not exceeding ten inches be introduced between them, the bevil edge E marks its diameter among these divisions.

On the circular bevil part E of the face B is a scale of divisions distinguished by *lb. weight of iron shot*. When the diameter of any shot is taken between the points of the *callipers*, the inner edge of the leg A shews its weight in avoirdupoise pounds, provided it be lb. $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, 3, 4, $5\frac{1}{4}$, 6, 8, 9, 12, 16, 18, 24, 26, 32, 36, or 42; the figures nearest the bevil edge answering to the short lines in the scale, and those behind them to the longer strokes. This scale is constructed on the following geometrical theorem, viz. that the weights of spheres are as the cubes of their diameters.

On the lower part of the circular head of the face A is a scale of divisions marked *bore of guns*; for the use of which, the legs of the *callipers* are slipped across each other, till the steel points touch the concave surface of the gun in its greatest breadth; then the bevil edge F of the face B will cut a division in the scale shewing the diameter of the bore in inches and tenths.

Within the scales of *shot* and *bore* diameters on the circular part of A, are divisions marked *pounders*: the inner figures $\frac{1}{2}$, $1\frac{1}{2}$, 3, $5\frac{1}{4}$, 8, 12, 18, 26, 36, correspond to the

the longest lines; and the figures 1, 2, 4, 6, 9, 16, 24, 32, 42 to the short strokes. When the bore of a gun is taken between the points of the *callipers*, the bevil edge F will either cut or be near one of these divisions, and shew the weight of iron shot proper for that gun.

On the upper half of the circular head of the face A are three concentric scales of degrees; the outer scale consisting of 180 degrees numbered from right to left, 10, 20, &c. the middle numbered the contrary way, and the outer scale beginning at the middle with 0, and numbered on each side to 90 degrees. These scales serve to take the quantity of an angle, either entering or salient. For an entering, or internal angle; apply the legs of the *callipers* so that its outward edges coincide with the legs of the given angle, the degree cut by the bevil edge F in the outer scale shews the measure of the angle sought: for a salient, or external angle slip the legs of the *callipers* across each other, so that their outward edges may coincide with the legs forming the angle, and the degree marked on the middle scale by the bevil edge E will shew the measure of the angle required. The inner scale will serve to determine the elevation of cannon and mortars, or of any oblique plane. Let one end of a thread be fixed into the notch on the plate B; and any weight tied to the other end: apply the straight side of the plate A to the side of the body whose inclination is sought: hold it in this position, and move the plate B, till the thread falls upon the line near the centre marked *Perp.* Then will the bevil edge F cut the degrees on the inner scale, shewing the inclination of that body to the horizon.

On the face C, near the point of the *callipers*, is a little table shewing the proportion of troy and avoirdupoise weights, by which one kind of weight may be easily reduced into another.

Near the extreme of the face D of the *callipers*, are two tables shewing the proportion between the pounds weight of London and Paris, and also between the lengths of the foot measure of England and France.

Near the extreme of the face A is a table containing four rules of the circle and sphere; and geometrical figures with numbers annexed to them: the first is a circle including the proportion in round numbers of the diameter to its circumference; the second is a circle inscribed in a square, and a square within that circle and another circle in the inner square: the numbers 28, 22 above this figure exhibit the proportion of the outward square to the area of the inscribed circle; and the numbers 14, 11, below it, shew the proportion between the area of the inscribed square and the area of its inscribed circle. The third is a cube inscribed in a sphere; and the number 89 $\frac{1}{2}$, shews that a cube of iron inscribed in a sphere of 12 inches in diameter, weighs 89 $\frac{1}{2}$. The fourth is a sphere in a cube, and the number 243, expresses the weight in pounds of a sphere inscribed in the cube whose side is 12 inches: the fifth represents a cylinder and cone of one foot diameter and height: the number in the cylinder shews, that an iron cylinder of that diameter and height weighs 364.5 lb. and the number 121.5 in the cone expresses the weight of a cone, the diameter of whose base is 12 inches, and of the same height: the sixth figure shews that an iron cube, whose side is 12 inches, weighs 464 lb. and that a square pyramid of iron, whose base is a square foot and height 12 inches weighs 154 $\frac{1}{2}$ lb. The numbers which have been hitherto fixed to the four last figures were not strictly true; and therefore they have been corrected in the figure here referred to; and by these the figures on any instrument of this kind should be corrected likewise.

On the leg B of the *callipers*, is a table shewing the weights of a cubic inch or foot of various bodies in pounds avoirdupoise.

On the face D of the circular head of the *callipers* is a table contained between five concentric segments of rings: the inner one marked *Guns* shews the nature of a gun, or the weight of the ball it carries; the two next rings contain the quantity of powder used for proof and service to brass guns, and the two outermost rings shew the quantity for proof and service in iron cannon.

On the face A is a table exhibiting the method of computing the number of shot or shells in a triangular, square, or rectangular pile. Near this is placed a table containing the principle rules relative to the fall of bodies, expressed in an algebraic manner: nearer the centre we have another table of rules for raising water, calculated on the supposition, that one horse is equal in this kind of labour to five men, and that one man will raise a hoghead of water to eight feet of height in one minute, and work at that rate for some hours. N. B. Hogheads are reckoned at sixty gallons.

Some of the leading principles in gunnery, relating to shooting in cannon and mortars, are expressed on the face B of the *callipers*. Besides the articles already enu-

rated, the scales usually marked on the *SECTOR* are laid down on this instrument: thus, the line of inches is placed on the edge of the *callipers*, or on the straight borders of the faces C, D: the logarithmic scales of numbers, sines, versed sines, and tangents, are placed along these faces, near the straight edges: the line of lines is placed on the same faces in an angular position, and marked *Lin.* The lines of plans or superficies are also exhibited on the faces C and D, tending towards the centre, and marked *Plan.* Finally, the lines of solids are laid on the same faces, tending towards the centre, and distinguished by *Sol.* See farther on the construction and use of this instrument, Robertson's Treatise of Mathematical Instruments, &c. Appendix.

CALICAPHA, in *Botany*, a name used by some authors for the white thorn.

CALICULARIS, in *Botany*, a name given by some authors to the common *hyoscyamus* or *HENBANE*.

CALIDRIS, *Bellonii*, *Johnst.* in French *Chevalier*, in *Ornithology*, a water fowl of the bigness of a pigeon, well feathered, with a long red bill, blackish towards the upper part; its head, neck, wings, and tail of an ash colour; its belly white; with very long legs.

Because its body is high mounted, and its walk swift, it is called the *chevalier*; as though it were mounted on horseback. It lives about meadows, pools, and rivulets; its flesh is delicious, and of a good smell: there are several sorts of them, which differ in colour.

They contain much volatile salt, with oil somewhat exalted, and restorative, and corroborative.

CALIDUCTS, from *calor*, heat, and *duco*, I lead; a kind of pipes, or canals, disposed along the walls of houses and apartments; used by the ancients for the conveyance of heat to several remote parts of the house, from one common furnace.

The ancient *caliducts* seem both for thrift and use preferable to the German stoves; and might even challenge the advantage over our own fashion, were it not that the very sight of a fire adds something of lustre to a room.

CALIETA, in *Botany*, a name used by some authors for a sort of yellow fungus, common about the roots of trees, as the juniper; &c.

CALIGA, in *Roman Antiquity*, was the proper soldier's shoe, made in the sandal fashion, without upper leather to cover the upper part of the foot, though otherwise reaching to the middle of the leg, and fastened with thongs. The sole of the *caliga* was of wood, like the sabot of the French peasants, and its bottom stuck full of nails: which clavi are supposed to have been very long in the shoes of the scouts and centinels; whence these were called by way of distinction, *caligæ speculatiæ*; as if by mounting the wearer to a higher pitch, they gave a greater advantage to the fight: though others will have the *caligæ speculatiæ* to have been made soft and woolly, to prevent their making a noise. Plin. Nat. Hist. lib. ix. cap. 18. lib. xxxiv. cap. 14. Hard. Suet. in Calig. cap. 9. & cap. 52.

From these *caligæ* it was that the emperor Caligula took his name, as having been born in the army, and afterwards bred up in the habit of a common soldier.

A sort of *caligæ* was also worn by monks and bishops, when they celebrated mass pontifically. Du-Cange.

CALIGATI, an appellation given by some ancient writers to the common soldiers in the Roman armies, by reason of the *caliga* which they wore.

The *caliga* was the badge or symbol of a soldier; whence to take away the *caliga* and belt imported a dismissal or cashiering.

CALIGO, or **CALIGATIO**, in *Medicine*, an opacity, or cloudiness of the anterior surface of the crystalline, causing a dimness or suffusion of sight.

The *caligo* is the same with what the Greeks call *αχλυσ*, *ACHLYS*.

CALIMUS. See **CALLIMUS**.

CALIN, the name of a sort of mixt metal, seemingly composed of lead and tin. It is prepared by the Chinese, and they make several utensils of it, as tea-canisters, coffee-pots, and the like. In some places also they cover their houses with it as we do with lead.

CALIPH, **CALIF**, **KALIPH**, denotes a successor of Mahomet, in the spiritual as well as temporal empire erected by that legislator.

The word is originally Arabic, *khalifah*; which properly denotes a successor, or heir.

After the death of Mahomet, Abubeker having been elected by the Mussulmans to supply his place, he would take no other title but that of *khalifah resfoul alah*, i. e. vicar of the prophet, or messenger of God. Omar, coming afterwards to succeed Abubeker, represented to the Mahometan chiefs, that if he took the quality of vicar, or successor of Abubeker, the vicar or successor of the prophet, the word vicar would, in course of time, come to be repeated and multiplied without end: upon which, at

the motion of Mogairah; Omar took the title of *emir moumenin*, that is, *lord*, or *prince of believers*; an appellation accepted and borne by all the legitimate *caliphs*, or successors of Mahomet, from that time: not but they still retained the title *caliph*, without other addition. The *caliphs* in the Mahometan, bear a near affinity to the popes in the Christian religion.

At one of the windows in the *caliph's* palace, there hung always a piece of black velvet, twenty cubits long, which reached to the ground, and was called the *caliph's* sleeve; which the grandees of his court never failed to kiss, with great respect, every day.

The honours paid the *caliphs* were excessive, and bred a pride in them, of which they ceased not to give marks even when their authority was at the lowest. They affected great splendor and magnificence in every thing. Abulpharagius relates, that the *caliph* Motazem had no less than a hundred women in his seraglio, and three hundred eunuchs to keep them.

But this splendor was much diminished during the reign of the Bonides in Persia; who stripped them of every thing, taking from them their vizirs, and leaving them no higher officer than a secretary to take care of their affairs.

The *caliphs* lost their authority, and almost their name, in that deluge of destruction by the Tartars, who over-run all the East. Since the destruction of the *caliphate*, the Mahometan princes have a particular officer appointed in their respective dominions, who sustains the sacred authority of *caliph*. In Turkey he goes under the denomination of *mufii*, and in Persia under that of *sadne*.

CALIPPIC period, in *Chronology*, a series of seventy-six years, perpetually recurring; which elapsed, the middle of the new and full moons, as its inventor Calippus, an Athenian, imagined, return to the same day of the solar year.

Meton, a hundred years before, had invented the *period*, or cycle, of nineteen years (see *Metonic CYCLE*); assuming the quantity of the solar year 365d. 6h. 18' 56" 50³ 31⁺ 34⁺; and the lunar month 29d. 12h. 45' 47" 26³ 48⁺ 30⁵: but Calippus, considering that the Metonic quantity of the solar year was not exact, multiplied Meton's *period* by 4, and thence arose a *period* of 76 years, called the *Calippic*. The *Calippic period*, therefore contains 27759 days: and since the lunar cycle contains 235 lunations, and the *Calippic period* is quadruple of this, it contains 940 lunations. This period began in the third year of the 112th Olympiad, or the 4384th of the Julian period.

It is demonstrated, however, that the *Calippic period* itself is not accurate; that it does not bring the new and full moons precisely to their places: 8h. 5' 52" 60⁰⁰, being the excess of 940 lunations above 76 solar years; but brings them too late, by a whole day, in 225 years.

CALIX, or **CALYX**. See **CALYX**, and **CHALICE**.

CALIXTINS, a name given to those among the Lutherans, who follow the sentiments of George Calixtus, a celebrated divine, and professor at Helmstadt, in the duchy of Brunswick, who died in 1656: he opposed the opinion of St. Augustin; on predestination, grace, and free-will, and endeavoured to form an union among the various members of the Romish, Lutheran, and reformed churches; or, rather, to join them in the bonds of mutual forbearance and charity. See **SYNCRETISTS**.

The *Calixtins* are esteemed a kind of **SEMI PELAGIANS**.

CALIXTINS also denote a sect in Bohemia, derived from the Hussites, about the middle of the fifteenth century, who asserted the use of the cup as essential to the eucharist.

And hence their name; which is formed from the Latin *calix*, a cup. See **CALYX**.

The *Calixtins* are not ranked by Romanists in the list of heretics, since in the main they still adhered to the doctrine of Rome. The reformation they aimed at terminated in the four following articles. 1. In restoring the cup to the laity. 2. In subjecting the criminal clerks to the punishment of the civil magistrate. 3. In stripping the clergy of their lands, lordships and all temporal jurisdiction. 4. In granting liberty to all capable priests to preach the word of God. See **TABORITES**.

CALKING, or **CAULKING**, in *Sea-Language*, &c. See **CAUKING**.

CALKING, in *Painting*. See **CALQUING**.

CALKINS, or **CALKERS**; a part prominent from a horse-shoe, intended to secure the beast from sliding.

The *calkins* are the end or extremity of horse-shoes; turned or bent downwards, and forged to a sort of point, to make the beast step more safe and steady on the ice.

The inconvenience of *calkins* is, that they hinder the horse from treading evenly on the ground, and thus occasion wrenches on the foot, or strains in the sinews; especially in stony ways, where the hardness of the bottom will not suffer the *calkins* to penetrate: add, that they are apt to make a horse cut.

Calkins are either single or double, i. e. at one end of the

shoe, or at both; the latter are reputed less hurtful; as they allow the creature to tread more even; some are made large and square; the best are in form of the point of a hare's ear.

CALL, in *Hunting*, a lesson blown upon the horn; to comfort the hounds.

Among *Fowlers*, it means the noise or cry of a bird; especially to its young, or its mate in coupling time.

One method of catching partridges; is by the natural *call* of a hen trained for the purpose, which drawing the cocks to her, gives opportunity for entangling them in a net.

Calls are also a sort of artificial pipes, made to catch several sorts of birds, by imitating their notes.

Different birds require different sorts of artificial *calls*; but they are most of them composed of a pipe or reed, with a little leathern bag or purse, somewhat in form of a bellows, which, by the motion given thereto, yields a noise like that of the species of bird to be taken.

The *call* for partridges is formed like a boat, bored through, and fitted with a pipe, or swan's quill, &c. to be blown with the mouth, to make the noise of the cock partridge, which is very different from the *call* of the hen.

Calls for quails, &c. are made of a leathern purse in shape like a pear, stuffed with horse hair, and fitted at the end with the bone of a cat's, hare's, or coney's legs, formed like a flageolet: they are played by squeezing the purse in the palm of the hand, at the same time striking on the flageolet part with the thumb to counterfeit the *call* of the hen quail.

CALL, in *Sea-language*, a sort of whistle or pipe, of silver or brass, used by the boatswain and his mates to summon the sailors to their duty, and direct them in their several employments. It is sounded to various strains, adapted to the different exercises, as hoisting, heaving, &c. and the *piping* of it serves the same purposes among sailors, as the beat of the drum among soldiers.

CALL, among *Miners*. See **TELAUGIA**.

CALL of the house, in a parliamentary sense, has been sometimes practised, to discover whether there be any in the house not returned by the clerk of the crown; but more frequently to discover what members are absent without leave of the house, or just cause.

In the former case, the names of the members being called over, every person answers to his name, and departs out of the house, in the order wherein he is called.

In the latter, each person stands up uncovered, at the mention of his name.

CALL of the plaintiff, in *Law*. See **NON-SUIT**.

CALLA, *African arum*, in *Botany*, a genus of the *gynandria polyandria* class of plants: the spathe is plain, the spadix is covered with small flowers; it has neither calyx nor petal, and the fruits are berries containing many seeds. There are two species.

CALLAF, in *Botany*, a low, shrubby tree, growing in the East; of smooth wood, and leaves somewhat resembling the cherry-tree, serrated on the edges, and growing out from the extremities of the branches, which are straight, without joints, flexible, and of a yellowish colour. The flowers, which are produced before the leaves, come forth very thick in December, at equal distances; and are a sort of oblong, downy, little balls, of a whitish yellow, or true yellow colour, and of a fragrant smell. It has a place in the gardens of the nobility, on account of its incomparable fragrancy; and is cultivated with great care by the peasants, for the profit they make of its flowers.

An excellent water is prepared from the flowers, especially at Damascus, which is of so strengthening a virtue, that we have nothing to compare with it: for by the extraordinary sweetness of its smell, it wonderfully relieves persons under a lipothymy. The Moors use this water both internally and externally, in burning and pestilential fevers; it refrigerates and moistens. An oil also is made of the flowers, which is serviceable for many purposes.

CALLARIAS, by some called *asellus callarius*, in *Ichthyology*, a fish of the truttaceous kind, called by Aldrovandus *tinea marina*, and by Rondeletius and Gesner *phycis*. It usually grows to about a foot in length, and is in shape something flattish; it is covered with small scales, and is of a greyish colour, but somewhat purple on the head; its tail is roundish, not forked; it is a very well tasted fish, and is common in the Mediterranean, and brought to market at Rome, Venice, &c.

CALENDER, in *Manufactures*. See **CALENDER**.

CALLIBER, or **CALIPER**. See **CALIBER**.

CALLIBLEPHARA, from *καλλος*, beauty, and *βλεφρον*, eye-lid, in the *Medicinal Writings of the Ancients*, a name given to certain compositions intended to make the eye-lids beautiful; and as the eye-lids are subject to be deformed several ways, there were several different sorts of these medicines.

CALLICARPA, in *Botany*. See **JOHNSONIA**.

CALLICHTHUS, in *Ichthyology*, a name given by some writers to the *anthias*, a small fish caught in the Adriatic, and supposed to be a certain token of there being no voracious fishes near the place where it is found; it is called also *sacer piscis*, the *holy-fish*, and is a very beautiful fish.

CALLICO, in *Commerce*, a sort of cloth resembling linens, made of cotton.

This name is taken from that of *Callicut*, a city on the coast of Malabar, being the first place at which the Portuguese landed when they discovered the Indian trade. The Spaniards still call it *callicu*.

Callicoes are of divers kinds, plain, printed, painted, stained, dyed, chints, muslins, and the like, all included under the general denomination of *callicoes*.

A great naturalist has suggested that the Indian *callico* is made of the fibres of nettle-stalks: but this is not confirmed: on the contrary, there are *callicoes* also made in the island of Candia, which, it is known, are made of cotton. The printing of *callicoes* was first set on foot in London about the year 1676.

By an act of parliament made in 1722, the use of dyed, painted, or printed *callicoes* is forbid, either in apparel or furniture, on the forfeiture of five pounds to the informer for every offence; and drapers selling such *callico* forfeit 20*l*. 7 Geo. I. stat. 1. cap. 7. § 2. but this prohibition does not extend to *callicoes* dyed blue.

The design of this prohibition was to promote the consumption of our own manufactures. But its chief effect has been to promote the use of printed linen. Upon the act's taking place, the *callico*-printers fell to work to imitate the Indian *callicoes*, by making the same stamps and impressions, and with the same beauty of colours upon linen. This fell chiefly on Scots and Irish linen, the manufacture of which has been hereby greatly increased, many hundred thousand ells thereof being yearly imported from those countries, and printed or stamped in England.

CALLIDRYS, in *Ornithology*, a name given by Bellonius and some other authors, to a water bird known among us by the name of the REDSHANK.

CALLIDRYS nigra, in *Ornithology*, the name of a bird described by Bellonius, and supposed by some to be that bird which we call the KNOT.

CALLIDRYS. See **CALIDRIS**.

CALLIGONUM, in *Botany*, a genus of the *polyandria digynia* class; the calyx has four leaves; the plant has neither petal nor style; the fruit is bristly, with a single seed.

CALLIGRAPHUS anciently denoted a copyist, or scrivener, who transcribed fair, and at length, what the notaries had taken down in notes, or minutes.

The word is compounded of *καλλος*, *beauty*, and *γραφω*, *I write*. The minutes of acts, &c. were always taken in a kind of cypher, or short hand; such as the notes of Tyro in Gruter: by which means the notaries, as the Latins called them, or the *σημειογραφοι* and *ταχυγραφοι*, as the Greeks called them, were enabled to keep pace with a speaker or person who dictated. These notes being understood by few, were copied over fair, and at length, by persons who had a good hand, for sale, &c. and these were called *calligraphi*; a name frequently met with in the ancient writers.

CALLIGRAPHY, the art of fair writing.

Callicrates is said to have written an elegant distich on a sesamum seed. Junius speaks of a person, as very extraordinary, who wrote the apostles creed, and beginning of St. John's Gospel in the compass of a farthing. What would he have said of our famous Peter Bale, who in 1575, wrote the Lord's prayer, creed, ten commandments, and two short prayers in Latin, with his own name, motto, day of the month, year of the Lord, and reign of the queen, in the compass of a silver penny, inclosed in a ring and bordure of gold, and covered with a crystal, all so accurately wrought, as to be very legible?

CALLIMUS, in *Physiology*, a stony substance found in the cavity of the *ÆTITES*, or eagle stone.

The word is also written *calimus*, and in some copies of Pliny *calainus*; which latter reading Salmasius receives. The *callimus* fills the hollow of the *ætites*, much as the yolk does the white of an egg.

The *GEODES*, instead of a *calimus*, or solid stone, have a loose, sandy, chalky, or earthy substance, and the *ENHYDRA* a liquid substance.

CALLION, in *Botany*, a name given by Pliny, and some other authors to the *alkekengi*, or *winter-CHERRY*. Some of the Greeks called it also *cythis*.

CALLYONIMUM, in *Botany*, a name given by some authors to the *LILY of the valley*.

CALLYONYMUS, in *Ichthyology*, a name used by Appian, and some other authors, for the fish called the *uranoscopus*, or the star-gazer.

In the Linnæan system, it is a genus of the order of *jugular* fishes, comprehending three species.

CALLIOPE, the chief of the nine Muses, called by Horace *Regina*. The distinguishing office of this Muse was

to record the worthy actions of the living; and accordingly she is represented with tablets in her left hand.

CALLIPÆDIA, the art of getting or breeding fine and beautiful children.

The word is formed from *καλλος*, *fair*, and *παις*, *puer*, either boy or girl.

We find divers rules and practices relating to this art, in ancient and modern writers.

The Jews are said to have been so solicitous about the beauty of their children; that care was taken to have some very beautiful child (such as was Jochanan, the disciple of Judah, author of the *Mischna*) placed at the door of the public baths; that the women at going out, being struck with his appearance, and retaining the idea, might all have children as fine as he.

The Chinese take great care of their breeding women, to prevent uncouth objects of any kind from striking their imagination.

Callipædia nevertheless seems to have been first erected into a just art by Claude Quillet de Chinon, a French abbot, who, under the fictitious name of Calvidus Lætus, has published a fine Latin poem, in four books, under the title of *Callipædia, seu depulchræ proles habendæ ratione*; wherein are contained all the precepts of the art. Paris, 1656, 8vo. & Lond. 1708, 8vo.

CALLISIA, in *Botany*, a genus of the *triandria monogynia* class, with a three-leaved calyx, three petals; a double antheræ, and bilocular capsule.

CALLISTIA, in *Antiquity*, a Lesbian festival, wherein the women presented themselves in Juno's temple, and the prize was assigned to the fairest.

The word is formed from *καλλος*, *beauty*, q. d. beauty's rewards. The like contest of beauty was held at the festival of Ceres Eleusinia, among the Parrhasians, first set on foot by Cypselus, whose wife Herodice was honoured with the first prize. Another obtained among the Elians, where the contest was among the men, the most beautiful of whom was presented with a suit of armour, which he consecrated to Minerva, to whose temple he walked in procession, adorned with ribbons, and crowned with a myrtle garland. Pott: *Arch. Græc. lib. ii. cap. 20*.

CALLITRICHE, in *Botany*, a genus of the *monandria digynia* class: it has no calyx, two petals, and the capsule has two cells, with four seeds.

CALLITRICHUS, in *Zoology*, a species of **MONKEY**, with a black, flattish face, white hairs on the sides, and black ears, and the upper parts of the body are covered with soft hair, of a yellowish green colour, whence it is called the green monkey; and the lower parts with hair of a silvery colour. It is about the size of a small cat.

CALLOSUM corpus, in *Anatomy*, denotes a part in the medulla of the brain of a white colour, and a texture somewhat harder and more compact than the rest; approaching to that of a *callus*.

The *corpus callosum* runs along the whole tract of the *falx*; at the extremity next the cerebellum it sends out two processes, whose juncture constitutes the *fornix*; under which lies the *septum lucidum*.

The *corpus callosum* is an assemblage of bundles of fibres springing from the glands, which compass the cineritious part, and serve as excretory ducts thereto: these fibres as descending towards the *medulla oblongata*, all meet there; and serve to collect the lobes of the brain. Signior Lancisi makes the *corpus callosum* to be the immediate seat of the soul. See **BRAIN**.

CALLOUS, *Callofus*, something of the nature or consistence of a **CALLUS**.

Physicians speak of *callous* nodes or excrescences; *callous* ulcers, and the like.

CALLOUS eggs, *ova callosa*, the longer and better sort, supposed to contain male chicks; having a denser white, and richer flavour than the rest. See **EGG**.

CALLUS, or **CALLOSITY**, in a general sense, denotes any cutaneous, fleshy, or bony hardness, whether natural or preternatural.

In which sense, *clavi*, or corns, are a species of *callus*. See **CLAVUS**.

CALLUS is also frequently used for a kind of node, which joins the extremities of a fractured bone.

The formation of a *callus* seems to be as follows: the juice that feeds the bone, running along its fibres, becomes extravasated in the place where those fibres are broken; so that stopping, and gathering together round the extremities of the fracture; it there dries, knits, and hardens, to a consistence like a strong glue; leaving only a little inequality in the place where it is formed.

But as the new flesh in wounds will frequently sprout up too fast; so will also the *callus* in fractures; and by this means render the limb uneven and deformed. The only methods that can be taken to prevent the *callus* from exceeding its due bounds, are to make the bandage somewhat tighter than ordinary, and wet it with the spirit of wine; for by this means the *callus* is not only often kept

within its due bounds, but the induration of it is also much forwarded; but when once the *callus* is indurated, we have no medicines by which it can be taken down or destroyed. Heister.

Calluses frequently grow so firm as to supply the place of whole bones. In the Philosophical Transactions, we have an instance of a *callus* supplying the place of the *os humeri*, taken out upon its being carious, by Mr. Fowler; and another of a *callus* supplying the place of the *os femoris*, and the person continued as strong as ever, and walked without any lameness.

CALLUS is also a hard, dense, insensible knob, or substance, rising on the hands, feet, &c. by much friction, and pressure against hard bodies.

Mr. Leewenhoek examining the callus formed on the hands and feet, observed that it was a substance composed of several layers of particles so loosely connected, that it was a wonder they could hang together; on putting a piece of this into fair water, after it had stood a considerable time to steep, he found that the particles of which it was composed, would easily separate from one another with a little touch of a quill, and these separated particles put into a drop of water, and examined before the microscope, were found to be all of the same regular shape, which was like that of a weaver's shuttle, being broad in the middle, and pointed at each end, with a line in the middle like those upon the uppermost, or outside skins of fruits, or of our bodies, but generally irregular. These pieces were thick in proportion to their size; and when they are put into water, and separated again, they naturally form a great number of other particles, all of which are of the same regular figure with the original piece. Phil. Trans. N^o 373. p. 160.

By this we see the reason of the increase of thickness of the skin of the hands of those who labour hard, and of the feet of such people as walk much, which is wholly owing to the addition of vast number of these shuttle-like particles, which form combinations together; but these so loosely, that it is no wonder they are so easily separated on moistening.

The people who labour ever so hard will have no *callus* upon their hands, if they wash them often; the washing the hands daily rubs off a great quantity of these particles or scales, if they may be so called; but they are quickly renewed.

CALLUS is by some also applied to those knots, or tophaceous nodes, generated in the joints of gouty patients. See **TOPHUS**.

CALLUS is also especially used to denote a hardness of the eye-brows, occasioned by the congestion of an acid, or tartareous juice therein.

Paracelsus also gives the denomination *callus* to an abscess or ulcer, caused by the acrimonious, or arsenical quality of the nutritious juice, and exciting a vehement itching.

CALLYCHTHIS, in *Ichthyology*, the name of a broad and flat sea-fish, brought to market at Rome under the name of the *lampuga*, and commonly called the **STROMATEUS**; and by the Venetians the *licette*.

In the Linnæan system, it is a species of the **SILURUS**.

CALLYONIMUS. See **CALLIONIMUS**.

CALM, in *Sea Language*, that state of the air and water when there is no wind stirring.

They say a flat *calm*, a dead or stark *calm*. A *calm* is more terrible to a sea-faring man than a storm, if he has a strong ship, and sea-room enough; for under the line excessive heat sometimes produces such dead *calms*, that ships are obliged to stay two or three months without being able to stir one way or other.

Two opposite winds will sometimes make a *calm*. This is frequently observed in the gulf of Mexico, at no great distance from the shore, where some gust or land-wind will so poise the general easterly wind, as to produce a perfect *calm*.

Calms are never so great in the ocean as in the Mediterranean, by reason the flux and reflux of the former keep the water in a continual agitation, even where there is no wind; whereas there being no tides in the latter, the *calm* is sometimes so dead, that the face of the water is as clear as a looking-glass; but such *calms* are almost constant presages of an approaching storm. On the coasts about Smyrna, a long *calm* is reputed a prognostic of an earthquake.

When a ship is close under the lee of another, the windward vessel is said to *becalm* the leeward.—A ship is also said to be *becalmed* when near the land, which keeps the wind from it.

It is not uncommon for the vessels to be *calmed*, or *becalmed*, as the sailors express it, in the road of the constant Levantine winds, in places where they ride near the land. Thus between the two capes of Cartooche toward the main, and cape Antonio in Cuba, the sea is narrow, and there is often a *calm* produced by some gust

of a land-wind, that poises the Levantine wind, and renders the whole perfectly still for two or three days.

In this case, the current that runs here is of use to the vessels, if it sets right; when it sets easterly, a ship will have a passage in three or four days to the Havannah; but if otherwise, it is often a fortnight or three weeks sail; the ship being embayed in the gulph of Mexico.

When the weather is perfectly *calm*, no wind at all stirring, the sailors try which way the current sets by means of a boat which they send out, and which will ride at anchor, though there is no bottom to be found, as regularly and well as if fastened by the strongest anchor to the bottom.

The method is this: they row the boat to a little distance from the ship, and then throw over their plummet, which is about forty pounds weight; they let this sink to about two hundred fathom; and then, though it never reaches the bottom, the boat will turn head against the current, and ride as firmly as can be.

CALM Latitudes, in *Sea Language*, are situated in the Atlantic ocean, between the tropic of Cancer, and the latitude of 29° N. or they denote the space that lies between the trade and variable winds, because it is frequently subject to *calms* of long duration.

CALOGERI, Καλογεροι, or **CALOYERS**, monks, or religious, in Greece, both male and female; inhabiting particularly mount Athos, but disseminated also throughout all the churches of the East. They follow the rule of St. Basil, and make vows like the western religious. Tournefort says, the females are most of them only a more moderate sort of Magdalens, who, as they grow old, make a vow to practise those virtues they had much neglected in their youth; and retire into convents to lead a life somewhat less scandalous than before, under the eyes of a superior or *begumenissa*, who is far from being too severe.

The *Caloyers*, in some places, are divided into Cœnobites, Anachorites, and Ascetics, or hermits; the life of which last is the most severe and reclusive.

The Turks also use the word *Calovers* for their dervises, or religious mussulmen. See **DERVIS**.

CALOMEL, in *Pharmacy*, a name given to *mercurius dulcis* sublimated; or, it is a combination of the marine acid with as much mercury as that acid is capable of corroding and uniting with. The denomination *calomel* rather seems to have first belonged to the *Æthiops* mineral; from *καλος*, *pulcher*, *fair*; and *μελας*, *niger*, *black*; because white or pale bodies, rubbed herewith, become black.

Calomel is the *panchymagogum* of Quercetanus. It is an effectual purge, and given not only to adults, but even to children, to carry off the slimy humours from whence the worms arise. *Calomel*, rubbed with sulphur of antimony, is also found a powerful alterant. See **MERCURY**, and **PLUMMER'S Æthiops**.

CALONDRONIUS, a name given by the writers of the middle ages to a stone of which they have left us no description, but only a large account of its great virtues, in giving cheerfulness to the person who wears it, and preventing the power of magic and enchantment.

CALOPHYLLUM, in *Botany*, the name given by Linnæus to a genus of plants of the *polyandria monogynia* class, called by Plumier *calaba*, the characters of which are these: the cup is coloured and deciduous, and consists of one leaf divided into four acute segments; the flower consists of four roundish, hollowed and expanded petals; the stamina are numerous capillary filaments, shorter than the flower; the antheræ are roundish; the germen of the pistil is roundish; the style is simple, and of the length of the stamina; the stigma is headed; the fruit is a large, globose, unilocular drupa; and the seed is a large pointed nut, of a roundish figure.

CALOTTE, a CAP, or coif of hair, sattin, or other stuff; used first for necessity, but now become an ecclesiastical ornament, in France, &c.

It was first worn by cardinal Richlieu: the red *calotte* is a badge of a cardinal.

CALOTTE, in *Architecture*, a round cavity, or deprefure, in form of a cup, or cap, lathed and plaistered, used to diminish the rise, or elevation of a chapel, cabinet, alcove, &c. which, without such an expedient, would be too high for other parts of the pile.

CALQUING, or **CALKING**, a term in *Painting*, &c. used where the backside of any design is covered with black lead or red chalk; and the strokes or lines traced through on a waxed plate, wall, or other matter; by passing lightly over each stroke of the design with a point, which leaves an impression of the colour on the plate or wall. This method of *off-tracing* may likewise be performed by pricking the original print, or drawing, and transmitting coloured powder through the punctured holes, in order to mark the outlines of a new ground; or, by dissolving part of the printing ink by means of soap, and impressing it in that state on a fresh ground. See **DESIGNING**.

CALTHA,

CALTHA, in *Botany*. See *Marsh-MARYGOLD*.

CALTROP, or **CALTHROP**, an instrument with four iron points, each three or four inches long, disposed triangularwise; so that there are always three points bearing on the earth, the fourth being in the air.

Several of these, fixed in the ground, or thrown into breaches where the cavalry is to pass, stick into the horses' feet and embarrass them.

CALTROPS, *Tribulus*, in *Botany*, a genus of the *decandria monogynia* class. Its characters are these: the empalement of the flower is cut into five acute parts; there are five oblong blunt petals to the flower, which spread open; and ten small awl-shaped stamens, terminated by single summits, and an oblong germen the length of the stamens, having no style, but crowned by a headed stigma. The germen turns to a roundish, prickly fruit, divided into five capsules, armed with three or four angular thorns on one side, joining together. The cells are transverse, and contain two or three pear-shaped seeds. There are three species, natives of warm countries. It derives its name from the form of its fruit, which resembles those instruments of war that were cast in the enemy's way, to annoy their horses.

This plant, taken inwardly, is a vulnerary; and is said to be of service in a diarrhoea, and the stone.

CALTROPS, *water*. See *TRAPA*.

CALVARIA, or **CALVA**, the scalp, or upper part of the HEAD; so called from its growing bald first. See **BALDNESS**. The external parts of the *calva* are the *synciput*, *occiput*, *vertex*, and temples; all invested with the hair, and the common integuments of the body.

The *calvaria* in adults consists of eight bones, one of the forehead, another of the *occiput*, two of the *synciput*, two of the temples, and two others common also to the upper jaw, viz. the *cuneiforme* and *spongiosum*.

CALVARY, a term used in catholic countries for a kind of chapel of devotion, raised on a hillock near a city; in memory of the place where Jesus Christ was crucified near Jerusalem.

The word comes from the Latin *calvarium*, and that from *calvus*, *bald*; the top of that hillock was bare and destitute of verdure; which is also signified by the Hebrew word *golgotha*.

Such is the *Calvary* of St. Valerian, near Paris; which is accompanied with several little chapels, in each whereof is represented in sculpture one of the mysteries of the passion.

CALVARY, in *Heraldry*, a cross so called, because it resembles that on which our Saviour suffered: it is always set upon steps.

CALVINISM, the doctrine and sentiments of Calvin, one of the principal reformers in the sixteenth century, a native of Noyon in France, and afterwards pastor and professor of divinity at Geneva, and of his followers, with regard to matters of religion.

Calvinism subsists in its greatest purity in the city of Geneva; and from thence it was first propagated into Germany, France, the United Provinces, and England. In France it was abolished by the revocation of the edict of Nantes, in 1685. It has been the prevailing religion in the United Provinces ever since the year 1571. The theological system of Calvin was adopted, and made the public rule of faith in England, under the reign of Edward VI. and the church of Scotland was modelled by John Knox, the disciple of Calvin, agreeably to the doctrine, rites, and form of ecclesiastical government, established at Geneva. In England it hath declined since the time of queen Elizabeth; though it still subsists, some say a little allayed, in the articles of the established church; and in its rigour in Scotland. See **REFORMATION** and **Reformed Church**.

The distinguishing theological tenets of *Calvinism*, as the term is now generally applied, respect the doctrines of **PREDESTINATION**, or *particular ELECTION* and **REPROBATION**, *original SIN*, *particular REDEMPTION*, *effectual*, or, as some have called it, *irresistible GRACE* in *regeneration*, **JUSTIFICATION by faith**, **PERSEVERANCE**, and the **TRINITY**. See each of these articles. See also **ARMINIANS**.

Besides the doctrinal part of Calvin's system, which, so far as it differs from that of other reformers of the same period; principally regarded the absolute decree of God, whereby the future and eternal condition of the human race was determined out of mere sovereign pleasure and free will; it extended likewise to the discipline and government of the Christian church, the nature of the eucharist, and the qualification of those who were intitled to the participation of it. Calvin considered every church as a separate and independent body, invested with the power of legislation for itself. He proposed that it should be governed by presbyterians and synods, composed of clergy and laity, without bishops, or any clerical subordination; and maintained, that the province of the civil magistrate extended only to its protection and outward

accommodation. In order to facilitate an union with the Lutheran church, he acknowledged a real, though spiritual, presence of Christ, in the eucharist, that true Christians were united to the man Christ, in this ordinance, and that divine grace was conferred upon them, and sealed to them, in the celebration of it; and he confined the privilege of communion to pious and regenerate believers. See **EUCCHARIST**, &c. and **LUTHERANISM**.

In France the *Calvinists* are distinguished by the name of *Hugonots*; and, among the common people, by that of *Parpaillots*. In Germany they are confounded with the Lutherans, under the general title *Protestants*; only sometimes distinguished by the name *Reformed*.

CALVINISTS, *crypto*, a name given to the favourers of *Calvinism* in Saxony, on account of their secret attachment to the Genevan doctrine and discipline. Many of them suffered by the decrees of the convocation of Torgaw, held in 1576. See *Form of CONCORD*.

The *Calvinists* in their progress have divided into various branches, or lesser sects.

CALVITIES, or **CAVITIUM**. See **BALDNESS**.

CALUMET, among *Travellers*, a mystic kind of pipe used by the American savages as the ensign of peace, and for religious fumigation.

The *calumet* is a sort of tobacco-pipe, made of red, black, or white marble. The shank is decorated with rounds of feathers, and locks of hair, or porcupines quills: in it they smoke in honour of the sun. M. Lafitau will have it to be the original **CADUCEUS** of Mercury, of which that used by the Greeks and Romans, with its wings and its serpents, was only the copy.

The *calumet* is the symbol and security of traffic; by it they pronounce life and death, peace and war: they also ascribe to it a power of raising the souls of the dead.

CALUMNY, the crime of accusing another falsely and knowingly of some heinous offence. *Calumnia est malitiosa & mendax informatio*.

It is an ancient maxim, which experience shews us to be too well founded: *Audacter calumniare, semper aliquid haberebit*.

CALUMNY, *oath of*, *Juramentum*, or rather *Jusjurandum calumniae*, among civilians and canonists, was an oath which both parties in a cause were obliged to take; the plaintiff, that he did not bring his charge, and the defendant, that he did not deny it, with a design to abuse each other, but because they believed their cause was just and good; that they would not deny the truth, nor create unnecessary delays, nor offer the judge or evidence any gifts or bribes. If the plaintiff refused this oath, the complaint or libel was dismissed; if the defendant, it was taken *pro confesso*.

This custom was taken from the ancient athletes, who, before they engaged, were to swear they had no malice, nor would use any fraudulent or unfair means for overcoming the other.

The *juramentum calumniae* is much disused, as a great occasion of perjury.

Anciently the advocates and proctors also took this oath; but of late it is dispensed with, and thought sufficient that they take it once for all at their first admission to practice.

CALUMNIAE, *judicium*, was an action brought against the plaintiff in a court for a false and malicious accusation.

When an accuser did not prove his charge, nor seemed to have sufficient or probable grounds for bringing any, the judges in pronouncing sentence used the formula *calumniosus es*; which gave the defendant a right to bring an action of *calumny*; the penalty of which was *frontis inustio*, or burning on the forehead.

CALX literally signifies **LIME**; a sort of stone burnt or calcined in a kiln for that purpose, to be used in the making of mortar, &c.

It is also made of the bones of large fishes, and from the shells of buccinae, oysters, and the like, burnt. This is more particularly called *calx peregrinorum* and *calx manica alba*.

CALX, in *Chemistry*, a kind of ashes, or fine friable impalpable powder, which remains of metals, minerals, &c. after **CALCINATION** by fire, **SOLUTION** by acid menstrua, or **DETONATION** by nitre; by means of which all metallic substances, except gold, silver, platinum, and mercury, may be deprived of their phlogiston, and consequently of their metallic properties, requiring at the same time an accession of air which becomes fixed in them during the reduction; and thus lose their fusibility, become more fixed, and less soluble in acids.

Calces differ from ashes not only as the former is the effect of calcination, and the latter of mere burning, but as the former is of a more solid consistence than the latter; and that the bodies reduced to a *calx*, as metals and minerals, may be frequently restored out of these *calces*; which can never be done out of the ashes of wood and other bodies consumed by **BURNING**.

Calces are divided into *reducible* and *irreducible*, *fixed* and *volatile*. Chemists speak of fire retained and fixed in all *calces*,

calces, and of fixed salt, p. 56, seq. from *calxes*. Hist. Acad. Scienc. an. 1712: procurable Hist. Acad. Scienc. lib. iv. sect. 6. c. 3: See FIRE and SALT.

Many metals and some minerals, whose parts are most homogeneous, do not appear to lose their nature with their form. Thus gold, silver, and quicksilver, cannot be so destroyed by CALCINATION, but that they may easily be revived: So out of *calx* of tin, the tin itself may be restored; and the like holds of the *calx* of lead, though the most impure of all metals; and even of antimony, the first substance of which may be extracted either from its *calx*, or even glass: See REVIVIFICATION. Paracelsus calls the solar and argillaceous earths, *calces terræ*. See BOLE and CHALK.

The same author also gives the denomination *calx* to the chalky matter formed in the joints of gouty persons.

CALX *antimonii*, a name given in the late London Dispensatory to the preparation of ANTIMONY; called before *antimonium diaphoreticum*.

CALX of brass, is called *ÆS USTUM*.

CALX *jovis*, the *calx* of TIN, called PUTTY.

CALX *lunæ*, the *calx* of SILVER.

CALX *martis*, the crocus or saffron of IRON.

CALX *mercurii*, precipitated MERCURY.

CALX *nativa*, in *Natural History*, a native marly earth, which, without burning, has some of the qualities of the artificial lime, and was called by the ancients, *gypsum tymphaicum*.

It is a hard, dry, and somewhat coarse earth; it never constitutes a stratum of itself, but is sometimes found in the fissures of other strata, and sometimes lying loose upon or among the laxer strata of gravel, and the like. It is usually found in masses of two, three, or four inches in diameter, of irregular surfaces, and generally flattish. It is found in some parts of England, and appears to have been well known to the ancients, and in common use among them.

CALX *saturni* is cerusse calcined with spirit of vinegar, or in the sun. See CERUSSE.

CALX *saturni*, is also used for MINIUM or red LEAD.

CALX *solis*, denotes calcined GOLD.

CALX *veneris*, VERDIGRISE.

CALX *viva*, quick-lime, that on which no water has been cast since its burning, in opposition to *calx extincta*, that slacked by the effusion of water. See LIME.

CALX *viva philosophorum*, denotes that made of quicksilver.

CALX, in *Anatomy*. See CALCANEUM.

CALYBITES, the inhabitant of a cottage, an appellation given to divers saints on account of their long residence in some hut, by way of mortification.

The word is formed from *καλυπτο*, *I cover*; whence *καλυβις*, a little cot.—The Romish church commemorates St. John the Calybites on the 15th of December.

CALYCANTHEMI, in *Botany*, an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus.

CALYCISTÆ, among the *Botanical Authors*. See BOTANY.

CALYCULUS, in *Ancient Naturalists*, denotes a SILIQUA or seed-case.

CALYCULATED, an appellation given by some naturalists to the fruit of those trees which have the CALYX of their flower non-deciduous, and whose fruit stands as in a cup. Phil. Trans. N° 204. p. 928. See PLANT, TREE, &c.

CALYPTRA, from *καλυπτω*, *I hide*, among *Botanists*, a thin membranous involucre, usually of a conic figure, which covers the parts of fructification. The capsules of most of the MOSSES have *calyptra*.

CALYX, or CALIX, in a general sense, denotes a CUP. See CHALICE.

CALYX, in *Botany*, is sometimes applied to a FLOWER whose body, or even a part of it, is formed in manner of a cup or *chalice*: such is that of a tulip, &c.

Pliny defines the *calyx* the cavity in the middle of a flower, wherein the stamina and apices are contained. Ausonius calls it *calathus*.

CALYX is more particularly used for that outward greenish cover, which encompasses and defends the petals and other parts of a flower; serving also as a basis or support to the whole. In which sense, *calyx* is the same with what is otherwise called *perianthium*, and by Dr. Grew the *empaleum* or *flower-cup*.

The *calyx* is that set of leaves which involves the petals, as the petals do the immediate organ of generation.

The *calyx* is in some plants of one entire piece; as in pinks, &c. and in some is divided into several; as in roses, &c.—Saffron has no *calyx*; its flower comes out of the earth before its leaves.

The cups of flowers are very various in their structure, and are distinguished by the names of AMENTUM, CALYPTRA, GLUMA, INVOLUCRUM, PERIANTHIUM, SPATHA, and VOLVA.

Botanists distinguish two sorts of *calices*, one external,

called the *calyx* of the flower; by the ancients *perianthium*, as encompassing the flower and seed; the other internal, called the *calyx* of the fruit; by the ancients *pericarpium*, as being the capsule which encompasses the fruit; and is itself encompassed by the petals.

The external *calyx* may also be divided into two sorts, one which surrounds the flower, another which sustains it, different from the pedicle; in that this latter spreads itself underneath the flower to give room for the nutritious juice to rise more freely; the cavity of the pedicle enlarged, is reputed part of the *calyx* both external and internal.

CALYX, *auctus*, in *Botany*, a term used by authors to express one kind of the perianthia of the compound flowers. A cup is thus called when it consists of a single and equal series of scales; which are of an oblong figure, and surround the flowers; and another small series of scales, which only surround these, close to the base.

The ancients have often used the word *calyx* to express the rose when in the bud, and not yet shewing its petals, except between the segments of the cup.

CALYX, in *Ancient Aqueducts*, denoted a brazen module or cup put over a head or castellum, to which pipes were fitted.

CAMÆA, in *Natural History*, the name of a genus of the semipellucid gems, the characters of which are these: They are obscurely transparent stones approaching to the onyx structure, being composed of zones, and formed on a crystalline basis, but having their zones very broad and thick, and laid alternately on one another with no other matter between them.

Of this genus we have four known species.

CAMAHA, in the *Materia Medica*, a name given by Avicenna and others to the large truffles found in the deserts of Numidia; and many other parts of Africa, in great abundance. These are white, on the outside; the modern Africans call them *terfon*, and are very fond of them: they eat them stewed with milk, water, and spices, and account them wholesome and nutritive.

CAMAIEU, or CAMAYEU, a word used to express a peculiar sort of onyx: also by some to express a stone, whereon are found various figures, and representations of landscapes, &c. formed by a kind of *lusus naturæ*; so as to exhibit pictures without painting.

The word comes from *camebua*, a name the Orientals give to the onyx, when they find in preparing it, another colour; as who should say, a *second stone*.

It is of these *camieus* Pliny is to be understood when he speaks of the manifold picture of gems, and the party-coloured spots of precious stones: *Gemmarum pictura tam multiplex lapidumque tam discolors macula*. Plin. Hist. Nat. lib. ii. c. 93.

CAMAIEU is also applied by others to those precious stones, as onyxes, cornelians, and agates, whereon the lapidaries employ their art to aid nature, and perfect those representations. See CAMÆA.

CAMAIEU is also frequently applied to any kind of gem, whereon figures may be engraven either indentedly, or in relievo.

In this sense the lapidaries of Paris are called in their statutes, *cutters of camayeux*.

A society of learned men at Florence undertook to procure all the *cameos* or *camayeux*, and intaglios, in the great duke's gallery to be engraven; and began to draw the heads of divers emperors in *cameos*.

CAMAIEU is also used for a painting, wherein there is only one colour; and where the lights and shadows are of gold, wrought on a golden, or azure ground.

When the ground is yellow, the French call it *cirage*; when grey, *griffaille*. This kind of work is chiefly used to represent basso relievos: the Greeks call pieces of this sort *μονοχρωματα*.

CAMALDULIANS, CAMALDUNIANS, or CAMALDOLITES, an order of religious, founded by Romuald, an Italian fanatic, in 1023, in the horrible desert of Camaldoli, otherwise called Campo Malduli, situate in the state of Florence, on the Appennines.

Their rule is that of St. Benedict; and their houses, by the statutes are never to be less than five leagues from cities.

The *Camaldulians* have not borne that title from the beginning of their order; till the close of the eleventh century they were called *Romualdins*, from the name of their founder. Till that time, *Camaldulian* was a particular name for those of the desert Camaldoli; and D. Grandi observes, was not given to the whole order, in regard it was in this monastery that the order commenced, but because the regulation was best maintained here.

Guido Grandi, mathematician of the great-duke of Tuscany, and a monk of this order, has published *Camaldulian Disertations*, on the origin and establishment of it.

The *Camaldelites* were distinguished into two classes, of which the one were COENOBITES, and the other EREMITES.

CAMARA, a name given by Plumier to an American species of LANTANA.

CAMA-

CAMAROSIS, from *καμαρον*, *I arch over*, in *Architecture*, denotes an elevation with an arch or vault.

CAMAROSIS, among *Physicians*, denotes a FRACTURE of a bone, wherein the two broken ends rise and form a kind of *camera*, or arch.

This is also called *camaroma*, and by modern Latin writers *cameratio*, sometimes *fornicatio*.—It is commonly restrained to fractures in the skull.

CAMBAYES, in *Commerce*, cotton cloths made at Bengal, Madras, and some other places on the coast of Coromandel. They are proper for the trade of Marfeilles, whither the English at Madras send great numbers of them. Many are also imported into Holland.

CAMBER-beam, in *Building*, a piece of timber cut arch-wise, or with an obtuse angle in the middle, commonly used in platforms; as church-leads, and on other occasions, where long and strong beams are required. A *camber-beam* is much stronger than another of the same size; since being laid with the hollow side downwards, as they usually are, it represents a kind of arch.

CAMBERED-deck, in *Ship-building*. See **DECK**.

CAMBIO, an Italian word which signifies *exchange*; commonly used in Provence, and in some other countries, particularly Holland.

CAMBIST, a name given in France to those who trade in notes and bills of exchange. The word *cambist*, though a term of antiquity, is even now a technical word, of some use among merchants, traders, and bankers. Some derive it from the Latin *cambium* or rather *cambio*.

CAMBLET, or **CHAMBLET**, a stuff sometimes of wool, sometimes silk, and sometimes hair, especially that of goats, with wool or silk: in some, the warp is silk and wool twisted together, and the woof hair.

The true or oriental *camblet* is made of the pure hair of a sort of goat, frequent about Angora, and which makes the riches of that city, all the inhabitants whereof are employed in the manufacture and commerce of *camblets*. It is certain we find mention in middle age writers of stuffs made of camel's hair, under the denominations of *cameletum* and *camelinum*, whence probably the origin of the term; but these are represented as strangely coarse, rough and prickly, and seem to have been chiefly used among the monks by way of mortification, as the hair-shirt of later times. Du-Cange, Gloss. Lat.

We have no *camblets* made in Europe of the goats hair alone; even at Brussels they find it necessary to add a mixture of wollen thread.

England, France, Holland, and Flanders, are the chief places of this manufacture. Brussels exceeds them all in the beauty and quality of its *camblets*; those of England are reputed the second.

CAMBLETS, *figured*, are those of one colour, whereon are stamped various figures, flowers, foliages, &c. by means of hot irons, which are a kind of moulds, passed together with the stuff under a press. These are chiefly brought from Amiens and Flanders: the commerce of these was anciently much more considerable than at present.

CAMBLETS, *water*, those which, after weaving, receive certain preparation with water; and are afterwards passed under a hot-press, which gives them a smoothness and lustre.

CAMBLETS, *waved*, are those whereon waves are impressed, as on tabbies; by means of a calender, under which they are passed and repassed several times.

The manufactures, &c. of *camblets*, are to take care they do not acquire any false and needless plaits; it being almost impossible to get them out again. This is notorious, even to a proverb: we say, a person is like *camblet*, he has taken his plait.

CAMBNITES lapis, a name given by the *Writers of the Middle Ages* to a stone, of which they record virtues which appear to favour too much of imaginary ones, such as the curing of the dropsy by being tied to the arm: it seems to have been only a cloudy and less valuable kind of brown crystal.

CAMBOGIA, in *Botany*, a genus of the *polyandria monogynia* class; the corolla is made up of four petals, the calyx has four leaves, and the fruit is a kind of apple containing eight cells, with single seeds. There is one species.

CAMBRASINES, in *Commerce*, fine linen made in Egypt, of which there is a considerable trade at Cairo, Alexandria, and Rosetta or Raschit. They are called *cambrasines*, from their resemblance to cambrics.

CAMBRIC, in *Commerce*, a species of linen made of flax, very fine and white; the name of which was originally derived from the city of Cambray, where they were first manufactured. They are now made at other places in France.

The manufacture of *cambrics* hath long since proved of extraordinary advantage to France. For many years it appeared that England did not in this article contribute less than 200,000*l.* per annum to the interest of France.

This proved motive sufficient to induce the parliament of Great Britain to enact many salutary laws to prevent this great loss of our wealth. See 18 Geo. II. c. 36. and 21 Geo. II. c. 26. See also stat. 32 Geo. II. c. 32. and 4 Geo. III. c. 37. which regulates the *cambric* manufactory, not long since introduced into Winchelsea in Sussex; but very soon abolished. The *cambrics* now allowed in this country are manufactured in Scotland and Ireland. Any persons convicted of wearing, selling (except for exportation), or making up for hire any *cambric* or French lawns, are liable to a penalty of 5*l.* by the two first statutes cited as above.

CAMBRIDGE Manuscript, a copy of the Gospels and Acts of the Apostles in Greek and Latin. Beza found it in the monastery of Irenæus, at Lyons, in the year 1562, and gave it to the university of Cambridge in 1582. It is a quarto size, and written on vellum; sixty-six leaves of it are much torn and mutilated, ten of which are supplied by a later transcriber. Beza conjectures that that *manuscript* might have existed so early as the time of Irenæus: Wetstein apprehends, that it either returned or was first brought from Egypt into France; that it is the same copy which Druthmar, an ancient expositor who lived about the year 840, had seen, and which, he observes, was ascribed to St. Hilary; and that R. Stephens had given a particular account of it in his edition of the New Testament in 1550. It is usually called Stephens's second manuscript. Mill agrees with F. Simon in opinion that it was written in the western part of the world by a Latin scribe, and that it is to a great degree interpolated and corrupted: he observes, that it agrees so much with the Latin Vulgate, as to afford reason for concluding, that it was corrected or formed upon a corrupt and faulty copy of that translation. From this and the CLERMONT copy of St. Paul's Epistles, Beza published his larger Annotations in 1582. See Wetstein's Prolegomena to his folio edition of the New Test. vol. i. p. 28. Kuster's edition of Mill's Testament, Proleg. p. 132. Mill. Prefat. in New Test. Amst. 1735.

CAMEA. See **CAMÆA**.

CAMEHUIA. See **CAMAIEU**.

CAMEL, *Camelus*, in the Linnean system of Zoology. This is a distinct genus of animals; of the order of *pecora*; the great character of which is the want of horns, which all the other genuses of the *pecora* have: they have six cutting teeth in the lower jaw and none in the upper; and the upper lip is divided like that of a hare. The hoofs are small.

The word is formed from the Greek *καμηλος*, which signifies the same; and, according to Nicod, from the Hebrew *gamal*; but according to others from *καμπυλον*, on account of the bunch on its back.

There are four species of *camels*: 1. The *camel*, with one bunch on its back, called the DROMEDARY. 2. The Bactrian *camel*, with two bunches. 3. The Peruvian *camel*, called GLAMA, and by some *claphocamelos*, with a pectoral bunch. And, 4. The PACOS, usually called the Indian or Peruvian sheep, without any bunch at all.

The dromedary is chiefly used for riding; the Bactrian *camel*, or that with two bunches on its back, for travelling with loads.

The *camel* is a domestic beast of burden, of gentle disposition, much used for carriage in divers parts of Asia; and making the chief riches of the Arabs.

In Persia they only distinguish two sorts of *camels*, viz. the southern, which are smaller, and not fit to carry above seven hundred weight; and the northern, which are bigger, and able to carry twelve or thirteen hundred weight.

The name *camel*, among us, is vulgarly restrained to that sort which has but one bunch on the back; the appellation *dromedary* being given to those which have two. In this we follow the example of Solinus, contrary to Pliny, Aristotle, and the generality of ancient naturalists. The bunch on the *camel's* back is not formed by the cavity of the *spina dorsæ*, but is usually said to be a callous sort of flesh. The academists of Paris found it mere hair; and that when this was pressed close down, the creature appeared no more bunch-backed than a swine.

Pliny affirms, that the *camel* can endure four days without drink; whence Persius gives it the appellation *sitiens*. They can live on the little shrubs which the deserts produce, and are satisfied for a whole day with half a gallon of beans and barley, or balls made of the flour. The fleshy foot of the *camel* is formed for travelling on the hot sands, which would parch and destroy the hoof. Pococke's Descript. of the East, vol. i. p. 208. Shaw's Travels, p. 239.

Camel's milk is said to be sovereign against the dropsy, for which purpose the Arabs drink a pint per day for three weeks.

Native *sal* AMMONIAC is commonly supposed to be the urine of camels.

The Turks reckon the flesh of the young *camel* delicious food; but prohibit the use of it to Christians, lest the breed should be destroyed.

Camels cast their hair in the spring, which is gathered up with great care, on account of the traffic thereof, which is very considerable. When left bare of hair they pitch them over to defend them from the flies.

They spin the *camel's* hair and weave it into stuffs: it is sometimes also used with other hairs in making of hats. The best hair is that of the *camel's* back.

Camels are chiefly used in CARAVANS: and they travel for fifteen or sixteen hours without stopping, at the rate of two miles and a half an hour. They are very apt to slide: for which reason, in passing slippery ways, their leaders strew carpets under them, sometimes to the number of an hundred, one before another.

The *camel* that carries Mahomet's standard, which the caravan of pilgrims offer yearly on the tomb of their prophet, is exempted the rest of its life from all services. It is even pretended that this happy beast will rise again at the general resurrection, and enjoy the pleasures of paradise.

On medals the *camel* is the symbol of Arabia, when found on the coins of any other nation. Thus, on a medal of the gens Plautia, we find a woman's head with a mural crown, *A. Plautius Aed. Cur. S. C.* and on the reverse, *Judeus*, and on the exergue, *Bacchius*; the device, a man on his knees, holding with his right hand a *camel* by the bridle, and with the left a branch of palm. It also denotes alliance with Arabia.

CAMEL, in *Mechanics*, a kind of machine used in Holland for raising or lifting ships.

The *camel* was invented by a burgomaster of Amsterdam, towards the close of the last century. It took the denomination from its heaviness or strength.

Its use is to raise vessels, in order to bring them over the Pampus, which is at the mouth of the river Y, where the shallowness of the water hinders large ships from passing.

CAMELS *hay*, *fœnum camelorum*, an appellation given to the plant *scœnanthus*, or *juncus odoratus*. See SCÆNANTH, and ISCHÆMUM.

CAMELEON, CHAMÆLEON, in *Natural History*, a little animal, famous among the ancient and modern writers for a faculty it is supposed to have, of changing its colour, and assuming those of the objects near it.

It is a species of the LIZARD, with a short, round, incurvated tail, and two or three toes joined together.

There are four distinct varieties of this animal: 1. The Arabian kind, which is small, and hardly exceeding the green lizard in size: this is of a whitish colour, variegated with yellowish and reddish spots. 2. The Egyptian, which is twice as large as the Arabian, and is of a middle colour, between the whitish hue of the Arabian and a fair green: this changes its colour to a paler or deeper yellow. 3. The Mexican. And, 4. A kind sometimes shewn about as a sight, and met with by J. Faber Lynceus at Rome, which differed from all the others.

The Arabian and Mexican *cameleons* seldom exceed six inches in length: the Egyptian is nine or more. The head is very like that of some fishes, and is joined almost immediately to the breast, the neck being extremely short, and having at the sides two cartilaginous eminences, in the manner of fishes. It has a crest standing up in the middle of the forehead, and two others over the eyes, and between the crest there are two remarkable depressions; the nose and mouth, running from the eyes with a double edge to the end of the snout, resemble those of a frog: at the extremity of the nose there are two perforations, which seem to serve as nostrils; the mouth being always kept close shut, and the creature appearing to have no power of respiring but by means of these. Its mouth is furnished with teeth, or rather with continued denticulated bones. These are of no service to the creature in eating, since it preys on flies, and swallows them whole; but may serve for its defence in holding fast a stick in its mouth, which, according to *Ælian*, this creature does, placing the stick cross-ways, to prevent its being swallowed by serpents.

The structure and motion of this creature's eyes are very surprising; they are very large, and set in large cavities, appearing to be large spheres, of which one half stands out of the head, and is covered with a thin skin, perforated with a small hole at the top, through which is seen a very vivid and bright pupil, surrounded with a yellow iris; this hole is properly a longitudinal slit, which the creature opens more or less wide at pleasure, and the eye seems fixed to this eye-lid, so as to follow all its motions, not turning round within it, as in other creatures. The motion of the eyes of this creature is not less singular than their structure, since it can turn them so as to see what passes either far backward, on either side, or directly behind it, without at all moving the head, which is fixed to the shoulders; and the creature

can give one eye all these motions, while the other is perfectly still. The trunk of the body is properly all breast, for the creature has no belly, its ribs being continued to the *ilia*; the feet have all five toes, two behind and three before, the hinder ones being as large as the others. This creature moves as slow as the tortoise, which appears very singular, as its legs are sufficiently long, and it has no great weight of body to carry; but it is said, that on trees, in its wild state, it moves very nimbly. Its tail, when inflated, is round as that of a rat or snake; when empty, is very lank, and has three longitudinal ridges running along it, which are owing to the apophyses of the spine. This tail is a great safety to the creature on trees, as it twists it round the branches when in any danger of falling. See *Tab. of Serpents*.

The accounts given by the ancients, and latter writers, of the long hollow tongue of the *cameleon*, which it can dart with such celerity to take flies, by means of a spongy nodule at the end, is found, on experience of those who have kept the creature alive, to be true. M. de la Hire thinks that it is provided with two kinds of muscles, the one circular and the other longitudinal, by the action of the former of which it is extended, and contracted by that of the latter. Those among the former, therefore, who suppose the *cameleon* lived on the air only, were greatly mistaken; some, of late, have also favoured this opinion, because of the long time the creature will live without food; but this is the case with all the serpent kind also, which yet we know to eat solid food when they can get it.

The tongue is half the length of the animal; consisting of a white flesh, round as far as the tip, which is flat and hollow; somewhat like an elephant's *proboscis*, or trunk; and accordingly, some call it a *trunk*.

The thickness of its body is not to be determined, as the creature alters that at pleasure, whilst it more or less inflates its body; and this inflation not only goes through the whole body, but into the legs and tail. This inflation is not at all like the breathing of other animals, for the body when thus puffed out, will remain so two hours, only gradually and insensibly sinking all the time, and afterwards will be inflated again, but much more quickly than it subsided. It is able a long time to continue either of these states, but more frequently remains empty for a considerable space, in which time, though it appeared before in good case, it looks miserably lean and lank, and its back-bone may be clearly seen, its ribs counted, and even the large tendons of its feet distinctly observed by the naked eye through the skin. The back-bone, however, is not serrated, as many have affirmed, but makes, in this its lean state, a plain sharp ridge, and the whole animal looks so miserably meagre, that it has not unaptly been called a living skin.

Naturalists are very little agreed as to the reason or manner of its change of colour: some, as Seneca, maintain it done by suffusion; others, as Solinus, by reflection; others, as the Cartesians, by the different disposition of the parts that compose the skin, which give a different modification to the rays of light. Kircher ascribes the change of colour in the *cameleon* to the power of imagination in the animal, because it loses it when dead: others, as Dr. Goddard, ascribe the change to the grains of the skin; which, in the several postures, he thinks may shew several colours; and, when the creature is in full vigour, may have, as he terms it, *rationem speculi*; that is, the effect of mirrors, and reflect the colours of bodies adjacent.

The animal having it in his power to fill the skin more or less, has it in its power not only to alter the tone and texture of the fibres, upon which their reflexive quality, in a great measure, depends; but also to bring parts into sight which before lay concealed, or to conceal such as before lay open: and it is more than probable, that the parts which are ordinarily covered, are of a somewhat different colour from those constantly open to the air.

On these principles, probably, all the phenomena in the *cameleon's* colour may be solved. The animal, it is evident, has a power to reflect different-coloured rays from the same parts; also to make certain parts reflect, and to prevent others reflecting: and hence that variety, and medley of colours.

See an account of a particular species of *cameleon*, by Dr. Parson's, *Phil. Trans.* vol. lviii. N° 29. an. 1768.

Matthioli relates several superstitious notions of the ancients touching the *cameleon*. Pliny assures us, that Democritus had composed a whole book of such follies. This is not the only animal possessed of the property of changing its colour; Grew mentions another sort of lizard, which when he swells with anger, changes his colour from a green to a kind of russet. The like is said of the *naque mousche*, an insect in the island of Nevis.

C A M

CAMELEON, CHAMÆLEON, in *Astronomy*, one of the constellations of the southern hemisphere, near the pole, and invisible to us.

The stars in this constellation, according to Sharp's Catalogue, are ten; their magnitude, situation, longitude, and latitude are as follow.

Situation of the stars.	Signs.	Longitud.	Longitud.	Magnitude.
In the fore-feet.	♈	1 31 33	63 35 41	5
In the neck.	♍	28 26 37	63 56 38	5
In the back.	♍	26 30 16	68 4 29	5
In the hind-feet.	♈	1 43 44	67 47 15	5
In the root of the tail.		3 33 49	71 1 05	5
5.				
In the middle of the tail.		3 39 49	70 37 07	5
		0 16 42	73 25 56	5
		1 38 50	73 0 25	6
In the extremity of the tail.	♍	25 22 29	75 24 22	5
		27 4 57	75 1 52	5

CAMELITA, *bos*, in *Natural History*. See BISON.

CAMELLIA, in *Botany*, a name given by Linnæus to a genus of plants mentioned in Kempfer's Japan, under the name of *tsubaki*. It belongs to the class of *monadelphica polyandria*. The characters of the genus are these: the perianthium is composed of several leaves, and is of a roundish figure, and imbricated, being formed of a number of roundish scales, the internal ones growing gradually larger than the others, and all of them hollowed and deciduous; the flower is composed of five petals of an oval figure, and growing together at the base; the stamina are a great number of filaments that stand erect, and are formed in the lower part into a sort of corona, which is larger than the style. They are free at the top, and are shorter than the flower; the antheræ are simple; the pistil has a roundish germen; the style is pointed, and of the same length with the stamina; and the stigma is acute and bent; the fruit is a turbinate woody capsule, with some furrows on its surface. There is one species.

CAMELOPARDAL, in *Zoology*, an animal of a very singular kind, and seeming properly to belong to no known genus of animals, but to be perfectly *sui generis*. It is called *camelopardalis* by Latin authors, *geraffa* and *zur-napa* by eastern nations. Linnæus makes it a species of the *cervus*, or *stag* kind, with simple horns, and fore-legs very long. See a letter concerning a species of this animal found about the Cape of Good Hope, by captain Carteret, in the Philosophical Transactions, vol. lx. N^o 3. an. 1770.

It is not certainly known whether it chews the cud or not; but as its hoofs are cloven, as it has horns on its forehead, as it wants the fore-teeth in its upper jaw, and feeds on vegetables, it is probable that it does.

It is a singular, elegant, and beautiful creature, and is very remarkably tame and tractable, even scarce less so than a sheep, and seems intended by nature for a domestic, not a savage animal. Its head is wholly of the make of a stag's, but differs in size, and has two little obtuse horns, which are not more than six fingers-breadth long, and are hairy: the male and female both have these, and the latter is distinguished by having them shorter than the former. Its ears are larger, and like those of the ox-kind; its tongue is also like that of an ox, and it wants the fore-teeth in the upper-jaw. Its neck is remarkably long, straight, and slender, in a grown animal. The neck is usually seven feet long, and the measure from the tail to the top of the head eighteen feet; and when it stands erect, its head is sixteen feet from the ground; it has a small mane; its legs are very slender, and the fore-legs very long; the hinder ones very short, so that the creature seems always to stand upright.

Its hoofs are cloven exactly like those of the ox, its tail reaches down to its hams, and is rounded and covered with very thick hairs; the middle of its body is slender; it is very like the camel in all its natural properties: when it runs it holds the two fore-feet together, it lies down on the belly, and claps its neck down on the thighs and breast in the manner of the camel. As it stands it can scarce reach to eat the grass, unless its fore-legs are very far expanded, and that is a posture of great pain to it; so that nature seems to have allotted it to feed in its wild state on the leaves of trees, which its long neck will very well enable it to get at. It is very beautifully spotted all over its body in the manner of the leopard.

The velvety covering of its horns seems to make it of the stag kind, but its shape is wholly different from those of that genus.

It is found in Æthiopia, and other parts of Africa. The horns and hoofs rasped, pulverised, and taken inwardly,

are good for the epilepsy, stop a looseness, and resist poison.

CAMELOPARDALUS, in *Astronomy*, a new constellation of the northern hemisphere, formed by Hevelius, consisting of 32 stars first observed by him, situate between Cepheus, Cassiopeia, Perseus, the two Bears, and Draco, and containing 58 stars in the British Catalogue.

Situation of the stars.	Signs.	Longitud.	Latitude.	Magnitude.
			North.	
Between the hind-feet.	♏	10 40 50	31 34 11	6
Below the left knee of the hind-foot.		11 57 8	30 57 53	5
		11 51 59	30 33 50	6
5.		13 54 51	34 1 34	6
		14 49 40	32 23 14	6
		15 12 14	32 55 15	6
In the hoof of the left foot.		14 57 53	30 51 6	5
		15 18 2	30 13 18	7
		Unknown	Unknown	4.5
		16 56 13	37 23 52	5.4
10.		17 10 19	35 53 33	5
		17 11 35	35 56 21	6
		16 26 51	29 24 50	4.5
		18 48 48	39 29 29	5
		19 10 41	34 52 28	6
15.		19 46 30	34 15 35	6
		Unknown	Unknown	6
		21 12 38	33 52 7	6
		22 26 2	40 45 10	6
		21 58 11	33 0 10	7
20.		22 45 38	38 30 20	6.7
		22 13 47	32 57 25	7.8
		23 17 28	38 1 18	6
		22 54 2	33 8 35	6
		22 59 14	31 25 25	7.8
25.		23 27 23	32 39 57	5.6
		Unknown	Unknown	5.6
		23 33 54	33 28 10	6.7
		24 8 37	33 27 0	5.6
		24 28 8	35 29 42	6
30.		24 54 31	36 24 40	5
		24 50 27	32 13 50	5
		25 17 21	32 10 48	7
		25 38 28	31 51 4	6
		Unknown	Unknown	5.6
35.		27 28 28	42 15 17	6
Between the fore-feet.		27 16 30	35 28 0	5.6
		27 25 43	35 42 20	7
		Unknown	Unknown	6.7
		28 7 9	36 33 20	0.7
40.	♏	1 46 33	38 39 55	7
		2 28 46	44 23 20	4.5
		2 36 32	43 43 21	4.5
		8 5 53	36 17 5	6
		8 8 50	36 30 15	7
45.		8 13 50	36 38 33	7
		8 28 38	37 20 14	6
		11 18 43	37 26 30	6
		11 24 46	40 48 38	5
		14 12 32	28 36 20	6
50.		11 4 9	43 25 45	5
		14 49 5	34 57 10	5
		14 28 50	38 49 14	0
		16 5 29	33 56 55	6
		Unknown	Unknown	5
55.		16 39 40	39 21 30	6
		16 9 28	41 28 30	5
		Unknown	Unknown	5

CAMERA *Æolia*, a contrivance for blowing the fire, for the fusion of ores, without BELLOWS; by means of water falling through a funnel into a close vessel, which sends from it so much air or vapour as continually blows the fire: if there be the space of another vessel for it to expatiate in by the way, it there lets fall its humidity, which otherwise might hinder the work.

The contrivance was named *camera Æolia* by Kircher. Hook, Phil. Coll. N^o 3. p. 80.

CAMERA *lucida*, a contrivance of Dr. Hook for making the image of any thing appear on a wall in a light room, either by day or night.

Opposite to the place or wall where the appearance is to be, make a hole of at least a foot in diameter, or if there

there be a high window with a casement of this dimension in it, this will do much better without such hole or casement opened. At a convenient distance, to prevent its being perceived by the company in the room, place the object or picture intended to be represented, but in an inverted situation. If the picture be transparent, reflect the sun's rays by means of a looking-glass, so as that they may pass through it towards the place of representation; and to prevent any rays from passing aside it, let the picture be encompassed with some board, or cloth. If the object be a statue, or a living creature, it must be much enlightened by casting the sun's rays on it, either by reflection, refraction, or both. Between this object and the place of representation put a broad convex glass, ground to such a convexity, as that it may represent the object distinctly in such place. The nearer this is situate to the object, the more will the image be magnified on the wall, and the farther the less; such diversity depending on the difference of the spheres of the glasses. If the object cannot be conveniently inverted, there must be two large glasses of proper spheres, situate at suitable distances, easily found by trial, to make the representations erect. This whole apparatus of object, glasses, &c. with the persons employed in the management of them, are to be placed without the window or hole, so that they may not be perceived by the spectators in the room, and the operation itself will be easily performed. Phil. Trans. N^o 38. p. 741, seq.

CAMERA obscura, or *dark chamber*, in *Optics*, a machine, or apparatus, representing an artificial eye; whereon the images of external objects, received through a double convex glass, are exhibited distinctly, and in their native colours, on a white matter placed within the machine, in the focus of the glass.

The first invention of the *camera obscura* is ascribed to Baptista Porta. See his *Magia Naturalis*, lib. xvii. cap. 6. first published at Frankfort, about the year 1589, or 1591. The first four books of this work were published at Antwerp in 1560.

CAMERA obscura, the *use of the*, is manifold: it serves to very good purposes in explaining the nature of vision; and hence it is that some call it the *artificial eye*. It affords very diverting spectacles; both by exhibiting images perfectly like their objects, and each clothed in their native colours; and by expressing, at the same time, all their motions; which latter, no other art can imitate. By means of this instrument, especially by the third contrivance under-mentioned, a person unacquainted with designing, will be able to delineate objects with the greatest accuracy and justness; and another well versed in painting, will find many things herein to perfect his art.

CAMERA obscura, the *theory of the*, is contained in the following proposition.

If an object *AB* (*Tab. Optics*, fig. 16.) radiate through a small aperture *C*, upon a white wall opposite to it; and the place of radiation behind the aperture *bCa* be dark; the image of the object will be painted on the wall, in an inverted situation.

For the aperture *C* being very small, the rays issuing from the point *B* will fall on *b*, those from the points *A* and *D* will fall on *a* and *d*: wherefore, since the rays issuing from the several points are not confounded, they will by reflection exhibit its appearance on the wall. But since the rays *AC* and *BC* intersect each other in the aperture, and the rays from the lowest points fall on the highest, the situation of the object will of necessity be inverted.

Hence, since the angles at *D* and *d* are right, and the vertical ones at *C* are equal; *B* and *b*, *A* and *a* will be also equal; consequently, if the wall, where the object is delineated, be parallel to it, *ab:AB::dC:DC*. That is, the height of the image will be to the height of the object, as the distance of the image from the aperture is to the distance of the object from the same.

CAMERA obscura, *construction of a*, wherein the images of external objects shall be represented distinctly, and in their genuine colours, either in an inverted, or an erect situation. 1. Darken a chamber, one of whose windows looks into a place set with various objects; leaving only a little aperture open in the one shutter. 2. In this aperture fit a lens, either plano-convex, or convex on both sides: so as to be a portion of a large sphere. 3. At a due distance, to be determined by experience, spread a paper, or white cloth, unless there be a white wall for the purpose; for on this the images of the desired objects will be delineated invertedly. 4. If it be rather desired to have them appear erect, it is done either by means of a concave lens placed between the centre and the focus of the first lens, or by receiving the image on a plane speculum inclined to the horizon under an angle of 45°, or by means of two lenses included in a draw-tube, in lieu of one.—Note, if the aperture does not exceed the

bigness of a pea, the objects will be represented, even though there be no lens at all used.

To render the images clear and distinct, it is necessary the objects be illumined by the sun's light shining on the objects from the opposite quarter; so that, if the prospect is western, the phenomena will be best in the forenoon; if eastern, in the afternoon: if northern, when they are the brightest, about noon: a southern aspect is the least eligible of any: they will be still brighter, if the spectator first stay a quarter of an hour in the dark. Care must likewise be taken that no light escape through any chinks; and that the wall be not too much illumined. Farther, the greater distance there is between the aperture and the wall, the larger and more distinct will the images be; but the rays becoming, thus, too much dilated, the brightness of the image is weakened, till at length it becomes invisible.

CAMERA obscura, *construction of a portable*. 1. Provide a little chest, or box of dry wood (*Tab. Optics*, fig. 17.) of the figure of a parallelepiped; its breadth about ten inches, and its length two or more feet, according to the different magnitudes of the diameters of the lenses. 2. In the plane *BD* fit a sliding tube *EF* with two lenses; or, to set the image at a less distance from the tube, with three lenses convex on both sides; the diameter of the two outer, or forwarder, to be $\frac{1}{6}$ of a foot; that of the inner less, v. gr. $\frac{1}{8}$. 3. Within the chest, at a proper distance from the tube, set up an oiled paper, perpendicularly, *GH*, so as images thrown upon it may be seen through. Lastly, in *I* make a round hole, so that a person may look conveniently through it with both eyes.

If then the tube be turned towards the objects (the lenses being at their proper distance, to be determined by experiment), the objects will be delineated on the paper *GH*, erect as before.

If the machine be so contrived, that a looking-glass may pass from *G* to *C*, the image will be reflected upon a rough glass plane placed horizontally at *AB*, with its unpolished side upwards, and a copy of it may be sketched out with a black-lead pencil. The horizontal glass plane rests on two grooves in the sides of the box, and this, as well as the looking-glass, may be lodged in a drawer at the bottom of the machine. This box is covered with a horizontal lid, under which are two wings, which open to right angles at each side of it, in order to shade the image upon the rough glass: oiled paper strained in a frame is sometimes used instead of the rough glass; a metalline speculum is preferable to the looking-glass.

CAMERA, *another portable*, may be thus made. 1. In the middle of a cistula, or chest (*Tab. Optics*, fig. 18.) raise a little turret, either round or square *HI*, open towards the object *AB*. 2. Behind the aperture, incline a little plain mirror *ab*, to an angle of 45°; which may reflect the rays, *Aa* and *Bb*, upon a lens convex on both sides *G*, included in a tube *GL*; or the lens may be fixed in the aperture. 3. At the distance of the focus thereof, place a table covered with a white paper *EF*, to receive the image *ab*.—Lastly, in *NM* make an oblong aperture to look through, and an opening may be made in the side of the box for the convenience of drawing.

This kind of *camera* may easily be converted into a *shew-box*, for viewing prints. Place the print at the bottom of the box, with its upper part inwards, where it is enlightened through the front left open for this purpose, either by day or candle-light; and the print may be viewed through the aperture in *HI*: the lens used in this shew-box should be large enough to admit both eyes, to see the print or picture at once; and it would be convenient to have it moveable, in order to suit different eyes. See a variety of contrivances for this purpose described by Mr. Harris, in his *Optics*, b. ii. § 4. A considerable improvement in the *camera obscura* has been lately made by Mr. Storer, for which he has obtained a patent; this instrument, which he calls a *delineator*, is formed of two double convex lenses and a plane mirror, fitted into a proper box. One lens is placed close to the plane mirror, and making with it an angle of 45°: the other lens is placed at right angles to the former, and is fixed in a moveable tube: if the moveable lens be directed towards the object to be viewed or copied, and moved nearer to or farther from the plane mirror, till the image is distinctly formed on a greyed glass, laid upon that surface of the upper lens which is next the eye, it will be found more sharp and vivid than those formed in the common *cameras*; because the image is taken up so near the upper lens: by increasing the diameter of the lenses, and using those of a short focus, the effect will be much heightened.

CAMERARIA, in *Botany*, a genus of the *pentandria monogynia* class; so called by Plumier, in honour of Camerarius, a celebrated botanist of Nuremberg. Its characters are these: the flower is of one leaf, salver-shaped, and divided at the top into five acute segments; it hath five

five short inflexed stamina. In the bottom of the tube are situated two roundish germina, which afterwards become two long, taper, leafy capsules, filled with oblong cylindrical seeds. There are two species, which are natives of the West-Indies; and must therefore be kept in a bark stove; but in warm weather should have plenty of fresh air.

CAMERARIUS, or *Chamberlain*, an officer who had the care of the **DORMITORY** in ancient religious houses.

CAMERLINGO, or **CAMARLINGO**, the chamberlain of the pope's court, or the person who has the administration of the apostolical chamber.

The word imports as much as keeper of the chamber, or treasurer; though the *camerlingo* has divers other jurisdictions which have no relation to the office of treasurer. The name anciently denoted a *cabicularius*, or gentlemen of the bed-chamber; but this is now expressed by *cameriere*. The *camerlingo* is the most conspicuous officer in the court of Rome; because all the revenues of the holy see are managed by the chamber of which he is president.

This office was anciently performed by the archdeacon of Rome, a dignity which was suppressed by pope Gregory VII. as of too great power and interest; infomuch that he could often controul the pontiff himself, and generally by his intrigues raised himself to the papacy. In his stead was placed a cardinal, under the title of *camerlingo*, who is assisted in his function by twelve prelates called clerks of the chamber, *clerici de camera*.

The cardinal *camerlingo*, on the death of a pope, does not enter the conclave with the rest, to assist at the election of a new one, but stays without, keeps possession of the pope's apartment in the Vatican, and whenever he goes abroad is attended by the Swiss guards, like the pope himself. He even coins money in his own name, and with his own arms; and, in fine, is a kind of vice-pope, governing the ecclesiastical state during the vacancy of the holy see.

The cardinals have also their *camerlingo*, or treasurer of their college, distinct from that of the pope: the former is elected every year, whereas the latter is for life. The person chosen to this office has the receipt of all the revenues belonging to the college, which he is to distribute at the end of the year in equal portions to the cardinals then at Rome; those who are absent having no share therein after they have been six months from court.

CAMERONIANS, a sect or party in Scotland, who separated from the Presbyterians in 1666, and continued to hold their religious assemblies in the fields.

The *Cameronians* took their denomination from Richard Cameron, a famous field-preacher, who refusing to accept the indulgence to tender consciences granted by king Charles II. as such an acceptance seemed an acknowledgment of the king's supremacy, and that he had before a right to silence them, made a defection from his brethren, and even headed a rebellion, in which he was killed. His followers were never entirely reduced till the Revolution, when they voluntarily submitted to king William.

The *Cameronians* adhered rigidly to the form of government established in 1648.

CAMERONIANS, or **CAMERONITES**, is also the denomination of a party of Calvinists in France, who asserted, that the cause of men's doing good or evil proceeds from the knowledge which God infuses into them; and that God does not move the will physically, but only morally, in virtue of its dependence on the judgment of the mind.

They had this name from John Cameron, a famous professor, first at Glasgow, where he was born 1580, and afterwards at Bourdeaux, Sedan, and Saumur; at which last place he broached his new doctrine of grace and free-will, which was followed by Amyraut, Cappel, Bocard, Daille, and others of the most learned among the reformed ministers, who judged Calvin's doctrine on these heads too harsh.

The *Cameronians* are a sort of mitigated Calvinists, and approach to the opinion of the **ARMINIANS**. See **UNIVERSALISTS**, *hypothetical*.

CAMES, a name given to the small slender rods of cast-lead, of which the glaziers make their turned lead.

Their lead being cast into slender rods of twelve or fourteen inches long each, is called the *came*; sometimes also they call each of these rods a *came*, which being afterwards drawn through their vice, makes their turned lead.

CAMILLI and **CAMILLÆ**, in *Antiquity*, boys and girls of ingenuous birth, who ministered in the sacrifices of the gods; and especially those who attended the *flamen dialis*, or priest of Jupiter.

The word seems borrowed from the language of the ancient *Hetrurians*, where it signified *minister*, and was changed from *camillus*.

The *Tuscans* also gave the appellation *Camillus* to *Mercury*, in quality of minister of the gods.

CAMINI, or *yerva CAMINI*; an American herb, the same with what is otherwise called **PARAGUAY**, or *yerva con-pallo*.

CAMIS, or **KAMIS**, in the *Japanese Theology*, denote deified souls of ancient heroes, who are supposed still to interest themselves in the welfare of the people over whom they anciently commanded.

The *camis* answer to the heroes in the ancient Greek and Roman theology; and are venerated like the saints in the modern Romish church.

Besides the heroes or *camis* beatified by the consent of antiquity, the *mikaddos*, or pontiffs, have deified many others; and continue still to grant the apotheosis to new worthies; so that they swarm with *camis*: the principal one is *Tensio Dai Sin*, the common father of Japan, to whom are paid devotions and pilgrimages extraordinary.

CAMISADE, in the *Art of War*, an attack by surprise, in the night or at the point of day; when the enemy are supposed in bed.

The word is said to have taken its rise from an attack of this kind; wherein, as a badge or signal to know one another by, they wore a shift, in French called *chemise*, or *camise*, over their arms.

CAMISARDS, or **CAMISARS**, an appellation given by the French to the Calvinists of the *Cevennes*, who formed a league, and took up arms in their own defence, in the year 1688. The etymology of the name is disputed; but it is most probably formed from *camisad*. See the preceding article.

CAMLET. See **CAMBLET**.

CAMMOCK, in *Botany*. See **REST-harrow**.

CAMMOROS, in *Botany*, a name given by some of the old writers to a poisonous plant called by the Romans *cicuta*, or hemlock..

Cacomoros was a common name among the Greeks for hemlock; and this *cammorosis* the same word, only spoken according to the Doric dialect.

As hemlock was a poisonous plant, it soon became a custom to call other poisonous plants also by its name; and *cammoros* became hence a name for the mandrake, and some of the nightshades, with some authors. Dioscorides has called one kind of aconite or wolf's-bane by this name, and others have adapted it to other such plants; but the more judicious have only given it as an additional epithet to these, expressing their being poisonous, and have added the peculiar name of the plant before it.

Many of the moderns, and even some among the ancients, have erred greatly in confounding the *cammoros* with the *cammaros*, which is an insect, in figure resembling the root of this aconite.

CAMOCLADIA, in *Botany*, a genus of the *triandria monogynia* class: the calyx and corolla are divided into three parts; the drupe is oblong, with a two-lobed nucleus. There are two species.

CAMOMILE. See **CHAMOMILE**.

CAMP, a spacious post, or spot of ground, where an army rests, intrenches itself, or plants a piquet watch; to lodge secure either in tents or barracks.

The *camp* is sometimes covered by an intrenchment; sometimes only by the advantages of its post: sometimes it is inclosed by *chevaux de frise* laid across each other; the ordinary practice of the old prince of Orange. The chief skill of a general lies in the art of encamping well; this the Romans were unacquainted with, till the war with Pyrrhus; from whose *camp* they learned to model their own. Till then, they knew not how to post themselves to advantage, nor with any order, in their *camp*.

An *encampment*, or *standing camp*, is always to have the advantage of water, forage, and fuel; with the means of covering and retrenching itself.

Where the grounds are equally dry, those *camps* are always most healthful which are pitched on the banks of large rivers; because in the hot season situations of this kind have a stream of fresh air from the water, serving to carry off the moist and putrid exhalations. On the other hand, next to marshes, the worst *encampments* are on low grounds, close beset with trees: for then the air is not only moist and hurtful in itself, but, by stagnating, becomes more susceptible of corruption. However, let the situation be ever so good, *camps* are frequently rendered infectious by the putrid effluvia of rotten straw; and the privies of the army; more especially if the bloody flux prevails; in which case the best method of preventing a general infection is to leave the ground, with the privies, foul straw, and other filth of the *camp*, behind. This is to be frequently done, if consistent with the military operations; but when these render it improper to change the ground often, the privies should be made deeper than usual, and once a day a thick layer of earth thrown into them till the pits are near full, and then they are to be well covered, and supplied by others. It may also be a proper caution, to order the pits to be

made either in the front or rear, as the then stationary winds may best carry off their effluvia from the *camp*. Moreover, it will be necessary to change the straw frequently, as being not only apt to rot, but to retain the infectious steams of the sick; but if fresh straw cannot be procured, more care must be taken in airing the tents as well as the old straw.

An army always encamps fronting the enemy, and generally in two parallel lines, about five hundred yards distant; the horse and dragoons on the wings, and the foot in the centre; sometimes three or four brigades encamp between the two lines, and are called the body of *RESERVE*. The artillery and bread-waggons are in the rear of the two lines. See *PARK of Artillery*.

A regiment of foot, consisting of ten companies, is allowed for encampment one hundred and fifty yards in front, viz. five yards for pitching the tents of the two flank companies, twenty yards for four double rows of tents, thirty-five for the grand street, and ninety for four smaller streets; but when the flank companies are detached, the eight battalion companies require an extent of an hundred and twenty yards, viz. five for two single rows of tents, fifteen for three double rows, and an hundred for four streets: the depth of the *camp* is two hundred and ninety yards: the quarter-GUARD tents are placed in a line with those of the two centre companies, fronting each other, and about the distance of a hundred yards from the front of the regiment: the officers tents front outwards towards the bells of arms: the bells of arms of the regiment front the poles of the serjeants tents; the colours are placed in the centre of the grand street, in a line with the bells of arms: captains and subalterns pitch in the rear of the respective companies: the captain-lieutenant as captain in the rear of the colonel's company: the field officers front the centres of the two streets on the right and left of the battalion: the colonel fronts the colours, at the distance of about a hundred yards: the staff-officers front the streets on the right and left of the grand street; the bat-men's tents front their horses; the grand-sutler is placed in the rear of the colonel at the distance of about fifty yards: the kitchens stand singly or in pairs behind their respective companies; and the front poles of the tents or huts of the petit-sutlers are in a line with the centres of the kitchen; and the rear-GUARD's tents front outwards: when circumstances admit, the necessities should be an hundred paces behind the rear-guard. If field-pieces with artillery-men are attached to the battalions, the intervals are thirty yards. This disposition of encampment is taken from the grand *camp* at Cox. Heath in 1778.

A squadron of horse is allowed thirty paces for its *camp*, and thirty for an interval, or more, if the ground will admit of it. See *Standard*, and *Grand-GUARD*.

The order and contrivance of the Roman *camp* was admirable. Its figure was a square divided into two principal parts: in the upper part were the general's pavilion, or *prætorium*, and the tents of the chief officers; in the lower, those of the inferior degree were placed.

On one side the *prætorium* stood the *questorium*, or apartment of the treasurer of the army; and near this the *forum*, both for the market-place, and the assembling of councils. On the other side of the *prætorium* were lodged the *legati*; and below it, the tribunes had their quarters opposite to their respective legions. Aside of the tribunes were the *præfecti* of the foreign troops, over-against their respective wings; and behind these were the lodgments of the *evocati*, then those of the *extraordinarii* and *ablecti equites*, which concluded the higher part of the *camp*.

Between the two partitions was a spot of ground called *principia*, for the altars and images of the gods, and probably also the chief ensigns.

The middle of the lower partition was assigned to the Roman horse; next to whom were quartered the *triarii*, then the *principes*, and close by them the *hastati*: afterwards the foreign horse, and lastly, the foreign foot.

They fortified their *camp* with a ditch and parapet, which they termed *fossa* and *vallum*: in the latter, some distinguish two parts, viz. the agger or earth, and the fudes or wooden stakes driven in to secure it.

The *camps* were sometimes surrounded with walls made of hewn stone; and the tents themselves formed of the same matter.

The Roman *camps* sometimes gave the origin to cities, which were formed of them, and often took their denomination from those whose *camps* they had been. This chiefly happened when any army continued long in a place, especially in the winter, where they were obliged to build many works, and fortify themselves exactly. Thus the *Castra Cornelia*, a city of Africa, not far from Utica, was originally the *camp* of Cornelius Scipio. Liv. lib. xxix. cap. 35.

Antiquaries observe, that all the modern towns among us, whose names end in *cester* or *chester*, were originally these *castra hyberna* of the Romans.

In the Grecian *camps*, the most valiant of the soldiers were placed at the extremities; the rest in the middle, that the stronger might be as a guard to the weaker, and sustain the first onsets. Thus Achilles and Ajax are posted by Homer at the ends of the Grecian *camp* before Troy, as bulwarks on each side. Il. 2. ver. 806.

In *camps* for continuance, they erected altars to their gods, places for public assemblies, courts of justice, and the like.

According to Plutarch, the Lacedæmonians alone had no stage-players, buffoons, dancers, or songstresses in their *camps*. Yet the Spartan lawgiver allowed his people greater liberty in the *camp* than in the city, to allure them to serve with more delight in the wars. Hence their exercises were more moderate, their fare less hard; and their actions less severely noted when in the field than at home; so that they were the only people in the world to whom war gave repose. Plut. in Cleom. & in Lycurg.

The Spartan *camp* was of a circular figure, which was prescribed by Lycurgus as the best fitted for defence; contrary to the Roman rule, whose camps were always quadrangular. All angular forms were rejected by Lycurgus, by reason the angles are neither fit for service, nor defensible, unless guarded by a river, mountain, wall, or other work.

The magnificence of the Turkish court appears more in the *camp* than in the seraglio: the tents of the great officers appear so many palaces, both for extent, ornament, and costly furniture; having all the accommodations both of city and country; each grandee has two sets of tents; one of which is advanced a conac, or day's journey, before the other; so that leaving one tent in the morning, they find another ready furnished in the evening.

In the front of the Turkish *camp* are quartered the janizaries, and other foot, whose tents encompass their aga. In the rear are the quarters of the spahis and other horsemen. The body of the *camp* is possessed by the stately tents or pavilions of the vizier or general, *reis effendi* or chancellor, *kabija* or steward, the *tesherdar bascha* or lord treasurer, and *kapisler kabiafee* or master of the ceremonies.

In the middle of these tents is a spacious field, wherein are erected a building for the *divan*, and a *hafna* or treasury.

When the ground is marked out for a *camp*, all wait for the pitching of the tent *lailuc*, the place where the courts of justice are held; it being the situation of this that is to regulate the disposition of all the rest.

CAMP city, *castra urbana*, was a place near the city-wall, not far from the *Via Nomentana*, where the prætorian guards were encamped; whence it was also called the *prætorian camp*, *castra prætoria*, or *prætoriana*. The like we also read of at Jerusalem, called by St. Luke absolutely the *camp*, *μαρτυρεον*. By which we are doubtless to understand the *castra Antonia*, which, Josephus tells us, was afterwards used as a castle.

CAMPS, *mooned*, *castra lunata*, those made in figure of a half-moon.

CAMP, *naval*, *castra nautica*, or *navalia*, denoted a station of ships.

CAMP, *standing*, *castra stativa*, was that wherein they designed to continue longer in a place; and therefore more pains were taken to fortify and regulate it.

The Roman *camps*, in a march, were also called in the middle age *mansiones*.

CAMP, *summer*, *castra æstiva*, among the Romans, was ordinarily light and moveable; so that they might be set up or taken down, and removed in a night. In which case it was also called simply *castra*.

CAMP, *winter*, *castra hyberna*, or winter-quarters, were usually taken up in some city or town; or else so contrived as to make almost a town of themselves.

CAMPS, *tertiated*, *castra tertiata*, those which were a third part longer than broad, which Hyginus represents as the Roman model. *Castra in quantum fieri potuerit tertiata esse debebant—ut puta in longum duo millia quadringenti, in latum mille sexcenti pedes.*

CAMP, *flying*, is a strong body of horse or dragoons, to which are sometimes added foot; commanded usually by a lieutenant-general.

This always keeps the field, making frequent motions both to cover the garrisons in possession, and to insult and keep the adversary in continual alarm, and oblige him to make diversions.

CAMP is also used among the Siamese and East Indians, for a quarter of a town assigned to foreigners, wherein to carry on their commerce.

In these *camps*, each nation forms in itself a kind of city apart,

apart, in which their store-houses and shops are, and the factors and their family reside.

The Europeans at Siam, and in most other cities of the East, are exempted from this restraint, and allowed to live in the cities and suburbs, as they find them most commodious.

CAMP colour-men, are soldiers appointed to attend and assist the quarter-master general, in marking out, and keeping the camp clean, receiving and distributing provisions, &c.

The *camp colour-men* are drawn a man out of a company, and are exempt from all other duty during the campaign: each carries either a spade or a hatchet.

CAMP diseases, *Morbi castrenses*, those chiefly prevalent in armies. Under *camp* and *field diseases*, come the plague, malignant fever, scurvy, flux, &c. Willius, physician to the king of Denmark, has a treatise on *camp diseases*. See DISEASE and SOLDIER.

The *camp disease*, *morbus castrensis*, absolutely so called, is a malignant fever. Dudley Digges died of the *camp disease*, which raged in the garrison at Oxford, in 1643. On which Ed. Greaves, physician to king Charles II. has a treatise express under the title of *Morbus Epidemicus*, or the New disease.

The *camp fever* is the same with what we otherwise called the Hungarian fever, and bears a near affinity to the petechial fever. See BILIOUS fever.

CAMP flux, a name frequently given to the dysentery; not as if it were of a different kind in armies, but because it is more usual there than elsewhere.

CAMP duty, in its utmost extent, includes every part of the service performed by the troops during the campaign. But in a more particular sense, denotes the guards ordinary and extraordinary kept in camps.

A great part of the *camp duty* is performed in the same manner as that of a garrison.

CAMP fight, or *KAMP fight*, in *Law Writers*, denotes the trial of a cause by duel, or a legal combat of two champions in the field, for decision of some controversy.

In the trial by *camp fight*, the accuser was, with the peril of his own body, to prove the accused guilty; and by offering him his glove, to challenge him to this trial, which the other must either accept of, or acknowledge himself guilty of the crime whereof he was accused.

If it were a crime deserving death, the *camp fight* was for life and death: if the offence deserved only imprisonment, the *camp-fight* was accomplished when one combatant had subdued the other, so as either to make him yield or take him prisoner. The accused had liberty to chuse another to fight in his stead, but the accuser was obliged to perform it in his own person, and with equality of weapons.

No women were permitted to be spectators, nor men under the age of thirteen. The priest and the people, who looked on, were engaged silently in prayer, that the victory might fall on him that was right. None might cry, shriek, or give the least sign; which in some places was executed with so much strictness, that the executioner stood ready with an axe to cut off the right hand or foot of the party that should offend herein.

He that, being wounded, yielded himself, was at the other's mercy either to be killed or suffered to live. But if life were granted him, he was declared infamous by the judge, and disabled from ever bearing arms, or riding on horseback. Versteg. Rest. Dec. Intell. cap. iii. p. 51.

CAMP hospital. See HOSPITAL.

CAMP law, a method of deciding controversies by duel or *CAMP-fight*.

CAMPAIGN, a military term, signifying the space of time during which armies are maintained, yearly, in the field.

The Germans begin their *campaign* very late; usually waiting for harvest: the French are always early, and begin sometimes in winter, by which they have reaped great advantages.

The beginning of every *campaign* is considerably more unhealthy than if the men were to remain in quarters. After the first fortnight or three weeks encampment, the sickness decreases daily; the most infirm being by that time in the hospitals, the rest more hardened, and the weather growing daily warmer. This healthy state continues throughout the summer, unless the men get wet cloaths or wet beds; in which case a greater or lesser degree of the dysentery will appear, in proportion to the preceding heats. But the most sickly part of the *campaign* begins about the middle or end of August, whilst the days are still hot, but the nights cool and damp, with fogs and dews; then, if not sooner, the dysentery prevails; and though its violence is over by the beginning of October, yet the remitting fevers gaining ground, continues throughout the rest of the *campaign*, and never entirely ceases, even in winter-quarters, till the frosts begin.

At the beginning of a *campaign* the sickness is so uniform, that the number may be nearly predicted; but, for the rest of the season, as the diseases are then of a contagious nature, and depend so much upon the heats of summer, it is impossible to foresee how many may fall sick from the beginning to the end of autumn. It is also observed, that the last fortnight of a *campaign*, if protracted till the beginning of November, is attended with more sickness than the first two months of the encampment: so that it is better to take the field a fortnight sooner, in order to return into winter-quarters so much the earlier.

As to winter-expeditions, though severe in appearance, they are attended with little sickness, if the men have strong shoes, quarters, fuel, and provisions.

Long marches in summer are not without danger, unless made in the night, or so early in the morning as to be over before the heat of the day.

CAMPANA Flora, in *Botany*, a name given by Helwing, and some other of the German authors, to the plant we call *pulsatella*, or the *pasque flower*. It was named *campana Flora*, or *Flora's bell*, by Helwing, because of its being the signal of the approach of spring. In the Linnæan system, this is a species of the ANEMONE. Its characters, according to Miller, are as follow: the flower has a leafy involucre, ending in many points; it hath two orders of petals, three in each, and a great number of slender stamina, about half the length of the petals, terminated by erect twin summits; and a great number of germina collected in a head; the germina afterward become so many seeds, having long hairy tails fitting upon the oblong receptacle. There are four species.

We generally find the *pulsatella* on dry and barren places, as sandy hills, sterile downs, and the like; but in Prussia it is most frequent in woods, and among pines and firs, and often is found in a loose, spongy, and wet soil. There is in Prussia a very remarkable species of it, which has a white flower; the leaves are of a jagged kind, and resemble those of the anemone; and the back part of the petals is tinged with a faint blue.

The whole genus of the *pulsatella*, are of an acrid and caustic quality, approaching to that of the ranunculus; and, if they are given internally, without proper correctors, are poisonous; but, like the colchicum root, and some other of those caustic plants, when given with proper mixtures, and in proper doses, it proves a very valuable alexipharmic: externally it is of great service in cleansing foul ulcers.

CAMPANACEIA, in *Botany*, an order of plants in the Fragmenta Methodi Naturalis of Linnæus.

CAMPANIAN disease, *Morbus campanus*, in *Antiquity*, is variously explained by modern writers. Some will have it only a sort of tubercles, or warts, on the face, to which the people of Campania were liable. Others maintain it to be the venereal disease; and hence draw an argument against the supposed novelty of that malady. Dacier will have it to be something still worse; the Campanians, it seems, were addicted to a sort of commerce too abominable to be named, *ore morigeri erant*. Whence it is, Plautus represents them as more pathic or passive than the Syrians themselves. Hor. Stat. v. lib. i. ver. 62. cum not. Dacier.

CAMPANIFORMIS flos, in *Botany*, a term used for a flower resembling a bell in shape, and making the character of one of Mr. Tournefort's genera. See BOTANY.

CAMPARIUM. See CHAMPART.

CAMPANOLOGIA, from *campana*, bell, and *λογος*, science, the art or science of ringing of bells.

CAMPANULA, in *Botany*, the bell-flower, a genus of the *pentandria monogynia* class. Its characters are these: the flower is of one leaf, shaped like a bell, spreading at the base; in the bottom is situated a five-cornered nectarium, which is joined to the top of the receptacle; it hath five short stamina: below the receptacle is situated the angular germen; the empalement afterward becomes a roundish angular capsule, which in some species have three, in others five cells; each having a hole toward the top, through which the seeds are scattered when ripe. There are forty-three species.

The different sorts of this plant make beautiful ornaments for chimnies, and other places, being very tall, very much branched, and full of large and beautiful flowers, which retain their beauty a long time.

They are propagated by sowing their seeds in March, in a bed of light and undunged soil, or by parting the roots; but the latter method, being the more expeditious, is most practised. Almost every slip, taken from the roots in September, and in March, will thrive; but the plants raised from seeds are seen to produce the finest flowers; they are very tedious, however, this way, being three or four years before they flower. They should

should, therefore, be transplanted the September after their sowing into nursery-beds, which should be of a light soil and not wet; they should be set here at six inches square; and, in frosty weather, the whole beds should be covered with mats, which will greatly strengthen the roots. In the September of the same year, they should be removed into pots, and sheltered, during the severe weather, in glass frames; or else in wet weather, the pots must be turned sideways; and in very cold, they must be set under a warm wall, and covered with haum, and surrounded with a little dung on the outside of the pots, to preserve the roots from the frosts. These plants will often succeed without this care, but with it they produce their flowers in such beauty and plenty as amply to reward it.

CAMPANULA lychnidea, See CONVULVUS

CAMPANULATA corolla, in Botany, denotes bell-shaped flowers.

CAMPEACHY-WOOD, a kind of wood brought from Yucatan, a province in America, and used in dying.

The heart of the tree, which alone is used, is at first red; after it has been felled some time, it becomes black; and if steeped in water, gives a black tincture, which may be used in writing.

It is very heavy, and burns admirably, and gives a clear lasting flame. See LOGWOOD.

Campeachy-wood seems to be the same with what is otherwise called **BRASIL**. It takes the former denomination from the city Campeachy, about which it grows in greatest plenty.

CAMPESTRE, in Antiquity, a sort of cover for the privities, worn by the Roman soldiers in their field exercises; being girt under the navel, and hanging down to the knees.

The name is supposed to be formed from *campus*, the field or place where the Roman soldiers performed their exercises.

CAMPHOR, or **CAMPHIRE**, a vegetable, concrete, transparent, friable, inflammable, odoriferous, volatile substance, of an acrid, aromatic taste, easily soluble in spirit of wine; procured from a kind of laurel called *laurus camphorifera*, frequent in the islands of Borneo, and Japan, and the neighbouring mountainous coasts of India; resembling a walnut-tree. See **BAY-tree**.

The word comes from the Arabic *capur*, or *capbur*; which signify the same thing.

All the parts of the tree are impregnated with *camphor*; but it is principally extracted from the roots by distillation. Newmann says, that it is obtained by distilling the roots, and sometimes the wood, and leaves, with water, in large iron pots, fitted with earthen heads stuffed with straw: the *camphor* concretes among the straw in its crystalline form: this is called *rough camphor*, and looks like East India saltpetre, or common bay-salt. In this state it is imported into Europe, in cannisters; and the Dutch take care that it comes all refined by sublimation, and prepared to our hands.

CAMPHOR, *manner of refining crude*. It is sublimed in low flat-bottomed glasses placed in sand: the *camphor* concretes, in the upper part of the belly of the glass, into a solid cake, which, after the belly has been broke, is pared with a knife, and is the refined *camphor* of the shops. *Rough camphor* may be commodiously and effectually purified by dissolving it in rectified spirit of wine: the spirit is recoverable by distillation, and the remaining *camphor* may be melted into a cake in the bottom of the vessel, or of another glass. Newmann's Chemical Works by Lewis, p. 319. 320.

Camphor is neither a salt nor a gum, since it is not soluble in water; nor is it a resin, since it does not yield by distillation either a phlegm, or oil, an acid spirit, as all resins do; much less does it leave a *caput mortuum* like those bodies. It totally vanishes and evaporates in the open air; in hot water it first runs and then evaporates; and in spirit of wine, or spirit of nitre, it wholly dissolves. It is no oil, because it is not unctuous to the touch, but is a firm, dry, crystallized matter; in its evaporation in the air, it leaves no remainder; and in close vessels over the fire, it rises intire without distillation, and appears at the top of a vessel in a dry form. It is subject to no separation of parts, and takes no empyreumatic smell; in mixing with concentrated spirit of nitre, it makes no ebullition, but placidly resolves into a sort of oil. This is extremely different from the effect of all vegetable oils, which are known to effervesce violently with this acid, and some even to take fire, and are finally converted by it into a dry resin. When broken, it appears bright, smooth, and saponaceous, but not unctuous to the touch; it consists of a copious inflammable principle, a small portion of water, and yet less of a very fine and subtle earth, mixed intimately together. Act. Eruditor. 1727. p. 524.

The common ways of keeping it from evaporation, are

by burying it in linseed, millet, pepper, or the like; but the rational way is, by keeping it from the external air: this is best done by wrapping it up in a paper or bladder, and then putting it into a leaden box, or an earthen or glass vessel set in a cool place. Or it may be preserved in large quantities, only by papering it up carefully, and putting it in wooden vessels in a cellar. Notwithstanding that it is a body so nicely and intimately combined in its own texture, yet it is ready at all times for medicinal use; and as it is not easy to give it any preparation, so it needs none. In its natural state, it readily mixes with all oils and inflammable spirits, and this without fear of evaporation; it has no change of colour in solution with spirit of nitre, but, when dissolved with oil of vitriol, it becomes brown, and finally red; and if water be added to any of the solutions, the *camphor* is precipitated in its proper and solid form: it may, however, be absolutely dissolved, by long maceration, and frequent drawing over by the retort, with either of these menstrua.

Camphor has various uses: as in fire-works; in making varnish, which proves an excellent preservative of animal and vegetable bodies, as it resists worms and other insects. The substance of it also laid among cloaths will preserve them from moths. In the courts of the eastern princes, it is burnt, together with wax, to illumine the night. It is exceedingly inflammable, so as to burn and preserve its flame in water; and in burning it consumes wholly, leaving no *scoria* behind: but its principal use is in medicine.

Camphor is used in medicine as sedative and antiseptic: it succeeds well in many convulsions and other nervous affections. It is successfully used as a powerful antiseptic. The two medicinal preparations of *camphor* in use now in the shops, are the solution of it in wine and in oil; the one called camphorated spirit of wine, the other oil of *camphor*.

The preparation of the first is by bare mixture, and requires no distillation, whether salt of tartar be or be not added to it.

The oil of *camphor* is either prepared by solution, or sublimation; the first is, either by dissolving *camphor* in the nitrous acid, or in some expressed vegetable oil, or by separating the oil which swims upon the surface of a strong solution of *camphor* in spirit of wine. To prepare the other, one part of *camphor* is to be mixed with three parts of bole Armenic, and put over the fire in a retort. The sublimed *camphor* is to be again mixed with fresh bole, and this so often repeated till no more *camphor* is found to be sublimed in the process; from this the liquid matter, separated by distillation, is to be separated, and the oil preserved.

Camphor may also be dissolved in oil of turpentine, or mixed with Venice soap, and thus distilled, and, finally, rectified. All these oils are strongly empyreumatic, and therefore the *camphor*, in its natural state, is greatly preferable to them all. *Camphor* water, and the flowers of *camphor*, are also greatly inferior to the crude substance. When *camphor* is to be mixed with powders, it should be gently moistened, in the rubbing, with spirit of wine; when it is to be mixed with aqueous menstrua, it should be rubbed with blanched almonds, or incorporated with the yolk of an egg.

Dr. Shaw recommends a mixture of nitre and *camphor*, as a quieter, instead of opium.

The learned Fr. Hoffman extols the virtues of *camphor*, given internally, as a most excellent discutient, resisting putrefaction, and as the chief alexipharmic. He advises it in malignant fevers, and in the venereal disease: in inflammations he adds nitre. See his *Dissertatio de Camphoræ Ufu interno securissimo et præstantissimo*.

Camphor is the most efficacious diaphoretic known; its great subtilty diffusing itself through the substance of the parts, almost as soon as the warmth of the stomach has set it in motion. It is used also in caries of the bones, as a detergent in wounds, to resist gangrenes, &c. When mixed with the subtle parts of cantharides, it prevents their injuring the bladder; its exquisite fineness enabling it to follow them into all the meanders of the vessels, and to sheath their asperities.

Dr. Quincy observes, that *camphor* begins to be mixed, and that to good purposes, with mercurials, to guard against their stimulating properties, and to lend them into the finest passages, to operate by fusion, and the force of impulse. For not only *mercurius dulcis*, or calomel, may be hereby restrained from manifest operation in the glands about the mouth; but also the mineral turbith, which of itself acts very strongly by stool and vomit, when mixed with *camphor*, will be much less felt in those respects; and will go into the farthest circuit of motion, and promote the cutaneous discharge, in a more efficacious manner than any medicine of less specific gravity.

M. Lemery endeavoured at a chemical analysis of *camphor*, but in vain; either its parts were too fine and volatile to be carried to any greater degree of purity or subtilty by any chemical process; or it was owing to the close union of its principles, which led him to suspect that it must be an oil, and a volatile salt, that they could not be separated.

He found that *camphor* was heavier than spirit of wine, of the same specific gravity with oil of turpentine, and lighter than oil of olives. Mem. Acad. Paris, 1708.

Camphor, he observes, does not dissolve in aqueous or phlegmatic liquors, but in sulphureous ones it does; not in alkalines, nor even in some acids; but in spirit of nitre it dissolves perfectly, and without commotion. This dissolution is ordinarily called *oil of camphor*; and it is to this the medicinal virtue of *camphor* in wounds, gangrenes, and caries, is ascribed. It is not taken internally, for fear of its sharpness and corrosiveness; though M. Lemery has found good effects from two or three drops by the mouth, in obstructions and fits of the mother: in these cases, indeed, he generally mixed it with as much oil of amber.

There is a common verse to the discredit of *camphor*, as if its smell emasculated:

Camphora per naves castrat odore mares.

But the proverb, according to Scaliger and Tulpius, is false.

Camphor, being boiled in *aqua vite*, in a close place, till the whole be evaporated; if a lighted torch or candle be introduced, the air in the whole place will immediately catch fire, and appear in a flame, without doing any damage to the place or spectators.

It has been found in Ceylon, that the root of the tree which yields cinnamon, yields, by incision, a matter that has a strong smell of *camphor*, and many of its virtues; whence naturalists, by mistake, have supposed that all *camphor* came from that tree.

Modern chemists have discovered, that many aromatic plants, as thyme, rosemary, sage, and almost all the labiated kinds yield a substance of the nature of *camphor*, which may be extracted, although in small quantities.

What is called *artificial camphor*, is prepared with gum sandarach, and white vinegar distilled, kept twenty days in horse-dung, and afterwards exposed a month to the sun to dry; at the end of which the *camphor* is found, in form of the crust of a white loaf.—This is also called *juniper gum*, *white varnish*, and *mastic*.

CAMPBOR-JULEP. See JULEP.

CAMPFORA, the *camphor-tree*, is a species of the *laurus* or *BAY*, which grows naturally in Japan, and several parts of India. It is a tree of middling stature, with oval, spear-shaped leaves, having three longitudinal veins which unite above the base. There are male and female on different trees. The *camphor-tree* requires no artificial heat in winter, but will thrive very well in a warm, dry green-house.

CAMPFORATA, a medicinal plant, the *camphorosma* of Linnæus; called, in English, stinking ground-pine; reputed cephalic and nervine; though little used in the modern practice.

It takes the name from its smell, which bears some resemblance to that of *camphor*.

The *camphorata Mospeliensis*, growing by the road-sides in Languedoc, and especially about Montpellier, has been lately produced as a specific for the dropsy, and asthma. Mr. Burtlet has given its history, analysis, and an account of its virtues. A. D. S. an. 1703. p. 65. H. 53. For its characters see CAMPFOROSMA.

CAMPFORATED, denotes a thing tinctured, or impregnated with CAMPFOR.

Spirit of wine *camphorated*, is a remedy frequently applied externally in cases of inflammations, &c.

CAMPFOROSMA, in Botany, a genus of the *tetrandria monogynia* class: the calyx is pitcher-shaped and indented, there is no corolla; and the capsule contains a single seed. There are four species. See CAMPFORATA.

CAMPICURSIO, in the *Ancient Military Art*, a march of armed men for several miles, from and back again to the camp, to instruct them in the military pace. This exercise was nearly akin to the *decurio*, from which it only differed, in that the latter was performed by horsemen, the former also by foot.

CAMPIDUCTORES, or CAMPIDUCTORES, in the *Roman Army*, were officers who instructed the soldiery in the discipline and exercises of war, and the art of handling their weapons to advantage. These are also sometimes called *campigeni* and *armidoctores*.

CAMPIDUCTOR, in *Middle Age Writers*, signifies the leader or commander of an army, or party.

CAMPION, *Lychnis*, in Botany, a genus of the *decandria pentagynia* class. Its characters are these: the flower has five petals, whose tails are the length of the empalement.

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It has ten stamina, which are alternately ranged, and fastened to the tails of the petals. In the centre is situated an almost oval germen: the empalement afterward becomes an oval capsule with one cell, opening with five valves, filled with roundish seeds. Linnæus enumerates seven, and Miller eight species of this plant, which, for the beauty of their flowers, are cultivated in our gardens; they are very hardy plants, and are easily propagated, either by parting the roots, or by the seed.

The roots should be parted in the latter end of August or beginning of September, and planted in a light dry soil.

If they are to be raised from seed, they should be sown in March, upon a bed of light fresh earth, and in May the young plants should be removed into another bed of the like earth, at about six inches distance from each other, and watered and shaded till they have taken root; after which they will require no farther care but to be kept clear from weeds; at the end of the September following they may be removed, for the last time, into the borders where they are to stand, and they will flower in the June and July following; when, if their seeds are suffered to ripen, they will sow themselves, and come up without any farther trouble.

CAMPION, *viscous, silene*, in Botany, a genus of the *decandria trigynia* class. Its characters are these: the flower has a permanent empalement, which is indented at the top in five parts. It has five plain obtuse petals, indented at their point, and a nectarium compounded of two small indentures in the neck of each petal, constituting a crown to the chaps; and ten awl-shaped stamina, inserted alternately to the tails of the petals above each other, terminated by oblong summits. In the centre is situated a cylindrical germen, supporting three styles, which are longer than the stamina, crowned by stigmas that are reflexed against the sun: the germen afterward becomes a close cylindrical capsule with three cells, opening at the top five ways, inclosing many kidney-shaped seeds. Linnæus enumerates thirty-five, and Miller fourteen species, which are cultivated in gardens, beside others which are disregarded.

CAMPION, *wild*. See AGROSTEMA.

CAMPIPARS. See CHAMPART.

CAMPITÆ in *Church History*, an appellation given to the DONATISTS on account of their assembling in the fields for want of churches.

For a similar reason, they were also denominated *Montenses*, and *Rupitani*.

CAMPIUSA, in Botany, a name given by Myrepsus and others to the plant we call SCABIOUS.

CAMPOIDES, in Botany, a name given by Rivinus to a plant comprized by Linnæus under the genus of *scorpiurus*, the *serpioides* of other authors. See CATERPILLARS.

CAMPUS, in *Antiquity* a field or vacant plain in a city not built on, left vacant either upon account of shews, combats, exercises, or other uses of the citizens.

CAMPUS *Maii*, in *Ancient Customs*, an anniversary assembly of our ancestors, held on May-day; where they confederated together for defence of the kingdom against all its enemies.

CAMPUS *Martius*, a large plain field in the suburbs of ancient Rome, lying between the Quirinal and Capitoline mounts, and the Tyber; thus called because consecrated to the god Mars, and set apart for military sports and exercises, to which the Roman youth were trained; as the use and handling of arms, and all manner of feats of activity.

Here the races were run, either with chariots or single horses; here also stood the *villa publica*, or palace for the reception of ambassadors, who were not permitted to enter the city. Many of the public *comitia* were held in the same field, part of which, for that purpose, was cantoned out. The place was also nobly decorated with statues, arches, columns, porticos, and the like structures.

CAMPUS *Martius* is also used in a more general sense by *Middle Age Writers*, for any large plain open place near a great city, wherein the inhabitants were trained to the exercise of arms. Of such we find mention at Verona, Tries, Dornic, and even Constantinople.

Among the French, *campus martius* was an appellation given to the yearly assemblies of the people called by the kings, either for enacting new laws, or deliberating on the great affairs of the nation. They were thus denominated, either because usually held in the month of March, or in imitation of the *campus martius* of the Romans, which was allotted for the like use. In after-times they were called *campus majus*, and by corruption, *campus madius*, and *majus*, because the time of holding them was altered by Pepin to the month of May.

Under the third line of kings, their assemblies took the denomination of states-general, *états généraux*.

CAMPUS Sceleratus, a place without the walls of ancient Rome, where the Vestals, who had violated their vow of virginity, were buried alive. Kennet.

CAMSHALL, a word used in Zetland, to denote the *os sepia*, which is sometimes found on the shores of that island. Phil. Trans. N^o 473. sect. 8. See **CUTTLE-fish-bone**.

CAMURI, in *Ichthyology*, the name of a sea-fish of the *lupus* or *baïse* kind, common in the seas and large rivers of America. It grows to about two feet long, and a foot thick.

Its head is monstrously large, and its mouth extremely wide; it has a large and strong fin on its back, which is armed with sharp prickles, and has a furrow in the back behind it, into which the fish can lay it down upon occasion; its sides are yellowish, and its belly white; its fins of a brownish yellow; and its side-lines, which run from the gills to the tail, broad and of a fine black. Willughby.

CAMUS, probably derived from *καμπτω*, *I bend*, a person with a low, flat nose, hollowed or sunk in the middle. The Tartars are great admirers of *camus* beauties. Rubruquis observes, that the wife of the great Genghis Kan, a celebrated beauty, had only two holes for a nose.

CAN, in *Sea-Language*.—A pump's *can*, is a sort of wooden jug or pitcher, wherewith seamen pour water into pumps to make them work.

CAN-buoy. See **BUOY**.

CAN-hook, an instrument used to sling a cask by the ends of the staves: it consists of a broad and flat hook fixed to each end of a short rope, and the tackle which serves to hoist or lower it is fastened to the middle of the rope.

CANADA stag, *Cervus Canadensis*, the same with the *Virginian DEER*. See **MOOSE**.

CANAL, *Canalis*, in general, denotes a long, round, hollow instrument, through which a fluid matter may be conveyed.

In which sense it amounts to the same with what we otherwise call a pipe, tube, channel, &c. Thus the *canal* of an aqueduct, is the part through which the water passes; which in the ancient edifices of this kind, is lined with a coat of mastic of a peculiar composition.

CANAL more particularly denotes a kind of artificial river, often furnished with locks and sluices, and sustained by banks or mounds. They are contrived for divers purposes; some for forming a communication betwixt one place and another, as the *canals* between Bruges and Ghent, or between Brussels and Antwerp; others for the decoration of a garden, or house of pleasure, as the *canals* of Versailles, Fontainebleau, St. James's Park, &c. others are made for draining wet and marshy lands; which last, however, are more properly called water-gangs, ditches, drains, &c.

Egypt is full of *canals*, dug to receive and distribute the waters of the Nile at the time of its inundation. They are dry the rest of the year, except the *canal* of Joseph, and four or five others, which may be ranked as considerable rivers.

There were also subterraneous *canals*, dug by an ancient king of Egypt, whereby those lakes, formed by the inundations of the Nile, were conveyed into the Mediterranean.

The *canal of Egypt*, for a communication between the Nile and the Red Sea, was begun, according to Herodotus, by Necus son of Psammetichus, who desisted from the attempt on an answer from the oracle, after having lost six score thousand men in the enterprize. It was resumed and completed by Darius son of Hytaspes, or, according to Diodorus and Strabo, by Ptolemy Philadelphus; who relate, that Darius relinquished the work on a representation made to him by unskilful engineers, that the Red Sea being higher than the land of Egypt, would overwhelm and drown the whole country. It was wide enough for two galleys to pass a-breast; its length was four days sailing. Diodorus adds, that it was also called *Ptolemy's river*; that this prince built a city at its mouth on the Red Sea, which he called *Arfinoc*, from the name of his favourite sister; and that the *canal* might be either opened or shut, as occasion required; policy probably had some share in the dispute to which it afterwards fell. Diod. Sic. Bibl. lib. i. Strab. Rer. Geog. lib. xvii. Herodot. Hist. lib. ii.

It seems to have been opened afresh about the year 635, under the caliph Omar. Elmacin indeed says, that a new *canal* was then made for the conveyance of the corn of Egypt to Arabia; but this is more naturally understood of a renewal of the ancient one, the navigation of which, towards the decline of the Roman empire, had been much neglected. The same author adds, that it was stopped again on the side next the Red Sea by the caliph Abugiafar Almanzor II. of the family of Abbas, in the year of the Hegira 150, answering to the year of

Christ 775. There are some traces of it still subsisting! M. Boutier, in 1703, discovered the end which arises out of the most easterly branch of the Nile. Hist. Acad. Scienc. ann. 1703. p. 110. seq.

A new *canal* for conveying the waters of the Nile from Æthiopia into the Red Sea without passing into Egypt, was projected by Albuquerque, viceroy of India for the Portuguese, in order to render Egypt barren and unprofitable to the Turks.

M. Gaudereau attributes the frequency of the plague in Egypt, of late days, to the decay, or stopping up of these *canals*, which happened upon the Turks becoming masters of the country.

In China there is scarce a town or village but has the advantage, either of an arm of the sea, a navigable river, or a *canal*, by which means navigation is rendered so common, that there are almost as many people on the water as the land.

The *great canal of China*, is one of the wonders of art, made about 800 years ago. It runs from north to south quite cross the empire; beginning at the city Canton. By it all kinds of foreign merchandize entered at that city are carried directly to Pekin, a distance of 825 miles. Its breadth and depth are sufficient to carry barks of considerable burden, which are managed by sails and masts, as well as towed by hand. On this *canal* the emperor is said to employ 10,000 ships, abating one, for a reason very peculiar. It passes through, or by, 41 large cities; there are in it 75 vast locks and sluices to keep up the water, and pass the barks and ships; where the ground will not admit of sufficient depth of channel, besides several thousand draw and other bridges.

F. Magaillane assures us, there is a passage from one end of China to the other, the space of 600 French leagues, always either by *canals* or rivers, except a single day's journey by land, necessary to cross a mountain; an advantage which this Jesuit, who made the voyage himself, observes, is not to be found in any other state in the universe. Nouv. Relat. de Chine. chap. 8.

The *canal of Languedoc*, called also the *canal of the two seas*, as serving to join the Mediterranean and Cantabrian seas, was first proposed under Francis I. but begun and finished under Louis XIV. By means of it, a ready communication is made between the two fertile provinces of Guyenne and Languedoc. The *canal* is 64 leagues long, extended from Narbonne to Tholouse, and receiving several little rivers in the way, supported at proper intervals with 104 sluices. In some places it is conveyed over aqueducts and bridges of incredible height, built on purpose, which give passage underneath to other rivers. What is most extraordinary is, that in some places, for a mile together, a passage is dug for it through the rock. The expence was thirteen millions of livres, of which the king contributed near seven millions; the province of Languedoc the rest.

The *canal of Briere*, called also *canal of Burgundy*, began under Henry IV. and finished in the reign of Lewis XIII. makes a communication between the Loire and the Seine, and so to Paris: to the great advantage of all this part of France, and even to Burgundy itself. This *canal* has 42 sluices.

The *canal of Orleans* was begun in 1675, for establishing a communication between the Seine and the Loire. It is considerably shorter than that of Briere, having only 20 sluices.

The *canal of Bourbon* was but lately undertaken; its design being to make a communication from the river Oise to Paris.

The *new canal of the Lake Ladoga*, cut from Velhova to the Neva, whereby a communication is made between the Baltic, or rather ocean, and the Caspian sea, was begun by the czar Peter I. 1719; by means of it, the English and Dutch merchandize is easily conveyed into Persia, without being obliged to double the Cape of Good Hope. There was a former canal of communication between the Ladoga lake and the river Wolga, whereby timber and other goods had been brought from Persia to Petersburg; but the navigation of it was so dangerous, that a new one was undertaken.

In England, that ancient canal from the river Nyne, a little below Peterborough, to the River Witham, three miles below Lincoln; called by the modern inhabitants *Caerdike*; may be ranked among the monuments of the Roman grandeur, though it is now most of it filled up. It was 40 miles long; and so far as appears from the ruins, must have been very broad and deep; some authors take it for a Danish work. Morton will have it made under the emperor Domitian. Urns and medals have been discovered on the banks of this *canal*, which seem to confirm that opinion. Hist. Northampton. ch. 10.

The *canal* for supplying London with water by means of the New River, was undertaken and begun by Mr. (afterwards

(afterwards Sir Hugh) Middleton, in the year 1608, and finished in five years. This *canal* commences near Ware, in Hertfordshire, and takes a course of 60 miles before it reaches the cistern at Islington, which supplies the several water-pipes that convey it to the city and parts adjacent. In some places it is thirty feet deep, and in others it is conveyed over a valley between two hills, by means of a trough supported by wooden arches, and rising above 23 feet in height. See *New River COMPANY*.

The *Duke of Bridgewater's canal*, projected and executed under the direction of Mr. Brindley, was begun soon after he had obtained an act for this purpose in 1759. It was first designed for conveying coals from a mine on his grace's estate to Manchester, but has since been applied to many other useful purposes of inland navigation. This *canal* begins at a place called Worsley-mill, about seven miles from Manchester, where the duke has cut a basin capable of holding all his boats, and a great body of water which serves as a reservoir or head to his navigation. The canal runs through a hill by a subterraneous passage, big enough for the admission of long flat-bottomed boats, which are towed by a rail on each hand, near three quarters of a mile, to the coal-works. There the passage divides into two channels, one of which goes off 300 yards to the right, and the other as many to the left; and both may be continued at pleasure.

The passage is, in some places, cut through the solid rock, and in others arched over with brick. Air-funnels, some of which are near 37 yards perpendicular, are cut, at certain distances, through the rock to the top of the hill. The arch at its entrance is about six feet wide, and about five feet high from the surface of the water; it widens within, so that in some places the boats may pass one another, and at the pits it is ten feet wide. When the boats are loaded and brought out of the basin, five or six of them are linked together and drawn along the *canal* by a single horse or two mules. The *canal* reaches Manchester in a course of nine miles; it is broad enough for the barges to pass or go a-breast, and on one side there is a good road for the passage of the people, and horses or mules employed in the work. The *canal* is raised over public roads by means of arches, and it passes over the navigable river Irwell near fifty feet above it, so that large vessels in full sail pass under the *canal*, whilst the duke's barges are at the same time passing over them. This *canal* joins that which passes from the river Mersey towards the Trent, taking in the whole a course of 34 miles.

The Lancaster canal begins near Kendal, and terminates near Ecclelston, comprehending the distance of $72\frac{1}{2}$ miles.

The *canal* from Liverpool to Leeds is $108\frac{1}{2}$ miles: that from Leeds to Selby, $23\frac{1}{2}$ miles; from Chester to Middlewich, $26\frac{1}{2}$ miles; from the Trent to the Mersey, 88 miles; from the Trent to the Severn, $46\frac{1}{2}$ miles. The Birmingham *canal* joins this near Wolverhampton, and is $24\frac{1}{2}$ miles; the Droitwich *canal* is $5\frac{1}{2}$ miles: the Coventry *canal*, commencing near Litchfield, and joining that of the Trent, is $39\frac{1}{2}$ miles: the Oxford *canal* breaks off from this, and is 82 miles. The Chesterfield *canal* joins the Trent near Gainsborough, and is 44 miles.

A communication is now formed, by means of this inland navigation, between Kendal and London, by way of Oxford; between Liverpool and Hull, by the way of Leeds; and between the Bristol Channel, and the Humber, by the junction formed between the Trent and the Severn. Other schemes have been projected, which the present spirit of improvement will probably soon carry into execution, of opening a communication between the German and Irish seas, so as to reduce a hazardous navigation of more than 800 miles by sea, into a little more than 150 miles by land; and also of joining the Isis with the Severn.

There are many obvious advantages which accrue from these inland navigations. By diminishing the price of carriage, and facilitating the communication between remote parts of the country, they greatly conduce to the improvement and extension of our manufactures and commerce. They likewise tend, in a variety of ways, to advance and perpetuate the value of estates near which they pass, by the ease with which the manure may be procured, by the establishment of manufactures, and by the cheap conveyance of their produce to large towns and sea-ports: not to add, that they serve as drains for moist lands, and that they furnish a supply of water for those that are dry. And besides, navigable *canals* give employment to the industrious labourer, as well as the ingenious artisan.

We also read of divers projects and undertakings of *canals*, which were never achieved. Demetrius Poliorcetes, Julius Cæsar, the emperors Caligula and Nero, attempted in vain to cut through the isthmus whereby Peloponnesus is joined to the rest of Greece, and make a

canal of communication between the Ionian and Ægean seas. Plin. Nat. Hist. lib. iv. cap. 4.

Seleucus Nicanor had a design to make a *canal* between the Euxine and Caspian seas. Lucius Verus, who commanded the Roman army in Gaul under Nero, attempted to make a *canal* between the Moselle and the Rhine.

The Spaniards have several times had in view the digging of a *canal* through the isthmus of Darien, from Panama to Nombre de Dios, to make a ready communication between the Atlantic and the South Sea, and thus afford a straight passage to China and the East Indies.

CANAL is also applied to the furrows on the face of, or underneath a LARMIER; sometimes also called porticos; and fitted up with reeds or flowers; sometimes to those cavities, straight or winding, made on the caulicoles of a capital. See SOFFITA.

CANALS are also used for the flutings of a column or pilaster.

CANAL of the volute, in the Ionic capital, is the face of the circumvolutions, inclosed by a listel.

CANAL, *Canalis*, in *Anatomy*, a duct, or passage, through which any of the juices, or fluids of the body flow.

Under *canals* are included all kinds of vessels, as arteries, veins, nerves, &c. See ARTERY, VEIN, &c.

The hole or perforation through the *vertebræ* of the neck whereby the spinal marrow communicates with the brain, is by some called the sacred or great *canal*, *ἡ ἁγία σπονδυλὴ*.

CANALS *semicirculares*, in *Anatomy*, are three *canals* in the labyrinth of the ear; which open by as many orifices into the *vestibulum*.

They are of three different sizes, *major*, *minus*, and *minusculus*. In different subjects they are frequently different, but are always alike in the same: the reason, Valsalva ingeniously conjectures to be, that as a part of the tender auditory nerve is lodged in these *canals*, so they are of three several sizes, the better to suit all the variety of tones; some of the *canals* suiting some tones, and others others. And though there be some difference in the form and size of the *canals* in different persons; yet, lest there should be any discord in the auditory organs, these *canals* are always in exact conformity to one another, in the same man.

CANALICIUM *aurum*, or CANALIENSE, that gold which is dug out of mines, or veins under ground.

CANALICULATE *leaf*, amongst *Botanists*. See LEAF.

CANALICULATE *stalk*. See STALK.

CANALIS is used by *Surgeons* for an oblong, concave instrument, in which to put a broken limb, leg, or thigh. It is made either of brass, wood, or earthen ware, sometimes even of straw fitted with linen cloth.

CANALIS, or CANALICULUS *arteriosus*, in *Anatomy*, a vessel, observed in *fætuses*, but which, after delivery, grows useless, and disappears. It is a little tube, which joining the pulmonary artery and aorta, serves to convey the blood out of one into the other, without passing through the lungs. See FOETUS.

Dr. Agricola describes a valve at the entry of the *canalis arteriosus* into the *aorta descendens*, composed of four sides. Two of them prevent its being shut till after birth, and the other two prevent its being thrust off from the orifice of the *canalis arteriosus*.

There have been some disputes between Messieurs Mery Buisiere, Rohault, and others, about the real use of the *canalis arteriosus*, as well as of the FORAMEN ovale.

CANALIS *nasalis*, a kind of *fulcus* or furrow formed in the *ossa unguis* and *maxillaria*, whereby a mucous humour is conveyed from the *puncta lacrymalia* to the nose.

CANALIS *venosus*, a duct in the liver of the *fætus*, whereby a communication is maintained between the porta and cava; which, becoming useless after the birth, gradually dries up. Drake and Heister.

CANALIS, in *Zoology*. See TUBULUS *marinus*.

CANARIA *lappa*, in *Botany*, a name given by the ancient Romans sometimes to the rough fruit of the common aparine or clivers, and sometimes to the plant itself. Pliny calls the plants *lappa* and *lappago*; and the fruit of it, *lappa loaria*, *lappæ canaria*, and *lappæ canina*.

CANARIES, in *Music*, an old English air, having a sprightly movement of two strains, with eight bars in each; and three quavers in a bar; the first pointed.

CANARIUM, from *canis*, *dog*, in *Antiquity*, a Roman sacrifice, wherein dogs of a red and ruddy colour were sacrificed, for a security of the fruits of the earth against the raging heats, and disorders of Sirius in the dog-days.

CANARIUM, in *Botany*, a genus of the *diocia pentandria* class: its characters are, that it hath male and female flowers; that, in both, the calyx has two leaves; and the corolla consists of three petals: the fruit is a drupe with a three-cornered nut. There is one species.

CANARY-bird, *passer Canariensis*, a species of singing birds, greenish yellow in colour, formerly brought only from

from the *Canary* islands; but of late chiefly from Germany and Switzerland; which last, called also German birds, are preferred to the former. The chief place for breeding *Canary-birds* is Inspruck and its environs, from whence they are sent to Constantinople, as well as every part of Europe. They are a species of the *fringilla*.

Canary-birds are distinguished by different names at different times and ages: such as are about three years old are called *runts*; those above two, are named *criffs*; those of the first year under the care of the old ones, are termed *branchers*; those that are new-flown, and cannot feed themselves, *pushers*; and those brought up by hand, *nestlings*.

The *Canary-birds* may be bred with us, and, if treated with proper care, they will become as vigorous and healthful as in the country from whence they have their name. The cages in which these birds are kept are to be made of either walnut-tree or oak, with bars of wire; because these, being woods of strength, do not require to be used in large pieces. The common shape of cages, which are cylindric, is very improper for these birds; for this allows little room to walk, and without that the birds usually become melancholy. The most proper of all shapes is the high and long, but narrow.

If these birds eat too much, they grow over fat, lose their shape, and their singing is spoiled; or at least, they become so idle that they will scarce ever sing. In this case their victuals is to be given them in a much smaller quantity, and they will by this means be recovered by degrees to all their beauty, and will sing as at first.

At the time that they are about to build their nests, there must be put into their cages some hay, dried thoroughly in the sun: with this must be mixed some moss dried in the same manner, and some stag's hair; and great care is to be taken of breeding the young, in the article of food. As soon as the young birds are eight days old, or somewhat more, and are able to eat and pick up food of themselves, they are to be taken out of the cage in which they were hatched, and each put separately into another cage, and hung up in a room where it may never have an opportunity of hearing the voice of any other bird. After they have been kept thus about eight days, they are to be excited to sing by a bird-pipe; but this is not to be blown too much, or in too shrill a manner, lest they sing themselves to death.

For the first fifteen days the cages are to be covered with a black cloth, and for the fifteen days following with a green one. Five lessons a day from the pipe are sufficient for these young creatures; and they must not be disturbed with several sounds at the same time, lest they confound and puzzle them: two lessons should be given them early in the morning, one about the middle of the day, and two more at night.

The genius and temper of the several birds of this kind are very different. The males are almost always melancholy, and will not sing unless they are excited to it by hearing others continually singing about them. The male bird of this kind will often murder the female put to him for breeding; and when there are several females together with the males, they will often do the same to one another from jealousy. It is therefore not easy to manage the article of their breeding well in this particular, unless in this manner; let two female birds be put into one cage, and when they have lived together some time, they will have contracted a sort of love for one another, which will not easily be dissolved. Put a male bird into the cage with these two, and every thing will go well; their friendship will keep them from quarrelling about his favours, and from danger of his mischievous disposition; for if he attacks one of them, in order to kill her, the other will immediately take her part; and after a few of these battles, the male will find that they are together an overmatch for him at fighting, and will then distribute his favours to them, and there will not fail of being a young breed or two, which are to be taken away from their parents, and educated as before directed. Some males watch the time of the female's laying, and devour the eggs as fast as she deposits them; and others take the young ones in their beak, as soon as hatched, and crush them to death against the sides of the cage, or some other way destroy them. When a male has been known once to have been guilty of this, he is to be shut up in a small cage, in the middle of the large one in which the female is breeding her young, and thus he will often comfort her with singing all day long, while she sits upon the eggs or takes care of the young ones: and when the time of taking away, to put them into separate cages, is come, the male is to be let out, and he will always after this live in friendship with the female.

If the male becomes sick during the time of the female's sitting or bringing up her young, he must be removed immediately, and only brought to the side of her cage

at certain times, that she may see him, till he is perfectly cured; and then he is to be shut up again in his cage in the middle.

Canary-birds are various in their notes: some having a sweet song, others a lowish note, others a long song, which is best, as having the greatest variety of notes: but they sing chiefly, either the titlark, or nightingale notes. See *SONG of birds*.

CANARY *grass*. See *PIHALARIS*.

CANARY *weed*. See *ARCHIL*.

CANATTE CORONDE, a name given by the Ceylonese to a peculiar kind of cinnamon growing in that island: this is esteemed the second kind in value, and the name they give to it signifies bitter and astringent cinnamon. The bark of this kind of cinnamon tree comes off very easily, and is of a very fragrant smell when fresh, but it has a bitter taste. It is not very common in the island, and is not easily distinguished on the tree from the best cinnamon. The trees which yield the eight different kinds of cinnamon, so very various in flavour and virtue, are all so like one another, that it requires a great deal of attention to distinguish them. The root of this kind of cinnamon-tree yields a very fine sort of camphor. Phil. Trans. N^o 409.

CANAVAY, in *Natural History*, a name given by the inhabitants of the Philippine islands to a sea-bird which is described as being of the bigness of a pigeon, and laying its eggs on the naked rocks, where it sits and hatches them. Some suppose this bird no other than the common king-fisher. But this is scarce probable; as we have no account of its being very beautifully coloured; and this is a circumstance which can hardly have escaped those who mentioned it, being so very remarkable. It is much more probably some sea-bird wholly unknown in this part of the world.

CANCAMUM, in the *Materia Medica*, a name given by the Greeks to a gum or resin, and continued down to the present age, though not without some uncertainty in its signification. The Arabian writers in general have looked on the word *cancamum* as a synonymous term for gum lac, which the Greeks have called *lancha* and *la-ba*, and Avicenna, *lock*.

CANCELIER, in *Falconry*, is when a light flown hawk, in her stooping, turns two or three times upon the wing, to recover herself before she seizes.

CANCELLARIUS, in *Antiquity*. See *CHANCELLOR*.

CANCELLI, in *Building*, lattices, or a sort of windows made with cross bars of wood or iron chequer-wise.

The term is also applied to the balusters and rails which compass a court of justice, a communion table, or the like.

CANCELLI, in a *Military* sense, the same with *BARRIER*.

CANCELLING, in the *Civil Law*, an act whereby some former deed is rendered null and void. This is otherwise called *rescission*.

The word comes from the Latin *cancellare*, to encompass or pale a thing.

In the proper sense of the word, to *cancel*, is to deface an obligation, by passing the pen from top to bottom, or across it; which makes a kind of chequer lattice, which the Latins call *cancelli*.

CANCELLUS, in *Ichthyology*, the *wrong heir*, is a very small species of *CRAY-fish*, which the French call *hermit*, or *St. Bernard the hermit*, because it shuns others, and retires into the first shell it meets with. Its body is somewhat long, but, in general, much resembling a spider, except that it is a little thicker. It is found in the slime near rocks, inclosed commonly in a shell as big as a nut, of a conic figure, thick, very hard, rugged, furrowed, and grey without-side, but smooth and white within. This shell is so well adapted to the animal, that it is a hard matter to force it out of its enclosure. Some wash it, dress it, and eat it. It contains abundance of volatile salt; it is aperitive and good for the stone. The oil prepared from it is brought from America, and is used for the rheumatism.

In the American islands they find a much larger species of *cancellus*, being three or four inches long. It is called the *soldier*, because it possesses and fortifies itself in a shell which is not its own. Its natural shell leaving its hinder parts naked, it employs itself, as soon as it is strong enough, in searching out another which may be proportioned to its size; into which it stuffs its back parts and adjusts itself. But as it grows larger, and finds itself confined, it is obliged from time to time to go in search of others; and it is good diversion for the curious, to observe how he stops at all the shells he meets with, to consider them; and when he finds one fit for his purpose, how he quits his own, and with great precipitation crowds into his new tenement, as if he was ashamed of being naked: and if two of these animals are stripped at the same time, to enter the same shell, they fight until the weakest gives way.

The inhabitants fish for them, string them up by the head, and expose them to the sun, which dissolves them all but the solid parts; which dissolved substance or oil is esteemed excellent for rheumatisms, to which the savages are very subject.

CANCER, in *Astronomy*, one of the twelve signs of the zodiac: ordinarily represented on the globe in form of a crab, and in astronomical books denoted by a figure much resembling that of the number sixty-nine; thus, 69. The reason generally assigned for its name as well as figure, is a supposed resemblance which the sun's motion in this sign bears to that of the crab-fish. As the latter walks backwards, so the former in this part of his course begins to go backwards, or recede from us, though the disposition of stars in this sign is by others supposed to have given the first hint to the representation of a crab. The stars in the sign *Cancer*, Ptolemy makes 13; Tycho, 15; Bayer and Hevelius, 29; Mr. Flamsteed, no less than 83. Their orders, names, places, longitude, latitude, magnitude, &c. in the *Britannic Catalogue*, are as follow:

Names and situations of the stars.	Bay. Cha.	Signs.	Longitud.	Latitude.	Mag.
In the extremity of preced. north foot.	h	23	49 13	4 52 46 S	6
Subsequent, and more southern.	a	22	49 38	4 43 11 N	6
		24	24 46	3 12 35 S	6
5.		23	4 11	4 27 15 N	6
		24	45 35	4 0 21 S	6
	x	22	54 28	7 11 26 N	5
		24	10 40	1 35 13 N	8
In the preced. and more southerly leg.		26	18 34	7 5 30 S	6
In the preced. north foot, south.	μ	24	36 38	2 16 21 N	7
10.	μ	25	9 26	1 19 13 N	5
		24	7 46	7 8 1 N	
		27	1 42	6 24 35 S	6
In the second north leg, upper	↓	24	47 23	5 36 4 N	6.7
under	↓	24	54 49	5 18 44 N	4
	↓	24	35 27	9 27 22 N	5
15.		27	0 22	2 17 52 S	5.6
Against the tail, Ptolem. 25th II.	ζ	29	56 19	10 19 6 S	4.3
Agst. the extrem. of the 2d so. foot.	β	26	38 3	7 27 32 N	6
The north of the 3d north foot.	x	27	29 33	4 20 33 N	6
In the origin of the 3d north foot.	λ	29	27 6	1 2 39 S	6
In the back, behind the tail.	d				
20.		Ω	1 20 11	8 31 32 S	6
The first in the 4th north foot.	φ	27	52 28	8 25 43 N	6.7
The second	φ	28	10 32	7 30 00 N	6
In the orig. of preced. north. claw	υ	28	44 18	5 10 36 N	6
Subsequent and more southerly.	d	Ω	0 20 24	2 7 51 S	6
25.					
The last of three.	φ	28	7 13	8 27 31 N	6
	Ω	1	34 58	6 22 16 S	6
The second.	υ	29	15 40	4 53 45 N	6.7
	Ω	1	39 24	4 45 26 S	6.7
The third.	υ	29	55 6	4 59 48 N	6
30.					
The preced. so. of □ of the breast	θ	Ω	1 24 44	0 47 46 S	6.5
Fourth and subsequent.	υ		0 15 14	5 5 16 N	7.8
Preced. north in the □ of the breast	η		1 5 29	1 32 33 N	6.7
			3 38 01	8 31 50 S	6
			1 53 19	0 52 1 N	7
35.					
The preced. in the 3d south. foot.	c		4 49 27	8 39 1 S	6
The subsequent.	c		5 4 30	8 40 4 S	6
Nebulous stars in the middle of the breast, called <i>Præsepe</i> .	o		2 50 50	1 18 18 N	6
			2 53 10	1 31 18 N	6
			2 53 53	1 34 10 N	6
40.					
In the cloud.	e		3 05 25	1 6 22 N	7
	c		3 05 9	1 18 37 N	7.8
Subseq. no. in the □ called <i>N. Afellus</i> .	γ		3 13 0	3 9 41 N	4
			4 2 35	0 3 15 S	6
Preced. in the 4th south. foot.	A		5 29 46	5 20 36 S	6
45.					
			1 11 49	12 10 46 N	6
South. star in □ called <i>S. Afellus</i> .	δ		4 23 40	0 3 46 N	4
In the north claw.	i		2 0 53	10 23 40 N	5
In the extrem. of the 4th so. foot.			6 32 22	7 44 58 S	6
Subsequent in the southern foot.	A		6 31 37	5 38 58 S	6
50.					
First over the northern claw.	σ		2 12 44	14 18 33 N	6
			6 27 0	1 37 15 S	6
First of these follow the northern claw.	S		3 23 2	10 15 12 N	6
			6 37 10	2 16 16 S	7
Second.	S	Ω	3 26	10 21 47 N	6
55.					
Third.	S	Ω	3 41	10 24 34 N	6
Preced. in the mid. of the n. claw.	i		3 6 12	12 35 34 N	5.6
Fourth.	S		4 10 51	10 8 24 N	6
Second.	σ		2 59 35	14 59 41 N	5.6
That preced. the southern claw.	α		8 46 33	5 30 32 S	4.5

Names and situations of the stars.	Bay. Cha.	Signs.	Longitud.	Latitude.	Mag.
2d and sub. in middle of the claw			3 59 42	12 29 1 N	6
1st in the orig. of the fourth claw	o		8 2 56	1 53 16 S	6
Second and southern.	o		8 3 51	1 36 45 S	6
Third.	o		3 40 50	14 40 46 N	6
In the southern claw.	α		9 18 34	5 6 27 S	4
65.					
The last of four.	σ		4 7 21	14 37 46 N	6
Fifth of those following the northern claw.	S		5 30 37	10 30 5 N	6.7
			8 36 41	0 7 56 N	6
In the northern eye.	υ		6 42 12	7 14 33 N	6
Last of those following the northern claw.	S		6 0 40	10 37 48 N	6.7
70.					
			9 17 40	0 39 31 N	7
In the extr. of the apert. of the northern claw.	τ		6 18 14	12 34 6 N	6.7
			10 20 20	1 13 45 S	6
			10 37 7	1 55 52 S	6
			7 23 58	9 46 2 N	6.7
75.					
Subseq. in the southern claw.	κ		11 50 44	5 36 8 S	4.5
In the southern eye.	ε		8 52 45	5 23 24 N	5.6
			10 11 15	1 0 54 N	6
			9 7 14	5 24 49 N	8
			10 39 19	1 45 5 N	7
80.					
In the apert. of the fourth. claw.	π		11 41 7	1 8 31 S	7
			12 19 48	0 58 45 S	6
			12 20 54	1 56 7 N	6

CANCER, *tropic of*, in *Astronomy*, a lesser circle of the sphere parallel to the equator; and passing through the beginning of the sign *Cancer*. See *TROPICS*.

CANCER, in *Ichthyology*. See *CRAB*, and *SQUILLA*.

CANCER, in *Medicine*, a roundish, hard, ragged, immovable tumor, of an ash or livid colour; encompassed round with branched turgid veins, full of black foul blood; situate chiefly in the glandulous part: so called, as some will have it, from the resemblance which the turgid veins shooting from it bear in figure to the crab-fish; or, as others say, because like that fish, when once it has got hold, it is scarce possible to drive it away.

A *cancer* differs from a *scirrhus*, in that the latter is without pain. See *SCIRRHUS*.

Cancers also differ from those called simply *cancerous ulcers*, or tumors, which, though of a like general nature, vary in many circumstances.

Cancers appear with such a diversity, that it seems impossible to give a definition which shall agree to all. Some have a round, unequal, livid, painful hardness; others are flat without lividity, and sometimes indolent. The variety arises chiefly from their rise, and the different parts they are seated in; as the breast, womb, lips, nose, eyes, ears, &c. Phil. Trans. N^o 260. p. 476.

Some restrain *cancers* to those on women's breasts, which alone exhibits the appearance of crabs; and give the name *carcinoma* and *cancerous ulcers*; to those on the other parts. It begins without any pain, and appears, at first, like a chick-pea; but grows apace, and soon becomes very painful. The *cancer* arises principally on the lax glandular parts, as the breast and emunctories; it is most frequent in women, especially such, says Stollerforth; as are barren, or live single. The reason of its appearing in the breasts more than other parts, is, that being full of glands, with lymphatics and blood-vessels, among them, the smallest contusion, compression, or puncture, extravasates those liquors; which growing, by degrees, acrimonious, form the *cancer*. Hence it is said, that a *cancer* is that in the glands, which a caries is in the bones and a gangrene in the fleshy parts. The *cancer*, however, is sometimes found in other soft, spongy parts of the body; and there have been some found in the gums, belly, neck of the matrix, ureter, lips, nose, cheeks, abdomen, thighs, and even the shoulders.

A *cancer* arising on the legs, is called a *lupus*; on the face, or nose, a *MOLI me tangere*.

Cancers are divided; according to their several stages, into *occult*, and *open* or ulcerated.

CANCERS, *occult*, are those not arrived at their state, or not yet burst.

It is a famous aphorism, that *occult cancers* are better uncured than cured; and that the patient will live longer with them than without them. Hippocr. Aphor. 38. § 6. But physicians are not to be deterred by an old aphorism; they attempt not only a palliative, but a radical cure: the former partly by externals of the narcotic kind, to allay the pain, and hinder the spreading of the *cancer*; partly by internals, the chief of which are the *diaphoreticum Poterii*, martials, several preparations of earth-worms, and tincture of antimony, but especially the juice of the *solanum tethale*, which is a topic of great fame for the palliative cure of *cancers*. It was the great secret of Percival Willoughby.

Gendron improves it by the addition of *saccharum saturni*. The true cure of *cancers*, according to this writer, is either by exsection or amputation of the part, or by the application of cauteries. The former may be used where the tumor is moveable, and its base terminates abruptly, does not adhere to the adjacent parts, and consequently has sent no filaments to the same; as is the case in all *cancers* arising from scirrhus or scrophulous tumors. But the true *cancers*, he observes, are seldom extirpated with success; and the operation would be less in repute, if scirrh, strumæ, and other similar tumors, were not frequently mistaken for *cancers*. Phil. Trans. N^o 260.

CANCERS, *ulcerated*, are known by their roughness and fullness of holes, through which issues a filthy, stinking, glutinous matter, frequently yellowish; by their pungent pain, which resembles the pricking with a thousand pins; and by their blackness; the swelling of the lips of the ulcer; and the veins about it, which are blackish, tumid, and varicous.

Sometimes the extremities of the blood-vessels are gnawed off, and the blood issues out. In a *cancer*, of the breast, the adjacent flesh is sometimes so consumed, that one may see into the cavity of the thorax. It occasions a slow fever, a loathing, oftentimes faintings, sometimes a dropsy, and lastly death.

The generality of authors ascribe the cause of *cancers* to an acid ferment, which first coagulates the juices in the glands, and afterwards corrodes and ulcerates the part. Gendron, refuting this theory, substitutes another; the *cancer*, according to him, is not a disease of the fluids, but of the solids. It arises from a disorder of the lymphatic and excretory vessels of the glands, which becoming by some accident impervious, and ceasing to filtrate and convey their liquors, by degrees degenerate into a compact horny mass, capable of germination and ulceration. What seems to confirm this origin is, that in grown *cancers* there is always found a hard callous substance not unlike horn, with blood-vessels disseminated through it, which yet are smaller and narrower than before the formation of the hardness. This callosity is found in cutaneous *cancers*, though it there extends itself in a different manner, appearing at first like a small wart, from which spring cutaneous filaments. When the ulceration has made some progress, these appear like pinheads in the flesh, which are no other than the extremities of the filaments. This substance, always found in true *cancers*, according to M. Gendron, is the *cancer* itself, formed by the transmutation of the glandular and lymphatic vessels. On this principle he resolves the spreading of a *cancer* into a vegetation performed by the conveyance of the nutritious juices through the ramifications of the tumor, as through horns, nails, or the like substances. The pain proceeds from the compression of the nervous parts, as that in corns, and the lividity from the obstruction of the blood; not as commonly supposed from a caustic salt, which would soon cause an eschar. Gend. Recherch. sur la Nat. des *Cancers*, chap. 3. Act. Erud. Lips. an. 1701.

The *cancer* is one of these diseases for which no competent remedy has been yet found, not even when taken early or in its occult state. The most that medicine can do is to palliate, or keep it back by diet and general remedies. Le Clerc. Treat. Chir. Operat. chap. viii. p. 198, seq. where the operation of cutting off a cancerous breast is described.

However, in the Memoirs of the Royal Academy of Sciences, mention is made of the radical cure of three inveterate *cancers*, by an infusion of the leaves of plumbago in olive oil; these *cancers* had been deemed incurable, by reason of their adherence to bony parts. Mem. Acad. Sc. 1739.

Cancers are sometimes internal. We have histories of two such in the Philosophical Transactions, from which Dr. Burton endeavours to deduce the diagnostics of a *cancer* within the abdomen. N^o 464.

CANCER, *to prevent*. When there is danger of an approaching *cancer*, the acrimony of the blood is, if possible, to be corrected by the use both of internal and external remedies, and a strict regimen in regard to diet is to be observed. Broths and soups made of the flesh of young animals, and with proper herbs boiled in them, as scorzonera, and the others of that tribe, are very beneficial in these cases; the most wholesome drink is either fair water, or a decoction of China root, or sarsaparilla, or the like; and when the pains are violent from the scirrhus, which is now threatening to become a *cancer*, white poppy seeds may be added in considerable quantities to the decoction, and it may be sweetened with a proper quantity of syrup of diacodium. Two or three times a day also should be taken a dose of Gascoign's powder, salt of wormwood, native cinnabar, crude and diaphoretic antimony; adding to each dose, as there shall be occasion, half a grain of laudanum, to allay the violence of the pain. Great benefit is also sometimes re-

ceived in this case by taking either the powder or juice of millepedes, with spermaceti.

Purges also of the mercurial kind frequently do great service, as do also bleeding and cupping frequently in the spring and autumn. A thin plate of lead well impregnated with quicksilver, may also be very conveniently worn on the part with great advantage; for this method cannot but weaken the sense of pain, and may often prevent a *cancer*.

If the application of the plate of lead shall prove insufficient, plasters and ointments composed of such ingredients as are known to allay pains may also be applied: the following are of this kind, and are frequently found of service. Take of the *unguentum diapompholygos*, two ounces; of opium, half a scruple; mix these into an ointment, and frequently rub the part affected with it; or take of an amalgama of quicksilver and lead two ounces; mix this with a sufficient quantity of ointment of roses, or any the like unguent; then spread a part of it on a linen rag, and apply it in the manner of a plaster to the part: or take litharge vinegar, an ounce; expressed oil of henbane seeds, poppy seeds, and the infused oil of roses, of each two ounces; mix them by a long and continued stirring together into an ointment, adding toward the end of the operation, purified opium, from six to ten grains, as the urgency of the symptoms may require; this is to be spread in like manner on linen rags, and applied at times to the part.

If the daubing of these ointments is disliked, a refrigerant plaster may be used in their stead; such is the lead plaster of Myusicht, and plasters of red-lead, or pompholyx, or the excellent plaster made by the following prescription: take of the fresh and depurated juices of henbane, garden-poppy, and water-hemlock, of each four ounces; boil these to a thickness over a gentle fire, adding toward the end of the boiling eight ounces of white wax, and one ounce of oil of roses, and make the whole into a plaster: or take of sugar of lead, of ceruse, of the amalgamation of quicksilver and lead, and of the expressed oil of henbane seed, and infused oil of roses, of each two ounces; make these into a plaster. If the pains are very violent, a small quantity of opium may be added to either of these plasters. Heister's Surg. p. 23. Soultzer, physician to the duke of Saxe-Gotha, after observing that an effectual cure for a *cancer* is still among the desiderata of physic, and that mercury, antimony, and all alteratives, as well as the *belladonna* and *cicuta*, have generally failed, recommends the following poultice: take carrots freshly gathered, and reduce them to a coarse powder; squeeze out the juice, and warm the pulp, and apply it in the form of a thick poultice, so that it may touch the ulcers in every part: and let the whole be covered with a warm napkin. The dressing must be renewed twice in every four hours, and the ulcers cleaned with lint dipped in a warm decoction of hemlock. This application, he says, will abate the pain, take away the loathsome smell, diminish the suppuration, and produce the discharge of a laudable pus. By continuing the use of it, the callous edges of the ulcers will be softened, the tumor diminish, and at length disappear; new flesh will be gathered, a cicatrix will be formed, and the cure completed. The extract of hemlock may be safely administered at the same time. See an account of the effects of the *cicuta* and a carrot-poultice upon a *cancer* of the breast, in the Med. Obs. and Inq. vol. iv. art. 31.

The sanies of a *cancer*, when the carrot-poultice has failed, has been sweetened by fixed air, applied externally, the pain mitigated, and a better digestion produced. Dr. Percival remarks, from repeated trials, that the progress of *cancers* seems to be checked by the fixed air; but, he adds, it is to be feared, that a cure cannot thus be effected. Priestley on Air, vol. i. Appendix, p. 302.

CANCER, in a more vague sense, is extended to all **ULCERS** disposed to putridity.

Such are the most inveterate malignant, cavernous, fistulous, varicous, and colliquative ulcers. The Arabs call the *elephantiasis* the universal *cancer*. Celsus even ranks the gangrene and sphacelus in the class of *cancers*. Others include the caries of bones in the number. Ephem Acad. N. C. dec. i. an. 1. p. 8.

Cancers are by some divided into *primitive* and *degenerate*.

CANCERS, *primitive*, are those which come of themselves appearing at first about the bigness of a pea, and only painful at intervals; but growing bigger, and more troublesome by degrees.

CANCERS, *degenerate*, are those which succeed obstinate, ill-managed tumors, or imposthumes. These commence ulcerated *cancers*, without ever having been occult ones.

CANCER albus, the white *cancer*, is used by French writers for a white chalky recement, sometimes found adhering to the tongue, and internal parts of the mouths of children, and which, unless timely brushed away, is apt to ulcerate.

In which sense, it seems to amount to the same with APHTHÆ.

CANCER is also applied to a species of BANDAGE for the head, and divided into several parts, resembling the legs of a crab-fish.

CANCER, in the *Military Art*. See ARIES.

CANCERIFORM, *Canceriformis*, the same with *cancroides*, or *cancerous*.

Wedelius has a discourse of hard rebellious *canceriform* tumors. *Ephem. Acad. N. C.* dec. 2. an. 1. obs. 12.

CANCERINE *verses*, the same with RETROGRADE.

CANCROMA, in *Ornithology*, a genus of birds of the order of *grallæ*; having a gibbous beak, and the upper jaw in the form of a boat turned upwards. Linnæus reckons two species, the *cochlearia*, and the *cancrophaga*; the former is found in Guiana, and the latter in the Brazils.

CANDELARES, in *Botany*, an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus.

CANDELARIA, in *Botany*, a name by which some authors have called the great white MULLEIN.

CANDELARIA, in *Entomology*, is a species of insect, belonging to the genus of *fulgora*, and order of *hemiptera* in the Linnæan system. It is common in China.

CANDERROS, in the *Materia Medica*, a name of an East Indian gum, not much known among us, though sometimes imported. It has much the appearance of common amber, only that it wants its yellow colour, being white and pellucid; we sometimes see it turned into toys of various kinds, which are very light, and of a good polish. Garcias and some other authors tell us, that the people of Borneo, and some other places where camphor is produced, have the art of adulterating the crude camphor, which they send over to us, with large quantities of this gum.

CANDIDATE, a person who sets up for some post or place either of honour or profit.

The word is formed of *candidus*, *white*; on account of a white shining garment, *toga candida*, wherein those who aspired to preferments in ancient Rome were habited, at the time of their appearing for the same, especially at the public assemblies, in order to distinguish them from the crowd.

The white gown worn by *candidates* was loose and ungirded, nor was there any close garment under it, which some interpret as done with design to avoid any suspicion people might have of bribery; though Plutarch rather thinks it done to gain the affections of the people, by suing in such an humble garb; or else that such as had received wounds in the service of their country, might more easily exhibit those tokens of their courage and fidelity.

The Roman *candidates* usually declared their pretensions a year before the time of election, which was spent in making interest and gaining friends. Various arts of popularity was practised for this purpose, and frequent circuits made round the city, and visits and compliments to all sorts of persons, the process of which formed what was called *AMBITUS*.

CANDIDATI *principis*, were those who were recommended to any offices by the emperors. Also an office in the court of the emperor of Constantinople, answering to a secretary of state among us.

The *candidatus principis* was also denominated *Quæstor principis*, or *Augusti*.

CANDIDATE of baptism, in the *Ancient Church*, was called CATECHUMEN.

CANDIDATES, in the *COLLEGE of Physicians*, London, is the order of members, out of whom the fellows are chosen.

The *candidates* must be natives of England, doctors of physic, admitted to the degrees in our own universities, and ought to have practised physic four years before they are admitted into the order. The number of *candidates* is never to exceed twelve.

CANDIDATE, in *Academical Orders or Degrees*, denotes a person to whom, after full examination, and the performance of inaugural exercises, licence is granted to take up the highest or doctoral dignity when he pleases. See DEGREE, DOCTOR, LICENTIATE, &c.

CANDIDATI *militæ*, were an order of soldiers of tall stature, who served as the emperor's body-guards, to defend him in fight. They were thus denominated, because clothed in white, either that they might be the more conspicuous, and their actions more taken notice of, or because they were considered as in the way to higher preferments. Cedrenus observes, that it was the younger Gordian who instituted the *candidati*, as also the *protectores* and *scholares*. The *scholares* were chosen out of the troops, and consisted of persons who best understood the art of war; and out of these *scholares* were chosen the *candidati*, who were such as were tallest and strongest, and had most of the martial air; and were proper to inspire terror, says the *Chronicon* of Alexandria. The *protectores* were a middle order.

CANDLE, a cotton or linen wick, loosely twisted, and co-

vered with tallow, wax, or spermaceti, in a cylindrical figure; which, being lighted at the end, serves to illuminate a place in the absence of the sun.

The word *candle* comes from *candela*, and that from *candor*, of *candeo*, *I burn*; whence also the middle-age Greek *κάνδηλα*.

A tallow candle, to be good, must be half sheep's tallow and half bullock's; the fat of hogs makes them gutter, gives an ill smell, and a thick black smoke.

Tallow candles are of two kinds; the one *dipped*, the other *moulded*: the first, which are those in ordinary use, are of an old standing; the latter are said to be the invention of the fleur le Brez, at Paris. The manufacture of the two kinds is very different, excepting in what relates to melting of the tallow, and making the wick, which is the same in both.

CANDLES, *method of making*. The tallows, being weighed and mixed in their due proportion, are cut or hacked into pieces, to facilitate their melting, and thrown into a pot or boiler, having a cavity of some depth running round the top, to prevent its boiling over. Being thus perfectly melted and skimmed, a certain quantity of water is thrown in, proportioned to the quantity of tallow; this serves to precipitate the impurities of the tallow, which had escaped the skimmer, to the bottom of the vessel. The tallow, however, intended for the first three dips, must have no water; because, the dry wick, imbibing the water readily, makes the *candles* spit and crackle in the burning. The melted tallow is now emptied through a sieve into a tub, having a tap for letting it out, as occasion requires. The tallow, thus prepared, may be used after having stood three hours; and will continue fit for use twenty-four hours in summer, and fifteen in winter. For the wicks, they are made of spun cotton, which the chandlers buy in skeins; and wind off three or four together, according to the intended thickness of the wick, into bottoms, or clues, whence they are cut out with an instrument contrived for that purpose, into pieces of the length of the *candle* required; then put on the sticks, or broches, or else placed in the moulds, as the *candles* are intended to be either dipped or moulded.

CANDLES, *making of dipped*. The liquid tallow is drawn off from the tub above mentioned, into a vessel called the mould, sink, or abyss, of an angular form, perfectly like a prism, except that it is not equilateral; the side on which it opens being only ten inches high; and the others, which make its depth, fifteen. On the angle, formed by the two great sides, it is supported by two feet, and is placed on a kind of bench, in form of a trough, to catch the droppings, as the *candles* are taken out at each dip. At a convenient distance from this is seated the workman, who takes two sticks, or broches at a time, strung with the proper number of wicks, viz. sixteen, if the *candles* are to be of eight in the pound; twelve, if of six in the pound, &c. and holding them equidistant, by means of the second and third finger of each hand, which he puts between them, he immerses the wicks two or three times for their first lay, and, holding them some time over the opening of the vessel to let them drain, hangs them on a rack, where they continue to drain and grow hard. When cooled, they are dipped a second time, then a third, as before; only for the third lay they are immersed but twice, in all the rest thrice. The operation is repeated more or less times, according to the intended thickness of the *candles*. With the last dip they neck them; i. e. plunge them below that part of the wick where the other lays ended.

It must be observed, that during the operation, the tallow is stirred from time to time, and the stock supplied with fresh tallow. When the *candles* are finished, their peaked ends, or bottoms, are taken off; not with any cutting instrument, but by passing them over a kind of flat brazen plate, heated to a proper pitch by fire underneath, which melts down as much as is requisite.

CANDLES, *method of making mould*. These *candles* are made in moulds of different matters: brass, tin, and lead, are the most ordinary. Tin is the best, and lead is the worst. Each *candle* has its mould, consisting of three pieces, the neck, shaft, and foot: the *shaft* is a hollow metal cylinder, of the diameter and length of the *candle* proposed; at the extremity of this is the *neck*, which is a little metallic cavity, in form of a dome, having a moulding within side, and pierced in the middle with a hole big enough for the wick to pass through. At the other extremity is the *foot*, in form of a little tunnel, through which the liquid tallow runs into the mould. The neck is soldered to the shaft, but the foot is moveable, being applied when the wick is to be put in, and taken off again when the *candle* is cold. A little beneath the place where the foot is applied to the shaft, is a kind of string of metal, which serves to support that part of the mould, and to prevent the shaft from entering too deep in the table to be mentioned hereafter. Lastly, in the hook of the foot, is a leaf of the same metal, soldered within side, which,

advancing into the centre, serves to keep up the wick; which is here hooked on, precisely in the middle of the mould. The wick is introduced into the shaft of the mould by a piece of wire, which being thrust through the aperture of the hook, till it come out of the neck, the wick is tied to it; so that in drawing it back, the wick comes along with it, leaving only enough a-top for the neck; the other end is fastened to the hook, which thus keeps it perpendicular. The moulds, in this condition, are disposed in a table pierced full of holes, the diameter of each being about an inch: these holes receive the moulds inverted, as far as the string in the foot. Being thus placed perpendicularly, they are filled with melted tallow (prepared as before) drawn out of the tap into a tin pot, and thence poured into the foot. After the moulds have stood long enough to cool, for the tallow to have arrived at its consistence, the candle is taken out, by taking off the foot, which brings the candle along with it. Those who aim at perfection in their work, bleach or whiten their candles, by fastening them on rods or broches, and hanging them out to the dew, and earliest rays of the sun for eight or ten days: care being taken to screen them in the day-time from the too intense heat of the sun; and in the night from rain, by waxed cloths.

CANDLES, wax, are made of a cotton or flaxen wick slightly twisted, and covered with white or yellow wax. Of these there are several kinds; some called *tapers*, used to illuminate churches, and in processions, funeral ceremonies, &c. and others used on ordinary occasions.

For the first kind, their figure is conical, still diminishing from the bottom, which has a hole to receive the point in the candlestick, to the top, which ends in a point: the latter kind are cylindrical. The first are either made with a ladle, or with the hand.

CANDLES, wax, manner of making with the ladle. The wicks being twisted, and cut off at the proper length, a dozen of them are tied by the neck, at equal distances, round an iron circle, suspended directly over a large basin of copper tinned, and full of melted wax: a large ladle full of this wax is poured gently, by inclination, on the tops of the wicks, one after another; so that running down, the whole wick is thus covered; the surplus returning into the basin, where it is kept warm by a pan of coals underneath it. They thus continue to pour on the wax, till the candle arrive at its destined bigness: still observing that the three first ladles be poured on at the top of the wick, the fourth at the height of $\frac{3}{4}$, the fifth at $\frac{1}{2}$, and the sixth at $\frac{1}{4}$; by which means the candle arrives at its pyramidal form. The candles are then taken down hot, and laid aside of each other, in a feather bed folded in two, to preserve their warmth, and keep the wax soft: they are then taken and rolled, one by one, on an even table, usually of walnut-tree, with a long square instrument of box, smooth at the bottom. The candle being thus rolled and smoothed, its big end is cut off, and a conical hole is made in it.

CANDLES, wax, manner of making by the hand. The wick being disposed, as in the former, they begin to soften the wax, by working it several times in hot water, contained in a brass caldron, tinned, very narrow and deep. A piece of the wax is then taken out, and disposed, by little and little, around the wick, which is hung on a hook in the wall, by the extremity opposite to the neck; so that they begin with the big end, diminishing still, as they descend towards the neck. In other respects, the method is the same here, as in the former case; only that they are not laid in the bed, but are rolled on the table, just as they are formed. It must be observed, however, that in the former case, water is always used to moisten the several instruments to prevent the wax from sticking; and in the latter, lard, or oil of olives, for the hands, table, &c.

CANDLES, wax, cylindrical, are made either with the ladle, or drawn. The first kind are made of several threads of cotton, loosely spun, and twisted together, covered with the ladle, and rolled as the conical ones, but not pierced.

CANDLES, wax, drawn, are so called, because actually drawn in the manner of wire, by means of two large rollers, or cylinders of wood, turned by a handle, which turning backwards and forwards several times, pass the wick through melted wax, contained in a brass basin; and at the same time through the holes of an instrument, like that used for drawing wire, fastened at one side of the basin: so that, by little and little, the candle acquires any bulk, at pleasure, according to the different holes of the instrument through which it passes: by this method, may four or five hundred ells at length be drawn, running. The invention of this was brought from Venice by Pierre Blesimare, of Paris, about the middle of the last century.

The ascent of the tallow up the wick in a burning candle, may be resolved into the same principle of filtration, or attraction, as that of water up a heap of ashes, or even a capillary tube. The wick of a candle is but

slightly twisted, that all its hairs may be easily come at; which being very small, and abounding in sulphur, soon take the flame; and the flame by its heat rarefying the air, and dissolving the tallow underneath, makes the globules thereof ascend into the rarefied spaces of the wick, and these, with the air about it, prove food for the flame. The Roman candles were at first little strings dipt in pitch, or surrounded with wax; though afterwards they made them of the papyrus, covered likewise with wax; and sometimes also of rushes, by stripping off the outer rind, and only retaining the pith. For religious offices, wax candles were used; for vulgar uses, those of tallow. Serv. ad Æn. lib. i. v. 731. Plin. Nat. Hist. lib. xvii. cap. 37. Lord Bacon proposes candles of divers compositions and ingredients, as also of different sorts of wicks; with experiments of the degrees of duration, and light of each. Good housewives bury their candles in flour, or bran, which, it is said, increases their lasting, almost half.—Some speak of perpetual candles made of salamander's wood. Bac. Nat. Hist. Cent. 4. § 369. and Cent. 8. § 744.

If any chandlers mix with their wares any thing deceitfully, &c. the candles shall be forfeited. Stat. 23 Eliz. And a tax or duty is granted on candles; by 8 and 9 Anne, cap. 9. & cap. 6. made for sale, of 1d. a pound, besides the duty upon tallow, by 8 Anne, cap. 9. And by 24 Geo. III. cap. 11. an additional duty of a halfpenny a pound: and by the same an additional duty of a halfpenny a pound is laid upon all candles imported (except those of wax and spermaceti, for which see Wax-candles), subject also to the two additional 5 per cents. imposed by 19 and 22 Geo. III. besides the duty of 2½d. formerly imposed by 2 W. sess. 2. cap. 4. 8 Ann. cap. 9. and 9 Ann. cap. 6. And every maker of candles, other than wax-candles, for sale, shall annually take out a licence at 1l. In four weeks within the bills, and elsewhere in six weeks, after entry, he shall clear off the duties, on pain of double duty; nor sell any after default in payment, on pain of double value. 8 Ann. cap. 9. The makers of candles are not to use melting houses, without making a true entry, on pain of 100l. and to give notice of making candles to the excise officer for the duties; and of the number, &c. or shall forfeit 50l. stat. 11 Geo. I. cap. 30. See also 23 Geo. II. cap. 21. and 26 Geo. II. cap. 32.

No maker of candles for sale shall begin to make candles, without notice first given to the officer, unless from Sept. 29, to Mar. 25, yearly, between seven in the morning and five in the evening; and from Mar. 25, to Sept. 29, between five in the morning and seven in the evening, on pain of 10l. 10 Ann. cap. 26. The penalty of obstructing the officer, or of removing candles before they are surveyed, is 20l. 8 Ann. cap. 9. The penalty of privately making candles, is the forfeiture of the same and utensils, and 100l. 5 Geo. III. cap. 43. And the penalty of mingling weighed with unweighed candles, of removing them before they are weighed, or of concealing them, is the forfeiture of 100l. 11 Geo. cap. 30.

Candles, for which the duty hath been paid, may be exported, and the duty drawn back: but no drawback shall be allowed on the exportation of any foreign candles imported. 8 Ann. cap. 9. 23 Geo. II. cap. 21.

It is observable in Optics, that the flame of two candles joined, give a much stronger light than both of them separate. The observation was suggested by Dr. Franklin. Probably the union of the two flames produces a greater degree of heat, whereby the vapour is attenuated, and the particles of which light consists more copiously emitted. Priestley's Hist. of Vision, p. 807.

CANDLES, medicinal, candela fumales, are compositions of odoriferous, aromatic, and inflammable matters, as benzoin, storax, olibanum, turpentine, and the like, mixed up with mucilage of tragacanth, and formed into masses in shape of candles. The effluvia and odours whereof, when burnt, are supposed to be salutary to the breast, &c. Candles for caruncles of the urinary passage, are made of wax and turpentine melted, and wicks dipped into the same, till brought to the due thickness; then smeared over with an unguent of cerufs, and precipitate and butter of antimony, to be thrust up the yard till they reach the caruncula. See BOUGIE.

CANDLE-tree, in the West Indies, a tree of whose fruit, boiled to a thick fat consistence, are made good candles. It seems to be the same as the candle-berry tree.

CANDLE-berry-tree, Myrica, in Botany, a denomination of an aromatic evergreen, from whose berries are drawn, by boiling, a green wax, of which candles are made. It is also called the Virginia myrtle. It is a genus of the dioecia tetrandria class. Its characters are these: the male flowers are upon different plants from the female; and are produced in a loose, oblong, oval catkin, imbricated on every side; under each scale is situated one moon-shaped flower, having no petal, but it hath four or six short slender stamina, terminated by large twin summits, whose lobes are bifid; the female flowers have neither

petal nor stamina, but an oval germen supporting two slender styles, crowned by single stigmas. The germen afterward becomes a berry with one cell, enclosing a single seed. There are several species.

The first sort grows naturally upon bogs in many parts of England, particularly in the northern and western countries; as also in Windsor Park, and near Tunbridge Wells. This rises with many shrubby stalks; near four feet high, which divide into several slender branches, garnished with stiff spear-shaped leaves of a light green, smooth, and a little sawed at their points; emitting a fragrant odour when bruised.

Most of the other sorts grow naturally in North America, where, as is before observed, the inhabitants get a sort of green wax from the berries, which they make into candles. The method is described by Mr. Catesby, in his Natural History of Carolina.

CANDLE-wood, slips of pine about the thickness of the finger, used in New England, and other colonies, to burn instead of candles, giving a very good light.

The French inhabitants of the island of Tortuga use slips of yellow santal wood for the same purpose, and under the same denomination of *bois de chandelle*, which yields a clear flame, though of a green colour.

CANDLE, *sale or auction by inch of*. See **INCH of Candle**. There is also a kind of *Excommunication by inch of CANDLE*; wherein the time a lighted candle continues burning is allowed the sinner to come to repentance; but after which he remains excommunicated to all intents and purposes.

CANDLEMAS, a feast of the church, held on the second or February, in memory of the Purification of the Blessed Virgin.

It takes its name either from the the number of lighted candles used by the Romish Church, in the processions of this day; or because, before *mas*, the church consecrated candles for the whole year. This ceremony was prohibited in England, by an order of the council in 1548.

Candlemas is also called, in ancient writers, *Hypapante*: and among moderns, the *Purification*.

Some will have this feast to have been instituted by pope Gelasius, in lieu of the heathen luperalia; and that procession was thereon made with lighted candles round the fields and grounds, by way of exorcism. Hence Bede says, "It is happy for the church to have changed the lustrations of the heathens, held in the month of February, around the fields, for the processions with hallowed candles, in remembrance of that divine light wherewith Christ illuminated the world, whence he was styled by Simeon, a *light to lighten the Gentiles*." Others ascribe the origin of *Candlemas* to pope Vigilius, in the year 536, and suppose it instituted for the feast of Proserpine, held with burning tapers by the heathens in the beginning of February.

CANDLESTICK, a household utensil, contrived to hold one or more lighted candles. Larger and more stately candlesticks, contrived for holding a great number of candles, are called *branches*, and *girandoles*; and when made of glass, *lustres*.

The golden candlestick was the richest utensil in the Jewish tabernacle. It was made of solid gold, and weighed a talent; and, according to Cumberland, the value of it, exclusive of the workmanship, was 5076 pounds. It contained seven lights, six branching out in three parts from the upright stem, and one on the top of it.

This sacred utensil was, after the Babylonish captivity, placed in the Temple; and when the Temple was destroyed, it was deposited in the Temple of Peace, built by Vespasian; and the representation of it still remains on the triumphal arch, at the foot of mount Palatine, on which Vespasian's triumph is delineated.

CANDLESTICK, *water*, a kind of jet or fountain raised on a foot which supports a little basin resembling the disk of a candlestick, down which the water falls into another larger basin.

CANDO, **CUNDI**, or **CONDI**, in *Commerce*, a long measure used in several parts of the East Indies, particularly at Goa, the capital of the Portuguese settlements there. Silk and woollen stuffs are measured by the *varre*, and linen by the *cando*. The *cando* used in Pegu is equal to the Venetian ell.

CANDOU, in *Botany*; *Purchasii*, *Jonst. Dendrol. Arbor Maldivensis*, a tree much like the cork-tree, and of the height of the walnut-tree. The trunk is fungous, and lighter than cork; the bark whitish, and it bears no fruit.

CANDY, in speaking of **SUGAR**, denotes a preparation of that substance, made by melting, and crystallizing it six or seven times over, to render it hard and transparent.

CANDYING makes an operation in *Pharmacy*, as well as confectionary: those simples which are preserved in substance by boiling in sugar being said to be *candied*: though the performance of it is now transferred to the confec-

tioner from the apothecary, to whom it originally belonged.

CANDY carrot. See **SPIGNEL**.

CANDY tuff-tree. See **IBERIS**.

CANDY lion's foot. See *Candia* **LION's foot**.

CANE, in *Commerce*, the same with reed, called among botanists **ARUNDO**. See **BAMBOE** and **REED**.

Canes make a considerable article in commerce. There are imported two sorts; viz. *walking* and *rattan canes*.

CANES, *walking*, are said by Bradley to be joints of the roots of a sort of reed, called *canna Indica*. This plant shoots in joints of about three or four feet long, near the surface of the ground, and at every knot produces great numbers of fibres, by which it receives its nourishment. The joints are made straight by the fire, which occasions those shades or clouds frequently seen in them. Bradley thinks the *cane-tree* might be propagated here by planting some of the roots with their knots in artificial bogs, &c.

Canes may be stained like tortoise shell, by a mixture of aqua fortis and oil of vitriol laid on them at several times over live coals, to cause it to penetrate the deeper, and afterwards giving them a gloss with a little soft wax, and a dry cloth. Boyle.

CANES, *rattan*, are a smaller sort brought from China and Japan, very tough; which being split, are used for making of cane chairs. They are the produce of a reed called *rattang Malabarica minor*, or lesser rattan. These when dry, being struck against each other, will give fire, and are used accordingly in some places in lieu of flint and steel. Being twisted together they make cordage of them. The Chinese and Japanese vessels are said to have their cables made of them, which are less liable to rot in the water than hemp. Phil. Trans. N° 244. p. 326. and N° 267. p. 717.

CANE, *sugar*. See **SUGAR-cane**.

CANE, *dumb*. See **WAKE-robin**.

CANE, *fishing-rod*. See **REED**.

CANE, *Indian*. See **CANNA**.

CANE-apple, in *Natural History*, a name given by the common people of Ireland to the *arbutus*, or strawberry-tree. See **ARBUTUS**.

CANE, **CANNA**, a long measure, frequent in Italy, Spain, and the south parts of France; of greater or less length, according to the places where it is used.

At Naples, the *canna* is equal to seven feet 3½ inches, English measure; the *canna* of Thoulouse, and the Upper Languedoc, is equal to the *vara* of Arragon, and contains five feet 8½ inches; at Montpellier, in Provence, Dauphiné, and the Lower Languedoc, to six English feet 5½ inches.

CANELLA alba, in *Botany*, the same with what is otherwise called *CORTÈX Winteranus*.

CANENTES, in *Natural History*, a name used by some of the older writers for a species of fossil shell not known to us in its recent state, but described by Klein under the name of the *tubulus marinus concameratus*, and by other of the late authors under those of *polythalamium* and *orthoceratites*.

CANEPHORÆ, *Kανφοροι*, from *καννς*, a reed, and *φορος*, I bear, in *Antiquity*, were two virgins of quality at Athens kept in Minerva's temple in the Acropolis, who, at the feast of the Panathenæa, carried baskets on their heads with something secret or mysterious therein, and delivered to them by the priests.

The baskets were usually crowned with flowers, myrtles, &c.—The *Canephoræ*, in these ceremonies, always marched the first, the priest next, and the choir of music followed.

The learned are at variance about the contents of the baskets borne by the *Canephoræ*. Some will have it, that neither they, nor the priests herself, knew what was in them. Others conjecture that they contained the things necessary for sacrifice, &c.

There were also *Canephoræ* in the ceremonies of Ceres and Bacchus. Those in the Bacchanalia carried golden baskets, in which were divers sorts of first fruits, &c. Among ancient monuments, we find mention of divers figures of *Canephoræ*. In that famous cornelian called Michael Angelo's ring, there are three *Canephoræ* with their baskets on their heads.

The appellation *Canephoræ* was also given to virgins at Athens, when becoming marriageable, they presented certain baskets full of little curiosities to Diana, in order to procure leave to quit her train, and change their state of life.

CANEPHORIA was a ceremony, which made part of a feast celebrated by the Athenian virgins on the eve of their marriage day. The *Canephoria*, as practised at Athens, consisted in this; that the maid, conducted by her father and mother, went to the temple of Minerva; carrying with her a basket full of presents, to engage the goddess to make the marriage happy; or rather, as the

scholiast of Theocritus has it, the basket was intended as a kind of honourable amends made to that goddess, the protectress of virginity, for abandoning her party; or it was a ceremony to appease her wrath.

CANES, in Egypt and other eastern countries, a poor sort of building for the reception of strangers and travellers. People are accommodated in these with a room at a small price, but with no other necessities; so that, excepting the room there are no greater accommodations in these houses than in the deserts, but that there is a market near.

CANES Venatici, in *Astronomy*, the *Grey-hounds*, two new constellations, first established by Hevelius, between the tail of the Great Bear, and Bootes' arm, above the Coma Berenices. The first is called *Asterion*, being that next the Bear's tail; the other *Chara*. They comprehend 23 stars, of which Tycho only observed two.—The longitudes and latitudes of each are given by Hevelius.

In the British Catalogue they are 25. See the following table.

Situations of the stars.	Signs.	Longitud.	Latitude.	Magnitude.
	m	0 1 26 48 46 37	0 46 37	6
In the left fore-foot of <i>Chara</i> .		10 6 58 38 14 50	5 50	5
		4 51 40 45 37 30	6 30	6
		10 28 15 40 35 50	6 50	6
		3 28 28 48 6 27	6 27	6
5. Under the head of <i>Chara</i> , next to the cheek.		3 13 4 37 45 58	5 58	5
		4 40 42 48 40 20	7 20	7
In the fore-head of <i>Chara</i> , un- der the tail of <i>Ursa Major</i> .		13 26 0 40 33 24.5	4.5	
		4 44 48 40 37 30	6.7	
		17 11 33 39 51 30	6 30	6
10 Under the tail of the Bear.		0 59 54 47 56 40	6 40	6
		20 13 22 40 7 18	2.3	
In the back of <i>Chara</i> .		25 43 4 33 56 36	4.5	
		23 59 56 39 0 21	5 21	5
		23 7 40 41 40 15	6.5	
15.		23 4 40 41 51 44	6 44	6
		23 13 58 41 40 35	6 35	6
		21 42 17 43 40 35	6 35	6
		22 47 38 44 14 12	7 12	7
		23 27 40 44 12 24	6 24	6
20.		15 54 2 51 47 16	6 16	6
		Unknown Unknown	6	
		24 24 5 44 7 2	7 2	7
		20 1 0 52 52 0	5.6	
		23 3 25 50 51 40	5 40	5

CANGA, in the *Chinese Affairs*, a wooden clog, borne on the neck, by way of punishment for divers offences.

The *canga* is composed of two pieces of wood notched, to receive the criminal's neck; the load lies on his shoulders, and is more or less heavy according to the quality of his offence. Some *cangas* weigh 200 pounds; the generality from 50 to 60 pounds. The mandarins condemn to the *canga*. Sentence of death is sometimes commuted for by the penalty of the *canga*.

CANI, *grotto del*. See *GROTTO del Cani*.

CANIA, in *Botany*, a name given by Pliny, and some other authors, to the common stinging nettle.

CANICULA, in *Zoology*, the name by which Aristotle and since him Rondeletius, Aldrovandus, and some others, have called the *CATULUS*.

CANICULA was also used by Pliny, and the old Romans, for that fish which the Italians express by the same sort of diminutive name, at this time the *lamiola*. It is the *galeus CANIS* of authors, the fish we in Cornwall call the *tape*. It is a species of *SQUALUS*, called by Artdi the *squalus* with the nostrils placed near the mouth, and with small foramina near the eyes.

CANICULA is a name given to one of the stars of the constellation *CANIS Major* called also simply the *Dog-star*; by the Greeks, *Σείριος*, *Sirius*.

Pliny and Galen also give the appellation *Procyon* to the *Canicula*; though, in propriety, *Procyon* is the name of another star, in the Lesser Dog.

Canicula is the tenth in order in the Britannic Catalogue; in Tycho's and Ptolemy's it is the second. It is situated in the mouth of the constellation, and is of the first magnitude; being the largest, and brightest of all the stars in the heavens. Its longitude, latitude, &c. see among those of the other stars of *CANIS major*.

From the rising of this star, that is, its emergence from the sun's rays, which now happens about the twenty-sixth day of August, the ancients reckoned their *dies caniculares*, or dog-days.

The Egyptians and Ethiopians began their year at the rising of *Canicula*; reckoning to its rise again the next year which is called the *Annus Canarius*.

CANICULAR days, properly denote a certain number of days, preceding and ensuing the heliacal rising of *Canicula*, or the Dog-star, in the morning.

Some authors tell us, from Hippocrates and Pliny, that the day the *Canicula* rises, the sea boils, wine turns sour, dogs begin to grow mad, the bile increases and irritates, and all animals grow languid; and that the diseases ordinarily occasioned in men by it, are burning fevers, dysenteries, and phrensies.

The Romans sacrificed a brown dog every year to *Canicula* at its rising, to appease its rage. They supposed *Canicula* to be the occasion of the sultry weather, usually felt in the dog-days; Homer's *Il. lib. xxii. v. 22.* but by mistake: in five or six thousand years more, *Canicula* may chance to be charged with bringing frost and snow; for it will rise in November or December: and he actually rises with the sun on different days, in different horizons.

However, the almanac-makers usually mark the beginning of the *canicular* days about the 30th of July, and their end about the 7th of September.

CANICULAR year, denotes the Egyptian natural year, which was computed from one heliacal rising of *Canicula* to the next.

This is also called *annus canarius*, and *annus cynicus*; by the Egyptians themselves the *Sothic year*, from *Soth*, a denomination given by them to *Sirius*. Some also call it the *heliacal year*.

The *canicular* year consisted ordinarily of 365 days, and every fourth year of 366 days, by which it was accommodated to the civil year. The reason of that choice of *canicula* before the other stars, to compute their time by, was not only the superior brightness of that star, but because its heliacal rising was in Egypt a time of singular note, as falling on the greatest augmentation of the Nile, the reputed father of Egypt. Ephestion adds, that from the aspect of *Canicula*, its habit and colour, the Egyptians drew prognostics concerning the rise of the Nile; and, according to Florus, predicted the future state of the year. So that the first rising of this star was yearly observed with great attention. Bainbrigge, *Canicul. cap. 4. p. 26.*

CANICULUM, or CANICULUS, in the *Byzantine Antiquities*, a golden standish, or ink-vessel, decorated with precious stones, wherein was kept the sacred *encaustum*, or red ink, wherewith the emperors signed their decrees, letters, &c.

The word is by some derived from *canis* or *caniculus*; alluding to the figure of a dog, which it represented; or rather because it was supported by the figures of dogs. By Salmasius from *navon*, an *inkhorn*.

The *caniculum* was under the care of a particular officer of state, hence called *caniclinus* or *canicleus*, who was in great request. Du-Cange will have the *caniclinus* to have been the same with the *LOGOTHETA*.

CANICUM, in *Botany*, a name given by Avicenna, and some other authors, to the small celandine, or *PILEWORT*.

CANINA lappa, in *Botany*, a name given by some of the old Roman authors to the fruit of the asarine or goose-grass. They are called by others *lappæ boariæ*, and *lappæ canariæ*, and the plant *lappa* and *lappago*. See *CLEAVERS*.

CANINANA in *Zoology*, the name of a species of serpent found in America, and esteemed one of the less poisonous kinds. It grows to about two feet long, and is green on the back, and yellow on the belly. It feeds on eggs and small birds; the natives cut off its head and tail, and eat the body as a delicate dish. Ray.

CANINE, in a general sense, something that relates to dogs. Dr. Douglas gives frequent comparisons between the *canine* muscles and the human.

The voice of persons seized with the *hydrophobia*, is frequently uttered with a *canine* hoarseness, and bears some resemblance to the barking of a dog. Dr. Lister accounts for the cynical appearances in the *hydrophobia* from a supposition, that the patient has undergone somewhat of a transformation into the *canine* nature, or that certain of the organical parts of his body, especially the *gula*, tongue, &c. are disposed after the manner of a dog. Phil. Trans. N^o 207, and N^o 147.

CANINE appetite, *appetentia*, or *fames canina*, amounts to much the same with *bulimia*, though the more exact writers make a distinction between the two. See *BULIMY*.

We have a late surprising instance of the *canine* appetite mentioned in the *Philosophical Transactions*, N^o 476. p. 366, &c. seq. and p. 381.

CANINE laughter, *risus caninus*, that wherein the lips are drawn far back, and the mouth much extended.

CANINE ligament, is that whereby the prepuce of the human PENIS is fastened to the *glans*, otherwise called the *FRÆNUM*.

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CANINE *madness, rabies canina*, is usually supposed the same with **HYDROPHOBIA**, though some distinguish, applying the former denomination where the patient raves, or has lost all the use of reason; the latter where he still retains his reasoning faculty, only his members are subject to certain involuntary convulsive motions, as those of an epileptic or aguish person. See **MANIA**.

The *rabies-canina* is never without the *hydrophobia*, but the latter frequently without the former.

CANINE sulphur, a sort of native **SULPHUR**, discovered near Reggio, intermixed with earthy or stony matters; thus called by reason that dogs are so fond of it, as to dig it out of the earth.

CANINE teeth, **CANINI dentes**. See **TEETH**.

CANINUS musculus, the same as **ELEVATOR labii superioris**.

CANINUS serpens, in **Zoology**, a name given by some writers to the *mauballa* of the Ceylonese, a snake that flies at every thing that comes in its way, in the manner of our dogs.

CANIS, *dog*, in the Linnæan system of **Zoology**, makes a distinct, but very large genus of animals, of the order of *feræ*, and the class of *mammalia*, taking in all the dog-kind, which this author only accounts so many varieties, and other distinct species. The characters of this genus are that the several species of it have six upper fore-teeth; that the lateral ones are longer than the others; the intermediate ones of a lobated figure. There are also six fore-teeth in the lower-jaw, of which the lateral ones are lobated; the canine teeth are single and incurvated; the grinders are six or seven in number.

The species are the common **DOG**, the **WOLF**, the **HYÆNA**, the **FOX**, the **ALOPEX**, the **LAGOPUS**, the **JACKALL**, or *lupus aureus*, the *Mexican DOG*, or *American mountain cat*, with a tail bent downwards, and an ash-coloured body, variegated with brown and yellow spots; and the **THOUS**.

CANIS Major, the *Great Dog*, in **Astronomy**, a constellation of the southern hemisphere, below Orion's feet, though somewhat to the westward of him; whose stars Ptolemy makes 29; Tycho only observed 13; Hevelius 51; in the Britannic Catalogue they are 31. Their order, names, places, longitude, magnitude, &c. are as follow.

Names and situations of the stars.	Signs.	Longitud.	Latitude.	Magnitude.
In the preced. posterior foot	♌	3 7 45	3 24 24	3
In the extrem. of the anterior foot	♌	2 52 48	4 17 47	2
Inform. under the posterior foot	♌	4 12 39	5 44 8	4
Preced. of two in the lower knee	♌	6 20 54	4 36 17	5
Subseq. and south of the same	♌	7 21 25	4 5 36	5
5.				
South. in the upper knee	♌	7 16 48	4 46 23	5
North. in the same knee	♌	7 25 41	4 21 25	5
Exceeding bright one in mouth <i>Sirius</i>	♌	7 41 57	4 19 24	5
In the ham of the right leg	♌	9 49 13	3 32 8	1
10.				
South and preced. in the breast	♌	12 12 14	5 53 55	0
In the lower leg	♌	9 59 38	3 19 38	5
In the north ear	♌	10 57 24	3 53 19	6
Preced. of the contig. in the breast	♌	14 5 36	5 12 5	4
15.				
Preced. of two in the shoulder	♌	11 52 53	3 44 34	5
South. of the contig. in the breast	♌	12 55 44	5 53 33	6
In the head	♌	13 50 34	4 48 52	5
Third of those following in breast	♌	13 25 49	3 3 24	6
South. in the neck	♌	12 44 29	3 41 50	4
20.				
Bright one under belly, between thighs	♌	13 34 29	4 46 32	6
North. of two in the neck	♌	13 13 37	3 42 0	4
Subseq. of two in the shoulder	♌	16 24 46	5 1 23	5
Bright one in middle of the body	♌	17 12 31	5 0 16	0
25.				
North. of two in the neck	♌	15 17 41	3 1 50	3
Subseq. of two in the shoulder	♌	16 41 25	4 10 13	5
Bright one in middle of the body	♌	19 3 30	4 29 37	2
30.				
Bright one in the tail	♌	20 12 26	4 47 53	7
		20 59 52	4 48 12	38
		21 18 34	4 48 36	51
		21 56 10	4 46 15	37
		22 3 25	4 46 38	30
		25 12 16	5 0 38	56

CANIS Minor, the *Little Dog*, in **Astronomy**, a constellation of the northern hemisphere; called also by the Greeks, *Procyon*, and by the Latins *Antecanis* and *Canicula*.

The stars in the constellation *Canis Minor*, are in Ptolemy's Catalogue 2; in Tycho's 5; in Hevelius's 13. Their order, names, places, longitude, latitude, magnitude, &c. in the British Catalogue, which contains 14, are as follow.

Names and situations of the stars.	Signs.	Longitud.	Latitude.	Magnitude.
In the head	♌	16 48 31	0 16 12	6.7
North. in the neck	♌	17 19 58	12 36 42	6
South. in the neck	♌	17 51 52	3 31 30	3
Under these as in the shoulder	♌	18 1 23	12 51 51	6
5.				
Informis, over the neck	♌	18 18 14	14 49 14	6
North. against preced. post. foot	♌	17 56 31	9 45 18	6
Middle	♌	20 10 40	19 37 58	6
South	♌	20 14 7	18 13 51	6
In the thigh, <i>Procyon</i>	♌	20 28 33	18 6 22	6
10.				
Informis, towards the tail	♌	21 30 31	15 57 55	1.2
In the hind leg	♌	21 56 22	10 20 15	6
		23 22 23	8 15 17	5.6
		25 19 47	18 53 0	5
		26 57 30	18 6 10	6

CANIS carcharias, in **Natural History**, a name given by Rondeletius, and other authors, to that species of shark called the *lamia*, or white shark by others, or *carcharias lamia*, &c. See *Tab. of Fishes*, N^o 3.

CANIS galeus, in **Ichthyology**, the name of a large fish, of the shark kind. It has three rows of extremely sharp teeth; the eyes are small for the size of the fish, the pupils are proportionably small, and the iris of a fine bright silver colour, with a cast of blue or green. It is brought to market in Rome, and is sometimes caught also on our own coasts, as about Penzance in Cornwall. It is extremely fond of human flesh, and will venture to leap up even upon the shore for it.

CANIS volans, in **Zoology**, the name of an animal properly of the bat or *vespertilio* kind, and distinguished by Linnæus by the name of *vespertilio cauda nulla*, the bat without a tail.

CANKER, sometimes denotes a speck made by a sharp humour, which gnaws the flesh almost like a caustic; very common to children, in their mouth especially.

CANKER seems also popularly used for a **GANGRENE**, or beginning of mortification.

CANKER is also a disease in dogs, which seizes their ears.

CANKER, in hawks, breeds in the throat and tongue, occasioned by foul feeding. It is cured by washing the mouth with honey and white wine boiled together, then strewing it with chervil-powder.

CANKER, in horses, is a loathsome forrance, which if it continue long uncured, so festers and putrifies the part, that it will eat to the very bone: and if it happens to come upon the tongue, will cut it asunder; lighting upon the nose, it devours the gristle through.

CANKER, in trees, a term used by our farmers to express a wound or blemish in the trunk of a tree, which does not heal up by nature, but will increase and damage, if not endanger, the whole tree. These wounds are sometimes occasioned by accidents, as blows, or by the branches of one tree galling another by the motion they are put into by the winds; if this latter be the case, the offending branch must be cut off, or drawn another way or else all remedies are vain.

The wound must be cut and enlarged every way to the quick, and all the decayed wood must be taken clean out; then the whole internal surface of the wood must be filled up with tar mingled with oil, and after this it must be filled up with clay and horse-dung mixed together, or with horse-dung alone, which many esteem best of all. In this case the dung must be bound over with a rag; hog's-dung is by many preferred to horse dung for this purpose; and it is proper to add to this application the keeping of the roots cool and moist, by laying fern and nettles about them. If the *canker* be only in one of the boughs of the tree, the short way is to cut off the bough at once. If that be a large one, it should be cut off at some distance from the body of the tree; but if a small one, it should be cut off close. The adding a coat of dung, and pond or river mud, about the roots of trees, if they are subject to this from their standing in a dry barren land, as is often the case, is a very good cure. See **BARK**, and **DISEASES of Plants**.

CANKER-worm. See **SCARABÆUS**.

CANNA, in **Botany**, *Indian CANE*, a flowering-reed, a genus of the *monandria monogynia* class. Its characters are these: the flower hath one petal, which is divided into six parts; the three upper segments are erect, and broader than the lower, two of which are erect, and the other turns back, and is twisted. It hath one spear-shaped stamen, rising as high as the petal, having the appearance of a segment; below the empalement is situated a roundish, rough germen; which becomes an oblong, roundish, membranaceous capsule, having three longitudinal furrows, crowned by the empalement, which hath

bath three cells, filled with round smooth seeds. There are three species.

All the forts are propagated by seeds, which should be sown on a hot-bed in the spring; and when the plants are fit to remove, they should be transplanted into separate small pots, and plunged in a moderate hot-bed or tanner's bark.

CANNA, in the *Ancient Pharmacy* and *Botany*, denoted the *calamus aromaticus*, or, according to others, *cassia fistula*.

CANNA also denotes a sort of long measure, otherwise called by modern authors a CANE, by the Latins *calamus*, and in Scripture a reed.

CANNABINA, in *Botany*. See *Bastard HEMP*.

CANNABIS. See *HEMP*.

CANNACORUS, in *Botany*. See *CANNA*.

CANNEL-coal, a black bituminous fossil, frequent in Staffordshire and Lancashire, of a fine hard texture, so as to receive a polish, and become of service for divers works instead of ivory, but chiefly used for fuel, as affording a brighter and purer flame than the common sea-coal.

Dr. Woodward takes our *cannel-coal* to be the same with the *Lapis AMPELITES* of the ancients, and the *lapis OBSIDIANUS* of some latter writers.

Cannel-coal, or, as some call it, *canal-coal*, is also found in Cumberland, and some other counties of the North.—It is of so close a texture, that it will take a tolerable polish. The choir of the cathedral of Litchfield is said to be in a great measure paved with *canal coal* for the black, and alabaster for the white, which, when clean, resembles marble. It also turns like ivory into many pretty works, as ink-standishes, salts, candlesticks, &c.

In disposing it for fire, regard is had to the grain. If they would have it burn slow, they lay it flatwise on the fire; if clear, they set it edgewise, in which case it burns as light as a candle.

CANNEQUINS, in *Commerce*, white cotton cloths brought from the East Indies. They are a proper commodity for trading on the coast of Guinea, particularly about the rivers Senegal and Gambia. These linens are folded square wise, and are about eight ells long.

CANNEVAROLA, in *Ornithology*, a name by which Aldrovandus, and some other authors, have called the lesser reed SPARROW, called by others *ficudula cannabina*, and, by Mr. Ray, *passer arundinaceus minor*.

CANNIBAL, or CANIBAL, is used by modern writers for an ANTHROPOPHAGUS, or man-eater, more especially of the West Indies.

CANNOCK, or CANNOT-stone, a base sort of iron ore, in the Staffordshire mines, of which the worst metal is made.

CANNON, in *War*, a military engine for throwing iron, lead, or stone bullets, by force of gunpowder, to a place directly opposite to the axis of the cylinder whereof it consists. See *Tab. Gunnery*, fig. 1.

The word seems derived from the Italian *cannone*, an augmentation of *canna*, *cane*; because a cannon is long, straight, and hollow, like a cane.

The first cannons were called *bombardæ*, from *bombus*, by reason of their noise. They were constructed of several pieces of iron adapted to each other lengthways, and hooped with iron rings, and employed in throwing stone bullets of a prodigious weight; accordingly their bore was enormously large, and they were very inconvenient for use. The parts and proportions of a cannon about eleven feet long, are its barrel, or cavity, nine feet; its fulcrum, or support, fourteen, and its axis seven; the bore, or diameter of the mouth, six inches, and two lines the play of the ball; the diameter of the ball therefore six inches, and its weight thirty-three pounds $\frac{1}{2}$. In present practice, the diameter of a shot is divided into twenty equal parts, and that of the bore is twenty-one of these parts: the French use the proportion of twenty-six to twenty-seven; and Mr. Muller recommends a kind of medium between both; or that of twenty-four to twenty-five. The metal thick about the mouth two inches, and at the breech six. It weighs about five thousand six hundred pounds: its charge is from eighteen to twenty pounds. It carries, point-blank, six hundred paces; and loads ten times in an hour, sometimes fifteen; in a day one hundred and twenty times. Its bed fifteen feet broad, and twenty long, for the rebound. It requires twenty horses to draw it. See *CALIBRE*, *GUN*, and *WINDAGE*.

Larrey makes brass cannon the invention of J. Owen; and says, the first known in England, were in 1535; and iron cannon was first cast in England in 1547. Cannons, however, he owns, were known before; and observes, that at the battle of Cressy, in 1346, there were five pieces of cannon in the English army, which were the first that had been seen in France. Mezeray also says, that king Edward struck terror into the French army by five or six pieces of cannon; it being the first time they had seen such thundering machines.

In the list of aids raised for the redemption of king John of France, in 1368, mention is made of an officer in the French army, called *master of the king's cannons*, and of his

providing four great cannons for the garrison of Harfleur. Father Daniel (dans la Vie de Philip V. dit de Valois. tom. ii.) produces a proof from the records of the chamber of accounts at Paris, that cannon and gunpowder were used in the year 1338.

Du-Cange even finds mention of the same engines in Froisart, and other French historians some time earlier. The Germans carry the invention of cannon farther back, and attribute it to Albertus Magnus, a Dominican monk, about the year 1250. Isaac Voßius rejects all these conjectures, and finds cannons in China almost seventeen hundred years ago. According to him they were mounted by the emperor Kitey, in the year of Christ 85. The ancients had their fiery tubes, or *cannæ*, which being loaden with pitch, stones, and iron-balls, were exploded with a vehement noise, smoke, and great effect, though much inferior to our bombs.

Cannons are made cylindrical, that the motion of the ball may not be retarded in its passage; and that the powder, when on fire, may not slip between the ball and the surface of the cannon, which would hinder its effect. Wolfius would have the cannon always decrease towards the mouth or orifice; because the force of the powder always decreases, in proportion to the space through which it is expanded. The cannons made after the Spanish manner had a cavity or chamber, at the bottom of the barrel, which helped their effects. But the cannons are now made with a plain cylindrical bore without any CHAMBER. A cannon is found to recoil two or three paces after explosion; which some account for from the air's rushing violently into the cavity, as soon as it is discharged of the ball; but the real cause is, the powder's acting equally on the breech of the cannon, and the ball. For a battering-piece, whose ball is thirty-six pounds, there must be two cannoneers, three chargers, and thirty pioneers. Cannons are distinguished from the diameters of the balls they carry; but this distinction is different in different nations. The proportion of their length to their diameter, depends rather on experience than any reasoning *a priori*; and has been accordingly various, in various times and places; the rule is, that the gun be of such a length as that the whole charge of powder be on fire before the ball quit the piece. If it be made too long, the quantity of air to be driven out before the ball, will give too much resistance to the impulse; and that impulse ceasing, the friction of the ball against the surface of the piece will take off some of its motion. Formerly cannons were made much longer than at present; till some made by chance $2\frac{1}{2}$ feet shorter than ordinary, taught them that the ball moves with a greater impetus through a less space than a larger. This Gustavus king of Sweden proved by experience in 1624, when an iron-ball, forty-eight pounds weight, was found to go farther from a new short cannon, than another ball of ninety-six pounds out of an old, longer piece: whereas in other respects, it is certain the larger the bore and ball, the greater the range. Professor Euler apprehends, that the alteration in the length of cannon has not been supported by proper experiments; so that we may be allowed to infer, that those of the present construction will throw a shot with a greater velocity than the longer cannon did. And he is of opinion, that the principal reason for laying aside the use of very long and heavy cannon was the great difficulty of transporting them from place to place with an army. Principles of Gunnery investigated, &c. p. 246. See also on this subject, Robins's Tracts, vol. i. p. 248, &c. The names of the several cannons, their length, their weight, and that of their balls, as they obtain among us, are as in the following table; though their names are generally derived, especially in naval use, from the weight of the ball which they discharge: thus a piece that discharges a ball of twenty-four pounds, is called a twenty-four pounder, &c.

Names of Cannon.	Weight of an iron ball.	Weight of the Cannon.	Length of the Cannon.
Cannon Royal	48 lb.	8000 lb.	12 Feet
Demi-cannon large	36	6000	12
Demi-cannon ordinary	32	5600	12
Demi cannon least	30	5400	11
Culverin largest	20	4800	12
Culverin ordinary	17 lb. 5 oz.	4500	12
Culverin least	15	4000	11
Demi-culverin ordinary	10 11	2700	11
Demi-culverin least	9	2000	10
Saker ordinary	6	1500	10
Saker least	4 12	1400	8
Minion largest	3 12	1000	8
Minion ordinary	3 4	800	7
Falcon	2 8	750	7
Falconet	1 5	400	6
Rabiet	8	300	5.6 Dig.
Base	5	200	4.6

Cannon Royal is otherwise called *Cannon of Eight*.

The velocity of a ball or bullet, discharged from a *cannon*, was formerly supposed to be only about 500 or 600 feet in a second of time. See **BULLET**. But Mr. Robins, Muller, and others, have since found, that it is much greater; or from 1000, even to 2000 feet, according to the length of the piece, the charge, and the weight of the bullet. See **GUNNERY** and **VELOCITY**.

The greatest range of a *cannon* is ordinarily fixed at an elevation of 45° . Dr. Halley shews it to be at $44\frac{1}{2}$.

It should be remarked, that this range supposes the initial velocity to be very small, because every different velocity and ball require a different elevation to produce the greatest range; from 45° downwards gradually to 30° , or even less in very great velocities. See **VELOCITY** initial.

M. S. Julian adjusts the ranges of the several pieces of *cannon*, from the weight of the ball they bear, the charge of gunpowder being always supposed in a subduple ratio of the weight of the ball, thus,

Weight of a leaden ball	Horizon- tal range	Greatest range.	Weight of a leaden ball.	Horizon- tal range.	Greatest range.
33 <i>lib.</i>	600 <i>paces.</i>	6000	12	450	5000
24	700	6000	8	400	1500
16	800	8000	2	150	1500

For the proportions of the lengths of guns, weight of ball, and ranges, deduced from later experiments and conclusions, see **GUN**.

For the several parts of a *Cannon*, see **ASTRAGAL**, **BASE-RING**, **BREECH**, **CALIBER**, **CASCABEL**, **CHASE**, **MUZZLE**, **Ogee**, **REINFORCED ring**, **TRUNNIONS**, &c. See also **GUN** and **GUNNERY**.

CANNON, *boring of*, has lately been used instead of the method of casting them hollow by means of a mould. The machine for this purpose, as well as for smoothing the inner surface, which is sometimes done after they have been cast hollow, is composed of a rectangular frame of timber, ABCD (see *Tab. Gunnery, fig. 3.*) fixed upon a solid plank EE, which is raised eight or ten feet above the floor of the workshop. This frame contains two upright beams Ff, Ff, placed level and exactly parallel to each other, and strongly fixed on the pieces of wood, G, G, with their ends resting on the cross-bars, that connect the sides of the frame. Their length should be about three times that of the *cannon* to be bored. In the inner side of these beams are two grooves, to which are applied two bars of wood 22, 22, which are connected together by the traverse pieces 33, 33, between which the *cannon* H is fastened, so that the whole inclosed frame 22, 22, with the piece of ordnance fixed to it, may slide in the grooves of the beams Ff, Ff being raised or lowered by means of the ropes and pullies Kk, Kk, fixed above to the upper part of the frame, and below to the breech of the *cannon*. The rope belonging to each block of pullies coils round an axis, Y, Y, bearing at each end the cogged wheels M, M. Each of these wheels lays hold of a trundle NN, containing the same number of rounds, the trundles are fixed on a common axis Z, Z, the ends of which pass beyond the sides of the frame, and bear spoked wheels oP, oP, by means of which the workmen turn the whole machine; and thus elevate or depress the *cannon*, with the frame to which it is annexed, at pleasure. On the floor of the workshop, directly under the frame Ff, Ff, a block of stone is fastened in the ground; and this supports a plate of iron or copper, placed exactly level and under a line supposed to be parallel to the beams Ff, Ff, dividing the space between them on either side into equal parts, and coinciding with the true axis of the *cannon*.

The instrument for boring is represented in *fig. 6.* The upper part of it *a* is formed with a double slope, and it is opened at *d* for admitting the square part *b* of the trunk, which is a strong bar of iron, round at the part which is to enter the *cannon*, and terminating at its lower part in a pivot, which rests on the plate R. About three or four feet above the plate, the trunk of the borer is square, and bears upon it a strong box of wood or iron S, through which levers, as TS, pass, that are turned by men or horses. The box or trough *v* serves to receive the pieces of metal that are taken off in the operation. By this motion, and the pressure of the *cannon* on the point of the borer, it is gradually bored, till the *cannon* sinks, by the contrivance already described, to a certain mark on the borer, which answers to the required depth of its bore. It is then elevated, till the borer may be taken out. When the borer is removed, an instrument formed for smoothing the inner surface of the *cannon* is substituted in its room. This is represented by D (*fig. 7.*) It is made of copper, and of a cylindric figure: in

the middle there is a square hole capable of admitting the square, and a small portion of the pyramidal part of the trunk of the borer. This cylindric piece has four grooves parallel to its axis, into which are fixed cutting instruments of tempered steel, represented by CC. This instrument serves to enlarge the inside of the *cannon*, and to smooth it, by turning the trunk which supports it in the same manner as when the piece was bored. When this four-edged squarer has passed into the piece, another of five, and then another of six sharp edges is made to enter it: the last of these pares off all the inequalities which the others had left, and gives to the inside of the *cannon* that perfectly cylindrical and polished figure which it ought to have. The *cannon*, after being thus bored and smoothed, is sent to the chasers, by whom it is finished: with them the touch-hole is bored, and there it is prepared for being mounted on its carriage: and nothing remains previous to its being used, but proving it. The method of casting solid *cannon*, and boring them with this machine, was adopted, because several inconveniencies attending the other method of casting them hollow on a mould were avoided by it: the first of these instruments was constructed at Strasburg, and remained long a secret, though it is now pretty generally used. One of these machines will serve for three furnaces. *Encyclopedie, art. ALESOIR*.

A machine of this kind, with some little variation in the position of it, has very lately been introduced into this country, and is now generally used for iron and brass guns. The gun to be bored lies with its axis parallel to the horizon, and in that position, is turned round its axis by means of wheel-work, moved by one or more horses. The borer is laid, as above described, in the direction of the axis of the gun, and is incapable of motion in any direction except that of its length; and in this direction it is constantly moved by means of a small rack-wheel, kept in proper motion by a man, who thus makes the point of the borer so to bear against the part of the gun that is boring, as to pierce and cut it. The outside of the gun is smoothed at the same time by men with instruments fit for the purpose whilst it turns round, so that the bore may be exactly in the centre of the metal.

For the *Method of Casting Cannons*, see **FOUNDRY**.

As for the metal of *cannons* it is either iron or a mixture of copper, tin, and brass: the tin is added to the copper to make the metal more dense and compact: so that the better or heavier the copper is, the less tin is required. Some to a hundred pounds of copper add ten of tin, and eight of brass; others, ten of tin, five of brass, and ten of lead.

What are commonly called *brass cannon*, are not made of pure brass; they cannot be made either of this, or of pure copper; but it is always found necessary to mix with these metals some coarser ones, in order to make the whole run the closer and sounder; such are lead, and what the founders call pot-metal. As bell-metal is a mixture of copper and tin, so pot-metal is copper and lead. About twenty pounds of lead is usually put to a hundred weight of pot-metal, but about six pounds is sufficient for a hundred weight of gun-metal, and is of vast service.

Guns are now usually made of iron, because they are found to be much stronger and more durable, as well as cheaper than the composition with brass. Mr. Muller, however, contends for the use of the latter, especially for ships, as being, upon the whole, cheaper; and more serviceable than the former. *Treat. of Artil. p. 18.*

Braudius describes a method of making *cannon* of leather, on occasion, and it is certain the Swedes made use of such in the long war of the last century; but these burst too easily to have much effect.

It is found, by experience, that of two *cannons* of equal bore, but of different lengths, the longer requires a greater charge of powder than the shorter, in order to reach the same range. The ordinary charge of a *cannon*, is for the weight of its gunpowder to be half that of its ball. See **CHARGE**.

Cannons are sometimes cooled by smearing them with sheep-skin dipped in water mixed with vinegar. Without this precaution they are apt to burst after many discharges. It is also requisite to clean them with the sponge, that no fire may be left behind to endanger the next charge of powder.

After each thirty discharges, the *cannon* is to be cooled with two pints of vinegar mixed with four of water, poured into the barrel; the touch-hole being first stopped.

CANNONS, *ordinary*, are those of the common or middling length, each according to the proportions of its kind; e. gr. 32 calibers for a culverin.

CANNONS, *extraordinary*, are those which are longer than the usual proportion allowed to their species; e. gr. from 32 to 48 or 50 calibers for a culverin.

CANNON, *bastard*, those which are shorter than ordinary, whether they be of the whole cannon, cannon, or demi-cannon, or quarter-cannon kind. Such e. gr. are culverins from 32 to 26 calibers.

Some call those *bastard-cannons* which are longer than ordinary *cannons*, yet do not reach the length of culverins. But these ought rather to be called *extraordinary cannons* or *bastard culverins*.

Cannons longer than ordinary are also called *flings*, *drakes*, &c. as those shorter are called *cuts*.

CANNONS, *reinforced*, or *fortified*, those stronger and thicker in metal than ordinary, which have their metal at the touch-hole one diameter thicker, in the middle five or six eighths, and at the neck three eighths.

All chambered *cannons* are reinforced.

CANNON, *ship*, are stronger in metal than those used by land, on account of the necessity they are often under of being charged with chain-shot. They lie on ship-carriages, having four small wheels, without spokes, with two ropes to stop their running back, and bring them again to their place upon the battery.

CANNON of *course*, or *Chase-CANNON*, in a galley, is the largest, middlemost, and most effective of the guns placed in the prow, or chase of the vessel, and which delivers its shot over the very stern, generally carrying a shot of 33 or 34 pounds weight. It is a long piece, and recoils all along the middle of the galley to the mast.

CANNON-mouth of a bit, in the *Manege*, denotes a round, long piece of iron, sometimes composed of two pieces coupled together and bent in the middle. See *BIT*.

CANNON-mouths, in the *Manege*, are contrived to keep a horse in subjection, being so ordered that they rise gradually toward the middle, and ascend toward the palate, that the void space left underneath may afford a liberty to the tongue.

CANNONADE, in *Military language*, is the application of artillery to the purposes of seizing or destroying a ship, battery, or fortress.

CANNONEER, or **CANNONIER**, an officer in the artillery, who has the care of charging, pointing, and firing a cannon.

The *cannoner* is the same with what is otherwise called *gunner*: in the *Streights*, *captain*; and in other places, *conestable*.

CANNULA, or **CANULA**, in *Chirurgery*, a little tube or pipe, which the surgeons leave in wounds and ulcers, that they chuse not to heal up; because still suppurating. The *cannula* is to be made of gold, silver, or lead; and is perforated, that the pus, entering within it, may fall upon a sponge, dipped in spirit of wine, and placed at the orifice, to keep the ulcer warm, and to prevent the external air from entering: some of these *cannulae* have rings, whereby to keep them fast in the wound; and others have holes with ribbands through them, to bind them down: some are round, others oval, others crooked, See *Tab. Surgery. fig. 10.*

There is a particular kind of *cannula*, formed taper-wise, with a screw fastened to one end, in manner of a cock: its use is for the discharge of the water out of the abdomen, after tapping, in an ascites, or dropsy. To this end it is inserted into the body, through a hole made near the navel, with a pointed instrument, and sometimes a punch; and is fastened into its place by a bandage, and guarded from an injury of the cloaths, &c. by a case or cover. It has this advantage over the common tapping, that by means thereof, the water is drawn out when, and in what measure the patient pleases. See *TAPPING*.

There is likewise a kind of copper, or iron *cannulae* made for the more convenient application of actual cauteries: they are made very shallow, and are in effect, little more than hoops; through the aperture whereof, the actual cautery is conveyed; which, by this means, is kept from damaging the adjacent parts.

CANNULA, or **CANOLA**, in *Ecclesiastical Writers*, was a tube of silver, or other metal, wherein were put the relics, which the pope sent as presents to princes, &c.

CANULA, or **CANOLA**, was also a sort of siphon, through which they anciently sucked the wine in the eucharist.

CANOE, a name given to the little boat used by the savages in both Indies, as well as by the Negroes in Guinea: made chiefly of the trunks of trees dug hollow; sometimes of pieces of bark fastened together.

The common *canoes*, among the Indians, are those made of trees hollowed; being either greater or less according to the size of the tree they are made of. They are rowed with paddles, and rarely carry sails; the loading is laid at the bottom: but having no ballast, they are frequently turned upside down. They have no rudder, the want of which is supplied by the hind oars. The Negroes of Guinea use the same sort of *canoes*, though made in a different manner. They are long-shaped, having only room for one person in width, and seven or eight in

length; they shew little wood above the water; those who row are extremely dexterous, not only in giving the strokes with cadence and uniformity, by which their *canoes* seem to fly along the surface of the water; but also in ballancing the vessel with their bodies, and preventing their overturning, which, otherwise, on account of their lightness, would continually happen. Add, that when they are overturned they have the address to turn them up again in the water itself, and mount them a-new. They venture as far as four leagues to sea, but dare not venture farther.

They are usually sixteen feet long, and a foot or two wide, though there are some larger, as far as thirty-five feet long, five wide, and three high, used for the carriage of cattle, and expeditions in war. They are fitted with sails made of rushes.

On return from a voyage the *canoes* are not left in the water, but presently drawn a shore, where they are hung by the two ends, and left to dry; in which state they are so light, that two men will easily carry them on their shoulders.

The *canoes* of the Canadese are made of the bark of the birch-tree sometimes large enough to hold four or five persons. Those of the savages of Terra del Fuego, and the other islands of the straits of Magellan, are also of bark, and fashioned with great skill, from ten to sixteen feet long, and two wide, capable of holding eight men, who row standing, with a surprising swiftness.

In the repository of the Royal Society is the model of a Greenland *canoe*, covered with seal-skin, and resembling a great bladder; so as that, however the waves dash over it, the person in it sits safe. It is rowed with a single paddle.

CANON, a person who possesses a prebend, or revenue allotted for the performance of divine service, in a cathedral, or collegiate church.

Canons are of no great antiquity: Paschier observes, that the name *canon* was not known before Charlemagne; at least the first we hear of are in Gregory de Tours, who mentions a college of *canons*, instituted by Baldwin XVI. archbishop of that city, in the time of Clotharius I. The common opinion attributes the institution of this order to Chrodegangus, bishop of Metz, about the middle of the eighth century.

Originally *canons* were only priests, or inferior ecclesiastics, who lived in community; residing by the cathedral church to assist the bishop; depending entirely on his will; supported by the revenues of the bishoprick; and living in the same house, as his domestics, or counsellors, &c. They even inherited his moveables, till the year 817, when this was prohibited by the council of Aix-la-Chapelle, and a new rule substituted in the place of that which had been appointed by Chrodegangus, and which was observed for the most part in the West till the twelfth century. By degrees, these communities of priests, shaking off their dependence, formed separate bodies; whereof the bishops, however, were still heads. In the tenth century, there were communities or congregations of the same kind, established even in cities where there were no bishops: these were called *collegiates*, as they used the terms *congregation* and *college* indifferently: the name *chapter*, now given to these bodies, being much more modern. Under the second race of the French kings, the *canonical*, or *collegiate* life, had spread itself all over the country; and each cathedral had its chapter, distinct from the rest of the clergy.

They had the name *canon* from the Greek *κανων*, which signifies three different things; a rule, a pension or fixed revenue to live on, and a catalogue or matricula; all which are applicable to them.

In time, the *canons* freed themselves from their rules, the observance relaxed, and, at length, they ceased to live in community: yet they still formed bodies; pretending no other functions besides the celebration of the common office in the church; yet assuming the rights of the rest of the clergy; making themselves as a necessary council of the bishop; taking upon them the administration of a see during a vacancy; and the election of a bishop to supply it. There are even some chapters exempt from the jurisdiction of the bishop, and owning no head but their dean. After the example of cathedral chapters, collegiate ones also continued to form bodies, after they had abandoned living in community.

Canons are of various kinds; as,

CANONS, *cardinal*, which are those attached, and, as the Latins call it, *incardinati* to a church, as a priest is to a parish.

CANONS, *domicellary*, were young *canons*, who, not being in orders, had no right in any particular chapters.

CANONS, *expectative*, were such as, without having any revenue or prebend, had the title and dignities of *canons*, a voice in the chapter, and a place in the choir, till such time as a prebend should fall.

CANONS,

CANONS, *foreign*, were such as did not officiate in the canons to which they belonged.—To these were opposed *manfionary canons*, or *canons refidentary*.

CANONS, *lay* or *honorary*, are such among the laity, as have been admitted, out of honour and respect, into some chapter of canons.

CANONS regular, are *canons* that still live in community; and who, like religious, have in process of time to the practice of their rules added the solemn profession of vows. They are called *regulars*, to distinguish them from those *secular canons* who abandon living in community, and, at the same time, the observance of the *canons* made as the rule of the clergy, for the maintenance of the ancient discipline.

The *canons* subsisted in their simplicity till the eleventh, some say the twelfth century, when some of them separating from the community, took with them the name of *canons* or *acephalous priests*, because they declined to live in community with the bishop; and those who were left, thenceforth acquired the denomination of *canons regular*, and adopted most of the professions of the rule of St. Augustine. This order of *regular canons* of St. Augustine was brought into England by Adelwald, confessor to Henry I. who erected a priory at Nostel, in Yorkshire, and obtained for them the church of Carlisle, as an episcopal see, with the privilege of choosing their own bishop. They were singularly protected and encouraged by Henry I. who gave them the priory of Dunstable in 1107; and by queen Maud, who, in the following year, gave them the priory of the Holy Trinity in London. It appears that under the reign of Edward I. they had fifty-three priories.

CANONS, *tertiary*, those who had only the third part of the revenues of the canonicate.

CANON, in an *Ecclesiastical sense*, is a LAW or rule, either of doctrine or discipline, enacted especially by a council, and confirmed by the authority of a sovereign.

Canons are properly decisions of matters of religion; or regulations of the polity and discipline of a church, made by COUNCILS, either general, national, or provincial.

Such are the *canons* of the councils of Nice, of Trent, &c. See CONSTITUTIONS.

There have been various collections of the *canons* of the Eastern councils; but four principal ones, each ampler than the preceding. The first, according to Usher, A. D. 380, containing only those of the first œcumenical council, and the first provincial ones; they were but 164 in number. To these, Dionysius Exiguus, in the year 520, added the fifty *canons* of the apostles, and those of the other general councils. The Greek *canons* in this second collection, end with those of the councils of Chalcedon; to which are subjoined those of the council of Sardica, and the African councils. The fourth and last collection comes down as low as the second council of Nice, and it is on this that Balsamon and Zonaras have commented. See Hardouin's *Acta Conciliorum et Epistolæ decretales ac Constitutiones summorum Pontificum*, in eleven tomes; commencing with the year 34, and terminating in 1714. Prol. Paris 1715.

CANONS, *Apostolical*, are those which have been usually ascribed to St. Clement. Bellarmine, Baronius, &c. will have them to be genuine *canons* of the apostles. Cotelierius observes, that they cannot be ascribed to the apostles or Clement, because they are not received with other books of scripture, are not quoted by the writers of the first ages, and contain many things not agreeable to the apostolical times. Hincmar, De Marca, Beveridge, &c. take them to be framed by the bishops who were the apostles disciples in the second or third century; S. Bafnage is of opinion, that they were collected by an anonymous writer in the fifth century; but Daille, &c. maintain them to have been forged by some heretic in the sixth century; and S. Bafnage conjectures, that some of them are ancient, and others not older than the seventh century. The Greek church allow only eighty-five of them, and the Latins only fifty; though there are eighty-four in the edition given of them in the *Corpus Juris Canonici*.

CANON is also used for the authorized catalogue of the Sacred Writings. See BIBLE.

The ancient *canon*, or catalogue of the books of the Old Testament was made by the Jews, and is ordinarily attributed to Ezra; who is said to have distributed them into the LAW, the PROPHETS, and the HAGIOGRAPHIA, to which our Saviour refers, Luke, chap. xxiv. verse 44.—The same division is also mentioned by Josephus, cont. Appion.

This is the *canon* allowed to have been followed by the primitive church till the council of Carthage; and, according to St. Jerom, this consisted of no more than twenty-two books; answering to the number of the Hebrew alphabet; though at present they are classed into

twenty-four divisions, containing Genesis, Exodus, Leviticus, Numbers, Deuteronomy, Joshua, Judges, Samuel, Kings, Isaiah, Jeremiah, Ezekiel, the twelve minor Prophets, the Psalms, the Proverbs, Job, Canticles, Ruth, Lamentations, Ecclesiastes, Esther, Daniel, Ezra, comprehending the book of Nehemiah and the Chronicles. However, this order is not universally observed; either among Jews or Christians: nor were all the books above enumerated admitted into the *canon* in Ezra's time.—It is most likely, says Dr. Prideaux, that the two books of Chronicles, Ezra, Nehemiah, Esther, and Malachi, were added in the time of Simon the Just, when the *canon* was completed. Connection, &c. vol. ii. p. 476; &c.

But that council enlarged the *canon* very considerably, taking into it the books which we call apocryphal; which the council of Trent has farther enforced, enjoining all these to be received as books of Holy Scripture, upon pain of anathema, and being attainted of heresy. The Romanists, in defence of this *canon*, say, that it is the same with that of the council of Hippo, held in 393; and with that of the third council of Carthage, in 397, at which were present forty-six bishops, and, among the rest, St. Augustine; who declared that they received it from their fathers.

Their *canon* of the New Testament perfectly agrees with ours. See Hardouin's Collect. tom. i. p. 968. art. 47. This *canon* consists of books that are well known; some of which have been universally acknowledged; such are the four Gospels, the Acts of the Apostles, thirteen Epistles of St. Paul, one Epistle of St. Peter, and one Epistle of St. John: and others concerning which doubts were entertained, but which were afterwards received as genuine; such are the Epistle to the Hebrews, that of James, the second of Peter, the second and third of John, that of Jude, and the Revelation. These books were written at different times, and they are authenticated, not by the decrees of councils, or infallible authority, but by such kind of evidence as is thought sufficient in the case of any other ancient writers. They were very extensively diffused; they were read in every Christian society; they were valued and preserved with care by the first Christians; they were cited by Christian writers of the second, third, and fourth century, as by Irenæus, Clement the Alexandrian, Tertullian, Origen, Eusebius, &c. and their genuineness is proved by the testimony of those who were contemporary with the apostles themselves, and by tradition. The four Gospels, and most of the other books of the New Testament, were collected either by one of the apostles, or some of their disciples and successors, before the end of the first century. The catalogue of *canonical* books, furnished by the more ancient Christian writers, as Origen about the year 210, Eusebius and Athanasius in 315, Epiphanius in 370, Jerome in 382, Austin in 394, and many others, agrees with that which is now received among Christians. For the time of writing the several books of the New Testament, see the titles of the books themselves; as the Gospel of St. Matthew, Mark, &c.

Some of the fathers distinguish the inspired writings into three classes; *PROTO-canonical*, *DEUTERO-canonical*, and *APOCRYPHAL*.

CANON, *pascual*, a table of the moveable feasts, shewing the day of EASTER, and other feasts depending on it for a cycle of nineteen years.

The *pascual canon* is supposed to be the calculation of Eusebius of Cæsarea, and to have been done by order of the council of Nice.

CANON, in *Monastic Orders*, a book wherein the religious of every convent have a fair transcript of the rules of their order, frequently read among them as their local statutes.

This is also called *Regula*, as containing the rule and institution of their order.

The *canon* differs from the *MISSALÉ*, *MARTYROLOGIUM*, and *NECROLOGIUM*.

CANON, again, is used for the catalogue of saints acknowledged and canonized in the Roman church.

CANON is also used, by way of excellence, in the Romish church, for the secret words of the mass, from the preface to the *Pater*; in the middle of which the priest consecrates the host. The common opinion is, that the *canon* of the mass commences with *Te igitur*, &c. The people are to be on their knees, hearing the *canon*; and to rehearse it to themselves, so as not to be heard.

CANON, in the *Ancient Music*, is a rule or method of determining the intervals of notes.

Ptolemy, rejecting the Aristoxenian way of measuring the intervals in music by the magnitude of a tone (which was supposed to be formed by the difference between a diapente and a diatessaron), thought that musical intervals should be distinguished according to the ratios or proportions which the sounds terminating those intervals

vals bear to one another, when considered according to their degree of acuteness or gravity; which, before Aristoxenus, was the old Pythagorean way. He therefore made the diapason consist in a double ratio; the diapente, in a sesquialterate; the diatessaron, in a sesquitercian; and the tone itself, in a sesquioctave; and all the other intervals according to the proportion of the sounds that terminate them: wherefore, taking the *canon* (as it is called) for a determinate line of any length, he shews how this *canon* is to be cut accordingly, so that it may represent the respective intervals: and this method answers exactly to experiment, in the different length of musical chords. From this *canon*, Ptolemy and his followers have been called *Canonici*; as those of Aristoxenus were called *Musici*.

CANON likewise denotes a musical composition, in which the parts follow each other in the same melody and intervals.

CANON, in *Geometry* and *Algebra*, a general rule for the solution of all cases of a like nature with the present inquiry.—Thus every last step of an equation is a *canon*; and, if turned into words, becomes a rule to solve a question of the same nature with that proposed.

CANON, *natural*, of *triangles*, is a table of sines, tangents, and secants together: so called, because serving principally for the solution of tangents.

CANON, *artificial*, of *triangles*, is a table wherein the logarithms of sines and tangents are laid down. See **SINE**, under which articles the method of constructing the *natural* and *artificial canon* will be explained.

CANON Law, a collection of ecclesiastical constitutions, decisions, and maxims, taken partly from Scripture, partly from the ancient councils, and partly from the decrees of popes, and the reports and sayings of the primitive fathers, whereby all matters of policy in the Roman church are regulated.

The *canon-law* that obtained throughout the West, till the twelfth century, was the collections of *canons* made by Dionysius Exiguus in 520, the capitularies of Charlemagne, and the decrees of the popes, from Siricius to Anastasius.—No regard was had to any thing not comprised in these; and the French still maintain the rights of the Gallican church to consist in their not being obliged to admit any thing else, but to be at liberty to reject all innovations made in the canonical jurisprudence since that compilation, as well as papal decrees before Siricius.

Indeed, between the eighth and eleventh centuries, the *canon law* was mixed and confounded with the papal decrees from St. Clement to Siricius; which till then had been unknown: this gave occasion to a new reform, or body of the *canon law*; which is the collection still extant, under the title of *Concordia Discordantium Canonum*, first made by Ivo, in 1114, and perfected in 1151, by Gratian, a Benedictine monk, from texts of Scripture, councils, and sentiments of the fathers, in the several points of ecclesiastical polity; and containing those constitutions which have been denominated, by way of eminence, the **DECREES**, and forming the first part of the *canon-law*. It is now generally known by the name of the *Decretum* of Gratian, which was formed in imitation of the *Pandects* of Justinian; and is a confused immethodical compilation, full of errors and forgeries.

The second part of the *canon-law* consists of the decrees of the popes, from the time of pope Alexander III. to pope Gregory IX. and published, under the auspices of that pope, about the year 1230, in five books, entitled *Decretalia Gregorii Noni*.

In 1298, pope Boniface VIII. continued the papal decrees as far as his time, under the title of *Sextus Decretalium*. To these, pope John XXII. added the *Clementines*, or the five books of the constitutions of his predecessor Clement V. first published about the year 1317. And to all these were afterwards added twenty constitutions of the said pope John, called the *Extravagantes*; and some other constitutions of his successors, called *Extravagantes Communes*. These are usually called the **DECRETALS**.

All these compose the body of the *canon law*; which, including the *Comments*, make three volumes, in folio; the rule and measure of church government. Indeed, with us, since the Reformation, the *canon law* has been much abridged and restrained; only so much of it obtaining, as is consistent with the common and statute laws of the realm, and the doctrine of the established church. Besides the foreign *canon law*, we have our *legatine* and *provincial CONSTITUTIONS*. In the reign of Henry VIII. it was enacted, that the *canon law* should be reviewed; and till that review took place, such canons, constitutions, ordinances, and synodals provincial as had been made, and were not repugnant to the law of the land or king's prerogative, should still be used and executed. The review was proposed again in the reign of Edward VI. and of queen

Elizabeth; but as it was never accomplished, the authority of the *canon law* in England depends upon the statute of the 25th Henry VIII. c. 19. which was repealed indeed by queen Mary, and again revived by 1 Eliz. c. 1.

As to the constitutions and *canons* made in the convocation of the province of Canterbury in 1603, ratified by the king, and soon after adopted in the province of York; these never obtained a parliamentary confirmation; and it has been therefore adjudged upon the principles of law and the constitution, that they do not bind the laity, however the clergy may regard them. Strange's Rep. 1057.

CANONARCHA, or **CANONARCHUS**, a dignity in the Greek church, answering to the **PRECENTOR** in the Latin, or **CHANTER** in the English church.

The word is formed from *navw* and *αρχη*, *beginning*, or *governing*; because it belongs to this officer to set the canons, or church hymns, and to direct the choir in singing them.

A like officer we also find in the ancient monasteries, under the denomination *canonarcha*, whose business was to beat the semantium, or wooden instrument, whereby the monks were called to choir to sing canons. There appear to have been several *canonarchæ* in the same monastery.

CANONE al fesspiro, in the Italian *Musick*, a canon, the parts of which succeed each other by a *fesspiro*, that is, the time of a crotchet.

CANONESS, in the *Romish Church*, a woman who enjoys a prebend, affixed, by the foundation, to maids; without their being obliged to renounce the world, or make any vows.

There are few of these, except in Flanders and Germany; they are rather looked upon as a seminary and retreat of girls for marriage than an engagement for the service of God.

CANONESSES of St. Augustine, or **Regular CANONESSES**, are a kind of religious, who follow the rules of St. Augustine, of which there are various congregations.

The order of *canonesses* was first instituted by Lewis the Meek, in the beginning of the ninth century.

CANONICA, in *Philosophical History*, an appellation given by Epicurus to his doctrine of logic.

It was called *Canonica*, as consisting of a few canons, or rules, for directing the understanding in the pursuit and knowledge of truth.

Epicurus's *Canonica* is represented as a very slight and insufficient logic, by several ancients who put a great value on his ethics and physics.

The stress of Epicurus's *Canonica* consists in his doctrine of the *criteria* of truth.

All questions in philosophy are either concerning words or things: concerning things we seek their truth; concerning words, their signification: things are either natural or moral; and the former are either perceived by sense, or by the understanding. Hence, according to Epicurus, arise three *criteria* of truth, viz. sense, anticipation or prænotion, and passion. The great canon, or principle, of Epicurus's logic is, that the senses are never deceived; and therefore, that every sensation, or perception of an appearance, is true. Stanley's Hist. Phil. p. xiii. p. 35.

CANONICA is also used by some ancients to denote the art of music.

CANONICA is more particularly used to denote that species of music, which does not determine the intervals of sounds by the ear, but by a canon or stretched chord. See **CANON**.

CANONICAL, something that belongs to, or partakes of the nature of a rule or canon.

Canonical amounts to much the same with what we otherwise call regular.

CANONICAL is an appellation more peculiarly given to those writings which have been received as the rule of our faith and practice, and comprehended in the canon or catalogue of the Scriptures.

In which sense, *canonical* stands contradistinguished from *apocryphal*.

The conditions then requisite to constitute a book *canonical* are, that it be admitted to be written by divine inspiration, and that it be solemnly accepted, and consigned by the church for a perpetual guide or rule of faith and practice.

Divines generally hold, that those books only of the new Testament are to be accounted *canonical*, which were either written, or at least approved and authorized, by the apostles.

Formerly they were not so well distinguished as among us. In the first ages of the church, Dodwell observes, the genuine writings of the apostles used to be bound up together with those now called spurious, and apocryphal; so that it was not manifest, by any public judgment, which

which of them was to be preferred to the other; but later times thought fit to make a separation.

The Jews allow of no book for *canonical*, but those written before or soon after the return from the Babylonish captivity, when the gift of prophecy ceased among them.

Eusebius lays down three marks, by which the spurious writings forged by heretics, under the names of the apostles, were distinguished from the genuine and *canonical*. Hist. Eccl. lib. iii. cap. 25.

CANONICAL, *post*, or *deutero*-**CANONICAL**. See **CANON**, and **DEUTERO-CANONICAL**.

CANONICAL is also an appellation given to those epistles in the New Testament, more frequently called catholic, or general epistles.

CANONICAL, *canonicus*, was also an appellation given to all the officers and ministers of a church or monastery, from the bishop or abbot to the meanest servant, including priests, monks, virgins, and all who were entered in canon, that is, in the matricula or register of the church.

CANONICAL *horses*, *canonici equi*, was an ancient tax, or tribute, imposed on certain provinces, whereby they were obliged to furnish the emperor with so many horses to mount his cavalry.

CANONICAL *hours*, are certain stated times of the day, con- signed, more especially by the Romish church, to the offices of prayers and devotion. Such are *matins*, *lauds*, *sixth*, *ninth*, *vespers*. In our country the canonical hours are from eight to twelve in the forenoon, before or after which marriage cannot be legally performed in any parish-church.

CANONICAL *institution*, a regular and legitimate collation to a benefice, agreeable to the rules of the canon-law.

CANONICAL *letters*, in the *Ancient Church*, were a sort of testimonials of the orthodox faith, which the bishops and clergy sent each other, to keep up catholic communion, and distinguish orthodox Christians from Arian, and other heretics.

When they had occasion to travel into other dioceses, or countries, *dimissory* and *commendatory* letters, also letters of peace, &c. were so many species of *canonical letters*. See **DIMISSORY**.

CANONICAL *liberty*, a freedom to which certain churches are left, being governed by the ancient canons and usages established before the papal hierarchy was carried to its height: such is that which, of later days, the French call the *Gallican liberty*.

CANONICAL *life*, the method or rule of living prescribed by the ancient clergy who lived in community.

The *canonical life* was a kind of medium between the monastic and clerical lives.

CANONICAL *obedience*, is that submission which by the ecclesiastical laws the inferior clergy are to pay to their bishops, and religious, to their superiors.

CANONICAL *portion*, so much of the effects of a person deceased, as the canons allow to the parish church to which he belonged.

CANONICAL *punishments* are those which the church may inflict: such as excommunication, degradation, and **PENANCE**, in Roman catholic countries; also fasting, alms, whipping, &c.

CANONICAL *purgations*, were ancient methods of proving innocence, by **ORDEAL**, **PURGATION**, &c.

CANONICAL *sin*, in the *Ancient Church*, those which were capital or mortal: such especially were idolatry, adultery, murder, heresy, and schism.

CANONICUM, in a general sense, denotes a tax, or tribute.

CANONICUM is more particularly used in the Greek church for a fee paid by the clergy to bishops, archbishops, and metropolitans, for degrees and promotions.

CANONICUM also denotes a due of first-fruits, paid by the Greek laity to their bishops, or, according to Du-Cange, to their priests. The *canonicum* is assessed according to the number of houses, or chimnies, in a place.

The emperor Isaac Comnenus made a constitution for regulating the *canonicum* of bishops, which was confirmed by another made it 1086, by his nephew Alexis Comnenus. A village containing thirty fires, was to pay for its *canonicum*, one piece of gold, two of silver, one sheep, six bushels of barley, six of wheat-flour, six measures of wine, and thirty hens. Du-Cange, Gloss. Gr. tom. i. p. 578.

CANONIST, a person skilled in, or who makes profession of the study and practice of the **CANON-law**.

Canonists and *Civilians* are usually combined in the same persons. And hence the title of *doctor juris utriusque*, or *legum doctor*, usually expressed in abbreviation, LL. D. or J. U. D.

CANONIZATION, a declaration of the pope, whereby, after a great deal of solemnity, he enters into the list of saints some person who had lived an exemplary life, and wrought miracles; or, as is often the case, performed some singular service for the church, in which a principal part of this kind of merit consists.

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The word *canonization* seems to be of later origin than the thing; there being no instance of the use of the word before the twelfth century, whereas St. Uldaricus was *canonized* in the tenth. The term is formed from *canon*; because the primitive *canonizations* were only orders of the popes, or bishops, whereby persons eminent for piety, &c. were inserted in the *canon* of the mass, that they might be commemorated in the service; because, in those days, the use of martyrologies was unknown in the church.

Mabillon distinguishes two kinds of *canonization*; a *general* and *particular*, the first made by a general council, or a pope; the second, by a bishop, a particular church, or a provincial council.

There are instances likewise of *canonizations*, or at least of something very like them, by abbots.

At first, only martyrs were *canonized*; but by degrees they came to confessors &c.

Canonization anciently consisted in inserting the saint's name in the sacred diptychs, or *canon* of saints; in appointing a proper office for invoking him, and erecting churches under his invocation, with altars for mass to be celebrated on; taking up the body from the place of its first burial, and the like ceremonies: by degrees, other formalities were added; and processions were made with the saint's image in triumph; the day of his death was declared a feast; and to render the thing still more solemn, Honorius III. in 1225, added several days indulgence to a *canonization*.

It is a great dispute among the learned, when the right of *canonization*, which it is owned was anciently common to ordinaries, especially metropolitans and princes, with the pope, became first peculiar to the pope. Some say, Alexander III. made this reserve to the holy see. The Jesuits of Antwerp, in their Propylæum, assert, it was not established till two or three years ago; and then by a mere custom, which passed tacitly into a law; which appears not to have been generally received in the tenth and eleventh centuries. This, however, is pretty certain, that it was generally allowed before pope Alexander III.; but since his time we read of no saints *canonized* by any but the popes: and the archbishop of Vienne in France, and his suffragans, acknowledge it in an authentic manner in the year 123, by a letter written to Gregory IX. desiring him to *canonize* Stephen, bishop of Die, who died in 1208. *Quia nemo, say they, quantalibet meritorum prærogativa polleat, ab ecclesia Die pro sancto habendus, aut venerandus est, nisi prius per sedem apostolicam ejus sanctitas fuerit approbata.*

CANONRY, or **CANONICATE**, the benefice filled by a *canon*.

Canonicate is distinguished from *prebend*, in that the *prebend* may subsist without the *canonicate*, whereas the *canonicate* is inseparable from the *prebend*. It is to the *canonicate*, not to the *prebend*, that the right of suffrages, and other privileges, are annexed. See **PREBEND**.

CANOPUS, in *Astronomy*, a bright star of the first magnitude in the rudder of Argo, a constellation of the southern hemisphere. See **ARGO**.

The longitude of *Canopus*, as given by Halley, for the year 1700, is 10° 52' of Cancer, and its southern latitude, 72° 49'. F. Noel, in 1697, found its right ascension 93° 54', its declination southwards, 52° 29'. F. Feuille, in the beginning of March 1709, observed the declination of *canopus* 52° 30' 4". F. Thomas, in January 1682, found the declination 52° 31' 33", its right ascension 93° 32' 20", longitude, 8° 52', of Cancer, latitude southern, 75° 55'. Wolf. Lex. Math. p. 303, seq. Mem. Acad. Scienc. ann. 1693. p. 390, seq.

CANOPY, in *Architecture* and *Sculpture*, a magnificent kind of decoration, serving to cover, and crown an altar, throne, tribunal, pulpit, chair, or the like. See **BALDACHIN**.

The word is formed from the barbarous Latin *canopeum*, of *κανωπειον*, a net spread over a bed to keep off the knats, from *κανωψ*, a gnats.

Canopies are also borne over the head in processions of state, after the manner of umbrellas.

The *canopy* of an altar is more peculiarly called **CIBORIUM**.

The Roman grandees had their *canopies*, or spread veils, called *thensæ*, over their chairs: the like were also in temples over the statues of the gods. The modern cardinals still retain the use of *canopies*.

CANOSA, in *Zoology*, the name by which Salvian, and some other authors, have called the *CANIS galeus*, and *mustelus levis*, a kind of shark.

CANQUES, in *Commerce*, a sort of cotton cloth made in China; with this cloth they make that first garment next their skin, which is properly their shirt.

CANSCHY, in *Botany*, is the name of a tree in Japan, from which the inhabitants of that country make their paper. See a particular account of the process, from the

Ephem. N. C. in the Coll. Acad. P. Etr. tom. iv. p.

144.

CANSTRISIUS, an officer in the church of Constantinople, whose business is to take care of the patriarchs pontifical vestments, assist in robing him, and during mass to hold the incense pot, and sprinkle holy water among the people, while the hymn of the Trinity is singing. The word is also written *Canstrinsius*, it is usually derived from *canistrum*, a name which some suppose given to the incense pot, others to the kind of basket in which the patriarch's vestments were kept. Du-Cange.

CANT, a quaint, affected manner of speaking, or writing, adapted chiefly to the lower sort.

Cant is originally derived from *Andrew Cant*, a Cameronian preacher in Scotland, who, by exercise, had obtained the faculty of talking in the pulpit in such a tone and dialect as was understood by none but his own congregation.

CANT, or *Canting language*, is also applied to words and phrases affected by particular persons, or professions for low ends, and not authorized by the established language. *Cant* is not restrained to the style of gypsies, thieves, and beggars; but possesses a large department in the politer provinces of the English language.

An anonymous author has given a *canting* dictionary, comprehending all the terms used in the several tribes of gypsies, beggars, shoplifters, highwaymen, footpads, and other clans of cheats and villains, with a collection of songs in the *canting* dialect. Lond. 1725, 8vo.

A writer in the *Tatler*, assigns divers sources of *cant*-words; as *phizz*, *hippo*, *mobb*, *pozz*, *bamm*, &c. *Tatler*. No 230.

The Sea-Language will most of it come under the denomination of *cant*; and the like holds of the terms in alchemy, heraldry, not to say in astrology, or even chemistry, pharmacy, &c. In reality, the difference between a *cant*-term, and a technical term, is not easy to assign, unless we choose to restrain the former to words introduced out of folly, affectation, or imposture; and the latter to such as are introduced for the sake of clearness, precision, and significancy.

CANT is also used to denote a sale by auction.

The origin of the word, in this sense, is dubious; it may come, according to some, from *quantum*, how much; according to others, from *cantare*, to sing, or cry aloud; agreeably to which, we sometimes call it an *out-cry*.

CANT is also a term used by some carpenters, principally in ship-building; when a piece of timber comes the wrong way in their work, they say *cant* it; i. e. turn it over. Accordingly, *cant-timbers* are those which are situated at the two ends of a ship: and they are so called, because they are *canted* or raised obliquely from the keel, and are hereby distinguished from those whose planks are perpendicular to it.

CANT is also popularly used for an angle, or corner.

CANTABRIAN, the ancient language of the north-eastern part of Spain, in use before the country was subdued by the Romans.

Dr. Wallis seems to make the *Cantabrian* the ancient language of all Spain: which, according to him, like the Gaulish, gave way to a kind of broken Latin called *romance*, or *romanse*; which by degrees was refined into the Castilian or present Spanish. But we can hardly suppose, that so large a country, inhabited by such a variety of people, spoke all the same language.

The ancient *Cantabrian*, in effect, is still found to subsist in the more barren and mountainous parts of the province of Biscay, Asturias, and Navarre, as far as Bayonne, much as the British does in Wales; but the people only talk it: for writing, they use either the Spanish or French, as they happen to live under the one or the other nation. Some attribute this to a jealousy of foreigners learning the mysteries of their language; others to a poverty of words and expressions. The *Cantabrian* does not appear to have any affinity with any other known language, abating that some Spanish words have been adopted in it for things whose use the Biscayans were anciently unacquainted with. Its pronunciation is not disagreeable.

The Lord's prayer, in the *Cantabrian* tongue, runs thus: *Gure aita cervetan aicena, sanctifica bedi hire icena, ethor bedi hire refuma, eguin bedi hire vorondatea cervan becala lurrean ere*, &c.

CANTABRICA, in *Botany*, a name by which different authors call two different species of plants. The *cantabrica* of Pliny is the ranunculus. The *cantabrica* of Turner, the clove gilliflower.

CANTABRICA is also a name used by Clusius and some others for the little narrow-leaved bind-weed. See **CONVOLVULUS**.

CANTABRUM, in *Antiquity*, a large kind of flag used by the Roman emperors, distinguished by its peculiar colour, and bearing on it some words, or motto of good omen, to encourage the soldiers.

CANTALIVERS, in *Architecture*, pieces of wood framed into the front, or sides of a house, to sustain the mouldings and eaves over it.

Cantalivers are the same with modillions, except that the former are plain, and the latter carved. They are both a kind of cartouches set at equal distances under the cornice of the cornice of a building.

CANTALIVER-CORNICE, is a cornice with *cantalivers* or modillions under it.

Those which project much are now out of fashion, and with good reason, especially in London, as they darken, by their hanging over, the upper chambers at least; and are apt to spread, and communicate fire, in case of a misfortune of that kind; besides, that in the present mode of building, use, convenience, and simplicity are more studied than ornament.

CANTAR, or **CANTARO**, an eastern weight, of different value in different places, equivalent at Acra in Turkey to 603 pounds, at Tunis and Tripoli to 114 pounds.

CANTAR is also an Egyptian weight, which is denominated a *quintal*, and consists of a hundred, or of an hundred and fifty *rotolos*, according to the goods they are to weigh.

CANTAR is also an Egyptian weight, which at Naples is equivalent to 25 pounds, at Genoa to 150 pounds. At Leghorn there are three kind of *cantaros*, one weighing 150 pounds, another 151, and a third 160 pounds.

CANTARO is also a Spanish liquid measure, in use especially at Alicante, containing three gallons.

CANTARO is also a measure of capacity, used at Cochín, containing four rubies, the rubi 32 *rotolos*.

CANTATA, in *Music*, a sort of song, or composition, intermixed with recitatives, airs, and variety of motions: ordinarily intended for a single voice, with a thorough bass, sometimes for two, three, or more voices, with one or more violins, or other instruments.

The *cantata* passed from Italy into France, and thence to us: it has something in it extremely fantastical and capricious, and seems only to please by its variety. The word is Italian, where it signifies the same thing.

CANTATRICES, in *Middle Age Writers*, hired weepers, and waiters at funerals.

CANTEENS, in *Military Language*, are tin vessels in the form of square bottles, used for carrying water to supply the soldiers in camp.

CANTEL, *cantellum*, in *Ancient English Writers*, denotes a custom of selling by the lump, without tale or measure. Speiman derives the word from *quantillum*, and defines it by over measure, or what is added over and above strict measure. Kennet derives it from the old word *cant*, a hundred, q. d. the sale of about a hundred weight; answering to what we now call the taking of a hundred pound on content; as when we take it in a bag, sealed up, without telling the pieces.

CANTERBURY-BELL, *Botany*. See **CONVOLVULUS**.

CANTERII, or **CANTHERII**, in *Ancient Architecture*, rafters or joists of a house, which reach down from the ridge to the eaves.

CANTHARÆ, among the *Ancients*, a kind of candlestick. See **BRANCH**.

CANTHARIAS lapis, in *Natural History*, a name given by some writers to a fossil substance supposed to resemble a beetle. We sometimes meet with parts of the ichthy-peria or bony parts of fishes, which are ridged longitudinally, much in the manner of the outer wing of some of the beetle tribe; and from the size and shape, which is an oblong, or oval one of the bigness of a common beetle, and sometimes of the largest, and at others of the very smallest kinds, these have been called by some petrified beetles and *cantharia lapides*; others have extended the name to such pieces of amber as have in them the body or any fragment of the beetle of any species.

CANTHARIDES, in *Medicine*, a kind of poisonous insects, with wings and feet like beetles; much used as an epispastic for the raising of blisters.

The stimulating power of *cantharides* is caused by a very acrid resinous substance contained in these insects, two scruples of which Neumann extracted from four ounces of *cantharides* by spirit of wine.

The word is formed from *cantharus*, the name of a sort of beetle, and called also *scarabæus venenosus*. The *cantharides* are properly a species of the beetles or scarab kind.

Cantharides, called also *Spanish flies*, though they ought rather to be denominated *Spanish beetles*, are produced from a kind of little worms, hatched on wheat, the leaves of the poplar, &c. There are various kinds of *cantharides*, but all of a greenish and golden hue; the best are those which appear with different colours, having yellow lines running across their wings, thick, and fresh. They are killed by exposing them over a very strong vinegar, which is made to boil for that purpose; after which they are dried, and may be preserved a year or two.

Cantharides are very sharp and corrosive, abounding with a sub-

a subtle, caustic, volatile salt; whereby they become exceedingly injurious to the bladder, so as to ulcerate it, even when applied externally, if suffered to lie on too long. They are much commended in fevers, as they raise and strengthen a low trembling pulse, give relief in delirious ravings, soporiferous stupors, loss of reason, &c. (the common symptoms of high and dangerous fevers): they often also reduce continual fevers to regular and distinct remissions; and so make way for the bark; cleanse and open the obstructed glands and lymphatics; bring on critical sweats, &c.

Dr. Morgan accounts for these effects of *cantharides* thus: "The subtle and volatile pungent parts, of which the *cantharides* consist, being carried into the blood, and passing with the lymph or serum into the glandular pipes, act there by dissolving, attenuating, and rarefying the viscid cohesions of the lymph; and by stimulating the nervous coats of the vessels, they throw off their stagnant viscidities, and thus restore the circulation and free drain of lymph from the arteries to the veins; cleanse the expurgatory glands, and bring on critical sweats and urines. Thus, the extremely subtle, active, and pungent volatile salts, derived from the *cantharides*, purge the glands and lymphatics universally; much after the same manner as common cathartics do the guts." Philosoph. Princip. of Medicine, p. 304.

The ancients held them a poison when taken internally, undoubtedly on account of their tendency to ulcerate the bladder. Yet some moderns, as Langius, Bartholin, and others, have ventured to give them internally, supported by the authority of Hippocrates, who appears to have given them in dropries and jaundices: and in the Philosophical Transactions, we have instances of their internal use, and that with success, by Mr. Young, in dropical and other cases; sometimes mixed with camphor, and sometimes without; only well washed down with large draughts of posset, pisan, emulsions, or the like. The form wherein he tells us he uses to administer this fiery insect, is that of a small pill, or bolus, composed of three *cantharides præpar. Troch. e Myrrha* 3ß. Sem. *Amei. gr. vi. Reb. Cynosb. q. s.* This, in stubborn suppressions of the menses and lochia, in difficult childbirth, and retention of the secundines, he finds does wonders: he adds, that the heat or pain it occasions in the neck of the bladder, is much short of what he has an hundred times seen, and sometimes felt, from the application of an epispastic to the back.

Groenvelt has a treatise express on the safe internal use of *cantharides*, wherein he recommends them, especially against ulcers in the bladder; for which he suffered a persecution from the college of physicians, though further experience has shewn he had justice on his side.

Dr. Morgan proposes a tincture of *cantharides*, made with the *elixir vitrioli*, as good in the DIABETES.

Their principal use, however, is in vesicatories, to raise blisters on the skin; and by that means to turn off and discharge some flux of ill humours.

Cantharides are sometimes applied to the temples for the tooth-ach: the farriers use them in several diseases of horses. They must be chosen new, dry, and whole: they will not keep above two years, without spoiling or mouldering into a dust, which is of no use.

CANTHARIS. See GLOW-worm.

CANTHARUS of a FOUNTAIN, among Roman Writers, denotes the part, or apparatus, out of which the water issued.

It was made in divers forms, sometimes in that of a shell, at other times in that of an animal, which yielded water at its mouth, eyes, and the like.

CANTHARUS, in Ecclesiastical Writers, denotes a fountain, or cistern, in the middle of the atrium, before the ancient churches, wherein persons washed their hands and faces before they entered.

CANTHARUS, in Zoology, the name of a sea-fish much resembling the sparus and fargus in shape, but of a dusker and blacker colour, covered with small scales, and not marked with the annular black spots which both those fishes have near the tail. It is common in the Mediterranean, and is frequently brought to market in Rome, &c. being esteemed a very well tasted fish.

The *cantharus* of the ancients is called by Artedi the silver-eyed SPARUS, with longitudinal and parallel yellow lines on each side. Gaza calls this fish *scarabæus*.

CANTHARUS unctuosus. See OIL BEETLE.

CANTHUS, in Anatomy, the corner, or angle of the EYE; formed by the commissure or joining of the upper and lower eyelids.

That corner next the nose, is called the great, inner, and domestic *canthus*; and by some physicians the fountain.—The other, towards the temples, is called the little, or external *canthus*.

CANTHUS, in Chemistry, the lip of a vessel; or that part of

the mouth of a vessel, which is a little hollowed, or depressed, for the easy pouring off a liquor.

Hence, to pour by decantation, is to pour through that place.

CANTICLES, a canonical book of the Old Testament, otherwise called the Song of Solomon; by the Jews, the Song of Songs, *Canticum Canticorum*.

The Book of *Canticles* is usually supposed to be an epithalamium composed by Solomon, on occasion of his marriage with the king of Egypt's daughter. But those who penetrate further into the mystery, pretend to find in the marriage of Jesus Christ with human nature, the church, and good men.

On this principle the *Canticles* is held to be a continued allegory, wherein, under the terms of a common wedding, a divine and spiritual marriage is expressed.

The Jews themselves, apprehending the book liable to be understood in a gross and carnal manner, prudently prohibited the reading of it before the age of thirty, and the same usage anciently obtained in the Christian church. Orig. Præf. in Cant. Teod. Op. tom. i. p. 985. Hierom. in Ezek. Wolf. Bib. Heb. tom. i. p. 126.

Among the ancients, Theodore Mopsuetanus rejected the book of *Canticles*, as not divine. Divers rabbins have also questioned its being written by inspiration. It is alleged, that the name of God is not once found in it. Mr. Whiston has a discourse express to prove, that the *Canticles* is not a sacred book of the Old Testament. He alleges it indeed to have been written by king Solomon, the son of David, but asserts, that it was composed at the time when that prince, blinded by his concubines, was sunk in filthy love, and even idolatry. This he chiefly infers from the general character of vanity and dissoluteness which reigns through the *Canticles*, in which there is not, according to Whiston, one thought that leads the mind toward religion, but all is worldly and carnal, to say no worse. For the mystic sense, he asserts it to be without any foundation, and that the book is not cited as canonical by any writer before the destruction of Jerusalem. Mr. Whiston will have it to have been taken into the canon between the years 77 and 128, when allegories came in vogue, and the rabbins began to corrupt the text of Scripture.

CANTIMARONS, or CATIMARONS, a kind of floats or rafts, used by the inhabitants of the coast of Coromandel to go a fishing in, and to trade along the coast. They are made of three or four small canoes, or trunks of trees dug hollow, and tied together with cacao ropes, with a triangular sail in the middle, made of mats. The persons who manage them are almost half in the water, there being only a place in the middle a little raised to hold their merchandise; which last particular is only to be understood of the trading *cantimarons*, and not of those who go fishing.

CANTING-arms, among *Heralds*, are those ARMS which express their owner's surname.

These answer to what the French call *armes parlantes*; they are a sort of rebuses, and are never presumed to be noble.

CANTING-quoins, in Ship Building, the same as *cantic-quoins*. See QUOIN.

In Harris's Lex. Techn. they are called *canoigne coins*, but this seems an error of the press. Manwayring calls them *cantick-quoynes*.

CANTO denotes a part or division of a poem, answering to what is otherwise called a book.

The word is Italian, where it properly signifies song.

Tasso, Ariosto, and several other Italians, have divided their longer or heroic poems into *cantos*. In imitation of them Scarron has also divided his Gigantomachia, and Boileau his Lutrin, into *chants*, or songs. The like usage has been adopted by some English writers, as Butler, who divides his Hudibras, and Dr. Garth his Dispensary, into *cantos*. A late translator of part of Virgil's *Æneid* has even subdivided a book of Virgil into several *cantos*.

CANTO, in the Italian Music, signifies a song: hence *canto simplice* is where all the notes or figures are equal, called also *canto fermo*: *canto figurato*, that where the figures are unequal, and express different motions.

CANTO also signifies the treble part of a song; hence *canto concertante*, the treble of the little chorus; *canto ripieno*, the treble of the grand chorus, or that which sings only now and then, in particular places.

Canto signifies the first treble, unless some other word be added to it, as *seconds*; in which case it denotes the second treble.

CANTION, a quarter of a city, considered as separated and detached from the rest.

The word seems formed from the Italian *cantone*, a square stone, or corner stone.

CANTON is also more frequently used for a small country, or district, under its separate government.

Such are the thirteen Swiss *cantons*; each of which forms

a re-

a republic apart; but all are leagued together, and constitute what is called the Helvetic body.

CANTON, in *Heraldry*, is one of the nine honourable ordinaries; being a square portion of the escutcheon parted from the rest.

It has not any fixed proportion; though regularly it should be less than a quarter: it is often only a ninth part, and used as an addition, or difference, frequently to express bastardy. The *canton* is sometimes placed at the right corner, and sometimes at the left; in which latter case, it is called a *canton sinister*. Its form is expressed in *Tab. Herald. fig. 12.*—He bears ermin, a *canton* argent, charged with a chevron gules.

CANTON is also used for the spaces left between the branches of a cross or saltier.

CANTONED, a word used in *Architecture*, when the corner of a building is adorned with a pilaster, an angular column, rustic quoins, or any thing that projects beyond the naked of the wall.

CANTONED, **CANTONNE'**, or **CANTONIZED**, in *Heraldry*, is when the four *cantons*, or spaces round a cross, or saltier, are filled up with any pieces.—He bears gules, a cross argent, *cantoned* with four scallop shells.

The word is also used when there are little pieces in the *cantons*, or spaces, of any principal figure of an escutcheon. Thus the saltier of Lenox is *cantoned* with four roses.

CANTONING, in *Middle Age Writers*, denotes the dividing a thing into hundreds, or selling it by hundred weights, or hundreds in tale.

CANTONING, in the *Military Art*, is a method of quartering troops in a town, where the garrison is so numerous, that several regiments must be quartered on the inhabitants for want of caserns, or barracks, to contain them.

In this case they divide the town into as many parts as there are regiments to be so quartered, that the officers and soldiers of each may have a distinct part to themselves. This, in the military phrase, is called *cantonning of a town*.

CANTRED, or **CANTREY**, denotes a district or division of an HUNDRED towns or villages.

The word is British, compounded of *cant*, *hundred*, and *trev*, or *tref*, *town* or *village*.

In Wales the counties are divided into *cantreds*, as those in England are into hundreds. Anglesey, in particular, is divided into three *cantreus* or *cantreds*, which are each subdivided into six *comots* or *commotes*, each *commote* containing about sixty *treus* or townships. The general partition of Wales into *cantreus* and *comots* is very ancient. Rowl. Monast. Ant. Eff. § 10. p. 110, &c.

CANVAS, or **CANVASS**, a coarse sort of linen or hempen cloth, usually woven open, and regularly, in little squares; serving for divers domestic purposes, and especially for the ground of tapestry-work, and painting. We have divers sorts and denominations of *canvas*, most of them imported from abroad; as Dutch, Barras, and Hessian *canvas*; packing *canvas*; guttings and spruce *canvas*; poledavies, ebbing, or Queenborough *canvas*; working *canvas*, for botts or cushions, narrow, broad, and broadest.

CANVAS also is the cloth on which painters usually draw their pictures; the *canvas* being smoothed over with a slick-stone, then sized, and afterwards whited over, makes what the painters call their *primed cloth*, on which they draw their first sketches with a coal or chalk, and afterwards finish with colours.

CANVAS is also a name sometimes given to sail-cloth.

CANVAS-bags, in the *Military Art*, contain about a cubic foot of earth or sand, with which they are filled. Their use is to raise a parapet in haste, or to repair one, when beaten down. See *SACKS of earth*.

CANVAS is also used, among the French, for the model, or first words, whereon an air, or piece of music, is composed, and given to a poet to regulate and finish. The *canvas* of a song, contains certain notes of the composer, which shew the poet the measure of the verses he is to make. Thus Du Lot says, he has *canvas* for ten sonnets against the Muses.

CANULA. See **CANNULA**.

CANUTI avis. See **TRINGA**.

CANZONE, in the *Italian Music*, in the general, signifies a song; particularly a sort of Italian ode, or lyric poem, consisting of several stanzas, through all which the same order and disposition of verses, measures, and rhimes, are observed as in the first.

The *canzone* is usually very long, and may be set to music in much the same style with the **CANTATA**.

The *canzone* is a composition somewhat resembling, but less elaborate, than the **MADRIGAL**. It admits of little figures and points, and seldom exceeds three parts; though the name is sometimes given to a song for one voice.

There are also pieces of symphony without words, called *canzone*, much the same with sonatas.

The word *canzone* in sonatas serves to indicate that the airs it is put under are airs of brisk movement; such as are the usual figures otherwise marked with **ALLEGRO**.

CANZONETTA denotes a little *canzone*. See **CANZONE**. The word is a diminutive of the Italian *canzona*, or *canzone*.

CANZURI, a name given by some authors to a peculiar kind of camphor more esteemed than any other sort. Some have supposed it thus called from *Kanzur* or *Chan-zur*, the name of a place where they suppose it to be produced, which seems the more probable opinion; though Scaliger rejects it, and will have it that this fine camphor had its name from a certain gum called *canzur*; which, according to Garcias, and some others, is frequently mixed with the camphor by the people who collect it for sale.

This gum, he says, is called also *canderros*; and that it is somewhat like the crude amber, only that it is whiter. There is this great objection to this being the true sense of the word, that it expresses an adulterated kind, which it is scarce probable should be true of that which all the authors who have mentioned this kind of camphor; have agreed in calling the best and most excellent of all the sorts.

CAOUANNE, in *Zoology*, the name of a species of tortoise, very much resembling the *JURUCA* of the Brailians, but having a thicker shell, and a harsh, tough, and stringy flesh, of a very bad taste.

CAOUKE, in the *Turkish Dress*, a high stiff turban, worn by the odabathees, or heads of the chambers of janizaries, when they go in procession.

CAOUTCHOUC, in *Natural History*, is one name, among many more, given to a very elastic resin; the produce of a tree which grows along the banks of the river of the Amazons. This tree grows to a very great height, perfectly straight, having no branches, except at top, which is but small, covering no more than a circumference of ten feet. Its leaves bear some resemblance to those of the *manioc* (*juca foliis cannabinis*): they are green on the upper part, and white beneath. The seeds are three in number, and contained in a pod, consisting of three cells, not unlike those of the *ricinus*, or *palma Christi*; and in each of them there is a kernel, which being stripped and boiled in water produces a thick oil or fat, answering the purposes of butter in the cookery of that country. The juice, which is applied to a great variety of uses, is gathered chiefly in time of rain, because, though it may be collected at all times, it flows then most abundantly. It is extracted from the tree by simple incision, and flows in the form of a milky liquor. The means employed to inspissate and indurate it, M. de la Borde says, are kept a profound secret. M. Bomare, and others, affirm, that it thickens and hardens gradually by being exposed to the air; and as soon as it acquires a solid consistence, it manifests a very extraordinary degree of flexibility and elasticity. Accordingly the Indians make boots of it, which water cannot penetrate, and which when smoked have the appearance of real leather. Bottles are also made of this substance, to the necks of which are fastened hollow reeds, so that the liquor contained in them may be squirted through the reeds or pipes by pressure. One of these filled with water is always presented to each of the guests at their entertainments, who never fail to make use of it before eating. This whimsical custom led the Portuguese in that country to call the tree that produces this resin *pao de xirringa*, and hence the name of *seringat* is given both to the tree, and to its resinous production.

Flambeaux, an inch and a half in diameter, and two feet long, are likewise made of this resin, which give a beautiful light, have no bad smell, and burn twelve hours. A kind of cloth is also prepared from it, which the inhabitants of Quito apply to the same purposes as our oil-cloth and sail-cloth. It is formed, by means of earthen moulds, into a variety of figures for use and ornament. Ever since this resin has been known in Europe, its chemical qualities, and other interesting properties, have been very diligently investigated. It was soon found that it may be softened by warm water; but it could neither be dissolved in water, nor in spirit of wine; and though it may be dissolved in certain oils, yet the solution remains soft, of a viscous consistence, and totally incapable of being restored to a solid and elastic state. Many attempts were made for dissolving this substance, without destroying its peculiar properties. M. Macquer, in particular, employed various oils, camphire, and different kinds of salts, for this purpose, without effect. He made use of Papin's digester, and of the milky juices of some of our European plants, and particularly of the *milk-thistle*, without success. In some of these operations, the resin was not at all affected; and,

in others, it was altered or destroyed. At last he had recourse to the *vitriolic æther*, which quickly and easily dissolved this anomalous substance; forming with it a transparent tincture, and after evaporation leaving the resin behind, possessed of its former consistence, elasticity, and other properties, and of such a form as he chose to give it, while in its liquid state. He observes, however, that two pints of the best æther, obtained by rectifying eight or ten pints of the common æther by a gentle heat, must be used, in order to the success of the operation. The distinguishing properties of this substance, viz. its solidity, flexibility, and elasticity, and its quality of resisting the action of aqueous, spirituous, saline, oily, and other common solvents, render it extremely fit for the construction of tubes, catheters, and other instruments, in which these properties are wanted. In order to form this resin into small tubes, M. Macquer prepared a solid, cylindrical mould of wax, of the desired size and shape; and then dipping a pencil into the ætherial solution of the resin, daubed the mould over with it, till he had covered it with a coat of resin of a sufficient thickness. The whole piece is then thrown into boiling water; by the heat of which the wax is soon melted, and rises to the surface, leaving the resinous tube completely formed behind. This substance is very useful in drawing, &c. for erasing the strokes of black lead pencils, and is popularly called *rubber*, and *lead-eater*. A resin similar to this was not long since discovered by M. Poivre, in the Isle of France; and there are various milky juices extracted from trees in America and elsewhere, which by previous mixtures and preparations are formed into an elastic resin, but of an inferior quality to that of Cayenne. Hist. del' Acad. Roy. des Scienc. 1763. Ib. 1768. Ib. 1769.

CAP, a garment serving to cover the head, and made nearly of the figure thereof.

The æra of *caps* and hats is referred to the year 1449, the first seen in these parts of the world being at the entry of Charles VII. into Rouen: from that time they began, by little and little, to take place of the hoods, or chaperons, that had been used till then. M. le Gendre, indeed, goes farther back; they began, says he, under Charles V. to let fall the angles of the hood upon the shoulders, and to cover the head with a cap, or bonnet: when this cap was of velvet, they called it *mortier*; when of wool, simply *bonnet*: the first was laced, the latter had no ornament, besides two horns, raised a moderate height, one of which served in covering and uncovering. None but kings, princes, and knights, were allowed the use of the *mortier*.

The *cap* was the head-dress of the clergy and graduates. Pasquier says, that it was anciently a part of the hood worn by the people of the robe; the skirts whereof being cut off, as an incumbrance, left the round *cap* an easy commodious cover for the head; which round *cap* being afterwards assumed by the people, those of the gown changed it for a square one, first invented by a Frenchman, called Patrouillet: he adds, that the giving of the *cap* to the students in the universities, was to denote, that they had acquired full liberty, and were no longer subject to the rod of their superiors; in imitation of the ancient Romans, who gave a *pileus*, or *cap*, to their slaves, in the ceremony of making them free: whence the proverb, *Vocare servos ad pileum*. Hence, also on medals, the *cap* is the symbol of liberty, whom they represent holding a *cap* in her right hand, by the point.

The Romans were many ages without any regular covering for the head: when either the rain or sun was troublesome, the lappet of the gown was thrown over the head; and hence it is that all the ancient statues appear bareheaded, excepting sometimes a wreath, or the like. And the same usage obtained among the Greeks, where, at least during the heroic age, no *caps* were known.

The sorts of *caps* or covers of the head in use among the Romans on divers occasions, were the *pitra*, *pileus*, *cucullus*, *galerus*, and *palliolum*; the differences between which are often confounded by ancient as well as modern writers.

The French clergy wear a shallow kind of *cap*, called *calotte*, which only covers the top of the head, made of leather, satin, worsted, or other stuff.

The *red cap* is a mark of dignity allowed only to those who are raised to the cardinalate.

The secular clergy are distinguished by black leathern *caps*, the regulars by knit and worsted ones.

The Chinese have not the use of the hat, like us; but wear a *cap* of a peculiar structure, which the laws of civility will not allow them to put off: it is different for the different seasons of the year; that used in summer, is in form of a cone, ending at top in a point. It is

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made of a very beautiful kind of mat, much valued in that country, and lined with satin: to this is added, at top, a large lock of red silk, which falls all round as low as the bottom; so that, in walking, the silk fluctuating regularly on all sides, makes a graceful appearance: sometimes, instead of silk, they use a kind of bright red hair, the lustre whereof no weather effaces. In winter they wear a plush *cap*, bordered with martlet's, or fox's skin; as to the rest, like those for the summer. Nothing can be neater than these *caps*; they are frequently sold for eight or ten crowns; but they are so short that the ears are exposed.

CAP, *square*.—The *cap* or bonnet, is a mark, or ornament of certain characters: thus churchmen, and the members of universities, students in law, physic, &c. as well as graduates, wear *square caps*. In most universities, doctors are distinguished by peculiar *caps*, given them in assuming the doctorate. Wickliffe calls the canons of his time *bifurcati*, from their *caps*. Pasquier observes, that in his time, the *caps* worn by the churchmen, &c. were called *square caps*; though, in effect, they were round, yellow *caps*.

The *cap* is sometimes also used as a mark of infamy: in Italy the Jews are distinguished by a *yellow cap*; at Lucca by an *orange* one. In France, those who had been bankrupts were obliged ever after to wear a *green cap*, to prevent people from being imposed on in any future commerce. By several arrests in 1584, 1622, 1628, 1688, it was decreed, that if they were at any time found without their *green cap*, their protection should be null, and their creditors empowered to cast them into prison: but the sentence is not now executed.

CAP of maintenance, one of the regalia or ornaments of state belonging to the kings of England, before whom it was carried at the coronation and other great solemnities; and also of the mayors of several cities in England.

CAP of a gun, is a piece of lead which is put over the touch-hole of a gun, to keep the priming from being wasted or spilt.

To *cap*, is said of a ship in the trials of the running or setting of currents.

CAP, in a ship, is a square piece of timber, put over the head, or upper end of a mast, having a round hole to receive the mast. By these *caps*, the top-masts, and top-gallant-masts, are kept steady and firm in the tressel-trees, where their feet stand; as those of the lower-masts do in the steps. See *Tab. Ship. fig. 1. n. 31. 58. 76. 101. 113. 143.* and *fig. 1. n. 15.*

CAP, in Chemistry, signifies the piece which terminates the top of a melting FURNACE.

CAP, or great **CAP**, in Chirurgery, a denomination of a kind of compendious bandage, serving for almost all occasions of the head, being in figure not unlike a helmet.

Among chirurgical instruments we meet with a silver *cap*, *puleolus argenteus* (though of late also made of wood, or even white wax), perforated at both ends, applied to the paps of nursing women, when ulcerated, for the more commodious giving of suck.

CAP, in Phytology, a name given to the husk or green succulent coat which covers the upper part of a nut, and connects it to the parent tree.

The *cap* consists of a pilling and parenchyma derived from the bark, and ramulets from the ligneous body of the branch.

CAP of a MUSHROOM, is the head or superior part expanded over the foot stalk, somewhat in manner of a canopy, or umbrella.

CAP, black, in Zoology. See PEWIT.

CAP, Neptune's. See NEPTUNE.

CAP, priest's, in Fortification. See BONNET à prétré.

CAP-merchant, in a trading ship, is the same officer who is called purser on board a man of war. The French call him writer (*ecrivain*). He is appointed by the merchant to whom the ship belongs, to take care that nothing be embezzled or squandered away.

CAPACITY, in a general sense, an aptitude, or disposition to retain or hold any thing.

Our law allows the king two *capacities*, a *natural*, and a *political*: in the first he may purchase land to him, and his heirs; in the latter, to him, and his successors.—The clergy have the like.

CAPARASON, or **CAPARISON**, the covering or cloathing laid over an horse; especially a sumpter, or horse of state.

The word is Spanish, being an augmentative of *cape*, *caput*, head.

Anciently the *caparisons* were a kind of iron armour, wherewith horses were covered in battle.

CAPASH, a kind of head-dress worn by the women of Candia. It is of a stiffened fine muslin, and is made so

as to stand up very high, and extends out a great way on the right side. Pococke's Egypt. vol. ii. part ii. p. 10.

CAPE, in Geography, a head-land; or a piece of land running out from the rest, into the sea.

Sicily was called by the ancients *Trinacria*, by reason of its three capes, or promontories, represented on medals, by three mens legs joined together at the top of the thigh, and bent in the knee; which pretty nearly resembles the triangular figure of that island.

CAPE, in Law, a writ touching plea of lands and tenements; so termed, from the word which carries the chief intention or end of it.

Cape is of two kinds, the *magnum* and *parvum*; which in their effect are alike, as to the taking hold of things immoveable; though in certain circumstances they differ: 1. In that the *cape magnum*, or *grand cape*, lies before; and the *cape parvum*, or *petit cape*, after appearance. 2. *Cape magnum* summons the defendant to answer the default; and besides to the demandant: *cape parvum* only to the default. It is called *petit cape*, not because of its small force; but because contained in few words.

CAPE *magnum* is thus defined in the old Nat. Brev. "Where a man hath brought a *præcipe quod reddat* of a thing that touches plea of land, and the tenant makes default of the day to him given in the original writ; then this writ shall be for the king to take the land into his hands: and if the tenant come not at the day given him by the writ, he loses his land."

CAPE *parvum*, or *petit cape*, is thus defined, *ibid.* "Where the tenant is summoned in plea of land, and comes at the summons, and his appearance is recorded; and at the day given him, prays the view; and having it granted, makes default; then shall this writ issue for the king, &c."

CAPE *ad valentiam*, a species of *cape magnum*, so called from the end to which it tends: it is thus described, "Where I am impleaded of lands, and I vouch to warrant another, against whom the summons *ad warrantandum* hath been awarded, and the sheriff comes not at the day given; then, if the defendant recover against me, I shall have a writ against the vouchee; and shall recover so much in value of the lands of the vouchee, if he has so much: otherwise, I shall have execution of such lands and tenements as descend to him in fee; or, if he purchase afterwards, I shall have a re-summons against him: and if he can say nothing, I shall recover the value."

CAPEDUNCULA, in Roman Antiquity, the vessels wherein the sacred fire of Vesta was preserved. See VESTALS.

CAPELAN, in Zoology, a name given by some authors to the small species of whiting called by the Venetians *matlo*, and by others the *asellus omnium minimus*, and *merlangus*.

CAPELINE, a kind of bandage used by the French surgeons in cases of amputations; consisting of a roller with two equal heads.

CAPELLA, in Astronomy, a bright star of the first magnitude, in the left or preceding shoulder of the constellation AURIGA.

CAPELLA, in Ornithology. See LAPWING.

CAPER-bush, *Capparis*, in Botany, a genus of the *polyandria monogynia* class. Its characters are these: the flower hath four large roundish petals, and a great number of slender stamina. In the midst of these arise a single style, longer than the stamina, with an oval germen, which afterward becomes a fleshy turbinated capsule with one cell, filled with kidney-shaped seeds. There are ten species. The first is the common caper, whose full-grown flower-bud is pickled, and brought to England annually from Italy and the Mediterranean. This is a low shrub, which generally grows out of the joints of old walls, the fissures of rocks, and among rubbish, in most of the warm parts of Europe.

Some say the plant grows in Oxfordshire, and might doubtless be propagated in other places. In England, broom-buds pickled are frequently substituted for capers. When the capers are budded for flowering, the shoots are cut away, and the leaves and flower-buds stripped off; and being passed through a sieve, the capers are thereby separated from the leaves.

This is a speedy way, without which they would come too dear for common use.

They are dried in a shady place; then infused in vinegar; to which, at last, salt is added: after which they are put up in barrels to be used as a pickle, chiefly in sauces; and sometimes also in medicine, as being very aperitive, and entering certain compositions for diseases of the spleen.

All the capers sold throughout Europe, are brought from about Toulon, in France; except some small salt capers from Majorca, and a few flat ones from about Lyons.

The bark of the caper-tree, when dried, is much prescribed by the French physicians in oppilations of the spleen.

CAPER, bean. See BEAN-caper.

CAPERS, long, are the style or pistil of the flower which grows into a fruit, long and round like an olive or acorn when ripe, containing divers hard brown seeds, like the acini of grapes.

CAPERS, capuchin, are produced by a plant formerly brought from India; thus called, because the bottom of the calix of the flower resembles the *capouche* of the religious of St. Francis.

CAPER is also a vessel used by the Dutch, for cruising and taking prizes from the enemy.

In which sense, *caper* amounts to the same with PRIVATEER.

Capers are commonly double officered, and crowded with hands even beyond the rates of ships of war, because the thing chiefly in view is boarding the enemies.

CAPH, a Jewish measure of capacity for things estimated by Kimchi at the 30th part of the log, by Arbuthnot at the 16th part of the hin, or 32d of the seah, amounting to five eighths of an English pint.

The *caph* does not occur in Scripture as the name of any measure.

CAPHAR, a toll, or duty, imposed by the Turks on the Christian merchants, who carry or send merchandises from Aleppo to Jerusalem.

The *caphar* was first settled by the Christians themselves, when masters of the Holy Land, for the support of troops and forces posted in the more difficult passes, to watch the Arabs, and prevent their pillages. But the Turks, who have continued, and even raised the toll, abuse it; exacting arbitrary sums of the Christian merchants and travellers, on pretence of guarding them from the Arabs: with whom they yet frequently keep an understanding, and even favour their robberies.

CAPHURA, the same with *camphor*. The Arabians call it *caphur* and *cofor*. The authors who have written first of the navigation and trade of the East Indies, have distinguished three kinds of camphor, which they say are put to different uses, and bear a different price in the Indies. See CAMPHOR.

CAPI-AGA, or CAPI-AGASSI, a Turkish officer, who is governor of the gates of the Seraglio; or grand master of the Seraglio.

The *capi-aga* is the first dignity among the white eunuchs: he is always near the person of the grand signior: he introduces ambassadors to their audience: nobody enters, or goes out of the grand signior's apartment, but by his means. His office gives him the privilege of wearing the turban in the Seraglio, and of going every where on horseback. He accompanies the grand signior to the apartment of the sultanas, but stops at the door without entering. His appointment is very moderate; the grand signior bears the expence of his table, and allows him at the rate of about sixty French livres per day; but his office brings him in abundance of presents; no affair of consequence coming to the emperor's knowledge without passing through his hand. The *capi-aga* cannot be bashaw when he quits his post.

CAPIAS, a writ or process, which is of two sorts; one before judgment, called *Capias ad respondendum*; granted in an action personal, when the sheriff, upon the first writ of distress, returns, *Nihil habet in balliva nostra*.

The other is a writ of execution after judgment, which is also of various kinds; as, *Capias ad satisfaciendum*, *Capias pro fine*, *Capias utlagatum*, &c.

CAPIAS *ad satisfaciendum*, is a writ of execution after judgment; lying where a man recovers in an action personal, as for debt, damage, &c. in which cases, this writ issues to the sheriff, commanding him to take the body of him against whom the debt is recovered; who is to be kept in prison till he make satisfaction.

It is usual to take out this writ, where the defendant hath no lands nor goods, whereof the debt recovered may be levied: and when the body is taken upon a *Ca. Sa.* and the writ is returned and filed, it is an absolute and perfect execution against the defendant, and no other execution can be against his lands and goods. But this is unless the defendant escape, or die in execution, &c. for where a person dies in execution, his lands and goods are liable to satisfy judgment, by stat. 21 Jac. I. c. 24.

CAPIAS *pro fine*, is where one being by judgment fined to the king, upon some offence against a statute, does not discharge it according to the judgment: by this writ, therefore, his body is to be taken, and committed to prison till he pay the fine.

It is used in other cases, for not making out some pleas in civil actions. 3 Rep. 12.

CAPIAS

CAPIAS utlegatum, a writ which lies against one outlawed upon any action, personal or criminal; by which the sheriff is ordered to apprehend the party outlawed, for not appearing on the exigent, and keep him in safe custody till the day of return; when he is to present him to the court, to be there further ordered for his contempt.

CAPIAS in Withernam. See WITHERNAM.

CAPIAS conductos ad proficiendum, an original writ, which lies, by the common law, against any soldier who has covenanted to serve the king in war, and appears not at the time and place appointed. It is directed to two of the king's serjeants at arms, to arrest and take him wherever he may be found: and to bring him *coram concilio nostro*, with a clause of assistance.

CAPIATUR, judgment quod. When the plaintiff had obtained judgment, it was formerly considered that the defendant should be either amerced, for his wilful delay of justice in not immediately obeying the king's writ, by rendering the plaintiff his due; or be taken up, *capitur*, to pay a fine to the king, in case of any forcible injury. But now, by stat. 5 and 6 W. and M. c. 12. no writ of *capias* shall issue for this fine, but the plaintiff shall pay 6s. 8d. and be allowed it against the defendant in his other costs. In the court of common pleas, they enter that the fine is remitted; but in the court of king's bench, they take no notice of any fine or *capias* at all.

CAPICATINGA, in the *Materia Medica*, a name by which some authors have called the *acorus Asiaticus*, or Asiatic sweet flag.

CAPIDODIUS, in *Ichthyology*, a name given by Paulus Jovius, and some others, to the fish we call the GRAMPUS, and the generality of authors the ORCA. According to the Artedean system, it is a species of the *delphinus* or dolphin: and it is distinguished by that author by the name of the dolphin with the snout bending upwards, and with broad serrated teeth.

CAPIGI, a porter, or door-keeper of the Turkish Seraglio. There are about five hundred *capigis*, or porters, in the Seraglio, divided into two companies; one consisting of three hundred, under a chief called *Capigi-Bassa*, who has a stipend of three ducats per day; the other consists of two hundred, distinguished by the name of *Cuccicapigi*, and their chief *Cuccicapigi-Bassa*, who has two ducats. The *capigis* have from seven to fifteen aspers per day; some more, others less. Their business is to assist the janizaries in the guard of the first and second gates of the Seraglio; sometimes all together; as when the Turk holds a general council, receives an ambassador, or goes to the mosque; and sometimes only in part; being ranged on either side to prevent people entering with arms, any tumults being made, &c. The word, in its original, signifies gate.

CAPILLAMENT, literally signifies *hair*, being formed of the Latin *capillus*, of *caput*, q. d. *hair of the head*. Hence the word is figuratively applied to several things, which, on account of their length, or their fineness, resemble hairs: as,

CAPILLAMENTS of their nerves, the fine fibres, or filaments, whereof the nerves are composed.

CAPILLAMENTS, in *Botany*, more usually called STAMINA, are those small threads, or hairs, which grow up in the middle of flowers; and are headed with little knobs, called APICES.

Bradley seems to restrain *capillaments* to the smaller flowers; and *stamina* (which he corruptly calls *apices*) to the larger.

CAPILLAMENT is also applied to the strings or threads about the roots of plants.

CAPILLARY, of the Latin *capillus*, a *hair*, is applied to several things, to intimate their exceeding smallness, or fineness, resembling that of a hair.

CAPILLARY vessels, in *Anatomy*, are the least, minutest, insensible ramifications of the veins and arteries; which, when cut, or broken, yield but very little blood.

The *capillary vessels* should be conceived as vastly finer than hairs: they are best compared to the threads of cobwebs, and are sometimes called *evanescent vessels*.

CAPILLARY, or CAPILLACEOUS plants, a species of plants, thus denominated from their form, and manner of growth, as having no principal stalk, or stem, with branches, &c. shooting out of the same; but growing from the ground, like hairs from the head: and bearing their seed in little tufts, or prominences, on the backside of their leaves.

The principal of these is the *capilla veneris*, or ADIANTUM; from which the rest take their name.

This genus is placed in Linnæus's twenty-fourth class, entitled *Cryptogamia*; where he has ranged the ferns, maidenhairs, polypodium, &c. with the moss, mushroom, and all those plants which do not produce flowers conspicuous to the naked eye; being either concealed in

their fructification, or so small as not to be perceived without the help of glasses. The first order of this class is ferns, &c. most of which have their flowers and seeds on the backs of their leaves.

Capillary plants amount to much the same with what are otherwise denominated ACAULOSE plants. See Phil. Trans. N^o 186. p. 284.

All the *capillaries* are reputed of use in medicine, especially in making of pectoral syrups; to which, wonderful virtues are attributed. But, in effect, only the *capillary* of Montpellier, *adiantum album Monspeliense*, and that of Canada, *adiantum album Canadense*, are regularly used for that purpose: the rest only serve to counterfeit them.

CAPILLARIS or CAPILLATA, Arbor, an ancient tree at Rome, on which the festal virgins when shaven for their office, hung up their hair, and consecrated it to the gods.

CAPILLARY is also used by *Mineralists* in speaking of ores which ramify or shoot out fine branches like threads.

In which sense it amounts to the same with what is otherwise called *arborescent* and *striated*. Woodward speaks of *capillary* or *arborescent silver*, and iron; Grew describes a piece of pure *capillary copper* from the mine at Heragrunt, the several *striae*, or *capilli* of which are short, of a reddish golden colour, growing together almost like those of the little stone-moss.

CAPILLARY roots. See FIBROSE roots.

CAPILLARY tubes, in *Physics*, are little pipes, whose canals are the narrowest possible; not such, whose diameters do not exceed that of a common hair; for none such can be made. The usual diameter of *capillary tubes*, is a half, third, or fourth of a line: though Dr. Hook assures us he drew tubes in the flame of a lamp much smaller, as fine almost as a thread of a cobweb.

CAPILLARY tubes, the ascent of water, &c. in, is a famous phenomenon which has long embarrassed the philosophers. Let one end of a small tube, open at both ends, be immersed in water, and the liquor within the tube will rise to some sensible height above the external surface: or immerse two or more tubes in the same fluid, one of them a *capillary* one, and the other considerably larger; the water will ascend considerably higher in the *capillary* tube than the other, in the reciprocal ratio of the diameters of the tubes, both in open air and in vacuo. See ASCENT.

Mr. Hauksbee, and others, have recourse to the attraction of the annuli of the concave surface of the tube, to which opinion Dr. Morgan subscribes.

But since in every *capillary* tube, the height to which the water will spontaneously ascend, is reciprocally as the diameter of the tube; it follows, that the surface, containing the suspended water, is always a given quantity. But the column of water suspended in every tube, is as the diameter of the tube: therefore, if the attraction of the containing surface be the cause of the water's suspension; it will follow, that equal causes produce unequal effects; which is absurd. And, again, not only his solution, but his phenomenon also, is extended too far: for it is not in all fluids that the phenomenon obtains; but in mercury the very contrary is found; that fluid in a tube not rising so high as the level of that in the vessel; and the defect being found the greater, as the tube is smaller.

We must, therefore, recur to Dr. Jurin's solution of this phenomenon, which is well supported by experiments.

"The suspension of the water (on that gentleman's system) is owing to the attraction of the periphery of the concave surface of the tube, to which the upper surface of the water is contiguous, and adheres;"

this being the only part of the tube, from which the water must recede upon its subsiding; and consequently the only one which, by the force of its cohesion and attraction, opposes the descent of the water. This he shews to be a cause proportional to the effect; because the periphery, and the suspended column, are both in the same proportion as the diameter of the tube. The suspension thus accounted for, the seemingly spontaneous ascent will easily be solved: for since the water that enters a *capillary* tube, as soon as its orifice is dipped therein, has its gravity taken off by the attraction of the periphery, with which its upper surface is in contact, it must necessarily rise higher; partly by the pressure of the stagnant water, and partly by the attraction of the periphery, immediately above that which is already contiguous to it. Phil. Trans. abr. vol. iv. p. 423, &c. N^o 355. or Cotes's Hyd. and Pneum. Lect. p. 265.

Some doubt whether the law holds throughout, of the ascent of the fluid being always higher as the TUBE is smaller; Dr. Hook's experiments, with tubes almost as fine as cobwebs, seem to shew the contrary. The water in these, he observes, did not rise so high as one would have

have expected. The highest he ever found was at 21 inches above the level of the water in the basin, which is much short of what it ought to have been by the law above mentioned.

Capillary tubes which naturally discharge water only in separate drops, yield, when electrified, a continued and accelerated stream; and the acceleration is proportional to the smallness of the tube: and the effect of electricity is so considerable, that it produces a continued stream from a very small tube, out of which the water had not before been able to drop. Priestley's Hist. Electr. 8vo. vol. i. p. 171. ed. 3d.

CAPILLARY vessels. Many small vessels of animal bodies have been discovered by the modern invention of injecting the vessels of animals with a coloured fluid, which upon cooling grows hard. But though most anatomists know the manner of filling the large trunks, few are acquainted with the art of filling the *capillaries*. Mr. Monro has given us what he, after many trials, has found most successful, in the Medic. Ed. Edinb. vol. i. art. 9. where he enters into a very nice detail of the operation, to which we must refer the curious. Some particulars we shall give under the head **INJECTION**.

CAPILLARY worms, in children, are the same with what are otherwise called **CRINONES**, *comodones*, and *dracunculæ*.

CAPILLARY fracture. See **CAPILLATION**.

CAPILLATION, or **CAPILLARY fracture**, according to some writers, is a fracture in the skull, so small that it can scarce be perceived; but yet it often proves mortal. See **FRACTURE**.

CAPILLITIUM Veneris, in *Physiology*, denotes a meteor appearing in the air, in form of fine threads resembling a spider's web.

Some think that the *capillitium Veneris* derives its origin from a cloud, the watery parts of which having been exhaled by the sun's heat, only the earthy and sulphureous parts are left behind, which shoot into this figure.

It is sometimes also found hanging about woods and coppices, or even extended on the ground like a fine net frequently enough mistaken for spiders webs.

CAPILLUS. See **HAIR**.

CAPILLUS Veneris. See **ADIANTHUM**.

CAPITLENIUM, from *caput*, head, and *plenus*, full, is used by some authors for a catarrh; but more properly, by the Italian physicians for a continual heaviness of the head, frequent at Rome, and almost endemic.

CAPISCOLUS, or **CAPISCHOLUS**, in *Ecclesiastical Writers*, denotes a dignitary in certain cathedrals, who had the superintendency of the choir, or band of music, answering to what in other churches is called **CHANTER** or **precentor**.

The word is also written *cabiscolus*, and *caput scholæ*, q. d. the head of the school, or band of music.

The *capiscolus* is also called *scolasticus*, as having the instruction of the young clerks and choristers, how to perform their duty.

CAPISTRUM, among the *Ancient Musicians*, was a kind of headstall, or bridle made of leather, fastened round the head, which passing over the mouth, compressed the lips and cheeks so close, that the person, whatever effort he made, could not give his pipe, or flute, above the due quantity of wind requisite to make it speak.

The figure of a musician equipt with a *capistrum*, is given by Salmasius, who maintains it to be that of Marsyas the satyr, who according to Plutarch, was the inventor of this instrument; in virtue of which he had even dared to contend with Apollo. It was copied from an ancient seal, formerly belonging to Velferus. Plut. Sympos. lib. vii. cap. 8. Salmaf. Exerc. ad Solin. p. 585.

Some pretend that the use of the *capistrum* was to hide the deformity of bloated cheeks, and a gaping mouth, especially where the teeth were bad; others that it was intended to save the lips and cheeks from being extended so as to endanger burbling; others, to fortify the part, that it might yield the stronger noise. But the chief use appears to have been, to temper and moderate the breath, and prevent its animating the pipe beyond the due pitch. See **PHOREÆA**.

The chemists give the denomination *capistrum auri* to **BORAX**.

CAPISTRUM, in *Surgery*, a headstall, or bandage used in case of injuries of the head, especially fractures of the jaw.

CAPITA, or **CAPITUM**, in *Antiquity*, denotes a tax among the Romans for the maintenance of the horses in the army, levied according to the number of heads thereof.

CAPITA, *distribution by*, is such a distribution, that every man has an equal share of *personal* estate when all the claimants claim in their own rights, as in equal degree of kindred, and not *jure representationis*. Blackst. Com. vol. ii. p. 517.

CAPITA, *succession by*, is that where the claimants are next in degree to the ancestor, in their own right, and not by right of representation. Blackst. Com. vol. ii. p. 218.

CAPITAL, of the Latin *caput*, is used on various occasions, to express the relation of a head, chief, or principal: thus,

CAPITAL city, intimates the principal CITY of a kingdom, province, or state; as, London is the *capital*, or *capital city* of England; Moscow, of Russia; Constantinople, of the Ottoman empire; Rouen, of Normandy, &c. See **METROPOLIS**.

M. Bayle has a discourse on the advantages of being born and living in the *capital* of the country.

CAPITAL court, *capitalis curia*, the chief manor-house, or place-house where the lord of the manor holds his COURT; called also in Kent the court-lodge.

Capital-court is sometimes used for the same with *capital MESSAGE*.

CAPITAL honour, *capitalis honor*, denotes the chief honour or prime barony of the whole county, as that in ancient times usually enjoyed by the count or earl of such county.

CAPITAL lord, *capitalis dominus*, the lord of the fee, from whom the estate is held by inferior tenants.

CAPITAL picture, in *Painting*, denotes one of the most excellent pieces of any celebrated master.

F. Chamillard gives a list of the pieces of each famous painter, and the places where they are found.

CAPITAL, or **CAPITAL stock**, in *Commerce*, is the fund, or stock, of a trading company, or corporation: or the sum of money which they jointly furnish, or contribute, to be employed in trade.

It is also used to denote the stock which a merchant or tradesman employs in business on his own account.

The power given by parliament to the South-sea company, to increase their *capital*, was the source of all the mischief which ensued in the year 1720.

CAPITAL, in *Money Matters*, denotes the sum of money put out to interest.

In which sense it amounts to the same with *principal*, and stands opposed to *interest*.

CAPITAL crime, is that which subjects the criminal to a *capital* punishment; i. e. to the loss of life, either natural, or civil.

CAPITAL lees, are the strong lees made by the soap-boilers from pot-ashes.

They are also used, in *Surgery*, as a caustic; and to make the *lapis infernalis*.

CAPITAL letters. See **CAPITALS**.

CAPITAL medicines, in *Pharmacy*, are the great or principal preparations of the shops: these are remarkable for the number of their ingredients, and their extraordinary virtues; such as Venice treacle, mithridate, &c.

CAPITAL, in *Architecture*, the uppermost part of a column, or pilaster, serving as the head, or crowning thereof; placed immediately over the shaft, and under the entablature.

CAPITAL of a column, properly, is that whose plan is round. Whereas the **CAPITAL of a pilaster** is that whose plan is square, or at least rectilinear.

The *capital* is a principal and essential part of an order of a column, or pilaster: it is made differently in the different orders; and is that which chiefly distinguishes and characterises the orders themselves.

CAPITAL, *Tuscan*, is the most simple and unadorned: its members, or parts, are but three; viz. an abacus; under this, an ovolo, or quarter-round; and under that, a gorge, or coralino. The gorge, or neck, terminates in an astragal, or fillet belonging to the fust, or shaft.—See *Tab. Archit. fig. 24*.

The character of this *capital*, whereby it is distinguished from the Doric, &c. is, that the abacus is square, and quite plain, and has no ogee, or other moulding; and that there are no annulets under the ovolo.

Indeed, authors vary a little as to the character of the *Tuscan capital*. Vignola gives the abacus a fillet, in lieu of an ovolo; Vitruvius and Scamozzi add an astragal and fillet, between the ovolo and neck; Serlio only a fillet; Philander rounds the corner of the abacus. In the Trajan column there is no neck; but the astragal of the shaft is confounded with that of the *capital*.

The height of this *capital* is the same with that of the base, viz. one module, or semidiameter. Its projecture is equal to that of the cincture at the bottom of the column; viz. eight fifths of the module. See **COLUMN**.

CAPITAL, *Doric*, beside an abacus, an ovolo, and a gorge, in common with the *Tuscan*, has three annulets, or little square members, underneath the ovolo, in lieu of the astragal in the *Tuscan*; and a talon, cima, or ogee, with a fillet over the abacus. See *fig. 25*.

Authors vary too, as to the characters of this *capital*: Palladio, Vignola, &c. put roses under the corners of the abacus, and in the neck of the *capital*.

The height of this *capital*, Vitruvius, &c. make one module;

dulè; and its projecture thirty-seven minutes and a half.—See *Tab. Arith. fig. 25*.

CAPITAL, Ionic, is composed of three parts: an abacus, consisting of an ogee, and a fillet; under this a rind, which produces the volutes, or scrolls; the most essential part of this capital; and, at the bottom, an ovolo, or quarter-round: the astragal, under the ovolo, belongs to the shaft. The middle part is called the *rind*, or bark, from its supposed resemblance to the bark of a tree laid on a vase, whose brim is represented by the ovolo, and seeming to have been shrunk up in drying, and to have twisted into the volutes.

The ovolo is adorned with eggs, as they are sometimes called, from their oval form: the Greeks call it the *echinos*.

The height of this capital M. Perrault makes eighteen minutes; its projecture, one module, seven tenths.—See *Tab. Archit. fig. 26*.

The difference in the character of this capital flow mostly from the different management of the volutes; and consist in this: that in the antique, and some of the modern, the eye of the volute answers not the astragal of the top of the shaft, as Vitruvius, and most of the moderns, make it: that the face of the volutes, which usually make a flat, are sometimes curved and convex, so that the circumvolutions go advancing outwards; as is frequent in the antique: that the border, or rim of the scroll in the volute, is sometimes not only a plain sweep, as ordinarily; but the sweep is accompanied with a fillet: that the leaves which invest the baluster, are sometimes long and narrow; sometimes larger and broader: that the two faces of the volutes are sometimes joined at the outer corner; the balusters meeting in the inner, to make a regularity between the faces on front and back of the building, with those of the sides: that among the moderns, since Scamozzi, the Ionic capital has been altered, and the four faces made a like, by taking away the baluster, and hollowing all the faces of the volutes inwards, as in the Composite: that Scamozzi, and some others, make the volutes to spring out from the ovolo, as from a vase, after the manner of the modern Composite; whereas in the antique the bark passes between the ovolo and abacus quite straight, only twisting at its extremities, to form the volute. And, lastly, that of late years the sculptors have added a kind of little festoons, springing from the flower whose stalk lies on the first circumvolution of the volute; and supposed to represent the locks of hair hanging down on both sides of the face. See **IONIC**.

CAPITAL, Corinthian, is much the richest: it has no ovolo; and its abacus is very different from those of the Tuscan, Doric, and Ionic; as having its faces circular, and hollowed inward, with a rose in the middle of each sweep: instead of an ovolo, and annulets, here is only a brim of a vase; and the neck is much lengthened and enriched with a double row of eight leaves in each, bending their heads downwards; and between them, small stalks arising: whence spring the volutes; which do not resemble those of the Ionic capital; and which, instead of the four in the Ionic, are here sixteen; four on each side, under the four horns of the abacus, where the volutes meet in a small leaf, which turns back towards the corner of the abacus. The leaves are divided, each making three ranges of lesser leaves, whereof they are composed: each lesser leaf is, again, generally parted into five, called *olive-leaves*; sometimes into three and called *laurel-leaves*: the middle leaf, which bends down, is parted into eleven. In the middle, over the leaves, is a flower, shooting out between the stems and volutes, like the rose in the abacus. The height of this capital is two modules and one third; and its projecture, one and seven thirds.

The difference in the character of this capital are, that in Vitruvius, &c. the leaves are in form of the acanthus; whereas, in the antique, they are more ordinarily olive-leaves: that their leaves are usually unequal, the undermost being made commonly tallest, sometimes the shortest, though sometimes they are all equal. Sometimes the leaves are ruffled; sometimes quite plain: the first row generally belly out towards the bottom, but are sometimes straight: sometimes the horns of the abacus are sharp at the corners, which seems agreeable to the rules of Vitruvius; but they are more commonly cut off. There is some difference too, in the form and size of the rose: again, the volutes are sometimes joined to each other; sometimes wholly separate: sometimes the spires of the volutes continue twisting even to the end of the same course; and sometimes they turn back again near the centre, in the form of an S.—See *Tab. Archit. fig. 21*. and 27.

CAPITAL, Composite, is so called, because composed of members borrowed from the capitals of the other columns.

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It takes a quarter-round, or ovolo, from the Doric; an astragal under this, together with volutes, or scrolls, from the Ionic; and a double row of leaves from the Corinthian, which it resembles in most other things; consisting, generally, of the same members, and the same proportions. In the middle of the abacus is a flower; and under the thorns, leaves which return upward, as in the Corinthian; indeed, instead of stalks in the Corinthian, the Composite has small flowers, lying close to the vase, or bell; twisting round towards the middle of the face of the capital, and terminating in the rose.

The height of the Composite capital is two modules and one third; and its projecture, one module and two thirds, as in the Corinthian.—See *Tab. Archit. fig. 28*.

The differences of the character of this capital consist in this; that the volutes, which ordinarily descend, and touch the leaves, are, in some works of the antique, separate from them: that the leaves, which are generally unequal in height, the lower rank being tallest, are sometimes equal: that the volutes of the moderns generally spring out of the vase: whereas, in the antique, they ordinarily run straight the length of the abacus, over the ovolo, without striking into the vase: that the volutes, whose thickness is contracted in the middle, and enlarged above and below in the antique, have their sides parallel in the works of the moderns: and, lastly, that the volutes, which have been hitherto, both by the ancients and moderns, made as if solid, are now much lighter, and more airy; the folds standing hollow, and at a distance from each other.

For the proportions of the several members of the capitals of columns, see **COLUMN**. See also each member under its proper head, as **ABACUS**, **ACANTHUS**, **VOLUTE**, &c.

Some architects distinguish the Tuscan and Doric capitals, which have no ornaments, by the title of *capitals of mouldings*; and the three others, which have leaves and ornaments, they call *capitals of sculpture*.

CAPITAL, Angular, is that which bears the return of an entablature, at the corner of the projecture of a frontispiece.

CAPITAL, Folded, in *Architecture*, that of a pilaster in a re-entering angle, whether right or obtuse.

CAPITAL, Mutilated, that whose projecture is less on one side than another, as being too near some adjacent body or angle.

CAPITAL, Attic, that which has water-leaves in the gorgerin.

CAPITALS, Symbolical, those adorned with the attributes of heathen deities. Such are most of the antique capitals, in which we find thunderbolts and eagles from Jupiter, trophies from Mars, lyres from Apollo, &c. Such also among the moderns are those which bear the arms and devices of a nation, the marks of a victory, a dignity, or the like.

CAPITAL of a baluster, is that part which crowns the baluster; which sometimes bears a resemblance to the capitals of some columns, particularly the Ionic.

CAPITAL of a Niche, is a kind of little canopy over a shallow niche, covering or crowning a statue.

CAPITAL of a Triglyph, is the plat-band over the triglyph; called, by Vitruvius, *tænia*. It is sometimes also a triglyph which does the office of a capital to a Doric pilaster.

The capitals of triglyphs, according to Vitruvius, are to be a sixth part of the module. Over them is to be placed a corona.

CAPITAL, in Chemistry, signifies the head of an ALEMBIC.

CAPITAL of a Bastion, in *Fortification*, is a line drawn from the angle of the polygon to the point of the BASTION. The capitals of bastions are from thirty-five to forty fathoms long, from the point of the bastion to the point where the two demigorges meet.

CAPITAL of a Lantern, the covering which terminates the lantern of a dome, either in the figure of a bell, as that of the Sorbonne; or of a cupola, or a spiral, as that of the church of Sapienza at Rome.

CAPITAL of a Mill, the covering thereof in form of a cone, which turns vertically on the round tower, in order to expose the sails to the wind.

CAPITALS, in Printing, large or initial letters, wherein titles, &c. are composed; and with which all periods, verses, &c. commence.

All proper names of men, countries, kingdoms, terms of arts, sciences, and dignities, usually begin with *capitals*.

The ancient MSS. both Greek and Latin, are written wholly in capitals.

In the early days of printing, there were also several editions of books in capitals, as of Homer, the Greek Anthology, Apollonius, &c. Johannes Lascaris seems to

have brought the ancient printers to give editions in *capitals*.

CAPITALIS *reflexa*, in *Surgery*. See **CAPELINE**.

CAPITANA, or **CAPTAIN** galley, the chief or principal galley of a state, not dignified with the title of a kingdom.

The *capitane* was anciently the denomination of the chief galley of France, which the commander went on board of. But since the suppression of the office of captain-general of the galleys in 1669, they have no *capitana*, but the first galley is called *reale*, and the second *patrone*.

CAPITANEATE, in a general sense, the same with **CAPITANIA**.

Capitaneates, in Prussia, a kind of noble feuds, or estates, which, besides their revenue, raise their owners to the rank of nobility. They are otherwise called *starosties*. Bibl. Germ. tom. vi. p. 11.

CAPITANEI, or **CATANEI**, in Italy, was a denomination given to all dukes, marquises, and counts, who were called *capitanea regis*. The same appellation was also given to persons of inferior rank who were invested with fees, formerly distinguished by the appellation *valvasores majores*. Du-Cange.

CAPITANEUS, in *Ancient Law Writers*, denotes a tenant in **CAPITE**, or chief.

CAPITANEUS *ecclesiæ*, the same with advocate. Du-Cange, Gloss. Lat. tom. i. p. 802.

CAPITANIA, the office or dignity of a captain, and more especially a perpetual feud. See **CAPITANEATE**.

CAPITANIA is also a denomination given to the twelve governments established by the Portuguese in Brasil.

CAPITATÆ *Plantæ*, in *Botany*, are those plants whose flowers are fistular, composed of many edged and hollow little flowers. They were thus called by Mr. Ray, because their scaly calyx (or cup of the flower) most usually swells out into a large round head, containing within it the pappous seed: as in the *carduus*, *centaury*, *gnapweed*, *cinara*, *cirsium*, *lappa major*, *cyanus*, &c.

CAPITATION, a tax or imposition, raised on each person, in consideration of his labour, industry, office, rank, &c. This kind of tribute is very ancient, and answers to what the Greeks call *επιεσφαλαιον*; the Latins, *capita*, *capitatio*, and *tributum*, or *tributum capitis*, or *capitulare*. By this term, taxes on the person are distinguished from taxes on merchandise, which were called *veligalia*, *quia vehabantur*.

CAPITATION also denotes a certain sum of money imposed per head, in exigencies of state.

CAPITATUS, in *Ichthyology*, a name given by Johannes Cuba, and some others, to that fish which we commonly call the bull-head, and miller's thumb, the *cottus* and *gobio capitatus* of authors. It is of the genus of the *cotti*, according to the Artedean system, and it is distinguished by that author by the name of the smooth scaleless *cottus*.

CAPITE, in *Law*, an ancient tenure, whereby the person held of the king immediately, as of his crown, either by knight's service, or soccage.

By a statute, 12 Car. II. c. 24. all such tenures by knights service of the king, or of any other person, knights service, in *capite*, or *SOCCAGE*, with all rights, &c. are annulled.

CAPITE, *confi*, in *Antiquity*, the lowest rank of Roman citizens, who in public taxes were rated the least of all, being such as were never worth above 365 asses.

They were supposed to have been thus called, because they were rather counted and marshalled by their heads than their estates. Aul. Gel. lib. vii. cap. 13.

The *capite confi* made part of the sixth class of citizens, being below the *proletarii*, who formed the other moiety of that class.

The *capite confi* were not enrolled in the army, as being judged not able to support the expences of war; for in those days the soldiers maintained themselves. It does not appear that before Caius Marius any of the Roman generals listed the *capite confi* in their armies. Sallust. Jug. p. 135.

CAPITIS *nonus*, in *Antiquity*, the name given by Fallopius, to one of the muscles of the head, described by Albinus under the name of the *rectus capitis internus major*, and by Winslow and others under that of the *rectus capitis anterior longus*. See **HEAD**.

CAPITIS *par tertium*, in *Anatomy*, a name given by Fallopius, and others of his time, to a muscle since called, by Winslow, *COMPLEXUS minor*, and *mastoidæus lateralis*; and by Cowper and Albinus, *trachelomastoidæus*.

CAPITO, in *Ichthyology*, the *chub*; it is also called by some authors the *cephalus* and *spualus*, and *cyprinus*, and in some parts of England the *chevin*. It is a longer bodied fish than the carp; and its head is black, large, and somewhat flat. It has no teeth either in the jaws, palate, tongue, or throat; its tail is forked, and all its fins are of a bluish black colour. Its belly is somewhat prominent; it is a

river fish, and loves the covert of old stumps of trees and hollow banks, and gives the angler much diversion: it will not live in ponds; it spawns in May, and is in best season in April, when full of spawn, but is never a very delicate fish. Ray. See **CHUB**.

CAPITO is also a name given by several authors to the *mugil* or *mullet*. Gaza seems to have given rise to this error: he found the word **CEPHALUS** in Aristotle as the name of the mullet, and translated it by the word *capito*; not considering, that he by that name confounded this fish with another, namely, the *chub*.

CAPITO *anodromus*, in *Ichthyology*. See **ZERTA**.

CAPITO *cæruleus*, the blue *chub*; a fish common in the Danube, and other of the large rivers in Germany, and frequently called the *JENTLING*.

CAPITO *rapax*, in *Ichthyology*, a name given by some authors to the *CORVUS piscis*, a fish of the shape of our river-chub.

CAPITOL, **CAPITOLIUM**, in *Antiquity*, a famous fort, or castle, on the Mons Capitolinus at Rome, wherein was a temple dedicated to Jupiter, thence also denominated *Capitolinus*, in which the senate anciently assembled; and which still serves as the city-hall, or town-house, for the meeting of the conservators of the Roman people.

It had its name *Capitol* from *caput*, a man's head; said to have been found fresh, and yet bleeding, upon digging the foundation of the temple, built in honour of Jupiter. Arnobius adds, that the man's name was Tulus; whence *caputtolium*.

The first foundations of the *Capitol* were laid by Tarquin the Elder, in the year of Rome 139. His successor, Servius, raised the walls; and Tarquin the Proud finished it in the year 221: but it was not consecrated till the third year after the expulsion of the kings, and establishment of the consulate. The ceremony of the dedication of the temple was performed by the consul Horatius, in 246.

The *Capitol* consisted of three parts: a nave, sacred to Jupiter; and two wings, or isles, to Juno and Minerva. It was ascended by stairs; Lipsius reckons one hundred in number, because there were so many in the ascent of the Tarpeian rock. The frontispiece and sides were encompassed with galleries, wherein those, who had the honour of a triumph, entertained the senate at a magnificent banquet, after the performance of sacrifice to the gods. Both inside and outside were enriched with numerous armaments; the statue of Jupiter, with his golden thunderbolt, his sceptre, and crown, were the most distinguished.

In the same *Capitol* there were, likewise, a temple to Jupiter the Guardian, and another to Juno; with the mint: and on the descent of the hill was the temple of Concord.

The *Capitol* was burnt under Vitellius, and rebuilt under Vespasian: it was burnt a second time by lightning under Titus; and was again restored by Domitian.

Anciently the name *Capitol* was likewise applied to all the principal temples, in most of the colonies throughout the Roman empire: as, at Constantinople, Jerusalem, Carthage, Ravenna, Capua, &c.

CAPITOLINE *Games*, *Ludi CAPITOLINI*, were annual games, or combats, instituted by Camillus, in honour of Jupiter Capitolinus; and in commemoration of the Capitol's not being surprised by the Gauls.

Plutarch tells us, that a part of the ceremony consisted in the public crier's putting up the Hetrurians to sale by auction: they also took an old man, tying a golden bulla to his neck, such as were worn by their children, and exposed him to the public derision. Festus says, they dressed him in a *prætecta*, hung a bulla at his neck; not as accounting him a child, but because this was an ornament of the kings of Hetruria.

There was also another kind of *Capitoline* games, called *Agones Capitolini*, instituted by Domitian, and celebrated each five years; wherein there were rewards and crowns bestowed on the victorious poets, and put on their heads by the emperor himself. These games became so celebrated that the manner of accounting time by lustres, which had obtained till then, was changed, and they began to count by *Capitoline* games, as the Greeks by Olympiads. The feast was not for poets alone, but also for ethletæ, orators, historians, comedians, musicians, &c.

CAPITOLINI, in *Roman Antiquity*, a college of men residing in the Capitol, to whom was committed the care of celebrating the *Capitoline* games.

CAPITOUL, or **CAPITOL**, an appellation given to the chief magistrates of Tholouse who have the administration of justice and policy, both civil and mercantile, in the city.

The *Capiteuls* at Tholouse are much the same with the *echevins*

ecchevins at Paris, and the consuls, bailiffs, burger-masters, mayors, and aldermen, &c. in other cities. In ancient acts they are called *consules capitularii*, or *capitolini*, and their body *capitulum*. From this last come the words *capitularii* and *capitoul*. The appellation *capitalini* arose hence, that they have the charge and custody of the town-house, which was anciently called *capitol*. The office only lasts one year, and ennobles the bearers. In some ancient acts they are called *capitulum nobilium Tolosæ*. Those who have borne it, style themselves afterwards burgessees. They are called to all general councils, and have the *jus imaginum*; that is, when the year of their administration is expired, their pictures are drawn in the town house; a custom which they have retained from the ancient Romans, as may be seen in Sigonius.

CAPITOULATE, an appellation given to the several quarters or districts of the city of Tholouse, each under the direction of a **CAPITOUL**; much like the wards of London under their aldermen.

Tholouse is now divided into eight *capitoulates* or quarters, which is subdivided into *moulans*, each of which has its tithing-man, whose business is to inform the *capitoul* of what passes in his tithing, and to inform the inhabitants of the tithing, of the orders of the *capitoul*.

CAPITULA ruralia, denote chapters held by the rural dean and clergy within the precincts of each deanry, anciently held every three weeks, then once a month, and more solemnly once a year.

CAPITULAR, or **CAPITULARY**, denotes an act passed in a chapter, either of knights, canons, or religious.

The *capitularia* or *capitulars* of Charlemagne, Charles the Bald, &c. are the laws, both ecclesiastical and civil, made by these emperors in the general councils, or assemblies of the people: which was the way in which the constitutions of most of the ancient princes were made; each person present, though a plebeian, setting his hand to them.

Some distinguish these from laws; and say, they were only supplements to laws.—They had their name, *capitulars*, because divided into *capitula*, chapters or sections. In these *capitulars* did the whole French jurisprudence anciently consist.—In process of time, the name was changed for that of *ordonnances*.

Some distinguish three kinds of *capitulars*, according to the difference of their subject-matter: those on ecclesiastical affairs, are really canons, extracted from councils; those on secular affairs, real laws; those relating to particular persons, or occasions, private regulations.

CAPITULATION, a treaty made with the garrison or inhabitants of a place besieged; whereby they surrender themselves up, on certain articles and conditions stipulated with the besiegers.

Before a surrender the governor of the garrison gives orders for beating the **CHAMADE**, and for fixing one or more white colours on the rampart; one of which remains either on the breach or rampart, during the time of negotiation. When the *chamade* is beat, the fire ceases on both sides, and the governor sends some officers of distinction to the commander in chief of the besiegers, who deliver to them the conditions on which the governor proposes to surrender the town; and as a security for these officers, the besiegers send a like number into the town. If the governor's conditions are not satisfactory to the general of the besiegers, he prescribes the conditions of surrender; threatening to allow no conditions, if those proposed are not complied with within a certain time. If the conditions are too hard, the officers return, and the drums are beat upon the rampart, for the commencement of hostilities. During the suspension of arms, no work should be done for the security either of the besieged or besiegers; however, stratagems are counted lawful, and should be guarded against.

If the terms of *capitulation* are agreed upon, the governor sends two or three of his principal officers into the camp, and the general sends the same number, and of the same rank, into the town, as a security for accomplishing the *capitulation*. When every thing is finished, the hostages on both sides return. The conditions of the besieged are of various kinds, according to their circumstances. A garrison should have provision and ammunition at least for three days, to be entitled to a composition, without which they are to be made prisoners of war; but this should be known before the *capitulation* is signed. When the *capitulation* is settled, an officer of artillery from the besiegers comes into the place with an officer of artillery from the garrison, who takes an inventory of all the artillery and ammunition remaining: and a commissary of provisions takes an account of the provisions. When the besieged have delivered a gate of the place to the besiegers, the first regiment of the army enters and mounts guard. When the garrison leaves the place, the army of

the besiegers is put under arms, and ranged in two files at the head of which are the general and principal officers, between which the garrison passes. See farther on this subject, Muller's Math. &c. vol. vi. p. 197, &c.

CAPITULATION denotes also a kind of treaty, *pacta conventa*, or original contract, drawn up by the electors, before the election of an emperor; which the emperor is to ratify before his coronation, and to observe inviolably in the course of his reign.

These imperial *capitulations* have only been obtained since the time of Charles V. They were occasioned by the jealousy the German princes had entertained of the too great power of the emperor. Frederic, duke of Saxony, surnamed the Wise, passes for the author of the imperial *capitulation*; who, declining the empire, which was offered him after the death of Maximilian, advised the electors to choose Charles V. under such conditions as might secure the liberty of the empire.

The design of the *capitulation* is, on the one hand, to prevent the emperor from abusing his power to the oppression of the people; and on the other, to prevent the people from breaking in on the just rights of the emperor. The imperial *capitulations* are considered as fundamental laws of the empire; and though the drawing up, presenting, procuring the signature, and taking care of the execution of them, be committed to the electors, they are reputed the act of the states of the empire.

The king of the Romans also, when elected, signs the emperor's *capitulation*, as being in right of such election to succeed to the empire after the death of the emperor.

CAPITULUM, in *Anatomy*, a little head, especially of a bone, answering to the Greek *condylus*.

CAPITULUM, in *Botany*, a head, or compound flower, of any plant; being composed of many leaves and threads, or stamina, closely connected in a globous, circular, or discous figure; as the flowers of bluebottles, scabious, carduus, &c.

CAPITULUM, in the *Ancient Military Art*, was a transverse beam, wherein were holes through which passed the strings whereby the arms of huge engines, as ballistæ, catapultæ, and scorpions, were played or worked. Vitruv. de Arch. lib. i. cap. i.

CAPITULUM, in *Ecclesiastical Writers*, denoted part of a chapter of the Bible read and explained.

In which sense they said, *ire ad capitulum*, to go to such a lecture. Afterwards the place or apartment where such theological exercises were performed, was denominated *dōmus capituli*.

CAPWARD, in *Zoology*, in Portuguese, a *water-dog*, which is described to be an amphibious animal, with a body like a hog, a head like a hare, and without a tail. It keeps itself almost continually on its posteriors, like an ape. It is found in Brasil; it lives all day in the sea, and at night comes ashore to ravage the gardens, and to root up the trees: the flesh is wholesome food.

CAPIVI. See **BALSAM**.

CAPNELÆON, from *καπνος*, *smoke*, and *ελαιον*, *oil*, among *Ancient Naturalists*, denotes a species of resin, which flows spontaneously, being warmer, thinner, and more fluid than all other sorts of resins, so as nearly to approach the nature of oil, and evaporating plentifully on being exposed to the fire; whence the denomination, which imports as much as smoking oil. It is sometimes also called *pissanthos*, or flower of pitch.

CAPNICON, in *Antiquity*, chimney-money, or a tax which the Roman emperors levied for smoke, and which of consequence was due from all, even the poorest, who kept a fire. This was first invented by Nicephorus.

CAPNISTON, among *Ancient Physicians*, denotes oil whose fumes rendered aromatic by burning spices, are conveyed to a part affected.

CAPNITIS, or **CAPNITAS jaspis**, in the *Natural History of the Ancients*, the name of a species of chalcedony, of a brownish ground, clouded with a large mist of blackish, looking like a column of smoke. The ancients also called our common chalcedony a jasper, not allotting any peculiar generical name to these misty stones; and the name they gave this species very happily expressed its character, because it looks exactly as if obscured by a cloud of thick smoke.

It is very common in the East-Indies, and is sometimes found in Germany and France, but is seldom worked into any thing better than knife-hafts.

CAPNOIDES, in *Botany*. See **FUMITORY**.

CAPNOMANCY, a kind of divination by means of smoke used by the ancients in their sacrifices.

The word comes from *καπνος*, *smoke*, and *μαντεια*, *divination*. The general rule was, when the smoke was thin, and light, and rose straight up, it was a good omen; if the contrary, it was an ill one.

There was also another species of *capnomancy*, consisting in the observation of the smoke rising from poppy and jessamin-seeds cast upon lighted coals.

CAPO, in *Ichthyology*, a name given by Paulius Jovius and some others to the fish called *coccyx* by the ancient Greeks, *coculus* by the Latin writers, and by some *lyra*. It is a species of the *trigla*, distinguished by Artedi by the name of the *red trigla*, with a bifid snout, and with the coverings of the gills striated.

CAPO negro. See **DUCK**.

CAPO rosso. See **DUCK**.

CAPOC, in *Commerce*, a sort of cotton so fine and so short, that it cannot be spun. It is used in the East Indies to line palanquins, to make beds, matras, cushions, pillows, &c.

CAPOLLIN, in *Botany*, *Mexicanorum Hernandez, seu Cerasus dulcis Indica*. It is a tree of moderate bigness, with leaves like those of an almond, or our country cherry-tree. The flowers hang down in bunches, which are succeeded by fruit resembling our cherries. It blossoms in the spring, and bears fruit all the summer; it requires a temperate climate, and grows in gardens and fields in Mexico, as well spontaneously as by cultivation.

The juice of the young buds mollifies the tongue when parched by heat. A decoction of the bark being exposed to the sun for fifteen days, and the weight of a dram of it taken, cures the dysentery. The powder helps inflammations. In times of dearth they make bread and drink of the fruit; but it affords an aliment inclining to melancholy, giving a rankness to the breath, and making the teeth black. There are three species of this tree, which differ only in fruit; but all of them hang in clusters.

CAPON, a cock chicken castrated young, generally as soon as left by the dam.

The word is formed from the Latin *capo*, of the Greek *καπων*, which signifies the same.

Capons, beside their use for the table, serve to lead chickens, ducklings, turkey-pouts, pea-hens, pheasants, or partridges, in lieu of their natural dams, over which they have several advantages, by the largeness of their body, which will brood, or cover, thirty or forty young.

CAPON's-tail grass. See **FESTUCA**.

CAPONE, in *Ichthyology*, a name given by the Italians to the fish called the *hirundo* and *corvus* by authors, and by Artedi made a species of the *trigla*. It is distinguished from the rest of this genus by that author under the name of the *trigla* with an aculeated head, and with three appendages on each side to the pectoral fins.

CAPONIERE, or **CAPONNIERE**, in *Fortification*, is a passage from one work to another, ten or twelve feet wide, covered on each side by a parapet, terminating in a slope or glacis.

In dry moats, the passage from the curtain to the ravelin, or that from the covert-way to the arrows or detached redoubts, are called *caponieres*.

Single parapets raised at the entrance of the ditch, before the ravelin, behind which are placed small cannons and men, to dispute the passage over the ditch, are likewise called *caponieres*.

The *Caponiere* differs from the coffer, in that the latter possesses the whole breadth of the ditch whereas the former only takes up part of it. See **COFFER**.

Caponieres are partly under ground, and partly above it. They are so well screened at the top, that no bomb or carcass can penetrate them.

CAPOT, at *Picquet*, is when one of the gamesters wins all the cards, in which case he gains forty points.

CAPPADINE, in *Commerce*, a sort of silk flock, taken from the upper part of the silk-worm cocoon, after the true silk has been wound off. It is also called *lassis* and *carbass*, because slight stuffs under those names are made of it.

CAPPANUS, in *Natural History*, the name given by some authors to the sea-worm which bores into the bottoms of ships.

In order to prevent the pernicious effects of this worm, several ships have lately been sheathed with copper.

CAPPARIS, in *Botany*. See **CAPER-bush**.

CAPPEROL Coronde, a name given by the Ceylonefe to a peculiar kind of cinnamon, esteemed the third in value: this has a very strong taste and smell of camphor, and its name with the natives signifies camphorated cinnamon. The tree which produces it, grows very plentifully in many parts of the island of Borneo, but is not met with in the eastern parts of it. This is often sold to the Danes and English who come to trade on the coasts of Coromandel; it is prohibited exportation from the island, but so long as only one port is open, there are people enough who will carry out great quantities of it.

There is a species of canella very much resembling this kind of cinnamon-tree, which grows very frequently on the continent of India toward Goa; and another canella or wild cinnamon, on the coast of Malabar, in many respects resembles this. The barks of all these trees are greatly inferior to the true cinnamon in smell, taste, and virtue; yet they are too often sold to the less judicious

traders in these things, either alone or mixed with the several better kinds of cinnamon, to the great damage of all that afterwards buy them. Phil. Trans. N° 409.

CAPRA, in *Astronomy*, a denomination given to the star **CAPPELLA**; and sometimes also to the constellation **CAPRICORN**.

Some represent *Capra*, or the *She-goat*, as a constellation in the northern hemisphere, consisting of three stars, comprised between the 45th and 55th degree of latitude. The poets say, it is Amalthea's goat, which suckled Jupiter in his infancy. Horace, making mention of it, calls it, *Infana sidera capra*.

CAPRA Saltans, or **CAPRÆ Saltantes**, in *Meteorology*, a fiery meteor, or exhalation, which sometimes appears in the atmosphere, and is not fired in a straight line, but with inflexions, and windings in and out, resembling the caperings of a goat.

The *capra saltantes* are not so called from their figure, which is various, sometimes round, sometimes long, but from their moving by jerks somewhat like the leaps of that animal; and from the little languets of fire which hang at, and sometimes fall on them, which antiquity has been pleased to fancy like the beard or locks of a goat's hair.

Aristotle distinguishes the *capra* from the trabs, in that the latter proceeds with an uniform motion, the former with an irregular one, and as it were by jumps. Arist. Met. lib. i. cap. 5. Mem. Ac. Infer. tom. vi. p. 95.

The *capra* seem to be very low, yet sometimes fly so high, that meteorologists have placed them in the upper region, though not so constantly, but they are sometimes also found in the middle region.

Of globular *capra* we have divers instances, in ancient as well as modern naturalists. Such was the flame said by Seneca to have been seen in form of a huge ball about the bigness of the moon, when Paulus Æmilius waged war against Perseus. Such another, he tells us, was seen at the death of Augustus; another on the tragedy of Sejanus, another at the death of Germanicus. Such was that seen about Michaelmas 1676, by no less than twelve counties at once; it is described by Mr. Nash, as it appeared near Seighford, in Staffordshire, as of a globular figure moving by jerks, and making short rests at every one of them, letting fall drops of fire, which were parts of its body; for it decreased in magnitude the farther it went, and the oftener it dropped, till at length it wholly disappeared. Senec. Nat. Quest. lib. i. cap. i. Phil. Trans. N° 135. p. 863. seq. Plott. Nat. Hist. Stafford. cap. i. § 40.

CAPRA trituratoria, in *Ancient Husbandry*, was a kind of iron log, made in the figure of a goat, which was laid on the *tribula*, to make it more effectual in separating the corn from the ears, the ancient way of threshing.

CAPRA, in *Zoology*. See **GOAT**.

CAPRARIA, *sweet-weed*, in *Botany*, a genus of the *didynamia angiospermia* class. Its characters are these: the flower is bell-shaped, of one leaf, divided at the top into five equal parts; it hath four stamina which are inserted in the base of the petal, and but little more than half so long; two of the lower being shorter than the other. It hath a conical germen, which afterward becomes an oblong conical capsule, compressed at the point, having two cells divided by a partition, filled with roundish seeds. We have but one species, which grows naturally in the warm parts of America, where it is often a troublesome weed.

CAPREA, in *Zoology*. See **ROE DEER**.

CAPREOLATÆ plantæ, are such plants as turn, wind, and climb along the surface of the earth, and sticks or trees, by means of their *capreoli*, or tendrils; as gourds, melons, cucumbers, &c.

CAPREOLI, in the *Ancient Architecture*, a sort of rafters or timbers serving to sustain the *canterii*, either in buildings or machines.

They were thus called, not, as Philander imagines, from their resemblance to the *capreoli*, or tendrils of vines, but from the affinity of their form and office to wild goats; as these butt and repel things with their horns, so do the former oppose their heads or horns to the weight of the *canterii*.

CAPREOLUS, in *Anatomy*, denotes the *helix*, or outer ambit of the ear.

CAPREOLUS, in *Botany*, the clasper, or tendril, by which vines, peas, and such like creeping plants, fasten themselves to those things which stand near, or are designed to support them. This is also sometimes called *clavicula*.

CAPREOLUS, in the *Ancient Husbandry*, a kind of iron hoe or instrument with two forks or fangs, wherewith to stir and move the ground.

CAPREOLUS, in *Zoology*. See **ROE DEER**.

CAPRICE, in *Music*, is sometimes used for an irregular composition, which succeeds rather by the force of genius than observation of the rules of art.

The word is French, where it signifies humoursness or fantasticalness. Some deduce it from the Italian *capriccio*, and that from the Latin *capra*, goat, to whose wantonness it is supposed to bear allusion. Morhof. Polyhist. tom. i. lib. ii. cap. i.

CAPRICE is applied in *Architecture* to an edifice of a singular taste, and deviating much from the common rules of building.

CAPRICORN, in *Astronomy*, according to some, the tenth sign of the zodiac; from which also the tenth part of the ecliptic takes the same denomination.

The character whereby *capricorn* is represented in astronomical writing, is ♊.

The ancients accounted *Capricorn* the tenth sign, and when the sun arrived thereat, it made the winter solstice, with regard to our hemisphere; but the stars having advanced a whole sign towards the east, *Capricorn* is now rather the eleventh sign; and it is at the sun's entry into Sagittary, that the solstice happens: though the ancient manner of speaking is still retained.

The sign is represented on ancient monuments, medals &c. as having the fore-part of a goat, and the hind-part of a fish; which is the form of an ægipan; and some times, simply, under the form of a goat.

The stars in the constellation of *Capricorn*, in Ptolemy's and Tycho's Catalogue, are 28; in that of Hevelius 29; though it is to be observed, one of those in the tail, of the sixth magnitude, marked in Tycho's book the twenty-seventh, was lost in Hevelius's time. Mr. Flamsteed, in the *Britannic Catalogue*, gives 51 stars in *Capricorn*. The order, names, longitudes, latitudes, magnitudes, &c. whereof, are as follow:

Names and situations of the stars	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
		♊	28 6 58	7 27 4N	6
In the extrem. of the preced. horn	α		28 10 28	7 13 18N	6
			29 11 41	7 15 34N	6
			27 26 12	3 23 S	6
Preced. star in the subseq. horn	1. α		29 27 19	7 1 31N	4
5.					
The last of the contiguous stars	2. α		29 32 21	6 58 6N	3
That under the right eye	σ		28 21 44	0 29 29N	6
The middle star in subseq. horn	γ		0 7 9	6 36 51N	6
Most south of 3 in subseq. horn	β	♊	29 43 57	7 37 27N	3
Foremost of three in the nose	π		0 23 55	0 56 6N	6
10					
North of these.	δ		0 51 9	1 14 17N	6
South of those in the nose.	ο		0 54 10	0 26 9N	5.6
			3 28 57	3 19 30N	6
North of two in the neck.	τ		3 58 44	3 23 26N	6
More south.	υ		3 20 53	0 15 46N	6
15					
That under the upper knee.	ψ		2 50 11	6 58 23 S	5
			3 50 59	3 22 34 S	6
In the lower and bent knee	ω		3 37 58	5 55 5 S	6
			6 47 24	0 28 9 S	6.7
			7 34 24	1 51 10 S	6.7
20					
Prec. & N. of 3 in mid. of body	π		8 17 20	29 37 S	6
Preced. of 2 in the back	θ		8 25 55	2 57 43 S	5
That in the shoulder	Α		9 31 40	0 33 0 S	5
South in the middle of the body	1. χ		7 30 46	8 3 38 S	6
			8 57 52	4 31 8 S	6
25					
Second in the middle of the body	2. χ		9 24 57	3 36 46 S	6
Subsequent	3. χ		9 22 7	3 58 9 S	6
Last of 3 in middle of the body	φ		10 42 44	4 29 50 S	6
			12 10 39	0 43 40N	6
			12 2 31	2 7 23 S	6
30					
Subseq. of 2 in the back	ι		12 16 0	1 39 3 S	7
			13 21 50	1 20 13 S	5
			12 33 35	5 17 25 S	6
1st of contiguous ones under belly	ε		12 36 49	6 57 36 S	5
			13 8 8	5 50 27 S	6
35					
Subseq. of the same	ζ		13 15 20	6 31 45 S	6
			15 10 57	5 22 15 S	6
			15 8 37	5 31 19 S	6
Preced. in south fin	ι		15 52 52	4 56 56 S	4
Preced. in root of the tail.	γ		17 27 42	2 31 18 S	4
40					
North part of the tail	1. δ		15 42 16	8 53 38 S	6
Subseq. in south fin	κ		18 40 49	0 9 13 S	6
North in part of the tail	2. δ		17 19 54	4 48 36 S	5
Subsequent			18 53 46	0 37 44 S	6
			19 0 0	1 1 54 S	6
45					
North in extrem. of the tail	1. ε		21 5 31	4 13 51N	6
Another, subsequent	2. ε		21 19 31	3 56 38N	6
Middle in north part of the tail	λ		20 41 41	5 57 24N	5
Subseq. in root of the tail	δ		19 13 14	2 32 19 S	3
			20 36 58	1 38 24N	6
50					
Subseq. in north part of the tail	μ		21 29 12	0 39 10 S	5

CAPRICORN, *tropic of*, a lesser circle of the sphere; parallel to the equator; passing through the beginning of *Capricorn*. See *TROPIC*.

CAPRICORN-beetle, the English name of a species of *cerambyx*. See *BEE*.

CAPRICORNUS, in *Zoology*. See *MORDELLA*.

CAPRIFICATION, a name given in the islands of the Archipelago to a peculiar method of propagating and ripening the fruits of the domestic fig-trees, by means of insects. Plin. Hist. Nat. lib. xv. cap. 19.

M. Tournesfort assures us, that this method is still practised every year in most of the Grecian islands; and he admired the patience of those who spent above three months in carrying the flies from one fig-tree to another. *Caprification* is formed from *caprificus*, the wild fig-tree; from whose fruits the insects are produced, which are the chief instruments of *caprification*. This tree bears three different species of fruit, called *formites*, *cratirites*, and *orni*, which answer no other purpose but that of facilitating the above operation. The *formites* appear in August, and contain little worms, hatched from eggs deposited by flies; in October and November, these worms become flies, which pierce the second figs called *cratirites*, which do not appear till the end of September: these figs continue to the month of May following, and furnish a lodgment for the eggs of the second class of flies. In May, the third species of figs, called *orni*, appear; and when they are grown to a certain size and begin to open at the eye, they are pierced by the flies produced by the *cratirites*, or winter figs. When the worms bred in these spring figs are transformed into flies, which happens in the months of May or July, the peasants gather them, and transport them to the garden fig-trees. The success of the *caprification* depends on this circumstance, and therefore they visit their wild fig-trees, and their garden fig-trees every morning, to examine the eye of the fig; by which they judge when the flies are about to issue from the wild figs, and when they may be applied so as to pierce the garden figs. They are then deposited on such trees as are fit to receive them, and enter the fruit by the eye, where they lay eggs, the worms of which cause the garden figs to attain their proper degree of bigness and maturity. The consequence of this operation is, that garden fig-trees, which would scarcely yield twenty five pounds of ripe figs, and fit for drying, yield two hundred and eighty pounds.

As to the manner whereby the puncture of the flies contributes to the maturation of the fruit, possibly it may be by lacerating the vessels, and extravasating the nutritious juice when they deposit their eggs; or when with the egg they also convey some liquor which gently ferments with the juice of the fig, and softens its pulp. Even the Provence and Paris figs ripen much sooner by wounding their buds with a straw or feather dipped in oil-olive; plums and pears also wounded by insects are found to ripen the soonest, and in these the pulp about the wound is more exquisite than the rest. Mem. Acad. Scienc. ann. 1705. p. 447. seq.

CAPRIFICATION is also applied in a less proper sense to the art of propagating the palm-tree. Act. Erudit. Lips. 1721. p. 84.

CAPRIFICUS, in *Botany*, a term by which some authors, particularly Pliny, call the lesser SPURGE or *esula*. Ger. Emac. Ind. 2.

CAPRIFOLIUM, the *honey-suckle*. See *HONEY-SUCKLE*.

CAPRIMULGUS, in *Ornithology*. See *GOAT-SUCKER* and *CHURN-OWL*.

CAPRIOLES, in *Horse-manship*, are leaps which a horse makes in one and the same place, without advancing forwards; and that in such manner that when he is in the air, at the height of his leap, he jerks or strikes out with his hind-legs as near and even together, and as far out as he can stretch them; in which action, he clacks, or makes a noise with them.

The word comes from *capreolus*, a diminutive of *capra*; goat.

The *capriole* is the most difficult of all the high raised airs: there are several kinds of *caprioles*; as a *right capriole*, *back capriole*, *side capriole*, *broken capriole*, the *open capriole*, &c.

CAPRISCUS, the *goat-fish*. See *GOAT-FISH*.

CAPSARIUS, from *capsa*, *satchel*, in *Antiquity*, a servant who attended the Roman youth to school, carrying a satchel with their books in it, sometimes also called *librarian*.

CAPSARIUS was also an attendant at the baths, to whom persons committed the keeping of their cloaths.

CAPSARIUS, from *capsa*, *chest*, among the Roman Bankers, was he who had the care of the money-chest, or coffer.

CAPSICUM, *Guinea*, or *Bonnet pepper*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flower hath but one petal; which is wheel-shaped, and hath five small stamina; it hath an oval

germen, which afterward becomes a soft fruit or capsule, of an indeterminate figure, having two or more cells divided by intermediate partitions to which adhere many compressed kidney-shaped seeds.

Guinea-pepper is more used as a sauce, and in pickle, than in physic, being frequently put into fish-sauce, or into any thing that is flatulent and windy; for which purpose it is ordered divers ways, either green or ripe, pickled, or rubbed to powder with salt. A decoction of it with pennyroyal is commended by some to expel a dead child. The skins boiled, and used as a gargle, are good against the tooth-ach; a cataplasm of the seeds, powdered and mixed with honey, applied to the throat, is good for the quinsy.

CAPSQUARES, in *Gunnery*, strong plates of iron, which come over the trunnions of a gun, and keep it in the carriage.

These are fastened by hinges to the prize-plate, that they may lift up and down. They form a part of an arch in the middle, to receive a third part of the thickness of the trunnions; for two-thirds of them are let into the carriage, and the other end is fastened by two iron wedges, which are called the *fore-locks* and *keys*.

CAPSTAN, a large mally column, shaped like a truncated cone and placed perpendicularly on the deck of a ship, and turned by levers, or bars, which pass through holes pierced in its upper extremity; serving, by means of a cable which winds round the barrel, to draw up burdens fastened to the end of the cable. See *Tab. III. Mechanics*, fig. 70.

The word is also written *capstaid*, *capstern*, and even *capflow*. It is formed from the French *cabestan*, which signifies the same.

The power of the *capstan* is reducible to that of the **AXIS** in *peritrochio*.

De Camus considers the *capstan* as a perpetual **LEVER**.

By the *capstan* vessels are drawn ashore, and hoisted up to be refitted; anchors weighed, and sails hoisted, &c.

There are commonly two *capstans* in a ship of war; the *main capstan* placed behind the main-mast, standing on the first deck, and reaching four or five feet above the second: this is also called *double capstan*, because it has two drum-heads, and serves two decks for drawing of anchors; and because its force may be doubled by applying hands on each deck. It has bars, whelps, &c. for turning and stopping it. See *Tab. Ship*, fig. 2. n. 32. or *Tab. III. Mechanics*, fig. 71. And the *jeer-capstan*, or *little-capstan*: this stands on the second deck, between the main-mast and the mizen: its use is, chiefly, to heave upon the jeer-rope, or to heave upon the viol, to hold off by when the anchor is weighed; and on other occasions where a less force is required than to weigh the anchors, &c. See n. 33, or fig. 70. *Tab. III. Mech.*

The French call that an *English capstan* where there are only half-bars used; and which, for that reason, is only half perforated: this is thicker than the others.

There is also a *flying capstan*, which may be moved from place to place.

The parts of a *capstan* are, the foot *d*, which is the lowest part; the spindle *f*, the smallest part of which turns round in an iron socket, called the saucer; the whelps, *b*, a sort of brackets set into the body of the *capstan* close under the bars, and reaching downwards from the lower part of the drum-head to the deck; the barrel *A*, the main body of the whole; the *drum-head c*, which is a broad cylindric piece of wood fixed above the barrel and whelps, in which are the holes for the bars to be put into; the bars, which are small pieces of timber by which the men heave; the pins, as *e*, which are little bolts of iron, thrust perpendicularly through the holes of the drum-head, and through a correspondent hole in the end of the bar, made to receive them when the bars are fixed; the pawls, which are pieces of iron bolted to one end of the beams of the deck, close to the body of the *capstan*, but so as that it have liberty to turn about every way; and against them do the whelps of the *capstan* bear; so as that by them the *capstan* may be stopped from turning back. There are also hanging pawls, as *g*, *g*, fig. 71. which reach from the deck above the drum-head immediately beneath it; and lastly, the *swifter*, which is a rope passed horizontally through holes in the outer ends of the bars and drawn tight, designed to keep the men steady whilst they work, and to afford room for a greater number to work at once.

The terms belonging to the use of the *capstan* are, *rig the capstan*, i. e. fix the bars in their respective holes; *heave the capstan*, i. e. go round with it, heaving on the bars; *surge the capstan*; and *come up capstan*, that is, slacken the cable which you heave by; in a like sense they also say *launch the capstan*; *pawl out the capstan*, signifies, stop it from going back.

CAPSULA, or **CAPSELLA**, denotes a bag, pouch or receptacle of divers kinds of things.

The word is a diminutive of the Latin *capsa*, literally signifying a little box, or case; particularly a bag, or satchel, wherein boys carry their books, &c. to school.

CAPSULA, or **CAPSULE**, among *Botanists*, a species of *pericarpium* composed of dry elastic valves, which usually burst open at the points: this kind of **PERICARPIUM** sometimes contains only one cell or cavity, sometimes more; in the first case it is called *unilocular*; in the second, *bilocular*, *trilocular*, &c. according to the number of cells in it for the reception of seeds.

Those plants whose seeds are inclosed in *capsulae*, are denominated *angiospermous*; and those whose seeds have no *capsules*, *gymnospermous*.

CAPSULA communis, or of the *Porta*, in *Anatomy*, is a membrane arising from the *peritonæum*, and inclosing the trunk of the *vena porta*, after its entrance into the liver, as a case, or cover; dividing itself into the same number of branches, and accompanying all, even in its smallest ramifications.

The same *capsula*, or membrane, likewise incloses the *porus bilorius*, and other vessels of the liver; whence it takes the name of *capsula communis*.

CAPSULA cordis, a membrane investing the heart; more usually called the *pericardium*.

CAPSULÆ atrabilariae, in *Anatomy*, called also *renes succenturiati*, and *glandulae renales*, are two glands situate near the kidneys: called *atrabilares*, from a black liquor found in their cavity; and *succenturiati* and *renales*, from their position. They are about the bigness of a *nux vomica*; their figures are somewhat various; in some bodies round, in others triangular, square, &c. The membrane wherewith they are covered is very fine: their cavity is pretty large for their bulk. Their use is very obscure; probably it is to secrete the black humour found in their cavity, which, being afterwards discharged by their duct into the emulgent, mixes with the blood, and serves, according to some, as a ferment; according to others, only to dilute its thickness: in a *fœtus* they are almost as big as the kidneys.

CAPSULA of the crystalline. See **CRYSTALLINE**.

CAPSULÆ seminales, are the same with **VESICULÆ seminales**.

CAPSULA, in *Chemistry*, is an earthen vessel, in form of a pan; wherein things are frequently placed, that are to undergo very violent operations of the fire.

CAPSULATE plants, **CAPSULATE plantæ**, are such as have a tetrapetalous regular flower, consisting of four distinct petals in each flower, and which bear their seeds in short *capsulae*: by which they are distinguished from the *siliquosæ*, which have their seed in long cases, or pods.

CAPTAIN, a military officer, whereof there are various kinds and degrees, distinguished by their commands: as,

CAPTAIN of a company, or *troop*, is an inferior officer, who commands a company of foot, or troop of horse, under the colonel.

In the like sense, we say a *captain* of dragoons, of grenadiers, of marines, of invalids, &c.

In the horse and foot guards, the *captains* are styled *colonels*; being usually persons of rank, and general officers of the army. In the colonel's company of a regiment, i. e. the first company, or that whereof he himself is *captain*, the commanding officer is called *captain-lieutenant*.

The duty of this officer is to be careful to keep his company full of able-bodied soldiers, to visit their tents and lodgings, to see what is wanting, pay them well, cause them to keep themselves neat and clean in their cloaths, and to keep their arms bright. He has power in his own company of making serjeants and corporals.

CAPTAIN, *second*, one whose command having been taken away, that is joined to another *captain*, to serve under him, and receive pay as a *captain* reformed.

Among the French there are also *second captains*, who never had companies of their own.

CAPTAIN en pied, a *captain* kept in pay, that is not yet reformed.

The expression, though altogether French, occurs sometimes.

CAPTAIN-lieutenant, is he who commands a troop, or company in the name or place of some other person, who has the commission, with the title, honour, and pay thereof; but is dispensed withal, on account of his quality, from performing the functions of his post.

Thus, the colonel, being usually likewise *captain* of the first company of his regiment, the company is commanded by his deputy, under the title of *captain-lieutenant*. So in England, France, &c. the king, prince, dauphin, &c. have usually the titles, dignities, &c. of *captains of the guards*, *gens d'armes*, &c. the real duty of which offices is performed by *captains-lieutenant*.

CAPTAIN, *reformed*, is one, who, upon a reduction of the forces, has his commission and company suppressed; yet is continued *captain*, either as second to another, or without any post or command at all.

CAPTAIN of the guides, an officer appointed for providing guides

guides for the army. Of these he ought always to have a sufficient number with him, who know the country very well; that they may guide the army on a march, or go with convoys, parties, baggage, artillery, and detachments. To provide such the *captain* ought to have a party of horse to go to the adjacent villages, castles, or forts, to bring horses to his quarters, and keep them under a guard, till the army comes to another ground, where he may be provided with others. He ought to understand several languages, especially that of the country in which the army is.

CAPTAIN-general of an army, is the general or commander in chief.

CAPTAIN-general of Great Britain is the highest military post in our army.

In Holland the office of *captain-general* is usually joined with that of the *STADTHOLDER*, and though, by the perpetual edict passed in 1667, the two offices were for ever disjoined, so that whoever was possessed of one, was rendered incapable of the other, this regulation lasted but five years.

CAPTAIN of militia, is he who commands a company of militia or trained bands.

CAPTAIN-bashaw, signifies the Turkish high-admiral. See *BASHAW*.

He possesses the third office in the empire, and is invested with the same power at sea that the vizir has on shore. Solymán II. instituted this office in favour of the famous Barbarossa; with absolute authority over the officers of marine and arsenal, whom he may punish, cashier, or put to death, as soon as he is without the Dardanelles. He commands in chief in all the maritime countries, cities, castles, &c. and at Constantinople is the first magistrate of police in the villages on the side of the Porte, and the canal of the Black Sea. The mark of his authority is a large Indian cane, which he carries in his hand, both in the arsenal and in the army.

The *captain-bashaw* enjoys two sorts of revenues; the one fixed and the other casual. The first arises from a capitulation of the islands of the Archipelago, and certain governments in Natolia and Gallipoli. The latter consists in the pay of the men who die during the campaign; in the fifth of all prizes made by the begs; in the profits accruing from the labour of the slaves, whom he hires as rowers to the grand signior; and in the contribution he exacts in all places where he passes.

CAPTAIN reis, or *CAPIDAN reis*, an appellation given by the Turks to the grand pilot, answering to pilot royal among the French.

CAPTAIN of a ship, is a sea officer, whereof we make two kinds; the one of a ship of war, the other of a trading vessel; though, in propriety, the title *captain* belongs only to the commanders of ships of war.

CAPTAIN of a ship of war, is the commanding officer of a ship, galley, fire-ship, or the like.

The *captain of a man of war* is held equivalent to that of a colonel at land. The *captain* is accountable for the ship, if lost or taken by his misconduct; and his province extends to the military government, navigation, and equipment of the ship which he commands, and to the conduct of the inferior officers and men, which he is required to superintend and regulate.

In admiral ships, and all ships of the first rate, the French have two *captains*, two lieutenants, and two ensigns.

The pay of sea *captains*, in the English service, was formerly small, which defect was made up to them by indulging them in many privileges not now allowed, as plundering of prizes, taking convoy monies, and even carrying merchant goods, plate, &c. King James II. taking this last privilege away, in lieu thereof granted them an annual allowance of table monies, almost equal to their whole former pay. But this not taking place by reason of the abdication, king William III. in 1693. ordered the pay of the *captains* to be doubled, but the fund for this failing at the peace of Ryswick, a new establishment was made in 1700, whereby nearly one third was retrenched from the sea-pay, and that of a first-rate fixed at one *l.* of a second rate at 16*s.* and a third rate 13*s.* 6*d.* of a fourth rate at 10*s.* of a fifth rate at 8*s.* of a sixth rate at 6*s.* per day.

CAPTAIN of a merchant-ship, is the master thereof; or he who has the command or direction of the ship, her crew, lading, &c. This officer is more usually called the *master*; especially in ordinary voyages.

On the Mediterranean he is called the *patron*, or *patroon*; and in long voyages, as the East Indies, South Sea, &c. the *captain*.

The proprietor of the vessel appoints the *captain*, or master; and the *captain* is to form the crew, and choose and hire the pilots, mates, seamen, &c. though when the proprietor and master reside on the same spot, this is usually done in concert with the proprietor.

CAPTAINS of port, in the French *Marine Affairs*, officers

established in some considerable sea-ports where there are arsenals. To them belong the command of the guard of the place, the watching of the sea, and the care and custody of the vessels brought into port.

There are such *captains* at Toulon, Rochfort, Brest, Havre, Dunkirk, and Port Lewis. They are to take care of mooring the king's ships, and oblige all to give the due salutes.

CAPTAINRY, *capitainerie*, in the French *Law*, denotes the government or command of a royal palace, and the lands dependent thereon.

The name is also applied to the office of *captains* of chaces or woods: such are the *capitaineries* of Fontainebleau, the wood of Boulogne, &c.

CAPTION, in *Law*, is when a commission is executed, and the commissioners names subscribed to a certificate, declaring when and where such commission was executed. The *caption* usually commences with these words, *Virtute istius commissionis nos*, &c. or, *Executio istius commissionis patet in quadam scheda annexata*, &c. or, *Capt. & cogn. die*, &c. or, *Capt. fuit hæc respons.*

These *captions*, and the executions of the commissions, must now be in English, by 4 Geo. II. cap 26.

CAPTIVE, a *SLAVE*, or person taken by the enemy in war, or by a *PIRATE* or corsair.

CAPTIVES, *captivi*, among the Romans, differed from *dediti*, as the former were taken by force, whereas the latter surrendered themselves.

By the *Lex Cornelia*, a Roman citizen taken *captive*, in case he returned, was reputed as having never been taken; if he died in captivity, he was reputed for dead the moment he was taken: in the former case he recovered all his right, and even the dominion over his children; in the latter his son became free from the time of his father's detention. Justin. Inst. lib. i. tit. xii. § 5. Formerly *captives* in war became the slaves of those who took them; and though slavery, such as obtained among the ancients, be now abolished, some shadow of it still subsists in respect of prisoners of war, who are reputed the property of their captors, and have no right to liberty, but by concession from them, or till their ransom is paid. Negro servants likewise, who are purchased when *captives*, continue in some degree the property of the masters who buy them; though the property consists rather in the perpetual service than in the body or person of the captive. Blackst. Com. vol. ii. p. 402.

The Romans used their *captives* with great severity; their necks were exposed to the soldiers to be trampled on, and their persons afterwards sold by public auction.

Captives were frequently burnt in the funeral piles of the ancient warriors, as a sacrifice to the infernal Gods. See *BURIAL*.

Those of royal or noble blood had their heads shaven, and their hair sent to Rome, to serve as decorations in female toys, &c. They were led in triumph laden with chains through Rome, in the emperor's train, at least as far as the foot of the Capitoline mount, for they were not permitted to ascend the sacred hill, but carried thence to prison. Those of the prime quality were honoured with golden chains on their hands as well as feet, and golden collars on their necks. If they made their escape, or killed themselves to avoid the ignominy of being led in triumph, their images or effigies were frequently carried in their place.

CAPTIVITY is used in *Scripture* to denote the punishment inflicted by Providence on the Jews, for their idolatry and wickedness. The principal *captivities*, if we omit the Egyptian bondage, from which they were rescued by Moses, are the Assyrian and Babylonish. The Assyrian *captivity* was that of the ten tribes, begun in the reign of Pekah king of Israel, and completed by Shalmaneser, 2 Kings xv. 29. 2 Kings xvii. 5, 6.

The greater part of the ten tribes were lost in this *captivity*; which put a period to the kingdom of Israel; though some of them returned with those of Judah and Benjamin, upon the decree of Cyrus, to their own land. The Babylonish *captivity* was that of the kingdom of Judah, or of the two tribes who adhered to the house of David. This was begun by Nebuchadnezzar, and completed by Nebuzaradan. 2 Chron. xxxvi. 6, 7. 2 Kings, xxv. 8. Jer. liii. 30. This lasted seventy years, and terminated in the famous decree of Cyrus, in the year before Christ 536, for restoring the Jews to their own land, and for rebuilding Jerusalem and the temple. Ezra i. 1. 3.

Some have computed these years from the fourth of Jehoiakim to the first issuing of Cyrus's decree. 2 Kings xxiv. 10, &c. others from the destruction of Jerusalem to the publication of Darius's decree for building the temple, in the fourth year of his reign, Zechar. vii. 1. either of which computations will give seventy years: or again, they may be computed from the twenty-third year of Nebuchadnezzar to the first passover celebrated in the new temple.

temple, in the seventh year of Darius's reign. Prid. Conn. vol. i.

CAPTIVITY, *princes of the*, are heads or chiefs of the Jewish nation, appointed for the administration of justice among them, during their captivity both in the East and West, since the destruction of their temple by the Romans.

The prince of the *captivity* in the East, is said to have had the government of the Jews who dwelt at Babylon, in Chaldaea, Assyria, and Persia. The prince of the *captivity* in the West, had the direction of those who lived in Judaea, Egypt, Italy, and other parts of the Roman empire.

The former were called *rabbana*, and were supposed to have descended from David, in a direct line by the males; the latter called *rabban*, only descended from David by the females.

The Jews, we are told by Prideaux, after the loss of their authority, still kept up the title, and for many ages had a person of the house of David residing about Babylon, who, under the name of the head of the *captivity*, was acknowledged and honoured as a prince among that people, and had some sort of jurisdiction, as far as was consistent with the subordination they were under, always vested in him, and sometimes even a ratification of it was obtained from the sovereigns of the country. Something of this pageantry is said to be still kept up; perhaps that they may be furnished with an answer to the Christians, when they urge the prophecy of Jacob against them; the sceptre they pretend being still preserved among them in the head of the *captivity*. See *ÆCHMALOTARCHA*.

CAPTURE, a prize, or prey; particularly that of a ship taken at sea.

Captures made at sea were formerly held to be the property of the captors after a possession of twenty-four hours; but the modern authorities require, that before the property can be changed, the goods must have been brought into port, and have continued a night *intra præsidia*, in a place of safe custody, so that all hope of recovering them was lost. Blackst. Com. vol. ii. p. 401. See **PRIZE** and **PRIVATEER**.

CAPTURE also denotes an arrest, or seizure of a criminal, debtor, &c. at land.

CAPUCHE. See **COWL**, and the next article.

CAPUCHINS, religious of the order of St. Francis, in its strictest observance.

The *Capuchins* are thus called, from *capuce* or *capuchon*, a *stiff cap*, or *cowl*, wherewith they cover their heads; and which they added to the ordinary Franciscan habit.

They are clothed with brown or grey; are always barefooted; and never go in a coach, nor ever shave the head.

The *Capuchins* are a reform made from the order of Minors, commonly called *Cordeliers*, set on foot in the sixteenth century by Matthew de Bassi, a religious observant of the monastery of Montefiascone, who, being at Rome, said he was advertised several times from Heaven, to practise the rule of St. Francis to the letter. Upon this he made application to pope Clement in 1525, who gave him permission to retire into a solitude; and not only him, but as many others as would embrace the strict observance; which some did accordingly. In 1528, they obtained the pope's bull. In 1529, the order was brought into complete form; Matthew was elected general, and the chapter made constitutions. In 1543, the right of preaching was taken from the *Capuchins* by the pope; but in 1545, it was restored to them again with honour. In 1578, there were seventeen general chapters in the order of *Capuchins*.

The *Capuchins* were at first restrained from spreading out of Italy; but Charles the IX. of France, writing to pope Gregory XIII. to demand some *Capuchins*, that pope, by a bull, dated in 1575, took off the prohibition, and granted them leave to settle any where. The cardinal of Lorraine built them a convent at Meudon, and Henry III. another at Paris, in the rue St. Honore. F. Zach. de Boverio has written the annals of the *Capuchins* in Latin, in three volumes folio, from the year 1524 to 1634.

CAPUCHIN is also the name of a particular species of pigeon, in shape and make much like the Jacobine or Jack, but something larger than that; its beak also is longer; and it has a tolerable hood of feathers on the back part of its head, but it has no cravat or chain down the shoulders as that species has. Its marks are the same with the Jacobine, and it seems to be no other than a bastard breed between that and a common pigeon.

CAPUCIATI, an appellation given to the followers of Wickliff in the fourteenth century, by reason they did not uncover themselves before the host, but kept on their *capuce*, or cap used in those times. Spondanus speaks of the *capuciati*, under the year 1387.

CAPUCIATI is also the denomination of a faction which appeared in Auvergne in 1183, having at their head a carpenter named Durand; thus called because they wore the image of the Virgin in their white linen capuces, as the badge of their engagement.

CAPUCINE, in *Botany*, the name by which the French call the *CARDAMINDUM*, or *nasurtium Indicum*, a plant commonly kept in our gardens for the beauty of its flower, and its use in fallads and pickles.

CAPUENA, in *Ichthyology*, the name of a fish caught in the American seas among the rocks, and about the shore, and esteemed a very delicate one for the table. It is of a long and round shape: its usual length is about five inches.

CAPUT. See **HEAD**.

CAPUT baroniae, the head of the **BARONY**, in *Ancient Customs*, denotes the ancient or chief seat, or castle of a nobleman, where he made his usual residence, and held his court: sometimes also called *caput honoris*, or the head of the honour.

The *caput baroniae* could not be settled in dowry; nor could it be divided among the daughters, in case there were no son to inherit; but was to descend entire to the eldest daughter, *ceteris filiabus aliunde satisfactis*.

CAPUT concutiens, in *Anatomy*, the name given by Douglas, and some others, to a muscle, described by Albinus under the name of the *intertransversarius colli*, among some others of the same nature, which he distinguishes according to their situation into *priores* and *posteriores*: this being of the former number. Winslow calls it the *TRANSVERSALIS secundus anterior*.

CAPUT cordis, a name sometimes given to the upper and larger side of the **HEART**, otherwise called its **BASIS**.

CAPUT draconis, a denomination given by some to a fixed star of the first magnitude, in the head of the constellation **DRACO**, called also by the Arabs *Rafaben* and *El-tanin*. See **NONE**.

CAPUT gallinaginis, or *galli gallinacei*, *cock's head*, is a kind of septum, or spongy border, at the extremities or apertures of each of the *vesiculæ seminales*; serving to prevent the seed coming from one side, from rushing upon, and so stopping, the discharge of the other.

Some will have its use to be, to prevent the impulse of the seed from dilating the orifices of the *vesiculæ*, and so ousting out, except when assisted by the compression of the surrounding parts; as in copulation; but this, according to Dr. Drake, is rather the office of a distinct caruncle placed at each orifice, and acting as a valve.— See *Tab. Anat. (Splanchn.) fig. 8. lit. q.*

CAPUT junii, a name given to Ash-Wednesday, as being the first day of the **LENT-fest**.

CAPUT lupinum. An outlawed felon was anciently said to have *caput lupinum*, and might be knocked on the head like a *wolf*, because having renounced all law, he was to be dealt with as in a state of nature; but now the wilful killing such a one is murder, unless in the endeavour to apprehend him.

CAPUT MEDUSÆ, a northern constellation included in that of **PERSEUS**.

CAPUT mortuum, in *Chemistry*, the *faeces* remaining of any body, after all the volatile and humid parts, as the phlegm, spirit, salt, &c. have been extracted therefrom, by force of fire. As these *faeces*, or *residua*, are very different, modern chemists specify them more particularly, by adding a term expressive of their qualities; as *earthy residuum*, *charry* or *saline residuum*, &c.

What remains after distillation is properly called *faeces*.

This, before it be *caput mortuum*, must likewise have passed the retort, or open fire.

The *caput mortuum*, called also *terra damnata*, is found in form of a friable, porous matter, without taste or smell: it is ranked among the chemical elements; and supposed to constitute the dry, fixed, earthy, and solid part of all mixed bodies. As an element, it is more commonly expressed by the name *earth*.

It is what the chemists call a *passive element*, or *principle*; serving as the basis or support of the active ones.

The term is sometimes more immediately restrained to the remains of vitriol, after distillation; otherwise called *colcothar vitrioli*.

The *caput mortuum* is never pure, but there is still some active principle remaining in it, and particularly a fixed **SALT**.

Thus the *colcothar vitrioli*, exposed to the air, is reconverted into vitriol.

CAPUT moventium secundus, in *Anatomy*, a name given by Fallopius, and others, to a muscle called by Albinus *biventer cervicis*, and by some the *complexus*.

CAPUT porcinum, *swine's head*, a denomination given by the Romans to an order of **BATTLE** more frequently called *cuneus*.

CAPUT purgia, a barbarous term used by some physicians to denote medicines which cleanse the head, either in the way of sneezing, more frequently called *errhines*; or by

by chewing in the way of salivation, called *apophlegmatizants*. See *ERRHINA* and *STERNUTATIVE*.
CAPUTIAFI. See *CAPUCIATI*.

CAPYBARA, in *Zoology*, the name of an animal found in many parts of America, and somewhat approaching to the nature of the river-horse, but with so much of the general figure of the hog-kind, that Margrave, and some others, have called it the *porcus marinus*, or sea-hog. It is of the size of a half-grown hog, measuring in length, from the head to the rump, about two feet: its belly is as prominent as that of a fat hog. It has no tail, its feet are wholly like those of the hog, but that the fore ones have four claws each, and the hinder ones only three. Its head is very thick, and proportionably too large for the body; its eyes are large and black, its ears small and round; the lower jaw is shorter than the upper, and each has two long crooked teeth that stand out a finger and a half from the jaw, and are buried two fingers in it; but these do not shew themselves outwardly when the mouth is shut. It feeds on vegetables, and its flesh is eaten by the Indians, but is not well tasted. Ray.

CAR. See *CARR*.

CARA, in *Botany*, a name given by the old Roman authors to a plant with large and esculent roots. We are told that the soldiers of Cesar, in some of their marches, when distressed for provisions, made a sort of bread of the root of the *cara*. And we learn from Paulus Aegineta, and Dioscorides, that this plant was of the *pastinacha*, or parsnip kind. It was probably the *elaphoboscum*, or wild parsnip, which has roots long and thick, and of as good a taste as the garden parsnips, only that they are not so tender. It is supposed by some, that our word carrot is derived from this *cara*.

CARABE, or *KARABE*, denotes yellow AMBER.

CARABINE, a small sort of fire-arm, shorter than a fusil, and carrying a BULLET of twenty in the pound; borne by the light horse, hanging at a belt over the left shoulder. The *carabine* is a kind of medium between the pistol and the musquet; and bears a near affinity to the harquebuss, only that its bore is smaller.

It was formerly made with a match-lock; but of late only with a flint-lock.

The barrel is two feet and a half long, and is sometimes furrowed spirally within, which is said to add to the range of the piece.

CARABINERS, a sort of light horse, carrying longer *carabines* than the rest; and used sometimes as foot, like the dragoons. The French have formed entire corps of these *carabineers*, chosen out of the whole cavalry, and better paid than the rest. There are but few of them in the English army.

CARABUS, in *Zoology*, the name of a genus of four-winged flies, belonging to the Linnæan order of *coleoptera*, whose *antennæ* are oblong, slender, and setaceous; the thorax is somewhat convex, marginated, of a cordated figure, and truncated in the hinder part.

CARACALLA, in *Antiquity*, a long garment, having a sort of capuchin, or hood a-top, and reaching to the heels; worn equally among the Romans by the men and the women, in the city and the camp.

Spartian and Xiphilin represent the emperor Caracalla as the inventor of this garment; and hence suppose the appellation *Caracalla* was first given him. Others, with more probability, make the *Caracalla* originally a Gallic habit, and only brought to Rome by the emperor above-mentioned, who first enjoined the soldiery to wear it. The people called it *Antoninian*, from the same prince, who had borrowed the name of Antoninus.

The *Caracalla* was a sort of cassock, or surtout. Salmasius, Scaliger, and after them Du-Cange, even take the name *Casaque* to have been formed from that of *Caraque*, for *Caracalla*. This is certain from St. Jerom, that the *Caracalla*, with a retrenchment of the capuchin, became an ecclesiastical garment. It is described as made of several pieces cut and sewed together, and hanging down to the feet; but it is more than probable there were some made shorter, especially out of Rome, otherwise we do not see how it could have fitted the soldiers purpose.

CARACALLA, in *Botany*. See *Kidney-BEAN*.

CARACARA, in *Zoology*, the name of a Brazilian bird of the genus of the hawk, called by the Portuguese *gavi-caou*. It is properly of the sparrow-hawk kind, but of the size of a kite. They are great destroyers of the poultry. See *Tab. of Birds*, N° 4.

CARACOL, in the *Muneco*, a motion which a cavalier makes half round; or a half turn from left to right; changing hands; that his enemy may be uncertain on which side he intends to attack; whether in front or flank. The word comes from the Arabic *garagol*, and that from the Hebrew *carat*, *involvere*: but we have it immediately from the Spanish, where *caracol* signifies properly a *snail*, and figuratively the evolution described above.

CARACOL is also the half-turn each horseman in an army

makes after his discharge, to pass from the front of the squadron to the rear.

CARACOL is sometimes also used in *Architecture*, for a staircase in a helical, or spiral form.

CARACOLI, in *Commerce*, a fictitious metal whereof the natives of the Caribbee islands make a kind of ornament, in form of a half-moon, which is called by the same name. The metal is brought from the *Terra Firma*; and the common opinion is, that it is composed of gold, silver, and copper; but the mixture is so perfect, that a metal results from the whole which never rusts nor tarnishes, how long soever kept either in the sea, or the ground. The English and French goldsmiths have made frequent attempts to imitate it. Those who have succeeded best, use six parts of silver, three of purified copper, and one of gold. But the curious find all the imitations much inferior in beauty to the original metal of the savages.

M. Hauterive, procurator-general of Martinico, makes the *caracola* to be a compound of gold only with a sort of copper found in the *Terra Firma* of America. F. Labat takes it for a native, or simple metal. The Americans also make rings, buckles, cane-heads, and the like, of *caracoli*. A. D. S. an. 1724. p. 26. It is there recommended as a remedy for the head-ach. Hist. 28.

CARACT, or *CARAT*, a denomination given to the weight, which expresses the degree of goodness, fineness, and perfection, or imperfection of GOLD.

The word is also written *carract*, *carrat*, *karraet*, and *kar-rat*. Its original is contested: but we choose to follow Kennet, who derives it from *carecta*, a term which this author observes anciently denoted any weight, and came not till of later days to be appropriated to that which expresses the fineness of gold, and the gravity of diamonds. The mint-men fix the highest purity and perfection of gold at twenty-four *carats*; and the several degrees are estimated from the divisions hereof, which are called *grains*: but it is to be observed, that what care soever is taken in purifying gold, to clear it from dross, it can never be brought to twenty-four *carats*; but still comes short, at least $\frac{1}{4}$ of a *carat*, or a grain: this grain they call a *sixteenth*; and this sixteenth they subdivide into two eighths; and each of those eighths into two sixteenths: on which calculation, they say, gold may be purified as far as the first sixteenth of the second eighth, but no further.

Gold of twenty-two *carats*, is that which has twenty-two parts of fine gold, and two of silver, or other metal; or that which, in refining, loses two parts in twenty-four of its weight. The goldsmiths generally work in gold of twenty-two *carats*; that being the standard gold of this kingdom. By the laws of France they are prohibited from working in gold below twenty-three *carats*. In England, the *carat* is divided into four grains; in Germany into twelve parts; and in France, into thirty-two. The Chinese reckon by *touches*, a hundred of which correspond to our twenty-four *carats*.

Carat fine, as above, is the twenty-fourth part of the goodness of a piece of pure gold.

Carat price is the twenty-fourth part of the value of an ounce or mark of gold.—They also sometimes say, the *carat weight*, which is the twenty-fourth part of the weight of the ounce or mark.—Two troy grains make a *carat* grain.

CARAT is also the weight used in weighing diamonds, pearls, and precious stones; where it consists of four grains. In this sense the word is by some supposed to be derived from *καρπιον*, a fruit which the Latins call *siliqua*, and we *carob bean*; each of which may weigh about four grains of wheat; whence the Latin *siliqua* has also been used for a weight of four grains.

The *carat* by which jewellers estimate the weight of diamonds and pearls, is about $\frac{1}{16}$ of a troy ounce. Jeffreys on Diamonds.

Hence the *carat* is about $3\frac{1}{2}$ grains troy.

Carats are divided into halves, quarters, or grains; and farther, into eighths, sixteenths, and thirty-two parts. Id. ibid.

CARAGACH, in *Commerce*, a cotton that comes from Smyrna, by the way of Marseilles.

CARAGANA, in *Botany*. See *Bitter-VECTH*.

CARAGROUCH, a silver coin of the empire, weighing nine drams, which does not quite amount to a French crown, of three livres Tournois.

CARAGUATA, a Brazilian name, by which some authors have called the common great aloe.

From an incision made in the shoots of this plant, there flows a great quantity of liquor, whereof the Brazilians make wine, vinegar, honey, and sugar.

CARAGUATA is also a sort of thistle which grows in Brasil, and in some other parts of America. The leaves of this plant being steeped in water, and afterward well washed and rubbed, afford a kind of flax very fine and strong, proper for several manufactures. The Americans make fishing-nets of it.

CARAITES, a sect among the ancient Jews: whereof

there are still some subsisting in Poland, Russia, Constantinople, Cairo, and other places of the Levant; whose distinguishing tenet and practice it is, to adhere closely to the words and letter of the Scripture, exclusive of allegories, traditions, and the like.

Leo of Modena, a rabbin of Venice, observes, that of all the heresies among that people, before the destruction of the temple, there is none now left but that of the *Caraim*, a name derived from *Micra*, which signifies the pure text of the Bible; because of their keeping to the Pentateuch, observing it to the letter, and rejecting all interpretations, paraphrases, and constitutions of the rabbins. Aben Ezra, and some other rabbins, treat the *Caraites* as Sadducees; but Leo de Juda calls them, more accurately, Sadducees reformed; because they believe the immortality of the soul, paradise, hell, resurrection, &c. which the ancient Sadducees denied. He adds, however, that they were doubtless originally real Sadducees, and sprung from among them.

M. Simon, with more probability, supposes them to have risen hence; that the more knowing among the Jews opposing the dreams and reveries of the rabbins, and using the pure texts of Scripture to refute their groundless traditions, had the name of *Caraim* given them; which signifies as much as the barbarous Latin, *Scripturarii*; i. e. people attached to the text of Scripture. The other Jews give them the odious name *Sadducees*, from their agreement with those sectaries on the head of traditions. Scaliger, Vossius, and Spanheim, rank the *Caraites* among the Sabæans, Magi, Manichees, and Musulmen, but by mistake: Wolfgang, Fabricius, &c. say that the Sadducees and Esseni were called *Caraites*, in opposition to the Pharisees: others take them for the doctors of the law so often mentioned in the gospel: but these are all conjectures. Josephus and Philo make no mention of them; which shews them to be more modern than either of those authors. In all probability, this sect was not formed till after the collection of the second part of the Talmud, or the Gemara; perhaps not till after the compiling of the Mishna in the third century.—The *Caraites* themselves pretend to be the remains of the ten tribes led captive by Shalmaneser. Wolfius, from the Memoirs of Mardacheus, a *Caraites*, refers their origin to a massacre among the Jewish doctors, under Alexander Jannæus, their king, about one hundred years before Christ: because Simeon, son of Schetach, and the queen's brother, making his escape into Egypt, there forged his pretended traditions; and, at his return to Jerusalem, published his visions; interpolating the law after his own fancy, and supporting his novelties on the notices which God, he said, had communicated by the mouth of Moses, whose depositary he was: he gained many followers; and was opposed by others, who maintained, that all which God had revealed to Moses was written. Hence the Jews became divided into two sects, the *Caraites*, and *Traditionites*: among the first, Juda, son of Tabbai, distinguished himself; among the latter Hillel. Wolfius reckons not only the Sadducees, but also the Scribes, in the number of *Caraites*. But the address of the Pharisees prevailed against them all; and the number of *Caraites* decreased: Anan, indeed, in the eighth century, retrieved their credit a little; and rabbi Schalomon, in the ninth. They succeeded pretty well till the fourteenth; but since that time they have been declining.

The *Caraites* are but little known; their works coming only into very few hands, even amongst the greatest Hebraists. Buxtorf never saw more than one; Selden two; but Mr. Trigland says, he has recovered enough to speak of them with assurance. He asserts, that soon after the prophets had ceased, the Jews became divided on the subject of works, and supererogation: some maintaining their necessity from tradition; whilst others, keeping close to the written law, set them aside; and it was from these last that *Caraitism* commenced. He adds, that after the return from the Babylonish captivity, the observation of the law being to be re-established, there were several practices found proper for that end; and these, once introduced, were looked upon as essential, and appointed by Moses; which was the origin of Pharisaism; as a contrary party, continuing to keep close to the letter, founded *Caraitism*.

The modern *Caraites*, Leo of Modena observes, have their synagogues, and ceremonies; they pretend to be the sole proper Jews, or observers of the laws of Moses; calling the rest by the term *Rabbanim*, or followers of the Rabbins: these hate the *Caraites* mortally; refusing to ally, or even to converse with them, and treating them as *mamzerim*, or bastards; because of their rejecting the constitutions of the rabbins relating to marriages, repudiations, purifications of women, &c. This aversion is so great, that if a *Caraites* would become a rabbinist, he would never be received by the other Jews.

The *Caraites*, however, do not absolutely reject all kind of traditions; but only such as do not appear well grounded. Selden, who is very express on this point, in his *Uxor Hebraica*, observes, that besides the mere text, they have certain interpretations, which they call *hereditary*, and which are proper traditions. Their theology only seems to differ from that of the other Jews, in that it is purer, and clearer of superstition: they give no credit to the explications of the Cabbalists, chimerical allegories, nor to any constitutions of the Talmud, but what are conformable to the Scripture, and may be drawn from it by just and necessary consequences.

Peringer observes of the *Caraites* in Lithuania, that they are very different, both in aspect, language, and manners, from the rabbinites, wherewith that country abounds. Their mother tongue is the Turkish; and this they use in their schools and synagogues. In visage they resemble the Mahometan Tartars. Their synagogues are placed north and south; and the reason they give for it, is, that Shalmaneser, brought them northward: so that, in praying, to look to Jerusalem, they must turn to the south. He adds, that they admit all the books of the Old Testament; contrary to the opinion of many of the learned, who hold that they reject all but the Pentateuch.

Caleb, a *Caraites*, reduces the difference between them and the rabbinites to three points: 1. In that they deny the oral law to come from Moses, and reject the Cabbala. In that they abhor the Talmud. 3. In that they observe the feasts, as the sabbaths, &c. much more rigorously than the rabbins do. To this may be added, that they extend the degrees of affinity, wherein marriage is prohibited, almost to infinity. See on this subject, Relandi Antiq. Hebræor. part ii. cap. 9. § 12. Trigland. de Sectâ Karæoram. Basnage's Hist. of the Jews, book ii. chap. 8, 9.

CARAMANGCE, a drug which comes from China. The Tonquinese value it very much.

CARANDA, in the *Materia Medica*, a name used by some authors for the tamarind-tree.

CARANNA, a hard, brittle, resinous gum, brought from some parts of the West Indies, as Carthage and New Spain; of an aromatic flavour; and sometimes used in medicine as a cephalic.

The trees from which it runs, are like the palm-tree. When it is fresh, it is white; but as it grows stale, it becomes greyish inclining to green, in which condition it is sent to Europe, where the white is seldom to be met with. It is brought in lumps wrapped up in leaves. To be of the best quality, it must be soft, of a pleasant aromatic smell, and as white as snow. As this gum is very dear, it is seldom sold unadulterated; and other sorts are often substituted in its stead, which have not the same properties. When applied to the head, it has an extraordinary virtue to relieve it from pain; which renders it highly valuable. It produces the same effects in the joints; and is so much esteemed in medicine, that it is become a proverb in pharmacy to say, Whatever the *tacamahaca* has not cured, the *caranna* will.

The Americans make a balm of it, which they pretend to be a sovereign remedy for the cure of wounds, and the hæmorrhoids or piles.

CARANTIA, in the *Materia Medica*, a name given by some authors to the CAROB, or *siliqua dulcis*, the sweet-pipe.

CARAPACE, the thick, solid, firm shell, which covers the turtle or tortoise; and to which adhere those fine transparent shells, which are known under the name of tortoise-shell, of which snuff-boxes and several sorts of inlaid work are made.

CARAPO, in *Zoology*, the name of a fish, of which there are two kinds caught in many parts of the lakes of America. The first has a long and thin body, of the shape of a knife-blade, the back being thick, the belly very thin and narrow; the tail is pointed; and the usual size of the fish is a foot in length, and two fingers broad in the broadest part. The head is flat and pointed, and the lower jaw runs out a little farther than the upper; the mouth is very narrow, and the bottom jaw is furnished with very small and sharp teeth; the upper is toothless; its eyes are very small; and it is covered with little scales. It is of a brown colour, with a faint admixture of red, and the back and head are somewhat blackish; there runs a dusky line all along the sides in their middle, and under this the fish is speckled with black spots of the size of a seed of mustard.

The second kind no way differ from the first, but that it is much narrower in proportion to its length, and has no spots. They are both eatable. Margrave.

CARAPOPEBA, in *Zoology*, the name of a small species of lizard, common in the Brasils, and esteemed a poisonous animal. Its body is of a liver colour, and has several white spots. There are marks of white on the tail,

tail, variegated with some small quantity of yellow; the eyes are remarkably bright and vivid. Ray.

CARARA, a weight at Leghorn, and in other parts of Italy, used in the sale of wool and cod-fish, equivalent to sixty pounds of that country.

CARASSIUS, in *Zoology*, the name of a genus of leather-mouthed fishes of the carp or bream kind, of which there are three species. It is a small fresh-water fish, of about three, four, or five inches long, with a flattened body, and a rising back; it resembles the bream indeed in shape very nearly, but is somewhat thicker; its colour is a pale yellow, and its belly of a deeper yellow, without any redness. The mouth is small and round; and the eyes small, and sunk in their orbit. See **CRUCIAN**, and **CYPRINUS**.

CARATH, in the *Materia Medica*, a name given by the Arabian writers to the **ACACIA**.

CARAT, **CARRAT**, or **CARACT**. See **CARACT**.

CARAVAN, or **CARAVANNE**, in the East, a troop or company of travellers, merchants, and pilgrims, who for their greater security march in a body through the deserts and other dangerous places, infested with Arabs and robbers.

The word comes from the Arabic *cairawan*, or *cairoan*; and that from the Persian *kervan*, or *cârvân*, negotiator, a trader or dealer. Vid. Peritit. Itin. Mund. ed. Hyde. p. 61.

There is a chief, or aga, who commands each *caravan*, and has under him a number of janizaries, or other forces, sufficient for their defence. The *caravans* encamp every night near wells, or rivulets known to the guides; and observe a discipline as regular as in war. They chiefly use camels for their vehicles, because of their enduring much fatigue, eating little, and passing three or four days without drinking.

The grand signior gives one fourth part of the revenue to Egypt, to defray the expence of the *caravan* that goes yearly to Mecca, to visit Mahomet's tomb: the devotees, in this *caravan*, are from forty thousand to seventy thousand; accompanied with soldiers to protect them from the pillage of the Arabs, and followed with eight or nine thousand camels, laden with all necessary provisions for so long a passage across deserts.

Days journeys are distinguished in the East, into journeys of *horse-caravan*, and *caravans of camels*: those of horses are equal to two of camels.

There are four regular *caravans* which go yearly to Mecca; the first from Damascus, composed of the pilgrims from Europe and Asia; the second from Cairo, for the Mahometans of Barbary; the third from Zibith, a place near the mouth of the Red Sea, where those of Arabia and India meet; the fourth from Babylon, where the Persians assemble. Most of the inland commerce in the East is carried on by *caravans*. The late czar, Peter the Great, established a trade between Russia and China by means of a *caravan*. M. Bournon, geographer of the duke of Lorraine, has given a treatise of the *caravans* of merchants in Asia, wherein he shews of what they are composed; how many sorts there are; the several uses of the different sorts of animals in them; the price given for them; the officers and men appointed to conduct them, and the pay of each, with their manner of marching, halting, fighting, treating, &c.

In the heavy *caravans*, to five hundred elephants there are a thousand dromedaries, and at least two thousand horses, escorted by four thousand cavaliers. Two men are required to lead each elephant; five to three dromedaries; and seven to twelve camels. Such a number of servants, joined with the officers and passengers, the number whereof is not limited, renders the body very formidable; the passengers indeed are not obliged to fight, but in case they refuse, provision will scarce be allowed them afterwards, even for their money.

As few of the Arab princes have any other substance than what they can get by pillage, they keep continually spies on foot, to give them intelligence of the departure and motions of *caravans*, which they frequently attack with superior forces: in case of a repulse they come to on accommodation; but if the *caravan* be beaten, it is absolutely plundered, and the whole guard made slaves; though more indulgence is shewed to strangers. The taking of a single *caravan* sometimes enriches a prince for ever.

The profits to be made in a *caravan*, during its march, are often incredible; Mr. Bournon gives instances where, by repeated bargains and exchanges, a person has made twenty thousand crowns out of a single gold watch, and thirty *louis d'ors*.

Any dealer is at liberty to form a company, in order to make a *caravan*. He in whose name it is raised, is considered as the *caravan-bachi*, or chief of the *caravan*, unless he appoint some other in his place. If there be several merchants equally concerned, they elect a *caravan-*

bachi; after which they appoint officers to conduct the *caravan*, and decide all controversies which may arise during the journey.

There are five sorts of *caravans*, viz.

CARAVAN, heavy, composed of elephants, dromedaries, camels, and horses.

CARAVAN, light, in which there are but few elephants.

CARAVAN, ordinary, that in which there are no elephants.

CARAVAN of horses, that in which there are neither camels nor dromedaries, but only horses.

CARAVANS, sea, are companies of merchant vessels, laden with goods; and convoyed by ships of war.

CARAVAN is also an appellation given to the voyages, or campaigns, which the knights of Malta are obliged to make at sea, against the Turks and Corsairs; in order to arrive at the commanderies and dignities of the order. They are thus called, because the knights have frequently seized the *caravan* going from Alexandria to Constantinople.

CARAVANIER, a person who leads the camels and other beasts of burden used in the *caravans* of the East.

CARAVANSERA, a large public building, or inn, destined to receive and lodge the *caravans*.

The word comes from the Arabic *cairawân*, or Persian *karâvan* or *cârvân*, a *caravan*, and *serai*, a large house.

Of these *caravanseras*, or, as Chardin calls them, *caravanserai*, there are a great number throughout the East; erected out of the charity and magnificence of the princes, &c. of the several countries.

Those of Schiras and Casbin, in Persia; are said to have cost sixty thousand crowns each. They are open to people of all religions and countries, without any questions asked, or any money required.

The *caravanserai* are usually huge square buildings, with a spacious court in the middle thereof. They are encompassed with galleries and arches, under which runs a kind of banquette, or elevation, some feet high, where travellers rest themselves, and make their lodgings as well as they can; their baggage, and the beasts that carry them, being fastened to the foot of the banquette. Over the gate, there is frequently a sort of little chambers; which the *caravanseraskier* lets out, at a very dear rate, to such as have a mind to be retired.

Though the *caravanseras* serve in lieu of inns, yet there is this essential difference between them and our inns, that the traveller finds nothing at all in the *caravanserai*, neither for himself, nor his cattle; but must carry all his provisions and necessaries with him. They are chiefly built in dry, barren desert places; and are generally furnished with water from a great distance, and at a vast expence; there being no *caravanserai* without its well of water. There are several of them in cities: where they serve not only as inns, but as shops, warehouses, and even exchanges.

There are some *caravanseras* where most things may be had for money; and as the profits of these are considerable, the magistrates of the cities to whose jurisdiction they belong, take care to store them well: they have an inspector, who fixes the price of lodging without appeal. There are few cities in the East without their *caravanserai*; especially within the dominions of Turkey, Persia, and the Great Mogul. Those of Constantinople, Ispahan, and Agra, the capitals of three empires, are distinguished for their magnificence and commodiousness.

In Turkey, none but the grand signior's mother and sister, with the viziers and bashaws, who have been in three battles against Christians, are allowed to build a *caravanserai*.

CARAVANSERASKIER, the director, steward, or intendant of a *caravanserai*.

At Ispahan there are *caravanseras* in manner of halls or exchanges, where goods are laid up, and exposed to view; for which the *caravanseraskier* is accountable, in consideration of a certain fee.

CARAVEL; thus they call a small vessel on the coast of France, which goes to fish for herring on the banks. They are commonly from twenty-five to thirty tons burden. Those which are designed for the same fishery in the British channel, are called by the French *trin-quarts*: these are from ten to twelve tons burden.

CARAUNA, in *Zoology*, the name of a small Brazilian fish, in many respects approaching to the *turdus* kind. Its colour is a fine bright red, all over spotted with very small black spots.

CARAWAY, *Carum*, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these: it hath an umbellated flower, composed of several small umbels, which are formed as rays to the general umbel; neither of which have any involucre: the flower hath five heart-shaped petals, and five hairy stamina. The germen is situated under the flower, which becomes an oblong channelled fruit dividing into two parts, each having an oblong furrowed seed. There are two species.

The

The common *caraway*, whose seed is used both medicinally and in the kitchen, grows naturally in some of the rich meadows in Lincolnshire and Yorkshire, and is sometimes found in pastures near London. It is also cultivated in some places.

The seed of the *carui*, or *caraway*, is narrow, longish, furrowed on the back, and of a brisk aromatic taste.

It is one of the greater hot seeds, and is esteemed stomachic, and diuretic; it dispels wind, and strengthens digestion, &c. The English and Germans make great use of it; particularly in biscuits, comfits, seed-cakes, and other foods, and confections.

CARBASA *Carystia*, a term used by many of the ancient writers to express pieces of cloth made of the *linum incombuibile*, or asbestos stone, which being found plentifully about Carystium, was thence called by the name of the place. Pausanias calls it *linum Carpasum*, for the same sort of reason; Carpasus, a town in the island of Cyprus, being a place famous for affording large quantities of the stone in its neighbourhood.

CARBENSIS aqua, in the *Materia Medica*, the name of a mineral water of Germany, of which Hoffman from Petzlerus has given the following account. All about the place of its origin, and along the canals through which it passes, it deposits an earthy and ferruginous matter, which concretes into a stony hardness. When any alkaline liquor, whether fixed or volatile, is added to these waters, they become turbid, and precipitate a whitish earthy matter to the bottom of the vessel; after the evaporation of the water they leave a *sal enixum*, and an alkaline earth; two quarts of them yield two scruples and ten grains of the earth, and twelve grains of the salt. If it be kept for any time in a glass, or earthen vessel, it deposits a sediment of a yellow ochreous earthy matter, and when immediately taken from the spring, it changes to a bluish brown colour, on being mixed with galls. It contains a very large portion of a subtle mineral spirit; for if a long-necked vessel be filled half full with it, and the orifice stopped with the thumb, the whole, on a little shaking, sends up a froth to the top; and when the thumb is taken off, the water squirts out to several feet distance. It makes an effervescence on mixing oil of vitriol with it; but this lasts but a very little time. From the whole, it seems to contain a large quantity of calcareous earth, and some small portion of ferruginous matter; whence it purges both by stool and urine, though mostly the latter way: the former operation, which is pretty constant, is owing to this alkaline earth meeting with an acid in the *prima via*, and being by it changed into a bitter purging salt, of the nature of Glauber's.

CARBEQUI, or *Asper of copper*, a coin which is current in the province of Georgia in Asia; particularly at Teflis, the capital.

CARBO aquaticus. See CORMORANT.

CARBONADE, or **CARBONADO**, in *Cookery*, flesh, fowl, or the like, seasoned, and broiled on the coals.

CARBUNCLE, among *Ancient Naturalists*, is a sort of stone, whereof Pliny and Theophrastus relate many fabulous wonders.

The name is formed of the Latin *carbunculus*, q. d. a burning coal. Pliny, treating of the *carbuncle*, distinguishes twelve sorts of it.

Many of the ancients, and some of the moderns after them, have supposed the *carbuncle* to be taken from the dragon's head; and we read of many cavaliers, who went to combat with dragons, on purpose to gain this invaluable jewel.—Vartoman assures us, that the king of Pegu used no other light in the night-time, but that of his *carbuncle*, which cast a blaze like that of the sun.

CARBUNCLE, among *Modern Lapidaries*, is a stone of the ruby kind; very rare, and of a rich, glowing blood-red colour.

The distinguishing character of the *carbuncle* is, that it is a gem of great hardness, and of a deep red with an admixture of scarlet. It was known among the ancients by the name *αἰθραῖς*, which was used metaphorically to signify that this gem was in some lights of a fire colour, the proper signification of the word being a piece of lighted charcoal.

The *carbuncle* is usually found pure and faultless, and is of the same degree of hardness with the sapphire, being second only to the diamond. It is ever found naturally of an angular figure, smaller at one end than at the other, and at that small end tapering to a pointed pyramid, composed of the same number of planes with the column, which is six, and those usually very unequal. It is found adhering by its base to a heavy and hard ferruginous stone of the emery kind, and is always more finely coloured toward the point than in the base of the column.

Its usual size is near a quarter of an inch in length, and two thirds of that in diameter in its thickest part. It bears the force of fire unaltered, not parting with its

colour by it, as do most of the gems; nay, it even will not be at all affected by fire, nor become in the least degree paler. It is found only in the East Indies, so far as is yet known, and that but very rarely.

The distinctions between the several red gems are very nice, and their names in some degree arbitrary. Many authors have confounded the *carbuncle* with the ruby, and determined with Garcias, that every ruby which exceeded twenty-four carats in weight, was properly a *carbuncle*. This gem, however, is by all trials proved to be evidently the *carbuncle* of the ancients, and essentially different from the ruby in wanting the purplish tinge into which the colour of that gem goes off, as is extremely evident in all the deep ones; this going off into a true scarlet, and for that reason giving the colour of a lighted charcoal in the sun, which neither the ruby, garnet, nor any other gem can do which has the blue or purple cast.

The finest *carbuncles* are said to be produced in the island of Ceylon, the king of which country is possessed of a *carbuncle* a palm broad, and three inches thick, of the brightness of fire.

Some include **GRANATES** and **HYACINTHS** under the class of *carbuncles*.

CARBUNCLE, in *Medicine*, is a malignant tumour, arising sometimes on one part, and sometimes on another; accompanied with a painful heat, mortification, lividness, and at last a blackness of the part.

The Greeks call it **ANTHRAX**; the Latins *carbunculus*, sometimes also *carbo*; and the French *charbon*; all importing coal; from the resemblance of its scab to a coal of fire. It is sometimes pestilential, and sometimes not. When it arises without pustules, it is properly called *pruna*; when with, *ignis Perficus*.

It usually begins with one or more pustules, under which is formed a putrid ulcer; sometimes with a scab, without any pustule; the ulcer being formed under the scab. Within the tumor is a kernel, very painful; sometimes red, and sometimes livid, or blackish.

The *carbuncle* is owing to a sharp, caustic, malignant, saline humour, which gnaws and corrupts the part whereon it is discharged.

CARBUNCLE is also, in *Medicine*, sometimes used for the *furunculus*, or **BOIL**.

This is more particularly called the *benign carbunculus*, by way of contradistinction from that which is of the malignant kind.

CARBUNCLE is also frequently used to denote a small eruption, which, coming on any part of the body, soon discharges its contents, and afterwards appears in form of a crusty tubercle, of the size of a millet-seed, surrounded with a red fiery circle.

CARBUNCLE, pestilential. This is an inflammation that arises in time of pestilential contagion, with a vesicle or blister, almost like those which are caused by burning; but this inflammation generally terminates in a mortification, and putrifies the adjacent parts down to the bone, all about becoming as black as a coal.

This kind of inflammation always breaks out very speedily, sometimes even in an hour or two, attended with the most intolerable heat and pain. On opening it, there is always discharged a darkish limpid or watery sanies, and the flesh underneath is of a black colour, the mortification having then already seized it, and spreading more and more by degrees; but in those who recover, the mortification at length stops, and the putrified flesh suppurates, and parts from the sound.

The size and number of these inflammations in the same patient, are both very various and uncertain; there is no part of the body but what they may infect; and they are generally, if not always, accompanied by buboes.

The immediate cause of these is a violent inflammation, excited in the blood by the pestilential venom; and the inflammation, from the nature of the case, is ever speedy, and always followed by sphacelation and a corruption of the parts. What is remarkable, is, that the parts and juices do not suppurate into matter, as is usual in other tumours, but whatever is internally corrupted, separates and entirely falls off: for the inflamed parts suppurate at the margin of the inflammation, so that if the patient does not die suddenly, the sphacelated parts are separated, and naturally thrown off.

Carbuncles are always a worse symptom than buboes in these cases, especially if the eruptions turn directly either livid or black; but if they are red first, and then gradually turn to a citron colour, the danger is less.

Those *carbuncles* also which arise in the face, neck, breast, or arm-pits, are always accounted the worst, and usually kill the patient.

The chief business of internal medicines, in this case, is to keep the patient in a constant breathing sweat; and the business to be aimed chiefly at in external applications, is to procure, as soon as possible, the separation

of the sphacelated parts from the sound. Some, therefore, use scarification alone in this case, and that with very good success; for, by making a great number of incisions in the corrupted parts, they let out the pestilential venom which corrupted the blood. Others on the same occasion use also, as a cataplasm, a mixture of two ounces of flour and half an ounce of vinegar, made with water or skimmed milk into a proper form, and with an ounce of honey, and an ounce of powder of saffron; those ingredients are to be thoroughly mixed in, and the cataplasm to be applied warm, and renewed frequently, till the whole *carbuncle* separates and falls off from the sound parts; and this is a much better and safer method of extirpating the *carbuncle*, than by cutting it out at once, by which operation some have been known to have been killed upon the spot. When the greatest part of the *carbuncle* is, however, of its own accord separated from the sound parts, the part where it adheres may always be safely divided with the scalpel; and this, indeed, is absolutely necessary.

If an ill-conditioned and luxuriant flesh grows internally in this case, either of itself, or from the extirpation of the *carbuncle* being made too soon, this must ever be necessarily entirely consumed by the application either of the Egyptian ointment, or of the following: take two spoonfuls of honey, the yolks of two eggs, and of burnt alum, gentian, and birthwort-root in powder, each an ounce; make the whole into an ointment.

If the inflammation disposes the adjacent parts to a gangrene, it will be most proper to use the following application: take salt of wormwood, half an ounce; of the herb scordium, and of elder and chamomile flowers each a handful; and of river-water two pints and a half: when these have been well boiled and strained, mix with the liquor six ounces of camphorated spirit of wine, and two ounces of Venice treacle; and let this be applied hot to the parts, by means of double linen rags being well wetted in it, and repeated frequently till the violence of the inflammation abates.

When the mortified flesh of the *carbuncle* has separated itself from the sound part, it is necessary to cleanse the ulcer perfectly with digestive ointments, lest any of the matter remain there, and mix itself again by degrees with the blood; and this deterging of the ulcer is always to be continued till there remain no more symptoms of the pestilential infection in the patient; and after this the wound may be healed like other ulcers. Heister.

CARBUNCLE, *Carbunculus*, also denotes a sort of sandy matter found in Hetruria, formed of a hard earth of the same name, concocted in the viscera of the mountains, by the heat of the subterranean vapours.

Pliny and Varro speak of the *carbunculus*, as a peculiar kind of hot, dry, lean soil.

CARBUNCLE, in *Heraldry*, a charge, or bearing, consisting of eight radii, or spokes; four whereof make a common cross, and the other four a saltier. See *Tab. Herald. fig. 13.*

Some call these radii *battons*, or *staves*; because round, and enriched with buttons, or pearled, like pilgrims staves; and frequently tipped, or terminated with fleurs-de-lis. Others blazon them, royal sceptres, placed in saltier, pale and fesse.

CARBUNCULATION, the blasting, or scorching of the new-sprouted buds of trees, or plants, either by excessive heat, or excessive cold.

It happens chiefly in the spring and autumnal seasons, when vegetables being covered with dewy vapours, a sudden cold comes on them, which, congealing those vapours, the nutritious juice of the plant is coagulated, and the texture of its fibres destroyed.

CARCAJOU, in *Zoology*, a species of quadrupeds in North America; small, but very strong and furious: see the description of it by M. Sarassin, in *Hist. Acad. Sc. 1713.*

CARCAPULI, in *Botany*, the Indian yellow orange of Malabar. This is a tall spreading tree; the trunk as much in compass as two men can encircle with their arms, the leaves stand by pairs on the sprays, at the extremities of which appear yellowish and tetrapetalous flowers, which are void of smell, but of a fourish taste. The calyx consists of four pale concave leaves; and the fruit, which hangs by a pedicle an inch long, is big, round, and distinguished by eight or ten exuberances like ribs; with a small head at the top, striated in like manner with small ribs. It is first green, then yellow, and when ripe, whitish; and has an acid sweetness of taste. The seeds are contained in the middle of the pulp; and are oblong, flattish, and of a dark azure colour.

This fruit, according to Acosta, as to size and shape, is like a quince with the rind taken off, and consists in like manner of grumous parts, but not separable, as in the quince; it is covered with a thin, light, and shining

rind. It is dried, and exported from Malabar to other countries.

It is commonly eaten, and the inhabitants commend it much for medicinal uses: but it is most eminent for stopping a flux of the belly, of what kind soever, especially that contracted by excessive venery.

CARCAPULI *Linschotani*. C. Bauhine confounds this with the preceding; but they differ in flower and fruit, though agreeing in other respects. The first bears an acid, sulcated, gold-coloured fruit, as big as an apple; the latter produces a round sweet fruit, of the bigness of a cherry: the first is called by the natives simply *ghoraka*, the other *kanna ghoraka*. They both afford gum gutta, but the latter the best. But this gum gutta, says Dr. Syen, must not be confounded with the common gum gutta, which, as Bontius assures us, is collected from a plant which is near akin to the *Escula Indica*, and is called by the Indians *Lonam Cambodia*, because it grows plentifully in the country of Cambodia.

CARCARIAS *canis*. See **SHARK**.

CARCASE, the corpse, or body of a dead animal. Thus, we say, the *carcases* of the soldiers, horses, &c. were seen long afterwards on the field of battle.

The *carcase* of a fowl, capon, partridge, leveret, rabbit, &c. is what remains thereof, after the four members, or limbs, viz. the legs and wings, have been cut off.

CARCASE, in *Architecture*, is the shell, or ribs of a house; containing the partitions, floors, rafters, &c. made by the carpenter, &c. The *carcase* is otherwise called the **FRAMING**.

CARCASSE, or **CARCUSS**, in *War*, a kind of bomb, either oblong, and oval, or circular; consisting of a shell, or case, sometimes of iron, with holes; but more commonly of a coarse strong canvass, pitched over, and girt with iron hoops; filled with combustible matters, as hand-granadoes, ends of muskets, loaded pistols, and preparations of gunpowder, &c. Its use is to be thrown out of a mortar, to set houses on fire, and do other execution.

It has the name *carcasse*, because the circles which pass from one ring, or plate, to the other, seem to represent the ribs of a human *carcase*.

The oblong *carcasses* are now disused, on account of the uncertainty of their flight: the round ones are composed of pitch, saltpetre, sulphur, and corned powder.

In lieu of the ancient *carcasses*, a new sort has been introduced made of iron bands, or ribs, which inclose a canvas bag, filled with combustible matter, hardly to be extinguished.

We have also a third sort of *carcasses*, of a late invention, for the sea-service, differing in nothing from a bomb, except in their being filled with a composition like that above mentioned, and having five holes, all primed with powder and quick-match, which take fire from the flash of the mortar, and communicating it to the composition, cause it to burn vehemently from those holes.

CARCERES, in *Antiquity*, were the lists, or barriers of the circus, within which the horses were confined, till the signal was given by the magistrate for starting.

The word is Latin, supposed to be formed a *coercendo*, as they served as a restraint to the horses ready to run.

The number of *carceres* was twelve. In the early days of Rome they were made of wood, which Claudius afterwards changed for marble. They were kept fast with bolts, sustained by ropes, which, the moment the signal was given, flew open all at once. Some think that only four were used at a time. Suet. in Claud. cap. xxi. n. 6.

CARCINIUM *Opalinum*, a new genus of marine animal, discovered by Mr. Banks and Dr. Solander, in their passage to Madeira, which shone in the water with colours that exceeded in variety and brightness any thing they had ever seen. The beautiful colouring and splendour of these animals were equal to those of an **OPAL**; and from their resemblance to that gem, they gave this denomination to the genus. One of them lived several hours in a glass of salt water, swimming about with great agility, and displaying at every motion a change of colours almost infinitely various. See **DAGYSA**.

CARCINOMA, in *Medicine*, a tumour more usually called a **CANCER**.

The word comes from *καρκινος*, *cancer*, and *νερω*, *depaſco*, to feed upon.

CARCINOMA is sometimes used to denote a disorder of the *tunica cornea* of the eye, wherein the little veins of the part appear turgid and livid.

CARCINOMATOUS, the same with **CANCEROUS**.

Schirrhi and strumæ, which are formed of the humours stopped by their viscidty, or coagulated by an acid, as also polypuses, wherein the vessels retain their order and distribution, are originally different from *carcinomatous* tumours, which, according to Gendron, arise from an indisposition of the glandular vessels. Yet, when the

structure of the vessels is once destroyed, the former degenerate into a hard indissoluble lump, capable of germination, so that they lose their former nature, and become cancerous. Phil. Trans. N^o 260. p. 479.

CARD, in the *Woollen Manufactory*. See **CARDING**.

The word seems formed from the Latin *cardus* (*fullonum*) which denotes the fuller's teazel; a kind of thistle whose head is used to smooth and range the nap of cloth, &c. Skin. Etym. Angl. in voc.

There are divers sorts of these *cards*, as *stock-cards*, *hand-cards*, *wool-cards*, *tow-cards*, &c.

Cards for wool in England, may not be imported, nor the wire taken out of old *cards*, to be put into new leather and boards, in order for sale; upon forfeiture thereof, or of the value, if not seized: but may be amended for the proprietor's own use, or for transportation only.

CARD-playing. See **CARDS**.

CARDAMINDUM, in *Botany*. See **CRESSES**.

CARDAMINE, in *Botany*, a genus of the *tetradynamia filiquosa* class; lady's smock. The characters are these: the flower hath four oblong petals placed in form of a cross; it hath six stamina, four of which are the length of the empalement, the other two, which are opposite, being much longer. It hath a cylindrical germen, which afterwards turns to a long, compressed, cylindrical pod, with two cells, opening in two valves which twist spirally, and cast out the seeds when ripe, by their elasticity. There are ten species. Miller's Gard. Dict.

This plant is also known by the name of *cuckow-flower*, and *meadow-cresses*. It is a kind of *NASTURTIUM*, and is pungent and discutient; but is not used either in composition, or common prescription. Dr. Baker recommends it to the trial of physicians as an antispasmodic remedy. in the Medical Transact. vol. i. p. 442.

CARDAMOMUM, or **CARDAMON**, medicinal seeds of the aromatic kind, contained in capsulæ, or pods, brought from the East Indies; and used in the composition of Venice treacle, and many other medicines. Their pungency and aromatic smell are caused by an essential oil. Neumann.

This seed is distinguished into three kinds, according to the several sizes of the pods; viz. *majus*, *minus*, and *maximum*; or great, lesser, and greatest: but the taste, smell, colour, and form of the grain, is the same in all; being of a purple colour, angular, of a sharp biting taste, and a strong penetrating smell — The last kind is also called *grains of paradise*; but the first excels the rest, both in smell, taste, and virtue: it is this that enters the composition of the theriaca.

The *Cardamoms* warm, and deterge: they strengthen the nobler parts, dissipate wind, and help digestion; and are used in diseases of the brain, stomach, and womb.

CARDANES, in *Natural History*, the name of a small insect resembling a beetle, of a very sweet smell, and very soft to the touch. It is very swift in its motions, and is of a blackish colour, having two short wings, which do not nearly reach to the tail; it is likewise remarkable for having the tail of the same shape with the head, so that, when it stands still, it looks as if it had two heads, one at each end.

CARDASS, a sort of card, proper for carding flocks of silk, to make cappadine of it. It is also the name which the French give to those flocks of silk.

CARDASSES, is also the name which in the cloth manufactories of Languedoc, they give to a sort of large card, which is used for carding the dyed wool, designed for making cloth of mixed colours.

CARDERS, in the *Woollen Manufactory, are persons who prepare wool, &c. for spinning, &c. See **CARDING**, and **CLOTH**.*

Carders, spinners, weavers, fullers, sheermen, and dyers, not performing their duty in their occupations, shall yield to the party grieved, double damages; to be committed until payment. One justice to hear and determine complaints.

Carders, combers, sorters, spinners, or weavers, conveying away, embezzling, or detaining any wool or yarn, delivered by the clothier, or any other person, shall give the party grieved such satisfaction, as two justices, mayor, &c. shall think fit: if not able or willing to make satisfaction, for the first offence to be whipped, or set in the stocks in some market-town, or in any other town where the offence is committed, the second offence to incur the like, or such further punishment by whipping, &c. as justices shall think proper. Conviction by one witness on oath, or confession.

CARDIA, in *Natural History*, a genus of shell-fish, the shell of which is formed of two ovals, and resembles the figure of a hart at cards: the valves are equal and gibbous. Of this genus was several species; under it are comprehended the cockles, ark-shells, &c. together with the *pelecinus inauriti*, or scallops without ears. See **HEART-shell**.

CARDIACA. See **MOTHER-wort**.

CARDIACS, **CARDIACA**, in a general sense comprehend all medicines beneficial to the heart; whether internally, or externally applied.

The word comes from *καρδια*, *cor*; the heart being reputed the immediate seat of their operation.

CARDIACS, in a more particular sense, denote medicines which raise the spirits, and give present strength and cheerfulness. These amount to the same with what are popularly called *cordials*.

Cardiacs are supposed to produce their effect, by putting the blood into a gentle fermentation, whereby the springs, before decayed, are repaired and invigorated; and the tone and elasticity of the fibres of the vessels restored: the consequence of which is a more easy and brisk circulation. See **CORDIAL**.

CARDIACUS plexus, in *Anatomy*, a plexus, or piece of net-work, formed of a ramification of the *par vagum*, or eighth pair of nerves.

CARDIALGIA, **CARDIALGY**, in *Medicine*, a violent sensation of heat, or acrimony, attended with a constrictory pain, felt towards the upper or left orifice of the stomach, though seemingly at the heart; sometimes accompanied with palpitations of the heart, fainting, and a propensity to vomit: better known by the name of *cardiac passion*, or **HEART-burn**.

The word is compounded of *καρδια*, which denotes either the heart, or the left orifice of the stomach, and *αλγος*, pain.

It is otherwise called *cardiognus*; though some distinguish, restraining the latter to the severer degrees of this disorder, which rise to palpitations and fevers, and *cardialgia* to the lighter excesses of it.

Physicians divide this distemper into the idiopathic and symptomatic; the first, which is also called by some the *cardialgia nauseosa*, takes its rise from crudities in the *primæ viæ*, and is often owing to worms; the other usually is owing to a suppression of the menstrual, or hemorrhoidal discharges. These differ greatly in degree, the symptomatic being much the most violent, as the *viscera* and *vena porta* are brought into consent with it; but the most violent degree of the *cardialgia* is that which is attended with fainting: in this the whole mesentery is drawn into consent, and is affected with spasmodic contractions. Sometimes also in the idiopathic *cardialgia* there is a great apprehension of suffocation; this arises from the consent of the *diaphragm* and *pericardium*.

CARDIALGIA, signs of a. These are a sensation of pressure and tension about the pit of the stomach, a straitness and anxiety of the *precordia*, and often there comes on a nausea, and sometimes actual vomiting. When there are worms in the case, water comes into the mouth in great quantities, and the mucous matter is felt in the bottom of the jaws, as if a piece of something cold lay there. Heat and cold often return successively and suddenly on the person, and the complaint is always worse upon an empty stomach, and mitigates on taking a full meal. Whenever the patient can belch also, it gives him considerable relief for the time; and finally, where the commotions of blood in the *vena porta* are in fault, there is usually a slight touch of a fever attending it.

CARDIALGIA, persons subject to the. These are principally valetudinary people, who have foulnesses of the *primæ viæ*; sometimes hypochondriac persons have it to a very great degree, these people being usually troubled with flatulencies; women subject to hysteric complaints also, and such as have suppressions of the menses, often fall into it; and not uncommonly infants, in cases of worms. The cause of the complaint is either flatulency or a foulness in the stomach and intestines, which occasion a reciprocal relaxation and stricture of the tone of the stomach and intestines, and other parts which are drawn into consent.

The occasional causes of its coming on, are costiveness and the retention of flatulencies: sudden cooling of the abdomen when the body is hot; coarse foods, and such as are hard of digestion; and the swallowing the victuals in large quantities without chewing it: the change of a common coarse diet into a finer, will sometimes occasion it; and sometimes the suppressing a violent passion of anger, while eating. Tender constitutions are in general most subject to it.

CARDIALGIA, prognostics in a. This, in its simple state, and first stages, is no very terrible complaint; but its long continuance often brings on habitual faintings, and sometimes there is danger of congestions of the blood, and inflammations. The symptomatic kind is more difficult of cure, as well as more violent than the idiopathic; for this often is but of short duration, whereas the other frequently becomes habitual, and brings on convulsions, especially in cases where hot medicines have been given in it, with intent to strengthen the tone of the stomach. There have

have also been instances where vomits given to hypochondriac persons have brought on deliriums, and even absolute madness.

CARDIALGIA, *method of curing the*. In the idiopathic *cardialgia*, the peccant matter is to be prepared and corrected by resolvent, abstergent, and inciding medicines, such as the *tartarus tartarificus*, and vitriolated tartar; after this the acrid aromatics are to be given, among which common pepper is one of the very best; with this may be given the acrid roots, as those of pimpnel, arum, and the like; and with all these it will be very proper to drink at certain intervals wine made hot, and aromatized with the spices. Mustard-seed is particularly recommended by some on this occasion; and in many cases, the common absorbents serve in the place of correctors, by rendering the matter soft and pulpy.

After a few days taking these things, if there be no contra-indication in the case, it will be very proper to give a vomit; to which purpose two or three grains of tartar emetic, with some of the tartarified tartar, is a very proper medicine. Where there are worms in the case, after the bitter digestives have been given, such things are to follow as will destroy those animals, as *mercurius dulcis*, and the like; after these things, it will be very proper to give the *theriaca* every night in small doses, by way of anodyne; and after all this, the tone of the parts is to be strengthened by chalybeates, with the common bitters.

In cases of the symptomatic *cardialgia*, attended with fainting, the hot medicines prescribed in the last case are wholly to be abstained from; and in their place the tempering nitrous ones are to be taken, with a little cinabar, and the digestive salts impregnated with a few drops of the essential oils of the spices. Medicines of this kind are always of singular service in cases of straitness and constriction of the *præcordia*, and disorders of a like kind, from whatever cause, and in either sex. In the intermediate days during a course of these, the patient is to take some purgatives of the gentler kind, and afterwards the common chalybeates and bitters for restoring the tone of the parts; and, finally, the best of all preservatives against a return of this complaint, are bleedings at the spring and autumnal seasons. Junker Conf. Med. p. 580, &c.

CARDINAL, a term serving to express the relation, or quality, of prime, principal, or most considerable. The word is formed of the Latin *cardo*, a hinge; it being on these fundamental points, that all the rest of the same kind are supposed to turn.

Thus, justice, prudence, temperance, and fortitude, are called the four *cardinal virtues*, as being the basis of all the rest.

CARDINAL flower, in Botany, *Lobelia*, a genus of the *syngenesia monogamia* class. Its characters are these: the empalement of the flower is cut into five linear segments, the two upper being larger than the other. The flower is of one petal, with a long cylindrical tube, a little curved; and is divided at the brim into five segments, two of which compose the upper lip, and are smaller than the three lower which compose the under. It hath five awl-shaped stamina, terminated by oblong summits, which coalesce at the top in form of a cylinder, but open in five parts at their base; it has an acute germen, situated below the flower, supporting a cylindrical style, crowned by a hairy obtuse stigma. The germen afterward becomes an oval capsule, opening at the top, filled with small seeds.

This genus is the *rapuntium* of Tournefort.

CARDINAL Points, in Cosmography, are the four interfections of the horizon with the meridian, and the prime vertical circle. See POINT.

Of these, two, viz. the interfections of the horizon and meridian, are called *North* and *South*, with regard to the poles they are directed to.

To determine the places of these points, see MERIDIAN line.

The other two, viz. the interfections of the horizon, and first vertical, are called *East* and *West*.

The *cardinal points*, therefore, coincide with the four *cardinal* regions of the heavens; and are 90° distant from each other. The intermediate points are called COLLATERAL POINTS.

CARDINAL Points of the Heavens, or, of a *Nativity*, are the rising and setting of the sun, the zenith, and nadir.

CARDINAL Signs, in Astronomy, are Aries, Libra, Cancer, and Capricorn. See SIGN.

CARDINAL Winds, are those that blow from the *cardinal* points.

CARDINAL Numbers, in Grammar, are the numbers one, two, three, &c. which are indeclinable; in opposition to the ordinal numbers, first, second, third, fourth, &c. See NUMBER.

CARDINAL, in Zoology, a name given in Louisiana to a

bird, from the shining red of its plumage and capuchin, &c. It keeps its nest all winter, in which it stores up provision during the summer, to the quantity sometimes of a Paris bushel, which is artfully deposited, and covered first with leaves, and then with small branches, &c. See Melanges D'Hist. Natur. tom. iv. p. 283.

CARDINAL is more particularly used for an ecclesiastic prince, one who has a voice, both active and passive, in the Roman conclave, at the election of a pope.

Some say, the *cardinals* were so called from the Latin *incardinatio*, which signifies the adoption in any church made of a priest of a foreign church, driven thence by misfortune; and add, that the use of the word commenced at Rome and Ravenna; the revenues of the churches of which cities being very great, they became the common refuge of the unhappy priests of all other churches.

The *cardinals* compose the pope's council, or senate: in the Vatican is a constitution of pope John, which regulates the rights and titles of the *cardinals*; and which declares, that as the pope represents Moses, so the *cardinals* represent the seventy elders, who, under the pontifical authority, decide private and particular differences.

Cardinals, in their first institution, were only the principal priests, or incumbents of the parishes of Rome. In the primitive church, the chief priest of a parish, who immediately followed the bishop, was called *presbyter cardinalis*; to distinguish him from the other petty priests, who had no church, nor preferment: the term was first applied to them in the year 150; others say, under pope Silvester, in the year 300. These *cardinal* priests were alone allowed to baptize, and administer the eucharist. When the *cardinal* priests became bishops, their *cardinalate* became vacant; they being then supposed to be raised to a higher dignity.—Under pope Gregory, *cardinal* priests, and *cardinal* deacons, were only such priests or deacons, as had a church or chapel under their particular care: and this was the original use of the word. Leo IV. in the council of Rome, held in 853, calls them *presbyteros sui cardinis*; and their churches, *patrochias cardinales*.

The *cardinals* continued on this footing till the eleventh century; but as the grandeur and state of his holiness became then exceedingly augmented, he would have his council of *cardinals* make a better figure than the ancient priests had done. It is true, they still preserved their ancient title; but the thing expressed by it was no more. It was a good while, however, before they had the precedence over bishops, or got the election of the pope into their hands; but when they were once possessed of those privileges, they soon had the red hat and purple; and growing still in authority, they became at length superior to the bishops, by the sole quality of being *cardinals*.

Du-Cange observes, that originally there were three kinds of churches: the first or genuine churches were properly called *parishes*; the second, *deaconries*, which were chapels joined to hospitals, and served by deacons; the third were simple *oratories*, where private masses were said, and were discharged by local and resident chaplains. He adds, that to distinguish the principal, or parish churches from the chapels, and oratories, the name *cardinales* was given them. Accordingly, parish churches gave titles to *cardinal* priests; and some chapels also, at length, gave the title of *cardinal deacons*.

Others observe, that the term *cardinal* was given not only to priests, but also to bishops and deacons who were attached to certain churches; to distinguish them from those who only served them *en passant*, and by commission. Titular churches, or benefices, were a kind of parishes, i. e. churches assigned each to a *cardinal* priest; with some stated district depending on it, and a font for administering of baptism, in cases where the bishop himself could not administer it.—These *cardinals* were subordinate to the bishops; and accordingly, in councils, particularly that held at Rome in 868, subscribed after them.

It was not, however, only at Rome, that priests bore this name; for we find there were *cardinal* priests in France: thus the curate of the parish of St. John de Vignes is called in old charters, the *cardinal* priest of that parish.

The title of *cardinal* is also given to some bishops, *quatenus* bishops; e. g. to those of Mentz and Milan: the archbishop of Bourges is also, in ancient writings, called *cardinal*; and the church of Bourges a *cardinal* church. The abbot of Vendome calls himself *cardinalis natus*.

The *cardinals* are divided into three classes, or orders; containing six bishops, fifty priests, and fourteen deacons; making in all, seventy: which constitute what they call the *sacred college*. The *cardinal* bishops, who are, as it were, the pope's vicars, bear the titles of the bishopricks

bishopricks assigned to them; the rest take such titles as are given them: the number of *cardinal* bishops has been fixed; but that of *cardinal* priests and deacons, and consequently the sacred college itself, is always fluctuating. Till the year 1125, the college only consisted of fifty-two, or fifty-three; the council of Constance reduced them to twenty-four; but Sixtus IV. without any regard to that restriction, raised them again to fifty-three, and Leo to sixty-five. Thus, as the number of *cardinal* priests was anciently fixed to twenty-eight, new titles were to be established, in proportion as new *cardinals* were created.—As for the *cardinal* deacons, they were originally no more than seven, for the fourteen quarters of Rome; but they were afterwards increased to nineteen, and after that were again diminished.

According to Onuphrius, it was pope Pius IV. who first enacted, in 1562, that the pope should be chosen only by the senate of *cardinals*: whereas, till that time, the election was by all the clergy of Rome. Some say, the election of the pope rested in the *cardinals*, exclusive of the clergy, in the time of Alexander III. in 1160. Others go still higher, and say, that Nicholas II. having been elected at Sienna, in 1058, by the *cardinals* alone, occasioned the right of election to be taken from the clergy, and people of Rome; only leaving them that of confirming him by their consent; which was at length, however, taken from them. See his decree for this purpose, issued in the Roman council of 1059. in Harduin's *Acta Conciliorum*, tom. vi. pt. i. p. 1165. Whence it appears, that the *cardinals* who had the right of suffrage in the election of his successors, were divided by this pontiff into *cardinal bishops* and *cardinal clerks*: meaning by the former the seven bishops who belonged to the city and territory of Rome; and by the latter, the *cardinal presbyters* or ministers of the twenty-eight Roman parishes, or principal churches. To these were added, in process of time, under Alexander III. and other pontiffs, new members, in order to appease the tumults occasioned by the edict of Nicholas II.

The *cardinals* began to wear the red hat at the council of Lyons, in 1243. See CONCLAVE. The decree of pope Urban VIII. whereby it is appointed, that the *cardinals* be addressed under the title of *eminence*, is of the year 1630; till then, they were called *illustrissimi*.

See further concerning the origin and rights of *cardinals* in Onuphrius, Duarenus, Ciaconus.

Aubery has given the general history of *Cardinals*, in five volumes, 4to.

CARDINAL has also been applied to secular officers.

Thus, the prime ministers in the court of the emperor Theodosius, are called *cardinales*. Cassiodorus, lib. vii. Formul. 31. makes mention of the *cardinal* prince of the city of Rome; and in the list of officers of the duke of Bretagne, in 1447, we meet with one Raoul de Thorel, *cardinal* of Quillart, chancellor and servant of the viscount de Rohan: which shews it to have been an inferior quality.

CARDINALITIUS, in Zoology, a name given by some to the *coccothraustes Indica cristata*, commonly called the Virginian NIGHTINGALE.

CARDING, in the *Manufactories*, a preparation of wool, cotton, hair, or flax, by passing it between the iron points, or teeth, of two instruments called *cards*, to comb, disentangle, and range the hairs or fibres thereof; and to dispose it for spinning, &c.

Before the wool be *carded*, it is oiled, or greased with oil; whereof, one fourth of the weight of the wool is required, for wool destined for the woof of stuffs; and one eighth for that of the warp. See CLOTH.

CARDIOGMUS, is sometimes used for CARDIALGIA.

CARDIOGMUS, in a more restrained sense, denotes a peculiar species of CARDIALGIA, attended with an anxiety of the *præcordia*, and a painful heaviness, caused by a flatulent distention of the abdomen and stomach; which compresses the *diaphragm*.

CARDIOIDE, in Geometry, is thus formed; let the diameter AB (*Tab. Analysis, fig. 38.*) of the circle AMBA, revolve about the point A, and on AB produced, let Ba, MN, AD, MN, &c. be always equal to AB; then will the point a describe a curve, which from its figure resembling a heart, is called *cardioid*.

From the construction it appears, that $AN = BA + AM$, and that NMAN is always double of the diameter AB, and is bisected by the circle in M.

This curve is algebraical; if $AB = a$, $aE = x$, $EN = y$, its equation will be,

$$y^4 - 6ay^3 + 12x^2y^2 - 6ax^2y + x^4 + 12a^2y^2 - 8a^3y + 3a^2x^2 = 0$$

For the method of drawing tangents, and other properties of this curve, see Phil. Trans. N° 461. sect. 8. See also Mem. Acad. Scienc. 1705, where M. Carré first proposed this curve.

CARDIOSPERMUM, in Botany, the name by which Linnæus calls that genus of plants named CORINDUM by Tournefort and other authors. See HEART-PEA.

CARDISCE, in Natural History, the name of a stone mentioned by the old authors, and called also *encardia*. Pliny tells us, there were three kinds of it; the one black, in which there was the plain figure of a heart delineated in white; another green in that part where the heart was figured; and the third white all over, except that the heart is marked in black. We know of no such stones as these at present, unless they are to be sought for among the agates, the various and accidental course of the veins in which, represent sometimes a thousand singular figures, among which imagination may easily trace hearts, eyes, and the like. Our modern writers understand by this name a very different stone, more usually called BUCARDITES, from its resembling the heart of an ox.

Plott describes a stone of this kind, found near Stoken church, so exactly like the heart of a man, that the very trunks of the descending and ascending parts of the *vena cava*, with a part of the *aorta*, were represented in it, in their due position. Nat. Hist. Oxf. chap. v. § 154.

CARDIUM, in Zoology, a genus of worms in the Linnæan system, belonging to the order of *testacea*.

CARDO, in Anatomy, the second vertebra of the neck; so called, because the head turns upon it.

CARDONIUM, among Ancient Physicians, denotes wine medicated with herbs.

It is made by pouring must, or new wine on the herbs.

CARDOON, a species of wild ARTICHOKE.

CARDOPATIUM, in Botany, a name applied by some authors to the *carline-thistle*.

CARDS.—Playing CARDS, are little pieces of fine thin paste-board, whereon are printed divers points and figures; a certain number, of assemblage of which, serve for the performance of divers games: as *basset*, *ombre*, *picquet*, *whist*, &c. A full pack consists of fifty-two cards.

A pack is always wrapped up in a piece of paper, on which are printed the name, sign, dwelling place, &c. of the maker; with the label of the stamp-office of England, signifying that the stamp-duty has been paid, and that there is a penalty of 10*l.* for every pack sold unlabelled.

Among sharpers, divers sorts of false or fraudulent cards have been contrived; as *marked cards*, *breef cards*, *corner-bend*, *middle-bend*, &c.

CARDS, *marked*, are those where the aces, kings, queens, and knaves, are marked on the corners of the backs with spots of different number and order, either with clear water, or water tinged with pale Indian ink, that those in the secret may distinguish them. Aces are marked with single spots on two corners opposite diagonally; kings with two spots at the same corners; knaves with the same number transversed, &c.

CARDS, *breef*, are those which are either longer or broader than the rest; chiefly used at *whist* and *picquet*.

The broad cards are usually for kings, queens, knaves, and aces; the long for the rest. Their design is to direct the cutting, to enable him in the secret to cut the cards disadvantageously to his adversary, and draw the person unacquainted with the fraud, to cut them favourably for the sharper. As the pack is placed either endways or sideways to him that is to cut, the long or broad cards naturally lead him to cut to them. Breef cards are sometimes made thus by the manufacturer; but in defect of these, sharpers pare all but the breefs with a razor or pen-knife.

Corner-bend, denotes four cards turned down finely at one corner, to serve as a signal to cut by.

Middle-bend, or Kingston-bridge, is where the tricks are bent two different ways, which causes an opening or arch in the middle, to direct likewise the cutting.

The inventor of cards is not known, nor even the age when they first appeared; but by the matter they were always made of, viz. leaves of paper, they should seem to be much posterior to the time of Charlemagne. They were probably invented about the year 1390, to divert Charles VI. then king of France, who was fallen into a melancholy disposition. By the four suits or colours, the inventor might design to represent the four states or classes of men in the kingdom. The *rams* or hearts denote the *gens de chœur*, choir-men or ecclesiastics. The nobility or prime military part of the kingdom, are represented by the ends or points of lances or pikes, which, through ignorance of the meaning of the figure, we have called spades. By diamonds are designed the order of citizens, merchants, and tradesmen. The trefoil leaf, or clover grass, corruptly called clubs, alludes to the husbandmen and peasants. The four kings are David, Alexander, Cæsar, and Charles; representing the four celebrated monarchies of the Jews, Greeks, Romans, and

and Franks under Charlemagne. The queens represent Argine (for Regina, queen by descent), Esther, Judith, and Pallas; which are typical of birth, piety, fortitude, and wisdom. The knaves denoted the servants to the knights: others apprehend that the knights themselves were denoted by these *cards*, because Hogier and Lahire, two names of the French *cards*, were famous knights at the time when they were supposed to be invented. The method of making playing *cards* seem to have given the first hint to the invention of printing; as appears from the first specimens of printing at Haerlem, and those in the Bodleian library.

CARDS, making of. The cutting of the moulds, or blocks, for these *cards*, is precisely the same as that used for the first books; and a sheet of wet or moist paper is laid on the form or block, which is first lightly brushed over with an ink, made of lamp-black mixed with starch and water; and then rubbed off with a round list, in the hand. The court-*cards* they colour by help of several patterns, called *stanefiles*; consisting of papers cut through with a pen-knife: within the apertures, or incisions of which, the several colours, as red, &c. are severally applied (for at the first printing, the *card* has only a mere outline.) These patterns are painted with oil colours, to keep them from wearing out by the brushes: being laid on the paste-board, they slide a brush full of colour loose over the pattern; which leaving the colour within the apertures, forms the face or figure of the *card*. This, very probably, was the way of the first printing at Haerlem; as might have been discovered long ago, if it had been considered, that the great letters in our old manuscripts of nine hundred years ago, are apparently done by the illuminers, after this method of *card-making*.

Cards and dice may, upon sufficient security, be exported without paying the stamp-duty. 10 Ann. c. 19. § 170. 5 Geo. I. c. 19. § ult.

Playing *cards* may not be imported. 10 Ann. cap. 19. § 165. See STAMPS.

CARDS, in Manufacture. See CARD.

CARDUELIS, in Ornithology, the name of a very well known bird, called in English the GOLD-FINCH, and by the old naturalists the *chrysomitres* and *acanthis*; the first from its yellow head, and the last from its feeding among thistles.

CARDUS, in Botany, a name given by the Romans to the plants called *cañtos* by the Greeks. These words were sometimes used by both as the general names of the thistle kind, and in that sense the word *cardus* and *carduus* are the same; but some of the Roman authors have used this as the Greeks did *cañtos*, in a more limited sense, expressing by it only the artichoke. This they knew both in its wild state, and in its garden state; the wild plant was very prickly, and the garden one much larger in all its parts, and smooth.

Columella is almost the only author among the ancients who seems to make the *cañtos* and *cinara* different plants; but his distinction turning only upon the one being prickly, the other not, it comes to no more than that *cañtus* was the name of the plant in its wild state, and *cinara* in its garden state.

CARDUUS, in Natural History and Botany, a name common to divers species of plants, in English, called THISTLES.

CARDUUS Benedictus. See Blessed THISTLE.

CARDUUS Fullonum, or Fuller's weed. See TEAZEL.

CAREENING, a term, in the Sea Language, used for the laying a vessel on one side, to caulk, stop up leaks, and refit or trim the other side.

The word comes from *cariner*, which signifies the same, formed of the Latin *carina*, the keel of a ship.

A ship is said to be brought to a *careen*, when the greatest part of her lading, &c. being taken out, and a pontoon, or another vessel lower than herself, laid by her side, she is haled down to it as low as occasion requires, and there kept, by the weight of ballast, ordnance, &c. as well as by ropes, lest it should strain her masts too much. This is done with design to trim her sides, or bottom, to caulk her seams, or to mend any fault she has under water. Hence, when a ship lies on one side in sailing, she is said to *sail on the careen*.

Ships of war are generally *careened* every three years.

The *half careen* is when they can only *careen* half the ship; not being able to reach so low as the bottom of the keel.

CAREER, or **CARRIER**, in the Manege, a place inclosed with a barrier, wherein they run the rings.

The word is also used for the race, or course of the horse itself, provided it does not exceed two hundred paces.

In the ancient circus, the *carper* was the space which the bigæ, or quadrigæ, were to run at full speed, to gain the prize. See CIRCUS.

CAREER, in Falconry, is a flight or tour of the bird, about one hundred and twenty yards.

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If it mounts more, it is called a *double-career*; if less, a *semi-career*.

CARELIA, in Botany, a name given by some to the *bastard hemp* AGRIMONY, or AGERATUM.

CAREOPULI, in Botany, a name given by some authors to the tree which affords us the gamboge, the *gutta gambæ*, and *gambogium* of the shops.

CARET, in Grammar, a character in this form (Λ) denoting that there is something inserted or interlined, which should regularly have come in where the character is placed.

CARETTA, in Zoology. See TORTOISE.

CARETTI, in Botany, a name by which many authors have called the *acacia gloriosa*, or the tree which produces the *marfao*, or bezoar nuts.

CAREX, in Botany, a word used by Linnæus as the name of a genus of plants, of the *monoecia triandria* class: comprehending those called *cyperoides* by Tournefort and others, and the *scirpoides* of other authors. The characters of the genus are these: it produces male and female flowers, in most species, on the same plant; the male flowers are digested into a long spike; the cup is an oblong and imbricated omentum, consisting of acute, hollow, and lanceolated scales, each containing one flower; there is no corolla; the stamina are three erect, setaceous filaments, of the length of the cup; the antheræ are oblong, and not pendulous, but erect.

In the female flowers the cup is the same as in the male; there are no petals, but there is an inflated oblong nectarium; the germen is three-square, and is placed within the nectarium; the style is very short; the stigmata are sometimes three, sometimes but two; they are long, crooked, pointed, and hoary. The nectarium grows larger when the flower is fallen, and contains the seed in it; the seed is single, of an acute, and somewhat oval form, three-cornered, and has one of its angles usually much smaller than the others. The *scirpoides* of authors usually have the male and female flowers on the same plant. There are thirty-eight species.

CARGADORS, a name given by the Dutch to a kind of brokers who make it their sole business to find freight for ships which want loading, and vessels for merchants or passengers who want conveyance to such or such a place.

CARGO, the lading or FREIGHT of a ship.

CARGO, *portable*, is that which contains something of every sort necessary to furnish the tradesmen of the place it is sent to, with parcels fit to fill their shops, and invite their customers.

Officers and sailors on board a vessel are allowed to carry a small *cargo* or *pacotille*, not exceeding a certain bulk or weight, for their own account, without paying any freight.

CARGO is sometimes also used for an INVOICE of the goods wherewith a ship is laden.

CARGO also denotes a weight used in Spain, and Turkey, amounting to about three hundred English pounds.

CARIA, in Natural History, a name given by authors to a very mischievous species of ant, common in some parts of the East-Indies. This creature is larger than our ant, and is the common food of a great many other animals, as the squirrels, serpents, lizards, and a great many birds. In order to defend itself from so many enemies it enters into large communities, which together erect great hills of earth, of five or six feet high. The fields in some places are full of these, and it is in vain to attempt beating them down, since they would be immediately made up again; the creature builds them with firm and tough clay, which it wets as it uses it: and the wall or outer case is built so thick and firm, that scarce any rain can hurt it.

There is another species of the *caria* much smaller than this, which builds in the peoples houses, not in the fields. In the centre of the habitation of this creature there is usually found a sort of comb, or collection of cells, resembling a honey-comb. Observations sur l'Asie, p. 380.

CARIAMA, in Ornithology, the name of a Brazilian bird of the size of the heron, and, like that bird, frequenting watery places. It makes a loud noise like the turkey, and is a very valuable and well tasted fowl. Marcgrave's Hist. of Brazil. This is a species of the *palamadea*. See SCREAMER.

CARIATIDES, or **CARIATES**, in Architecture. See CARYATIDES.

CARIBOU, in Zoology, an American animal of the stag kind.

CARICA, in Botany. See PAPAW.

CARICA, among Ancient Naturalists, denotes a kind of fig peculiar to Syria; sometimes also the dried fig. It is also used in ancient writers to denote the fruit of the palm tree, otherwise called *cariata*, which was sent annually by clients, on New Year's day, as a present or acknowledgment to their patrons.

CARICATURA, in Painting, a loading, or exaggerating

of the defects of an object represented, with a concealment of the beauties or advantages of it; yet so as still to preserve a resemblance. Vide Spectat. N^o 537.

The word is Italian, formed of *carica*, a load, burden, or the like.

CARICOUS, or **CARYCOUS tumor**, a swelling resembling the figure of a fig; such as are frequently found in the piles.

The word comes from *carica*, a kind of fig; which is from *Caria*, a country where they are frequent, and from whence they are sometimes brought.

Quincy represents the *caricous* tumor as the same with what Hippocrates called *carycoides*, which seems to be a mistake; *καρυκοειδης*, in Hippocrates, denoting an excrement of a bloody colour, resembling a kind of condiment or confection, anciently called *caryca*, made of blood, and invented by the Lydians.

CARICUM, in *Pharmacy*, a cathartic medicine, which deterges fordid ulcers, and eats away proud flesh. Hippocr. de Ulceribus. It is prepared of black hellebore, sandarach, *squama aris*, washed lead, sulphur, orpiment, and cantharides: these being mixed, are made up with oil of cedar into a liquid medicine. Sometimes there is added arum, in decoction or juice, or the powder of it mixed with honey. The dry medicine, or powder, for the same purpose, is prepared of the same ingredients, omitting the oil of cedar, and the honey: it is also made of black hellebore, and sandarach only.

CARIES, in *Medicine*, a solution of continuity in a bone, attended with a waste of its substance, occasioned by some acrimonious matter corroding it.

The *caries* is a kind of rottenness, or putrefaction, peculiar to the hard, or bony parts of the body; answering to a gangrene or mortification in the soft, or fleshy part; or, according to others, to an abscess, or ulcer.

Caries arise either from a constant afflux of viscid humours, or from their extreme acrimony; or from a bruise, compound fracture, luxation, ulcer, venereal disorder, corrosive medicines, or from their being stripped or laid bare of their flesh, and long exposed to the air, &c. This disorder, if not quickly remedied, spreads and communicates itself to the neighbouring parts of the bone, and makes the same progress that ulcers do in the softer parts.

There are several species of *caries* in the bones. The learned Mr. Monro, mentions seven, which he has seen. These he distinguishes by the appellations of, 1. The dry or gangrenous *caries*. 2. The worm-eaten *caries*, or ulcer of the bones. 3. The carious *caries*, or ulcer of the bones with hyperfarcosis. 4. The phagedenic *caries*, with hyperfarcosis. 5. The scrophulous *caries*. 6. The scirrhus-cancerous *caries*. 7. The spreading cancerous *caries*.

He enters into a curious detail of the several natures of these kinds of *caries*, and of the topical management. A speedy and safe separation of all the corrupted part is the principal indication to be pursued. See Medic. Ess. Edinb. vol. v. art. 24. Abridg. vol. ii. p. 150, seq. where he shews the analogy between these diseases of the bones to those of other parts of the body. This is not surprising, since bones have the same general texture, and are only distinguished from other parts by a greater solidity or firmness.

A *caries* differs from a *SPINA ventosa*, in that the latter begins within the substance of the bone, and proceeds outward; whereas the former begins on the surface, and proceeds inward.

Caries are divided into *idiopathic* and *symptomatic*.

CARIES, *idiopathic*, or *simple*, is an erosion of a bone, happening without any other disease, commonly owing to some external cause, rarely to an internal one, as the afflux of humours.

CARIES, *symptomatic*, that which oftenest happens to persons deeply affected with some other disorder, especially the scurvy, or venereal disease.

Caries may also be divided in respect of their degree.

Those in the first degree discover a yellow fatness on the surface of the bone; in the second a blackness; in the third a roughness, and inequality of the bone, caused by a multitude of foramina or little holes; in the fourth the corruption penetrates deeper through the whole substance, which it seems as it were to dissolve.

A *caries* is properly a disorder, in which the bone, from whatever cause, is deprived of its periosteum, and having lost its natural heat and colour, becomes fatty, yellow, brown, and at length black; this is the first and slightest degree of the disorder, and is what, according to Celsus, the ancients called *os vitiatum*, and the *nigrities ossium*. But the greater degree of this disorder is where the bone is eroded and eaten, and becomes uneven by reason of the number of small holes, of which it is full, when it discharges a filthy sanies, whose acrimony softens, relaxes, and destroys the fleshy parts that

grow round it. This is a true *caries*, or ulcer of the bone, and every bone in the body is subject to this disorder; and though this ulcer may appear to be ever so safely or happily healed, yet it too often happens that after the cicatrix is formed, and has been so for some time, a new abscess will be made, the whole disorder will return afresh, and the acrimonious and corrupted matter, which continually oozes out from the carious bone, being collected within, will produce many very grievous symptoms, and destroy the neighbouring flesh again: but the worst of all *caries*, and that in which the case may indeed be almost pronounced desperate, is that which falls upon the joints, or those parts of the bones that lie very deep, because in this case there is no access for the hands to clean the bone, and there is no remedy but amputation of the limb.

Many methods have been attempted for the cure of a *caries*; the first and mildest is applied to the slightest degree of the disease, and is performed by the application of spirituous remedies, such as spirit of wine, Hungary-water; or by slight balsamics, such as the powder of birthwort, florentine, iris, myrrh, or aloes. Either of these powders is to be sprinkled on the part, after the sanies has been carefully wiped away with dried lint, and this continued till the cure is perfected. In a *caries* that penetrates somewhat deeper, stronger remedies take place, such as powder of euphorbium, or its essence, made in well rectified spirit of wine: or oil of cloves, cinnamon, or guaiacum; either of these may be touched on with a pencil, or laid upon dry lint, and applied; some also use the corrosive medicines, the phagedenic water, and spirit of vitriol, or of sulphur; and, in the place of these, a solution of quicksilver in *aqua fortis* may be used with great success. When, by these means, an exfoliation of the bone has been produced, the business is then to treat it with balsamics.

A second method of cure for a greater degree of *caries* is perforating the bone with the trepan, and dressing the part afterwards either with balsamics, or with dry lint. By these means the exfoliation of the bone is forwarded, and new vessels push themselves through the *foramina*, which, joining with the neighbouring flesh, make a new covering for the bone.

The third method of cure is performed by the raspatory, or chisel, taking off the corrupted or vitiated part of the bone, till all beneath appears white or ruddy, and sound; and the fourth, which is the most ancient, and the most speedy, and certain method, is by the actual cautery, burning down the vitiated part of the bone. This method, however, is not necessary, except in great degrees of this disorder: and in performing it great care must be taken not to injure the neighbouring soft parts: for this reason, an assistant should always draw back the lips of the wound both ways, while this is performed; and if the opening be not wide enough, it should be opened and enlarged by sponge tents before, or widened by the knife, till the bone lies fair, and the part must be carefully wiped first with dry lint, from the sanies; and if there be any fungous flesh, that must also first be removed. One application of the cautery, when the disorder is considerable, will seldom prove sufficient; it usually requires to be repeated several times, at proper intervals; and if the *caries* be of such extent that one cautery will not cover it all over, the first must be applied to the middle, and the succeeding towards its edges. This operation is not attended with any great pain, if care be taken not to injure the adjacent soft parts; for the bones are, in themselves, free from any sense of pain. Where the cranium is the seat of this disorder, the cautery is attended with great hazard, as it is also in a *caries* of the ribs, or sternum, from the neighbourhood of parts of the utmost consequence to life. The carpus and tarsus also will very badly admit of cauterizing, because of the neighbourhood of the tendons and ligaments, which it is scarce possible to avoid injuring in the operation. After cauterizing, the part is to be dressed with dry lint only, or if the patient complains of great heat in the part, the lint may be dipped in spirit of wine before it is applied; afterwards balsamics are to be applied, till the part exfoliates; and then, if the cure be perfect, the vacuity will soon be filled with new sound flesh. But if the bone remains bare, or the flesh it is covered with be soft and spongy, and does not adhere sufficiently to the subjacent bone, or where the bone remains discoloured; in either of these cases the cure will not be complete, but the disorder will break out again, unless prevented. In these cases therefore, the work must be all done over again, the spongy flesh removed, and the actual cautery again applied, before the cure is finished. Heister.

Anatomists, in dissecting of bodies, frequently find *carious* bones; particularly those of the jaws, legs, &c. where nothing of that kind was suspected during the person's

person's life-time; nor any disorder felt therefrom. Mr. Chefelden conjectures, that the cure of a *carious* bone might be directly attempted, without waiting, as our surgeons usually do, for an exfoliation.

CARIGOI, or **CARIGUEYA**, in *Zoology*, the name by which some authors have described a very remarkable American animal, more usually known by the name of the *OPOS-SUM*.

CARILLONS, a species of **CHIMES** frequent in the Low Countries, particularly at Ghent and Antwerp, and played on a number of bells in a belfrey, forming a complete series or scales of tones and semitones, like those on the harpsichord and organ. There are pedals communicating with the great bells, upon which the *carillonneur* with his feet plays the base to sprightly airs, performed with the two hands upon the upper species of keys. These keys are projecting sticks, wide enough asunder to be struck with violence and velocity by either of the hands edgeways, without the danger of hitting the neighbouring key. The player is provided with a thick leather covering for the little finger of each hand, to guard against the violence of the stroke. These *carillons* are heard through a large town. Burney.

CARIMPANA, in *Botany*, the name of an Indian palm-tree, described in the *Hortus Malabaricus*, the leaves of which, when full grown, are thirty feet long, and nine feet broad, or more, if carefully extended.

CARINA, a Latin term, properly signifying the **KEEL** of a ship, or that long piece of timber running along the bottom of the ship, from head to stern; upon which the whole structure is built, or framed.

CARINA is also frequently used for the whole capacity or bulk of a ship; containing the hull, or all the space below the deck.

Hence the word is also sometimes used, by a figure, for the whole ship.

CARINA is also used in the ancient architecture.—The Romans gave the name *carina* to all buildings in form of a ship, as we still give the name *nave* to the middle or principal vault of our Gothic churches; because it has that figure.

CARINA, among *Anatomists*, is used to denote the *spina dorsa*. As likewise for the fibrous rudiments, or embryo of a chick, appearing in an incubated egg.

The *carina* consists of the entire *vertebræ*, as they appear after ten or twelve days incubation.

It is thus called, because crooked, in form of the keel of a ship. Botanists also, for the like reason, use the word *carina*, to express the lower petalum of a **PAPILIONACEOUS** flower.

CARINA is also used, by some *Chemists*, for the twentieth part of a drop.

CARINÆ were also weepers; or women hired, among the ancient Romans, to weep at **FUNERALS**: they were thus called from *Caria*, the country whence most of them came.

CARINATED leaf, in *Botany*, expresses a leaf whose back resembles the keel of a ship.

CARIOUS, the state of a bone putrefied or rotten. See **CARIES**.

Horchius gives the history of a *tophus*, taken out of a *carious* bone. *Ephem. Acad. N. C. Dec. 2. ann. 10. Obs. 167. p. 177.*

CARIPI, a kind of cavalry in the Turkish army. The *caripi*, to the number of about 1000, are not slaves, nor bred up in seraglios or seminaries, like the rest: but are generally Moors, or renegado Christians, who having followed adventures, and being poor, and having their fortune to seek, by their dexterity and courage have arrived at the rank of horse-guards to the grand signior. They march with the *Ulufagi* on the left hand, behind him: their pay is twelve aspers *per day*.

The word *caripi* signifies *poor*, and *stranger*; an appellation said by Chalcondylas to have been given them, because chiefly brought out of Egypt, Africa, &c.

CARISSIMI, in *Antiquity*, a quality, or appellation given by the emperors to presidents, governors of provinces, and others.

CARISTIA. See **CHARISTIA**.

CARITAS.—The *poculum caritatis*, or grace-cup, was an extraordinary allowance of wine, or other liquors, wherein the religious at festivals, drank in commemoration of their founder and benefactors.

CARK, or **CARKE**, a certain quantity, or measure, of wool, equal to a thirtieth part of a **SARPLAR**.

CARL. See **CHURLE**.

CARLIN, **CARLINE**, or **CAROLINE**, a small silver coin, current in Naples and Sicily, equivalent to about four pence English.

CARLINA, or **CAROLINA**, a plant of the **THISTLE** kind, said to have been discovered by an angel to Charlemagne, to cure his army of the plague; whence its denomination.

CARLINÆ radix, in the *Materia Medica*, the name of a root kept in the shops in some places, and distinguished into two kinds, the white and the black; the white is the root of the common *carline-thistle*, which produces no stalk, the other of the *carlina camefscens*, called the black chamelion thistle.

The white *carline* root is of the thickness of one's thumb, and is often two feet long; it is brown on the outside, and white within, and should be chosen plump, firm, and well dried. It is accounted a very efficacious medicine in pestilential diseases.

The black is a smaller and shorter root than the white, and is much less esteemed in medicine. The plant which produces the white grows very frequent with us on hilly places, and is a very singular plant, producing a number of fine long prickly and jagged leaves, and in the centre of them, a large purple flower, of the thistle kind, but growing close to the ground; the other is very frequent in France, but is not met with in England.

Carline is esteemed a very powerful sudorific and alexipharmic. Schroder tells us also, that it is good against worms, and in dropsies; and that it is a powerful emmenagogue and diuretic.

CARLINES, or **CARLINGS**, in a ship, two pieces of timber lying fore and aft, along from one beam to another, directly over the keel; serving as a foundation for the whole body of the ship. On these the ledges rest, whereon the planks of the deck and other matters of carpentry, are made fast. The *carlines* have their ends let into the beams called *culver-tail-wife*. See *Tab. Ship. fig. 2. n. 29. 37. 60. and 92.*

CARLINE-knees are timbers going athwart the ship, from the sides to the hatchway, serving to sustain the deck on both sides.

CARLOCK, or **CHARLOCK**, in *Botany*, a species of the **RADISH**.

CARLOCK, a sort of fish-glue, or isinglass, imported from Archangel. It is made with the sturgeon's bladder; and is used for clarifying wine, as also in dying. The best comes from Astracan, a city in Muscovy, at the mouth of the river Wolga, where they catch great quantities of sturgeon.

CARLOSTADIANS. See **CAROLOSTADIANS**.

CARLSBAD Water, so called from a small town of that name on the confines of Bohemia, remarkable for its warm mineral springs, of which there is an account in *Phil. Trans. vol. 1. part 1. N° 4. anno 1757.* See **WATER mineral**.

CARMEL, *Knights of Mount*, are a military order of knights Hospitallers, instituted in 1607, by Henry IV. of France, under the title, habit, and rule of our *Lady of Mount Carmel*, and in consequence of a bull of pope Paul V. in 1608, united to the order of St. Lazarus of Jerusalem, with all its commandaries, priories, and other goods for its endowment.

The founder proposed it to consist of one hundred French gentlemen, who should be obliged, in times of war, to march close to the kings of France, as their guard.

Authors are much divided, whether to call this a new institution, or a restoration of that of St. Lazarus; though it is generally accounted a new institution. See **LAZARUS**.

CARMELITES, or *White Fryars*, an order of religious, making one of the four tribes of mendicants, or begging friars; and taking both the name and origin from *Carmel*, a mountain of Syria, formerly inhabited by the prophets Elias and Elisha, and by the children of the prophets; from whom this order pretend to descend in an uninterrupted succession.

The manner in which they make out their antiquity has something in it too ridiculous to be rehearsed. Some among them pretend they are descendants of J. C. Others go farther, and make Pythagoras a *Carmelite*, and the ancient Druids regular branches of their order.

Phocas, a Greek monk, speaks the most reasonably; he says, that in his time, viz. in 1185, Elias's cave was still extant on the mountain; near which were the remains of a building, which intimated there had been anciently a monastery; that some years before, an old monk, a priest of Calabria, whose name was Berthold, by revelation, as he pretended, from the prophet Elias, fixed there, and assembled ten brothers. In 1209, Albert, patriarch of Jerusalem, gave the solitaries a rigid rule; which Papebroch has since printed. In 1217, or according to others, 1226, pope Honorius III. approved and confirmed it; though it was afterwards mitigated by Innocent IV. St. Louis brought some of these *Carmelites* with him from the Holy Land into France. Many of the popes gave them the title of *Brothers of the Blessed Virgin*.

The *Carmelites* came into England in the year 1240, and erected a great number of monasteries. Their first houses were at Alnwick in Northumberland, and Ailesford in Kent.

Kent. In England and Wales they had about forty houses. This order is eminent for the devotion of the scapulary, for its missions, and for the great number of saints with which it has stocked the Romish church. In the last century, there were four canonizations in this order, viz. of S. Theresa, S. Andrew Corfin, S. Mag. de Pazzi, and S. J. de la Croix.

The order of the *Carmelites* is divided into two branches, viz. *Carmelites of the ancient observance*, called the *mitigated*, or *moderate*; and those of the *strict observance*, called *Bare-footed Carmelites*.

The *ancient observance* has only one general, under whom are forty provinces; and the congregation of Mantua, which has a vicar-general.

Bare-footed CARMELITES are a reform of the ancient *Carmelites*, set on foot in 1540, by St. Theresa; so called from their going bare-footed.

She began with the convents of nuns, whom she restored to the primitive austerity of the order, which had been mitigated by Innocent IV. in 1245, and at length carried the same reform among the friars. Pius V. approved the design, and Gregory XIII. confirmed the reform in 1580.

There are two congregations of bare-footed *Carmelites*, which have each their general, and their several constitutions: the one *the congregation of Spain*, divided into six provinces; the other called *the congregation of Italy*, comprehending all the rest, not depending on Spain.

CARMEN, an ancient term among the Latins, used, in a general sense, to signify a verse; but in a more peculiar sense, to signify a spell, charm, form of expiation, exorcism, &c. couched in a few words, placed in a mystic order, on which its efficacy depended.

Pezron derives *Carmen* from the Celtic *carm*, the shout of joy, or the verses which the ancient bards sung, to encourage the soldiers before the combat; adding, that the Greek *χαρμν*, signifies combat and joy: which is true: but then it does not come from the Celtic *carm*, but from *χαίρω*, *I rejoice*.

Some fetch the origin of the poetical *carmina*, or verses, hence; and say, they took that name from their resemblance to those spells: others, on the contrary, say, that the spells had their original from the poetical verses, and took their name from the resemblance to those: it is at least certain, that many of the ancient charms, where-with diseases were supposed to be cured, were metrical verses, to which in those ages, greater efficacy was ascribed than to mere words or prose.

Vigenere, again, derives *carmen* from *Carmenta*, because that prophetess couched her predictions in verses, or short periods: but others say, the prophetess took the name *Carmenta* from *carmen*, on the same account.

CARMEN, was anciently a denomination given to precepts, laws, prayers, imprecations, and all solemn formulæ, couched in a few words, placed in a certain order, though written in prose.

In which sense it was, that the elder Cato wrote a *Carmen de Moribus*, which was not in verse, but prose.

CARMEN saliare, a set of ancient verses composed by Numa, sung by the **SALII**, accompanied by the clashing of *Ancylia*, or sacred bucklers. See **ANCYLE**.

CARMEN also denotes a form of prayer, or words whereby divers among the ancients devoted themselves. Such was that of the **Decii**, spoken of by Pliny, Hist. Nat. lib. xxxviii. cap. 2.

CARMENIAN wool, a denomination given to a kind of goat's hair, brought from Carmania, or Caramania, a country of Asia Minor.

CARMENTALIA, a feast among the old Romans, celebrated annually on the 11th of January, in honour of *Carmenta*, or *Carmentis*, a prophetess of Arcadia, mother of Evander, with whom she came into Italy, sixty years before the Trojan war.

The solemnity was also repeated on the 15th of January, which is marked in the old calendar by *Carmentalia relata*.

This feast was established on occasion of a great fecundity among the Roman dames, after a general reconciliation with their husbands, with whom they had been at variance, in regard of the use of coaches being prohibited them by an edict of the senate.

It was the women who celebrated this feast: he who offered the sacrifices, was called *Sacerdos Carmentalis*.

Authors are divided about the origin of the word *Carmenta*: Vigenere says, the prophetess was so-called *quasi carens mente*, out of her senses; by reason of the enthusiasm she frequently fell into. Others say, she took her name from *carmen*, verse, because her prophecies were couched in verses: but Vigenere, as before noted, maintains *carmen* to be derived from *Carmenta*.

CARMES, *Eau de*, the Carmelite water, famous in France, and most parts of Europe, for its extraordinary cordial virtues. It is said to be extremely reviving, to be good

in all sorts of fits, apoplexies not excepted; and to relieve the gout when it attacks the stomach. The *Carmelites* at Paris, who make considerable advantage by vending this water, keep the preparation of it a great secret.

CARMINATIVES, in *Medicine*, are remedies, whether simple or compound, used in colics, and other flatulent distempers, to dispel the wind.

Numbers appear to be strangers to this term, as it does not appear to carry in it any thing expressive of the medicinal efficacy of those simples which pass under the denomination. This term had certainly its rise when medicine was too much in the hands of those jugglers, who for want of true knowledge in their profession, brought religion into the party: and what through their ignorance they were not able to do by rational prescription, they pretended to effect by invocation, and their interest with heaven. Which cant being generally, for surprize sake, couched in some short verses, the word *carmen*, which signifies a verse, was used also to mean an enchantment; which was frequently made use of to satisfy the people of the operation of a medicine they could not account for. And as those medicines now under this name, are of quick efficacy, and the consequences thereof in many instances surprising; the most violent pains, sometimes arising from pent-up wind, immediately ceasing upon its dispersion; such medicines as give relief to this case, are more properly termed *carminatives*, as if they were cured by enchantment.

How they expel wind may be conceived, when we consider that all the parts of the body are perspirable. Sanctorius, in his *Medicina Statica*, determines all we call wind in the bowels to be such perspirable matter as makes its escape through the coats of the stomach and intestines. Between the several membranes likewise of the muscular parts, such matter may break out and lodge for some time. Now, whatever will rarefy and render such collections of vapours thinner, must conduce to their utter discharge out of the body, and consequently relieve those uneasinesses arising from their detention. And as all those things that pass under this denomination are warm, and consist of very light subtil parts, it is easy to conceive how a mixture of such particles may agitate and rarefy those flatulencies, so as to facilitate their expulsion, especially considering those grateful sensations which such medicines give to the fibres, and which cannot but invigorate their tonic undulations so much, that by degrees the obstructed wind is dislodged, and at last quite dispelled. But if the obstruction be not great, the rarefaction of the wind upon taking such a medicine, is often so sudden, and likewise its discharge, that it goes off like the explosion of gunpowder.

All the things under this class, being warm and discutient, are much used in the composition of cathartics, of the rougher sort especially; for the irritation occasioned by those, would be scarcely tolerable, without the mitigation of such grateful ingredients. Many likewise of this sort, are in the composition of discutient topics.

The four *carminative* flowers are those of chamomile, melilot, motherwort, and dill: beside angelica, fennel, lovage, anise, caraway, coriander, cummin, &c. which all agree in their *carminative* qualities; and are therefore used in compositions of that intention.

CARMINE, a bright red or crimson colour, bordering somewhat on purple, used by painters in miniature; and sometimes by painters in oil, though rarely by reason of its excessive price, and because it will not mix with oil, so as to have the due effect in this kind of painting. *Carmin* is the most valuable product of the *cochineal mellelique*: it is a *fecula* or sediment, subsiding to the bottom of the water, wherein are steeped **COCHINEAL**, **CHOUAN**, and **AUTOUR**: some add **ROUCOU**, but this gives the *carmin* too much of the orange cast. For this purpose thirty-six grains of *chouan* are boiled up three times in two pints and a half of rain or river water; then five drams of *cochineal* are put into the water strained through a linen cloth from the preceding liquor, and boiled up three times; to this eighteen grains of the husk of *roucou*, and the same quantity of rock alum, are added, and it is boiled up once: the liquor is filtrated through a linen cloth, and suffered to stand for seven or eight days; the *faces* dried in the sun, or a stove, will be the *carmin*. However, the *chouan* and *autour*, as well as the *roucou*, are now generally omitted. Kunckel directs first to communicate a scarlet dye to fine wool, by boiling it in equal proportions of bran water and common water, with a mixture of alum and tartar, for two hours: half a pound of wool will require one pound of alum, and half a pound of pulverized tartar: the wool must then be drained, and having boiled four ounces of cochineal with two ounces of tartar in a mixture of bran water and common water, the wool must be put in and boiled for an hour and a half, and it will take the colour. The *carmin*

mine may be extracted from the wool by boiling it in a strong ley of pot-ash, till it has lost its colour: then pass the ley through a filtrating bag, and pour a solution of two pounds of alum in water into the coloured ley; and the dye will thicken; and, when it is again filtrated, the *carmine* will remain in the filtre; and the operation may be repeated as often as it is found necessary. *Encyclopedie*.

To be good it must be almost an impalpable powder. As this colour is prepared by dissolving cochineal in an alkaline lixivium, and precipitating the solution by alum, it consists of the colouring matter of cochineal, adhering to the earth of alum: the best comes from France, where the method of preparing it is kept a profound secret.

Some make *carmine* with Brasil or Fernambouc wood, and gold leaf, beat in a mortar, and steeped in white wine vinegar; the scum arising from this mixture, upon boiling, when dried, makes a sort of *carmine*: but this kind is much inferior to the former. See *DYING*.

CARNABADIUM, in the *Materia Medica* of the ancients, a name given to a drug frequently mentioned by the Greek and Arabian writers. It is properly an Arabian word which the Greeks have adopted, and given a Greek termination to, writing it *καρναδιον*. Guilandini supposes this to be the same with the *durunegi*, or *doronicum*, of the same authors; but nothing can be more absurd than such an opinion, an examination of these writers themselves shewing that they commonly used it for caraway or carui seed, and sometimes for the *Æthiopian cummin*.

CARNARIUM, a charnel-house, or repository for the bones of the dead.

CARNATIONS, in *Gardening*. See *DIANTHUS*.—These flowers are propagated two ways, the one by seed, the other by layers; the first of these methods is the way to raise new flowers, the other is the way to preserve and multiply those of former years.

For the raising of them from seed, great care must be taken to procure good seed.

When they are in the flower the finest kinds should be marked, and all the layers that can be, should, during the time of their flowering, be laid down from them: toward the latter end of August these will have taken root, and they are then to be taken off, and planted out into pots, two in each pot. The method of laying them is this. Slip off the leaves from the lower part of the shoot intended to be laid, and cut a slit in one of the middle joints, and cut off the tops of the leaves, and cut out the swelling part of the joint, where the slit is made; then raise the earth about the place a little, and bend down the slit part of the joint into it, keeping the top upright, and fasten it in its place by a hooked stick, stuck into the ground over it, and cover it with the earth; then give it a gentle watering, as often as is necessary, and in six weeks the layers will have taken so much root as to be ready to transplant.

They require shelter in the winter season, and as it is difficult to shelter a large number in their pots, which are usually nine inches over, it may be a better way to plant them out in August in very small pots, sheltering a number of these during the winter in a frame; and in the middle of February they may be transplanted into the pots they are to flower in: these in April should be set out upon a stage of boards, open to the south-east, but defended from the west winds, and not too near trees, walls, or buildings, where they are to flower.

CARNATION-tree. See *Alpine COLTSFOOT*.

Spanish CARNATION, in *Botany*. See *BARADOES Flower-fence*.

CARNATION, among *Dyers*; to dye a *carnation*, or red rose colour, take liquor of wheat-bran a sufficient quantity, alum three pounds, tartar two ounces; boil them and enter twenty yards of broad cloth; after it has boiled three hours, cool and wash it: take fresh clear bran-liquor a sufficient quantity, madder five pounds; boil and sadden according to art.

The Bow dyers know that the solution of jupiter, or delved tin, being put in a kettle to the alum and tartar, in another process, makes the cloth, &c. attract the colour into it, so that none of the cochineal is left, but the whole is absorbed by the cloth.

CARNATION, *Flesh-colour*, in *Painting*, is understood of all the parts of a picture in general, which represent flesh: or those parts of human nature which are naked, and without drapery.

Titian and Corregio, in Italy, and Rubens and Vandyke in Flanders, excelled in *carnations*.

It may be here observed, that the word *carnation* is not properly used for any particular part of the person painted, but for the whole nudity of the piece. See *COLOURING*.

CARNEDDE, in *British Antiquity*, denote heaps of stones supposed to be druidical remains, and thrown together on occasion of confirming and commemorating a covenant. Gen. xxxi. 46. They are very common in the isle of Anglesey: and were also used as sepulchral monuments, in the manner of *tumuli*: for Mr. Rowland found a curious urn in one of these *carnedde*. Whence it may be inferred, that the Britons had the custom of throwing stones on the deceased. From this custom is derived the Welsh proverb, *Karn ardyben*, ill betide thee. Rowland's *Mona Antiqua Restaurata*.

CARNEIA, in *Antiquity*, a festival in honour of Apollo, surnamed Corneus, held in most cities of Greece, but especially at Sparta, where it was first instituted.

The reason of the name, as well as the occasion of the institution, is controverted. It lasted nine days, beginning on the 13th of the month Carneus. The ceremonies were in imitation of the method of living, and discipline used in camps.

CARNEL.—The building of ships first with their timber and beams, and after bringing on their planks, is called *carnel-work*, to distinguish it from *clinch-work*.

Vessels also which go with mizzen-sails instead of main-sails, are by some called *carnels*.

CARNELIAN. See *CORNELIAN*.

CARNEUM operculum, in *Anatomy*, a name given by some writers to a muscle of the abdomen, called by Vesalius the *principium recti abdominis*; and by Fallopius, the *musculus carnosus*. It is now generally known by the name of *PYRAMIDALIS*.

CARNEY, a disease in horses, wherein their mouths become so furred that they cannot eat.

CARNICULA is used by some for a caruncle, more particularly for that fleshy substance which invests the teeth.

CARNID, in *Natural History*, a name given by Averrhoes to what is called *ZARNICH* by more ancient writers.

CARNIFEX, among the *Romans*, the common executioner. By reason of the odiousness of his office, the *carnifex* was expressly prohibited by the laws from having his dwelling house within the city.

In middle age writers *carnifex* also denotes a butcher.

Under our Danish kings, the *carnifex* was an officer of great dignity; being ranked with the archbishop of York, earl Goodwin, and the lord steward. Flor. Wigorn. ann. 1040. *Rex Hardicanutus Alfricum Ebor. Archiep. Goodwinum comitem, Edricum dispensatorem, Thronum suum carnificem, & alios magnæ dignitatis viros Londinum misit.* Spel. Gloss. p. 125.

CARNIFICATION, the making of, or turning to flesh. Physicians give instances of the *carnifications* of BONES, that is, where the bones lose their natural consistence, and become soft and fleshy. This is a transmutation which is the reverse of *ossification*.

CARNIFORMIS abcessus, an abscess with a hardened orifice which generally rises where the muscles apply themselves to the joints.

CARNIVAL, or *CARNAVAL*, a season of mirth and rejoicing, observed with great solemnity by the Italians, and particularly at Venice.

The word is formed of the Italian *carnavale*; which Du-Cange derives from *carn-a-val*, because the *flesh* is then put into the *pot*, in order to make amends for the season of abstinence ensuing. Accordingly, in the corrupt Latin, he observes, it was called *carnelevamen*, and *carnisprivium*; as the Spaniards still denominate it *carnes tollendas*.

The *carnival* time commences from Twelfth-day, and holds till Lent. Feasts, balls, operas, concerts of music, intrigues, marriages, &c. are chiefly in *carnival* time.

CARNIVOROUS, or *CARNIVORUS*, an epithet applied to those animals which naturally seek, and feed on flesh.

It is a dispute among naturalists, whether or no man be naturally *carnivorous*? Some contend that the fruits of the earth were intended as his sole food; and that it was necessity in some places, and luxury in others, that first prompted him to feed upon his fellow-animals. Pythagoras and his followers looked on it as a great impiety; and strictly abstained from all flesh, from the notion of a metempsychosis; and their successors, the Bramins, continue the same to this day.

The consideration Gassendus chiefly insists on, why man should not be *carnivorous*, is the structure and conformation of our teeth; the most of them being either incisores or molitores; not such as *carnivorous* animals are furnished with, proper to tear flesh; except the four *canini*: as if nature had rather prepared us for cutting herbs, roots, &c. than for eating meat.

To which may be added, that when we do feed on flesh, it is not without a preparatory coction, by boiling, roasting, &c.

C A R

And even then, as Dr. Drake observes, it is the hardest of digestion of all other foods, and is prohibited in fevers, and many other distempers: and lastly, that children are rather averse to all animal foods, till their palates become vitiated by custom; and the breeding of worms in them is generally ascribed to the too hasty eating of flesh.

To these arguments, Dr. Wallis subjoins another; which is, that all quadrupeds which feed on herbs or plants, have a long colon, with a cœcum at the upper end of it, or somewhat equivalent, which conveys the food, by a long and large progress, from the stomach downwards, in order to its slower passage and longer stay in the intestines; but that in *carnivorous* animals such cœcum is wanting, and instead thereof there is a more short and slender gut, and quicker passage through the intestines. Now, in man, the cœcum is very visible: a strong presumption, that nature, which is still consistent with herself, did not intend him for a *carnivorous* animal. It is true, the cœcum is but small in adults, and seems of little or no use; but in a foetus, it is much larger in proportion: and it is probable, our customary change of diet, as we grow up, may occasion this shrinking.

To the arguments used by Dr. Wallis and others, to prove that man is not naturally *carnivorous*, Dr. Tyson answers, that if man had been designed by nature not to be *carnivorous*, there would doubtless have been found somewhere in the globe, people who do not feed on flesh; and as history seems not to furnish any instance hereof, may not we say, that what is done universally by the whole species, is natural? For what the Pythagoreans did in abstaining from flesh, was on the principle of a transmigration, a mistake in their philosophy, not a law of nature; and though in some countries, men feed more sparingly on flesh than in others, this is owing to their own choice, from the advantage they perceive by it. He adds, that *carnivorous* animals are not always without a colon and cœcum; nor are all animals *carnivorous* which have those parts; but that the carigüeya, or opossum, for instance, has both a colon and a cœcum, yet feeds on poultry, and other flesh; whereas the hedge-hog has neither colon nor cœcum, and therefore ought to be *carnivorous*, yet it feeds only on vegetables; add, that hogs, which have both, will feed on flesh greedily enough when they can get it; and that rats and mice, which have large cœca, feed on bacon, as well as bread and cheese.

And, from the multitude of *carnivorous* animals which want those parts, and of non-*carnivorous* which have one or both, no safe conclusion can be drawn; since we might as well argue, that because the neat-kind, stag-kind, goat-kind, and sheep-kind, which live on herbage, have four stomachs, therefore all those which have not four stomachs were not designed by nature to be graminivorous; whereas the horse-kind, and hare-kind have but one stomach, yet feed on grass like the former: add, that in many animals which live on the same sort of food, the structure of the stomach is found very different; and that in others which live on different foods, ex. gr. on flesh, on fruits, on grass, &c. the stomachs are found so like, that it is difficult to assign any difference between them; and if we cannot make a judgment what food is most natural to an animal from the structure of its stomach, which is the part most concerned in digesting it, much less can we judge from the colon or cœcum, which are parts remote from the stomach, and seem rather as a cloaca for the reception of the fæces, than of use for digesting or distributing the food.

In fine, since man has all manner of teeth, fit for the preparation of all sorts of food, should it not rather seem that nature intended we should live on all? And as the alimentary duct in the human-kind, is fitted for digesting all sorts of food, may we not rather conclude that nature did not intend to deny us any? Phil. Trans. N^o 269. p. 775. Abridg. vol. v. p. 10.

CARNIUS, in *Chronology*, the Syracusan name for the Athenian month METAGITNION; which was the second of their year, and answered to the latter part of our July and beginning of August.

CARNOSUS, *musculus*, in *Anatomy*, a name given by Fallopius and others to a muscle, called by Vesalius the beginning of the straight muscle of the abdomen, and now generally known by the name of PYRAMIDALIS.

CARNOSA Membrana, } in *Anatomy*; see PANNICULUS
CARNOSUS Panniculus, } *Carnosus*, and MEMBRANE.

CARNOSITY is used by some authors, for a little fleshy excrescence, tubercle, or wen, formed in the urethra, the neck of the bladder, or yard, which stops the passage of the urine.

Carnosities are very difficult of cure: they are not easily known, but by introducing a probe into the passage, which there meets with resistance. They usually arise from some venereal malady ill managed.

CARNOSUM folium, in *Botany*. See LEAF.

C A R

CARNUBIA, in the *Materia Medica*, a name by which some authors have called the *carob*, or sweet pipe.

CARO, in *Anatomy*, &c. See FLESH.

CARO musculoſa quadrata, in *Anatomy*, a muscle so called by Fallopius and Spigelius, but more popularly PALMARIS brevis.

CAROB, or ST. JOHN'S Bread, *ceratonia*, in *Botany*, a genus of the *polygamia triœcia* class. Its characters are these: it is male and female on distinct trees; the male flowers have no petals, but a fleshy germen situated within the receptacle, which becomes a long, fleshy, compressed pod, divided, by transverse partitions, each having one large, roundish compressed seed. We have but one species, which is a native of the southern parts of Europe, where it grows in the hedges, and produces a great quantity of long, flat, brown-coloured pods, which are thick, mealy, and of a sweetish taste.

These pods are eaten by the poorer sorts of inhabitants in a scarcity of other food; but they are apt to loosen the belly, and cause griping in the bowels. They are directed by the college physicians as ingredients in some medicinal preparations.

CAROB is also a goldsmith's small weight, amounting to the 24th part of a grain. It is also called *prime*.

CAROLCHA, a name which the Spaniards and Portuguese give to a kind of mitre made of paper or pasteboard, on which are painted flames of fire, and figures of dæmons, worn by those who are condemned to death by the tribunal of the INQUISITION. See ACT of faith.

CAROENON, *καροινον*, sometimes also called *carenum*, denotes wine boiled down, till a third be evaporated.

CAROLI, among some physicians, denote venereal pustules on the penis; called also *caries pudendorum*.

CAROLINE, is a silver coin of Sweden, with the legend, *ſi deus pro nobis quis contra*. See COINS.

CAROLINE, is also a name given to the four books composed by order of Charlemagne, to refute the second council of Nice, with regard to the worship of IMAGES. They contain one hundred and twenty heads of accusation against that council, drawn up by the bishops of France, and first published in 1549, by M. du Tillet, bishop of Meux, under the title of *Elia Phylira*.

CAROLOSTADIANS, or CARLOSTADIANS, an ancient sect, or branch of Lutherans, who denied the real presence of Christ in the eucharist.

They were thus denominated from their leader Andrew Carolostadius, who having originally been archdeacon of Wittemberg, was converted by Luther, and was the first of all the reformed clergy who took a wife; but disagreeing afterwards with Luther, chiefly in the point of the sacrament, founded a sect apart. The *Carolostadians* are the same with what are otherwise denominated SACRAMENTARIANS, and agree in most things with the ZUINGLIANS.

CAROLUS, an ancient English broad piece of gold, struck under king Charles I. whose image and name it bears. Its value has been estimated at twenty-three shillings sterling: though at the time when it was coined it is said to have been only rated at twenty shillings.

CAROLUS is used for a small copper French coin, mixt with a little proportion of silver, first struck by Charles VIII. of France, whence it took its name; being, at the time when it ceased to be current, valued at six deniers.

CAROPI, in *Botany*, a name given by the inhabitants of the Philippine islands to a plant more usually known among authors by the name of TUGUS; a plant greatly esteemed by the natives, and supposed by Camelli to be the true *amomum* of the Greeks, so much valued in those ancient times.

CAROTEEL, in *Matters of Commerce*, denotes a certain weight or quantity of divers kinds of goods, ex. gr. of cloves, from four to five hundred weight; of currants, from five to nine hundred weight: of mace, about three hundred weight; and of nutmegs, from six to seven and an half hundred weight.

CAROTIC is used by some writers to denote those who are seized with a CARUS.

CAROTIDS, in *Anatomy*, two arteries of the neck, on each side, serving to convey the blood from the aorta to the brain.—See *Tab. Anat. (Angeiol.) fig. 1. n. 5. 5. 13. 13. (Osteol.) fig. 5. 1. 1. 2. 3. 3. lit. xx. yy. (Splanchn.) fig. 12. lit. p.*

The right carotid arises from the subclavian, just where that springs out of the porta; but the left immediately out of the aorta. They both lie pretty deep, and being defended by the aspera arteria, pass free from any compression, and without sending out almost any branches, straight to the cranium. Just before their arrival there, they send forth the external carotid; and passing the os petrosum, proceed on with some circumvolutions, till laying aside their muscular membrane, and giving branches to the dura mater, they pass along the cranium, defended by the sides of the sella-turcica, and dura mater: and sending

sending branches to the outer parts of the pia mater, and the nerves, they at last reach the cerebrum; where dividing into infinite ramifications, they are lost in the cortical part; or perhaps proceed even into the medullary part thereof.

Hippocrates and the ancients placed the seat of drowsiness in these arteries, whence they had the name *carotids*, i. e. *soporariae*, from *napos*, drowsiness. For the same reason they were also called *lethargicae* and *apoplecticae*.

CAROUGE, in *Botany*, a siliquous fruit, sweet and good to eat, when arrived at a proper degree of maturity. The tree which bears it grows in Spain, and in several places of the Mediterranean. The fruit is of great use in fattening beasts of burden, and is often given them instead of barley or oats: it is of some use in medicine, on account of its pectoral virtue, being taken in decoction. The Spaniards call it *garroba*, or *algarrova*.

CARP, in *Ichthyology*. See **CYPRINUS**.

The *carp* which was first brought into England by Leonard Mascall, about the year 1514, is the most valuable of all kinds of fish for the stocking of ponds, because of its quick growth and great increase. If the breeding and feeding of this fish were more understood and practised, the advantages would be very great, and fish-ponds become as valuable an article as gardens. The gentleman who has land in his own hands, may, beside furnishing his own table and supplying his friends, raise a great deal of money, and very considerably improve his land at the same time, so as to make it yield more this way than by any other employment whatever. The sale of *carp* makes a part of the revenue of the nobility and gentry in Prussia, Pomerania, Brandenburg, Saxony, Bohemia, Mecklenburg, and Holstein.

For this purpose particular attention should be paid to the soil, water, and situation of the *carp*-pond: the best kinds of ponds are those which are surrounded by the finest pastures and corn-fields of a rich black mould, having soft springs on the spot, or running water, that is neither too cold, nor impregnated with acid, calcareous, selenitic, or other mineral particles. The water indeed may be softened by exposing it to the air and sun in a reservoir, or by forming an open channel for it at some distance from the pond. They should likewise be sheltered against the easterly and northerly winds, and be fully exposed to the influence of the sun.

It is found by experience most convenient to have three kinds of ponds for *carp*: viz. the spawning pond, the nursery, and the main pond. The first sort of pond must be well cleared of all other kinds of fish, especially those of the rapacious kind, such as the pike, perch, eel, and trout, and also of all the newts of lizards and the water-beetles. It should be supplied with soft water, and be exposed to the sun and air. A pond of one acre requires three or four male *carp*, and six or eight female ones, and in the same proportion for each additional acre. The best *carp* for breeding are those of five, six or seven years old, in good health, with full scale, fine full eyes, and a long body, and without any blemish or wound. The pond should be stocked on a fine calm day, towards the latter end of March or in April. *Carp* spawn in May, June, or July, according to the warmth of the season, and for this purpose they swim to a shady, warm, sheltered place, where they gently rub their bodies against the sandy ground, grafs, or osiers, and by this pressure the spawn issues out. At the spawning season all kinds of fowl should be kept from the ponds. The young fry, hatched from the spawn by the genial influence of the sun, are left in this pond through the whole summer, and even the next winter, if the pond is deep enough to prevent their suffocation under the ice in a severe winter; otherwise the breeders and the fry are put into separate ponds, more convenient for their wintering.

The second kind of ponds are the nurseries: the young fish should be removed into the nursery in March or April, on a fine calm day: a pond of an acre will admit a thousand or twelve hundred of this fry. When they are first put in, they should be well watched and driven from the sides of the pond, lest they become the prey of rapacious birds. In two summers they will grow so much as to weigh four, five, sometimes six pounds, and to be fleshy and well-tasted.

The main ponds are the last sort: *carp* are put into these, that measure a foot, head and tail inclusive. Every square of fifteen feet is sufficient for one *carp*; their growth depends on the room, and the quantity of food allowed them. The best seasons for stocking the main ponds are spring and autumn: *carp* continue to grow for a long time, and to a very considerable size and weight. Mr. Forster mentions one which he had seen in Prussia above a yard long, and of twenty-five pounds weight; and two or three hundred between two and three feet long, and which, he was told, were of between fifty and sixty years standing: Gesner mentions an instance of one that was

an hundred years old: these were tame, and came to the shore in order to be fed, and swallowed with ease a piece of white bread of the size of half a halfpenny roll. Ponds should be well supplied with water during the winter, and when they are covered with ice, holes should be opened every day for the admission of fresh air, through want of which *carp* frequently perish. See **Carp-FISHING**.

Carp are sometimes fed, during the colder season, in a cellar: the fish is wrapped up in a quantity of wet moss, spread on a piece of net, and then gathered into a purse, in such a manner, however, as to allow him room to breathe. The net is then plunged into water, and hung up to the ceiling of a cellar: the dipping must at first be repeated every three or four hours, but afterward it need only be plunged into the water once in about six or seven hours. Bread soaked in milk is first given him in small quantities; in a short time the fish will bear more and grow fat by this treatment. Many have been kept in this way, breathing nothing but air, for several days successively. Phil. Transf. vol. lxi. pt. i. art. xxxvii. p. 310, &c.

CARP, *golden*. See **GOLD-fish**.

CARP stone, *Lapis carponis*, a kind of gem said to be found in the fauces, by others in the back-bone, of the *carp* fish, about the size of a pea, of a triangular figure, and white colour without, but yellow within. It is supposed to be of use against the stone, and ebullitions of the bile, being taken in powder, or held in the mouth.

CARP-meals, a coarse kind of cloth made in the northern parts of England.

CARPACK, in the *Egyptian Dress*, a sort of red cap turned up with fur, which some make a custom of wearing in common, though it is properly a part of the dress of the interpreters only, the same cap with muslin tied round it being more properly the common dress.

CARPÆA, from *Καρπαια*, a kind of dance or military exercise, in use among the Athenians and Magnesians, performed by two persons; the one acting a labourer, the other a robber.

The labourer, laying by his arms, goes to sowing and ploughing, still looking warily about him, as if afraid of being surprised: the robber at length appears, and the labourer quitting his plough, betakes himself to his arms, and fights in defence of his oxen. The whole was performed to the sound of flutes, and in cadence.

Sometimes the robber was overcome, and sometimes the labourer; the victor's reward being the oxen and plough. The design of this exercise was, to teach and accustom the peasants to defend themselves against the attack of ruffians.

CARPASIUM linum. See **LINUM Carpasium**.

CARPASUM, or **CARPASIUM**, in the *Materia Medica* of the ancients, the name of a poisonous gum, exuding from a tree, so like myrrh in appearance, that many perished by the error of using it instead of myrrh, or mixed among it. We are, at this time, wholly ignorant of its nature; but that it was a gum exuding from a tree is plain from the account of Dioscorides, who calls it *opocarpasum*, as we do the flowing balm of Gilead, *opobalsamum*. The wood of the tree which produced it, he calls *xylocarpasum*, in the same manner as the other wood is called *xylobalsamum*. This wood was little less poisonous than the *carpasum* or gum itself.

Galen tells us that the *carpasum* was like myrrh of the very purest and finest kind; and that those people who were most curious of all to have fine myrrh, often met with the *carpasum* among it, and gave death, instead of relief, to the persons they administered it to. We find, by the words of Galen, that this gum was not only like myrrh, but was also brought from the same places, and was often mixed with it. The finest myrrh usually had most of this poison among it, and we may collect from the same account that it was a sweet scented gum, for otherwise no body could have mistaken it for myrrh. Galen de Med. Simpl. lib. vii.

CARPENTER, an artificer whose business is to cut, fashion, and join timber and other wood for the purposes of building.

The word is formed from the French *charpentier*, which signifies the same, formed of *charpente*, which denotes timber; or rather from the Latin *carpentarius*, a maker of *carpenta*, or carriages.

CARPENTERS Work, in *Architecture*, includes the framing, flooring, roofing; the foundation, carcase, doors, windows, &c.

Company of CARPENTERS. See **COMPANY**.

CARPENTER's Joint rule. See **RULE**.

CARPENTER, ship, a person employed in the docks, in the construction and repairing of vessels.

CARPENTER of a ship, is an officer at sea, whose business is to have things in readiness for keeping the vessels in repair; and to attend the stopping of leaks, fishing masts or yards, also caulking, careening, breaming, and the like. He is to watch the timber of the vessel that it does not rot, consult

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consult frequently with other officers on the state of the masts, yards, &c. and in time of battle he is to have plugs, tompons, and planks ready, for repairing breaches made by the enemy's cannon.

The *carpenter* has a mate under him, and a crew or gang to command on necessary occasions.

CARPENTRY, the art of cutting, framing, and joining, large pieces of wood for the uses of **BUILDING**.

Carpentry is one of the arts subservient to architecture, and is divided into two branches, *house carpentry*, and *ship-carpentry*; the first employed in raising, framing, roofing, flooring, &c. of houses, &c.

The second in the construction of vessels for sea; as ships, barks, barges, boats, &c.

The rules and practices in *carpentry*, as to planing, sawing, mortessing, tenanting, scribing, paring, moulding, &c. are much the same as those in joinery: so likewise are the tools, or instruments, and the stuff is the same in both; all the difference between the two arts consisting in this, that joinery is used in the smaller and more curious works; and *carpentry* in the larger, stronger, and coarser.

Fr. Pyrard assures us, that the art of *carpentry* is in its greatest perfection in the Maldivé islands: their works there, he observes, are so artfully managed, that they will hold tight and firm without either nails or pins. He adds, they are so curiously put together, that no body can take them asunder but those acquainted with the mystery.

CARPENTUM, in *Antiquity*, a denomination common to divers sorts of vehicles, answering to coaches as well as waggons, or even carts, among us.

The *carpentum* was originally a kind of car or vehicle wherein the Roman ladies were carried; though in after-times it was also used in war.

Some derive the word *a carro*; others from *Carmenta*, mother of Evander, by a conversion of the *m* into *p*, *carpentum* for *carmentum*. Thus Ovid, *Fast. lib. i.*

*Nam prius Ausonias matres Carpenta vehabant
Hæc quoque ab Evandri dicta parente reor.*

CARPERA, in *Ichthyology*, a name given by Cuba, and some other writers on fishes, to the **CARP**. See **CYPRINUS**.

CARPERITARIA, in *Botany*, a name used by some authors, for the barbarea or winter-cress, a wild plant common in hedges in spring.

CARPESIA, in the *Materia Medica of the Ancients*, a name given to a kind of spice, or aromatic drug, often mentioned by Ægineta and others, and made an ingredient in cordial and stomachic medicines. This was a vegetable substance, being the top-shoots of young twigs of an odoriferous shrub, growing in Pamphyllia, and smelling very like the finest cinnamon.

As the ancients used both this drug and cubebs, it is certain that had they both been the produce of the same tree, they must have known it; and this it is plain they did not know, for they have no where named any such thing; but, on the contrary, they have expressly said, that the *carpesia* was the shoots of a tall tree, which produced no fruit. Avicenna gives also this account, and adds, that it grew, in his time, on mount Lebanon, and that the part gathered for this use was certain twigs, very long, cylindric, and but little thicker than a needle, which had a very fragrant smell.

CARPESIUM, in the *Materia Medica*, a name given by some authors to *cubebs*. See **CARPESIA**.

CARPET, a sort of covering, worked either with the needle, or on a loom; to be spread on a table, trunk, an estrade, a passage, or a floor.

Persian and Turkey *carpets* are those most prized; especially the former: *carpets* that had a hair or shag on one side only, were called by the ancients *tapetes*; such as had a shag on both sides, were called *amphytapetes*. English *carpets*, especially those of Axminster, and those manufactured by Mr. Moor, are much valued. Among *Jockeys*, to shave the *carpet*, is to **GALLOP** very close, or near the ground; a fault foreigners charge on English horses. Figuratively, an affair, proposal, &c. are said to be brought on the *carpet*, or *tapis*, when they are under consideration, &c.

CARPET-knights, a denomination given to gown-men, and others, of peaceable professions, who, on account of their birth, office, or merits to the public, or the like, are, by the prince, raised to the dignity of knighthood. They take the appellation *carpet*, because they usually receive their honours from the king's hands in the court, kneeling on a *carpet*. By which they are distinguished from knights created in the camp, or field of battle, on account of their military prowess.

Carpet-knights possess a medium between those called *truck*, or *dunghill-knights*, who only purchase, or merit the honour by their wealth; and *knight-bachelors*, who are created for their services in the war.

CARPINUS, in *Botany*. See **HORNBEAM**.

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CARPIONE, in *Ichthyology*, a name given by Salvian to the fish called by other writers, *carpio lacus Benaci*. It is the same with that fish called in some parts of England the **red CHARRE**. Artedi distinguishes it from the other species of **SALMON**, by calling it the small *salmon* with five rows of teeth in the palate.

CARPOBALSAM, or **CARPOBALSAMUM**, the fruit of the tree which yields the true oriental balm, or balsam; very much resembling, both in figure, size and colour, that of turpentine.

The word comes from *καρπος*, *fruit*, and *βαλσαμος*, *balsam*. The *carpobalsamum* is an oblong fruit with a short foot-stalk, a brown wrinkled rind, marked with four ribs; of a grateful taste and smell.

It is seldom found in shops: some substituting Jamaica pepper, and others cubebs, in its place.

CARPOBOLUS, *Lycoperdon*, in *Botany*. See **PUFF-ball**.

CARPOCRATIANS, a branch of the ancient Gnostics, so called from *Carpocrates*, who in the second century revived, and improved upon the errors of Simon Magus, Menander, Saturnus, and other **GNOSTICS**.

He owned, with them, one sole principle, and father of all things, whose name, as well as nature, was unknown. The world, he taught, was created by angels, vastly inferior to the first principle. He opposed the divinity of Jesus Christ; making him a mere man, born of Joseph and Mary, according to the ordinary course of nature, though possessed of uncommon gifts, which set him above other creatures. He inculcated a community of women; and taught, that the soul could not be purified, till it had committed all kinds of abominations, making that a necessary condition of perfection; that all actions were indifferent in their own nature, and were rendered good or evil by the opinions of men, or the laws of the state.

CARPOS, *Καρπος*, *fruit*. The word in this sense is too well known and understood to admit of any explanation: but it is necessary to observe that the old Greek writers did not keep strictly to the sense of the word, limiting it, as we do, to that part of a plant or a tree which succeeds the flower, and in which the seeds are contained; but they often used it in a larger sense, and expressed by it the esculent part of a plant, though it did not serve to this purpose.

CARPUM *flectentium interior*, in *Anatomy*, a name given by Spigelius to the muscle called by Albinus, *ulnaris internus*, and by Winslow, *internus cubitalis*.

CARPUS, in *Anatomy*, the **WRIST**; or that part between the palm of the hand, and the arm.—See *Tab. Anat. (Osteol.) fig. 3. n. 9. and 7. n. 12.* See **WRIST**.

The Arabians call it *rafsecta*; the Latins sometimes *carpius*.

CARR, *carrum*, in the *Middle Age*, denoted any sort of vehicle, or carriage, either by land or sea.

CARR, **CARRUS**, a kind of rolling throne, used in **TRIUMPHS**, and at the splendid entries of princes.

The word is from the ancient Gaulish, or Celtic, *carr*; mentioned by Cæsar, in his Commentaries, under the name *carrus*.

Plutarch relates, that Camillus having entered Rome in triumph mounted on a *carr*, drawn by four white horses, it was looked on as too haughty an innovation.

CARR is also used for a kind of light, or open chariot. Pontanus observes, that Erichthonius was the first that harnessed horses, and joined them in a *carr*, or chariot. The *carr*, on medals, drawn either by horses, lions, or elephants, usually signifies, either a triumph or an apotheosis: sometimes a procession of the images of the gods, at a solemn supplication; and sometimes of those of some illustrious families at a funeral.—The *carr* covered, and drawn by mules, only signifies a *consecration*, and the honour done any one of having his image carried at the games of the Circus.

The *carr* used by the ladies was called *pilentum*, *carpentum*, and *basterna*.

CARRAC, or **CARRACA**, a name given by the Portuguese to the vessels they send to Brasil and the East Indies; being very large, round built, and fitted for sight, as well as burden. Their capacity lies in the depth, which is very extraordinary. They are narrower above than underneath, and have sometimes seven or eight floors; that carry about 2000 tons, and are capable of lodging 2000 men; but of late they are little used. Formerly they were also in use among the knights of Rhodes, as well as among the Genoese, and other Italians.

It is a custom among the Portuguese, when the *carracs* return from India, not to bring any boat or sloop for the service of the ship, beyond the island of St. Helena; at which place they sink them on purpose, in order to take from the crew all hopes or possibility of saving themselves in case of shipwreck.

CARRAGO, in *Antiquity*, a kind of fortification, or defence about a camp, composed of carts, waggons, and the

the like vehicles, chained or fastened together; chiefly used by the barbarous nations.

CARRARA marble, among our *Artificers*, the name of a species of white marble, which is called *marmor LUNENSE*, and *ligustrium* by the ancients: it is distinguished from the Parian, now called the statuary marble, by being harder and less bright.

CARRAT, CARAT, or CARACT. See **CARACT.**

CARRIAGE, a vehicle for the conveyance of persons, goods, &c. from place to place.

CARRIAGE of a cannon, is the frame, or timber-work, whereon it is mounted; serving to point and direct it for shooting; and to convey it from place to place; of which there are three sorts; viz. those used in garrisons, at sea, aboard ships, and in the field. The two first differ only in some iron rings, and also that the trucks or wheels of garrison carriages are made of cast iron, whereas those of ship carriages are of wood. Both have the same irons, except the breech-rings, which are peculiar to the latter.

CARRIAGE, the, of a field-piece, consists of two wheels, which carry long and strong wooden beams, or cheeks, between which the cannon is as it were framed, moving on its trunnions as on a centre; when it is required to move them, they add a vant-train, composed of two smaller wheels.

The *carriage* consists of the cheeks, the transoms, the bolts and plates, the train, the bands, the keys and locks, the bridge, the bed, the hooks, the trunnion holes, and the cap-square.

The ordinary proportion is, for the *carriages* to have $1\frac{1}{2}$ of the length of the gun; the wheels to be half the length of the piece in height: four times the diameter, or caliber, gives the depth of the planks at the fore-end; in the middle $3\frac{1}{2}$.

The *carriages* for mortars are low, with four wheels, each of one piece, exactly like the *sea-carriages*.

CARRIAGE, block, is a cart made on purpose for carrying of mortars, and their beds from one place to another; and likewise for carrying guns in the field, which are too heavy to be transported on their own carriages.

CARRIAGES, truck, are two short planks of wood supported on two axle-trees, having four trucks, or wheels, of solid wood, about a foot and a half, or two feet diameter, for carrying mortars and guns upon a battery, when their own carriages cannot go, and for removing timber and other burthens; and are drawn by men.

CARRIAGE, the, of a ship gun, consists of four wheels, without spokes.

The parts of a *sea-carriage*, are the two cheeks, the axle-trees, bolts, cap-squares, commonly called clamps in the sea-service, hooks, forelocks, trucks, and linspins. The breadth of the wheels is always equal to that of the cheeks; but the height of the cheeks, and diameter of the trucks, depend on the height of the gun-ports above the deck. See on the subject of *carriages* relating to the military art, both as to their construction and the dimensions of their parts, Muller's Treat. of Artillery, vol. iv. See GALLOPER, LIMBER, TUMBRIL, &c. See also BED, BREECHINGS, &c. and HOWITZ, MORTAR, &c.

CARRIAGE, in Agriculture, denotes a sort of furrow, cut for the conveyance of water, to overflow or improve the ground.

Carriages are of two kinds, the main *carriage*, whose mouth is of breadth sufficient to receive the whole stream intended; and lesser *carriage* arising from space to space, out of the former.

CARRIAGE also signifies the removal of goods, or other things, from one place to another, especially with a carr or cart.

CARRIAGE also denotes the money or hire paid to a carrier, or other bearer of goods.

Justices of peace have power to assess the price of *carriage* of goods yearly, at their Easter sessions; and if any carrier shall take above the rates and prices so assessed, he shall forfeit 5*l.* 3 and 4 *W.* and *M.* cap. 12.

A common carrer having the charge and *carriage* of goods, is to answer for the same, or the value, to the owner. Co. Lyt. 78. And where goods are delivered to a carrier, and he is robbed of them, he shall be charged, and answer for them, because of the hire. 1 Roll. abr. 338.

Where goods are stolen from a carrier, he may bring an indictment against the felon, as for his own goods, though he has only the possessory, and not the absolute property; and the owner may also prefer an indictment against the felon. Kel. 39. If a carrier is robbed of goods, also either he or the owner may bring an action against the hundred to make it good.

The *carriage* of letters is called *postage*. See **POST.**

CARRIAGE by sea, is denominated **FREIGHT.**

CARRIAGE, bill of, lettre du voiture, among the French, de-
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notes a paper given to a carrier, expressing the quantity and quality of the goods and parcels committed to him, partly to entitle him to receive his hire from the person to whom they are directed, and partly that this letter may shew whether all be brought, and whether in due time, and in the condition required.

CARRIAGE is also used to denote the space of ground, over which the inhabitants of New France, and other colonies of North America, who trade with the savages, usually by means of canoes, are obliged to carry their boats and provisions, &c. on their shoulders. This they are forced to when they come to places in lakes or rivers, covered with willows, or otherwise rendered impracticable to pass by water, till they meet with some new place, convenient for reembarking.

CARRIER, he who undertakes to convey persons, goods, papers, money, or the like, from place to place, on condition of a certain price, either fixed by authority or custom, or left to private agreement. See **CARRIAGE.**

In Holland *carriers* are called *routiers*, because they always keep the same road, or route; setting out, and arriving at fixed hours.

CARRIER pigeon, a sort of pigeon used, when properly trained up, to be sent with letters from one place to another.

It is larger in size than most of the other kinds. Its length from the tip of the beak to the end of the tail being often fifteen inches; but its greatest weight not twenty ounces. Its flesh is firm and its feathers close; it is long-necked, and of a better shape than most other pigeons. The upper chap of the bill is half covered from the head with a white or blackish tuberculous furfuraceous fish, which projects or hangs over both its sides, on the upper part nearest the head, and ends in a point about the middle of the bill. This is called the *wattle*. The eyes are surrounded with the same sort of corrugated flesh for the breadth of a shilling, and their iris is red. Their beak is long, straight and thick; their wattle generally broad across the beak, short from the head toward the point, and tilting forward from the head; and the head narrow, long and flat; the neck very long and thin, and the breast broad; the feather is chiefly black or dun, though there are blues, whites, and pyed. It has its name from its remarkable sagacity in returning to the place where it was bred, though carried to great distances; from which property it is made use of to carry letters to distant places, as a speedy and safe method of conveyance.

They are trained to this method in Turkey and Persia, and are carried first, while young, short flights of half a mile, and afterwards more, till at length they will return from the farthest part of the kingdom. Every bashaw has a basket of these pigeons, bred at the seraglio, which, upon any emergent occasions, as an insurrection, or the like, he dispatches with letters, braced under their wings, to the seraglio, only sending out more than one, for fear of accidents. Litrow assures us, that one of these birds will carry a letter from Babylon to Aleppo, which is thirty days journey, in forty-eight hours. This is also a very ancient practice; Hirtius and Brutus, at the siege of Modena, held a correspondence with one another by means of pigeons. And Ovid tells us, that Taurosthenes, by a pigeon stained with purple, gave notice to his father of his victory at the Olympic games, sending it to him at Ægina. Ælian. Var. Hist. lib. ix. cap. 2. Pliny, lib. x. cap. 24.

Anacreon tells us, that he conveyed a billet-deaux to his beautiful Bathyllis, by a dove. Ode 9. See **DRAGOON**, and **HORSE-man.**

CARRIERE. See **CAREER.**

CARROBALISTA, in the *Ancient Military Art*, denotes a species of *balista*, mounted on wheels, and drawn by horses; by which it differed from the *manubalista*, which being lesser and lighter was thrown by the hand.

CARROCUM, or CARROCERUM, in *Middle Age Writers*, denotes the **BANNER**, or chief flag of an army, which was mounted on a kind of chariot, and drawn by oxen.

CARROT, Daucus, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these: it hath an umbelliferous hermaphrodite flower, which hath five heart-shaped petals turning inward, and five hairy stamina. The germen sits under the flower, which afterward becomes a roundish striated fruit, covered with stinging hairs.

Carrots were introduced into this kingdom by the Flemings, in the reign of queen Elizabeth, and first sown about Sandwich in Kent. There are two or three sorts of this plant cultivated for the use of the kitchen; and these are sown at several different seasons of the year, to afford a supply of young roots, in all seasons, for the table.

The season for sowing them, for the earliest crop, is soon after Christmas. They should be sown in an open situation, but near a wall; though if they are sown close under it, they will be drawn up to feed too fast, and give no good roots: about eight inches distant is the properest place.

They delight in a warm sandy soil, which should be light, and well dug to a good depth, that the roots may meet with no obstruction in running down, which makes them grow forked, and shoot out lateral branches, especially when the ground has been too much dunged the same year that the seeds were sown, which will also occasion their being worm-eaten. The hairyness of these seeds make them apt to stick together in small clusters, and renders it difficult to sow them equally: they should therefore be always sown on a calm day, when there is no wind stirring to blow them together, and be well rubbed between the hands to separate them thoroughly: when they are sown they should be trod in with the feet, and the ground raked level over them.

When they first come up, they should be hoed out to four inches distance; and a month after this, they must be cleared again; and if they are to be drawn while young, they are now to be left at six inches distance every way: if they are to stand to grow large, they must be separated to ten inches.

The second season for sowing *carrots* is in February. This must be done under a wall or hedge, and on warm banks; but those which are to be in open large quarters, should not be sown till the beginning of March.

In July they may be sown again for an autumnal crop, and finally in the end of August for those which are to stand the winter. These last will be fit for use in March, before any of the spring ones; but they are seldom so tender or well tasted.

In order to preserve *carrots* for use all winter, they are to be dug up in the beginning of November, and laid in a dry place in sand; and these roots being planted again in February will ripen seeds in August for succeeding crops: the longest and straightest roots are to be chosen for this purpose.

The cultivation of *carrots* are lately become a considerable branch of agriculture. For this purpose the ground should be ploughed early, before the winter begins, that the frost may mellow the soil, and well dunged. The seed should be sown in March or April, separating it first by passing it through a fine chaff-sieve. Four pounds of seed are sufficient for an acre. In about seven or eight weeks they are fit for hoeing, and in a fortnight after they should be harrowed, which is done without injury to the *carrot* plants. Mr. Billing, an ingenious farmer in Norfolk, obtained from twenty acres and a half of land, of different soils, and differently prepared, five hundred and ten loads of *carrots*, which, as experience led him to conclude, were equal in use and effect to a thousand loads of turneps, or three hundred loads of hay. Some of them measured two feet long, and from twelve to fourteen inches round.

The season for drawing *carrots* is a little after Michaelmas; and the best method of drawing them is by breaking the ground about six inches deep, with a four-pronged fork; though Mr. Billing has plowed them up with a narrow-sharred wheel-plough, without injury, and the stock was turned into the ground to feed on them, without any farther preparation. Cows, sheep, horses, and hogs, become, by use, fond of *carrots*, and are greatly nourished by them. See Billing's Account of the Culture of *Carrots*, 1765. 8vo.

CARROT, *wild*, or *Daucus, Sylvestris*. The seeds of this plant are esteemed one of the most powerful diuretics we are acquainted with, of our own growth. They are also esteemed provocatives to venery. They are also given in disorders of the breast and lungs, in pleurifies, in stranguries, and in the stone and gravel. An infusion of them in white wine is excellent in hysteric complaint. Many instances are related, in which tea made of the heads or seeds of the *wild carrot*, has given great relief in these complaints. Ale may be made of it, by adding to nine ounces of the seed, eighteen ounces of raisins of the sun. These must be put into a bag, and hung in a vessel of six gallons of good ale, after fermentation. After eight days it will be fine, and it may be drank in the quantity of three pints a-day.

See remarks on the use of the *carrot* peel-tree, in the Lond. Med. Observ. &c. vol. iv. p. 178. 191. and Ibid. p. 358.

CARROT, *candy*. See SPIGNEL.

CARROT, *deadly*, or *scorching*. See THAPSIA.

CARROT, *mountain*, a species of fennel. See FENNEL.

CARROUSAL, or **CARROWSAL**, properly a course, or contest of chariots and horses: or a magnificent entertainment, on occasion of some public rejoicing; consisting in a cavalcade of several persons, richly dressed, and

equipped after the manner of the ancient cavaliers, divided into squadrons, meeting in some public place, and practising jults, tournaments, and other noble exercises. The word is since become of more general use, and is given to any merry meetings.

The word comes from the Italian *carosello*, a diminutive of *carro*, *chariot*. Tertullion ascribes the invention of *carroufals* to Circe; and will have them instituted in honour of the Sun, her father; whence some derive the word from *carrus*, or *carrus solis*.

The moors introduced cyphers, liveries, and other ornaments of their arms, with trappings, &c. for their horses. The Goths added crests, plumes, &c.

CARR-TAKERS, are officers of the king's household, who, when the court travels, have charge to provide waggon, carts, &c. to transport the king's furniture and baggage.

CARRUCA, in *Antiquity*, a splendid kind of carr, or chariot, mounted on four wheels, richly decorated with gold, silver, ivory, &c. in which the emperors, senators, and people of condition, were carried.

The word comes from the Latin *Carrus*, or British *carr*, which is still the Irish name for any wheel-carriage.

CARRUCA, or **CARUCA**, is also used in *Middle Age Writers*, for a PLOUGH.

CARRUCA was also used sometimes for *carrucata*. See **CARRUCATE**.

CARRUCAGE, *carucagium*, a kind of tax anciently imposed on every plough, for the public service. See **CARRUCATE** and **HIDAGE**.

CARRUCAGE, **CARUCAGE**, or **CARUAGE**, in *Husbandry*, denotes the ploughing of ground, either ordinary, as for grain, hemp, and flax; or extraordinary, as for woad, dyers weed, rape, and the like.

CARRUCATE, *carrucata*, in our *Ancient Laws and History*, denotes a plough-land, or as much arable ground, as can be tilled in one year with one PLOUGH.

In Domesday inquisition, the arable land is estimated in *carrucates*, the pasture in *HIDES*, and meadow in *ACRES*. Skene makes the *carrucata* the same with *hilda*, or *hina terra*; Littleton the same with *soc*.

The measure of the *carrucate* appears to have differed in respect of place as well as time. In the reign of Rich. I. it was estimated at 60 acres, and in another charter of the same reign at 100 acres: in the time of Ed. I. at 180 acres: and in the 23d of Ed. III. a *carrucate* of land in Burcester contained 112 acres, and in Middleton 150 acres. Dugd. Mon. Tom. ii. p. 107. Kennet, Par. Ant. p. 471. Du-Cange.

By a statute under William III. for charging persons to the repair of the highways, a plough-land is rated at fifty pounds *per annum*, and may contain houses, mills, wood, pasture, &c. Stat. 7 and 8 Will. III.

CARRYING, in *Falconry*, signifies a hawk's flying away with the quarry.

Carrying is one of the ill qualities of a hawke, which she acquires either by a dislike of the falconer, or not being sufficiently broke to the LURE.

CARRYING, among *Huntsmen*. When a hare runs on rotten ground, (or even sometimes in a frost), and it sticks to her feet, they say she *carries*.

CARRYING, among *Riding Masters*. A horse is said to *carry low*, when having naturally an ill-shaped neck, he lowers his head too much. All horses that arm themselves *carry low*; but a horse may *carry low* without arming. A French branch, or bigot, is prescribed as a remedy against *carrying low*.

A horse is said to *carry well*, when his neck is raised, or arched, and he holds his head high and firm, without constraint.

CARRYING wind, a term used by our dealers in horses, to express such a one as frequently tosses his nose as high as his ears, and does not *carry* handsomely. This is called *carrying wind*; and the difference between *carrying* in the wind, and beating upon the hand, is this: that the horse who beats upon the hand, shakes the bridle and resists it, while he shakes his head; but the horse that carries in the wind puts up his head without shaking, and sometimes beats upon the hand. The opposite to *carrying* in the wind, is arming and *carrying low*; and even between these two there is a difference in wind.

CART, a vehicle, mounted on two wheels, drawn by horses used for the carriage of heavy goods.

Mr. Sharp's *rolling cart* is fixed upon two rollers, running a-breast, or parallel with each other, and both placed under the body of the *cart*, working upon pivots like the wheel of a wheel-barrow. The rollers are both cylinders of cast iron, two feet diameter, and sixteen inches broad. An iron spindle passes through the centre of each roller, upon the ends of which rest the four planks that support the body of the *cart*.

The word seems formed from the French *charrette*, which signifies

signifies the same; or rather the Latin *carreta*, a diminutive of *carrus*. See CARR.

In London and Westminster *carts* shall not carry more than twelve sacks of meal, seven hundred and fifty bricks, one chaldron of coals, &c. on pain of forfeiting one of the horses. Stat. 6 Geo. I. cap. 6.

By the laws of the city, carr-men are forbid to ride, either on their *carts* or horses. They are to lead, or drive them on foot, through the streets on the forfeiture of ten shillings. Stat. 1. Geo. I. cap. 57.

Criminals are drawn to execution in a *cart*. Bawds, and other malefactors are whipped at the *cart's* tail.

Scripture makes mention of a sort of *carts*, or drags, used by the Jews to do the office of threshing. They were supported on low thick wheels, bound with iron, which were rolled up and down on the sheaves, to break them, and force out the corn. Something of the like kind also obtained among the Romans, under the denomination of *ploustra*, of which Virgil makes mention. Georg. I.

*Tardaue Elusinae matris volventia ploustra,
Tribulaque, trabecaque—*

On which Servius observes, that *trabeca* denotes a *cart* without wheels, and *tribula* a sort of *cart* armed on all sides with teeth, used chiefly in Africa, for threshing corn. The Septuagint and St. Jerom represent these *carts* as furnished with saws, inasmuch that their surface was beset with teeth. David having taken Rabbah, the capital of the Ammonites, ordered all the inhabitants to be crushed to pieces under such *carts*, moving on wheels set with iron teeth; and the king of Damascus is said to have treated the Israelites in the land of Gilead in the same manner. 2 Sam. xii. 31. Amos, i. 3. Calm. Dict. Bibl. tom. i. p. 366.

CART-bote, in our *Ancient Customs*, denotes wood to be employed in making or repairing instruments of husbandry.

CARTE BLANCHE, a French term, seldom used but in this phrase, To give, or send any one the *carte blanche*; i. e. to send him a blank paper, signed, for him to fill up with what conditions he pleases.

Much like this is the French *blanc signe*, a paper without writing, except a signature at the bottom, given by contending parties to arbitrators, or common friends, to fill up with the conditions they judge reasonable, in order to end the quarrel.

CARTEL, originally signifies a placart, or manifesto in writing, posted in public places to notify its contents. The word comes from the Italian *cartello*, or Latin *cartellus*, which signifies the same; formed by diminution of *charta*, paper.

CARTEL, a letter of defiance, or a challenge to single combat; much in use when those combats were practised, for the deciding of difficult, and not otherwise to be determined, controversies at law. See DUEL.

The use of *cartels*, or challenges to fight, is very ancient, there being divers instances of them in Homer, Virgil, and other Greek and Latin poets. Rymer gives the *cartel* which Edward III. sent to Philip de Valois, challenging him either to fight him body to body, or a hundred men against a hundred, or army to army, within ten days before the gates of Tournay. Foed. tom. v.

CARTEL also denotes a treaty or agreement between two princes or generals, relating to the exchange of prisoners taken in war.

There are also *cartels* settled between princes in time of war, for what relates to commerce, that it may be carried on without interruption, notwithstanding other hostilities.

CARTEL is also used for a ship commissioned, in time of war, to exchange the prisoners of any two hostile powers; or to carry any request or proposal from one to another. The officer who commands her is ordered to carry only a single gun, for the purpose of firing signals.

CARTEL also denotes a measure of capacity for corn, used in divers parts of France, being of different values from thirty to fifty pounds.

CARTESIAN Philosophy, or CARTESIANISM, the system of philosophy advanced by Des Cartes, and maintained by his followers, the *Cartesians*.

The *Cartesian* philosophy is founded on two great principles, the one metaphysical, the other physical. The metaphysical principle is this, *I think, therefore I am*. This principle has been attacked and defended, with great spirit, zeal, and partiality, on both sides: for, though it be true that we are as sure by an inward perception or consciousness, that we exist, as that we think; yet it is true, too, that the conclusion of this reasoning, *I am*, is drawn from the antecedent *I think*: since to *think*, supposes to be, or exist; and the mind sees clearly the necessary connection between thinking and being.

From our having the idea of a Being infinitely perfect and necessarily existing, Des Cartes concludes that he ac-

tually is, upon whose will he makes the certainty of self-evident propositions, and of all necessary truths to depend. From the knowledge thus established, he proceeds to deduce a complete knowledge of his effects by necessary steps; and he rejects all final causes from philosophy. He infers the reality of material objects from the veracity of the Deity.

The physical principle of *Cartesianism* is this, that *nothing exists but substances*: which appears a dangerous principle to the divines; and is accordingly controverted every day in the schools of the catholics; who undertake to prove that there are absolute accidents.

Substances he makes of two kinds; the one a substance that thinks, the other a substance extended. Actual thought, therefore, and actual extension, are the essence of substance: so that the thinking substance cannot be without some actual thought; nor can any thing be re-trenched from the extension of a thing, without taking away so much of its substance.

The first article is opposed by Mr. Locke, who endeavours to shew, that thinking is not essential to the soul, or that its essence does not consist in thought; but that there are various occasions wherein it does not think at all. See DREAM. The latter is strongly opposed by the Jesuits, &c. as inconsistent with the doctrine of TRAN-SUBSTANTIATION; but is much better confuted by the modern writers, from the principles of the Newtonian philosophy.

The essence of matter being thus fixed in extension, Des Cartes naturally concludes there is no vacuum, nor any possibility thereof in nature; but that the world is absolutely full: for mere space is precluded by this principle; because extension being implied in the idea of space, matter is so too. If there were any such thing as a vacuum, says he, it might be measured: the vacuum, therefore, is extended, and of consequence is matter; every thing extended being matter. See VACUUM.

He defines motion to be the translation of a body from the neighbourhood of bodies that are in contact with it; and considered as quiescent, to the neighbourhood of other bodies; and thus destroys the distinction between absolute or real, and relative or apparent motion. He maintains that the same quantity of motion is always preserved in the universe; because, God, he says, must be supposed to act in the most constant and immutable manner. And hence he likewise deduces his three laws of motion. See MOTION.

These principles of physics once supposed, Des Cartes explains mechanically, and according to the laws of motion, how the world was formed; and whence the present appearances of nature do arise. He supposes, that God created matter of an indefinite extension; that he divided this matter into little square portions, or masses, full of angles; that he impressed two motions on this matter; one whereby each party revolved round its centre; another, whereby an assemblage or system of them, turned round a common centre: whence arose as many different vortices, or eddies, as there were different masses of matter, thus moving round common centres.

These things thus put into motion, the consequences according to Des Cartes, in each vortex, will be as follow: the parts of matter could not move and revolve among each other, without having their angles gradually broken; and this continual friction of parts and angles must produce three elements: the first, an infinitely fine dust, formed of the angles broken off; the second, the spheres remaining, after all the angular irregularities are thus removed; these two make the matter of his first and second element. And those particles not yet rendered smooth and spherical, and which still retain some of their angles, and irregular parts, make the third element.

Now the first, or subtlest element, according to the laws of motion, must take up the centre of each system, or vortex, by reason of the smallness of its parts, and this is the matter which constitutes the sun, and the fixed stars above and the fire below. The second element, composed of spheres, makes the atmosphere, and all the matter between the earth and the fixed stars; in such manner, as that the largest spheres are always next the circumference of the vortex, and the smallest next its centre. The third element, or the hooked particles, is the matter that composes the earth, all terrestrial bodies; comets, spots in the sun, &c.

The parts of the solar vortex, according to his system, increase in density, but decrease in celerity, to a certain distance; beyond which he supposes all the particles to be equal in magnitude, but to increase in celerity. He accounts for the gravity of terrestrial bodies from the centrifugal force of the ether revolving round the earth; and upon the same general principles he pretends to explain the phenomena of the magnet, and to account for every other operation in nature.

His system, though very artfully concerted, yet carries with it more the air of a romance, than of a just philosophy. Accordingly, both divines and philosophers exclaim against it: the first, because it leads to atheism, by furnishing the maintainers of an eternal matter, with means how, from the laws of motion, to account for the production of the world: though it is certain, Des Cartes supposed a Deity; and so must all who admit his philosophy; else whence will they derive that motion of matter, which of itself is destitute of any such principle?

But the philosophers have much better pleas against it; and the elements, subtle matter, hooked atoms, vortices, and other machines, are now clearly on the same footing with the occult quality of the ancient Peripatetics. Indeed, Des Cartes, by introducing geometry into physics, and accounting for natural phenomena from the laws of mechanics, did infinite service to philosophy; and contributed both by his practice and example, to free it from that venerable rust, which in a long succession of ages it had contracted: accordingly, to him, in some measure, is owing the present system of mechanical, and even the Newtonian philosophy.

Cartesianism was nearly prohibited by an arret of the parliament of Paris; and had been so, in effect, but for a burlesque address presented to the first president.

René des Cartes, the noble founder of this sect, was of Bretagne, born in the year 1596. His monument informs us, "That having mastered all the learning of the schools, which proved short of his expectation, he betook himself to the army in Germany and Hungary; and there spent his vacant winter hours in comparing the mysteries and phenomena of nature, with the laws of mathematics; daring to hope, that these might unlock the other. Quitting therefore, all other pursuits, he retired to a little village near Egmond, in Holland; where spending twenty-five years in continual reading and meditation, he effected his design."

He was a person of great genius and penetration, both as to the invention, and orderly ranging and disposing of things. He began a new method of philosophy, and finished it on his own foundation. His reputation in foreign nations appears on his monument; which consists of four faces, inscribed with so many encomiums. It was erected at Stockholm, where he died, in the year 1650, by Monsieur Chanut, the king of France's resident in that court. But his bones were afterwards removed to Paris, at the charge of M. d'Alibret, who also erected a handsome monument over them, in the church of St. Genevieve.

See an accurate account and examination of the *Cartesian* system, in Maclaurin's view of Sir Isaac Newton's Philosophical Discoveries, chap. iv.

CARTHAMUS. See *Bastard Saffron*.

CARTHUSIANS, a branch of the **BENEDICTINES**, an order of religious, instituted by St. Bruno, about the year 1084 (some say in 1080, and others in 1086), remarkable for the austerity of their rule, which obliges them to a perpetual solitude; a total abstinence from flesh, even at the peril of their lives; and to feed on bread, water, and salt, one day in every week; and absolute silence, except at certain stated times.

Their houses were usually built in deserts, their fare coarse, and their discipline severe. It is observed that the monastical piety is still better preserved in this, than in any of the other orders. M. l'Abbé de la Trappe, however, endeavours to shew, that the *Carthusians* do not live up to the austerity enjoined by the ancient statutes of Guigues, their fifth general. M. Masson, general of the order, answers the Abbé; and shews that what he calls the statutes, or constitutions of Guigues, are, in reality, only customs compiled by father Guigues; and that they did not become laws till long after. The word is formed from *Carthusianus*, or *Carthusiensis*, a denomination given them in Latin, from a village in Dauphiné called *Chartreuse*, in Latin *Cartusium*, *Catursum*, as some say, where the first monastery of this kind was erected. Hence the French call the religious of this order *Chartreux*, and their convents *Chartreuses*; an appellation which also appears to have anciently obtained in England; whence the name of that celebrated hospital, or rather college, in London, the Charter-house; by corruption from *Chartreuse*.

The *Carthusian* habit is all white within, their scapular being joined in the sides by two pieces of the same stuff. They wore a hair shirt next their skin. Their prior and procurator, who may go abroad upon the necessary affairs of the house, appear in a black cloak down to the ground, and a black hood over the white one; the hood not round, but tapering to a point.

There are few nuns of this order. There have, however, been some female *Carthusian* convents; but the in-

crease of them was prohibited in 1368; and there remain only five at this day, four in France, and one at Bruges in Flanders. They were brought into England by Henry II. about the year 1180, and had only nine houses; their first house being at Witham, in Somersetshire.

CARTHUSIAN powder, *poudre de Chartreux*. See **KERMES mineral**.

CARTILAGE, in *Anatomy*, a smooth, solid, uniform, flexible, elastic part of an animal; softer than a bone, but harder than any other part.

Cartilages seem to be nearly of the same nature with bones, and only to differ as mere or less hard. There are some very hard, and which even become bony with time: as those v. g. which form the sternum. Others are softer, and serve to compose entire parts; as those of the nose, ears, &c. where an easy gentle motion is required; their natural elasticity serving them instead of antagonist muscles.

There are others softer still, partaking of the nature of ligaments, and thence called *ligamentous cartilages*.

There are *cartilages* of various figures, acquiring various names from the things they resemble: one is called *annularis*, because it resembles a ring; another *xiphoides*, from its resembling the point of a dagger; a third *scutiformis*, because made like a buckle; and so of the rest. See each under its proper head.

Cartilages have no cavities for marrow; nor any membranes, or nerves, for sensation. Their uses are to prevent the bones from being damaged or wounded by a continual friction; to join them together by a synchonthrosis; and to contribute, in great measure, to the well forming of several parts; as the nose, ears, trachea, eyelids, &c.

Cartilages cover the extremities of bones joined together by moveable articulations, increase the volume of some of them after the manner of epiphyses, unite others very closely together, and have no immediate adhesion or connexion with others. The *cartilages* which belong to the bones, differ from each other in size, figure, situation, and use, and may all be ranked under two general heads; those which are closely united to bones, and those which are not immediately connected with them. The *cartilages* united to bones are of four kinds; some cover both sides of the moveable articulations, and are very smooth and slippery; some unite the bones to each other, either so firmly as to allow no sensible motion, as in the symphysis of the *os pubis*, and still more in that by which the epiphyses are joined to the bones; or in such manner as to allow of different motions, as in those by which the bodies of the *vertebrae* are connected. The first easily grow hard, but the others appear in some degree viscid, and retain their flexibility.

Some increase the size and extent of bones, as the cartilaginous portions of almost all the true ribs: these are articulated with bones; others with *cartilages*, as the *septum marium*; others serve only for borders, as those of the basis of the *scapula*, and of the *crista* of the *os ilium*, the *supercilia* of cavities, and those of the spinal and transverse processes of the *vertebrae*. Some, in fine, have a singular form, as those of the ears, and most of those of the nose; in which last, their elasticity appears most sensibly. The *cartilages* belonging to the second general class, or those not immediately joined to bones, are for the most part placed in the moveable joints; and these may likewise be subdivided into several kinds. Some lie altogether loose, being neither joined to the articulated bones, nor to the *cartilages* which cover them, but slide freely between them in different directions; as those which are placed in the articulation of the *tibia* with the *os femoris*; in that of the lower jaw with the *os temporum*; and in that of the clavicle with the sternum. Those between the clavicle and acromium, and between the first and second *vertebrae* of the neck, are of the same kind. Some are partly joined to other *cartilages*, and partly slide between the cartilaginous extremities of the articulated bones, as the *cartilage* at the lower extremity of the *radius*. There may also be reckoned among the *cartilages*, though not so properly, several of the small sesamoid bones, which remain long cartilaginous; and also the cartilaginous portions of tendons, which do the same office with the sesamoid bones. Winslow.

It is commonly held, that all bones in their original were only *cartilages*, and arrived at the hardness of **BONES** by a gradual induration.

Hence it is, that in some cases the *cartilages* themselves have been found ossified; of which a famous instance happened some years ago at Milan, where a malefactor was judged innocent, and saved, because his *aspera arteria* being turned bony, he was not suffocated by the hangman's rope.

CARTILAGES, *articulating*. See **JOINT Cartilages**.

CARTILAGINOUS fishes, those, whose spine, or backbone,

bone, is of the consistence of a cartilage, being hollow withal, and containing medulla. See FISH.

Cartilaginous fishes are of two kinds; flat, as the raia or skate; and long and round, as the *asellus*, or cod.

CARTILAGINOUS leaf, among *Botanists*. See LEAF.

CARTON, or, as we pronounce it, **CARTOON**, in *Painting*, a DESIGN made on strong paper, to be afterwards calqued through, and transferred on the fresh plaster of a wall, to be painted in fresco.

The word, in the original French, signifies *thick paper*, or *paste-board*.

CARTON is also used for a design coloured, for working in mosaic, tapestry, &c. The *Cartoons* formerly preserved at Hampton-court, but now in the queen's palace at Buckingham-house, are designs of Raphael Urbin, intended for a tapestry. See Richardson, in his Essay on Painting; where he spends a great part of a chapter on the colouring of the *Cartoons*.

CARTOUCH, a wooden case about three inches thick, girt round with marlin, and loaden with two, three, or four hundred musquet-balls, besides six or eight balls of iron of a pound weight; to be fired out of a small sort of mortar, chiefly for the defence of a pass, or the like. The *cartouch* is also called by the French *gargouche*, *gar-gouffe*.

In cannon of casemates, or other posts, which defend the passage of the ditch, or the like, *cartouches* have a terrible effect: since, bursting asunder, they spread the shot they are loaden with far and wide. There are divers other forms and compositions of *cartouches*, and some made for guns.

CARTOUCH is also used for what is more frequently called a **CARTRIDGE**.

CARTOUCH also denotes an ornament in architecture, sculpture, &c. representing a scroll of paper; being usually in form of a table, or flat member, with wavings; whereon is some inscription, or device, ornament of armory, cypher, or the like.

It is nearly akin to a modillion; from which it only differs in this, that the latter is used under the cornice in the eaves of a house, and the former in wainscoting within doors. Some workmen call the *cartouches* **DENTILS**.

The word is French, formed from the Italian *cartoccio*, which signifies the same.

Cartouches are sometimes drawn on paper, as in the titles of maps, &c. and are sometimes made of stone, brick, plaster, wood, &c. for buildings.

CARTOUCHES, in *Heraldry*, a name given to a sort of oval shields, much used by the popes and secular princes in Italy, and others, both clergy and laity, for painting or engraving their arms on. Many suppose this form derogatory to the honour of the person; but though the square shield, with the rounded and pointed bottom, is more in use with us, as also with the French and Germans, yet this is supposed more truly the figure of the Roman shield worn by the soldiery, and therefore more ancient and honourable than either that or the indented shield of the Germans.

CARTRIDGE, in the *Military Art*, the charge or load of a fire-arm, wrapped up in a thick paper, paste-board, or parchment; to be the more readily charged, or conveyed into the piece.

Cartridges are the same with what the French call *cartouches*; from which word Skinner scruples not to derive *cartridge*.

Those of cannon and mortars are usually in cases of paste-board, or tin, sometimes of wood, half a foot long; taking up the place of the bullet in the piece, to whose caliber the diameter is proportioned. Those of musquets, pistols, and small arms, only contain the charge of powder, with a ball wrapped up in thick paper.

Flannel *cartridges* are now preferred, because they do not retain the fire, and are therefore less liable to accidents in loading. A parchment cap is made to cover them, in order to prevent the dust of powder from passing through them, which is taken off before they are put into the piece. Mr. Muller recommends for this purpose to boil the flannel in size. In quick firing, the shot is fixed to the *cartridge* by means of a wooded bottom, hollowed on one side, so as to receive nearly half the shot, which is fastened to it by two small slips of tin crossing over the shot, and nailed to the bottom; and the *cartridge* is tied to the other end of this bottom. They are fixed likewise in the same manner to the bottoms of the grape-shot, which are used in field-pieces. Syst. of Math. &c. vol. v. p. 291.

CARTRIDGE-box, a wooden or iron case covered with leather, holding a dozen or more musket *cartridges*, borne by the soldier on his belt, hanging a little below the right pocket-hole.

CARVA, in *Botany* a name given by the Indians to one of the kinds of cinnamon-tree. This is of all others the

most esteemed amongst them, and serves for the most purposes. They extract camphor and liquid oil from the roots; they extract oil of cinnamon from the bark, and from the leaves they make another oil, which is called oil of cloves, and sold as such. The fruits yield them an oil resembling that of juniper, and afterwards they extract from them a thick, fat substance, like wax, serving them for the making unguents and plasters, and also for the making their candles.

CARVAGE, *carvadium*, the same with **CARRUCAGE**. Henry III. is said to have taken *carvage*, that is, two marks of silver of every knight's fee, towards the marriage of his sister Isabella to the emperor.

Carvage could only be imposed on the tenants *in capite*.

CARVAGE also denotes a privilege whereby a man is exempted from the service of *carrucage*.

CARUCATARIUS, in *Ancient Law Books*, he that held land in *soccage*, or by plough tenure.

CARUCATE. See **CARRUCATE**.

CARVER, a cutter of figures or other devices in wood. See **CARVING**.

Carvers answer to what the Romans called *sculptores*, who were different from *calatores*, or engravers, as these last wrought in metal.

CARVER is also an officer of the table, whose business is to cut up the meat, and distribute it to the guests.

The word is formed from the Latin *carptor*, which signifies the same. The Romans also called him *carpus*, sometimes *scissor*, *scindendi magister*, and *structor*.

In the great families at Rome, the *carver* was an office of some figure. There were masters to teach them the art regularly; by means of figures of animals cut in wood. The Greeks also had their *carvers*, called *διατροι*, q. d. *deribitores*, or *distributors*. In the primitive times, the master of the feast carved for all his guests. Thus in Homer, when Agamemnon's ambassadors were entertained at Achilles's table, the hero himself carved the meat. Of later times, the same office on solemn occasions was executed by some of the chief men of Sparta. Some derive the custom of distributing to every guest his portion, from those early ages when the Greeks first left off feeding on acorns, and learned the use of corn. The new diet was so great a delicacy, that to prevent the guests from quarrelling about it, it was found necessary to make a fair distribution. Athen. Deipn. lib. i. cap. 10. Potter. Arch. lib. iv. cap. 10.

CARVING, in a general sense, the art or act of cutting or fashioning a hard body by means of some sharp instrument, especially a chisel.

In which sense, *carving* includes statuary and engraving, as well as cutting in wood.

CARVING, in a more particular sense, is the art of engraving or cutting figures in wood.

In this sense, *carving*, according to Pliny, is prior both to statuary and painting. See **CUTTING in wood**.

CARVIST, in *Falconry*. See **FALCON**.

CARUM, in *Botany*. See **CARAWAY**.

CARUNCULA, **CARUNCLE**, a term in *Anatomy*, properly signifying a little piece of flesh, being a diminutive of the Latin *caro*, *flesh*.

The name *caruncula* is applied to several parts of the body; as,

CARUNCULÆ cuticulares alæ, a name which some anatomists give the **NYMPHÆ**.

CARUNCULÆ lachrymales, are two little eminences, one in each great canthus, or corner of the **EYE**; separating the two *puncta lachrymalia*.

Some restrain the appellation *lachrymalis* to the *caruncula* in the greater, or inner canthus; calling that in the lesser canthus *innominata*.

Some have given the name *caruncula* to that pendant fleshy part, called **UVULA**, or *columella*.

CARUNCULA is also applied to certain fleshy morsels preternaturally contained in divers parts and humours of the body. We sometimes meet with capillary *caruncles* excreted with the urine. See **TRICHIASIS**.

To the head of *carunculae* also belong those fleshy excrescences called *polypuses*. See **POLYPUS**.

CARUNCULÆ myrtiformes, in *Anatomy*, are four little *caruncles*, or fleshy knobs, about the size of myrtle-berries; whence their name; found adjoining to, or rather in the place of the **HYMEN**, in the parts of generation in women.

Some suppose them to be largest in maids, and to grow less and less by the use of venery; but others, with more probability, make them the consequences of venery in the first copulation; deriving them from the broken membrane of the *hymen*, whose fragments shrunk up they appear to be.

CARUNCULÆ papillares or *mamillares*, are little protuberances in the inside of the *pelvis* of the **KIDNEYS**, made by the extremities of the tubes which bring the serum from the glands in the exterior parts, to the *pelvis*.

They were first discovered by Carpus; and thus called from their resembling a little teat or pap. They are in form of acorns heads, and are less red than the flesh, as well as harder than the same. They are about the bigness of a pea, but larger at top than at bottom; ending as it were in a point, in a place where they are perforated to let the urine fall into the *pelvis*.

CARUNCULÆ URETHRÆ. See **BOUGIE** and *Medicinal CANDLES*.

CARUS, *Καρος*, in *Medicine*, a species of lethargic disease, consisting in a profound sleep, with a sudden deprivation of sensation and motion, and an acute fever.

The *carus* differs from a coma in this, that the patient, in the latter, answers when interrogated; but not in the former: from a lethargy it is distinguished by the fever which attends it, which the lethargy is free from; and by the return of sensation, which the lethargic person finds when agitated or pricked: from a proper apoplexy, by the freedom of respiration, which is always hurt in an apoplexy: from an epilepsy, in that there is no motion or froth at the mouth in the *carus*: from a syncope, by the pulse, which is high, and the face ruddy; whereas the pulse is low, and the face cadaverous, in the syncope: from an hysterical suffocation, in that the patient hears and remembers things in the latter, not in the former.

CARYATES, in *Antiquity*, a festival in honour of Diana, surnamed Caryatis, held at Caryum, a city of Laconia. The chief ceremony was a certain dance, said to have been invented by Castor and Pollux, and performed by the virgins of the place.

During Xerxes's invasion, the Laconians not daring to appear and celebrate the customary solemnity, to prevent incurring the anger of the goddess by such an intermission, the neighbouring swains are said to have assembled and sung pastorals, or *bucolismi*, which is said to have been the origin of bucolic poetry.

CARYATIDES, or **CARIATES**, in *Architecture*, a kind of order of columns, or pilasters, under the figure of women, dressed in long robes, serving to support entablatures. See *Tab. Architect. fig. 38*.

The origin of the *Caryatides* is related by Vitruvius: the Greeks, he observes, having taken the city *Carya*, led away their women captives; and to perpetuate their servitude, represented them in their buildings, as charged with burdens, such as those supported by columns.

Though this *false* order, as many call it, differs from the general simplicity and plainness of the ancients, it is, nevertheless, introduced in many of their buildings: the temple of *Eretheus*, at Athens, affords a beautiful instance.

The *Caryatides*, M. le Clerc observes, are not now represented as among the ancients, viz. as symbols of slavery, with hands tied before and behind; those characters being supposed to be injurious to the fair sex. Among us, they are represented as images of justice, prudence, temperance, &c. Their legs are always to be close to each other, and even across; their arms are laid flat to the body, or to the head, or at least as little spread as possible; that as they do the office of columns, they must have, as near as possible, the figure thereof. Sometimes their arms are cut off, for the greater delicacy; as in the hall of the Swiss guards in the Louvre: but M. le Clerc does not approve such mutilations.

When insulated, they should never have any great weight to support; and their entablature and pedestal are ordinarily to be Ionic.—When they join to a wall, &c. it is adviseable to put a console over them, which may appear to sustain the weight of their entablature; otherwise, as they represent women, they do not seem so proper to sustain great loads.—When they are made in form of angels, the same author would have them support the entablature, which in that case is to be Corinthian, with their hands.

The ancients made the *Caryatides* frequently to support baskets, or corbels of flowers; and these they called **CANEPHORÆ**, or *cistifera*.

CARYOCATACTES, in *Zoology*, the name of a bird of the magpie kind, of a brownish colour, all over beautifully variegated with white triangular spots, and very full of white feathers about the anus and origin of the tail. It is common in the mountainous parts of Germany.

CARYOCOSTYNUM, in *Pharmacy*, a kind of purging electary, the two principal ingredients of which, that give the denomination to the whole, are cloves, and costus. It works briskly, and fetches the humours from the most remote parts; whence, and by reason of its warmth, it is prescribed against rheumatic, arthritic, hydropic, paralytic, &c. disorders.

CARYOPHYLLATA, *avens*, in *Botany*. See **HERB Bennet**.

CARYOPHYLLEOUS, in *Botany*, a term used by Mr.

Tournefort to express a sort of flowers of the pink kind or resembling the pink flowers in shape. These are composed of several petals disposed in an orbicular form, and arise from the bottom of the cup as from a sort of tube. See *Tab. VI. of Botany*.

CARYOPHYLLON *Plinii*, the fruit of the *cassia caryophyllata*, or cloveberry-tree, whose bark is used in medicine.

CARYOPHYLLUS, the **PINK**.

CARYOPHYLLUS aromaticus, in *Botany*, the clove-spice. See **CLOVE-tree**.

CARYOPHYLLUS marinus, a name given by Dr. Woodward to a fossil *mycetites*, or coralloide body found in several parts of Germany.

CARYOTA, in *Botany*, the name of a genus of plants described by the author of the *Hortus Malabaricus*, under the name of *schunda-pana*, and belonging to the *palme* of Linnæus. The characters are these: it produces male and female flowers in the same ear; the male flowers have for their cup the whole compound spathe: the flower is divided into three parts, and the petals are very small and sharp-pointed; the germen of the pistil is roundish, the style is pointed, and the stigma simple; the fruit is a roundish berry, containing only one cell, in which are contained two large and oblong seeds, which are cylindric or rounded on one side, and flattened on the other.

CARYSTIUM linum. See **LINUM caryslium**.

CARYSTIUM marmor. See **MARMOR**.

CARYUS, in the *Materia Medica*, a name given by Dioscorides, and some other of the ancient Greeks, to the *eryngium*, or sea-holly, called by us *eryngo*. It was thus named from its having a small head or cluster of flowers like a walnut. See **ERYNGIUM**.

CASA, in *Ancient and Middle-age Writers*, is used to denote a cottage or house.

CASA Santa, denotes the chapel of the Holy Virgin at Loretto.

The *Santa Casa* is properly the house, or rather chamber, in which the Blessed Virgin is said to have been born, where she was betrothed to her spouse Joseph, where the angel saluted her, the Holy Ghost overshadowed her, and, by consequence, where the Son of God was conceived, or incarnated.

Of this building the catholics tell many wonderful stories, too childish to transcribe.

The *Santa Casa*, or holy chamber, consists of one room, forty-four spans long, eighteen broad, and twenty-three high. Over the chimney, in a niche, stands the image called the great *Madona*, or Lady, four feet high, made of cedar, and, as they say, wrought by St. Luke, who was a carver as well as a physician. The mantle or robe she has on is covered with innumerable jewels of inestimable value. She has a crown, given her by Lewis XIII. of France, and a little crown for her son.

CASCABLE, the knob or button of metal behind the breech of a **CANNON**, as a sort of handle whereby to elevate and direct the piece: to which some add the fillet and ogees as far as the base-ring. See *Tab. Gunnery, fig. 1*.

The neck of the *cascable* is the part which joins it to the breech-mouldings; its diameter is $\frac{3}{4}$ of a calibre; that of the button something more than a calibre. The length of the *cascable* is always two calibres and a quarter. They are made of various figures, sometimes like a bunch of grapes, or like the heads of different kinds of animals. The French distinguish their calibres by their different forms of their *cascables*; in England they are made with a button and a few breech-mouldings.

CASCADE, a steep fall of water, from a higher into a lower place.

The word is French, formed of the Italian *cascata*, which signifies the same; of *cascare*, to fall; and that from the Latin, *cadere*.

Cascades are either natural, as that of Tivoli, &c. or artificial, as those of Versailles, &c. and either falling with a gentle descent, as those of the Sceaux; in form of a buffet, as at Trianon; or down steps, in form of a perron, as at St. Cloud; or from basin to basin, &c.

A natural *cascade*, falling with a great noise, is more properly called a **CATARACT**.

CASCANS, or **CASCANES**, in *Fortification*, are holes and cavities in form of wells, made in the terreplein, near a rampart; from whence a gallery, dug in like manner, under ground, is conveyed, to give air to the enemies mine.

CASCARILLA, a name by which some authors have called the Jesuit's bark: the *quinquina* or *china-china* of other writers.

CASE, sometimes denotes a vessel or receptacle in form of a tomb, commonly decorated with gold and silver, wherein the body of a saint, or some relics of it, are preserved.

In which sense, the word is formed from the French *chasse*.

Originally these *cases* were made in the figure of little Gothic churches, pursuant to that ancient Christian maxim, that the saints having been the living temple of the Holy Ghost, are entitled, after their death, to have their bones enclosed in the figure of the visible house of God.

The *case* of St. Genevieve is never brought down without great ceremony, nor except in time of extreme public dangers or calamities.

CASE, in *Grammar*, is understood of the different inflexions or terminations of nouns; serving to express the different states or relations they bear to each other, and to the things they represent. For the reason of the name, see DECLENSION.

There is a great diversity among grammarians, with regard to the nature and number of *cases*: they generally find six *cases* even in most of the modern languages, which they call the *Nominative, Genitive, Dative, Accusative, Vocative, and Ablative*: but this seems only in compliance with their own ideas, which are formed on the Greek or Latin, and which they transfer to other languages.

The truth is, if by *case* be only meant an occasional change in the termination of the noun, or name, which seems to be the just idea of *case*; there will, in this sense, be just as many *cases* as there are different terminations of nouns in the same number, i. e. in some languages more, in others less, and in others none at all.

Indeed, the generality of authors either have not any precise notion of *cases* at all, or they wander strangely from that notion: for they always reckon five *cases* of nouns in the Greek, and six in the Latin: though several of these *cases* be frequently alike, as the genitive and dative singular of the first declension of the Latin; the dative and ablative plural of the second, &c. the genitive and dative dual of the Greek, &c. So that the termination is not the sole criterion of the *case*.

It seems, however, much more agreeable to the principles of grammar, which only considers words materially, to make as many different *cases*, as there are changes in the terminations of a name; which would free the English, and other modern tongues, from the embarrassment of *cases*; most of them expressing the various relations, not by changes in termination, as the ancients; but by the situation of the substantive, as in the nominative and accusative *cases*, or by the apposition of articles and prepositions. On this footing it is certainly wrong to say, v. g. that *of a father*, is the genitive *case* of father; and *to a father*, the dative; for *of* and *to* are no part of the noun *father*; they are no closes or terminations, but articles or modificatives, which shew the different relation of the word *father*. And the same may be said of the *cases* of nouns, in the French, Italian, Spanish, Portuguese tongues, &c. Nevertheless, the relation of possession, which answers to the genitive *case*, is often expressed by a different termination of the substantive: "as God's grace," or, as it was formerly written, "God's grace," the grace of God. So that the English substantives may be considered as having two terminations for *cases*; that of the nominative, and that of the genitive or possessive *case*. In this respect it bears some resemblance to the German, which is probably derived from the same Teutonic original.

But it is otherwise in the Greek name *πατρὶς*, or the Latin *patris*; which are real *cases* of the words *πατήρ*, and *pater*, and different from those words: and somewhat like this may be said of the Hebrew, Arabic, Armenian, Polish, and German languages; which in the same number admit of changes in the terminations of words: and yet in these languages, *cases* are different from what they are in the Greek and Latin. The Hebrew names, for instance, are not properly declined by *cases*: the relation expressed by the genitive *case*, it is true, occasions an alteration in them; but then this alteration, instead of being in the noun governed, as in the Latin, in the Hebrew is in that which governs; as *דָּבָר שֶׁקֶר*, *verbum falsitatis*; where the change is not in *שֶׁקֶר*, *falsitas*, but in *דָּבָר* for *דָּבָר*, *verbum*.

It must be observed, however, that though many of the languages have not properly any *cases* of nouns; yet most, if not all of them, have a kind of *cases* in their pronouns, without which it would be hard to conceive the connexion, or syntax, of a discourse; and which, therefore, make a necessary part of grammar: thus, in English, *I* and *me*; and in French, *Je* and *moi*. See the relations expressed by each *case*, under its proper head, NOMINATIVE, GENITIVE, DATIVE, &c.

CASE, in *Printing*, a large, flat, oblong frame, placed a-slope, divided into several compartments, or little square cells; in each of which are lodged a number of types,

or letters of the same kind; whence the compositor takes them out, each as he needs it, to compose, and make a page, or form.

A frame of *cases*, in printing, usually consists of two pair, viz. an upper and lower, Roman and Italic. A shallow *case* shews the letter best, as being least shadowed by the sides of the boxes. A deep *case* has the advantage of holding a great number of letters; so that the compositor need not distribute so often.

They say, a *case*, or rather pair of *cases*, of Greek, of Hebrew, of Pica, &c.

CASE of a silk-worm, is a lodge framed within its web, wherein to deposit its *ova*.

CASE is also used for a certain numerous quantity of divers things: a *case* of pistols implies a brace; a *case* of glass, &c. see GLASS.

CASE is also used for a frame surrounding a door, window, or the like. In which sense we say a door-*case*, window-*case*, &c.

CASE, *action upon the*, in Law. See ACTION.

CASE, *special*, in Law, relates to a kind of special verdict, in which the jury generally find a verdict for the plaintiff, but subject nevertheless to the opinion of the judge or the court above, on a *special case* stated by the counsel on both sides with regard to a matter of law.

CASE stated out of Chancery, respects a question of law in the process of any cause referred by this court to the opinion of the judges of the court of King's Bench; before whom it is heard, and who certify their opinion to the chancellor in order to a decree.

CASE-HARDENING, a method of preparing iron, so as to render its outer surface hard, and capable of resisting the file, or any edged tool. It is used by file-cutters for coarse files; by gun-smiths, to harden the barrels of guns; and by others, on other occasions.

The process of *case-hardening*, which is no other than a superficial conversion of iron into steel, depends on the cementation of it with vegetable or animal coals. See HARDENING and STEEL.

CASE-SHOT, are musquet-balls, stones, old pieces of iron, or the like, put up into cases, and so shot out of great guns.

Case-shot is chiefly used at sea, to clear the enemies decks when they are full of men.

CASEI di cavallo, the name of a peculiar cheese, famous in Italy and many other places, and made of the milk of the female buffalo, that species being as commonly tamed and kept there as the ox and heifer with us.

CASEMATE, or CASEMENT, in *Architecture*, the same with *cavetto*, denotes a hollow MOULDING, which some architects make one sixth of a circle, and others one fourth.

CASEMATE, or CAZEMATE, in *Fortification*. See CAZEMATE.

CASEMENT, is used in building for a little moveable window, usually within a larger, being made to open or turn on hinges. We say, a single *casement*; a folding *casement*; a *casement* with a lock, with a turn-about, or turn-buckle; a *casement* with a cock-spur or pull-back at the hind-side, wherewith to draw it to.

CASEOUS, something that partakes of the nature or qualities of CHEESE.

MILK consists of a *caseous*, a butyrous, and a ferous part.

WAX, according to some naturalists, is formed of the *caseous* parts of the juices of plants, separated by the bees from the cerous parts, which make the HONEY. Phil. Trans. N° 224. p. 368.

CATARACTS are by some divided into milky, and *caseous*, differing only in the degree of hardness or consistence.

Konig gives a *case* of a *caseous* EMPYEMA.

CASERNS, or CAZERNS, in *Fortification*, little rooms, or huts erected between the ramparts, and the houses of fortified towns, or even on the ramparts themselves: to serve as lodgings for the soldiers of the garrison, to ease the garrison.

There are usually two beds in each *casern*, for six soldiers to lie, who mount the guard alternately; the third part being always on duty.

CASES reserved, in the *Romish Policy*, are considerable sins, the absolution of which is reserved by the superiors to themselves, or their vicars.

There are some *cases reserved* by the pope, and others by the bishops: in convents some are reserved by the chapter, &c. None but these, or their vicars, can absolve in such *cases*; except at the article of death, when all reserved *cases* are absolvable, by the ordinary.

CASH, in *Commerce*, the stock or ready money, which a merchant, or other person, has in his present disposal, to negotiate; so called from the French term, *caisse*, i. e. *chest*, or *coffer*, for the keeping of money.

M. Savary shews, that the management of the *cash* of a company, is the most considerable article; and that whereon its good or ill success chiefly depends.

CASH-

CASH-book. See BOOK.

CASHEW-Nut. See ACAJOU and ANACARDIUM.

CASHIER, the *cash-keeper*; he who is charged with the receiving and paying the debts of a society.

In the generality of foundations, the *cashier* is called *treasurer*.

CASHIERS of the Bank, are officers who sign the notes that are issued out, examine and mark them when returned for payment, &c.

CASHOO, a medicinal and aromatic drug, which is reckoned among perfumes. All that has yet been ascertained about the origin and composition of this drug, is entirely fabulous. What follows will sufficiently acquaint physicians, apothecaries, and druggists, with what they ought to know of it. *Cashoo* is extracted from a tree which is called *catee* in the country where it grows, which is a province of Indostan called Behar, the capital of which is Patna. This province, which is crossed by the famous river Ganges, lies a hundred leagues above the kingdom of Bengal. *Cashoo* is properly an extract made by a decoction and maceration of the several parts of this tree, and rendered solid by evaporation. There are two sorts of simple *cashoo*, the rough, and the purified or refined; the latter is a composition of purified *cashoo*, mixed with aromatic drugs, and made into lozenges. This *cashoo* is made for the use of the Indians, who chew it either alone, or mixed with pinang or areca. Rough *cashoo* is a commodity which is brought down the Ganges as far as Bengal; whence it is distributed throughout the Indies, where there is a great consumption of it; and to the Europeans, who send it into Europe. What is sent into Europe, however, is mostly purified; for *cashoo* is not used rough any where.

Cashoo is much valued in medicine: among other effects ascribed to it, is the stopping a cough, and strengthening the stomach; beside which it sweetens the breath, when, being reduced to an impalpable powder, mixed with ambergrise, and mucilages of gum adragant, it is made into pastils. *Cashoo* must be chosen of a tanned red on the outside, of a bright red within, very shining, and not burnt. Kœmpfer observes, that they prepare at Odowara perfumed *cashoo*, of which they make pills, small idols, flowers, and other figures, which they put into little boxes for sale. The women are very fond of it, and use a great deal of it, because it fastens the teeth, &c. The thickened juice is carried to Japan, by the Dutch and Chinese; and after it has been prepared at Macao, or at Odowara, they buy it again, and carry it to other places.

CASI, in the *Persian Policy*, one of the two judges under the nadab, who decide all religious matters, grant all divorces, and are present at all public acts; having deputies in all cities in the kingdom.

CASIA, in *Botany*, the name of a genus of plants, of which there are two species: 1. The Montpellier poetic *casia*, called the berry-bearing shrub of syris. See POET'S *casia*. 2. The tall myrtle-leaved Spanish *casia*.

CASING, among Hunters, denotes the stripping off the skin of a hare, fox, or badger. They say, *slay* a deer, *case* a hare, and all sorts of vermin. This is done by beginning at the snout or nose of the beast, and so turning his skin over his ears down to the body, and the very tail.

CASING of timber-work, is the plastering a wooden house all over on the outside with mortar, and striking it, yet wet, by a ruler, with the corner of a trowel, or the like instrument, to make it resemble the joints of free-stone; by which means, the whole house appears as if first built thereof. It is best done on heart-laths, because the mortar is apt to decay the sap-laths in a short time. It is commonly laid on at two thicknesses, the second before the first is dry.

CASINGS, a country word for cow-dung dried, and used as fuel.

CASK, a piece of defensive armour, wherewith to cover the head, and neck; otherwise called *helmet*, and *head-piece*. The word is French, *casque*, formed from *cassicum*, or *cassicus*, a diminutive of *caspis*, a helmet.

Le Gendre observes, that anciently, in France, the *gens d'armes* all wore *casks*. The king wore a *cask* gilt; the dukes and counts, silvered; gentlemen of extraction wore them of polished steel; and the rest of plain iron.

The *cask* is frequently seen on ancient medals; where we may observe great varieties in form and fashion, &c. thereof; as the Greek fashion, the Roman fashion, &c. F. Joubert makes it the most ancient of all coverings of the head, as well as the most universal; kings, emperors, and even gods themselves, are figured therewith. That which covers the head of Rome, has usually two wings, like those of Mercury: and that of some kings is furnished with horns, like those of Jupiter Ammon; and sometimes barely bulls or rams horns, to express uncommon force.

CASK, in *Heraldry*, the same with helmet.

CASK is also used as a common name for VESSELS of diverse kinds; in contradistinction from the liquor, or other matter contained therein.

Thus a hoghead of spirits, &c. is said to weigh 4 C. $\frac{1}{2}$ and 22lb. *cask* and liquor; a puncheon, 6 C. $\frac{1}{4}$ and 2lb. *cask* and liquor. See TUN, &c.

CASK of sugar, is a barrel of that commodity, containing from eight to eleven hundred weight. — A *cask* of almonds is about three hundred weight.

No one shall transport any wine *cask*, &c. except for victualling ships, under a certain penalty, by 35 Eliz.

CASKET, in a general sense, a little coffer, or CABINET.

CASKETS, in *Sea-Language*, are small ropes made of flannel, and fastened to gromets, or little rings upon the yards; their use is to make fast their sail to the yard when it is to be furled.

CASKETS, *breast*, are the longest and highest of these, or those in the midst of the yard, betwixt the ties.

CASLEU, in the *Hebrew Chronology*. See CISLEU.

CASPARGUS, in *Ichthyology*, a name given by Salvian, from Ælian, to the fish commonly called by authors, *sparus*, and by the Italians, *sparo*. It is distinguished by Artedi by the name of the plain yellowish SPARUS, with a large annular spot near the tail.

CASQUE, in *Natural History*, a name given to a kind of murex, called the helmet-shell. There are several species of this shell, and they all approach somewhat to a triangular figure, and are smoother than the other murexes; yet they have all a sort of tubercles near the lip.

CASSADA, or CASSAVA, *Jatropha*, in *Botany*, a genus of the *monœcia monadelphica* class. Its characters are these: it hath male and female flowers on the same plant; the male flowers are salver-shaped, of one petal, whose brim is cut into five roundish segments which spread open: they have ten awl-shaped stamina, five alternately shorter than the other. The female flowers, which are situated in the same umbrel, have five petals spreading open like a rose: in the centre is a roundish germen with three deep furrows, which afterward becomes a roundish capsule with three cells, each containing one seed. There are eight species.

All these plants are natives of the warm parts of America, so are too tender to thrive in the open air in England. The first sort is cultivated in the West Indies for food; where it is propagated by cutting the stalks into lengths of seven or eight inches, which take root when planted.

They plant this shrub in new grounds designed for cacao walks, not only because they are absolutely necessary for a planter as food for his negroes; but also to prevent the growing of weeds, and to shade the young cacao plants as they come up, which would not otherwise be able to bear the excessive heat of the sun: for which reason they delay planting the cacao nuts until the *cassada* shrub be grown high enough to shade them.

They generally take up the *cassada* roots within a year or thereabout after planting: at the foot of every shrub are found several roots, of a fleshy substance, without any sensible fibres. They wash these roots well in water, and having scraped them as we do carrots, they rasp them with large copper rasps. The raspings are afterward put into a bag made of coarse cloth or rushes, and placed under a press, to express all the moisture, which is hurtful to animals, and even poisonous: they then dry the remaining matter over the fire, and when it is sufficiently dressed, they make it into cakes, which being dried either in the sun, or by artificial heat, are the *cassada* bread; which is very nourishing, and will keep without moulding, as well as biscuit.

The use of it is apt to contract the throat, if eaten dry, and sometimes brings on a danger of choking; the best method is to moisten it in broth, or otherwise, before it is eaten; or else to have a bottle of water at hand to wash down every mouthful.

The juice expressed in preparing this root for bread, will kill any animal that drinks it crude; but it may be boiled over the fire till a great part is evaporated; and the remainder, if it be far evaporated, will be sweet, and serve in the place of honey; if less evaporated, and set by to ferment, it will make a very good and wholesome vinegar. The juice of the roucou or ANNOTTO is said to be a counter-poison for it.

The thicker cakes of *cassada* bread are eaten by the poorer sort: the thinner, called *sciã*, are eaten by the rich. There is a kind of it which may be eaten raw, and which is now getting into use; instead of the other, which is a speedy poison, if eaten with its juice.

CASSAMUNAIR, or CASSUMUNIAR, in *Medicine*, an aromatic vegetable drug, brought from the East Indies, highly valued as a nervine and stomachic, and reputed a specific

specific in epileptic and convulsive diseases. It is supposed by some to be a species of galangal, by others of zedoary: its true name is not known, that of *cassamunair* being apparently feigned to hide it: of late it has been imported by the name of *bengalle*.

CASSANDRA, in *Natural History*, a name given by several authors to a very elegant sea-shell of the *concha globosa*, or *dolium* kind, more usually known under the name of the *LYRA*, or harp-shell. It is supposed to be called *cassandra*, because of its being found on the shores of the island of Cassan. There are three species of it.

CASSAON, in *Ichthyology*, the name of a small fish of the shark kind, but less mischievous, called *CUCURI* by the Brazilians.

CASSATION, in the *Civil Law*, the act of abrogating, or annulling any act or procedure.

The word comes from the Latin *quassare*, to *quash*, or *shake down*.

The occasions of *cassation* are, 1st, when a decree is directly contrary to another decree; and both against the same party. 2dly, When decrees are directly contrary to the express decision of statutes or customs. 3dly, When the formalities prescribed by the laws have not been observed.

CASSETTES, or **COFFINS**, in the *Manufacture of China Ware*, are utensils made of Stourbridge or other good potter's clay with a third of sand, in which the China ware is baked. They are generally made of a round form, with a flat bottom. They are either turned or formed in a mould. See **PORCELAIN**.

CASSIA, *wild senna*, in *Medicine and Pharmacy*, a purgative fruit, brought from the East, being the produce of a tree of the same name, called in English, the *pudding-pipe-tree*.

This is sometimes more particularly denominated *cassia fistularis*, *κασσία στυπική*, by way of distinction from another drug, called *cassia lignea*.

It is a genus of the *decandria monogynia* class. Its characters are these: the flower hath five roundish concave petals, which spread open; it hath ten declining stamina, of which three of the lower are long, and three upper shorter; the summits of the three lower are large, arched, beaked, and separated at their points; in the centre is situated a long taper germen, which afterward becomes a long pod, divided by transverse partitions, each containing one or two roundish seeds, fastened to the margin of the upper valve. Miller enumerates sixteen species.

There are four kinds of *cassia*, alike in properties, and nearly in figure; being all in long black pods: but very different, if considered with regard to the trees that produce them. These are the *cassia* of the Levant, that of Egypt, that of Brasil, and that of the Antilles islands.

CASSIA of the Levant, is the fruit of a very high tree, whose bark is ash-coloured, its wood very firm, and its grain close; towards the centre its wood is of an ebony black, towards the circumference yellowish; its flowers are yellowish, and produce a fruit in form of a long pod, rounded and massive; of a reddish colour, bordering on black. When ripe, it is full of a black, sweetish pulp, divided by little woody cells: in this pulp are found little hard grains, in manner of stones, shaped like hearts, which are the seeds of the tree. This *cassia* must be chosen new, in large pods, heavy, and of a tan colour; the bark, when broken, fine and white within, full of a black soft pulp of a sweetish taste.

CASSIA of Egypt, is like that of the Levant, except that the tree is higher, and the leaves narrower; the fruit smaller, and the bark softer.

CASSIA of Brasil, is the largest of all: some of the pods are found four or five inches in circumference. This kind is not very common in the shops.

CASSIA of the Islands, is that now chiefly used; though heretofore the popular *cassia* was the Levantine. It is sent from the Antilles, where it is produced in such abundance, that the vessels, in their home voyages use it as ballast; whence it is, that we find it so often foul and dirty: the tree that yields it resembles a peach-tree. Its flowers, which are yellow, grow in clusters: and, as they decay, leave behind them a fruit or pod an inch thick, and a foot (sometimes two) long. The fruit, while in its growth, is green; when ripe, it becomes of a dark violet colour. It is chosen in the same manner as that of the Levant.

When the pod is entire, and the pulp not yet taken out, it is most properly called *cassia fistularis*, or *cassia in the cane*. For use, the pulp is taken out, and driven through a hair-sieve. The apothecaries have little of the better kind, but what is old, and boiled up with sugar, to make it keep.

Cassia, when green, as also the flowers of the *cassia-tree*, are candied in the Levant, and the islands; and have al-

most the same effects of the common *cassia*, which is the basis of most of the purgative electaries.

CASSIA, the *tincture of*, is a slight infusion of the pulp with the seed.

CASSIA, the *extract of*, is nothing but the pulp separated from the shell and the seeds; with the addition of a certain quantity of sugar, to preserve it from turning sour.

Official preparations from *cassia*, are, the *cassia extracta cum vel sine foliis senæ*; and the *diacassia cum manna*: it is also a principal ingredient in the lenitive electary.

CASSIA Caryophyllata. See **CLOVE-tree**.

CASSIA Lignea, or **XYLOCASSIA**, is the bark of a tree much like that which bears the cinnamon; growing promiscuously with it in the island of Ceylon: but more properly the cinnamon of Sumatra, Java, and Malabar. Phil. Trans. vol. xlvii. p. 301.

The ancients had two kinds of this bark; the *κασσία στυπική*, and the other the *xylocassia*. But they were only the names of the same thing collected in a different manner: however, they are applied by the moderns to different substances.

The two barks are gathered and dried in the same manner; in smell and taste are nearly alike; they are equally sweet, poignant, and agreeable; and their colour, form, and thickness scarce differ at all. But the *cassia* is the fatter, and more mucilaginous; and in chewing dissolves in the mouth, without leaving any thing woody behind; whereas the woody part of cinnamon still remains, though ever so well chewed.—Some authors will have the tree which bears cinnamon bears the *cassia* too; and make the only difference between them to consist in this, that the first comes from Ceylon, and the latter from the coast of Coromandel.—Of this opinion is Mr. White, who maintains that the difference in their produce is merely the effect of culture, and of the different manner of curing the plant. Phil. Trans. vol. i. part ii. N° 116. See **CINNAMON**. The Edinburgh college direct a simple water to be kept, ten pints of which are drawn from a pound and a half of *cassia lignea*.

CASSIA stake, in the *Glass Trade*, is that iron with a piece of wood placed on it, on which they lay the glass after they have taken it off the pipes, and on which they turn the glass, to fasten the pontee to it.

CASSIANI, a sect in *Civil Law*, who adhered to the system and interpretations of Cassius, a celebrated lawyer, in opposition to those of Proculus; whose adherents were denominated *Proculiani*.

CASSIANISM, from *Cassian*, a teacher in Gaul to those who were called Semipelagians towards the close of the fifth century, is sometimes used for **SEMPIELAGIANISM**.

CASSIDA, in *Botany*. See **SKULL-cap**.

CASSIDA, in *Zoology*, the name given by Dr. Hill to a genus of **BEETLES**, called in English the tortoise-beetles, but comprehended by Linnæus under the order of *coleoptera*, in the class of insects. See **SCARABÆUS**.

Under this genus are comprehended all the clypeated beetles, or those covered with a hard crust; of which there are a great many species.

CASSIDARIUS, in the *Ancient Armories*, he who had the care and custody of the *cassides*, or helmets.

Spon gives an ancient inscription found at Rome, on a tomb erected to a *cassidarius* of the emperor Domitian.

CASSIDONY, a name given by the Italians and Germans to a sort of beads made of the yellow and red chalcedony, a very beautiful stone, or of an agate something resembling it in colour. They also call the stones themselves by this name; but are by no means determinate in the meaning of the word, not restraining it to any one peculiar species.

CASSIDONY, *Stæchas*, in *Botany*, Tourn. Inst. R. H. 201. tab. 95. Its characters are these: the flower hath an oval permanent empalement, whose brim has some obscure indentures; it is of the lip-kind, having a cylindrical tube longer than the empalement, whose brim spreads open; the upper lip is large, bifid, and open; the under cut into three roundish, almost equal segments; it has four stamina within the tube, which are turned aside, two of them shorter than the other, terminated by small summits; and a quadrifid germen supporting a slender style the length of the tube, crowned by an obtuse indented stigma; the germen turns to four almost oval seeds, which ripen in the empalement. To which the following notes must be added: the flowers are ranged in several series, and the spikes terminated by tufts of leaves. There are three species.

Linnæus has joined this genus to *lavendula* or **LAVENDER**.

The flowers of the *stæchas* are much used in medicine, in diseases of the head and nerves, especially such as are supposed to arise from cold causes. They also promote the evacuation by urine, and by the menses; and in some places are esteemed one of the greatest antidotes, and given in large doses against the effect of poisons, and the bites of venomous animals. Mesue, and the Arabians

in general, speak of it as a purge, and particularly as good in cases where phlegm was to be evacuated; though they say it did this but slowly and weakly. At present, we do not acknowledge any purging quality in it. There is a very fragrant oil drawn from the flowers and tops of this plant, in the same manner as that from lavender; but it is not much in use with us. The flowers are an ingredient in the Venice treacle, mithridate, and some other of the officinal compositions.

It is to be observed that there is another plant, called *stæchas*, in the shops, and by the writers on the materia medica; this has the epithet *citrina*, for its distinction from the *stæchas* we have been treating of, which is either called *stæchas* without any addition, or *stæchas Arabica*. The *citrine stæchas* has none of the virtues of this kind, nor is it of the same genus of plants, but of the *ELICHRYSUM* kind.

The several species of *stæchas* are propagated by sowing the seeds in March, in a bed of dry light earth; when the young plants are about three inches high, they must be removed into other beds, and placed at about six inches distance, watering and shading them till they have taken root. They must after this be kept clear from weeds, and sheltered from the severity of the winter by mats, or a light covering of peas haulm, or other such matter; and in March, or the beginning of April, they may be removed into the places where they are to remain. The poorer the soil is, in which they are planted, the better they will stand the winter, and the more fragrant will be their flowers. They may be propagated by cuttings planted in spring, but the seeds ripening very well with us, the raising of them from those is the much better way.

CASSIDONY, *mountain*. See CUDWEED.

CASSILI, in *Natural History*, a name given by the inhabitants of the Philippine islands to a species of water-raven, called also *colocolo*.

CASSINE, in the *Military Language*, is a farm-house, where a number of soldiers have posted themselves, in order to make a stand against the approaches of an enemy.

CASSIOBURY-bush, *Cassine*, in *Botany*, a genus of the *pentandria trigynia* class. Its characters are these: the flower has but one petal, which is cut into five obtuse segments; it hath five stamens, which spread from each other; and a conical germen, which afterward becomes an umbilicated berry with three cells, each containing a single seed. There are two species.

In South Carolina, it is called *cassena*, or South-sea tea. The inhabitants of that country do not make so great use of this tea, as those of Virginia and North Carolina; in the last of which the white people have it in as great esteem as the Indians, and make as constant use of it.

CASSIOPEA, in *Astronomy*, one of the constellations of the northern hemisphere, situate next to Cepheus.

In 1572, there appeared a new star in this constellation, which at first surpassed in magnitude and brightness Jupiter himself: but it diminished by degrees, and at last disappeared, at the end of eighteen months. It alarmed all the astronomers of that age, many of whom wrote dissertations on it; among the rest Tycho Brahe, Kepler, Maurolycus, Lycetus, Gramineus, &c. Beza, the landgrave of Hesse, Rofa, &c. wrote to prove it a comet, and the same which appeared to the Magi, at the birth of Jesus Christ, and that it came to declare his second coming: they were answered on this subject by Tycho.

The stars in the constellation *Cassiopea*, in Ptolemy's Catalogue, are thirteen; in Hevelius's, thirty-seven; in Tycho's, forty-six; but in the Britannic Catalogue, Mr. Flamsteed makes them fifty-five. The order, names, longitudes, latitudes, magnitudes, &c. whereof are as follow:

Names and situations of the stars.	Bayer's Char.	Signs.	Longitud.	Latitude.	Magnitude.
			° ' " N	° ' " N	
	α	♈	21 6 45	56 46 0	6
			21 29 16	56 26 10	7
			23 5 55	54 38 32	6
			27 42 49	57 10 12	5
North, in the top of the chair } back.	γ	♈	26 46 31	52 39 50	5
5.					
	δ	♈	1 9 40	55 7 45	6
South, in the top of the chair } back.	ε	♈	26 46 24	51 9 17	6
In the preceding arm of the } chair.	σ	♈	25 50 41	49 23 50	6
	θ	♈	3 28 59	53 57 10	6
			6 4 35	55 10 6	6

Names and situations of the stars.	Bayer's Char.	Signs.	Longitud.	Latitude.	Magnitude.
			° ' " "	° ' " "	
In the middle of the chair } back, the <i>lucida cathedra</i> .	β	♈	0 48 6	51 13 50	3.2
			5 59 15	52 1 20	6
			12 9 24	55 1 40	6
A small one against the chair.	λ	♈	0 22 23	45 38 55	5
In the bottom of the chair } back, over the seat.	κ	♈	8 20 19	52 14 40	4
15.					
			12 47 47	54 59 48	6
In the head.	ζ	♈	0 47 38	44 42 13	4
In the breast, <i>Sebedir</i> .	α	♈	3 30 23	46 35 50	3
Preced. of the north. in the } rod.	ξ	♈	29 10 44	25 50 6	6
South. in the rod.	π	♈	27 6 18	38 19 0	6
20.					
			25 15 54	59 53 43	6
Middle in the rod.	ο	♈	28 10 25	39 17 45	6
			25 14 30	59 41 10	6
In the girdle.	η	♈	5 52 56	47 4 19	4
In the rod, the last of the north.			0 41 50	41 10 5	5
25.					
Preced. against the navel.	ι	♈	8 2 24	27 24 44	7
Over the seat of the chair.	γ	♈	9 39 54	48 47 50	3
Last of contiguous ones a- } gainst the navel.	2.υ	♈	8 19 26	47 32 20	6
			14 55 6	51 39 20	6
In the left arm.	μ	♈	Unknown	Unknown	5
30.					
			19 30 36	54 13 40	6
			15 46 12	51 13 50	6
			7 28 29	43 5 15	4
That under the hind arm.	θ	♈	11 13 16	45 4 7	6
That preced. the knee to the } south.			Unknown	Unknown	7
35.					
			20 39 40	52 49 50	5.6
That against the knee.	δ	♈	13 37 15	46 23 26	3
Preced. in north part of the } frame.			23 28 44	54 11 20	6
That following the knee.	κ	♈	14 8 54	44 58 55	5
North. in the frame.	β	♈	27 23 27	55 58 51	6
40.					
			27 26 30	55 24 40	6
			25 12 0	53 52 19	6
Last of the middle in south. } part of the frame.	ε	♈	22 34 53	51 50 12	6
			16 31 55	45 30 16	6
That in the leg.	ι	♈	20 26 48	47 31 50	3
45.					
			24 51 8	51 38 50	6
			4 49 7	58 6 56	5
			27 38 26	53 12 7	5
			3 28 12	57 11 10	6
			8 29 15	53 54 21	4.5
50.					
			1 51 18	55 56 45	6
			22 10 15	47 40 34	7
			22 36 15	48 5 0	7
			29 0 43	53 24 15	6
			25 21 24	48 53 6	6
55.					

CASSIS, in *Antiquity*, a plated, or metalline helmet, different from the *galea*, which was of leather.

CASSIS *lævis*, the *smooth helmet-shell*, a name given by Rumphius, though very improperly, to the genus of shells called *dolia* and *conchæ globosæ*. These have no alliance at all with the helmet-shells; and what makes the name still worse, is, that *cassis* itself is not a generical name, though usually so understood, all the *cassides* or helmet-shells being only a peculiar kind of MUREX, as the figure of their mouth and their rudiments of spines or protuberances evidently shew.

CASSITERIA, in *Natural History*, the name of genus of crystals. The word is derived from *κασσιτερος*, *tin*; and expresses crystals which are influenced in their figures by an admixture of the particles of that metal. See *Tab. of Fossils, Class 3*.

These are all pyramidal, without columns, and composed only of four sides or planes. Of this genus there are only two known species.

CASSOCK, a kind of surtout, or long upper garment, worn over the rest of the habit: particularly by the clergy, and anciently likewise by the laity.

The word comes from the French *casaque*, a *horseman's coat*: some derive them again, by corruption, from a garment of the Cossacks: others derive the name *cassock*, as well as the thing, from the ancient *caracalla*, a sort of upper garment which hung to the heels.

CASSONADE, in *Commerce*, cask sugar, or sugar put into casks or chests, after the first purification, but which has not been refined. It is sold either in powder or in lumps;

lumps; the whitest, and that of which the lumps are largest, is the best. Many imagine it to sweeten more than loaf-sugar; but it is certain that it yields a great deal more scum.

CASSOWARY, in *Ornithology*, the name of an African bird of the ostrich kind, but not quite so tall, though larger bodied; called also by many authors *emus*, *eme*, or *ema*, and *casoarius*. It has a crown on the middle of its head; and its head and neck are almost naked, having only a few hairs, which are set straggling; the skin is of a purplish blue, but toward the bottom of the neck on the hinder part, it is a little reddish. At the bottom of the neck, there are also two fleshy protuberances which hang over the breast; its mouth opens very wide; its legs are very long, and very robust; it has three toes on each foot, all placed before; it has the rudiments of wings, but they are very short, and have only five quills each, which are almost naked. It has no tail; its body is large, and is thinly covered with brownish feathers, which have more the appearance of bristles than of real feathers, to a slight observer. It is very common in Africa, and is caught also in many parts of the East Indies. It feeds on flesh or vegetables, and is easily made tame. See *Tab. of Birds*, N^o 20.

CASSUMUNAR, in the *Materia Medica*, a root approaching to the nature of zedoary, though belonging to a different species of plants.

We have it from the East Indies; its surface is somewhat wrinkled, and is marked at certain distances with circular rings, which surround it, and rise prominent above the rest of the surface. It is of a very compact nature, hard and heavy; not easily cut through with a knife, or powdered in a mortar. When cut, it shews a very smooth and shining surface; and when broken, is found to be much yellow-er within.

It has a fragrant aromatic smell; and is a very famous medicine in nervous cases, being accounted an excellent cardiac and sudorific. It is also given as a stomachic and carminative with success, and is mostly prescribed in powder, boluses, or infusions.

CASSYTA, in *Botany*, a genus of the *enneandria monogynia* class. The corolla is in the form of a calyx, divided into six segments; the nectarium is composed of three truncated glands encompassing the germen; the interior filaments are glandular; and the drupe contains a single seed. There is but one species.

CAST is particularly used to denote a figure, or small statue of BRONZE.

CAST, among *Wax-Chandlers*, denotes a ladleful of melted wax, poured on the wicks of candles made by the ladle.

CAST, among *Founders*, is applied to tubes of wax, fitted in divers parts of a mould of the same matter, by means of which, when the wax of the mould is removed, the melted metal is conveyed into all the parts which the wax before possessed.

CAST, among *Bowlers*. See BOWLING.

CAST also denotes a cylindrical piece of brass, or copper, slit in two, lengthwise, used by the founders in sand to form a canal or conduit in their moulds, whereby the metal may be conveyed to the different pieces intended to be cast.

CAST, among *Plumbers*, denotes a little brazen funnel, at one end of a mould, for casting pipes without soldering, by means of which the metal melted is poured into the mould.

CAST of the country, with *Miners*, the colour of the earth.

CAST, in *Falconry*, denotes a set or couple of hawks.

To *cast* a hawk to the perch, signifies to set her upon it.

CAST, or **CASTE**, in speaking of the Eastern affairs, denotes a tribe, or number of families, of the same rank and profession.

The division of a nation into *casts* chiefly obtains in the empire of the Great Mogul, kingdom of Bengal, island of Ceylon, and the great peninsula of India opposite thereto. In each of these, there are, according to father Martin, four principal *casts*; viz. the *cast* of the *bramins*, which is the first and most noble; the *cast* of the *rajas*, or princes, who pretend to be descended from divers royal families; the *cast* of the *choutres*, which comprehends all the artificers; and that of the *parias*, the lowest and most contemptible of all: though Henry Lord, it must be observed, divides the Indians about Surat into four *casts*, somewhat different from Martin; viz. into *BRAMINS*, or priests; *cuttery*, or soldiers; *shuddery*, which we call *banians*, or merchants; and *wyfe*, the mechanics or artificers.

Every art and trade is confined to its proper *cast*, nor is allowed to be exercised by any but those whose fathers professed the same. So that a taylor's son can never rise to be a painter, nor a painter's son fall to be a taylor. Though there are some employments which are common to all the *casts*: e. g. every body may be a soldier or a merchant,—

There are also divers *casts* which are allowed to till the ground, but not all.

CASTAGNOLE, in *Ichthyology*, a name given by the Italians to the fish called by the generality of authors *CHROMIS*; and reduced by Artedi to the genus of the *SPARUS*: he distinguishes it by the name of the *sparus* with the second ray of each belly-fin carried out into a great length.

CASTALDUS. } See GASTALDUS.
CASTALDY. }

CASTALOGNE, or **CASTELOGNE**, a coverlid made of fine wool, on the weaver's loom.

CASTANEA. See CHESTNUT.

CASTARON, a name given by the old Arabian writers to the serrata, or SAW-WORT.

CASTANETS, **CASTAGNETTES**, or **CASTANETTAS**, a kind of musical instrument, wherewith the Moors, Spaniards, and Bohemians accompany their dances, farabands, and guitars. It consists of two little round pieces of wood dried, and hollowed in manner of a spoon, the concavities whereof are placed on one another, fastened to the thumb, and beat from time to time with the middle finger, to direct their motion and cadences. The *castanets* may be beat eight or nine times in the space of one measure, or second of a minute.

CASTELLAIN, *Castellanus*, the lord, owner, or captain of a castle; and sometimes the constable of a fortified house. Bract. lib. v. tract. 2. c. 16. 3 Edw. I. c. 7. It has likewise been taken for him that hath the custody of one of the king's mansion-houses, called by the Lombards *curtes*, in English *courts*; though they are not castles or places of defence. 2 Inst. 31. And Manwood, in his Forest Laws, says there is an officer of the forest called *castellanus*.

CASTELLAN, the name of a dignity or office in Poland. The *castellans* are senators of the kingdom, but senators of the lower class; and in diets, sit on low seats behind the palatines, or great senators. They are a kind of lieutenants of provinces, and command a part of a palatinate under the PALATINE.

CASTELLANY, the district or extent of land under the jurisdiction of a lord castellan.

The province of Flanders is divided into so many *castellanies*, each of which bears the name of the capital; as the *castellany* of Lisle, of Ypres, of Ghent, &c. The court of *castellany* was anciently composed of the castellan, a fiscal, procurator, notary, register, &c.

In Poland, a *castellany* is a petty government under the administration of a CASTELLAN.

CASTELLARIUS, the keeper, or curator, of a castellum. Gruter gives an ancient sepulchral inscription in memory of a *castellarius*.

CASTELLATION, *Castellatio*, in *Middle Age Writers*, the act of building a castle, or of fortifying a house, and rendering it a CASTLE.

By the ancient English laws, *castellation* was prohibited, without the king's especial licence. Du-Cange.

CASTELLORUM operatio, castle work, or service and labour done by the inferior tenants for the building and upholding of castles of defence; towards which some gave personal assistance, and others paid their contributions. This was one of the three necessary charges, to which all lands among our Saxon ancestors were expressly subjected.

CASTIGATION, *Castigatio*, among the Romans, the punishment of an offender by blows, or beating with a wand or switch.

Castigation was chiefly a military punishment, the power of inflicting which on the soldiery was given to the tribunes. Some make it of two kinds, one with a stick or cane, called *fustigatio*; the other with rods, called *flagellatio*: the latter was most dishonourable.

CASTIGATIONS, in a *Literary Sense*, denote corrections, or emendations of the text of an ancient writer.

CASTIGATORY. See CUCKING-SHOOL.

CASTILLAN, a gold coin, current in Spain, valued at fourteen rials and a half.

CASTILLAN also denotes a weight used by the Spaniards in the weighing of gold, containing the hundredth part of a Spanish pound. It is also used at Buenos Ayres, and the mines of Chili and Potosi.

CASTING is sometimes used for the quitting, laying, or throwing aside any thing; thus, deer *cast* their horns, snakes their skins, lobsters their shells, hawks their feathers, &c. annually.

CASTING of feathers, is more properly called *moulting* or *mowing*.

A horse *casts* his hair or coat, at least once a year, viz. in the spring, when he *casts* his winter coat; and sometimes at the close of autumn he *casts* his summer coat, in case he hath been ill kept.

Horses sometimes also *cast* their hoofs, which happens frequently

frequently to coach-horses brought from Holland; which being bred in a moist, marshy country, have their hoofs too flabby, so that coming into a drier soil, and less juicy provender, their hoofs fall off, and others, that are firmer, succeed.

CASTING is also used for overthrowing.

In which sense we say, to *cast* a horse, an ox, or the like.

CASTING is also used for distributing or disposing the parts of a thing to the best advantage.

The *casting* of a building is more properly called COM-PARTITION.

Theatrical writers speak of *casting* a play, i. e. disposing the several parts or characters to proper actors.

CASTING of Candles, signifies filling the moulds with tallow.

CASTING a colt or foal, denotes the abortion of a mare.

CASTING of Drapery, among Painters, a free, easy, negligent way of clothing a figure.

CASTING, in Falconry, is any thing given a hawk to purge and cleanse his gorge.

Of these there are two kinds, viz. plumage, i. e. feathers, and cotton: the latter whereof is generally in pellets about the bigness of hazel-nuts, made of soft fine cotton and conveyed into her gorge after supper. In the morning she will have *cast* them out; at which time they are to be observed, and from the colour and condition they are found in, the state of her body is conjectured. If they be *cast* out round, white, and not stinking, nor very moist, it is an indication all is well; if otherwise, particularly if black, green, slimy, or the like, she is distempered. The *casting* of plumage is observed after the same manner as that of cotton.

CASTING a figure, among Astrologers, the erecting of a celestial theme, and dividing the heavens into houses.

CASTING, in Foundry, is the running of a melted metal into a mould prepared for that purpose.

CASTING of gold, silver, or copper, in plates. See COIN-ING.

CASTING, in Joinery, &c. Wood is said to be *cast* or warped, when, either by its drought or moisture, or the drought and moisture of the air, or other accident, it shoots or shrinks; in prejudice to its flatness or straightness.

CASTING of lead on cloth, is the using of a frame or mould covered with woollen cloth, and linen over it, to cast the lead into very fine sheets.

CASTING of lead on sand, is done by means of a large frame or trough nearly full of sand, which is made perfectly level, and imprinted with any device from moulds pressed down in the sand: the lead is then turned out of the kettle into a receiver or trough, and poured on the sand, whilst two persons slide a gauge or lath, of such thickness as to leave a space between it and the sand answering to the substance of the lead, along the edges of the frame; the surplus runs into reservoirs by channels made in the sand.

The goldsmiths use the bone of the CUTTLE-fish, to mould and cast their lesser works of gold and silver; that bone, when dried, being reducible to a kind of a fine pumice, very susceptible of all impressions.

CASTING in stucco or plaster, is the filling with fine liquid plaster, a mould that had been taken in pieces from off a statue or other piece of sculpture, and run together again. There are two things to be observed with regard to the mould: the first, that it be well soaked with oil before the plaster be run, to prevent its sticking: the second, that each piece whereof it consists, have a pack-thread, to draw it off the more easily when the work is dry.

CASTING of metals, of letters, bells, figures, &c. See FOUNDERY.

CASTING, in Navigation, denotes the motion of falling off, so as to bring the direction of the wind on either side of the ship, after it had blown for some time right a-head.

CASTING-net, a sort of fishing net, so called because it is to be cast or thrown out, which when exactly done, nothing escapes it, but weeds, and every thing within its extent is brought away.

CASTING a point of traverse, among Seamen, signifies the pricking down on a chart the point of the compass any place bears from you; or finding what point of the compass the ship bears at any instant, or what way the ship has made.

CASTING of timber-work. See CASING.

CASTLE, *Castellum*, in Ancient Writers, denotes a town or village surrounded with a ditch and wall, furnished with towers at intervals, and guarded by a body of troops.

The word is originally Latin, *castellum*, a diminutive of *castrum*.

Castellum originally seems to have signified a smaller fort, for a little garrison. Though Suetonius uses the word where the fortification was large enough to contain a cohort,

The *castella*, according to Vegetius, were often like towns, built in the borders of the empire, and where there were constant guards, and fences against the enemy.

Horsley takes them for much the same with what were otherwise denominated stations.

CASTLE, or CASTLE-*stead*, is also an appellation given by the country people in the North to the Roman *castella*, as distinguished from the *castra stativa*, which they usually call *cheesters*. Horsley represents this as an useful criterion, whereby to discover, or distinguish, a Roman camp or station.

CASTLE, in a modern sense, is a place fortified by nature, or art, either in a city or country, to keep the people in their duty, or to resist an enemy.

A *castle* is a sort of little CITADEL.

CASTLE, in Sea-Language, denotes an elevation on the deck of a vessel; or a part of the deck, fore and aft, raised above the rest.

Fore-CASTLE, *Castello di prora*, &c. See FORE-castle.

Hind-CASTLE, *Castello di poppa*. See POOP.

CASTLE-WARD, or CASTLE-GUARD; *Castelgardum*, or *Wardum Castri*, an imposition laid on such as dwell within a certain compass about any *castle*, towards the maintenance of those who watch and ward the *castle*.

The word is sometimes also used for the circuit itself, inhabited by such as are subject to this service.

CASTLE, *water*, a piece of hydraulic work finished with one or more fronts of building, with seeming windows and the like, containing a reservoir which gives play to cascades, &c.

Or, a *water-castle* may be defined a receptacle of the public water furnished by an AQUA-DUCT, or otherwise, in which are inclosed the cocks of several water-pipes with a little basin; contrived to distribute and send it to different parts.

The *castella* of the ancient aqueducts are still visible at Rome, though half ruined. They are lined with a durable kind of cement, which, according to Pliny, surpasses in hardness the stones themselves. It is made of lime flaked in wine, and beaten up with hog's grease, and the juice of figs or pitch.

Modern writers on hydraulics treat of the laws of the efflux of water out of *castella*, into pipes, canals, &c.

Signior Poleni has a treatise expressive on *castles*, or reservoirs, whereby the waters of rivers are derived, the sides of which *castles* are made converging.

CASTOR, in Zoology. See BEAVER.

CASTOR-skin. See BEAVER, &c.

CASTOR, in Astronomy, a moiety of the constellation GEMINI; called also APOLLO.

Its latitude northwards for the year 1700, according to Hevelius, was $10^{\circ} 4' 23''$; and its longitude, of Cancer, $16^{\circ} 4' 14''$.

It is also called *Rafalgenze*, *Apollo*, *Aphellan*, *Avellar*, and *Anelar*.

CASTOR and Pollux, in Meteorology, a fiery meteor, which at sea appears sometimes sticking to a part of the ship, in form of one, two, or even three or four fire-balls; when one is seen alone, it is more properly called *Helena*; two are denominated *Castor and Pollux*, and sometimes *Tyndaridæ*.

Castor and Pollux are called by the Spaniards, *San Elmo*; by the French, *St. Elme*, *St. Nicholas*, *St. Clare*, *St. Helene*; by the Italians, *Hermò*; by the Dutch, *Vrce Vuuren*.

Castor and Pollux are commonly judged to portend a cessation of the storm, and a future calm; being rarely seen till the tempest is nigh spent. *Helena* alone portends ill, and witnesses the severest part of the storm yet behind.

When the meteor sticks to the masts, yards, &c. they conclude from the air's not having motion enough to dissipate this flame, that a profound calm is at hand; if it flutter about, it indicates a storm.

CASTOR oil, in Pharmacy. See PALMA Christi.

This oil is the product of the *RICINUS Americanus fructu racemoto hispido* of sir Hans Sloane: or of the *PALMA Christi* of Du-Tertre, Frezier, and Labat. It is variously prepared in the West Indies. It is drawn from the shrub in the manner in which we make birch wine; it is prepared by expression, which is the preferable method, as oils of all kinds have their acrimony heightened by the action of fire. At other times the seeds are collected ripe, when most replete with this pingueous juice, cleansed from the husks, bruised in a mortar, and beat into a paste. They are then boiled with a sufficient quantity of water, when the oil rises to the surface, and is skimmed off whilst any continues to appear.

It seems particularly adapted for the common complaints of infant children, and the cure of bilious disorders; and certainly is, by all accounts, a very valuable medicine. It was known to Dioscorides and Pliny, who gave it the name

name of *oleum cicinum*; the Arabs call it *oleum de therua*. Dr. Frazer has given an account of its preparation and virtues, confirmed by a letter of the Rev. Mr. Monod, of Guadaloupe, to Dr. Maty, in the *Lond. Medic. Observ. &c.* vol. ii. 235.

Dr. Canvane has published a Dissertation on *Castor Oil*, its history and virtues, and strongly recommended it in all bilious, calculous, and nephritic disorders. The dose for adults is from two to three or four spoonfuls, in two spoonfuls of pepper-mint water, or the *tinct. stomachica* of the London Dispensatory. It may be made into a *potio alba* by mixing two or three spoonfuls with a sufficient quantity of the yolk of eggs, to incorporate it thoroughly, and then adding two ounces of simple, and two or three drams of compound pepper-mint water. It may be given to children mixed with honey; and it acts so mildly, that newborn infants may take it in about a tea-spoonful for a dose. There is a paper on the effects of *castor oil* and the Peruvian bark in the whooping-cough, in the *Lond. Med. Obs. &c.* vol. iii. p. 281.

CASTOREA, in *Botany*, the name given by Plumier to a genus of plants since called by Linnæus *DURANTA*.

CASTOREUM, or CASTORIUM, in *Pharmacy*, a medicinal matter inclosed in bags or purses, near the anus of the castor, or beaver; falsely taken for the testicles of that animal. See *BEAVER*.

The bags in which the *castoreum* is contained, are about the bigness of a goose egg, and found indifferently in males and females; the liquor inclosed serves to give the castor an appetite, being pressed out of its receptacles, on occasion, by the foot: when taken off, the matter dries and condenses, so that it may be reduced to a powder; by hanging in the chimney it soon becomes of the consistence of wax. It is oily, of a sharp, bitter taste, and a strong disagreeable smell. It is used to fortify the head and nervous parts: it raises the languishing spirits, resists poisons, and provokes the menses in women. It is used in lethargies, apoplexies, vertigos, tremblings, suffocations of women, and on other occasions.—Bartholine, and other authors, ascribe to it a wonderful property of precipitating things to the bottom of the water.

For the choice of *castoreum*, the best is that of Russia; that of Canada is much inferior; the largest bags, and those that smell strongest, are the most esteemed, especially when heavy, and well fleshed. Care is to be taken, that it has not been adulterated with honey, or other drugs, to increase its weight, which is known by squeezing it; the sophisticated being softish, and yielding a liquid, stinking honey; and the natural, hard and heavy, of a brisk smell, and full of filaments.

Castoreum is used in the composition of Venice treacle and mithridate, beside various other hysteric and cephalic medicines. They draw an oil from it, called *oil of castor*; and it is also used abroad while in its liquid state, to make several kinds of unguents.

The Russian way of curing *castoreum* is described in the Philosophical Transactions thus: "To prepare the matter of the beaver's stones (the bags it should be), boil a proper quantity of water, with half a shovel full of wood-ashes, tie the bags in couples, and put them in the boiling water for half a quarter of an hour. Lay birch-bark on the fire, and smoke the bags well over it for an hour, till they be well dried; hang them up for a week or more, till perfectly dry and hard; they may then be packed up for use or exportation."

CASTRAMETATION, the art, or act of encamping, i. e. of placing and disposing an army in camp. See *CAMP*.

The word is more used in speaking of the encampments of the ancients, than those of the moderns. It comes from the Latin *castrum*, *camp*, and *metari*, to measure, or lay out.

CASTRATING a book, among *Booksellers*, is the taking out some leaf, sheet, or the like, which renders it imperfect, and unfit for sale. The word is also applied to the taking away particular passages, on account of their obscenity, too great freedom with respect to government, &c.

CASTRATING is also used among *Gardeners*, in speaking of melons and cucumbers; where it signifies the same with *PRUNING* or *PINCHING* of other plants.

CASTRATION, in *Chirurgery*, the operation of gelding, i. e. of cutting off the testicles, and putting a male animal out of a capacity of generation.

Castration is much in use in Asia, especially among the Turks, who practise it on their slaves to prevent any commerce with their women. The Turks often make a general amputation.

Castration also obtains in Italy, where it is used with a view to preserve the voice for singing. See *EUNUCH*, and *CONSERVATORIOS*.

The Persians, and other Eastern nations, have divers me-

thods of making eunuchs, different from those which obtain in Europe: we say, of making eunuchs, for it is not always done among them by cutting, or even collision.—Cicuta and other poisonous herbs do the same office, as is shewn by Paulus Aegineta. Those eunuchified in this manner are called *thlibia*. Besides which there is another sort named *thlasia*, in whom the genitals are left entire, and only the veins which should feed them are cut; by which means the parts do indeed remain, but so lax and weak, as to be of no use.

Castration was for some time the punishment of *ADULTERY*.

By the laws of the Visigoths, sodomites underwent the same punishment.

By the civil law, it is made penal in physicians and surgeons to *castrate*, even with consent of the party, who is himself included in the same penalty, and his effects forfeited. The offence of mayhem by *castration* is according to all our old writers, felony; though committed upon the highest provocation. See a record to this purpose of Henry III. transcribed by sir Edward Coke, 3 Inst. 62. or Blackstone's Com. vol. iv. p. 206.

Castration is sometimes found necessary on medicinal considerations, as in mortifications, and some other diseases of the testicles, especially the *sarcocele* and *varicocele*. Some have also used it in maniac cases.

CASTRATION is also in some sort practised on women.—Athenæus mentions, that king Andramytes was the first who *castrated* women. Hesychius and Suidas say Gyges did the same thing. Galen observes, that women cannot be *castrated* without danger of life: and Dalechampius, on the forementioned passage of Athenæus, holds, that it is only to be understood of simple padlocking.

CASTRATION, in respect of brutes, is called *GELDING*, and *SPAYING*. See also *FISH*.

CASTRATION is also used by some physicians for correcting the more violent medicines, especially purgatives. See *CORRECTION* and *CORRECTORS*.

CASTRATION also denotes the art of retrenching, or cutting away any part of a thing from its whole.

CASTREL, a kind of *HAWK* resembling the lanner in shape, but the hobby in size. The *castrel*, called also *kestrel*, is of a slow and cowardly kind; her game is the grouse, though she will kill a partridge. See *FALCONRY*.

CASTRENSIANI, or CASTRENSES, in *Antiquity*, an order of servants in the Greek emperor's household, to whom belonged the care and service of what related to his table, and clothing. They were thus called either on account of their attending the emperor, when in camp, or because they observed a sort of camp-discipline in the court; or rather because they were considered as soldiers, were paid as such, and had the privileges belonging to the military body.—The *castrensi* were also called *castrenses ministri*, and *ministeriani*.

To this order belonged the bakers, butlers, waiters, fullers, tasters, &c. They had a head, or superior, who was called *comes castrensis*, which was a palatine dignity under the chamberlain.

CASTRENSIS, in *Medicine*, an appellation given to certain contagious and epidemic diseases, especially fevers. See *CAMP-disease*, &c.

CASTRUM *Doloris*, in *Middle Age Writers*, denotes a catafalco, or a lofty tomb of state, erected in honour of some person of eminence, usually in the church where his body is interred; and decorated with arms, emblems, lights, and the like.

Ecclesiastical writers speak of a ceremony of consecrating a *castrum doloris*; the edifice was to be made to represent the body of the deceased, and the priest and deacon were to take their posts, and say the prayers after the same manner as if the corpse were actually present.

CASTS may be taken very well from medals on calces of lead melted with sulphur, which form a blackish mass, considerably more tough than sulphur alone. See an account of the process for making this matter, &c. in Lewis's *Commerc. Phil. Techn.* p. 354. See *Impression of MEDALS*.

CASU *Confimili*, in *Law*, a writ of entry, where a tenant by courtesy, or for life, aliens in fee or in tail, or for another's life: it takes its name hence, that authority being given by stat. West. 2. to the clerks in chancery to make new forms, as often as any new case should arise, not under any of the old forms; they framed this writ to the likeness of the other called *Casu proviso*.

CASU *Proviso*, a writ of entry, given by the statute of Gloucester, in case where a tenant in dower aliens in fee, or for term of life, in tail: and lies for him in reversion against the alienee.

CASUAL, something that happens fortuitously, or without any design, or measures taken to bring it to pass.

CASUAL death. See *DEODAND*.

CASUAL ejector, in *Law*, a nominal descendant in eject-

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ment, and who continues such until appearance by or for the tenant in possession. Blackst. Com. vol. iii. p. 202.

CASUAL revenues, are those which arise from forfeitures, confiscations, deaths, attainders, &c.

CASUAL theology, a denomination given by some to what is more frequently called casuistry. See **CASUIST**. Adam Osiander, chancellor of the university of Tubingen, has published a system of *casual theology*, containing the solution of dubious questions, and cases of conscience.—Theologia Casualis, 6 vols. 4to. Tubing. 1682.

CASUALTY, in the *Tin Mines*, a word used to denote the earth and stony matter which is, by washing in the stamping-mills, &c. separated from the tin ore, before it is dried and goes to the crazing-mill.

CASUIST, a person who professes to resolve cases of conscience. Escobar has made a collection of the opinions of all the *casuists* before him. To *casuistry* belong the decision of all difficulties arising about what a man may conscientiously do, or not do; what is sin, or not sin; what things a man is obliged to do in order to discharge his duty, and what he may let alone without breach of it. M. le Feore, preceptor of Lewis XIII. called the books of the *casuists* the art of quibbling with God; which does not seem far from the truth; by reason of the multitudes of distinctions and subtleties with which they abound.

CAT, in *Zoology*. See **FELIS**. The *domestic cat* is diversified with an almost infinite variety of colours and streaks; but the natural colour, in a wild state, is a brown tawny, variegated with streaks of a pale whitish colour. In France the *cats* are all of a bluish lead colour, and in the north of Europe they are all white.

CAT, in *Sea Language*, denotes a ship formed on the Norwegian model, and employed in the coal-trade. It is distinguished by a narrow stem, projecting quarters, a deep waist, and by having an ornamental figure on the prow.—These vessels usually carry from four to six hundred tons.

CAT, in a ship. See **CAT-heads**.

CAT, *sea*. See **SEA-cat**.

CAT's eye, among *Naturalists*, a kind of precious stone, of a lucid texture, whose colours are variable, according to the position of the stone to the light. *Cat's eye* is by the Latins called *oculis cati*, and sometimes *onycopalus*, as having white zones or rings like the **ONYX**; and its colours variable like **OPAL**, from which last it differs chiefly by its superior hardness. The *cat's eye* is of a glistering grey, interchanged with a straw colour, and answers the description given by Pliny of the *asteria*, between which and our *cat's eye* there appears no other difference than that the ancients took their denomination from the brightness and shining of the stone, whereas the modern name is taken from the figure of it.—See **ASTERIA**.

CAT-gut, a denomination given to small strings for fiddles, and other instruments, made of the intestines of sheep or lambs dried and twisted, either singly, or several together. These are sometimes coloured red, sometimes blue, but are commonly left whitish or brownish, the natural colour of the gut. They are used also by watch-makers, cutlers, turners, and other artificers. Great quantities are imported into England, and other northern countries, from Lyons and Italy.

CAT-barplings, are small ropes running in little blocks from one side of the shrouds to the other, near the deck: their use is to force the shrouds, and make them tight, for the greater security of the masts, and to afford room for drawing the yards in more obliquely, to trim the sails for a side-wind, when they are said to be close hauled.

CAT-heads, in a ship, are two strong short beams of timber, which project almost horizontally over the ship's bows, on each side of the bowsprit. One end of the *cat-head* rests on the fore-castle, and is bolted to the beams; the other part projects like a crane, and carries in its extremity two or three small sheaves, about which a rope called the *cat-fall* passes, communicating with the *cat-block*, which also contain three sheaves, and is fitted with a large strong hook, sometimes called *cat-hook*, which catches the ring of the anchor when it is to be drawn up. The machine formed by this combination of pulleys is called the *cat*, and serves to pull the anchor up to the *cat-head*, without tearing the ship's side with its flukes. The *cat-head* also serves to suspend the anchor clear of the bow, when it is necessary to let it go.

CAT's head, is also a denomination given to a sort of waste stony lumps, not inflammable, found in coal-mines. In these there are frequently impressions of ferns. Phil. Trans. N^o 360. p. 970.

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CAT-holes, in a ship, are over the ports, as right with the capstan as they can be: their use is to heave the ship a-stern upon occasion, by a cable or hawser called stern-fast.

CAT of mountain, the name of a beast of prey approaching to the leopard-kind. See **CATUS Pardus**, and **CANIS**.

CAT-mint. See **CATMINT**.

CAT's-paw, denotes a slight breath of wind, perceived at a distance in a calm, by the impression made on the surface of the sea, which soon decays.

CAT-salt, a name given by our salt-workers to a very beautifully granulated kind of common salt. It is formed out of the bittern or leach brine, which runs from the salt when taken out of the pan. When they draw out the common salt from the boiling pans, they put it into long wooden troughs, with holes bored at the bottom for the brine to drain out; under these troughs are placed vessels to receive this brine, and across them are placed certain small sticks, to which the *cat-salt* affixes itself in very large and beautiful crystals. This salt contains some portion of the bitter purging salt, and is very sharp and pungent, and is white when powdered, though pellucid in the mass. It is used by some for the table, but the greatest part of what is made of it is used by the makers of hard soap.

CAT-silver, a name given to certain fossile substances, usually called also *glimmer*, and in Latin, *micæ*. They are various species of the *bractearia*, or foliaceous talcs, in small span-gles. See **MICA**.

CATABAPTIST, a person averse from baptism; particularly from that of infants. The word is compounded of the preposition *κατα*, which in composition, signifies *against*, and *βαπτω*, *I wash*.

CATABASION, in the *Greek Church*, a place under the altar, wherein the relics are kept. The word is formed from *καταβαινω*, *I descend*; because they went down into it.

CATABATHMOS, in *Antiquity*, a steep valley, dividing Egypt from Africa. The word is formed from *καταβαινω*, *to descend*, on account of the hastiness and precipitation of its descent.

CATABIBAZON, in *Astronomy*, the moon's descending node; called also **DRAGON'S tail**.

CATABULENSES, in the *Middle Age*, a sort of ministers or servants of the empire, appointed to conduct the public carriage from one *catabulum*, or stage, to another. The *catabulenses* appear also to have had the charge of conveying the public corn to and from the mills; whence in the Theodosian code they are joined with bakers.

CATABULUM, in the *Middle Age*, a kind of stable, or building, wherein beasts, especially of burden and carriage, were kept for the public service. The ancient Christians were sometimes condemned to serve in the *catabula*, that is, to work at the cleaning of them, attending the beasts, &c.

CATAC, in *Botany, a name by which some authors call **AGRIMONY**.*

CATACAUSTIC curves, in the *Higher Geometry*, the species of **CAUSTIC curves** formed by *reflexion*.

CATACHRESIS, a figure in *Rhetoric*, whereby an improper word is used instead of a proper one. The word is formed from *καταχραμαι*, *abutor*, *I abuse*; of *κατα*, *against*, or *contrary to*, and *χραμαι*, *I use*. The *catachresis* is, when for want of a word proper to express a thought, we use, or rather abuse, a word that comes somewhat near it: as when we call a person who has killed his mother, master, or prince, *parricide*; which word, in propriety is only applicable to him who has murdered his father: and *vir gregis ipse caper*, is also a *catachresis*.

CATACLASIS, from *κατακλαω*, *I distort*, in *Medicine*, denotes a disorder of the eye, wherein the eye-lid is inverted by a convulsion of the muscles that close it; called also *campylon*.

CATACLEIS, in *Anatomy*, a cartilaginous bone, or rather a cartilage in the juncture of the *omoplate*, or shoulder-blade.

CATACLYSMUS, from *κατακλυω*, *I deluge*, a Greek name for a deluge, or inundation of waters.

CATACOMBS, or **CATACUMBS**, **CATACUMBÆ**, denote grottos, or subterraneous cavities, for the burial of the dead. Some derive the word from the Greek *κατα*, and *κυμος*, a hollow, cavity, or the like. *Catacombs* are also denominated *cryptæ*, and *cæmeteria*. Anciently, the word *catacomb* was only understood of the tombs of St. Peter and St. Paul; and M. Chastelain observes, that among the more knowing of the people of Rome, the word *catacomb* is never applied to the subterraneous burying-places hereafter to be mentioned, but only to a chapel in St. Sebastian, one of the seven stational churches; where the ancient Roman calendars say the body of St. Peter was deposited, under the consulate of Tuscus and Bassus, in 258.

CATACOMB is more particularly used in Italy, for a vast assemblage of subterraneous sepulchres about Rome, chiefly at about three miles from that city in the Via Appia, supposed to be the sepulchres of the martyrs; and which are visited accordingly out of devotion; and reliques are taken thence, and dispersed throughout the catholic countries, after having been first baptized by the pope, under the name of some saint.

These *catacombs* are said by many to be caves, or cells, wherein the primitive Christians hid, and assembled themselves together; and where they interred such among them as were martyred. Each *catacomb* is three feet broad, and eight or ten high; running in form of an alley, or gallery, and communicating with others: in many places, they extend within a league of Rome. There is no masonry or vaulting therein, but each supports itself: the two sides, which we may look on as the parietes, or walls, were the place where the dead were deposited; which were laid lengthwise, three or four rows over one another, in the same *catacomb*, parallel to the alley. They were commonly closed with large thick tyles, and sometimes pieces of marble, cemented in a manner inimitable by the moderns. Sometimes, though very rarely, the name of some of the deceased is found on the tyle: frequently, a palm is seen, painted or engraven; or the cypher Xp, which is commonly read *pro Christo*.

Mr. Monro, in the Philosophical Transactions, supposes the *catacombs* to have been originally the common sepulchres of the first Romans, and dug in consequence of these two opinions; that shades hate the light, and they love to hover about the places where the bodies are laid.

The *catacombs* of Rome have made the greatest noise in the world; but there are such belonging to many other cities. Bishop Burnet describes those of Naples, which he says are without the city, and much more noble and spacious than those of Rome. The like are also said to be in the neighbourhood of all the great towns in that part of Italy; and others have been discovered in Syracuse and Catania in Sicily, and in the island of Malta.

The largest, and those commonly shewn strangers, are the *catacombs* of San Sebastiano, those of St. Agnese, and the others in the fields a little off St. Agnese: as to the *catacombs* in the church-yards of the Vatican, women are only allowed to go into them one day in the year, viz. on Whitfun-Monday, on pain of excommunication.

There are men kept constantly at work in the *catacombs*. As soon as these labourers discover a grave, with any of the supposed marks of a saint about it, intimation is given to the cardinal Camerlingo, who immediately sends men of reputation to the place, where finding the palm, the monogram, the coloured glass, &c. the remains of the body are taken up with great respect, and translated to Rome. After the labourers have examined a gallery, they stop up the entry that leads into it; so that most of them remain thus closed; there being only a few left open, to keep up the trade of shewing them to strangers. This, they say, is done to prevent people's losing themselves in these subterraneous labyrinths, which has often happened: but more probably to deprive the public of the means of knowing whither and how far the *catacombs* are carried. Monro, in Phil. Trans. N^o 265. p. 644.

Laying up the bodies in caves, is certainly the original way of disposing of the dead; and appears to have been propagated by the Phœnicians, throughout the countries to which they sent colonies: the interring, as we now do, in the open air, or in temples, was first introduced by the Christians. When an ancient hero died, or was killed in a foreign expedition, as his body was liable to corruption, and for that reason unfit to be transported entire, they fell on the expedient of burning, in order to bring home the ashes, to oblige the manes to follow; that so his country might not be destitute of the benefit of his tutelage. It was thus burning seems to have had its original; and by degrees it became common to all who could bear the expences of it, and took place of the ancient burying: thus *catacombs* became disused among the Romans, after they had borrowed the manner of burning from the Greeks; and now, none but slaves were laid in the ground.

Places thus prepared, might afford convenient retreats to the primitive Christians; but could never be built by them. When the empire became Christian, they were again disused; till the reading of some author, who mentions them, occasioned them to be again looked into.—

As to the famed cypher Xp, it is observed to have been in use among the ancients, long before Christianity arose. The abbot Bencini says, it was composed of the Greek letters XP, under which something mystical was comprehended; but no author gives any account what that mystery was.

CATACOUSTICS, from *κατα* and *ακουω*, *I hear*, called also **CATAPHONICS**, the science of reflected sounds; or that part of acoustics, which considers the properties of echoes.

CATADIOPTRICAL telescope, the same with reflecting TELESCOPE.

CATADROMUS, from *κατα* and *δρομος*, *I run*, in *Antiquity*, a stretched sloping rope in the theatres, down which the FUNAMBULI walked, to shew their skill.

Some have taken the word to signify the hippodrome, or decurforium, wherein the Roman knights used to exercise themselves in running and fighting on horseback.

But the most natural meaning is that of a rope, fastened at one end to the top of the theatre, and at the other to the bottom, to walk or run down, which was the highest glory of the ancient *schœnobates*, or *funambuli*. Elephants were also taught to run down the *catadromus*. Suetonius speaks of the exploit of a Roman knight, who passed down the *catadromus* mounted on an elephant's back. In Ner. cap. xi. p. 5.

CATADUPA, a CATARACT, or water-fall.

The word comes from *κατα*, downwards, and *δραω*, to make a noise by falling.

The appellation *catadupa* seems to have been peculiarly given to a place in Æthiopia joining on Egypt, where the Nile, which here first assumes that name, rushed down a steep rock into the subjacent plain, with a noise so impetuous, that the inhabitants are said to have lost all sense of hearing. Plin. Hist. Nat. lib. v. cap. 9. Ammian. Marc. lib. xxii. cap. 34, &c. Senec. Nat. Quæst. lib. iv. cap. 2.

CATADUPI, *Καταδυποι*, an appellation given by the ancients to the inhabitants about the cataracts of the Nile. See CATARACT.

The *catadupi* are represented as all deaf; being made so by the continual din of the falling waters.

CATAFALCO, an Italian term, literally signifying *scaffold*. It is chiefly used for a decoration of architecture, sculpture, and painting; raised on a timber scaffold, to shew a coffin, or tomb, in a funeral solemnity.

CATAGMATICS, medicines proper to solder and unite broken bones; by promoting the formation of a callus.

The word comes from *κατα*, against, and *αγνυμι*, *I break*.

The principal *catagmatics*, are the Armenian bole, gum tragacanth, osteocolla, Cyprus nuts, frankincense, aloes, and acacia. See CONSOLIDATION.

CATAGOGION, *Καταγωγιον*, a heathen festival at Ephesus, celebrated on the twenty-second of January, in which the devotees run about the streets dressed in divers antic and unseemly manners, with huge cudgels in their hands, and carrying with them the images of their gods; in which guise they ravished the women they met with, abused, and often killed the men, and committed many other disorders, to which the religion of the day gave a sanction. Du-Cange.

CATAGRAPH, *Καταγραφα*, in *Antiquity*, denote oblique figures, or views of men's faces; answering to what the moderns call PROFILES.

Catagrapha are said to be the invention of Simon Cleonæus, who first taught painters to vary the looks of their figures, and sometimes direct them upwards, sometimes downwards, and sometimes sideways or backwards. Plin. Hist. Nat. lib. xxxv. cap. 8. cum Not. Har-douin.

CATALECTIC, a term in poetry.—The ancients called *catalectic verses*, those which wanted either feet or syllables; in opposition to *acatelectics*, which are complete verses, wanting nothing.

The word comes from *κατα* and *ληγω*, *I end*.

CATALEPSIS, **CATALEPSY**, from *καταλαμβάνειν*, to occupy, in *Medicine*, a kind of apoplexy; or a drowsy disease, wherein the patient is taken speechless, senseless, and fixed in the same posture wherein the disease first seized him; and his eyes open, without seeing, or understanding.

Catalepsis is the same with what is otherwise denominated CATOCHE, or *catochus*, and *gelatio*, or *congelatio*.

Some also make it the same with COMA *vigil*; others will have it different; though wherein the distinction lies it is not easy to assign.

This disease is very rare, nor is it easy to assign its cause. Boerhaave takes the immediate cause to be an immobility of the common sensory, in the situation of the first access; whence comes an absolute stagnation of the blood in the brain, and a cessation of all the functions of the brain, as well as those depending thereon; the muscles alone remaining in their first tension; and respiration, and the pulse, preserved, though generally weak.

It is usually preceded by a long intermitting fever, a melancholic dry temperature, a suppression of the menses, or hæmorrhoids, great frights, and intense, continued meditations on one object.

Upon dissection, the arteries and veins of the cerebrum are found very turgid, and the blood close rammed in them: it is sometimes cured by copious hæmorrhages of the

the nose; sternutatories, vomitives, and vesicatories, are likewise applied to good purpose.

It seldom passes into any other disease; though sometimes into an epilepsy, convulsions, madness, or atrophy; but it commonly ends in death.

In the History of the Royal Academy of Sciences at Paris, we have an account of a woman who had a surprising *catalepsy*, her members keeping all the postures they were put into, as if she had been made of wax. Ann. 1738.

CATALOGUE, a list, or enumeration of the names of several books, men, or other things; disposed according to a certain order.

Catalogues of books are digested in different manners, some according to the order of the times when the books were printed, as that of Maittaire; others according to their form and size, as the common booksellers *catalogues*; others according to the alphabetical order of the author's names, as Hyde's *Catalogue* of the Bodleian Library; others according to the alphabetical order of matters or subjects, which are called real or classical *catalogues*; as those of Lipenius and Draudius; lastly, others are digested in a mixed method, partaking of several of the former, as de Seine's *catalogue* of cardinal Slusius's library, which is first divided according to the subjects or sciences, and afterwards the books in each are recited alphabetically.

The most applauded of all *catalogues* is that of Thuanus's library, in which are united the advantages of all the rest. It was first drawn up by the two Puteani in the alphabetical order, then digested according to the sciences and subjects, by Iſhm. Bullialdus, and published by F. Quesnel at Paris in 1679; and reprinted, though incorrectly, at Hamburg, in 1704. The books are here ranged with justness under their several sciences and subjects, regard being still had to the nation, sect, age, &c. of every writer. Add, that only the best and choicest books in every subject are found here, and the most valuable editions. Yet the *catalogue* of M. le Telliers, archbishop of Rheims' library, made by M. Clement, is not inferior to any published in our age, either on account of the number and choice of the books, or the method of its disposition. One advantage peculiar to this *catalogue*, is the multitude of anonymous and pseudonymous authors detected in it, scarce to be met with elsewhere. Some even prefer it to Thuanus's *catalogue*, as containing a greater variety of classes and books on particular subjects. Bibliotheca Thuanea, Par. 1679, 8vo. 2 vols. and Hamb. 1704. fol. and 8vo.

The conditions required in a *catalogue* are, that it indicate at the same time the order of the authors and of the matters, the form of the book, the number of volumes, the chronological order of the editions, the language it is written in, and its place in the library; so as that all these circumstances may appear at once, in the shortest, clearest, and exactest manner possible. In this view, all the *catalogues* yet made will be found to be defective.

An anonymous French writer has laid down a new plan of a *catalogue*, which shall unite all the advantages, and avoid all the inconveniences of the rest. Lett. à l'Abbé ***, sur un Nouveau Projet de Catalogue de Bibliothèque. Par. 1712.

The Jesuits of Antwerp have given us a *catalogue* of the popes; which makes what they call their *Propylæum*.

CATALOGUE of the stars, is a list of the fixed stars, disposed in their several constellations; with the longitudes, latitudes, &c. of each.

The first who undertook to reduce the fixed stars into a *catalogue*, was Hipparchus Rhodius, about one hundred and twenty years before Christ; in which he made use of the observations of Timocharis and Aristyllus, for about one hundred and eighty years before him. Ptolemy retained Hipparchus's *catalogue*, containing 1026 fixed stars; though he himself made abundance of observations, with a view to a new *catalogue*, A. D. 140. About the year of Christ 880, Albategni, a Syrian, brought down the same to his time. Anno 1437, Ulugh Beigh, king of Parthia and India, made a new *catalogue* of 1022 fixed stars; since translated out of Persian into Latin, by Dr. Hyde. The third who made a *catalogue* from his own observations, was Tycho Brahe; who determined the places of seven hundred and seventy-seven stars, for the year 1600, which Kepler, from other observations of Tycho, afterwards increased to the number of one thousand, in the Rudolphine tables; adding those of Ptolemy, omitted by Tycho, and of other authors, so that his *catalogue* amounts to above 1160. At the same time, William landgrave of Hesse, with his mathematicians, Christopher Rothmannus and Justus Byrgius, determined the places of four hundred fixed stars, by his own observations, with their places rectified for the year

1593; which Hevelius prefers to those of Tycho's. Ricciolus, in his *Astronomia Reformata*, determined the places of one hundred and one stars, for the year 1700, from his own observations: for the rest he followed Tycho's *catalogue*; altering it where he thought fit. Anno 1667, Dr. Halley, in the island of St. Helena, observed three hundred and fifty southern stars, not visible in our horizon. The same labour was repeated by F. Noel, in 1710, who published a new *catalogue* of the same stars constructed for the year 1687.

Bayer, in his *Uranometria*, published a *catalogue* of 1160 stars, compiled chiefly from Ptolemy and Tycho, in which every star is marked with some letter of the Greek alphabet; the biggest star in any constellation being denoted by the first letter, the next by the second, &c. and if the number exceeds the Greek alphabet, the remaining stars are marked by letters of the Roman alphabet, which letters are preserved by Flamsteed and by Senex on his globes. The celebrated Hevelius composed a *catalogue* of 1388 stars, 1553 of which were observed by himself; and their places were computed for the year 1660.

The last, and greatest, is the *Britannic catalogue*, compiled from the observations of the accurate Mr. Flamsteed; who for a long series of years devoted himself wholly thereto. As there was nothing wanting either in the observer, or apparatus, we may look on this as a perfect work, so far as it goes. It is pity the impression had not passed through his own hands: that now extant, was published by authority, but without the author's consent: it contains 2734 stars. There was another published in 1725, pursuant to his testament; containing no less than 3000 stars, with their places rectified for the year 1689: to which is added Mr. Sharp's *catalogue* of the southern stars not visible in our hemisphere, adapted to the year 1726. See vol. iii. of his *Historia Cælestis*, in which are printed the *catalogues* of Ptolemy, Ulugh Beigh, Tycho, the Prince of Hesse, and Hevelius; together with an account of each of them in the Prolegomena.

CATALONGAY, in *Botany*, the name given by some authors to the plant which produces the *fabu sancti Ignatii*, or St. Ignatius's beans of the shops.

CATALIS *captis nomine districtionis*, in *Law*, a writ, which lies where a house is within a borough, for rent issuing out of the same, and warrants the taking of doors or windows by way of distress.

CATALLIS *Reddendis*, in *Law*, a writ that lies where goods, being delivered to persons to keep till a certain day, are not on demand delivered on that day.

CATALS, *Catallu*, denotes goods or **CHATTELS**.

CATAMARAN, *Catimoran*, in *Sea Language*. See **FLOAT**.

CATAMENIA, from *κατα* and *μην*, *month*, in *Medicine*, women's monthly purgations, called also **MENSES**.

CATANADROMI, in *Ichthyography*, a term of the same signification with the more common word *anadromi*, the distinctive term of a set of fishes, which at times leave the fresh water for the salt, and afterwards return to the fresh water again. See **ANADROMOUS**.

CATANANCHE, in *Botany*. See *Candia* **LION's foot**.

CATAPAN, or **CATIPAN**, a name the later Greeks, about the twelfth century, gave the governor of their dominions in Italy.

Ughellus and others say, *catapan* was the same with *capitaneus*; formed therefrom by metathesis, or transposition: others derive it from *κατα*, *juxta*, and *παν*, *omne*; in which sense, *catapan* was a governor-general, or magistrate, who had the direction of all: others will have it derived from *κατα παντοκρατορα*, that is, *next after the emperor*. In which sense, *catapan* was a second master, *secundus dominus*. Du-Cange derives it from *κατεπανα*, *captain*; which the Greeks applied to every governor, and even every man of quality.

CATAPASM, a dry medicine, composed of a mixture of powders to be sprinkled on the body.

The word comes from *κατα*, *in*, and *πασσω*, *I sprinkle*. There are *catapasm*s of divers kinds: some odoriferous, used in the way of perfume; others fortifying, applied to the stomach, heart, or head; and others escharotic, for eating off dead flesh.

CATAPELTA, in instrument of punishment, in use among the ancients. It consisted of a kind of press, composed of planks, between which the criminal was crushed to death.

CATAPELTÆ, in *Ancient Writers*, sometimes denote arrows, and sometimes engines wherewith either arrows, stones, or even huge pieces of timber were cast. Pliny ascribes the invention of the *catapultæ* to the Syrians; Plutarch and Diodorus to the Sicilians.

It is more frequently written **CATAPULTA**.

CATAPHORA, in a theme of the heavens, an appellation given

given to the houses falling from the third, sixth, ninth, and twelfth angles. In which sense the word stands opposed to *anaphora*.

CATAPHORA, a kind of lethargic, or drowsy disease; the same with what is otherwise called *coma*. See also *CARUS*.

The word is compounded of *κατω*, or *κατω*, downwards, and *φωω*, to bear.

CATAPHRACTA, from *κατα*, and *φρασσα*, I fortify, or arm, in the *Ancient Military Art*, a piece of heavy defensive armour, formed of cloth or leather, fortified with iron scales or links, wherewith sometimes only the breast, sometimes the whole body, and sometimes the horse too was covered.

It was in ancient use among the Sarmatians, Persians, and other Barbarians. The Romans also adopted it early for their foot; and, according to Vegetius, kept to it till the time of Gratian, when the military discipline growing remiss, and field exercises and labour discontinued, the Roman foot thought the *cataphracta*, as well as the helmet, too great a load to bear, and therefore threw both by, choosing rather to march against the enemy bare-breasted: by which, in the war with the Goths, multitudes were destroyed. Tacit. Hist. lib. i. cap. 79. Veget. de Re. Mil. lib. i. cap. 20.

CATAPHRACTA, among *Surgeons*, denotes a *BANDAGE* of the thorax; thus denominated from its resemblance to a Roman breast-plate, called *cataphracta*.

CATAPHRACTÆ naves, those armed and covered in fight, so that they could not be easily damaged by the enemy. They were covered over with boards or planks, on which the soldiers were placed to defend them: the rowers fitting underneath, thus screened from the enemies weapons.

CATAPHRACTUS, denotes a thing defended or covered on all sides with armour.

CATAPHRACTUS, or **CATAPHRACTARIUS**, more particularly denotes a horseman, or even horse armed with a *CATAPHRACTA*.

The *Cataphracta equites* were a sort of cuirassiers, not only fortified with armour themselves, but having their horses guarded with solid plates of brass or other metals, usually lined with skins, and wrought into plumes of other forms. Their use was to bear down all before them, to break in upon the enemies ranks, and spread terror and havoc wherever they came, as being themselves invulnerable and secure from danger. But their disadvantage was their unwieldiness, by which, if once unhorsed, or on the ground, they were unable to rise, and thus fell a prey to the enemy.

CATAPHRACTUS poggæ, in *Zoology*. See *POGGÆ*.

CATAPHRYGIANS, a sect in the second century so called as being of the country of Phrygia.

They were orthodox in every thing, setting aside this, that they took Montanus for a prophet, and Priscilla and Maximilla for true prophetesses, to be consulted in every thing relating to religion; as supposing the Holy Spirit had abandoned the church. See *MONTANIST*.

CATAPLASM, popularly called *poultice*, an external medicine, in form of a pulp; of a soft consistence, like an unguent, or cerat; composed of various liquors, parts of plants, oils, unguents, &c. according to the variety of intentions.

The word comes from the Greek *καταπλασσω*, *illino*, I smear or apply outwardly.

Its ordinary uses are to alluage pain, and soften, resolve, discuss, or suppurate, matter collected in the external parts of the body.

The common *cataplasma* for these intentions, is composed of white bread, milk, yolks of eggs, saffron, and oil of roses.

CATAPLASM è cymine, the *cumin-seed cataplasma*, a form of medicine prescribed in the late London Dispensatory, and meant as a substitute for the London treacle of former Dispensatories, which has of late been used only externally, and for such purposes as it is thought this will better serve for. The composition is this: take cummin-seeds, half a pound; bay-berries and leaves of scordium dried, of each three ounces; of cloves, one ounce; honey, three times the weight of the whole: mix all together into a *cataplasma*.

CATAPLASMA maturans, a form of medicine in the late London Pharmacopœia ordered to be made in the following manner: take dried figs, four ounces; yellow basilicon, one ounce; stained galbanum, half an ounce: beat well the figs in a little wine or strong stale beer, and then carefully mix in the ointment, first melted with the galbanum.

CATAPULTIA, from *καταπιω*, I swallow, dry medicines, in a form fit to be swallowed whole; otherwise called *pills*.

CATAPULTA, a military machine, used among the ancients, for throwing huge stones, and sometimes, large darts and javelins, twelve or fifteen feet long, on the enemy.

The word is originally Greek, from *κατα* and *πυλν*, and according to Helychius, denotes a spear or dart. Hence it is sometimes also written *catapelta*.

The *catapeltae* were also denominated *οξυβολοι*, because they threw sharp wooden weapons; whereas those cast by the *balista* were obtuse, viz. stones.

The *catapulta* consisted of two huge timbers, like masts of ships placed against each other, and bent by an engine for the purpose; these being suddenly unbent again by a stroke of a hammer, threw the javelins with incredible force. Its structure, and manner of working it, are described by Vitruvius; and a figure of it is also given by Perrault. M. Folard asserts, that the *catapulta* made infinitely more disorder in the ranks, than our cannon loaded with cartridges. Vide. Vitruv. de Archit. lib. x. cap. 15. & cap. 18. Perr. Not. ad eund. p. 335.

The *catapulta* is said to be the invention of the Syrians. Some authors make it the same with the *ballista*; others different.

CATAPUTIA, a medicinal plant commonly called the *lesser SPURGE*. It purges with such violence, both upwards and downwards, that few physicians now venture to prescribe it.

CATARACT of water, a fall or precipice, in the channel, or bed of a river; caused by rocks, or other obstacles, stopping the course of its stream: from whence the water falls with a noise and impetuosity.

The word comes from *κατοφρασσα*, I tumble down with violence; compounded of *κατα*, down, and *φρασσα*, dejicio, I throw down.

Such are the *cataraets* of the Nile, the Danube, Rhine, &c.

In that of Niagara, the perpendicular fall of water is 137 feet: and in that of Piffill Rhaiadr, in North Wales, the fall of water is near 240 feet from the mountain to the lower pool.

Strabo calls that a *cataraet*, which we call a *cascade*; and what we call a *cataraet*, the ancients usually called a *catadupa*. Herminius has an express dissertation De admirandis mundi *Cataraetis* supra & subterraneis; where he uses the word in a new sense; signifying, by *cataraet*, any violent motion of the elements.

CATARACT, from *καταρασσω*, I confound, in *Medicine*, a suffusion of sight, arising according to the opinion of the ancients, from a little film or pellicle, which, swimming in the aqueous humour of the eye, and getting before the pupil, intercepts the rays of light.

They supposed that the *cataraet* was formed by a condensation of the more viscous parts of the aqueous humour, between the uvea and the crystalline: though some take it to be a pellicle, detached from the crystalline itself; which is only an assemblage of several little pellicles laid over one another.

There are two kinds of *cataraets*, the *genuine*, and *spurious*; the first owing to an humour amassed in the eye, coagulated and fixed therein, and destroying its use: the latter arising from fumes or vapours thrown upon the eye by some accident; as in a fever, &c. The genuine *cataraet* has several degrees and several names: at first the patient sees, as it were, clouds, moats, flies, &c. diffused over the objects in view: thus far the *cataraet* is called *imaginary*; there being nothing yet appearing to the eye of another person. As the suffusion increases, the pupil begins to appear of a sea-green colour; sometimes like the air full of clouds; and then the *cataraet* is called *water* or *water-fallen*: when the evil is arrived at its height, and the matter is sufficiently coagulated, the patient loses all sight; the pupil ceases to be transparent, and becomes white, or brown, or of some other colour: this last state is what we properly denominate a *cataraet*.

But the modern anatomists and surgeons, such as Heister, Brisseau, and others, have adopted and established a new system, with respect to the cause and seat of this disorder. Observing the beginning and progress of a *cataraet*, it has been found, that at first it lies so deep as scarcely to be distinguished; whereas, if it was a membrane or an inspissation of the aqueous humour, and situated in the posterior chamber of the eye behind the *iris*, it might be easily perceived, nor would it appear to lie so far within the eye. In the progress of the disorder, and when the patient complains of dimness of sight, a whiteness is observed very deep on the inside, without any apparent inspissation of the aqueous humour; a circumstance which seems to prove, that the crystalline humour begins to become opaque: afterwards the crystalline advances towards the hole of the pupil, and the sight lessens gradually, till the *cataraet* comes near the pupil and closes it. No such change of situation, it has been observed, could take place, were the disease occasioned by a membrane produced in the aqueous humour, or by an inspissation of this humour. It has also been found in the operation

for the *cataract*, that, after it has been depressed and the needle raised, an opaque body, in the form of the crystalline humour, appears through the hole of the pupil, adhering to the end of the needle. To which we may add, that, in an operation of this kind, when the eye was drawn out of the orbit and opened, the crystalline humour was found in the bottom of the globe of the eye at the posterior and inferior part of the pupil, to which place the operator had depressed it: it is likewise added, that after the *cataract* is depressed, the patient cannot see without the assistance of a lens to supply the defect of the crystalline.

A true *cataract* is therefore defined to be an alteration of the crystalline humour, which loses its natural transparency, becomes opaque, and at length hinders the rays of light from passing to the bottom of the eye, to make the necessary impression on the retina. It must be remembered, however, that, though the *cataract* is impervious to the rays of light, some of them pass obliquely between the iris and *cataract*, so that the eye is still able to distinguish light and glaring colours. The crystalline, in this disease, is changed into a cream colour, a pearl colour, a yellow colour, or a darkish grey, &c. It has been said that it sometimes becomes greenish, though Mr. Sharpe in a great number of *cataracts*, never met with a single instance of this kind: and on this account it is called by the Greeks *glaucoma*, which is the same disease with the *cataract*.

In some cases, the *cataract* adheres to the iris; and if there be a complete adhesion of these parts, the eye is incapable of seeing at all; and, therefore, as no judgment can be formed of the state of the retina or of the vitreous humour, Mr. Warner thinks, these are sufficient reasons for forbidding the operation of *couching*: and he observes, with respect to the operation of dividing the iris from the *cataract*, which was invented and recommended by Mr. Cheselden, that he never saw a single instance of success from it, and therefore that it is in no circumstance adviseable.

Cataracts spring from very different causes: sometimes they are the consequence of blows, wounds, or punctures, but not often. When they are produced by external causes, little relief can be obtained from manual operation, because other parts of the eye may be injured, and the disease is truly complicated. When the *cataract* arises from an internal cause, it is always the consequence of obstructions in the nutriment and secreting vessels of the crystalline humour; and when this is the only visible defect in the eye, the patient derives great advantages from an operation.

Though it be, generally speaking, true, that the cause of *cataracts* is the opacity of the crystalline humour; yet it is certain, that a real membrane has been sometimes, though rarely, found, covering the pupil, or the socket of the vitreous humour which lies behind the crystalline, or formed by a kind of pus extravasated into the aqueous humour, in consequence of an inflammation of the choroides.

Cataracts have been distinguished, by surgeons and oculists, into various sorts; as into recent and inveterate, incipient and confirmed, mature and immature, simple and complicated, immoveable and shaking, milky and purulent, true and spurious, curable and incurable: but most of these distinctions, as far as they relate to the nature of the disease, have no sufficient foundation in nature, owing their diversity of character more to the imagination of writers, than to any variety of the disease itself.

Celsus, and after him Heister, have recommended the use of medicinal remedies in an incipient *cataract*. In a case of this kind, whatever is capable of attenuating the juices, of unloading the distended vessels, and of driving a portion of their juices to distant parts of the body, appears to be capable of doing considerable service, though it may be little depended on in a confirmed *cataract*. But when the disorder is grown mature and inveterate, recourse must be had to manual operation: in order to the success of which, much depends on the nature of the disease, and the degree of its maturity. If the adhesion of the *cataract* to the iris be partial, and the retina be perfect, there will be a sufficient quantity of the rays of light transmitted obliquely, between the iris and the *cataract*, to the lateral parts of the retina, to enable the patient to distinguish light, and sometimes too such bodies as are white or red. To judge of this when the operator cannot distinguish it by his sight, let him shut the patient's eye, and rub the lids a little; then suddenly opening it, he will perceive the pupil to contract, if the crystalline humour does not prevent the action by its adhesion. The general criterion of the fitness of *cataracts* for the operation is taken from their colour; the pearl-coloured, and those of the colour of burnished iron, are esteemed proper to endure the needle,

and the maturity of the *cataract* may be judged of by its appearing in every part of an equal opacity; by the patient's not distinguishing an object presented to him, when he is placed with his back to the light, provided the disease be not one of those *cataracts*, in which the crystalline remains in the middle of the posterior chamber of the eye. The operator should likewise examine the diseased eye exposed to the light; if he finds the crystalline of an equal opacity, let him close the patient's eye with his thumbs, then rub the upper lid of that eye which has the *cataract*, and, keeping the other eye shut, let him open the lids; if he finds the light, which falls on the pupil, makes the iris contract; and though exposed to the same light, it dilates to the half, or the quarter, of that degree to which it was contracted; he may be assured the *cataract* is ripe.

CATARACTS, couching of. This operation is performed by penetrating the globe of the eye with the *couching* needle through the *tunica conjunctiva*, and *albugina*, at a very small distance beyond the circumference of the *tunica cornea*, and as exactly as possible in a line with the most external part of the circle of the pupil. The needle should be introduced through the coats of the eye, viz. the *tunica conjunctiva*, *albuginea*, *sclerotica*, *choroides*, and *tunica retina*, with the flat surfaces of the instrument directed upwards and downwards, as less violence will be done to the coats of the eye in this way, than if the blade had penetrated the eye in a transverse direction. The instrument should be then cautiously pushed forwards, till it appears behind the pupil, which it will always do, when the eye remains transparent, and the eye-lids are kept open. The operator next endeavours to press the *cataract* gently downwards, and a little outwards, with the flat surface of the instrument; and if the *cataract* should not readily submit, the needle must be carefully moved under it, and gently raised up, by which means the *cataract* may be separated from the *processus ciliares*, and *aranea* below, and at the same time be disengaged from the inferior portion of the *tunica iris*, supposing it to be slightly connected with that membrane. After the *cataract* is thus lifted up, the position of the *couching* needle must be altered, and directed a little above the upper portion of the circle of the pupil; afterwards inclining the instrument downwards, and obliquely outwards. Great care should be taken not to wound the *iris* or the *processus ciliares*. Thus the *cataract* will sometimes be so effectually dislodged from the bed of the vitreous humour, and its nutrient vessels so perfectly destroyed, as to bring on its gradual decay. When the operation is finished, the patient's eye-lids must be shut, and covered with a rag, dipped in a solution of *saccharum saturni*, or the *pulvis e cerussa compos.* in cold rose-water, or the *extractum saturni* mixed with brandy, which must be very gently bound on with a soft linen roller. The patient should be let blood, and kept in a dark place during the continuance of the inflammation. He should sit up for some hours after the operation, in order to prevent the rising of the *cataract*, and live abstemiously, taking only such food as requires little chewing. The *cataract* is sometimes apt to rise again, after it has been depressed; so that it has been necessary to repeat the operation; for the prevention of which, particular care should be taken to destroy as effectually as possible, the *aranea*, by moving the blade of the instrument in different directions. Warner. See *Couching* NEEDLE, and *SPECULUM oculi*.

CATARACTS, extracting of. M. Daviel, in 1745, first began this operation for the cure of the *cataract*; and out of a hundred and fifteen different operations, a hundred succeeded. Though it is said that Mr. St. Yves practised it about sixty years before. It is thus described by Dr. Hope, who saw M. Daviel perform it. After having placed the patient in a right line in the chair, he places himself over against, and somewhat higher than the patient: an assistant holds the head steady, and another keeps the upper eye-lid open, whilst he with his left hand, keeps open the lower eye-lid. Then he takes an instrument like a lancet, of a myrtle-form point, a little crooked upwards, and fixed in a handle; and, making the patient look upwards, he pierces the *cornea transparens* at its lower circumference, just where it joins the *sclerotica*, and conveys the point of the instrument between the cornea and *iris* upwards, beyond the pupil. He enlarges this opening on each side by the same instrument; taking out this instrument, he introduces another in the shape of a narrow lancet, made round at the point, and fixed in a handle; with this he enlarges the opening. When this is removed, he introduces a pair of crooked scissors, with which the opening is enlarged on each side by different snips, always as near as possible to the circumference of the cornea, until he has made the opening round two thirds of the cornea. He then takes out the scissors, and

with

with a small instrument like an ear-picker raises the cornea, and with a *cataract* needle in his hand, broader and stronger than common, and pointed like a lancet, he cuts the capsula of the crystalline through the pupil: then pressing gently the globe of the eye with his finger from below upwards, the crystalline slips out of the capsula, and drops out of the eye. The aqueous humour is discharged upon the first puncture, and the cornea and iris join together. Great skill and care are necessary, in order to avoid wounding the iris, which would endanger the eye. The whole operation requires about two minutes, and is attended with little or no pain. This operation is in many respects preferable to *couching*; as it may be performed at all times, and in all kinds of *cataracts*, whether they are come to maturity or not, and many accidents are avoided. The principal accident to which this operation is liable, is an excessive evacuation of the vitreous humour at the time of performing it, which may occasion a sinking down of the globe of the eye, a deformity, and an irrecoverable loss of sight. Phil. Trans. vol. xlvii. p. 530; vol. xlviii. p. 322. and Warner's Description of the human Eye, &c. and Diseases, &c. p. 100, &c.

Those who would be farther informed on this subject, may consult Heister, Sharp, Warner, &c.

CATARACTA, in *Ornithology*, the name of a bird of the *LARUS* or *sea-gull* kind, very much approaching to the nature of our *gannet*, but smaller, and with shorter and weaker claws. It much resembles the *goshawk*. Its back and wings are variegated with brown, yellow, and white; its breast and belly are white, variegated with brown spots; its wings are long, and, when folded, reach to the end of the tail; its legs are grey; its feet webbed, and its claws crooked and small. Aldrovand. de Avib. See *SKUA*.

CATARACTES, in *Ornithology*, a name by which some authors have called the large *SEA-gull*; called in Cornwall, where it is very common, the *GANNET*.

CATARRH, in *Medicine*, an extraordinary distillation, or defluxion of a sharp, serous humour, from the glands, especially about the head and throat, upon the parts subjacent.

The word is formed from *καταρρῆω*, *defluc*, *I flow down*. *Catarrhs* are generally occasioned by a diminution of insensible perspiration on taking cold; the effect whereof is, that the lymph, that should pass by the skin, issues out upon those glands; and being thus extravasated, occasions irritations, coughs, and all the usual symptoms. See *COUGH*.

Degory deduces all diseases from *catarrhs*, which he looks upon as the seminary of most disorders of the body.

Catarrhs are of as many species as the parts on which the rheum or matter falls. Hyprocates enumerates eight kinds of defluxions from the head, viz. on the eyes, nose, ears, breast, abdomen, spinal marrow, *vertebra*, and muscles of the loins, and *os sacrum*. The moderns allow only of three sorts under the name of *catarrhs*; the first, wherein the matter falls on the nose, more properly called *CORYZA*; the second, on the *fauces*, called *BRANCHUS*; and the third on the *thorax*, or breast, more particularly denominated a *catarrh*. The sum of which in couched in the following distich:

*Si fluit ad pectus dicatur rheuma catarrhus,
Ad fauces branchus, ad nares esto coryza.*

Etmuller distinguishes a *hot* and a *cold catarrh*; the first attended with an unnatural heat and pain, and a phlogosis of the whole body; the excreted lymph being exceeding thin and sharp; in the cold kind, all the symptoms are more remiss.

Catarrhs are cured by softening the serous humours, and augmenting transpiration, by means of diaphoretics, narcotic medicines, and diuretics. Smoking of tobacco is recommended as excellent in all *catarrhal* affections: in obstinate *catarrhs*, recourse is sometimes had to issues and blisters.

Catarrhus disorders, as well as all other feverish indispositions, are to be treated in a very mild and gentle manner. The patient is to be kept moderately warm, either in bed, or by means of a fire; he is to abstain from medicines which are too hot, drastic, and productive of commotions, as also from hot regimen; because by these the acrid matter is put into commotion, and a fervid disposition conveyed to the parts. The diet is to be spare, and the drink tepid and wholesome. In the decline of the disease, however, when the excretions are begun, it has been observed, that good wine, freely drank, has proved beneficial; as it promotes the circulation of the blood, and maintains an equable perspiration.

When during the disorder the faces are indurated, and the patient costive, besides water-gruel, decoctions of

manna, prunes, and raisins, nothing is more proper than emollient clysters. When the cough is violent and rack-ing, it is to be allayed with recent oil of sweet almonds, mixed with syrup of maidenhair.

Catarrhs, do not arise from the head only, but sometimes also from other parts of the body; the lymphatic vessels, wherein the serosities are contained, as well as the glands that separate them, being distributed all over the body.

CATARRH, *suffocative*, in *Medicine*, the name of a disease, which consists in a copious eruption of a serous and mucous humour into the vessels of the lungs; which takes its origin from a sudden congestion of humours about the breast, and a flaccid and weak state of the breast and lungs.

CATARRH, *signs of a suffocative*. This disease always seizes the patient at once, without any previous notice; his breath becomes extremely difficult, and the fulness of the breast is easily distinguished by a sound of rattling of a frothy matter at the time of drawing in the breath. There is an immediate debility and loss of strength and spirits, as the patient calls it, but there is in reality a spasmodic tension; this is followed by a restlessness, so that the patient cannot suffer his limbs to lie a minute in the same posture or place; and there is always a despondency in the mind, and the patient thinks he is certainly going to die. There is usually either no cough at all, or at utmost, only a very slight and insufficient one, and the very strength to cough is wanting. The breast, and even the ribs are sensibly affected by this disease, and the eyes always look red and tumid.

Persons subject to it. Scarce any one is ever seized with this disease, except such as are, according to the common acception of the word, troubled with habitual *catarrhs*, or have for many years been subject to defluxions from the head upon the fauces and lungs; and the persons most of all subject to it, are old men of a phlegmatic and plethoric habit, and who are of this kind of temperament which subjects people, at other times, to palsies and apoplexies. Lean persons are scarce ever afflicted with this disorder, unless they have long laboured under a violent cough, or have ulcerous disorders of the lungs. Young people are also very little subject to this disease, excepting only such as are very corpulent and phlegmatic, and already habituated to large defluxions of this kind. Infants also, which are very fat, and have had a sudden suppression of their natural sweats, sometimes fall into this disease, but with them it is not so violent.

Causes of it. The occasional causes of this disease are seen in what has been already observed, but its true origin is to be sought for in the head, not in the breast or lungs; yet, though it is easy to see what may occasion a congestion of such serous humours in the upper parts, it is difficult to say how the lungs become rendered fit to receive it all at once in this dangerous manner. It is accidentally brought on in children, as well by the repulsion of their cutaneous eruptions, as by the stopping their sweats; and in grown people, from the omission of habitual bleedings, from coldness and dampness in the air, from frequent drunkenness, and from an injudicious treatment of cutaneous humours, and particularly from drying up runnings of the eyes. Juncker's Confp. Med. p. 509.

Prognostics in it. It is a very terrible disease, and very speedily proves fatal; for the patient, if not relieved, usually dies in twenty-four hours. Sometimes it degenerates into a fever, and the patient seems cured by the change; but the remedy in this case proves as bad as the disease; for the fever proves incurable, and becomes a settled hectic, attended with terrible difficulty of breathing, and finally carries off the patient, after making him endure, for some time, a life of terrible pain. Sometimes it goes off into an asthmatic laxity of the breast, attended with a cough, and a continual discharge of large quantities of mucous matter by spitting; and sometimes into an absolutely cachectic flaccidity of the body; and in general, if not carefully treated from the beginning, it either entails some of these disorders upon the patient, or leaves him in so poor and weak a constitution, that he becomes easily liable to all the diseases of this kind from the slightest occasions.

Grown persons are sooner taken off by this disease than young children, with whom it sometimes continues above a week or a fortnight. In old people, the fatal event of this disease is so sudden, that it is often dubious whether it were this disorder, or an apoplexy: and in general it seems probable, that many of the persons, said to die of apoplexies, die, in reality, of the violent attacks of this terrible disease.

Method of cure. In the time of the fit a stimulating clyster must be given, made of a decoction of marjoram, and other warm herbs, with colocynth, and a few grains of euphorbium, in order to abate the infarction of the breast, and give a new course to the matter that might add to it; and

and when there appears to be a plethora besides, a vein must be immediately opened after the clyster. After this, if the stomach be nauseating and uneasy, let a scruple of salt of vitriol be given as a vomit, with a large quantity of warm water; and if the patient is of a very phlegmatic habit, a few grains of gamboge may be added to this, to carry the humour off downward; or, if the case be very pressing, a draught of a decoction of asarum, or of tobacco, may be taken, the bad effects of which last are taken off by a draught of wine with the spices; and all this time there may be frictions and sinapisms applied to the lower extremities: and finally, to attenuate and discuss the mucous stasis, gentle alexipharmics and sudorifics may be given, such as the essence of amber, tincture of salt of tartar, and tartarised tincture of antimony; and all nitrous medicines are also of the greatest use, as they partly mitigate the causes, and partly prepare the humours for evacuation; and after all these, the *cortex eleutheria* is of great use in discussing and mitigating the pain.

As soon as the fit is over, the corroborating medicines are to be given, and all things that can restore the parts to their due tone: of this number are the milder chalybeats, and the like; and with these analeptics are to be given to recruit the flesh and strength, such as emulsions, and a proper diet; and in such as are used to wine, the richest wines, in moderate quantities, and the highest foods will be of service. If there be perceived a fever after the other symptoms are gone off, this must be cured by the gentle alexipharmics, and by powders of nitre, and the absorbents; and if a chronic indisposition seems left behind, then the gums, which act as discutients, are to be given for some time, such as the ammoniacum and sagapenum, and a warm regimen is to be recommended. And finally, to prevent a return of the disease, bleeding is very proper in the spring and autumn, and purging medicines taken in the intermediate time; the patient must also avoid all violent passions of the mind, and must never sleep in a damp air. We are not to fear bleeding in the time of the fit, because of the patient's complaining of want of strength; for as the danger of suffocation is sudden and imminent, it must be suddenly removed, and when that is done, the patient's strength will return in good time: the same is also to be alleged in favour of the violent vomits. In people of a very phlegmatic habit, bleeding is not necessary nor proper; but in these cases a vomit is safe and right, and usually gives great relief, especially if the patient has eaten heartily some little time before. Juncker, *Consp. Med.* p. 513.

CATARRHAL fever, a secondary or symptomatic fever, by means whereof nature endeavours to correct the vitious quality of the lymph, and expel it from the body.

There is also a malignant *catarrhal* fever, nearly akin to the *petechial* fever.

CATASARCA, from *κατα* under, and *σαρξ*, flesh, in the Greek Church, denotes the undermost altar-cloth, or that next the ALTAR.

Over the *catasarca* is the **ANTIMENSA**.

CATASCOPIUM, from *κατασκοπεω* I explore, in Antiquity, an exploratory vessel, answering in some measure to a brigantine among us. See **BRIGANTINE**.

We find *catascopium* used in this sense by Cicero, ad Attic. lib. v. ep. 11.

CATASCOPUS, in Antiquity, denotes a SPY.

In Ecclesiastical Writers, *catascopus* is said sometimes to denote an archdeacon.

CATASTA, from *καθίστημι*, I place, in Antiquity, a wooden scaffold wherein slaves were placed for sale naked, that those disposed to purchase might see every limb and part. The word was also used for an elevation, on which persons were executed; and for an engine of torture, otherwise called **EQUULEUS**.

The *catasta* does not appear to have been the same with the *equuleus*, but rather a kind of frame or scaffold, on which the *equuleus* was mounted, to render the executions more public and visible. Prudentius calls the *crucis*, or grid-iron, on which some of the martyrs were broiled, *ignea catasta*.

CATASTASIS, in Poetry, the third part of the ancient drama; being that wherein the intrigue, or action, set on foot in the epitasis, is supported, carried on, and heightened, till it be ripe for the unravelling in the catastrophe.

The word comes from *καταστασις* constitution; this being, as it were, the mean, tenor, state, or constitution, of the piece.

CATASTROMATA, from *καταστροφον*, I cover, in Ancient Military Writers, a sort of scaffolds or floorings in ships of war, whereon the soldiers were posted for their defence in fight.

The *catastromata* appear to have been chiefly erected over

the head and stern of the vessel, it being in those parts that the soldiers were most commonly posted.

CATASTROPHE, from *καταστροφω*, I finish, in Poetry, the change or revolution of a dramatic poem: or the turn which unravels the intrigue, and terminates the piece. The *catastrophe* made the fourth and last part in the ancient drama; or that immediately succeeding the *catastasis*.

The *catastrophe* is either *simple*, or *implex*; whence also the fable and action are denominated.

In the first there is no change in the state of the principal persons, nor any discovery, or unravelling; the plot being only a mere passage out of agitation, to quiet and repose. This *catastrophe* is rather accommodated to the nature of the epopea, than of tragedy. Indeed we meet with it in some of the ancients, but it is rejected by the moderns. In the second, the principal person undergoes a change of fortune; sometimes by means of a discovery, and sometimes without.

The qualifications of this change, or peripetia, are, that it be probable and necessary: in order to be probable, it is required to be the natural result or effect of the foregoing actions; i. e. it must spring from the subject itself, or take its rise from the incidents; and not to be introduced merely to serve a turn. The discovery in the *catastrophe* must have the same qualifications as the *catastrophe* itself, whereof it is a principal part: it must be both probable and necessary. To be probable, it must spring out of the subject itself; not be effected by means of marks, or tokens, rings, bracelets, or by a mere recollection, as is frequently done, both by the ancients and moderns. To be necessary, it must never leave the person it concerns in the same sentiments they had before, but always produce either love or hatred. Sometimes the change consists in the discovery; sometimes it follows at a distance; and sometimes results immediately from it, which last is the most beautiful kind; and thus it is in *Œdipus*.

Mr. Dryden thinks a *catastrophe* resulting from a mere change in the sentiments and resolutions of a person, without any farther machinery, may be so managed as to become exceeding beautiful, nay preferable to any other. It is a dispute among the critics, whether the *catastrophe* should always fall out happily, and favourably on the side of virtue, or not? i. e. whether virtue is always to be rewarded, and vice punished, in the *catastrophe*? But the reasons on the negative side seem the strongest. Aristotle prefers a shocking *catastrophe* to a happy one; because the moving of terror and pity, which is the aim of tragedy, is better effected by the former than the latter.

Bossu divides the *catastrophe*, at least with regard to the epopea, into the unravelling, or *denouement*, and the *achievement*, or finishing; the last of which he makes the result of the first, and to consist in the hero's passage out of a state of trouble and agitation, to rest and quiet. This period is but a point without extent, or duration; in which it differs from the first, which comprehends every thing after the knot, or plot laid. He adds, that there are several unravellings in the piece; because there are several knots, which beget one another: the finishing is the end of the last unravelling.

CATCH-FLY, *Silene*, in Botany. See **CAMPION**.

CATCH-LAND, such land, particularly in Norfolk, with respect to which it is not certainly known to what parish it belongs; so that the person who first gets the tythes there, enjoys it for that year, by right of preoccupation.

CATCH-POLE, or **CATCH-POLLE**, a term now used, by way of reproach for a BAILIFF's follower, or assistant. Anciently it was a term of credit, applied to those we now call *sergeants of the mace*, *bailiffs*, or any other that use to arrest men on any action.

CATCH-WORD, among Printers, denotes the first word of a page, which is put also at the bottom of the preceding page, in order to shew how the leaves and sheets follow each other, and facilitate the folding and binding.

The French sometimes only put the *catch-words* at the end of each sheet, or even quire or gathering.

CATCHES, in Clock-Work, those parts of a clock that hold by hooking, and catching hold.

CATE, in Botany, a name given by some authors to the *LYCIUM Indicum*, or Indian thorn.

CATECHESIS, from *κατηχεω*, I teach first principles, in a general sense, denotes an instruction given any person in the first rudiments of an art or science, but more particularly in the principles of the Christian religion.

Those who give such instructions, are called **CATECHISTS**, and those who receive them **CATECHUMENS**.

CATECHESIS is also used for a book containing the rudiments of the Christian religion, adapted to the use and instruction of novices. See **CATECHISM**.

The *Catecheses* of S. Cyril, are the principal works of that father.

CATECHETIC, or **CATECHETICAL**, something that relates to oral instruction in the rudiments of Christianity. In the early ages of the church there were *catechetical* schools, wherein sacred learning and philosophy were taught. These were public auditories, distinct from the church, but probably adjoining thereto. In a novel of the emperor Leo, they are called *κατηχηματα*, and represented as a sort of edifices belonging to the church. St. Ambrose speaks of these auditories as held in the baptistery. Bingham. Orig. Eccles. lib. iii. cap. 10. § 4.

CATECHISM, *Catechismus*, in its primary sense, an instruction or institution in the principles of the Christian religion, delivered *viva voce*, and so as to require frequent repetitions from the disciple or hearer of what had been said.

Anciently the candidates of baptism were only to be instructed in the secrets of their religion by tradition, *viva voce*, without writing; as had also been the usage among the Egyptian priests, and the British and Gaulish druids, who only communicated the mystery of their theology by word of mouth. Shaftesb. Charact. vol. iii. p. 241. not.

CATECHISM is more frequently used in modern times, for an elementary book, wherein the principal articles of religion are summarily delivered in the way of question and answer.

CATECHIST, *Catecheta*, he that catechises, i. e. instructs novices in the principles of religion.

CATECHIST more particularly denotes a person appointed by the church to instruct those intended for baptism, by word of mouth, in the fundamental articles of the Christian faith.

The *catechists* of churches were ministers usually distinct from the bishops and presbyters, and had their auditories or *catechumena* apart. Their business was to instruct the catechumens, and prepare them for the reception of baptism. But the *catechists* did not constitute any distinct order of the clergy, but were chosen out of any other order.

CATECHU, a medicinal aromatic substance brought from the East Indies; called also *cachew*, and *japan-earth*, and when prepared, ranked in the number of perfumes. It is of a dark purple colour; very austere upon the palate, seeming to melt in the mouth, and leaving somewhat of a sweetish taste behind it. It is the juice of a vegetable, not an earth, as its name imports.

Notwithstanding the great use of *catechu*, before that of coffee and tea, and its being still frequently used by many people, especially in France, its nature and origin was long but little known, even among the ablest physicians. Some, from its being called *japan earth*, ranked it among the medicinal earths, and pretend it is found on the tops of mountains, covered with the roots of cedars, serving, as it is said, for their nutrition; and that being washed in the rivers, and dried in the sun, it was formed into a kind of paste; which, brought into Europe, served as the basis of several pestles, or lozenges, called *cachew*. Others, with more probability, rank it among the gums; and maintain it to be formed of the inspissated decoction of a tree in the East Indies, called *cachous*; growing chiefly in the kingdom of CochinChina. Lastly, others took it to be a factitious composition of several other drugs; especially of the juice of areca, extract of liquorice and calamus aromaticus, and the bark of a tree called by the Indians *catechu*.

Cachew, or *catechu*, is of much esteem in medicine. It is famous for stopping fluxes of all kinds; and among other effects attributed to it, it is supposed to stop a cough, and fortify the stomach: besides its sweetening and perfuming the breath, when taken in an impalpable powder, mixed with gum tragacanth.

CATECHUMEN, a candidate of baptism; or a person who prepares himself for receiving it.

The word is compounded of *κατα*, and *νυκτω*, *I found*.

The *catechumens* were distinguished from the *fideles*, not only by name, but also by their place in the church: they were disposed, with the penitents, in the portico or gallery at the extremity of the church, opposite to the choir. They were not allowed to assist at the celebration of the eucharist; but after sermon, the deacon dismissed them with this formula, proclaimed three times, *Itē, Catechumeni; missa est*.

There were divers orders or degrees of *catechumens*, in those churches and ages where the term of catechizing for two or three years was observed: but what the precise number and appellations of these orders were, is not agreed on. See **BELIEVERS**.

CATECHUMENUM, a name given to an upper gallery in the ancient churches.

The name *catechumenum* was also given to a sort of school-house near the church, where the *catechumens* met to receive the instruction of the catechists.

CATEGOREMA, from *κατηγορεω*, *I declare*, is defined a

noun substantive, so absolute and independent, that it may stand at the head of a class apart.

CATEGOREMA properly denotes the name whereby a **CATEGORY**, or class of beings, is represented.

CATEGORIÆ, in *Literary History*. Aristotle has a book extant under the title of *Κατηγοριαι*, which Curio, Tonnstius, Vives, and others, deny to be written by him, and ascribe to Andronicus; but without much foundation, since that work is cited as Aristotle's by Simplicius, Ammonius, and Lucianus.

CATEGORIARES, a minister in the Greek church, whose business is to publish or proclaim the feast days. He had also the care of the lights, and to see the church kept clean.

CATEGORICAL, in a general sense, is applied to those things ranged under a **CATEGORY**.

CATEGORICAL, also imports a thing to be **ABSOLUTE**, and not restrained to conditions.

In which sense it stands opposed to **HYPOTHETICAL** and **CONDITIONAL**.

A *categorical* answer denotes an express and pertinent answer, made to any question or objection proposed.

CATEGORUMENUM, denotes the **PREDICATE**, or that part of a proposition which is affirmed of the subject.

Some mistakenly call this *categorema*.

CATEGORY, in *Logic*, a system or assemblage, of all the beings contained under any *genus*, or kind; ranged in order.

The word *category* was borrowed by the schools from the *forum*, or courts of justice: for as, in a trial, the plaintiff, or prosecutor, in accusing the criminal, or prisoner, must charge him expressly, or affirm that he did this or that, in positive terms: whence the word *category*, viz. from *κατηγορεω*, *to aver*, or *declare a charge of accusation*: so in the doctrine of *categories* every higher may be expressly and absolutely predicated, or affirmed, of every lower.

The school philosophers distribute all beings, all the objects of our thoughts or ideas, into certain *genera*, or classes, in order to get a more distinct and precise notion thereof; which classes the Greeks call *categories*, and the Latins *predicaments*.

The ancients, after Aristotle, generally make ten *categories*: under the first, all substantives are comprised; and all accidents under the nine last; viz. quantity, quality, relation, action, passion, time, place, situation, and habit: which are usually expressed, or signified, by the following technical distich:

*Arbor, sex, servos, ardore, refrigerat, ustos,
Ruri, cras, flabo, nec tunicatus ero.*

But as these ten *categories* of Aristotle, which logicians make such mysteries of, are arbitrary, they are now almost excluded. Accordingly, some philosophers think all nature may be better considered under these seven things, spirit, matter, quantity, substance, figure, motion, and rest: and others make but two *categories*, substance and attribute, or subject and accident. See on the subject, and in vindication of the *Categories* of Aristotle, Harris's *Philosophical Arrangements*, chap. ii.

CATEIA, in *Ancient Writers*, a kind of dart or javelin, in use among the ancient Gauls and Germans, made of heavy-matter, and therefore not fitted to fly far, but doing great execution where it did reach, having withal an apparatus by which the person who threw it might draw it back again. It is spoken of by Virgil, *Æn.* lib. vii. ver. 741.

Teutonico ritu soliti vibrare cateias.

CATEMIA, a name given by some of the writers of the middle ages to a soft black stone used in the folding of silver and some other metals, and more commonly called *horcus lapis*. We do not at this time know what stone they mean.

CATENA, in a general sense, a **CHAIN**.

CATENA, in *Anatomy*, a muscle, otherwise called **TIBIALIS** *anticus*.

CATENA *patrum*, in *Ecclesiastical Writers*, denotes a sort of commentary on Scripture, composed of separate passages or interpretations of the fathers, reduced to the order of chapters and verses of the book.

The first who used *catena* in this sense was Thomas de Aquinas. The reason of the appellation seems to be this: that a chain consists of several links connected together, so do these commentaries consist of a number of different passages, or the sentences and expositions of different writers, tacked together so as to form one work. Fabr. Bibl. Græc. tom. vii. lib. v. cap. 17.

CATENARIA, in the *Higher Geometry*, a mechanical curve line, which a chain, or rope, forms itself into, by its own weight, when hung freely, between two points of suspension, whether those points be horizontal or not.

The nature of this curve was investigated by Galilæo,

who supposed it to be the same with the parabola; but though Jungius detected this mistake, it was not discovered till the year 1691, when M. J. Bernouilli published it as a problem in the *Acta Eruditorum*. Dr. D. Gregory, in 1697, published a method of investigating the properties before discovered by Bernouilli and Leibnitz. *Phil. Trans. abr.* vol. i. p. 39, &c. where he shews, that an inverted *catenaria* is the best figure for an arch. Bernouilli *Opera*, vol. i. p. 48, &c. and vol. iii. p. 491, &c. To conceive the general nature or character of this curve, suppose a line heavy and flexible (See *Tab. Geom. fig. 25.*) the two extremes of which, F and D, are firmly fixed in those points; by its weight it is bent into a certain curve F A B, which is called the *catenaria*.

Let B D and $b d$ be parallel to the horizon, A B perpendicular to B D, and D δ parallel to A B; and the points B b infinitely near to each other. From the laws of mechanics, any three powers in equilibrio, are to one another, as the lines parallel to the lines of their direction (or inclined in any given angle), and terminated by their mutual concourses: hence, if D d express the absolute gravity of the particle D d (as it will, if we allow the chain to be every way uniform), then D δ will express that part of the gravity, that acts perpendicularly upon D d ; and by the means of which, this particle endeavours to reduce itself into a vertical position; and as it proceeds from the ponderous line D A, it is, *ceteris paribus*, proportional to the line A D, which is the cause of it. Farther, the lineola $d \delta$, will express the force which acts against that conatus of the particle D d , by which it endeavours to restore itself into a position perpendicular to the horizon, and hinders it from doing so. This force is constant, being no other than the resistance of the point A; and may therefore be expressed by any given right line a . Supposing the curve F A D, therefore, as before, whose vortex (the lowest point of the *catena*) is A, axis A B, ordinate B D; fluxion of the axis D $\delta = B b$; fluxion of the ordinate $d \delta$; the relation of these two fluxions is thus, viz. D $\delta : d \delta :: D A$ curve : a ; which is the fundamental property of the curve, and may be thus expressed (putting A B = x , and B D = y , and A D = c)

$$y = \frac{ax}{c}$$

CATERER. See PURVEYOR.

CATERGI, the name of the public carriers in the Grand Seignior's dominions, who give earnest to the merchants, and others, as a security that they will carry their goods, or not set out with them.

CATERPILLAR, *Eruca*, in *Insectology*. The caterpillar state is that through which every butterfly must pass before it arrives at its perfection and beauty, and in the same manner all the known winged animals, except only the PUCERON, pass through a reptile state, none of them, except this, being produced in the winged form. The change from caterpillar to butterfly was long esteemed a sort of metamorphosis, a real change of one animal into another; but this is by no means the case. The egg of a butterfly produces a butterfly, with all the lineaments of its parent, only these are not disclosed at first, but, for the greater part of the animal's life, they are covered with a sort of case, or muscular coat, in which are legs for walking, which only suit it in this state; but its mouth takes in nourishment, which is conveyed to the included animal, and, after a proper time, this covering is thrown off, and the butterfly, which all the while might be discovered in it by an accurate observer, with the help of the microscope, appears in its proper form. Before it passes into this state, however, there requires a time of rest for the wings to harden, and the several other parts to acquire their proper firmness; this is transacted in a time of perfect rest, when the animal lies in what is called the nymph or chrysalis state, in appearance only a lump of unenlivened matter. There is a settled and determinate time for each of these changes in every species; but in the several different kinds the periods are very different. Some caterpillars are produced from the eggs of their parent butterfly in spring, as soon as the trees, on whose leaves they are to feed, begin to bud; after a life of thirteen days they pass into their chrysalis state; and after remaining at rest three weeks in that, they issue forth with wings, with all the beauty of their parents.

As soon as they arrive at this their final state, their wings are scarce dry before they seek to copulate or propagate their species; this done, the male dies, and the female only lives to deposit her eggs, and then follows him. This is their whole business; nature never intending that they should eat in this state, has given them no organs for that purpose; so that they must necessarily die of hunger soon, could they escape their natural death, or the great devourers of them the birds. Many species of these spring butterflies have no farther being, except in

the embryo included in the egg, till the succeeding spring; they lay their eggs very carefully, and in extremely nice order, round about the stalk of a perennial plant, or the young branch of a tree, and there they remain through the heats of the summer, and colds of the winter, and are never hatched till the succeeding spring; and though thus exposed, it is observable that the severest winters do them no harm. Other species of these are sooner hatched from the egg, and live the remainder of the summer on the leaves of the trees. They, after this, pass the whole winter in the caterpillar state; usually hiding themselves in some sheltered place, covered with webs of their own spinning. These remain torpid all the winter, and, at the return of spring, leave their webs as the others do their eggs, and feed a few weeks longer, after which they pass through the chrysalis state to their perfect form. The butterfly of this species, therefore, enjoys a much longer time of life than the other which remains so long in the egg; though the ultimate duration of the animal, from its exclusion from the parent, till its death, is much the same; so great a part of it being passed in the egg state by the one, and so small a part by the other.

Other species of these animals remain the whole winter in the chrysalis state, and are butterflies in spring, and, after passing the middle of summer in the egg, are caterpillars in the autumn. The difference of this stage of life is remarkably great, in proportion to the whole duration of the animal; in some species it does not exceed a fortnight, and in others continues eleven months.

There is no sign of sex in the animal, while in the caterpillar state; the propagation of the species is the business of the creature in its ultimate perfection, and, till that, these parts are never excluded. One female butterfly, when she has been impregnated by the male, will produce three hundred or four hundred eggs, or even more.

There is no way of knowing the different sexes of these little creatures, by viewing the parts; but the whole figure and manner of the animal makes the difference. The females are always larger than the males; they are also more slow in their motions; and some of them have no wings, or, at the utmost, only very small ones. The males, however, have a sort of beards, more beautiful than the *antennæ*, or horns of the females; the female is much stronger, as well as bigger, than the male, and not unfrequently, at the approach of danger or disturbance, flies away with him in the time of copulation.

On dissecting the female, her uterus affords an astonishing sight; the number of eggs in the tubes is amazing; but these have not all the same figure; and in some species, as the silk-worm, &c. the eggs are of a beautiful blue; if any yellowish ones are seen among them, they are judged to be defective. See STIGMATA.

The care of all the butterfly-tribe, to lodge their eggs in safety, is surprising. Those whose eggs are to be hatched in a few weeks, and are to live in the caterpillar state during part of the remaining summer, always lay them on the leaves of such plants as will afford them a proper nourishment; but, on the contrary, those whose eggs are to remain unhatched till the following spring, always lay them on the branches of trees and shrubs, and usually are careful to select such places as are least exposed to the rigours of the ensuing season, and frequently cover them from it in an artful manner. Some make a general coat of a hairy matter over them, taking the hairs from their own bodies for that purpose; others hide themselves in hollow places in trees, and in other sheltered cells, and there live in a sort of torpid state the whole winter, that they may deposit their eggs in the succeeding spring, at a time when there will be no severities of weather for them to combat. The day-butterflies only do this, and of those but a very few species; but the night ones, or *phalænæ*, all without exception, lay their eggs as soon as they have been in copulation with the male, and die immediately afterwards.

It is well known that the common and natural food of these creatures is the leaves and verdure of vegetables; yet as weak and harmless as they seem, they will many of them destroy their fellows whenever they get an opportunity. Reaumur gives us an instance of this in twenty caterpillars of the oak, which he kept in a box, with a sufficient quantity of their natural food, yet their numbers daily decreased, till at length there remained only one. This is, however, only the case in some few species, the generality of these animals being very peaceable, many species living together in the same place, without molesting one another. These species, however, though freed from these dangers, are exposed to others of a much more terrible kind; the worms or maggots of several sorts of flies are frequently found about them, some preying upon their outside, others lodged within

within them, under the skin, but both kinds eating the poor defenceless creature up alive. Those which feed on the outides are easily discovered, the others are more hid, and frequently the *caterpillar*, which seems very hearty and vigorous, and very fleshy, shall be found, upon opening, to be a mere skin, the internal parts being all eaten away, and all the food that he swallows serving only to feed a vast number of worms, or maggots, which crawl about at liberty within him. These devouring worms are of many different species, some being of the gregarious, some of the solitary kinds, and some spinning webs of their own silk to transform themselves in; others undergoing that change without any such covering. The beautiful *cabbage-caterpillar* is one of those unhappy kinds which frequently are infested with the gregarious kinds, large numbers of which spin themselves webs one after another, and afterwards come out in shape of the parent-fly, to whose eggs they owed their origin.

These intestine enemies are a sure prevention of the butterfly's appearing at its proper time; and as many of the former naturalists, who knew what butterfly to expect from a peculiar species of *caterpillar* which they preserved, often saw a parcel of flies come out in the place of it, they having no idea that the fly had laid its eggs in the flesh of the poor creature, supposed that this was one of the natural transformations of the creature, and that certain species of the *caterpillars* sometimes produced butterflies, sometimes small flies.

These, and many other destroyers, among which the birds are to be reckoned in the principal place, serve a noble purpose in preventing the too great numbers of these mischievous animals. Their usual habitation being the leaves and flowers of plants, they are, in their feeding, much exposed to all those destroyers; yet nature has taken care to preserve a great number, by making many of them so exactly of the colour of the leaves they feed on, that they are not so easily distinguished from them; and by giving others a caution of keeping on the under part of the leaves, and being, by that means, out of sight. But some species are much less exposed, and of much more mischief to the plants they feed on, by devouring more essential parts of them. Of these some eat the roots, and others the interior part of the trunk, destroying the vessels that imbibe, and those that distribute the juices. These are different from the common *caterpillars*, in that their skin is much less tough and hard, and these are secure from our observation, and, in general, from their great destroyers the birds. They are not, however, absolutely safe from the common dangers of the other species; for there are a kind of worms that find their food and habitation even in the bodies of these.

The *root-caterpillars*, and those which live within the branches of plants, are much more easily found out. The roots of scrophularia, and the stalks of lettuces, and some other plants, afford *caterpillars* which seem all of the same species. Those found in the lettuces are extremely plentiful some years, and destroy vast quantities of that plant. These usually have their first habitation in the stalk, near the root.

Nothing more surprises us, in regard to insects, than their industry; and in this the *caterpillars* yield to no kind, not to mention their silk, the spinning of which is one great proof of it. The sheaths and cases which some of these insects build for the passing their transformations under, are, by some, made of the silk, with their own hair, mixed with pieces of bark, leaves, and other parts of trees, with paper, and other materials; and the structure of these is well worthy our attention.

There are others whose workmanship, in this article, far exceeds these. There is one which builds in wood, and is able to give its case a hardness greater than that of the wood itself in its natural state. This is the strange horned *caterpillar* of the willow, which is one of those that eat their *exuviae*. This creature has extremely sharp teeth, and with these it cuts the wood into a number of small fragments; these fragments it afterwards unites together into a case, of what shape it pleases, by means of a peculiar silk, which is no other than a tough and viscous juice which hardens as it dries, and is a strong and firm cement. The solidity of the case being thus provided for, we are to consider, that the *caterpillar* inclosed in it is to become a butterfly, and the wonder is, in what manner a creature of this helpless kind, which has neither legs to dig, or teeth to gnaw with, is to make its way out of so firm and strong a lodgment as this in which it is hatched. It has been supposed by some, that the butterfly, as soon as hatched, discharged a liquor which softened the viscous matter that holds the case together, and so its several fragments falling to pieces, the way out lies open. This is evidently the

truth of the case, though those who supposed it, did it by mere conjecture; for, on a strict examination, this liquor is always to be found in the animal, and is of the most proper kind for such a service. Reaumur judged, from the effects, that this liquor must be of a singular nature, and very different from the generality of animal fluids; and in dissecting this creature in the *caterpillar* state, there will always be found near the mouth, and under the *oesophagus*, a bladder, of the bigness of a small pea, full of a limpid liquor, of a very quick and penetrating smell, and which, upon divers trials, proves to be a very powerful acid; and, among other properties, which it has in common with other acids, it sensibly softens the glue of the case on a common application.

It is evident that this liquor, besides its use to the *caterpillar*, remains with it in the chrysalis state, and is the very thing that gives it a power of dissolving the structure of the case, and making its way through in a proper manner, at the necessary time. Dr. Boerhaave has adopted the opinion, that there are no true acids in animals, except in the stomach, or intestines; but this familiar instance proves the error of that determination. Phil. Trans. abr. vol. ix. p. 39, &c.

Another very curious and mysterious artifice, is that by which some species of *caterpillars*, when the time of their changing into the chrysalis state is coming on, make themselves lodgments in the leaves of the trees, by rolling them up in such a manner as to make themselves a sort of hollow cylindric case, proportioned to the thickness of their body, well defended against the injuries of the air, and carefully secured for their state of tranquillity.

Besides these *caterpillars*, which in this manner roll up the leaves of plants, there are other species which only bend them once, and others which, by means of thin threads, connect many leaves together to make them a case. All this is a very surprising work, but all much inferior to this method of rolling.

The different species of *caterpillars* have different inclinations, not only in their spinning, and their choice of food, but even in their manners and behaviour one to another. Some never part company from the time of their being hatched to their last change, but live and feed together, and undergo together their last change into the chrysalis state. Others separate one from another as soon as able to crawl about, and each hunts its fortune single; and there are others which regularly live to a certain time of their lives in community, and then separate each to shift for itself, and never to meet again in that state. Reaumur, Hist. Insect. vol. ii. *passim*.

Caterpillars are very destructive and pernicious in gardens, particularly those of two species. The one of these is that which afterwards becomes the common white butterfly. This is of a yellowish colour, spotted with black, and infests the leaves of cabbages, cauliflowers; and the Indian cress, of which it eats off all the tender parts, leaving only the fibres entire, so that whole plantations are often seen destroyed by them in autumn, especially such as are near large buildings, or are crowded with trees. There is no remedy against this evil, but the pulling the creatures off before they are spread from their nests, and watching the butterflies, which are daily, in the hot weather, depositing their eggs on these plants. These, however, feed principally on the outside of the leaves of the plants, and are therefore the easier taken off; but the other kind lives near the centre, and therefore is with much more difficulty discovered. This is much larger, and the skin is very tough, and of a brown colour. It is called, by the gardeners, a grub, and is extremely pernicious. The eggs which produce it are usually deposited in the very heart, or centre, of the plant, particularly in cabbages; and the creature, when formed and grown to some size, eats its way through all the leaves, and leaves its dung in great quantity behind it, which spoils the cabbage. This insect also burrows under the surface of the ground, and makes sad havock among young plants, by eating off their tender shanks, and drawing them into their holes. This mischief is chiefly done in the night; but wherever a plant is seen thus destroyed, if the earth be stirred with a finger an inch deep, the creature will be certainly found, and this is the only way of destroying them. Miller.

When these insects attack fruit-trees, the best method of driving them off is to boil together a quantity of rue, wormwood, and the common tobacco, of each equal parts, in common water; to make the liquor very strong, and sprinkle it on the leaves and young branches every night and morning, during the time when the fruit is ripening.

In Dr. Hawkesworth's Account of the Voyages to the South Seas, vol. iii. p. 520, we have the following account of a kind of small green *caterpillar*, which the voyagers

voyagers found in great numbers, on the true West Indian mangroves. Their bodies were thick set with hairs, and they were ranged on the leaves side by side like files of soldiers, to the number of twenty or thirty together. When they touched them, they found that the hair on their bodies had the quality of a nettle, and gave them a much more acute, though less durable pain.

CATERPILLAR, *Connaught*. See *Connaught WORM*.

CATERPILLARS, *water*, *Eruca aquatica*—It might seem incredible that there is any such creature as a caterpillar, whose natural habitation is under water; but experience and observation prove that there are such, and that they feed on the water-plants as regularly as the common kinds do on those at land. These are not named at random, like many of the aquatic animals of the larger kinds, the sea-wolf, and the sea-horse, &c. which might as well be called any thing else as wolves and horses, but they are properly what they are called, and do not respire in the manner of the fish-tribe, but by their stigmata, as other caterpillars. M. Reaumur, in his observations, met with two species of these, the one upon the potamogiton, or pond-weed, the other upon the lenticula, or duck-meat. These are both very industrious animals; but the first being much the larger, its operations are more easily distinguished.

This, though truly an aquatic animal, swims but badly, and does not at all love to wet itself. The parent-butterfly lays her egg on a leaf of the potamogiton, and, as soon as the young caterpillar is hatched, it gnaws out a piece of the leaf of a roundish shape. This it carries to another part of the same leaf, and lays it in such a manner, that there may be a hollow between, in which it may lodge. It then fastens down this piece to the larger leaf with silk of its own spinning, only leaving certain holes at which it can put out its head, and get to gnaw any of the leaves that are near. It easily gets out, though the aperture be naturally small, since a little force from the body bends up the upper leaf, and bends down the lower, both being flexible; and when the creature is out, it has a sort of down that defends itself from being wetted, and the natural elasticity of the leaves, and of the silk, join the aperture up again, so that no water can get in. The leaves of this kind of plant are also naturally very slippery, and not easily wetted by water. It soon happens, that this habitation becomes too small for the animal, in which case it makes just such another, and after that, at times, several others, each being only made fit for it at the size it is then of. The changes of this creature into the chrysalis and butterfly state, are in the common method. The butterfly gets out of a chrysalis which was placed on the surface of the water, the lightness of the animal easily sustains it on the water, till its wings are dried, and it then leaves that element never to return to it again. Mem. Acad. Par. 1636.

CATERPILLARS, *wood*, *Eruca sylvestres*, the name of a genus of caterpillars which do not live in the manner of others, on leaves of trees or plants, or open to our observation, but under the bark, in the trunk and branches, and in the roots of trees, and sometimes in the body of fruits.

These are easily distinguished from those worms and maggots which are found in roots and fruits, and owe their origin to flies of another kind; but are subject to be confounded with a sort of animals, called by M. Reaumur, *false*, or *bastard caterpillars*, which carry a great resemblance in their figure to the real caterpillars, but which have more legs than any of the true ones have, and are finally transformed into four-winged flies, which are not true butterflies.

The butterflies which are the parents of those caterpillars which live immured in trees or fruits, lay their eggs on the surface, and the young caterpillars, when hatched, eat their way in.

What appears something surprising, however, in this, is, that there usually is only one caterpillar in a fruit, which is large enough to afford food to a large number; and if there are sometimes found two creatures within, one is usually a caterpillar, the other a worm of some other kind. The whole occasion of which is, that the operation of penetrating into the fruit, is so difficult to the young animal, that it seldom succeeds in it; and though the butterfly deposits many eggs on each fruit, and these all hatch, yet it is only here and there one on a fruit that can find the way into it.

These creatures, when once lodged in their prison, have nothing to do but to eat up the substances which inclose them, leaving the outer hard shell unhurt, which still serves as a case for them; this is a frequent case in the grains of corn, where the farinaceous substance serves as aliment, and the hard outer skin becomes a firm hollow case afterwards for the animal. The farinaceous substance in this case usually proves enough for the ani-

mal in its caterpillar state; but if it does not, the creature has recourse to a very singular expedient; it eats again its own excrements, and finds its now stronger stomach able to separate nourishment from that very matter, which had before passed off from its weaker stomach undigested.

Of these species of caterpillars, some go out of their prison in order to change into their chrysalis, and thence into their butterfly state; but the greater number remain there, and pass through all their changes within.

These caterpillars, like all the other kinds, have certain flesh-eating worms, whose parents are of the fly-kind, for their terrible enemies and destroyers; and it is not unfrequent, on opening one of these spoiled fruits, instead of the expected caterpillar, to find a fly just ready to come out; this has been produced from the chrysalis of a worm, which had before found its way into the fruit, and eat up the caterpillar, which was the original possessor of the place. A. D. S. an. 1736; and Reaumur, Hist. des Ins. tom. ii.

CATERPILLAR-eaters, a name given by some authors to a species of worms which are bred in the body of a caterpillar, and eat its flesh: these are owing to a certain kind of fly which lodges her eggs in this animal, and they, after their proper changes, become flies like their parents.

M. Reaumur has given us, in his History of Insects, some very curious particulars in regard to these little worms. This insect is called the ICHNEUMON of caterpillars.

CATERPILLARS, *Scorpiurus*, in *Botany*, a genus of the *diadelphia decandria* class. Its characters are these: the empalement of the flower is of one leaf, erect, blown up, lightly compressed, ending in five acute points. The flower is of the butterfly-kind; it has a roundish standard, indented at the point, where it is reflexed and spreading; the wings are loose, almost oval, having obtuse appendages: the keel is half-moon shaped; the belly is gibbous, pointed, and erect, cut in two parts below. It hath ten stamina, nine joined, and one separate, terminated by small summits; and an oblong taper germen a little reflexed, supporting a rising inflexed style, terminated by a point for a stigma; the germen afterward becomes an oblong, taper, leathery, rough, channelled pod, twisted in many longitudinal cells, in size and appearance of a large caterpillar, from whence it had this title, divided within, and on the outside contracted into knotty joints, each cell containing one seed. There are five species.

All these plants are annual, and grow naturally in most of the warm countries in Europe, but have been long cultivated in the English gardens.

CATERPILLARY-shell. See *TURBO*.

CATERVA, in *Ancient Military Writers*, a term used in speaking of the Gaulish or Celtiberian armies, denoting a body of 6000 armed men.

The word *caterva*, or *catervarius*, is also frequently used by ancient writers to denote a party or corps of soldiers in disorder or disarray: by which it stands distinguished from *COHORT* or *turma*, which were in good order.

CATESBÆA, in *Botany*. See *Lily-THORN*.

CATHÆRETICS, or CATHÆRETIC medicines, are such as serve to consume, and eat off, fungous or proud flesh growing in wounds, ulcers, and the like.

The word is formed from *Kαθαίρω*, sometimes used for *deposcor*, or *absumo*, I eat, consume, &c. of *κατα*, and *αίρω*, I take away.

Cathæretics are otherwise denominated *SARCOPHAGOUS medicines*, q. d. *flesh-eaters*.

Such are red precipitate, burnt alum, *æs usum*, blue vitriol, &c.

Cathæretic only differs in degree from *CAUSTIC* or *septic*, which are more violent in their operation.

CATHOLOGON, in the *Materia Medica*, a name by which some call the fruit we know by the name of saint IGNATIUS's bean.

CATHARI, in *Ecclesiastical Writers*, ancient Christians, who made profession of greater purity in discipline and sanctity of life than others.

The appellation *Cathari* was chiefly given to the sect of *NOVATIANS*.

In after-times, however, the same was also applied to several other sects, who pretended to extraordinary purity, and particularly to a fanatical sect, who came from Greece into Italy, and were first discovered in the Milanese about the middle of the eleventh century. They were called in France, and other countries, *ALBIGENSES*, *PATERINI*, and *PUBLICANS*. See *PAULICIANS* and *PURITANS*.

CATHARINE, *Knights of St. CATHARINE of Mount Sinai*, an ancient military order, erected for the assistance and protection of pilgrims going to pay their devotions to the body

body of St. *Catharine*, a virgin of Alexandria; distinguished for her learning, and said to have suffered martyrdom under Maximin.

The body of the martyr having been discovered on mount Sinai, caused a great concourse of pilgrims; and travelling being very dangerous, by reason of the Arabs, an order of knighthood was erected in 1063, on the model of that of the Holy Sepulchre, and under the patronage of St. *Catharine*: the knights of which obliged themselves by oath to guard the body of the saint, keep the roads secure, observe the rule of St. Basil, and obey their grand master. Their habit was white, and on it were represented the instruments of martyrdom whereby the saint had suffered; viz. a half wheel armed with spikes, and traversed with a sword stained with blood.

CATHARINE, *Fraternity of St. Catharine at Sienna*, a sort of religious society instituted in that city, in honour of St. Catharine, a saint famous for her revelations, and for her marriage with Jesus Christ, whose wedding-ring is still preserved as a valuable relic. This *fraternity* yearly endows a certain number of destitute virgins, and has the privilege of redeeming annually two criminals condemned for murder, and the same number or debtors, by paying their debts.

CATHARINE, *order of St. in Modern History*, belongs to ladies of the first quality in the Russian court. It was instituted in 1714, by *Catharine* wife of Peter the Great, in memory of his signal escape from the Turks in 1711. The emblems of this order are a red cross, supported by a figure of St. *Catharine*, and fastened to a scarlet string edged with silver, on which are inscribed the name of St. *Catharine*, and the motto *Pro fide & patria*.

CATHARMA, from *καθαρμο*, *I expiate*, in *Antiquity*, some miserable or flagitious wretch, sacrificed to the gods, as an expiation for the plague, or other calamity. Such was the prophet Jonas, cast into the sea; and such does St. Paul wish himself to be. See **ACCURSED**.

CATHARMA, *Καθάρμα*, from *καθαρμο*, *to purge*, in *Medicine*, imports the excrements purged from any part of the body; as the stomach, intestines, or bladder.

CATHARMOS, in *Medicine*, of the same derivation, implies purgation by medicines, or the cure of a disorder by superstitious ceremonies or sacrifices. The cure of the king's evil by the royal touch, if such a thing had been effected, might be said to be performed by a *catharmos*.

CATHARTICS, or **CATHARTIC medicines**, are remedies which promote evacuation by stool.

Cathartics are the same with what we otherwise denominate *purgatives*.

Cathartics are of three principal kinds, *mild*, *moderate*, and *violent*: the first purge gently, as cassia, manna, tamarins, rhubarb, senna, &c. the second pretty briskly, as jalap, scammony, &c. the third severely, as colocynth, hellebore, laureola, &c. See each under its proper article.

Cathartics are likewise divided by some into cholagogues, phlegmagogues, melanagogues, and hydragogues: the first supposed to purge bile, the second puita, the third melancholy, and the fourth ferocities.

For the theory of *cathartics*, and the manner wherein they operate, see **PURGATIVES**.

A safe, pleasant, gentle, and effectual purgative, or *catharti*, may be at any time prepared in the following manner. Take a quart of Dulwich water, or any other water of a like kind; dissolve in this, over the fire, an ounce of manna, and half an ounce of black tamarinds; strain off the liquor, and let it be taken at several draughts, at half an hour's distance or less, the whole being drank in an hour and half, or two hours.

The purging mineral waters act with more ease, gentleness, and safety, than any of the shop medicines; all that they require is to be either concentrated by boiling away a part, or else quickened as in this manner; and a general trial of a purge of this kind would perhaps encourage the practisers of physic to reject almost all the common rough purges in use.

CATHARTIC extract. See **EXTRACTUM catharticum**.

CATHARTIC salt, *sal catharticum amarum*, a denomination given to what we improperly call **EPSOM salt**.

CATHEDRA, in a general sense, a chair.

The word is more particularly used for a professor's chair, and a preacher's pulpit.

CATHEDRA is also used for the bishop's see, or throne, in a church.

CATHEDRA, *ex*, a phrase used in speaking of the solemn dictates or decisions of prelates, chiefly the popes, delivered in their pontifical capacity.

The advocates for the papacy maintain, that the pope is infallible, *ex cathedra*, a term of modern theology entirely unknown to the ancients. Even those who used it do not agree in the explication of it.

CATHEDRAL, a church wherein is a bishop's see, or seat. Vol. I. N° 62.

The word comes from the Greek *καθῆδρα*, *chair*, of *καθίστημι*, *sedeo*, *I sit*.

The denomination *cathedral* seems to have taken its rise from the manner of sitting in the ancient churches, or assemblies of primitive Christians; in these, the council, i. e. the elders and priests, was called *presbyterium*; at their head was the bishop, who held the place of chairman, *cathedralis*, or *cathedraticus*; and the presbyters, who sat on either side, were also called by the ancient fathers; *assessores episcoporum*. The episcopal authority did not reside in the bishop alone, but in all the presbyters, of whom the bishop was president.

A *cathedral* therefore, originally, was different from what it is now; the Christians, till the time of Constantine, having no liberty to build any temple; by their churches, they only meant their assemblies; and by *cathedrals*, nothing more than consistories,--whence appears the vanity of some authors, especially the Spaniards, who pretend their *cathedrals* to have been built in the times of the apostles.

CATHEDRATIC doctor, *doctor cathedraticus*; denotes a doctor possessed of a chair or fellowship in some of the universities of Spain.

They say a *cathedratic doctor* of Salamanca, of Alcalá, &c.

CATHEDRATICUM, in *Ecclesiastical Writers*, denotes a sum of money, amounting to two shillings, anciently paid annually by the inferior clergy to their bishops, or as often as he visited his diocese, *ob honorem cathedra*, i. e. as an argument of their subjection, and for the honour of the bishop's see or **CATHEDRA**.

This was otherwise denominated *synodaticum*, and by modern writers **PROCURATION**.

CATHEDRATICUM also denotes a sum which bishops newly ordained gave partly to bishops or patriarchs, by whom they were consecrated, and partly to the clerks and notaries who officiated on the occasion.

This was also called *εὐχριστινόν*, as being given on account of the throne, or chair, they had now obtained, and *synodaticum*, or **SYNODALS**.

Bishops consecrated by patriarchs or metropolitans, provided their church was not worth less than thirty pounds of gold, were to pay a hundred solidi by way of *cathedraticum*.

CATHERETIC. See **CATHÆRETIC**.

CATHERINE. See **CATHARINE**.

CATHETER, among *Surgeons*, a hollow probe, or instrument, usually of silver, somewhat crooked, to be introduced into the bladder, in order to search for the stone, or to discharge the urine when suppressed.

The word is formed from *καθίημι*, *immitto*, in regard this instrument is used to be impelled into the bladder.

Helmont rejects the common matalline *catheter* used by Galen and his followers, as cruel, and even noxious; and substitutes another in its place made of leather. Others have provided a flexible *catheter* made of flattened silver, and convoluted, in order to give a continual passage to the urine, and to prevent the repetition of the painful operation of passing the *catheter* for this purpose. Dr. Hales describes a *catheter* of a new structure contrived for the more advantageous injection of lithontriptics into the bladder; its cavity is divided lengthways by a thin partition into two separate channels, which end in two divaricating branches. By one of these branches the *menstruum* is to be injected into the bladder, in the common, or rather in the hydrostatical way, while it returns mixed with urine by the other. Hales, *Hæmæstat.* p. 212. See **STAFF**, and **LITHOTOMY**.

Dr. le Cat, surgeon at Rouen, has invented a new *catheter*. See *Tab. Surgery, fig. 1*. A is its crooked end, which is split lengthways into two pieces; the concave piece A is fixed, and the same piece with the rest of the instrument, and the convex piece C is moveable, having its fixed point joined by a hinge to the end *a* of the piece A, and its moveable part joined at *b*, with a piece which makes the end of a strong stile, or wire, that runs through the centre of the piece B, where it is rivetted at *c*. This piece B, the wire, and the piece C, are held in the situation which the operator puts them in by the screw E, the end of which beats against the piece B. This is made of two solid plates of silver soldered together, in the middle of which the groove has been made to lodge in the wire. The handle D is square; the body G is almost entirely solid, leaving in its centre but just room enough for the passage of the wire; this part is soldered to the piece D at H. This *catheter* is made of silver from the rings inclusive to F; all the rest, together with the wire, ought to be of the hardest gold. Fig. 2. exhibits the whole mechanism of the *catheter*, by representing it open, and such as it is in the bladder, while the incision is making. See a fuller description and account of its use in the *Philosophical Transactions*, vol. xliii. p. 400.

CATHETERISMUS, a chirurgical operation, whereby either something medicinal is injected into the bladder, or some foreign body, prejudicial to the making of urine, as coagulated blood, a stone, or the like, is drawn away, by means of a crooked tube or instrument, called a **CATHETER**.

CATHETOLIPES, in *Natural History*, the name of a genus of fossils of the class of the *selenita*, but differing from the common kinds in the disposition of the constituent plates.

The word is derived from *καθετος*, perpendicular, and *λεπις*, a scale, or plate, and expresses a set of these bodies whose plates are ranged perpendicularly. All the known *selenita*, except those of this genus, are composed of a number of parallel plates, or thin flakes, ranged evenly horizontally on one another.

CATHETO-PLATEUS, in *Natural History*, a term with its opposite, which is *plagioplateus*, very much used by Artedi, and others who adopt his system, in the description of fishes: they may be very well explained in English, by the two familiar words, *compressed* and *depressed*. The heads of fishes is the principal parts characterised by these terms.

CATHETUS, in *Geometry*, a perpendicular, or a line, or radius, falling perpendicular on another line, or surface.

Thus, the *catheti* of a *rectangle triangle*, are the two sides that include the right angle.

CATHETUS of incidence, in *Catoptrics*, is a right line drawn from a radiant point, perpendicular to the reflecting line, or the plane of the speculum or mirror.

CATHETUS of reflection, or of the eye, is a right line drawn from the eye, or from any point of the reflected ray, perpendicular to the plane of reflection, or of the speculum. See **REFLEXION**.

CATHETUS, in *Architecture*, is a perpendicular line, supposed to pass through the middle of a cylindrical body, as a column.—See *Tab. Archit. fig. 29 and 30*.

Cathetus is sometimes applied to a line in the Ionic capital, passing perpendicularly through the eye or centre of the **VOLUTE**.

This is otherwise called the axis of the *volute*.

CATHOLIC, from *κατα* and *ολος*, whole, denotes a thing that is universal, or general.

Some have said that Theodosius the Great first introduced the term *catholic* into the church: appointing by an edict, that the title should be applied, by way of pre-eminence, to those churches which adhered to the council of Nice, in exclusion of the Arians, &c.—*Catholicism*, however, soon changed hands; for under the emperor Constantius, Arianism became so predominant, that the Arians were called the *catholics*. But the term was used much more anciently, as by Polycarp and Ignatius. *Ubi fuerit Iesus Christus*, (says the latter) *ibi est ecclesia CATHOLICA*. The Romish church now assumes the distinguishing appellation of the *catholic* church.

CATHOLIC king, is a title which has been long hereditary to the king of Spain. Mariana pretends, that Reccarede first received this title after he had destroyed Arianism in his kingdom, and that it is found in the council of Toledo for the year 589. Vascè ascribes the origin of it to Alphonfus in 738. Some alledge that it has been used only since the time of Ferdinand and Isabella. Cosmbiere says, it was given them on occasion of the expulsion of the Moors. The Bollandists pretend, it had been borne by their predecessors, the Visigoth kings of Spain; and that Alexander VI. only renewed it to Ferdinand and Isabella. Others say, that Philip de Valois first bore the title; which was given him after his death, by the ecclesiastics, on account of his favouring their interests.

In some epistles of the ancient popes, the title *catholic* is given to the kings of France, and of Jerusalem, as well as to several patriarchs and primates.

CATHOLIC furnace, is a little furnace, so contrived, as to be fit for all kinds of operations, which do not require an intense fire.

CATHOLICIANI, in *Middle Age Writers*, the officials or ministers of the **CATHOLICI**, or receivers of the taxes of a diocese, sometimes also denominated **CÆSARIANI**.

CATHOLICON, in *Pharmacy*, a kind of soft purgative electary; so called, as being supposed universal; or a purger of humours.

Different authors give different receipts for it: that called *Catholicon Nicolai* was long in use; it consists of sixteen ingredients, the chief whereof are tamarinds, cassia, senna, and rhubarb. It was called the double *catholicon*, when there was a double portion of senna and rhubarb.

The **CATHOLICON for CLYSTERS**, only differs from this, in that it had no rhubarb, and that honey was used in it instead of sugar.

CATHOLICUS, the title of a dignitary, or magistrate, under the Roman emperors, who had part of the admi-

nistration, and particularly the care and receipt of the revenues and taxes in Roman dioceses.

The *catholicus* was the same with what was denominated by the Latins *procurator*, and *rationalis Cæsaris*. Such was the *catholicus* of the diocese of Africa, mentioned by Eusebius and other ancient writers.

CATHOLICUS, among *Ecclesiastical Writers*, an appellation given to the primates or **METROPOLITAN** prelates of several churches in Asia, subject to the see of Antioch; but whose jurisdiction and dioceses are of such extent that they have assumed the title of *catholici*, q. d. *universal bishops*. See **PRIMATE**.

CATKIN, among *Botanists*, a cluster of flowers affixed to an axis: in some cases, there are squamæ on the axis which do the office of cups; in others the flowers are naked. This is otherwise called *julus*, and *amentum*.

CATLIN, among *Surgeons*, is a dismembering knife for cutting off any corrupted part of the body.

CATMINT, *Nepeta*, in *Botany*, a genus of the *dīdynamia gymnospermia* class. Its characters are these: the empalement of the flower is cylindrical, indented into five acute parts at the top: the flower is of the lip kind, with one petal, having an incurved cylindrical tube, gaping at the top; the upper lip is erect, roundish, and indented at the point; the under lip is large, concave, entire, and sawed on the edge; it hath four awl-shaped stamina, situated under the upper lip, two of which are shorter than the other; in the bottom of the tube is situated a quadrifid germen, which afterwards turns to four oval seeds, sitting in the empalement. There are twelve species.

The whole plant has a strong scent between mint and penny-royal. It is called *catmint*, because cats are very fond of it, especially when it is withered; for then they will roll themselves on it, and tear it to pieces, chewing it with great pleasure. Miller's Gard. Dict.

It consists of warming and attenuating parts, somewhat like penny-royal; and like that, is of great service in opening obstructions in the womb, and helping in the green sickness: as also hysteric fits and vapours. It promotes the birth and lochia, and is by some authors commended against barrenness.

CATOCHE, or **CATOCHEUS**, from *κατεχω*, I retain, in *Medicine*, a kind of waking sleep; or a vehement disposition of the body to sleep, without being able to attain it; the eyes still remaining open, and the breath entire, but the body motionless, and in the same posture wherein the patient was first seized.

The *catoche* is the same with **CATALEPSIS**. It differs from the **COMA** and **CATAPHORA**, in that the eyes are open in the former, and closed in the latter.

CATOCHEITES, in *Natural History*, the name of a fossil mentioned among the ancients, as having great virtues in medicine, and in the cure of wounds. It is said to have been found in Corsica; and Pliny records this remarkable property of it, that if the hand were held upon it for some time, it would stick to it in the manner of glue. Hence it appears to have been a bitumen.

CATOCYSTUS, in *Natural History*, a name given to one of the general divisions of the *echinodermata*, or sea hedgehogs. These have their aperture for the anus not at the top of the shell, as the *anocysti* have it, but in some part of the base.

For the more accurately distinguishing these into genera, the bases of the shell are to be divided into the *regular* and *irregular*. The *regular* are those which are round or oval; the *irregular*, those which are made of sinuses and angles.

CATODON, in the Artedian system of *Ichthyology*, the name given to a genus of the *plagiura*, or cetaceous fishes, the characters of which are these: the teeth are placed only in the lower jaw; there is no fin upon the back; and the fistule is placed either in the head or the snout. The species of this genus are only two.

This, in the Linnæan system, is the name of a species belonging to the genus denominated *physeter*, in the order of *cete*, and class of *mammalia*.

The word *catodon* is derived from *κατα*, below; and *οδους* a tooth; and expresses that the fish hath teeth only in the lower part of its mouth.

CATOMUM, or **CATOMUS**, from *κατα*, and *μοις*, shoulder, in *Middle Age Writers*, denotes that part of the body below the neck, and between the shoulders.

CATOPSIS, in *Medicine*, a disorder of the sight; more usually called **MYOPIA**.

CATOPTRICS, the science of reflex vision; or that branch of optics, which delivers the laws of light, reflected from mirrors, or specula.

The doctrine and laws of *catoptrics* are laid down under the head of **OPTICS**.

The word comes from *κατοπτρον*, speculum; of *κατα*, and *οπτομαι*, video; I see.

CATOPTRICAL Dial, a dial which exhibits objects by reflected rays. See **DIAL**.

CATOPTRIC Telescope, a telescope that exhibits objects by reflexion. See **Reflecting TELESCOPE**.

CATOPTRIC Cistula, a machine or apparatus, whereby little bodies are represented extremely large; and near ones extremely wide, and diffused through a vast space; with other agreeable phenomena: by means of mirrors, disposed by the laws of *catoptrics*, in the concavity of a kind of chest.

Of these there are various kinds, accommodated to the various intentions of the artificer: some multiply the objects; some deform them; some magnify, &c.—The structure of one or two of them will suffice to shew how many more may be made.

To make a **CATOPTRIC Cistula** to represent several different scenes of objects, when viewed at different foramina, or holes.

Provide a polygonous cistula, or chest, of the figure of the multilateral prism *ABCDEF* (*Tab. Optics, fig. 19.*) and divide its cavity by diagonal planes *EB*, *FC*, *DA*, intersecting each other in the centre, into as many triangular locules, or shells, as the chest has sides. Line the diagonal planes with plain mirrors: in the lateral planes make round holes, through which the eye may peep within the locules of the chest. The holes are to be covered with plain glasses, ground within-side, but not polished, to prevent the object, in the locules, from appearing too distinctly. In each locule are to be placed the different objects, whose images are to be exhibited; then covering up the top of the chest with a thin transparent membrane, or parchment, to admit the light; the machine is complete.

For, from the laws of reflexion, it follows, that the images of objects, placed within the angles of mirrors, are multiplied, and appear some more remote than others; whence the objects in one locule will appear to take up more room than is contained in the whole chest. By looking, therefore, through one hole only, the objects in one locule will be seen, but those multiplied, and diffused through a space much larger than the whole chest: thus every new hole will afford a new scene: according to the different angles the mirrors make with each other, the representations will be different; if they be at an angle greater than a right one, the images will be monstrous, &c.

The parchment that covers the machine, may be made pellucid, by washing it several times in a very clear ley, then in fair water, and bracing it tight, and exposing it to the air to dry. If it be desired to throw any colour on the objects, it may be done by colouring the parchment. Zahnus recommends verdigrise ground in vinegar, for green; decoction of Brasil wood, for red, &c. He adds, that it ought to be varnished, to make it more pellucid.

To make a **CATOPTRIC Cistula** to represent the objects within it prodigiously multiplied, and diffused through a vast space.

Make a polygonous cistula, or chest, as before, but without dividing the inner cavity into any apartments, or locules (*Tab. Optics, fig. 19.*); line the lateral planes *CBHI*, *BHLA*, *ALMF*, &c. with plane mirrors, and at the foramina, or apertures, pare off the tin and quicksilver, that the eye may see through: place any objects in the bottom *MI*, v. g. a bird in a cage, &c.

Here the eye looking through the aperture *hi*, will see each object placed at bottom, vastly multiplied, and the images removed at equal distances from one another. Hence, were a large multangular room, in a prince's palace, lined with large mirrors, over which were plain pellucid glasses to admit the light; it is evident the effects would be very surprising and magnificent.

CATOPRITES, in *Natural History*, a name given by some writers to a stone of the marble kind, which, when polished, was capable of serving as a speculum, either flat, and only used to represent the images of things; or concave, and used as our reflecting burning-glasses. The hard black marbles were most frequently used for this purpose; but sometimes the reddish ones, and sometimes one or other of the jaspers. All these were indiscriminately called by the name *catoptrics*, when put to this use.

CATOPTROMANCY, a kind of divination among the ancients: so called, because it consisted in the application of a **MIRROR**.

The word is formed from *κατοπτρον*, *speculum*, and *μαντεια*, *divinatio*.

Pausanias says, it was in use among the Achæians; where those who were sick, and in danger of death, let down a mirror, or looking-glass, fastened by a thread, into a fountain, before the temple of Ceres; then, looking in the glass, if they saw a ghastly disfigured face, they took it as a sure sign of death; on the contrary, if the face

appeared fresh and healthy, it was a token of recovery. Sometimes glasses were used without water, and the images of things future, they say, were represented in them.

CATROPITÆ. See **AGONISTICI**.

CATTECORONDE, in the language of the Ceylonefe, prickly cinnamon. This is a bark very much resembling cinnamon, but produced by a tree which differs very much in the shape of the leaves, and is full of sharp thorns, which the true cinnamon tree is not. The bark has nothing either of the taste or smell of cinnamon, though so like it externally. The natives use the root, leaves, and barks of this tree externally, to soften tumours. *Phil. Trans. N° 409.* See **CASSIA** and **CINNAMON**.

CATTLE, a collective name, importing all quadrupeds, used either in tilling the ground, or for the food of man. See **BEAST**.

Under *cattle* some include all quadrupeds which associate, or go in herds; as sheep, oxen, horses, hogs, &c. Others define *cattle* to be all tame animals which graze. *Cattle* are sometimes divided into *great*, comprehending oxen, bulls, cows, calves, horses, &c. and *small*, including sheep, lambs, goats, and the like.

CATTLE, *black*, more particularly denote the cow kind. These are also denominated *neat cattle*.

The management of *cattle* makes a considerable branch of what is called **HUSBANDRY**.

The diseases of *cattle* make the subject of that art, called by the ancients *mulo medicina*, and *veteratoria*; and by us *farrying*.

Dr. Maneschelli tells us, that in the plague among the *cattle* in Italy, in 1735, rue, wormwood, garlic, and such other strong-smelling plants, hung about their noses and mouths, were esteemed preservatives against the infection. Nitrous medicines, gunpowder, sulphur, and the sharper aromatics, did hurt. Bleeding, crude antimony with setons, and a diet of the most mild softening herbs, did service. *Med. Ess. Edinb. abrid. vol. iii. p. 502.*

The ancient riches consisted wholly in the number of *cattle*; whence it is supposed to be, that the Romans called money by a name formed from that of *cattle*, *pecunia* from *pecus*.

The importation of *cattle* into England, whether living or dead, is prohibited on pain of forfeiture; but *cattle* may be exported, or even transported, paying the duties. Factors, and those who sell *cattle* for others, are prohibited to buy any, except swines or calves, within eighty miles of London; and none shall be bought and sold again in the same market, on pain of forfeiture. *Stat. 3 and 4 Edw. VI. c. 19. 18 Ch. II. c. 2. 22 Ch. II. c. 13.* See **DROVERS**.

Stealing of *cattle*, or killing them with an intent to steal any part of the carcases, or assisting in such offences, are now made felony without benefit of clergy. See 14 *Geo. II. c. 6.* and sect. 1.

By *cattle*, in this act, is to be understood any bull, cow, ox, steer, bullock, heifer, calf, sheep, and lamb, and no other *cattle* whatever. *Stat. 13 and 16 Geo. II. c. 34.*

CATTUPHUS, or **COSSOPHUS**, in *Ichthyology*, a name given by Aristotle, and other of the Greek writers, to the fish called by the Latin authors *merula* and *TURDUS nigricans*. It is a species of the *labrus*, easily known from all the others by its colour; and called, by authors who acknowledge the generical name *labrus*, the bluish black *labrus*.

CATTUS, or **CATUS**, in the *Ancient Military Art*, a kind of machine or device for covering or screening the men; much, if not entirely the same with *vineæ*. See **MANTELET**.

CATULUS, in the *History of Fishes*, the name of a sea-fish, of which authors describe three species; the *major*, *maximus*, and *minimus*. It is properly of the *GALEUS* kind, and has a variously spotted skin, and a wide and large mouth, furnished with strong teeth, sharp edged, and hollowed inward. The first kind is common in our seas, and often caught on the coast of Cornwall; and the two others principally in the Mediterranean, though sometimes also in our seas. *Aldrov. de Pisc. lib. iii. c. 34.*

CATURUS, in *Botany*, a genus of the *dioecia triandria* class.

CATUS pardus, in *Zoology*, the name of a beast of prey, called also by some *catus montanus*, and by us the cat of the mountain; and, in the Linnæan system, a species of the cat called *FELIS pardalis*. It is of the size of a mastiff dog; but it resembles in all respects the common domestic cat in shape, except that the tail is, in proportion to the creature's size, considerably shorter.

It has upright pointed ears, marked with two brown transverse bars: the colour of the head, and whole upper part of the body, a reddish brown, marked with long

long narrow spots on the back, and with small spots on the sides; the belly, chin, and throat are white; the tail, barred with black. The length of this animal is two feet and a half; and that of the tail, eight inches. It is less fierce against the human species than many of the other beasts of prey, and may even be tamed. It naturally grows very fat, and inhabits America. Ray, Syn. Quad.

The *ferval* of Buffon differs in few particulars from the preceding: the orbits are white: the spots on the body are round. It is fierce and untameable; inhabits the woods in the mountainous parts of India; lives and breeds in trees, and leaps with great agility from one tree to another. See *Tab. Quadrupeds*, fig. 5.

CATUS *zibethicus*, in Zoology, a name improperly given to the creature which produces the perfume called civet; it not being of the cat, but of the wolf or dog kind. See **CIVET**.

CATY, **CATI**, or **CATTI**, an East India weight, used especially at China. It is equivalent to one pound five ounces, and two drams English.

The *caty* is divided into sixteen *taels*, and the *pic* into an hundred *caties*.

The *caty* is also used in Japan, Batavia, and other parts of the Indies, where it weighs more or less, according as it contains a greater or less number of *taels*: the *caty* of Java is equivalent to twenty *taels*; that of Cambaya, to twenty-seven; the *caty* of Siam is double that of China, and amounts to about 150 French pounds.

The Chinese also give the denomination *caty* to the Siamese *sehan*.

CATY is also a small weight, whereby the lapidaries of the East weigh their emeralds, equivalent to three grains.

CATY is also a money of account, used in Java, and some of the neighbouring islands, amounting to about nineteen florins Dutch money.

In the island of Sumatra, *caty* is said to denote a piece of money valued at six shillings and eight pence sterling.

CAVA, in Anatomy, the name of a vein, the largest in the body, terminating in the right ventricle of the heart; where it opens with a large mouth, to convey to it the blood brought from all the parts of the body, by the branches of the other veins, which all terminate in the *cava*. See *Tab. Anat. (Splanchn.)* fig. 1. lit. o. 12. lit. ee. (*Angeiol.*) fig. 6. lit. b. and c.

At its entrance into the right ventricle, it has three membranous valves, called *tricuspides*, or *triglochines*, from their triangular figure; so accommodated as to allow the blood's passage from the *cava* to the heart, and to prevent its return.

The *cava* is divided into the *ascending* and *descending* parts: the *ascending cava*, is that which arises from the lower parts; so called, because the blood hereby conveyed to the heart, mounts, or ascends. The *descending cava* comes from the upper parts; and is so called, because the blood hereby brought from the head, and other parts, descends.

CAVAGIRO, in Ichthyology, the name of a fish common in the Mediterranean, and brought to the markets in many places. It is something of the eel shape, but thinner and flatter. Ray.

CAVALCADE, a formal, pompous march, or procession of horsemen, equipage, &c. by way of parade, or ceremony, as to grace a triumph, public entry, or the like.

CAVALCADOUR, or **CAVALCADEUR**, anciently denoted a riding-master; but at present is disused in that sense, and only employed to denote a sort of equerries, or officers who have the directions of princes stables. The French say, *ecuyer cavalcadour* of the king, the duke of Orleans, &c.

Menage writes it *cavalcadour*, and derives it from the Spanish *cavalgador*, a horseman.

CAVALET, in the *Glass Art*, a small iron ring which surrounds the lumella, or hole in the centre of the floor, in the tower of the LEER, used for annealing glass vessels.

CAVALIER, or **CAVALEER**, a horseman, or person mounted on horseback: especially if he be also armed and has also a military appearance.

Anciently, the word was restrained to a knight, or miles. See **KNIGHT**.

The French still use **CHEVALIER** in the same sense.

CAVALIER, in Fortification, a mount or elevation of earth, either round, or oblong; having a platform on the top, bordered with a parapet, to cover the cannon placed on it, and cut with embrasures to fire through; serving to overlook and command all around the place.

Cavaliers are generally placed within the bastions, and made of the same form, leaving about five fathoms room between the parapets. They serve as a rampart to the bastion, and their height exceeds that of the bastion by about six or seven feet. Sometimes they are placed in the gorges, or behind the curtain, but not often.

CAVALIERS, or **CAVALEERS**, considered as a faction. See **TORIES**.

CAVALLERIA, among the *Ancient Spaniards*, a kind of tax, or imposition on the inhabitants of great towns and cities, for the support of horsemen.

CAVALLI *Marini*, in *Natural History*, are little dried animals about the length of a man's thumb, found on the sea-coast near Puzzuoli. The head resembles a horse's, and the body terminates in a tail like that of a shrimp. Women, it is said, use them to increase their milk.

CAVALRY, a body of soldiers, who fight, or march on horseback.

The word comes from the French *cavaliere*, and that from the corrupt Latin *caballus*, a horse; whence *caballarius*, and *cavallarius*, in the later Latin, and *καβαλλarius* in the Greek.

The *cavalry* is usually divided into horse and dragoons. The horse are either regimental, or independent troops; to which latter sort belong the horse-guards; and in France, the gens d'armes and musketeers who serve on horseback. The dragoons and regimental horse form what they call the *light cavalry*; the troopers, the *heavy cavalry*. When an army is ranged in order of battle, the *cavalry* is posted on the wings.

Bodies of *cavalry*, ranged in form of battle, are called *squadrons*.

The Romans, in their first wars, were unacquainted with the use of *cavalry*, and made their whole force consist in infantry; inasmuch that, even in the engagement, they made their horse dismount, and fight on foot; never resuming their horses, but to pursue the enemy the better when routed. It was the *cavalry* of Pyrrhus, that first occasioned them to alter their sentiments; but especially that of Hannibal, which struck them with such a terror, that the Roman legions durst not attack them on even ground.

The chief use of the *cavalry* is to make frequent excursions to disturb the enemy, intercept his convoys, and destroy the country: in **BATTLE** to support and cover the foot, and to break through, and put the enemy in disorder; also to secure the retreat of the foot. Formerly the manner of fighting of the *cavalry* was, after firing their pistols or carabines, to wheel off, to give opportunity for loading again. Gustavus Adolphus is said to have first taught the *cavalry* to charge through, to march straight up to the enemy, with the sword drawn in the bridle hand, and each man having fired his piece, at the proper distance, to betake himself to his sword, and charge the enemy as was found most advantageous. The Grecian *cavalry* were divided into *cantaphractæ*, and *non cantaphractæ*, i. e. into heavy and light armed.

Of all the Greeks the Thessalians excelled most in *cavalry*. The Lacedæmonians inhabiting a mountainous country, were but meanly furnished with *cavalry*, till, carrying their arms into other countries, they found great occasion for horses to support and cover their foot. The Athenian *cavalry*, for a considerable time, consisted only of ninety-six horsemen: after expelling the Persians out of Greece, they increased the number to three hundred, and some time after to twelve hundred, which was the highest pitch of the Athenian *cavalry*. Potter. Arch. Græc. lib. iii. cap. 3. tom. ii.

The Turkish *cavalry* consists partly of **SPAHIS**, and partly of horsemen raised and maintained by the **ZAIMS** and **TIMARIOTS**.

CAVATUM *Sal*, in the *Materia Medica*, a term used by some of the old Roman writers, as a name for the finest sort of *sal GEMMÆ*.

CAVAZION, or **CAVASION**, called also **CAVING**, in *Architecture*, the underdigging, or hollowing of the earth, for the foundation of a building. Palladio says, it ought to be the sixth part of the height of the whole building. See **FOUNDATION**.

CAUCALIS. See **Bastard PARSLEY**.

CAUCII *Nummi*, a base sort of coin, current under the lower empire; thus called because concave, like a little cup, from the barbarous Latin, *carcus*, a cup. Haloander and Meursius are mistaken in saying this coin was so called from having the figure of a cup on it. Du-Cange. The *caucii* are the same with what are popularly called among the Italians *medaglio di S. Eleno*, sometimes superstitiously worn by the women.

CAUCON, in Botany, a name used by Pliny, and some other authors, for the *equisetum*, or **HORSE-TAIL**.

CAUDA, in a general sense. See **TAIL**.

CAUDA is sometimes also used in Anatomy to denote the **CLITORIS**.

CAUDA *Capricorni*, a fixed star of the fourth magnitude, in the tail of Capricorn; called also by the Arabs, *Dineb Algedi*. See γ under **CAPRICORN**.

CAUDA *Ceti*, a fixed star of the third magnitude; called also by the Arabs, *Dineb Kaetos*. See β under **CETUS**.

CAUDA *Cygni*, a fixed star of the second magnitude in the Swan's

Swan's tail; called by the Arabs, *Dineb Adigege*, or *El-degiagich*. See α under CYGNUS.

CAUDA Delphini, a fixed star of the third magnitude, in the tail of the Dolphin. See ϵ under DELPHINUS.

CAUDA Draconis, the Dragon's tail, in *Astronomy*, the name of the Moon's southern or descending NODE.

CAUDA Equina, in *Anatomy*, a denomination given to the lowest part of the spinal marrow, from the last vertebra of the thorax to the end of the os sacrum.

It is thus denominated from its form, which is supposed to resemble a horse's tail. Its substance is fibrous, and very tenacious.

CAUDA Equina also denotes a medicinal herb, whose leaves are reputed to have a strengthening virtue. This, in English, is called the HORSE-TAIL. The officinal kind is more particularly called by botanists *EQUISETUM majus*, in English, the great marsh-horse-tail.

CAUDA Leonis, a fixed star of the first magnitude in the Lion's tail; called also by the Arabs, *Dineb Eleced*. See β under LEO.

It is called also *Lucida Cauda*.

CAUDA Ursæ Majoris, a fixed star of the third magnitude, in the extreme part of the tail of the Great Bear; called also by the Arabs, *Alalioth* and *Benenath*. See η under URSA Major.

CAUDA Ursæ Minoris, a fixed star of the third magnitude, in the extreme part of the tail of the Lesser Bear; called also the polar star, and by the Arabs, *Alrukabab*. See α under URSA Minor.

CAUDEBEC, in *Manufactures and Commerce*, a sort of hats, thus called from the town of Caudebec in Normandy, where they manufacture a great number of them. They are made of lamb's wool, of the hair or down of ostriches, or of camel's hair.

CAUDISONA, *Vipera*, in *Zoology*, a name by which authors call the RATTLE-SNAKE.

CAUDIVERBA, in *Zoology*, the name of an animal of the lizard kind, called also *uromastyx*, but more commonly known among authors by the name CORDYLUS.

CAVE, a subterraneous hollow place of a certain extent. Some authors distinguish between a *cave* and a *cavern*, making the first the effect of art, and the latter of nature. *Caves* were doubtless the primitive habitations; before men brought themselves to erect edifices above ground, they took shelter under it. The primitive manner of BURIAL, was also to repose bodies in *caves*, which appears to have been the origin of the CATACOMBS. Phil. Trans. N^o 244. p. 344.

Badmington *cave*, in Wiltshire, consists of a series or row of uniform holes, wherein pieces of armour are said to have been found, whence they are by many supposed to have been tombs of ancient warriors.

Caves long continued the proper habitations of shepherds. Among the Romans, *caves*, *antra*, used to be consecrated to the nymphs, who were worshipped in *caves*, as other gods in the temples.

The Persians also worshipped their god Mithras in a natural *cave*, consecrated for the purpose by Zoroaster.

Kircher, after Gassarellus, enumerates divers species of *caves*, divine, human, brutal, and artificial.

Of natural *caves*, some are possessed of a medicinal virtue, as the *Grotto de Serpente*; others are poisonous or memphitical; others are replete with metalline exhalations, and others with waters.

Divers oracular *caves* occur among the ancients, the fumes of which intoxicated the head, and produced a sort of furor or madness, which was interpreted inspiration, prophecy, and divination. Such were the sacred caverns at Delphi, which inspired the Pythia. Such also was the Sybil's *cave* at Cumæ in Campania, still shewn near the lake Avernus: though Borrichius takes this to be of modern date, and not the true *Antrum Sybyllæ*, so finely described by Virgil. Homer likewise gives a description of *Αντρον Νυμφων*, the *Cave of the Nymphs*, on which Porphyry has a treatise still extant, containing many of the secrets of the heathen theology, both natural and symbolical. Virg. Æn. lib. vi. Hom. Odyss. lib. xiii.

The *cave* of the Nymph Egeria, where Numa held nightly conversations with that deity, is still shewn at Rome.

The *cave* of Trophonius, originally the mansion of that celebrated Boeotian, became afterwards famous for the oracles which Apollo delivered in it. Pausanias, who visited it, gives a large description of the ceremonies observed by those who entered the *cave* to consult that god. Vide Potter Arch. lib. ii. cap. 10. p. 290, &c.

CAVE, *dead, live*, in *Mining*. See LIVE *cave*.

CAVEA, the place in the ancient theatres where the spectators were seated.

The *cavea*, called by the Greeks *κοιλον*, stands contradistinguished from the *scena*, *σκηνη*, which was the place for the actors.

The *cavea* was divided by partitions into three equal

parts, rising one over another: *ima cavea*, appointed for the people of quality, and magistrates; the middlemost, *media cavea*, for the commonalty; and the uppermost, *summa cavea*, for the women.

As the theatres were open at top, porticos were erected behind the *cavea*, where the audience might retire for shelter in case of rain.

CAVEA also denoted the middle part in amphitheatres, otherwise called ARENA.

CAVEA was also used for the CAGE or den of a wild beast, kept for the amphitheatrical shews.

CAVEAR, **CAVIA**, or **KAVIA**, a kind of food or pickle, in great use and repute throughout Muscovy; and also introduced upon the English table.

It is formed from the Italian *caviale*, or barbarous Greek *καβιαρι*, which signifies the same.

The *cavia*, or *cavear*, is the roe, or spawn of the sturgeon, taken out, salted, and dried in the sun, or by the fire. The Italian merchants settled at Moscow, drive an incredible trade with *cavear*; the fish being caught in prodigious quantities at the mouth of the Volga, and other rivers which empty themselves into the Caspian sea. They cure or prepare the roes on the spot, and thence send them in this form of *cavear* up the Volga to Moscow, to be there distributed throughout that vast empire; where it is of wonderful service to the people, on account of the three Lents there observed with great severity.

The manner of making the *cavear* is by taking out of the spawn of the sturgeon all the nerves or strings, then washing it in vinegar, or white wine, and spreading it on a table, they dry and salt it with the hand, and press it in a fine bag, that the liquor may run out; this done, they case it up in a vessel with a hole at bottom, that if there be any moisture left it may run out. In this state, being well pressed and covered, it is fit for sale.

Cavear is also prepared of the spawn of some other fishes: what we otherwise call BOTARGO, is a *cavear* made from a sort of mullet caught in the Mediterranean.

According to Savary, the best *cavear* brought from Muscovy is that made from the belluga, a fish eight or ten feet long, caught in the Caspian sea, which is much preferable to that made of the spawn of sturgeon.

The English import considerable quantities of this commodity from Archangel; though not so much for home consumption as to supply the French and Italians. To be good, it should be of a reddish brown colour, and very dry. It is eat with oil and lemon; sometimes with vinegar; some eat it alone with bread; and others only as a sauce, or pickle, like anchovies.

CAVEAT, in *Law*, a bill entered in the ecclesiastical court, to stop the proceeding of one who would prove a will, or obtain letters of administration, to the prejudice of another. See PROBATE.

It is also used to stop the institution of a clerk to a benefice. An institution after a *caveat* entered, is void by the ecclesiastical law; but this the temporal courts pay no regard to, and look upon a *caveat* as a mere nullity. Blackst. Com. vol. iii. p. 246.

CAVEATING, in *Fencing*, the act or art of disengaging, or shifting the sword from one side of the adversary's sword to the other.

Caveating is a motion whereby a man brings in an instant his sword, which was presented on any side his adversary's, generally beneath its hilt, to the opposite side; either from within, or without, or *vice versa*; or from having its point high, to be low, or the reverse; and either on the same side it is presented in, or the opposite side.

Caveating is so necessary a motion in FENCING, that without it there could be scarce any offensive part, or pursuit. It is withal so easily performed against the ordinary tierce and quart guards, that it gives a constant opportunity to make a variety of quick subtle FEINTS against them, which by reason of the small cross made by the weapons on these guards, makes the pursuit very easy, and the PARADE of defence very difficult.

The consideration of this put sir William Hope on the search of a new method of GUARD, which, by reason of its greater cross on the adversary's sword, renders the *caveating*, and making feints more slow, and consequently the parade more certain.

CAVEDO, in *Commerce*, a long measure used in Portugal, and equal to $27 \frac{4}{16}$ English inches.

CAVELIN, or rather **KAVELING**; thus they call at Amsterdam, what we and the French style a lot of merchandise.

CAVERN, **CAVERNA**. See GROTTTO.

CAVERNOSA Corpora, in *Anatomy*, called also *corporum nervosa*, and *spongiosa*, are two cavernous bodies, of an indeterminate length and thickness, whereof the penis is principally composed.—See Tab. Anat. (Splanchn.) fig. 8. lit. aa. bb. and tt.

Their internal substance is rare, and spongy; and when filled with blood and spirits, it dilates and swells, in which the tension or erection of the *penis* consists. See **PENIS**.

CAVERNOSUM Corpus Urethrae, a third spongy body of the *penis*; so called, because the *urethra*, or urinary passage of the *penis* is inclosed by it. See **PENIS**.

Its figure, contrary to that of the two corpora cavernosa, is largest at its extremities, and least in the middle; its upper part is in the *perinaeum*, and is called its *bulb*, from its figure. Its external membrane is thin, and divided lengthwise by a *septum*. The middle part of this *corpus* is nearly cylindrical; but the passage for the urine is not along the centre, but inclines to its upper part, next the body of the *penis*; its lower extremity, dilating itself, forms the *glans*.

CAVERNOSA Corpora of the Clitoris, are two nervous or spongy bodies, like those of the *penis*; they have their origin from the lower part of the *os pubis*, on each side; and uniting together, constitute the body of the **CLITORIS**, as the others do that of the *penis*.

Indeed, they have no perforation analogous to that of the *penis*; but they have a *septum*, or membranous partition, running all along between them, and dividing them from the *glans*, to its divarication at the *os pubis*, where they are called *crura clitoridis*.

CAVERNOSUM Corpus of the Pudendum. See **RETICULAR Body**.

CAVERS, in the *Language of Miners*, are any poor people that go about the mines to beg or steal ore from the miners.

CAVESON, in the *Manege*, a kind of musrol, put on a horse's nose, which binds or locks him in, and serves in breaking, managing, and tutoring him.

The word comes from the Spanish *caveça*, or *cabeça*, head. The *cavesons* for breaking young horses are usually of iron, made semicircularly, of two or three pieces turning on joints; others are twisted, others are flat, others hollow in the middle, and indented like saws, called *mordants*: though these last are now banished the academies.—The rope and leathern *cavesons* serve for passing the horse between two pillars.

An iron *caveson* spares a young horse's mouth in the breaking, since by means hereof he is accustomed to obey the hand, and bend the neck and shoulders, without injuring his mouth. All iron *cavesons* are mounted with a head-stall, and a throat-band, and two straps, or reins, with three rings: through the middle ring, one rein is passed to make a horse work round a pillar, and through the two side rings the other two reins are passed, which the rider holds in his hands, or fastens to his saddle to keep the horse's head in subjection.

CAVETTO, in *Architecture*, a hollow member or moulding, containing a quadrant of a circle, and having an effect just contrary to that of a quarter round: it is used as an ornament in cornices.—See *Tab. Archit. fig. 6*.

The word is Italian, and is no more than a diminutive of *cavus*, hollow.

M. Felibien observes, that the workmen confound the *cavetto* with a *scotia*, but improperly; the *cavetto* being in effect only half a *scotia*: yet he himself is chargeable with the same oversight.

When in its natural situation, the workmen frequently call it *gula*, or *gucule*; and when inverted *gorge*.

Cavetto is the same with what is otherwise denominated a casement. Moxon shews how to describe the *cavetto*, both from the oxygen and the semicircle.

CAUHQ-ROY, in *Natural History*, a name given by the natives of the East Indies to a sort of fossil which they calcine, and afterwards give in large doses in the hic-cough, and many other complaints. It is also used in dying. The Indians boil it in water, and dye or stain their cloaths with it, to make them appear different from others: It is a kind of ochre, or clayey iron ore, and is found in great abundance in the hills, and iron is sometimes extracted from it.

CAVIA. See **CAVEAR**.

CAVIA cobaya, in *Zoology*, the name by which the Brasilians, and from them many writers, call the creature commonly known among us by the name of the **GUINEA pig**.

CAVIDOS, or **CABIDOS**, a Portuguese long measure, used in the mensuration of cloth, linen, and the like, equivalent to two feet eleven lines Paris measure.

CAVIL, *cavillatio*, is defined by some a fallacious kind of reason, carrying some resemblance of truth, which a person knowing its falsehood, advances in dispute for the sake of victory.

The art of framing sophisms or fallacies is called by Boethius, *cavillatoria*.

CAVIN, in the *Military Art*, a natural hollow, fit to cover

a body of troops, and thereby facilitate their approach to a place.

A *cavin* near a place besieged is of great advantage to the besiegers; as by help hereof they can open trenches, make places of arms, keep guards of horse, and the like, without being exposed to the enemy's shot.

CAVING. See **CAVAZION**.

CAVITY, among *Anatomists* and *Physicians*, make a species of organical conformation, either *natural* or *morbid*.

CAVITIES of the bones are of two kinds; the first formed from articulation, called *cotyles* and *glenes*; the second for other purposes, called *cells*, *caverns*, *foramina*, *fossæ*, and *fulci*. Heist. Comp. Anat. § 56.

CAUC, **CAUK**, or **CAWK**, is used by *Miners in the Peak*, to denote a coarse sort of spar; being a ponderous white stone, generally found near lead mines, which will draw a white line like chalk; or the galactites. Phil. Trans. N° 110. p. 226. Ibid. N° 39. p. 770. It is insoluble in acids, and fusible by fire.

The word is formed probably of the German *kaalk*, spar.

It is properly no other than a sparry matter, rendered very coarse, by being mixed with a large portion of earth. In some places it is found more clear and transparent than in others: it approaches in this state to the nature of crystal, and is called bastard cauk, and bright cauk. Philos. Trans. N° 407.

There is a singular process mentioned by Dr. Lister, which is that of vitrifying antimony by its means. This is done with great readiness and speed by it, and the glass, thus made, will produce some effect on other metals, which no other glass will, nor indeed any other preparation of antimony. The method of preparing it is this: take a pound of antimony, flux it clear; have in readiness an ounce or two of *cauk* in a lump red-hot; put it into the crucible to the melted antimony, and continue it in fusion; then cast it into a clean mortar, not greased, decanting the clear liquor from the lump of *cauk*. This process gives more than fifteen ounces of glass of antimony, like polished steel, and bright as the most refined quicksilver. The *cauk*, in the mean time, is found to be diminished, not increased in its weight, and will never flux with the antimony, though ever so strong fire be given it. This is a very odd mineral, and this learned author supposes it to be allied to those white, milky, and mineral juices which are found in the mines. The effect of both is evidently the same; for the milky juice of lead mines vitrifies the whole body of antimony, in the same manner that the *cauk* does in this experiment. Phil. Trans. N° 110.

That there is somewhat very peculiar in the *cauk*, is plain from this effect on antimony, which no other thing of this kind is possessed of; for lapis calaminaris, sulphur vivum, galactites, mundicia, alum ore, spar, and many other things have been tried with antimony in the same manner, but not one of them has this effect.

CAUKING, in *Architecture*, signifies **DOVE-TAILING** down.

CAUKINN time, in *Falconry*, a hawk's treading time.

CAUKING, or **CALKING of a ship**, implies the driving of oakum, or somewhat of that kind, into the seams, or commissures of the planks, to prevent the ship's leaking. It is afterwards covered over with hot melted pitch, or rosin to prevent its rotting.

Kennet derives the word from the barbarous Latin *Calciatura*, shoeing.

CAUKING-irons, denote iron chissels for the purpose of *cauking* vessels.

CAUL, in *Anatomy*, a membrane in the abdomen, covering the greatest part of the guts; called from its structure *reticulum*, but most frequently **OMENTUM**.

CAUL is likewise a little membrane, found in some children, encompassing the head, when born.

Drelincourt takes this *caul* to be only a fragment of the membranes of the *fœtus*; which ordinarily break at the birth of the child.

CAUL, or **CAULE**, among *Mineralists*, a reddish pink coloured stone, found in the strata of the tin-mines. See **TIN**.

CAULEDON, from *καυλος*, a stem, in *Surgery*, is applied to **FRACTURES**, which happen transversely, wherein the parts of a broken bone start asunder, so as not to lie directly against each other.

CAULIAS, an appellation given to the juice drawn from the stalk of the *silphium*, contradistinguished from that drawn from the root of the same plant, which is called *rhizias*.

Schroder makes the *caulias* the same with our *Assa-fœtida*.

CAULICOLES, **CAULICULI**, in *Architecture*, denote those eight lesser branches, or stalks in the Corinthian capital,

tal, which spring out from the four greater, principal caules, or stalks.—See *Tab. Archit. fig. 27*.

The word comes from the Latin *caulis*, the stalk, or stem, of a plant.

The volutes of this order are sustained by four caules, or primary branches of leaves; from which arise these *caulicoles*, or lesser foliages.

Some authors confound the *caulicoles* with the volutes themselves; some with the helices in the middle, and some with the principal stalks whence they arise.

CAULIFEROUS herbs, are such as have a true *caulis*, stalk, or trunk, which a great many have not; as the capillaries, &c.

They are sometimes divided into *cauliferous*, and *ACAULOSE*.

The former are either perfectly *cauliferous*, as cabbage, or imperfectly, as mosses.

CAULIFLOWERS, a species of *brassica*, are the produce of a kind of cabbage, and have of late years been so far improved in England, as to exceed in size and goodness any that are raised in the rest of Europe. They are in season in the months of May, June, and July, but the skill of the gardener can continue them much longer. The manner of propagating them is this:

Having procured some good seed, you must sow it before the middle of August, upon an old cucumber or melon bed, sifting earth over the seeds to a quarter of an inch thickness: if the weather prove very hot and dry, the beds must be shaded with mats, and be lightly watered at times. In about a week's time the plants will appear above ground, and they must be uncovered by degrees, but not exposed to too much sun at first. In about a month after sowing, they should be pricked out on another old bed, at two inches distance, and shaded and watered when first transplanted; but after this they must not be much watered, nor be suffered to have too much rain, which will make them black-shanked, or rotten in the stalks. In this bed they are to remain till the end of October, when they are to be planted out for the winter season: they are then to be planted out in rich beds, and those which are to be early ripe are to be shaded with bell-glasses, two under each glass, and toward the latter end of February to be planted out again: the rest are to be at first set at a greater distance, and to stand.

When the *cauliflowers* begin to fruit, they must be carefully watched, and some of the inner leaves must be bent down over the flower, to shade it from the sun, which would otherwise turn it yellow. The very finest of the *cauliflowers*, which are not loose and frothy about the edges, and very firm, should be saved for seed; and the flower stems, as they shoot out, be supported with sticks till the seeds are ripened, which must then be carefully gathered and dried for use. Mill. Gard. Dict.

CAULINE leaf, among *Botanists*. See **LEAF**.

CAULINE peduncle, among *Botanists*. See **PEDUNCLE**.

CAULIS, among *Botanists*, the stalk or stem of an herbaceous PLANT; or that part which rises single above the earth, from which the branches and leaves shoot upward.

In trees and shrubs this is properly called *caudex*, or trunk; in herbs *caulis*, or stalk; in corn and the grasses, *culmus*, or stem.

CAUNGA, in *Botany*, a name given by some authors to the *areca*, the tree of whose fruit the *terra Japonica* of the shops is made.

CAURIS, in *Natural History*, a name given by some to the genus of shells called, by the generality of writers, *porcellana*, and *concha venerea*. It is from a false pronunciation of this word *cauris*, that we call these shells *gowries*. See **PORCELAIN** shell.

CAURSINES, *Caurfini*, in *English History*, denote Italian bankers or money-changers, who flocked into England, France, and the Netherlands, about the year 1235, calling themselves the pope's merchants, but driving no other trade than usury. They were several times banished the kingdom for their extortions, and re-admitted by the interest and intrigues of the popes. Mat. Paris. Hist. Ang. p. 403. Du-Cange.

They are also called *caorcini*, *coarfini*, *catarcini*, *cawarfini*, and *corfini*. Some will have the name formed from *Ca-hors*, a city of France, where they flourished more than ordinary. Others derive it from the *Corfini*, a family of wealthy merchants at Florence.

CAUSA *Matrimonii prælocuti*, in *Law*, a writ that lies when a woman gives land to a man in fee, to the intent he shall marry her, and he refuses to do it in a reasonable time: and in such case for not performing the condition, the entry of the woman into the lands again has been adjudged lawful. The husband and wife may sue this writ against another, who ought to have married her.

CAUSA *Nobis significes*, in *Law*, a writ directed to the

mayor of a town, &c. who, being by the king's writ commanded to make seisin of lands to the king's grantee, delays doing it. The writ requires him to shew *cause* of the delay.

CAUSALITY, in *Metaphysics*, the power or action of a CAUSE in producing its effect.

It is a dispute among the school-philosophers, whether, and how the *causality* is distinguished from the cause and effect? Some held it a mode, or modal entity, super-added to the cause, &c. others contend for its being the cause itself, only considered *principiatively* and *terminative*, &c.

CAUSALTY, in *Metallurgy*, the lighter part of sulphureous and earthy ores of metals carried off in the water used in washing them, and subsiding afterwards from it. Boerhaave, Chem. p. 100. n.

In the *TIN-works* the *causalty* is thrown in heaps upon banks, which in six or seven years they work over again, and receive a new supply of metal from it. Phil. Trans. N^o 138. p. 952.

CAUSE, *CAUSA*, that which contributes to the production of an effect; or that by virtue whereof a thing is done, or from which it proceeds.—In which sense, *cause* stands essentially related to effect.

CAUSE, *First*, is that which acts of itself, and from its own proper power or virtue.—In this sense, God is the only *First Cause*.

CAUSES, *Second*, are those which derive the power and faculty of acting, from a first *cause*.

It is certain the philosophers are strangely puzzled, and divided about the manner of their agency: some maintain them to act by their matter, figure, and motion; others by a substantial form; many by accidents, or qualities; some by matter and form; and others by certain faculties different from all these.

CAUSES, in the *School-Philosophy*, are distinguished into, **CAUSES**, *Efficient*, which are the agents that produce any effects.

CAUSES, *Material*, the subjects whereon the agent works, or whereof the thing is formed: thus, marble is the matter, or *material cause* of the statue.

CAUSES, *Final*, are the motives which induce a man to act; or the end for which the thing is done: thus, victory and peace are the *final causes* of war. Some add the

CAUSE, *Exemplary*, which is the model the agent forms, or proposes, and by which he conducts himself in the action: but this is not properly any *cause* at all.

CAUSE, *Formal*, the change resulting from the action; or that which determines a thing to be this, and distinguishes it from every thing else: thus, the soul is held the form, or *formal cause*, of man, &c.

CAUSES, again, are distinguished into *Physical*, or *Natural* and *Moral*.

CAUSE, *Physical*, is that which produces a sensible corporeal effect: thus, the sun is the *physical cause* of heat.

CAUSE, *Moral*, is that which produces a real effect, but in things immaterial: thus, repentance is the *cause* of forgiveness.

Others define a *physical cause* to be that which produces its effect by a physical virtue; and a *moral cause*, that which determines the *physical cause*, though not necessarily, to produce the effect: in which sense, it is also called a *dispositive*, *excitative*, and *imputative cause*.

Thus, the sun is the *physical cause* of light: a stone, that breaks the skull, is a *physical cause* of death: and thus the advice, intreaty, commands, or menaces, which determine us, though not necessarily, to do, or not to do, any thing, are *moral causes*.

In this sense, a *moral cause* is only applicable to a free intelligent agent: and it is this notion of a *moral* and *physical cause* that is the most just, clear, and distinct.

CAUSES, again, are considered, either as *universal*, or *particular*; *principal*, or *instrumental*; *total*, or *partial*; *univocal*, *equivocal*, &c.

CAUSE, *Equivocal*, is that which is of a different kind and denomination from its effect: thus, the sun is said to be the *cause* of the animals it produces.

CAUSE, *Instrumental*, is that used by the principal to produce its effect; or which is excited to produce an effect, beyond the measure of its own perfection.

CAUSE, *Partial*, that which occurs with some other in producing the effect.

CAUSE, *Particular*, is that which can only produce a single effect, or a certain kind of effects.

CAUSE, *Principal*, is that which gives motion to the instrument, or which does not operate beyond its own natural efficacy.

CAUSE, *Total*, is that which produces the whole effect.

CAUSE, *Univocal*, is that which is of the same kind and denomination with its effect: as, a man is the *cause* of a man.

CAUSE,

CAUSE, *Universal*, is that which, by the extent of its power, may produce all effects.

The Cartesians resolve all physical *causes* into occasional ones.

CAUSES, *Occasional*, are only the *occasions*, not the direct *causes* of their effects. See OCCASION.

The soul, say those philosophers, is not able to act on the body, nor the body reciprocally on the soul: to keep up an intercourse between them, God, on occasion of a motion of the body, impresses a sensation on the soul; and, on occasion of a sentiment of the soul, impresses a motion on the body: the motions, therefore, of the soul and body, are only *occasional causes* of what passes in the one, or the other. Thus, say they, the stroke, or percussion, is only the *occasional cause* of the motion produced in the body struck; it is God is the direct efficient *cause*. And thus the action of objects on our organs is not the efficient *cause* of our ideas and perceptions, but merely the *occasional cause*, which determines God to act on the mind, according to the laws of the union of soul and body.

CAUSE, in a *Medical Sense*: whatever produces a disease, is called the *cause* thereof. This operates, either by inducing a new state of the solids and fluids, or by taking away something which is absolutely requisite to the exercise of some function. If a cause pre-existed in some measure in the body before the effect produced, it is called an internal *cause*; but if it existed out of the body, and by its application to it produced the disease, it is called external.

Internal *causes* generally injure, first the humours, and then the solid parts; whereas the external *causes* affect the solids, and, in consequence of that, the humours; and this holds universally, unless perhaps in some few diseases produced by poison or contagion.

The immediate or proximate *cause* is that which taken altogether immediately constitutes the present disease; this is always adequate, and sufficient to the formation of the disease, whether simple or complicated. The presence of this constitutes and continues the disease; and the absence of it removes the disorder, being very little different from the disease itself. The investigation therefore of this is extremely useful and very necessary.

The remote *cause* is that which changes the body in such a manner, as to dispose it for the reception of a disease upon the accession of another *cause*; but it is never adequate or sufficient to produce a disease alone: nor would that other *cause*, the accession of which is necessary, be of itself sufficient for the production of the disease; but both must concur. The business of physic, therefore, is to eradicate both together, which in conjunction constitute the proximate or immediate *cause*.

The remote *cause* inherent in the body, is called predisponent, antecedent, and by the Greeks *προνυσμένη*, and consists principally in temperaments, plethora, and cacochymy. The *cause* whose accession to the remote *cause* excites, and in conjunction with it forms the disease, is called the procatactic *cause*, or the *προπατισ* or occasion of the disease. It is sometimes internal, sometimes external. These Boerhaave reduces to four classes.

First, the *ingesta*, or things entering the body; such as the air, aliments, drink, medicines, poisons; such things as enter by the pores of the skin and nostrils; by the several passages of the mouth, lungs, œsophagus, stomach, intestines, and pudenda of women, whether in a visible or invisible manner; whether by steam, draught, deglutition, clyster, or injection. Secondly, the *gesta*, or things acted, as motion of the whole, or any part of the body, affections of the mind, rest, both of the body and mind, sleeping and watching. Thirdly, things retained, or excreted, whether salubrious, recrementitious, or morbid. Fourthly, things applied to the body; as air, vapours, fomentations, cloaths, liniments, ointments, plasters, together with whatever wounds, contuses, or corrodes.

This division of the non-naturals, as they are called, is different from that of all other writers of institutes.

CAUSES and Effects, in *Law*. In most cases the law hath respect to the *cause* for bringing of a thing as the principal part, on which all other things are founded: and herein the next, and not the remote cause is most looked upon, except it be in covinous and criminal things: and therefore that which is not good at first, will not be so afterward; for such as is the cause, such is the effect: e. g. if an infant or feme-covert make a will, and publish it, and afterwards die of full age, or sole, this will is of no force, on account of the original *cause* of infancy and coverture, &c.

CAUSEWAY, or **CAUSEY**, a massive construction of stone, flakes, and fascines; or an elevation of fat, viscous earth, well beaten, serving either as a road, in wet marshy

places, or as a mole, to retain the waters of a pond, or prevent a river from overflowing the lower ground.

The word comes from the French *chaussée*, anciently wrote *chaufsee*; and that from the Latin *calceata*, or *calcata*; according to Somner, and Spelman, à *calcando*. Burgier rather takes the word to have its rise à *peaitum calceis*, quibus terunter.

CAUSEWAY, *calcetum*, or *calcea*, more usually denotes a common hard raised way, maintained and repaired with stones and rubbish.

CAUSEWAY, *Devil's*, a famous work of this kind which ranges through the county of Northumberland, commonly supposed to be Roman, though Mr. Horsley suspects it to be of later times. Horsley, Brit. Rom. lib. v. cap. 2. p. 449.

CAUSEWAY, *Giant's*, is a denomination given to a huge pile of stony columns, in the district of Coleraine in Ireland. See GIANT's Causeway.

CAUSSIDICUS. See ADVOCATE.

CAUSTIA, in *Antiquity*, a kind of woollen cap used by the Macedonians; which was so strong as sometimes to serve instead of a helmet. Mem. Acad. Inscript. vol. ii. p. 394.

CAUSTICS, from *καωω*, I burn, in *Physic*, those medicines, which by their violent activity, and the heat thence occasioned, destroy the texture of the parts to which they are applied.

Caustics amount to the same with what are otherwise denominated *pyrotics*, and *escharotics*. They are also usually confounded with cauteries, though some distinguish them; restraining *caustics* to those medicines which do not burn through the part, nor leave an eschar; and cauteries to those which do.

Caustics are used to eat off proud fungous flesh; they also penetrate within hard callous bodies, and liquify the humours: and are particularly applied in abscesses and imposthumation, to eat through to the suppurated matter, and give it vent: sometimes, also, to make issues in parts where cutting is difficult, or inconvenient.

The principal medicines of this class are, burnt alum, sponge, cantharides, and other vesicatories; as also orpiment, calx viva, vitriol, ashes of the fig-tree, the ash, and wine-lees; the salt of the lixivium whereof soap is made; sublimate mercury, red precipitate, &c. See each described under its proper article.

Crytals of *luna*, and *lapis infernalis* made of silver, and spirit of nitre, become *caustics* by that mixture.

The strong *caustic*, now generally used by our surgeons, is prepared in this manner: boil soap lees to a fourth part of their quantity, then sprinkle in, while they are boiling, lime that has been kept in a vessel pretty close stopped for several months; continue to add this lime till all the liquor is absorbed, and the whole is reduced to a paste, which is to be kept in a vessel close stopped. The design of thus keeping the lime is, that its acrimony may be a little abated.

The common *caustic* of quick lime and soap-lees, deserves the preference to any of those composed of acid spirits. It does not give near so much pain, and is not so apt to occasion convulsions, when applied to carious bones. It penetrates better than the dried forms of eroded metals, and does not run so much when it melts, as the more liquid acids do. It either is not absorbed, or its effects are not observed in the blood; whereas mercurial preparations frequently raise an unexpected salivation. Monro, in Med. Ess. Edinb. vol. v. art. 24.

Heister says, that the shortest and most approved method of making this is as follows: take pot ashes and strong quick-lime, of each six ounces; powder them separately, and afterwards mix them together in a large glass or earthen vessel, and dissolve them in a large quantity of river-water, letting them stand an hour or two, that they may dissolve perfectly; the liquor is then to be filtrated through a linen cloth from its gross sediment, and evaporated over the fire in an iron pan; the hard mass left from this evaporation is to be put into a crucible, and melted over a strong fire till it flows like oil; it is then to be cast into a mortar or broad pan; and either cut or beat into small pieces before it is quite cold: these are the *caustic* stones. They are to be put into a clean glass, and stopped very close, and kept in a warm place.

CAUSTIC, *arsenical*. See MAGNET.

CAUSTIC, *lunar*, called also, *lapis causticus*, is a preparation of silver, sometimes of copper, usually made by dissolving the metal with spirit of nitre, evaporating two thirds of the fluid, and boiling the rest to an oily consistence, which when cold grows hard. See AIR fixed.

CAUSTIC curve. See CURVE.

CAUSTIC fluid. Some imagine a *caustic* fluid, by which the BLOOD is detained in a fluid state, and by which the red globules are formed.

CAUSVIC glasses. See BURNING-glasses.

CAUSTIC,

CAUSTIC, *by reflection*. See *Caustic CURVE*.

CAUSTIC, *by refraction*. See *Caustic CURVE*.

CAUSTICITY, in *Chemistry*, denotes a quality belonging to several substances, by the acrimony of which the parts of living animals may be corroded and destroyed. Bodies which have this quality, taken internally, are true poisons; and the *causticity* of some of them is so deadly, as, for example, of arsenic, that even their external use is proscribed by prudent physicians.

CAUSTICUM antimoniale, the name given in the late London Dispensatory to what was before called *butter of ANTIMONY*.

CAUSUS, in *Medicine*, denotes a burning FEVER, or a kind of acute continual fever, attended with a vehement heat, and other indications of an uncommon inflammation.

CAUSWAY. See *CAUSEWAY*.

CAUTERY, *Cauterium*, a medicine wherewith to burn, sear, eat through, or corrode, some solid part of the body.

The word is originally Greek, καυτηρ, or καυτηριον; formed from καω, I burn.

Cauteries are of two kinds; *actual*, and *potential*.

CAUTERIES, *actual*, are those which produce an instantaneous effect; as fire, or a red-hot iron: these are applied in the *fistula lachrymalis*, after extirpations of cancers, amputations of legs or arms, &c. in order to stop the hæmorrhages, and produce a laudable suppuration. They are sometimes, also, applied to carious bones, abscesses, and malignant ulcers, in order to open a passage for the discharge of the peccant humours. The irons used, on these occasions, are sometimes crooked at the extremity, and that variously, according to the various occasions: whence some are called *cultellary*, others *punctual*, others *olivary*, &c.—M. Homberg assures us, that a great part of the medicine of the people of Java, and other parts of the East Indies, consists in burning, or the application of *actual cauteries*; and that there is scarce any disease but they will happily cure thereby.

The *actual cautery*, or hot iron, is frequently applied for the making of issues, in parts where cutting is difficult, or inconvenient. It makes a little round hole, which is to be filled up with a pea, or an ivy berry, to keep it open for the humours to pass through. Pareus describes a method of making *velvet*, or *silken cauteries* (*cauteria serica vel holoferica*); so called, either because they give no pain, or because he purchased the secret at a dear rate from a certain chemist.

In some places they *cauterise* with burning tow, in others with cotton or MOXA, in others with live coals; others use Spanish wax; others pyramidal pieces of linen; others gold, or silver. Severinus recommends a flame blown through a pipe: but what is usually preferred among us is a hot iron.

Cauterising irons are of various figures, some flat, others round, some curved, &c. of all which we find draughts in Albucasis, Scultetus, Ferrara, and others. Sometimes a *cautery* is applied through a capsula, to prevent any terror from the sight of it. This method was invented by Placentinus, and is described by Scultetus. In the use of all *cauteries*, care is to be taken to defend the neighbouring parts, either by a lamina, defensive plaster, or lint moistened in oxycrate. Sometimes the hot iron is transmitted through a copper cannula, for the greater safety of the adjoining parts.

The degrees and manners of *cauterising* are varied, according to the nature of the disease, and the part affected. In a mortification they *cauterise* more freely than in any other case; in the soft parts more sparingly: in the hæmorrhage, or a caries, they repeat the operation, till an eschar is induced on the vessel, or the humidity of the bone is discharged.

For the right application of the *actual cautery*, various observations are necessary. In the first place, the surgeon should see that the size and figure of the *cautery* correspond to that of the disordered part, and while the patient is preparing for the operation, to let the *cautery* be heating in the fire, and to secure the sound parts, that it may give no more pain than what is absolutely necessary. In cases of a carious bone, the fleshy parts are to be drawn aside, and held out of the way of the iron; and in these cases, as also in large hæmorrhages, it is necessary to have three or four *cauteries* kept hot together, that if one does not finish the operation, there may be no waiting for another.

It has been found that *cauteries* have succeeded in apoplexies, when all other means have failed. In this case, some apply the *cautery* to the occiput; but others between the first and second *vertebra* of the neck: others are for *cauterising* the meeting of the coronal and sagittal sutures; and others think it may be best done in the soles of the feet. Which of all these places it succeeds best in, seems

yet left to experience to determine. Heister's Surgery, p. 318.

CAUTERIES, *potential*, are compositions of CAUSTIC medicines, usually of quick-lime, soap, and the like.

CAUTING iron, among *Farriers*, an iron instrument; wherewith they cauterise and sear the parts of a horse which require burning.

CAUTION, in the *Civil Law*, denotes an assurance or security given or taken for any thing trusted.

CAUTIONE admittenda, in *Common Law*, a writ which lies against a bishop, who holds an excommunicated person in prison; notwithstanding he offers sufficient security for obeying the commands of the church for the future.

CAUTIONARY towns, places of strength, which one prince or power puts into the possession of another as a security either for the payment of a debt, or performance of some other matter stipulated between them.

CAUTO, in *Botany*, a name given by the people of Guinea to a shrub common in that part of the world; a decoction of which they use as a cure for the running of the reins, or a clap. Phil. Trans. N° 232.

CAUTURIER, in *Anatomy*, a name given by the French writers to a muscle of the leg; called by the old writers *primus flexentium tibiæ*; and by the latter writers, Cowper, Aibinus, &c. *sartorius*; by Rossan, *sutorius*.

CAXA, a little COIN made of lead, mixed with scoria of copper; struck in China, but current chiefly at Bantam, in the rest of the island of Java, and in some of the neighbouring islands.

It is somewhat smaller than the French double, and has a square hole through the middle; by means whereof, several of them are hung on the same string: this string, which they call *santa*, usually contains two hundred *caxas*, equivalent to nine French deniers, or somewhat less than three farthings sterling. Five *fantas* tied together, i. e. a thousand *caxas*, make a *supacou*.—Nothing can exceed the brittleness of the *caxa*; a string never falls to the ground without breaking at least ten or twelve pieces. Leaving them at night steeped in salt-water, they cling so firm to one another, that they are not to be separated without breaking one half of them. The Malays call them *cas*; and the Javese *pitis*.

The *caxas* are of two kinds; *great*, and *small*: the *small* are those we have been speaking of; three hundred thousand whereof are equal to fifty-six livres five sols, French money. The *large* are old *caxas*; six thousand whereof are equal to the piece of eight, or four shillings six pence sterling. These are nearly the same with the *caches* of China, and the *cassies* of Japan.

CAXOU, in *Metallurgy*, a word used to express a chest of ores of silver, or any other metal, that has been burnt, ground, and washed, and is ready to be refined.

CAY, in *Zoology*, the name of a small monkey of the Brasils, an extremely small kind, and of a coal black. It lives only on the thick woods, and is usually found sitting on the boughs of some of the trees which bear pods, the fruit of which it feeds upon. Ray.

CAYANG, in *Botany*, a leguminous plant cultivated in the Mogul dominions for food. It is a kind of coarse pulse; of which the Europeans use great quantities on ship-board in the East Indies. It is a species of the *cytissus*, called by the Indians there *kissery*. Postl. Dict. Com.

CAYELAC, a sweet-scented wood, which grows in Siam; the Siamese and Chinese burn it in their temples. It is one of the commodities exported from Siam for China.

CAYLUS's method of painting. See *ENCAUSTIC painting*.

CAYMAN, in *Zoology*, the name of a species of crocodile found in the southern parts of America, and on the coast of Guinea, and more usually called by authors by its Brazilian name JACARE.

CAYMANUM lapis, in *Natural History*, the name of a stone found in the beds of rivers in many parts of America, and of a yellowish colour, veined with red and white.

The Indians have an idle tradition, that it is originally found in the stomach of a crocodile, which in their language they call *caymenes*; and thence authors have named it *lapis caymanum*. The natives of America pretend that it has great virtues in medicine, and particularly that it cures quartans by being applied to the wrist; and, to enhance its value, they pretend to take it from the crocodile.

CAYNTANA, in the *Materia Medica*, a name given by some authors to the fruit called FAGARA by other writers.

CAZEMATE, in *Fortification*, a kind of vault, or arch, of stone-work, in that part of the flank of a BASTION next the curtain; somewhat retired, or drawn back, towards the capital of the bastion; serving as a battery, to defend the face of the opposite bastion, and the moat, or ditch.

The name comes from a vault, formerly made to separate the platforms of the upper and lower batteries; each of which was called, in Italian, *casa armata*; and, in the Spanish, *casamata*: though others derive the word from *casa à matti*, *house of fools*; Covarruvias, from *casa* and *mata*, *low house*.

The *cazemat*, sometimes, consists of three platforms, one above another; the highest being on the rampart; but they commonly content themselves to withdraw the last within the bastion.

The *cazemat* is also called the *low place*, and *low flank*; as being at the bottom of the wall, next the ditch: sometimes the *retired flank*; as being that part of the flank nearest the curtain, and the centre of the bastion. It was formerly covered with an epaulement, or a massive body, either round or square, which prevented those without from seeing within the batteries: whence it was also called *covered flank*.

It is now rarely used, because the batteries of the enemy are apt to bury the artillery of the *cazemat* in the ruins of the vault: besides, the terrible smoke, made by the discharge of the cannon, renders it intolerable to the men.—Hence, instead of the ancient *covered cazemates*, later engineers have contrived open ones, only guarded by a parapet, &c.

CAZEMATE is also used for a well with several subterraneous branches, dug in the passage of the bastion, till the miner is heard at work, and air given to the mine.

CAZERNS, in *Fortification*. See CASERNS.

CAZIC, or CAZIQUE, a general title given by the Spaniards to the petty kings, princes, and chiefs of the several countries of America, excepting those of Peru, who are styled *curatas*.

The French call them *casiques*, a denomination which they also give to the chiefs of the Tartarian hords.

The *cazics* in some places do the office of physicians, and in others of priests, as well as captains. The dignity of *cazic* among the Chiites, a people of South America, does not descend to children, but must be acquired by valour and merit. One of the prerogatives annexed to it is, that the *cazic* may have three wives, while the other people are only allowed one.

Mexico comprehended a great number of provinces and islands, which were governed by lords called *caziques*, dependent on, and tributary to the emperor of Mexico: thirty of these *caziques* or vassals are said to have been so powerful, that they could each of them bring an army of a hundred thousand men into the field.

CAZIMI, among the *Arabian Astronomers*, denotes the centre or middle of the sun. A planet is said to be in *cazimi*, when it is not distant from the sun either in longitude or latitude above 17°, or the aggregate of the semi-diameter of the sun's disk and that of the planet.

This amounts to the same with what is otherwise called in *corde solis*, or in the sun's heart, which passes for a dignity and fortitude of a planet, equal to that of being in its own house; whereas in other cases, a planet's conjunction with the sun is held detrimental, or a diminution to it; as the sun, by his superior power, is supposed to absorb the virtue of the planet, and even scorch or burn it up.

CEANIDES, or CEANTIDES, in *Natural History*, a name given by many of the ancients to the stone more generally known under the name of *enchymonites*. It was the same with our sparry incrustations on the walls and roofs of subterranean caverns; and, from the opinion of the times, that these stones brought forth young ones, which was founded on their finding little ones daily produced among them, it became a custom to give this internally to women in labour, as a thing that would, by a sort of sympathy, hasten the time.

CEANOTHUS, in *Botany*, a genus of the *pentandria monogynia* class; *Euvonymus*, Com. Hort. New Jersey tea. Its characters are these: the flower hath five roundish equal petals, which spread open, and are less than the empalement. It hath five erect stamina, placed opposite to the petals; and a three-cornered germen, which afterward becomes a dry capsule with three cells, in which are lodged three oval seeds. There are three species.

CEBELL, in *Music*, an ancient English air in duple time of four bars or measures repeated at the will of the composer; the strains being alternately in the grave and the acute series of notes in the musical scale.

CECROPIA, in *Botany*, a genus of the *dicecia monandria* class.

CEDAR of Lebanon, in *Botany*. For the characters, see LARIX.—Linnaeus makes this a species of the PINE.

The *cedar of Lebanon* is a tree celebrated in antiquity; and what is remarkable, this tree is not found as a native in any other part of the world, so far as hath come to knowledge.

This tree is of great beauty, and bears the openest exposures so well that it is a wonder it is not more culti-

vated in England. The cones of this tree are brought us from the Levant, and, if preserved entire, will keep their seeds many years: these cones are to be split open, and the seeds picked out: these are to be sown and propagated in the same manner as the FIR: only that when the plants begin to shoot strong, the leading shoot generally inclines to one side, and must therefore be supported by tying it to a stake driven upright by its side.

These trees spread greatly, and the ends of their branches bending down, they shew very beautifully their upper surface, which looks like a green carpet, and as it plays in the wind makes a very elegant appearance; and is therefore a fine tree for planting on an eminence to terminate a vista.

They thrive best of all in a poor soil, and are of very quick growth, as appears very plainly by those fine ones in the Physic garden at Chelsea, which were planted in the year 1683, and were then not above three feet high; and in the year 1762 measured near twelve feet in the girth, at two feet above ground.

Cedar wood is reputed almost immortal and incorruptible; a prerogative which it owes chiefly to its bitter taste, which the worms cannot endure. For this reason it was, the ancients made use of *cedar* tables to write on, especially for things of importance; as appears from that expression of Persius, *Et cedro digna locutus*. Sat. i. ver. 42.

A juice was also drawn from *cedar*, with which they smeared their books and writings, or other matters, to preserve them from rotting; which is alluded to by Horace: by means of which it was that Numa's books, written on papyrus, were preserved entire to the year 535, as we are informed by Pliny. Hor. Ars Poet. ver. 331. Plin. Nat. Hist. lib. xii. cap. 13. See CEDRIA.

Solomon's temple, as well as his palace, were both of this wood. That prince gave king Hiram several cities for the *cedars* he furnished him on those occasions. Cotes is said to have erected a palace at Mexico, in which were 7000 beams of *cedar*, most of them 120 feet long, and 12 in circumference, as we are informed by Herrera. Some tell us of a *cedar* felled in Cyprus 130 feet long, and 18 in diameter. It was used for the main-mast in the galley of king Demetrius.

Le Bruyn assures us, that the two biggest he saw on mount Lebanon measured one of them 57 palms, and the other 47 in circumference.

In the temple of Apollo at Utica, there were *cedar* timbers of near 2000 years old; which yet were nothing to that beam in an oratory of Diana, at Saguntum in Spain, said to have been brought thither 200 years before the destruction of Troy.

Cedar is of so dry a nature, that it will not endure to be fastened with iron nails, from which it usually shrinks, so that they commonly fasten it with pins of the same wood.

The *cedar* brought from Barbadoes and Jamaica is a spurious sort, of so porous a nature, that the wine will leak through it.

That produced in New England is a lofty grower, and makes excellent planks, and flooring that is everlasting. They shingle their houses with it, and use it in all their buildings. This is the *oxycedrus* of Lycia, which Vitruvius describes as having its leaves resembling those of cypress.

The *cedar* of Greece and Asia was no other than a smaller kind of juniper, which, having prickly leaves, was by some called *oxycedrus*; and the common juniper was at that time called also by the name of *cedar*. The Lycian *cedar* of the Greeks was this juniper kind; but the *cedrium* and *cedrelæum*, which were a kind of pitch and an oil separated from it by melting, were not prepared from this *cedar*, but from the Syrian *cedar*, which was a larger shrub, and resembled the cypress; and therefore was confounded with that tree, being called by some the wild cypress. The *cedrium* was always made from this species; but the *oleum de cada*, or cade oil, was made from the fruit of the *oxycedrus*, or prickly-leaved juniper, called *cedar* by the Greeks, and growing in their own country.

The *shittim* and the *almug* mentioned in Scripture, are usually supposed to have been kinds of *cedar*.

Johnston, in his *Dendrographia*, is of opinion, that pitch was anciently made of *cedar*, as well as of the pine and fir, grown old and oily: Berkeley's *Siris*, sect. 18.

CEDAR, *bastard*, of Jamaica, *Theobroma*, in *Botany*, a genus of the *polyadelphia pentandria* class. Its characters are these: the empalement of the flower is composed of three oval concave leaves, which are reflexed; the flower has five oval petals which spread open, and are hollowed like a spoon; and from the top of each petal comes out a bifid bristly ligula, divided like two horns. It has a great number of short stamina, joined in five bodies, which are terminated by roundish summits; and a roundish

Roundish germen supporting a single style of the length of the petals, crowned by a single stigma; the germen turns to a roundish fruit with five angles, opening in five cells, each containing several seeds. We have but one species, which grows naturally in most of the islands in the West Indies.

The wood of this tree is white and ductile, and is therefore frequently cut into staves for casks; the fruit and leaves are good fodder for cattle.

CEDAR of Barbadoes, and Mahogany, *Cedrus*, in Botany.

This is properly a genus of the *pentandria monogynia* class in the Linnæan system. Its characters are these: the flower is of one leaf, divided at the top into five parts; with five short stamina, which adhere at bottom to the germen; in the centre is situated the roundish germen, which afterwards becomes an oval pod having five cells, opening from the bottom upward with five valves, having a double cover, the outer being thick and woody, the inner very thin, which immediately surrounds the seeds; these are thick at the base, but upward are flat and thin, like the wings adhering to the seeds of firs and pines.

As the cedar of Libanus is by Tournefort very properly referred to the genus of *larix*, and all the berry-bearing cedars are joined to the junipers; so the little *cedrus* is given to this genus, as the plants were mentioned by imperfect titles by most of the authors who have treated of them; and as the first sort has been generally known by the appellation of cedar in the countries where it naturally grows, so the applying the same name to those plants which agree in their essential characters with it will connect them properly together.

There are three species. The first is commonly known under the appellation of cedar, in the British islands of America, where this tree grows naturally, and is one of the largest trees in the country. The trunks of these trees are so large, that the inhabitants hollow them into boats and periaguas, for which purpose they are extremely well adapted: the wood being soft, is cut with great facility; and being light, will carry a great weight in the water. It has a fragrant odour, from which the name of cedar has been given to it. It is often used for wainscoting of rooms, and to make chests, because vermin do not frequently breed in it, as in many other sorts of wood, it having a bitter taste. This taste is communicated to whatever is put into the chests, especially when the wood is fresh; for which reason it is never made into casks, because spirituous liquors will dissolve part of the resin, and thereby acquire a very bitter taste.

The second sort is the mahogany, the wood of which is now well known in England. This tree is a native of the warmest parts of America, growing plentifully in the islands of Cuba, Jamaica, and Hispaniola: there are also many of them on the Bahama islands. In Cuba and Jamaica there are trees of a very large size, so as to cut into planks of six feet in breadth; and rise to a great height, notwithstanding they are sometimes found growing on rocks, where there is scarcely any earth for their nourishment. Linnæus has made a distinct genus of this under the name *SWIETERIA*.

The excellency of this wood for all domestic uses, is now sufficiently known; and it is matter of surprize, that the tree should not have been taken notice of, by any historian or traveller, to this time. The only author who has mentioned this tree is Mr. Catesby, in his Natural History of Carolina and the Bahama islands; although the wood has for many years been brought to England in great quantities.

If the plants are properly managed, they will make considerable progress in England; some are now in Chelsea garden eight or ten feet high, which are but of a few years growth from seeds.

CEDAR of Bermudas. See **JUNIPER**.

CEDAR, white. See **CYPRESS**.

CEDAR-cups, a sort of wooden ware brought from the West Indies. They are made out of the wood of the bastard cedar, and appear of a very close and firm grain; but they are really so porous, that when any liquor is poured into them, it runs out at the bottom.

CEDILLA, in the Spanish and French languages, denotes a sort of small c, to the bottom of which is affixed a kind of virgula, as ç, to denote that it is to be pronounced like s. The cedilla is called by some of our printers a *ceceril*. It is used before the vowels a, o, and u; as in *braços, choça, commença, leçon, deça*, &c. &c. in the Spanish, it is sometimes used at the beginning of a word; as is *samarra, garzar*, &c.

CEDRA. See **CITRON**.

CEDRELA, in Botany, a genus of the *pentandria monogynia* class, including only one species.

CEDRELATION, in Botany, a name given by Pliny to an imaginary tree, and faithfully copied by many authors.

The word seems evidently formed of *cedrus*, the cedar, and *clate*, the fir tree; and hence the original author of the blunder has described it as a large and high cedar, with few branches: and those who have copied from him, have described it as being of a middle nature, between the cedar and fir.

CEDRIA, a resinous liquor issuing from the great cedar-tree, or cedar of Libanon. The word is also written *cedrium*, *κεδριον*, and *cedrinum*, *κεδρινον*.

Cedria, when good, yields a strong smell, is transparent, of a thick fatty consistence, so that in pouring it out, it does not fall too fast or freely, but equally drop by drop. It is possessed of two opposite qualities, viz. to preserve dead bodies, by its drying and consuming superfluous moisture without damaging the solid parts; and to putrefy the soft and tender parts of living bodies without exciting any pain.

The *cedria* is properly the tear of the cedar. Some call it the gum, others the pitch of the cedar. The same denomination is also given to the *cedreleæon*, or oil of the cedar, which differs little from the resin, except that it is of a thinner consistence.

Pliny, speaking of the cedar, says, that the tar of it used in embalming was forced out of it by fire, and called in Syria *cedrium*. His words are: *Cujus tanta vis est, ut in Ægypto corpora hominum defunctorum eo perfusa servantur*. Dioscorides calls it the life of the dead, *νεκροζων*. See Phil. Trans. vol. liv. p. 12.

CEDRINUM (*Vinum*), cedar wine; of which there are several sorts, whose qualities are to be heating, diuretic, and gently astringent: but the *laurinum*, or bay-tree wine, is remarkably heating.

CEGINUS, in Astronomy, a fixed star of the third magnitude, in the left shoulder of Bootes. See **γ** under **BOOTES**.

CEGOLITES, in Natural History, a name by which some authors have called the *lapis JUDÆICUS*, or **TECOLITHOS** of the ancients.

CEIBA. See **COTTON-tree**.

CEILANESE GODS. See **BUDUN** and **SAKRADEWENDRA**.

CEILING, in Architecture, the top, or roof, of a lower room; or a covering of plaster, over laths nailed on the bottom of the joists that bear the floor of the upper room; or where there is no upper room, on joists for the purpose; hence called *ceiling joists*.

The word *ceiling* answers pretty accurately to the Latin *lacunar*, *every thing over head*.

Plastered ceilings are much used in England, more than in any other country: nor are they without their advantages, as they make the room lightsome; are good in case of fire; stop the passage of the dust; lessen the noise over head; and, in summer, make the air cooler.

CEILING, in Sea-Language, denote the inside planks of a ship.

CEIMELIA, from *κειμαι*, *to be laid up*, in Antiquity, denotes choice or precious pieces of furniture or ornaments, reserved or laid up for extraordinary occasions and uses.

In which sense, sacred garments, vessels, and the like, are reputed of the *ceimelia* of a church. Medals, antique stones, figures, manuscripts, records, &c. are the *ceimelia* of men.

CEIMELIARGIUM, the repository or place where *ceimelia* are preserved.

CEIMELIOPHYLAX, from *κειμηλιον* and *φυλακτω*, *I keep*, the keeper or curator of a collection of *ceimelia*; sometimes also denominated *ceimeliarcha*.

The *ceimeliarcha*, or *ceimeliophylax*, was an officer in the ancient churches or monasteries, answering to what was otherwise denominated *chartophylax*, and *custos archivorum*.

CEIXUPEIRA, in Ichthyology, the name of a fish caught in the American seas, and esteemed a very fine and delicate one, though of an enormous size. It grows to nine or ten feet long, and to the thickness of a man's body: but is chiefly eaten while young. Its body is oblong, and its head flattened. Its mouth is but small for the size of the fish, and it has no teeth in the jaws; but the whole mouth is thick set with small tubercles. Its back and sides are black, and its belly of a fine bright white. Its fins are all black, except the belly ones, which are white with a rim of black at their edge. Margrave.

CELANDINE, in Botany, *Chelidonium*, a genus of the *polyandria monogynia* class. Its characters are these: the flower hath four large roundish petals; in the centre is situated a cylindrical germen, attended by a great number of stamina. The germen afterwards becomes a cylindrical pod, with one or two cells, opening with two valves, and filled with many small seeds. There are several species.

The first sort is the common *celandine*, which is used in medicine, and is esteemed aperitive and cleansing,

ing obstructions of the spleen and liver; and is of great use in curing the jaundice and scurvy. This grows naturally on the sides of banks, and in shady places, in many parts of England, so is seldom cultivated in gardens. Miller's Gard. Dict.

Boccone has very strongly recommended this plant as a specific in the cure of consumptions: he proposes the taking it in infusion, or drinking its juice; and says enough in its praise to recommend it at least to a fair trial, which would be easily made in a country where consumptions are so common. Boccon. de Plant.

CELANDINE, *lesser*. See RANUNCULUS.

CELANDINE-tree, *greater*. See BOCCONIA.

CELANTES, in *Logic*, a denomination given by the Peripatetics to the Galenical syllogism; otherwise called CALENTES.

CELARENT, among *Logicians*, a mode of syllogism, wherein the major and conclusions are universal negative propositions, and the minor an universal affirmative.

E. gr.

CE None whose understanding is limited can be omniscient.

LA Every man's understanding is limited.

RENT Therefore no man is omniscient.

CELASTRUS, in *Botany*. See STAFF-tree.

CELE, in a general sense, denotes any TUMOUR, but more particularly that proceeding from a RUPTURE or HERNIA.

CELEBATE, or CELIBACY, the state of a person who lives out of MARRIAGE.

Scaliger derives the word from the Greek *κοινη*, *bed*, and *λειπω*, *I leave*: others say, it is formed from *celi beatitudo*, q. d. *the blessedness of heaven*.

The ancient Romans used all means imaginable to discourage *celibacy*. Nothing was more usual than for the censors to impose a fine on old bachelors. Dionysius Halicarnassensis mentions an ancient constitution, whereby all persons of full age were obliged to marry. But the first law of that kind, of which we have any certainty, is that enacted under Augustus, called *Lex Julia de maritandis ordinibus*. It was afterwards denominated *Papia, Poppæa*, and more usually *Julia Papia*, because of some new sanction and amendments made to it under the consuls Papius and Poppæus. By this law, divers prerogatives were given to persons who had many children: penalties imposed on those who lived a single life, as that they should be incapable of receiving legacies, except from their nearest relations, and not exceeding a certain proportion, &c.

The *celebate* of the clergy, which is still rigorously kept up among the Romanists, is of a pretty ancient standing. It was first proposed by the council of Nice, but without passing; it was, however, in some measure, admitted by the western councils of Elvira, Aries, Tours, &c. and enjoined by the thirty-third canon of the council of Elvira, though it does not appear that it was either generally or rigorously observed. Such among the priests as piqued themselves on the faculty of continence, took the hint; insomuch as, towards the close of the fourth century, there were few but made a profession of a voluntary *celebate*. Syricius issued a decree in 385, obliging all priests and deacons to observe *celibacy*: and it was soon after enjoined by the synods of each particular nation, and observed in most of the western churches. In 441, the council of Orange ordered those to be deposed who did not abstain from their wives; and Leo the Great, in a letter written about the year 442, extended the law of *cel bacy*, which was confined by the decree of this council to deacons, and by the letter of Syricius to deacons and presbyters, to sub-deacons likewise: but it was Gregory the Great, in 591, who first brought ecclesiastics to admit the *celebate* as a law. In the council of Trent, it was proposed to set the clergy at liberty again from the yoke of *celebate*; and this was even made an article of the Interim of Charles V. but the pope could not be brought into it.

The obligation of *celibacy* was first imposed on the clergy in England by Henry I. under the influence of pope Calixtus II. and the archbishop Anselm.

CELERES, in *Antiquity*, a body, or regiment, of guards, of the ancient Roman kings, established by Romulus; consisting of three hundred youths, chosen from the best families of Rome, and approved by the suffrages of the *curiæ* of the people, each of which furnished ten.

The name comes from *celer*, *quick*, *ready*; and was given them, because of their promptness to obey the king.

The *celeres* always attended near the king's person, to guard him, to be ready to carry his orders, and to execute them. In war, they made the van-guard in the engagement, which they always began first; in retreats, they made the rear-guard.

Though the *celeres* were a body of horse, yet they usually dismounted, and fought on foot; their commander was called *tribune*, or *prefect of the celeres*. They were divided into three troops, of one hundred each, commanded by a captain called *centurio*: their TRIBUNE was the second person in the kingdom. See CAVALRY, &c.

Plutarch says, Numa broke the *celeres*: if this be true, they were soon re-established; for we find them under most of the succeeding kings: witness the great Brutus, who expelled the Tarquins, and who was the tribune of the *celeres*.

CELERINUS, in *Ichthyology*, a name by which some authors have called the PILCHARD; called by others the *apua membras*, and CHALCIS.

CELERINUS is also used by Bellonius, and some other authors, for the common herring. See CLUPEA.

CELERITY, in *Mechanics*, is the VELOCITY of a moving body; or that affection of a body in MOTION, whereby it is enabled to pass over a certain space, in a certain time.

CELERY, in *Botany*. For the characters, see APIUM.

The seed of *celery* should be sown at two or three different times, the better to continue it for use through the whole season without running up to seed. The first sowing should be in the beginning of March, upon a gentle hot-bed; the second may be at the end of the same month, which ought to be in an open spot of light earth, where it may enjoy the benefit of the sun; the third time of sowing should be in the latter end of April, or beginning of May, on a moist soil; and if exposed to the morning-sun only, it will be so much the better, but it should not be under the drip of trees. The middle of May, some of the plants of the first sowing will be fit to transplant for blanching.

The manner of transplanting it is as follows: after having cleared the ground of weeds, you must dig a trench by a line about ten inches wide, and eight or nine inches deep, loosening the earth in the bottom, and laying it level; and the earth that comes out of the trench should be equally laid on each side the trench, to be ready to draw in again to earth the *celery* as it advances in height. These trenches should be made at three feet distance from each other; then plant your plants in the middle of the trench, at about four or five inches distance, in one straight row, having before trimmed the plants, and cut off the tops of the long leaves: and as they are planted, you must observe to close the earth well to their roots with your feet, and to water them plentifully until they have taken new root. As these plants advance in height, you must observe to draw the earth on each side close to them, being careful not to bury their hearts, nor ever to do it but in dry weather, otherwise the plants will rot. When your plants have advanced a considerable height above the trenches, and all the earth, which was laid on the sides thereof, hath been employed in earthing them up; you must then make use of a spade to dig up the earth between the trenches, which must also be made use of for the same purpose, continuing from time to time to earth it up, until it is fit for use. The last crop should be planted in a dryer soil, to prevent its being rotted with too much wet in the winter. You will do well to cover your ridges of *celery* with some pease-haulm, or some such light covering, when the frost is very hard, which will admit the air to the plants; for if they are covered too close, they will be very subject to rot; by this means you will preserve your *celery* till spring; but you must remember to take off the covering whenever the weather will permit, otherwise it will be apt to cause the *celery* to pipe, and run to seed. The *celery*, when full blanched, will not continue good above three weeks or a month before it will rot or pipe; therefore, in order to continue it good, you should have, at least, six or seven different seasons of planting, proportioned to the consumption.

The other sort of *celery*, which is commonly called *celeriac*, is to be managed in the same manner; excepting that this should be planted on the level ground or in very shallow drills: for this plant seldom grows above eight or ten inches high, so requires but little earthing up; the great excellency of this being in the size of the root, which is often as large as ordinary turneps.

The best method to save the seed of *celery*, is to make choice of some long good roots of the upright *celery*, which have not been too much blanched, and plant them out, at about a foot asunder, in a moist soil, early in the spring; and when they run up to seed, keep them supported with stakes, to prevent their being broken down with the wind: and in July when the seed begins to be formed, if the season should prove very dry, it will be proper to give some water to the plants, which will greatly help its producing good seeds. In August these

seeds will be ripe, at which time it should be cut up, in a dry time, and spread upon cloths in the sun to dry; then beat out the seeds, and preserve it in bags for use. The qualities of *celery* agree with those of *SMALLAGE* and *PARSLEY*, which see.

CELERY, wild, *Apium antarcticum*, was found in considerable quantities by Mr. Banks and Dr. Solander, on the coast of Terra del Fuego. It is like the garden *celery* in the colour and disposition of the flowers, but the leaves are of a deeper green. The taste is between that of *celery* and *parsley*. It is a very useful ingredient in the soup for seamen, because of its antiscorbutic quality. Hawkesworth's *Voyages*, vol. ii. p. 60, &c.

CELESTINS, an order of religious, called also the congregation of *St. Damian*, reformed from the Bernardines, in 1224, by pope Celestin V. then only Peter De Murroni, of Iternia in Naples; and established in 1264, by pope Urban IV. and confirmed by Gregory, X. in 1274. They were introduced into France by Philip the Fair, who requested a dozen of them from the general of their order, by his ambassador at Naples, in 1300. This order still subsists in France and Italy.—It is a kind of proverb with them *Voila un plaisant Celestin*.

CELETES, or **CELETÆ**, from *κελες*, a race horse, in *Antiquity*, denote single or saddle-horses, by way of contradistinction from those yoked or harnessed together, called *bigarii*, *quadrigarii*, &c.

The same denomination is also given to the cavaliers, or riders on horseback; and hence some deduce *celeris*, the name of Romulus's guard.

CELEUSMA, or **CELEUMA**, in *Antiquity*, the shout or cry of the seamen whereby they animated each other in their work of rowing.

The word is formed from *κελευειν*, to call, to give the signal.

CELEUSMA was also a kind of song or formula, rehearsed or played by the master, or others, to direct the strokes and movements of the mariners, as well as to encourage them to labour. See **CELEUSTES**.

Aquinas, without much foundation, extends the *celeusma* to the military shouts in land armies.

When Christianity got footing, hymns and psalms were sung in vessels, by way of *celeusma*, in which the words *amen* and *hallelujah* were frequently repeated.

CELEUSTES, in *Ancient Navigation*, the boatswain or officer appointed to give the rowers the signal, when they were to pull, and when to stop. See **CELEUSMA**.

He was also denominated *epopeus*, and by the Romans *portifculus*; sometimes simply *hortator*.

CELIAC passion. See **COELIAC**.

CELIBATE. See **CELEBATE**.

CELIDOGRAPHIA, the description of the SPOTS which appear on the faces of the sun and planets.

The word is formed from *κελος*, macula, spot, and *γραφω*, I describe.

Signior Bianchini has published a *celidographia*, or description of the spots of the sun.

CELIMIA, in the *Materia Medica*, a name given by the modern Greeks to the calamine, or lapis CALAMINARIS. The Arabians called this substance *climia*, and sometimes *calimia*; and *celimia* was but a very small change from this.

CELL, *Cella*, in *Ancient Writers*, denotes a place or apartment usually under ground, and vaulted; in which were stored up some sort of necessaries, as wine, honey, wheat, and the like; according to which it was peculiarly denominated *cella vinaria*, *oleria*, *mellaria*, *penaria*, &c.

The word is formed from *celare*, to conceal. See **CELLS**.

CELLA was also used for the lodge, or habitation of a common woman or prostitute, as being under ground; hence also denominated *fornix*.

*Intravit calidum veteri centone lupanar,
Et cellam vacuum.* Juv. Sat. vi. ver. 121.

On which place an ancient scholiast remarks, that the names of the whores were written on the doors of their several *cells*; by which we learn the meaning of *inscripta cella*, in Martial, lib. xi. ep. 46.

CELLA was also applied to the bed-chambers of domestics, and servants; probably as being low and narrow.

Cicero inveighing against the luxury of Antony, says, the beds in the very *cellæ* of his servants were spread with pompous purple coverlets.

CELLA is also applied to the members or apartments of BATHS.

Of these there were three principal, called *frigidaria*, *tepidaria* and *caldaria*. To which may be added a fourth, called *cella asæ*, and sometimes *sudatoria*.

CELLA was also applied to the *adyta*, or inmost and most retired parts of the temples, wherein the images of the gods, to whom the edifices were consecrated, were preserved. In this sense, we meet with *cella Jovis*, *cella*

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Concordiæ, &c. Pub. Victor calls them *delubra*; and Pliny by a more comprehensive name, *ædes*. Hist. Nat. lib. xxxv. cap. 10.

The Roman capitol, we are told by Dionysius, had three such *cellæ*, or chapels; the middlemost of which was sacred to Jupiter, that on the right hand to Minerva, and that on the left to Juno.

CELL is also used for a lesser or subordinate sort of monastery, dependent on a great one, by which it was erected, and continues still to be governed. The great abbeys in England had most of them *cells* in places distant from the mother-abbey, to which they were accountable, and from which they received their superiors.

The alien priories in England were *cells* to abbeys in Normandy, France, Italy, &c.

The name *cell* was sometimes also given to rich and considerable monasteries not dependent on any other. Such was that called *cella vetus*, erected by Otho, surnamed the Rich, marquis of Misnia, in the middle of the twelfth century, the most splendid abbey in that country.

CELLAR, *Cellarium*, in *Ancient Writers*, denotes the same with **CELLA**, viz. a conservatory of eatables, or drinkables.

Cellar differs from **VAULT**, as the latter is supposed to be deeper, the former being frequently little below the surface of the ground.

In which sense, *cellarium* only differed from *penus*, as the former was only a store-house for several days, the latter for a long time. Thus it is, the *BACTROPERATE*, a sort of ancient Cynics, are said by St. Jerome to carry their *cellar* about with them. Hieron. in Matth. cap. x.

CELLARIUM also denoted an allowance of bread, wine, oil, or other provision, furnished out of the *cellar* to the use of the governor of the province, and his officers, &c. In which sense, the word amounts to much the same with **ANNOŃA**.

CELLARS, in *Modern Building*, are the lowest rooms in a house, the ceilings of which usually lie level with the surface of the ground on which the house is built.

Cellars, and other places vaulted under ground, were called by the Greeks *hypogæa*: the Italians still call them *fundi delle case*.

As to the situation of *cellars*, sir Henry Wotton says, they ought, unless the whole house be cellared, to be situated on the north side of the house, as requiring a cool fresh air.

CELLARER, or **CELLERER**, *Cellerius*, or *Cellularius*, an officer in monasteries, to whom belong the care and procurement of provisions for the convent.

The denomination is said to be borrowed from the Roman law, where *cellarius* denotes an examiner of accounts and expences. Ulpian defines it thus: *Cellularius, id est, ideo præpositus ut rationes salvæ sint*.

The *cellularius* was one of the four *obedientarii*, or great officers of monasteries: under his ordering was the *pistrinum* or bakehouse, and the *bracinum*, or brewhouse. In the richer houses there were particular lands set apart for the maintenance of his office called in ancient writings, *ad cibum monachorum*. The *cellularius* was a great man in the convent. His whole office in ancient times had a respect to that origin: he was to see his lord's corn got in, and laid up in granaries; and his appointment consisted in a certain proportion thereof, usually fixed at a thirteenth part of the whole; together with a furred gown. The office of *cellarer* then only differed in name from those of bailiff and minstrel; excepting that the *cellarer* had the receipt of his lord's rents through the whole extent of his jurisdiction.

CELLARER was also an officer in chapters, to whom belonged the care of the temporals, and particularly the distributing of bread, wine, and money to canons, on account of their attendance in the choir. In some places he was called *cellarer*, in others *burser*, and in others *currier*.

CELLEPORÆ, in *Botany*, the name of a genus of marine plants, or rather animals; and class of worms in the Linnæan system. They are of the genus of the *lithophyta*, and have oblong creeping hollows in several parts. See **CORAL**.

CELLITES, **CELLITÆ**, an order of religious, founded at Antwerp in the beginning of the fourteenth century, whose patron was Alexius, a Roman; and, therefore, in Italy they are called *Alexians*, but in Germany, and the Low Countries, where they have monasteries, *Cellites*, i. e. people inhabiting cells. See **LOLLARDS**.

CELLS, *Celle*, *Cellula*, are little houses, apartments, or chambers; particularly those wherein the ancient monks, solitaries, and hermits, lived in retirement.

Some derive the word from the Hebrew כלא, i. e. a prison, or place where anything is shut up.

The same name is still retained in divers monasteries.

The dormitory is frequently divided into so many *cells*, or lodges.

The Carthusians have each a separate house, which serves them as a *cell*.

The hall wherein the Roman conclave is held, is divided by partitions into divers *cells*, for the several cardinals to lodge in.

CELLS, in *Anatomy*, are little bags, or bladders, where fluids, or other matters are lodged; called also *loculi*, *cellulae*, &c.

CELLS are also the little divisions, or apartments, in honeycombs, where the honey, young bees, &c. are distributed: these are always regular hexagons.

CELLS of plants, in *Botany*, are those partitions or hollow parts, in the husks or pods of plants, wherein the seed is lodged.

CELLULÆ Adiposæ, in *Anatomy*, the *loculi*, or little *cells*, wherein the fat of bodies of good habit is contained. See **ADEPS**, and **ADIPOSUS**.

These are co-extended with the skin itself, except on the forehead, the eye-lids, *penis*, and *scrotum*. In emaciated bodies, these *cells*, being unfurnished of their fat, appear like a kind of flaccid, transparent membrane.

The *cellular membrane* is reticular and adipose. The substance of the reticular part is merely a net-work of slender fibres and small membranes, whence it derives its ductility and looseness; such as it is found under the skin of the *penis* and *scrotum*: in other parts, as under the skin of the nates, and under the soles of the feet, it is loaded, with oil, and less porous in its substance. The former part is dispersed through the whole body, except in the substance of the bones, brain, and humours of the eye, covering the solids of the body, the muscles, tendons, ligaments, and nerves, and uniting them to one another; and it is even intermixed with the substance of the skin. About the joints, the *cellular membrane* is chiefly reticular, for the sake of easy motion; under the skin in general it is adipose, between which stratum and the surface of the muscular mass it is loose, and chiefly reticular. In the *fœtus*, that part only of this membrane is adipose, which is upon the outside of the body: as we grow up, the fat is more equally dispersed through the body, and its greater quantity in proportion about the *viscera*. Dr. Hunter is of opinion, that the fat in the body is lodged in a glandular apparatus superadded to the reticular membrane, consisting of vesicles or bags for this purpose, and of vessels fitted for secretion. See *Med. Obs.* vol. i. p. 26, &c.

CELLULÆ, in the **COLON**, a sort of spaces wherein the **EXCREMENTS** continue some time before they are voided.

CELLULANUS, a monk inhabitant, or resident in a cell, or **CELLA**.

He is also denominated *concellaneus* and *syncellista*, by which are imported the relation of fellow-monks, or those who live in the same cell or convent.

CELLULAR, or **CELLULOSE**, an appellation given by Ruyfch, to the second coat of the intestines; in which fat is often found. *Heist. Comp. Anat.* § 211. p. 104. Wharton also takes notice of a *cellulose* coat in the **MESENTERY**, wherein fat is contained.

Heister thinks that a *cellulose* coat may also be added to the three coats in the human **BLADDER**, by reason fat is often found between the outermost and muscular coat, where it is secreted, collected, and preserved in little adipose cells.

CELOSIA, **AMARANTH**, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flower hath five erect sharp-pointed petals, which are permanent, stiff, and shaped like a flower-cup. It hath a small nectarium joined to the border of the germen, to which adhere the five stamina, which are terminated by turning summits; the empalement afterwards becomes a globular capsule with one cell opening horizontally, containing roundish seeds. There are three species. Linnæus has separated the plants of this genus from the amarantus, which have been generally joined with them because those have male and female flowers on the same plants, whereas these have only hermaphrodite flowers.

CELSIA, in *Botany*, a genus of the *didynamia angiospermia* class. Linnæus gave it this name in honour of Dr. Celsus, professor at Upsal. We have no English name for this plant. Its characters are these: the flower is of one leaf, with a very short tube, spread open above, and cut into five unequal parts; the two upper being small, and the under larger. It hath four hairy stamina, which incline toward the upper segment of the petal. In the centre is situated a roundish germen, which afterward becomes a roundish capsule compressed at the top, sitting upon the empalement; and hath two cells, which are filled with small angular seeds. We know but one

species of this plant, which is a native of Armenia.

CELTES, in *Ancient History*; under this name must be understood, not only the Gallic philosophers, but all those which anciently flourished in other parts of Europe. The history of the *Celtic* philosophy affords nothing certain; nor is the obscurity in which it is involved to be wondered at, considering the remoteness of the times. We discover nothing either in our own usages, or from the testimony of Latin authors, by which to resolve our doubts concerning this people; all monuments of those times being destroyed, and their dogmas not being committed to writing; as it was their custom to transmit them by tradition.

Some of their hymns, however, are reported to be preserved among those northern nations which have not been subject to the revolutions which have so often subverted the southern parts of Europe. Extracts from the *Edda*, a course of poetry for the instruction of the Iceland youth, and said to contain the *Celtic* mythology, have been lately published; though from whence obtained, does not appear. See **DRUIDS**.

CELTIS, in *Botany*. See **NETTLE-tree**.

CEMENT, or **CÆMENT**. See **CÆMENT**.

CEMENTATION, or **CÆMENTATION**. See **CÆMENTATION**, and **GOLD**.

CEMETERY, *cæmeterium*, a dormitory, or sacred place set apart for the burial of the dead.

Chorier observes that under *cæmeterium*, *κοιμητήριον*, from *κοιμᾶω*, *I sleep*, anciently was comprehended, not only the strict dormitory, or place where the dead were disposed; but all the lands which encompassed the parish churches, and were contiguous to the real churches. —Perhaps it might be added, that all the church domains were comprised under *cæmeterium*. This will best account for that confiscation of the *cemeteries* charged on Valerian.

In the early ages, the Christians held their assemblies in the *cemeteries*, as we learn from Eusebius and Tertullian; the latter of whom calls those *cemeteries* where they met to pray, *arææ*. Valerian seems to have confiscated the *cemeteries*, and places destined for divine worship, which were restored again to the Christians by Gallian. In the rescript of that emperor, which is preserved by Eusebius, *cemeteries* and places of worship are used as synonymous terms. It being here the martyrs were buried, the Christians chose those places to have churches in, when leave was given them by Constantine to build. And hence some derive that rule which still obtains in the church of Rome, never to consecrate an altar, without putting under it the relics of some saint. See **BURIAL**.

The heathen writers frequently upbraid the primitive Christians for their meetings in *cemeteries*; as if they served other purposes besides those of religion. The council of Elvira prohibits the keeping of tapers lighted in *cæmeteria*, during the day-time; and by another canon, the women from passing the night watching in *cæmeteria*.

The practice of consecrating *cemeteries* is of some antiquity: the bishop walked round it in procession, with the crozier, or pastoral staff, in his hand, the holy water-pot being carried before, out of which aspersions were made.

CENCHRAMIDEA, in *Botany*, a name given by Plukenet to a genus of plants afterwards called, by Plumier and Linnæus, **CLUSIA**.

CENCHRAMUS, in *Zoology*, a name by which some authors have called the *EMBERIZA alba*; called in English, the **BUNTING**.

CENCHRIS, in *Zoology*, the name given by many authors to the kestrel, or windhover, a species of hawk, of the long-winged kind, called the **TINNUNCULUS**, and by some in English, the *flannel*.

CENCHRIS, is also the name of a species of serpent; so called because of its small spots, which resembled the seeds of millet. It grows to five feet or more, in length, and is considerably thick and large, and grows very taper at the tail. It is of a greenish yellow colour, and is yellowish toward the belly. It is found in the islands of the Archipelago, particularly in Lemnos and Samos. Ray.

CENCHRUS, in *Botany, the name given by Linnæus to a genus of plants, of the *polygamia monoecia* class; called by Micheli, *panicashella*; the characters of which are these: the cup consists of a number of involucra, collected into a sort of head, these are jagged and echinated, and each of them contains three calyces; the perianthia are bivalve glumes of a hollowed and pointed figure, each containing two flowers, and are shorter than those flowers; the flowers are some male, and others of the hermaphrodite kind; each flower is bivalve, the*

valves being pointed, hollow, and without awns, and the inner one smaller than the outer. The stamina are three in each flower, and the long pointed filaments, each sustaining a sagittated apex. The pistil in the hermaphrodite flowers is formed of a roundish germen, a slender style of the same length with the stamina, and two oblong hairy stigmata; this is succeeded by a single seed to every flower, which is of a roundish shape.

CENEGILD, in the *Saxon Antiquities*, an expiatory mulct, paid by one who had killed a man, to the kindred of the deceased. The word is compounded of the Saxon *cinne*, i. e. *cognatio, relation*, and *gild, solutio, payment*.

CENEONTLATOTI, in *Ornithology*, the name of an American bird described by Nieremberg, and called by that author, *avis POLYGLOTTA*. It is famous for the different modulations of its voice, and excels even the nightingale in melody.

CENNING, *Cenninga*, or *Kenninga*, in our *Ancient Books*, denotes notice given by the buyer to him of whom he had bought, that the thing purchased was claimed by another, that he might appear and avow, or warrant his bargain.

The word is formed of the Saxon *cennan, auctorem advocare, to call an author*. Du-Cange.

CENOBITE, or **COENOBITE**. See **COENOBITE**.

CENOTAPH, an empty tomb, or a monument without a body under it; erected only by way of honour to the deceased.

The word is compounded of *κενός*, empty, and *τοπος*, tomb.

It stands distinguished from *sepulchre*, in which a corpse is actually deposited.

Cenotaphs are honorary tombs, erected either to persons buried in another place, or to those who have received no BURIAL, and whose relics cannot be found, as being killed in battle, lost at sea, or the like. Among the ancients, the same privileges and religious regard were allowed to these *tumuli inanes & honorarii*, as to real tombs. Card. Norris has a treatise expressive on the *cenotaphs* of the Cæsars, Caius and Lucius, which are still seen at Pisa. Lamprid. in Alex. cap. 63.

CENOTZQUI, in *Ornithology*, the name of an American bird described by Nieremberg, and called *avis evocatrix nivis*, because it always is very clamorous before snow falls, and afterwards becomes silent. It is a very beautiful variegated bird, and lives as well in the colder as hotter climates, but is principally seen among the mountains. It has a very remarkable way of twisting its head about; so that, without moving its body, it easily sees every way round it. There is another species of it a little differing in the disposition of the colours, which some call *liceto*.

CENSAL, in the Mediterranean ports, denotes a regular or established broker, authorised to negotiate between merchant and merchant.

CENSER, in *Antiquity*, a kind of vessel wherein incense was burnt to the gods.

Censer is chiefly used in speaking of the Jewish worship. Among the Greeks and Romans, it is more frequently called *thuribulum*, *καύσπις*, and *ACERRA*.

The Jewish *censer* was a small sort of chafing-dish, covered with a dome, and suspended by a chain. Josephus tells us, that Solomon made twenty thousand gold *cenfers* for the temple of Jerusalem, to offer perfumes in, and fifty thousand others to carry fire in.

CENSER, the same with **ARA**.

CENSIO, in *Antiquity*, the act or office of the **CENSOR**. See **CENSUS**.

Censio included both the rating or valuing a man's estate, and the imposing mulcts and penalties.

CENSIO hastaria, a punishment inflicted on a Roman soldier for some offence, as laziness or luxury, whereby his *hastæ* or spear was taken from him, and consequently his wages, and hopes of preferment stopped.

CENSITUS, a person censured, or entered in the censural tables. See **CENSUS**.

In an ancient monument found at Ancyra, containing the actions of the emperor Octavius, we read,

*Quo lustro civium Romanorum
Censita sunt capita quadragies
Centum millia & sexaginta tria.*

CENSITUS is also used in the *Civil Law* for a servile sort of tenant, who pays capitation to his lord for the land he holds of him, and is entered as such in the lords rent-roll. In which sense, the word amounts to the same with *capite census*, or *capite censitus*. See **CAPITE CENSI**.

CENSOR, in *Antiquity*, one of the prime magistrates in ancient Rome; whose business was to survey and rate the people, and to inspect and correct their manners.

The word is derived from *censere*; because he assessed and valued every man's estate; registering their names, and

placing them in a proper century, that the Romans might know their own strength; though others say the *cenfors* were so called on account of their other office; viz. as being comptrollers, or correctors of manners and policy. There were two *cenfors* first created in the year of Rome 311, upon the senate's observing, that the consuls were too much taken up with matters of war, to be left at leisure for looking near enough into private affairs. The two first were Papirius and Sempiternus: their authority extended over every person; and they had a right to reprehend the highest. At first they were taken out of the senate; but after the plebeians had got the consulate open to them, they soon arrived at the *cenforship*. M. Rutilius was the first; who, having been twice consul and dictator, in the year 402 demanded the office of *cenfor*.—The custom was to elect two; the one of a patrician family, the other a plebeian; and upon the death of either, the other was discharged from his office, and two new ones elected; but not till the next lustrum.—In the year 414, a law was made, appointing one of the *cenfors* to be always elected out of the plebeians; which held in force till the year 622, when both *cenfors* were chosen from among the people; after which time, it was shared between the senate and people.

This office was so considerable, that none aspired to it till they had passed all the rest: so that it was looked on as surprising, that Crassus should be admitted *cenfor*, without having been either consul, or prætor.—The term of this office was at first established for five years; but that institution only lasted nine; Mamertinus the dictator, in the year 420, made a law, restraining the *censure* to a year and a half; which was afterwards observed very strictly.

The business of the *cenfors* was, to register and value the effects, &c. of the Roman citizens; and to impose taxes, in proportion to what each person possessed. Cicero reduces their functions to the numbering of the people; the correction and reformation of manners; the estimating the effects of each citizen, the proportioning of taxes; the superintendence of tribute; the exclusion from the temples, and the care of the public places. They had also a right, *senatu ejicere*, to expel from the senate such of the members as they judged unworthy of the dignity: as well as to break and cashier the knights who failed in their duty, by taking from them the public horse, *equum adimere*.

There are many examples of senators expelled by the *cenfors*, generally for good reasons, yet sometimes through mere peevishness, envy, or revenge: but in such cases, there was always the liberty of an appeal to the final judgment of the people. So that the censorian power, properly speaking, was not that of making or unmaking senators, but of enrolling only those whom the people had made; and inspecting their manners, and animadverting upon their vices; over which they had a special jurisdiction delegated by the people. Their rule of censuring seems to have been grounded on an old maxim of the Roman policy, enjoining, *that the senate should be pure from all blemish, and an example of manners to all the other orders of the city*: as we find it laid down by Cicero in his Book of Laws, which were drawn, as he tells us, from the plan of the Roman constitution.

Besides the task of enrolling the senators, and inspecting their manners, it was a part likewise of the censorian jurisdiction to let out to farm all the lands, revenues, and customs of the republic; and to contract with artificers for the charge of building and repairing all the public works and edifices, both in Rome, and the colonies of Italy. Now in this branch of their office it is certain that they acted merely under the authority of the people, and were prohibited by law to let out any of the revenues, except in the rostra, under the immediate inspection, and in the very presence of the people.

In the general census and review of the city, held by them every five years, though every single citizen was particularly summoned and enrolled by name in his proper tribe, as a freeman of Rome, yet that solemn enrollment, as Cicero tells us, did not confirm any man's right to a citizenship, but signified only that he had passed for a citizen at that time; because the proper power of determining that right resided always in the people. Cicero pro Arch. 5. Liv. x. 52. Middleton of Rom. Sen. p. 59, 68, 70, 83, &c.

The office continued to the time of the emperors, who assumed the authority of it to themselves, but without the name, calling themselves instead of *cenfors*, *morum præfeti*; though Vespasian and his sons took a pride to be called *cenfors*, and put this among their other titles on their coins. Decius attempted to restore the dignity to a particular magistrate. After this we hear no more of it till Constantine's time, who made his brother *cenfor*; the last who seems to have enjoyed the office.

The

The republic of Venice has at this day a *censor* of the manners of their people whose office lasts six months.

CENSORS of books, are a body of doctors, or other officers, established, in divers countries, to examine and give their judgment of all books, before they go to the press; and to see they contain nothing contrary to the faith, and good manners.—In England we had formerly an officer of this kind, under the title of *licenser of the press*; but since the Revolution the press has been open.

At Paris, the *faculty of theology* claim the privilege of *censors*, as granted to them by the pope; and it is certain they had been in possession of it for many ages: but in the year 1624, a new commission of four doctors were created, by letters patent, the sole public, or royal *censors*, and examiners of all books; and answerable for every thing contained therein. The faculty, however, still maintain their claim, by taking occasion now and then to give their approbation to books.

CENSORIAL, *cenforius*, something that relates to the office of **CENSOR**.

In which sense we meet with *cenforia nota*, or *animadversio*, *cenforia virgula*, &c.

CENSORIAL law, *cenforia lex*, denotes a law passed or enacted by the **CENSORS**.

CENSORIAL man, *homo cenforius*, a person who has borne the dignity and served the office of **CENSOR**.

CENSORIAL note, *virgula cenforia*, among the ancient *Grammarians* and *Critics*, denoted a note or mark of reprobation, affixed to those passages of a book or writing, which the critic disapproved or condemned.

CENSUAL books, *libri censuales*, those wherein the census was taken down.

CENSUALES, in a substantive sense, denoted the clerks or public scribes who wrote the *censual* books.

CENSURE, **CENSURA**, is popularly used for a judgment whereby some book, person, or action, is blamed, or condemned; more particularly for a reprimand made by a superior, or person in authority.

CENSURES, *ecclesiastical*, are the public menaces which the church makes, or pains and penalties incurred by disobeying what she enjoins; or rather the pains and punishments themselves: as interdiction, excommunication, &c.

Till the time of the Reformation, the kings of England were subject to the *censures* of the church of Rome; but the kings of France have always maintained themselves exempt from them.

The canonists distinguish two kinds of *censures*; the one *de jure*, and the other *de facto*, or by sentence.

CENSURE is also a custom, in several manors in Cornwall and Devon, whereby all the tenants above the age of sixteen are called to swear fealty to the lord, to pay two pence *per poll*, and a penny *per annum*, ever after, as **CERT-money**, or common fine.

CENSUS, among the Romans, was an authentic declaration made by the several subjects of the empire, of their respective names and places of abode, before proper magistrates, in the city of Rome, called *censors*; and in the provinces *cenfitors*, by whom the same were registered.

This declaration was accompanied with a catalogue, or enumeration, in writing, of all the estates, lands, and inheritances, they possessed; their quantity, quality, place, wives, children, tenants, domestics, slaves, &c.

The *census* was instituted by king Servius Tullius; to be held every five years. It went through all the ranks of people, though under different names; that of the common people was called *census*, or *lustrum*; that of the knights, *cenfus*, *recensio*, *recognitio*; that of the senators, *lectio*, *relectio*.

Hence, also, *census* came to signify a person who had made such a declaration: in which sense it was opposed to *incensus*, a person who had not given in his estate, or name, to be registered.

The *census* among the old Romans was held, as is commonly thought, every five years; but this must not be taken to be precisely true: on the contrary, Dr. Middleton has shewn, that both the *census* and *lustrum* were for the most part held irregularly and uncertainly, at very different and various intervals of time. See **LUSTRUM**.

The *census* was an excellent expedient for discovering the strength of the state: by it they learnt the number of the citizens, how many were fit for war, and who for offices of other kinds; and how much each was able to pay of taxes towards the charge of the war.

The *census*, according to Salmasius, was peculiar to the city of Rome. That in the provinces was properly called *profectio* and *απογραφή*. But this distinction is not every where observed by the ancients themselves.

In the provinces, the *census* not only served to discover the substance of each person, but where, and in what manner and proportion, tributes might be best imposed.

CENSUS was also used for the book or register wherein the professions of the people were entered.

In which sense, the *census* was frequently cited and appealed to, as evidence in the courts of justice.

CENSUS is also used to denote a man's whole substance or estate.

CENSUS senatorius, the patrimony of a senator, which was limited to a certain value; being at first rated at eight hundred thousand sesterces, but afterwards, under Augustus, enlarged to twelve hundred thousand. Sueton. in *Cæs.* cap. 41.

CENSUS equester, the estate, or patrimony of a knight, rated at four hundred thousand sesterces, which was required to qualify a person for that order, and without which no virtue or merit was available. Suet. in *Cæs.* cap. 33. Hor. lib. i. ep. i. ver. 57, 58, 59.

CENSUS was also used for a person worth a hundred thousand sesterces, or who was entered as such in the *censual* tables, on his own declaration.

In which sense *census* amounts to the same with *classicus*, or a man of the first class; though Gellius limits the estate of those of this class to a hundred and twenty-five thousand asses. By the Voconian law, no *census* was allowed to give by his will above a fourth part of what he was worth to a woman. Aul. Gell. Noct. Att. lib. vii. cap. 13. Cic. in Verr. 3.

CENSUS was also used to denote a tax or tribute imposed on persons, and called also capitation. See **CAPITE censu**.

CENSUS dominicatus, in *Writers of the Lower Age*, denotes a rent due to the lord.

CENSUS duplicatus, double rent or tax, paid by vassals to their lord, on extraordinary or urgent occasions; as expeditions to the Holy Land, &c.

CENSUS ecclesia Romanæ, was an annual contribution, voluntarily paid to the see of Rome by the several princes of Europe.

CENSUS siccus, that paid in money.

CENT, in *Commerce*, an abbreviation of the Latin *centum*, which properly signifies a hundred. It is applied when expressing the profit or loss upon any commodity.

CENT is also used in the trade of money, and signifies the benefit, profit, or interest of any sum of money which is laid out for improvement. Thus we say money is worth 4 or 5 *per cent.* upon exchange; that is, it brings four or five pounds profit for every 100*l.* laid or lent out.

CENT is also used with regard to the draughts, or remittances of money, made from one place to another. Thus we say it will cost 2½ *per cent.* to remit money to such a city.

CENTAURIUM minerale, among *Chemists*, a name given by some to the **PANACEA** of antimony, called also by Glauber, *purgans universale*; the preparation of which is given by Juncker.

CENTAUIROIDES, in *Medicine* and *Pharmacy*, the same with **GRATIOLA**.

Others give the denomination to the greater **CENTAURY**.

CENTAURS, in *Mythology*, a kind of fabulous monsters, half men, half horses. The poets feign that the *centaurs* were the sons of Ixion and a cloud. The reason of which fancy was, that the castle to which they retired was called Νεφέλη, which signifies a cloud. Pind. Pyth. Od. 2. This fable is differently interpreted.

The *centaurs*, in reality, were a tribe of Lapithæ, who inhabited the city Pelethronum, adjoining to mount Pelion, and first invented the art of breaking horses: as is intimated by Virgil. Georg. lib. iii. ver. 115.

CENTAURUS, **CENTAUR**, in *Astronomy*, a part or moiety of a southern constellation, in form, half man, half horse; usually joined with the wolf. See **LUPUS**.

The word comes from κενταυρος, formed of κεντεο, *pungo*, and ταυρος, *bull*, q. d. *bull-pricker*.

The stars of this constellation, in Ptolemy's Catalogue, are 37; in Tycho's 4; and in the Britannic Catalogue, with Sharp's Appendix, 35: the order, names, longitudes, latitudes, magnitudes, &c. of which, are as follow.

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude. S.	Magnitude.
Preced. in the head of the Centaur }	i	♏	2 22 43	20 33 34	4.5
South in the head	g		3 41 36	21 34 40	4.5
Middle	k		3 36 0	20 2 50	4.5
Subseq. and North in the head	b		3 27 55	18 57 0	4.5
In the right shoulder	θ		8 0 18	21 59 6	2.3
5.					
Preced. shoulder	ι	♏	29 22 4	25 56 56	3
In the left arm	↓	♏	2 42 6	27 34 53	4
North. of foremost in the shield	l		11 55 27	22 27 8	4
Southern	ο		13 1 54	23 47 3	4
Northern of the subseq. in ditto	π		15 34 17	18 19 58	4

Names and situations of the stars.	Bayer's Char.	Signs.	Longitud.	Latitude. S.	Magnitude.
Southern.			16 8' 40"	20 55' 9"	4
Preced. of the three in right side	s		7 18' 4"	28 12' 59"	4
Middle	v		7 44' 28"	28 55' 59"	4
Last	φ		9 13' 28"	27 58' 33"	4
In the right arm.	m		10 18' 14"	26 35' 10"	5
15.					
In the right elbow	κ		16 25' 33"	25 28' 6"	3
In the right hand	σ		20 58' 54"	24 0' 44"	4
In the extremity of the human body.	λ		11 9' 29"	32 52' 14"	3
	κ		11 32' 24"	30 54' 40"	5
	κ		10 34' 55"	30 23' 14"	5
2.					
In the horse's back	ω		5 52' 40"	35 10' 47"	N
Second of the two in the loins	μ		28 32' 26"	40 6' 29"	2.3
First	α		27 32' 8"	40 4' 34"	4.5
Northern in the right thigh	β		23 41' 23"	44 27' 21"	3
Southern	ε		25 35' 53"	45 31' 6"	5
25.					
	d		27 32' 36"	43 30' 46"	6
	η		26 56' 57"	42 21' 58"	5
In the Belly	m		11 43' 9"	39 30' 16"	2
Northern of those called Croifers	ε		2 56' 38"	47 44' 49"	2
Southern foot of the crois	ζ		8 5' 23"	52 48' 24"	2
30.					
Before the crois	ν		1 54' 16"	50 21' 13"	3
After the crois	ξ		7 51' 31"	48 34' 12"	2
In the right foot	α		26 5' 57"	42 26' 58"	1
In the left knee	γ		9 59' 17"	44 3' 47"	2
Between the last and the fore-molt of the triangle			28 33' 12"	46 7' 43"	3

CENTAURY, *the greater*, **KNAPWEED**, *blue BOTTLE*. &c. in Botany, a genus of the *syngenesia polyamia frustanea* class. Its characters are these: it hath a compound flower, whose disk is composed of many hermaphrodite florets, and the border, or rays, of female florets, which are larger and looser; these are included in a common scaly empalement. The germen is situated under the petal, which afterwards becomes a single seed, shut up in the empalement; the female florets have a slender tube, which expands above, where it is enlarged, and cut into five unequal parts: these are barren. Miller specifies twenty sorts of it.

The root and leaves of the plant are esteemed vulnerary and astringent; they are given in infusion, in dysenteries, profluvia of the menses, and hæmorrhages of all kinds. The common people also are very fond of the root in France, as a remedy for bruises, and for dissolving coagulated blood. Schroder also gives it great praises as a deobstruent: he tells us it is of excellent use in distemperatures of the liver, and in obstructions of the menses glands. He prescribes the root in powder.

CENTAURY the lesser, **CENTURIUM minus**, is a small and low plant, with leaves growing by pairs, and a flower consisting of a purple petal, cut into five segments, and a tubulous calyx divided in like manner.—Its leaves are esteemed a good bitter, and very serviceable to the stomach, either in the compositions of that kind, or *per se* in decoction or infusion, which is best made in wine. It discusses and absterges viscid humours; is good against worms, and by some also is extolled as an alexipharmic, febrifuge, &c. The bitter substance of the leaves is soluble by water, or by spirit of wine. The green colour resides in the resinous part, being extracted by spirit of wine, but not by water. See **GENTIAN**, of which this plant is a species.

CENTELLA, in Botany, a genus of the *monoclea tetrandia* class, having male and female flowers. The *involucrum* of the male sort consists of four leaves, and five flowers; and that of the female sort is composed of two leaves, and a single flower; the latter hath two styles, and a double-celled pericarpium; and both have four petals.

CENTENARIUS, or **CENTENARIO**, in the *Middle Age*, was an officer who had the government or command, with the administration of justice, in a village, or division containing a hundred freemen. The *centenarii* were under the jurisdiction and command of a superior officer, called the count or *comes*. We find them both among the Franks, Germans, Goths, Lombards, &c.

CENTENARIUS is also used for an officer who had the command of a hundred men; more frequently called **CENTURION**.

CENTENARIUS, in *Monasteries*, was an officer who had the superintendence of a hundred monks.

CENTENARIUS was also used for a person worth a hundred thousand sesterces; otherwise called **CENSUS**.

CENTENINUM ovum. See **EGG**.

CENTER, or **CENTRE**, in a general sense, denotes a point

equally remote from the extremes of a line, figure or body; or the middle of a line, or plane, by which a figure or body is divided into two equal parts.

The word is *κεντρον*, which primarily signifies a point; being formed from the verb *κεντρειν*, *pungere*, to prick.

CENTER of a bastion, is a point in the middle of the gorge of the **BASTION**, whence the capital line commences; and which is ordinarily at the angle of the inner polygon of the figure. Or it is the point within which the two adjacent curtains produced intersect each other.

CENTER of a battalion, the middle of a battalion; where is usually left a large square space, for lodging the cloaths and baggage.

CENTER of a circle is a point in the middle of a circle, or circular figure, from which all lines drawn to the circumference are equal.

Euclid demonstrates, that the angle at the center is double to that at the circumference: i. e. the angle made by two lines drawn from the extremes of an arch to the center is double that made by two lines drawn from those extremes to a point in the circumference.

CENTER of a conic section is the point wherein all the diameters concur.

This point, in the ellipsis, is within the figure; and, in the hyperbola, without.

CENTER of conversion, in *Mechanics*, a term first used by M. Parent. Its signification is thus conceived; if a stick be laid on a stagnant water, and drawn by a thread fastened to it, so that the thread always makes the same angle with the stick; always, v. g. a right angle; the stick will be found to turn on one of its points, which will be immoveable; which point is termed the *centre of conversion*. For the greater ease, the thread may be conceived fastened to one end of the stick.

This effect arises from the resistance of the fluid, and the manner wherein it divides: for, imagine the first moment of traction, it is certain, here, the resistance of the parts of the fluid to be displaced, tends to turn the stick around the point to which the thread is fastened, as on a center: so that in the present instance the staff would describe precisely the quadrant of a circle: after which, the fluid would no longer bear the stick lengthwise; but in a particular motion, in such manner, as that the free end of the stick, and the parts nearest it, would describe larger arches of circles than the rest, and have a greater velocity. The resistance therefore of the fluid, which tends to impress a circular motion on the stick, around the point to which the thread is fastened, tends to impress a greater velocity on the parts next to the other extremity; or, which is the same thing, those parts require a greater velocity to surmount the resistance of the fluid: so that the stick will not have that circular motion around the point to which the thread is fastened; or, the resistance of the fluid is greater towards the free extreme of the stick, and still lessens towards the other extreme. Now, all the columns, or threads of water which resist the stick, must be supposed of the same length, or the same mass. One may therefore find on the stick such a point, as that taking a greater number of those threads on that side which resists the least, and a less number on that side where they resist the most, there will be an exact compensation, and the forces be equal on each side: this point is the *center of conversion*. And as the same reasoning has place in all motions of traction made in the same manner, this center is always the same point. The grand question here arising is, to know precisely in what point the center of conversion is found: this M. Parent has determined by much laborious calculation. If the stick drawn by one extremity be a straight line divided into twenty parts, reckoning from the thread, the center of conversion, he finds will be nearly on the 13th. If it be not a line, but a surface, or a solid, there will be some change in the situation of the center of conversion, according to the surface, or the solid. See *Mem. of the Acad. of Sciences abridged*, vol. i. p. 191.

If in lieu of a body swimming in a fluid, we suppose it laid on a rough uneven plane; the resistance of this plane to the motion of the body will always be divided in the same manner, and determine the same center of conversion. This resistance is, precisely what we call *friction*, so prejudicial to the effects of machines.

CENTER of a curve, of the higher kind, is the point where two diameters concur.

When all the diameters concur in the same point, Sir Isaac Newton calls it the *general center*.

CENTER of a dial, is that point where its gnomon or style, which is placed parallel to the axis of the earth, intersects the plane of the dial; and from thence, in those dials which have centers, all the hour lines are drawn. If the plane of the dial be parallel to the axis of the earth, it can have no center at all; but all the hour-lines will be parallel to the style, and to one another.

CENTER of an *ellipse*, is that point where the two diameters, the transverse and the conjugate, intersect each other.

CENTER of the *equant*, in the *Old Astronomy*, a point in the line of the aphelion; being so far distant from the center of the eccentric, towards the aphelion, as the sun is from the center of the eccentric towards the perihelion.

CENTER of gravitation, or attraction, in *Physics*, is that point to which a revolving planet, or comet, is impelled, or attracted, by the force or impetus of gravity.

CENTER, in *Masonry*, denotes a wooden mould by which to turn an arch.

CENTER of gravity, in *Mechanics*, is a point within a body, through which if a plane pass, the segments on each side will equiponderate, i. e. neither of them can move the other.

Hence, if the descent of the center of gravity be prevented, or if the body be suspended by its center of gravity, it will continue at rest in *equilibrium*, in any position.

The whole gravity of a body may be conceived united in its center: and therefore, in demonstrations, it is usual for the body to substitute the center.

Through the center of gravity passes a right line, called the *diameter of gravity*; the intersection therefore, of two such diameters determines the center.

The plane whereon the center of gravity is placed, is called the *plane of gravity*: so that the common intersection of two such planes determines the diameter of gravity.

In homogeneous bodies, which may be divided lengthwise into similar and equal parts, the center of gravity is the same with the center of magnitude. If, therefore, a line be bisected, the point of section will be the center of gravity.

Common CENTER of gravity of two bodies, is a point so situated, in the right line joining the centers of the two bodies, as that, if the point be suspended, the two bodies will equiponderate, and rest in any situation.—Thus, the point of suspension in a common balance, or in a Roman steel-yard, where the two weights equiponderate, is the common center of gravity of the two weights.

When any number of bodies move in right lines with uniform motions, their common center of gravity moves likewise in a right line with an uniform motion; and the sum of their motions estimated in any given direction, is precisely the same as if all the bodies, in one mass, were carried on with the direction and motion of their common center of gravity. Nor is the center of gravity of any number of bodies affected by their collisions or actions on each other.

Laws of the CENTER of gravity.—1. If the centers of gravity of two bodies A and B (Tab. Mechan. fig. 13. N^o 2.) be joined by the right line AB, the distances BC and CA of the common center of gravity C, from the particular centers of gravity B and A, are reciprocally as the weights B and A. See this demonstrated under BALANCE.

Hence, if the gravities of the bodies A and B be equal, the common center of gravity C will be in the middle of the right line AB. Again, since $A:B::BC:AC$; it follows that $A \times AC = B \times BC$; whence it appears, that the powers of equiponderating bodies are to be estimated by the product of the mass, multiplied into the distance from the center of gravity; which product is usually called the *momentum* of the weights.

Farther, since $AB:BC:AC, A+B:A::BC+AC:BC$. Therefore the common center of gravity C, of two bodies, will be found, if the product of one weight A, into the distance of the separate centers of gravity AB, be divided by the sum of the weights A and B. Suppose, e. g. $A=12, B=4, AB=24$; therefore $BC=24 \times 12 \div 16=18$. If the weight A be given, and the distance of the particular centers of gravity AB, together with the common center of gravity C; the weight of B will be found $=$ to $A \times AC \div BC$; that is, dividing the moment of the given weight, by the distance of the weight required from the common center of gravity. Suppose, $A=12, BC=18, AC=6$; then $B=6 \times 12 \div 18=4$.

2. To determine the common center of gravity of several given bodies, a, b, c, d (fig. 13.) in the right line AB. Find the common center of gravity of the two bodies a and b, which suppose in F; conceive a weight $a+b$, applied in F; and in the line FE find the common center of the weights $a+b$ and c; which suppose in G. Lastly, in BG, suppose a weight $a+b+c$ applied, equal to the two $a+b$ and c; and find the common center of gravity between this and the weight d, which suppose in H; this H will be the common center of gravity of the bodies a, b, c, d. And in the same manner might the common center of gravity of any greater number of bodies be found.

3. Two weights D and E (fig. 14.) being suspended without their common center of gravity in C, to determine which of

them preponderates and how much. Multiply each into its distance from the center of suspension; that side on which the product is greatest, will preponderate; and the difference between the two will be the quantity wherewith it preponderates.

Hence the momenta of the weights D and E, suspended without the center of gravity, are in a ratio compounded of the weights D and E, and the distance from the point of suspension. Hence also the momentum of a weight suspended in the very point C, will have no effect at all in respect of the rest D, E.

4. To determine the preponderation where several bodies a, b, c, d, (fig. 15.) are suspended without the common center of gravity in C. Multiply the weights c and d into their distance from the point of suspension CE and CB; the sum will be the momentum of their weights, or the ponderation towards the right: then multiply the weights a and b into their distances AC and CD, the sum will be the ponderation towards the left: subtracting, therefore, the one from the other, the remainder will be the preponderation required.

5. Any number of weights, a, b, c, d, being suspended without the common center of gravity in C, and preponderating towards the right; to determine the point F, from whence the sum of all the weights being suspended, the ponderation shall continue the same as in their former situation.

Find the momentum wherewith the weights c and d preponderate towards the right; since the momentum of the sum of the weights to be suspended in F is to be equal to it, the momentum now found will be the product of CF into the sum of the weights: this, therefore, being divided by the sum of the weights, the quotient will be the distance CF, at which the sum of the weights is to be suspended, that the preponderation may continue the same as before.

6. To find the center of gravity in a parallelogram and parallelepiped. Draw the diagonals AD and EG (fig. 16.) likewise CB and HF; since each diagonal, AD and CB, divides the parallelogram ACDB into two equal parts, each passes through the center of gravity; consequently, the point of intersection I must be the center of gravity of the parallelogram. In like manner, since both the plane CBFH, and ADGE, divide the parallelepiped into two equal parts, each passes through its center of gravity; so that the common intersection IK is the diameter of gravity, the middle whereof is the center.

After the same manner may the center of gravity be found in prisms and cylinders; it being the middle point of the right line that joins the center of gravity of their opposite bases.

7. In regular polygons, the center of gravity is the same with the center of the circumscribed parallelogram.

8. To find the center of gravity of a cone, and a pyramid. The center of gravity of a cone is in its axis AC (fig. 17.) If then $AP=x, AC=a, CD=r$, the periphery of the base $=p$, and $PN=y$, we shall have, by the well-

known property of circles, $r:p::y:\frac{p}{r}$ = the periphery of the circle, whose diameter is MN, which being multiplied by $\frac{y}{2}$ will give $\frac{p y^2}{2 r}$ = the area of the same circle. But by similar triangles, $y:x::r:a$, therefore $y=\frac{r x}{a}$, and $y^2=\frac{r^2 x^2}{a^2}$; consequently the area of the circle, whose radius is PN, becomes equal to $\frac{p r x^2}{2 a^2}$; and therefore $\frac{p r x^2 \dot{x}}{2 a^2}$ will be the fluxion of the mass, or of the content of the cone at the term MN, and $\frac{p r x^3 \dot{x}}{2 a^2}$, will be the fluxion of the momentum, whose fluent is $\frac{p r x^4}{8 a^2}$, which being divided by

$\frac{p r x^3}{6 a^2}$, the fluent of $\frac{p r x^2 \dot{x}}{2 a^2}$, the fluxion of the mass, will give $\frac{2}{3} x = \frac{2}{3} AP$, for the distance of the center of gravity of the portion AMN from the vertex A; and when AP becomes equal to AC, x will be equal to a; and therefore the center of gravity of the whole cone is distant from the vertex $\frac{2}{3}$ of AC. And in the same manner is found the distance of the center of gravity from the vertex of the pyramid $\frac{3}{4}$ AC.

9. To determine the center of gravity in an isosceles triangle BAC (fig. 18.) Draw the right line AD, bisecting the base BC in D, which will be also perpendicular to it; since $\triangle BAD = \triangle DAC$, each may be divided into the same number of little weights, applied in the same manner on each side to the common axis AD; so that the center of gravity of the $\triangle BAC$, will be in AD. To determine the precise point in that, let $AD=a, BC=b, AP=x, MN=y$; then will $AP:MN::AD:BC$; or, $x:y::a:b$.

Hence, $y = \frac{bx}{a}$. Consequently $y \dot{x}$, which represents the fluxion of the mass at the term MN divided by $y \dot{x}$, expressing the fluxion of the area AMN, will be equal to $\frac{bx^2 \dot{x}}{a} \div \frac{bx \dot{x}}{a} = \frac{x^2 \dot{x}}{a}$; the fluent of which quantity will

be $\frac{x^3}{\frac{1}{2}x^2} = \frac{2x}{3}$, at the term BC, when $x = AD$, $\frac{2}{3}AD$ and therefore the distance of the center of gravity of the Δ from the vertex, will be found $\frac{2}{3}a$.

In the very same manner the center of gravity of any other plain triangle will appear to be at $\frac{2}{3}$ of the altitude from the vertex.

10. For the center of gravity in a parabola (fig. 19.) Let $AE = a$, $SH = b$, $AP = x$, $PN = y$. Then will $2y \dot{x}$ be the fluxion of the whole weight; but from the nature of the parabola, and the parameter being a constant quantity, $1x = y^2$; whence $x^{\frac{1}{2}} = y$, and $2x^{\frac{1}{2}} = 2y$: substituting $2x^{\frac{1}{2}}$ instead of $2y$ in the above expression, we shall have $2x^{\frac{1}{2}} \dot{x}$ for the fluxion of the mass, whose fluent $\frac{4x^{\frac{3}{2}}}{\frac{3}{2}}$ will be the mass itself. Then multiplying $2x^{\frac{1}{2}} \dot{x}$

by x , we shall have $2x^{\frac{3}{2}} \dot{x}$ or $2x^{\frac{3}{2}} \dot{x}$ for the fluxion of the momentum, whose fluent $\frac{4x^{\frac{5}{2}}}{\frac{5}{2}}$ will be the momentum itself. Divide this by the whole weight, and the

quotient $\frac{\frac{4}{5}x^{\frac{5}{2}} \dot{x}}{2x^{\frac{3}{2}} \dot{x}} = \frac{2}{5}x$, will be the distance of the center of gravity of the space NA \dot{x} P from the vertex 3A; and when AP becomes equal to AE, or $x = a$, $\frac{2}{5}a$ or $\frac{2}{5}AE$ will be the distance of the center of gravity of the whole parabolic space from the vertex A. Now $y^m = 1x$, being a general equation for all kinds of pa-

rabolas, we shall have $y = x^{\frac{1}{m}}$ and therefore $x^{\frac{1}{m}} \dot{x}$ will be the fluxion of the whole mass, and $x^{\frac{1}{m}} \dot{x}$ the fluxion of the momentum: the fluent of this last expression,

viz. $\frac{m}{2m+1} x^{\frac{m+1}{m}}$, being divided by the fluent of

$x^{\frac{1}{m}} \dot{x}$ or $\frac{m}{m+1} x^{\frac{m+1}{m}}$, will give $\frac{m+1}{2m+1} x$, for the distance

of the center of gravity of the space ZAN from the vertex A, and $\frac{m+1}{2m+1} a$ will be the distance of the center of

gravity of the whole parabolic space from A. When $m = 2$, as in the common parabola, this expression will be $\frac{3}{5}a$. If $m = 3$, as in the cubical parabola, then the expression will be $\frac{4}{7}a$; when $m = 4$, as in a biquadratic parabola we shall have $\frac{5}{9}$ of the axis for the distance; and in a surfolid parabola, when $m = 5$, the expression will give $\frac{6}{11}a$ for the required distance. If $m = \frac{1}{2}$, which is the property of the concave or supplemental space, then the axis becomes a tangent to the vertical point, and $\frac{3}{4}a$ will be the distance required. In the exterior parabola AST, as may be easily found, by reasoning on similar principles, the center of gravity is at the distance AL, equal to $\frac{3}{4}AQ$. In the cubical parabola, $\frac{4}{7}AQ$. In a biquadratic parabola, $\frac{5}{9}AQ$. In a surfolidal parabola, $\frac{6}{11}AQ$.

11. The center of gravity of the arch of a circle, as EHF, (fig. 19. N^o 2.) is somewhere in the radius AH that bisects it in H. Let DI, a diameter parallel to the chord of the arch EF, be considered as the axis of suspension, and be equal to $2r$; let $EF = 2a$, $EHF = 2c$, the perpendicular BC = y , the arch CH = z , and AB = x . When the point C arrives at H, y becomes equal to r , and z and x in their evanescent state are equal; therefore $y : r :: \dot{x} : \dot{z}$; and consequently $y \dot{z}$, which is the fluxion of the momentum, is equal to $r \dot{x}$: and $r \dot{x}$ will be the momentum itself. Divide this by z the whole mass, and $\frac{r \dot{x}}{z}$ will be the distance of the center of gravity of the arch from the point of suspension A: but

when the point C arrives at E, $\frac{r \dot{x}}{z}$ will be equal to $\frac{ar}{c}$:

and therefore the required distance will be to the radius as the chord of the arch to the arch itself; and if the arch be the semiperiphery, as the diameter to the semiperiphery. In the sector of a circle, as CACH (fig. 19 N^o 2.) the center of gravity is in the bisecting line AGH. On the center A, with a radius at pleasure, describe the arch NN, and draw the chords NN and CC. Let AC = r , the chord CC = $2a$, CAC = $2c$, and AN = x . The momentum of an arch, with respect to the axis of suspension, being equal to the chord of that arch multiplied by the radius, the momenta of different arches are

in the compound ratio of the chords and radii, or in the duplicate of the radii; therefore we shall have $rr : xx$ as the momentum of the arch CHG = $2ar$, to the momentum of the arch NPN = $\frac{2axx}{r}$, which, multiplied by \dot{x} , gives $\frac{2axx\dot{x}}{r}$ equal to the fluxion of the

sector NPNP, whose fluent $\frac{2ax^3}{3r}$ will be the momentum of the same sector. Divide this by cr , the value of the mass, and $\frac{2ax^3}{3cr^2}$ will be the distance of the center of gravity of the sector NAN; but when x becomes equal to r , $\frac{2ax^3}{3cr^2}$ will be $\frac{2ar}{3c}$ for the distance of the

center of gravity of the sector CACH, from the point of suspension A: therefore this distance is to $\frac{2}{3}$ of the radius, as the chord of the arch to the arch itself. And if the sector be a semicircle, it will be as the diameter to the semiperiphery. To find the value of any surface or solid by means of the center of gravity, see CENTRO-BARYC method.

For the center of gravity of segments, lines, parabolic conoids, spheroids, truncated cones, &c. as being cases more operose, and at the same time more uncommon, we refer to Wolfius, Hodgson, Simpson, and others.

12. To determine the center of gravity in any body mechanically. Lay the given body HI (fig. 20.) on an extended rope, or on the edge of a triangular prism FG, bringing it this and that way, till the parts on either side are in equilibrio; the plane whose side is KL, passes through the center of gravity. Balance it again on the same, only changing its situation: then will the chord or the side MN, pass through the center of gravity; so that the intersection of the two lines MN and KL, determines the point O in the surface of the body required.

The same may be done by laying the body on a horizontal table (as near the edge as is possible, without its falling) in two positions, lengthwise and breadthwise: the common intersection of the two lines contiguous to the edge, will be its center of gravity. Or it may be done by placing the body on the point of a style, &c. till it rest in equilibrio. It was by this method, Borelli found the center of gravity in a human body, to be between the nates and pubis; so that the whole gravity of the body is there collected, where nature has placed the genitals: an instance of the wisdom of the Creator, in placing the membrum virile in that place, which of all others is the most convenient for copulation.

CENTER of an hyperbola, is a point in the middle of the determinate or transverse axis.

CENTER of magnitude, is that point which is equally distant from all the external parts of a body.

CENTER of motion, is a point round which one or more heavy bodies, that have one common center of gravity, revolve; v. gr. If the weights P and Q (Tab. Mechanics, fig. 21.) revolve about the point N, so that when P descends, Q ascends, N is said to be the center of motion.

It is demonstrated in mechanics, that the distance IN, of the center of gravity, of any particular weight, from the common center of gravity, or the center of motion N, is perpendicular to the line of direction IP.

CENTER of oscillation, is that point, in the axis or line of suspension of a vibrating body, into which, if the whole was contracted, the angular velocity, and the time of vibration, would remain unaltered. Hence, in a compound pendulum, its distance from the point of suspension is equal to the length of a simple pendulum, whose oscillations are isochronal with those of the compound one.

Laws of the CENTER of oscillation. 1. If several weights D, F, H, B, (Tab. Mechanics, fig. 22.) whose gravity is supposed collected in the points D, F, H, B, constantly retain the same distance between themselves and the point of suspension A; and the pendulum thus compounded, performs its oscillations about A; OA the distance of the center of oscillation O from the point of suspension will be had by multiplying the several weights into the squares of the distances, and dividing the aggregate by the sum of the momenta of their weight. See Simpson's Fluxions, vol. i. p. 212, &c.

2. To determine the center of oscillation in a right line AB (fig. 23.) Let AB = a , AD = x , then will $x \dot{x}$ be the fluxion of the momentum, which being multiplied by x , because the velocity of every point is proportional to its distance from the center of motion A, will give $x^2 \dot{x}$ for the fluxion of the force, whose fluent $\frac{x^3}{3}$, being divided by $\frac{x^2}{2}$, the fluent of $x \dot{x}$, will give $\frac{2}{3}x$ for the distance of the center of oscillation in the part AD from the point of suspension A. If then for x be substituted a

the distance of the center of oscillation in the right line $AB = a$. In this manner is found the center of oscillation of a wire, oscillating about one of its extremities.

3. To determine the center of oscillation of the rectangle $RIHS$ (fig. 19.) suspended in the middle point A of the side RI , and oscillating about its axis RI . Let $RI = SH = a$, $AP = x$; then will $a \dot{x}$ be the fluxion of the mass, or whole weight. This, multiplied by x the velocity, will give $a x \dot{x}$ for the fluxion of the momentum; and multiplying this quantity again by \dot{x} , the acquired velocity, we shall have $a x^2 \ddot{x}$ for the fluxion of the force; whose fluent $\frac{a x^3}{3}$, being

divided by $\frac{a x^2}{2}$, the fluent of $a x \dot{x}$, will give $\frac{2}{3} x$, which indefinitely expresses the distance of the center of oscillation, from the axis of oscillation in the segment $RCDI$. If then for x be substituted the altitude of the whole rectangle $RS = b$, we shall have the distance of the center of oscillation from the axis $= \frac{2}{3} b$.

For the center of oscillation in an isosceles triangle, ASH , oscillating about its axis RI , parallel to its base SH ; its distance from the vertex A is found $= \frac{3}{4}$ of AE , the altitude of the triangle.

Of an isosceles triangle SAH oscillating about its base SH , its distance from the vertex A is found $= \frac{1}{2} AE$ the altitude of the triangle.

For the center of oscillation in an isosceles triangle SAH , suspended by an inflexible thread void of gravity, Ab , and oscillating about its axis parallel to its base SH ; its distance from the vertex is found $= \frac{1}{2}$ the altitude of the triangle.

For the centers of oscillation of parabolas, and curves of the like kind, oscillating about their axis, parallel to their bases, they are found as follows.

Let $AE = a$, $AP = x$, and $PN = y$, (fig. 19) then uni-

versally, $y = x^{\frac{1}{m}}$, and therefore $x^{\frac{1}{m} + 1} \ddot{x}$ will denote the fluxion of the whole mass. This being multiplied

by x^2 will give $x^{\frac{1}{m} + 3} \ddot{x}$ for the fluxion of the force

whose fluent $\frac{m}{3m+1} x^{\frac{1}{m} + 3}$, being divided by $\frac{m}{2m+1} x^{\frac{1}{m} + 2}$,

$x^{\frac{1}{m} + 2}$, the fluent of $x^{\frac{1}{m} + 1} \ddot{x}$, the fluxion of the momentum, will give $\frac{2m+1}{3m+1} x$ for the distance of the

center of oscillation of the space $ZANP$ from the vertex A ; and when x becomes equal to $a^{\frac{2m+1}{3m+1}}$ will denote the distance of the center of oscillation of the whole parabolic space SAH , from the point of suspension A , in the axis of rotation RAI .

In the Apollonian parabola, $m=2$, therefore the distance of the center from the axis $= \frac{5}{7} AE$.

In a cubical parabola, $m=3$, and the distance of the center of oscillation from the axis $= \frac{7}{10} AE$.

In a biquadratic parabola, $m=4$, and therefore the distance of the center from the axis, $= \frac{9}{13} AE$.

For the method of determining the distance of the center of oscillation from the base, supposed to be the axis about which the parabola revolves, see Hodgson's Fluxions, p. 431, &c.

In solid and plane figures agitated laterally, i. e. about the axis of oscillation, perpendicular to the plane of the figure, the investigation of the center of oscillation is somewhat difficult; because all the parts of the weight, on account of their unequal distances from the point of suspension, do not move with the same velocity; as is shewn by Huygens, in his Horol. Oscill. He found, in this case, the distance of the center of oscillation, from the axis in a circle, to be $\frac{3}{4}$ of the diameter: in a rectangle, suspended by one of its angles, $\frac{2}{3}$ of the diagonal; in a parabola, suspended by its vertex, $\frac{5}{7}$ of its axis, and $\frac{1}{3}$ of the parameter; suspended from a point in the middle of the basis, $\frac{1}{7}$ of the axis, and $\frac{1}{2}$ the parameter; in the sector of a circle, $\frac{3}{4}$ of a right line which is to the radius as the arch to the subtense; in a cone, $\frac{4}{5}$ of the axis, and $\frac{1}{5}$ of the third proportional to the axis, and a semidiameter of the base; in a sphere (as is usually the case in pendulums) $\frac{2}{3}$ of a third proportional to two quantites composed of the semidiameter and length of the thread, and the semidiameter itself; in a cylinder, $\frac{2}{3}$ of the altitude, and $\frac{1}{2}$ a right line, which is to the semidiameter of the base, as that is to the altitude.

Center of percussion, in a moving body, is that point wherein the PERCUSSION is the greatest, wherein the whole percussive force of the body is supposed to be collected: or about which the impetus of the parts is balanced on every side: so that it may be stopped, by an immovable obstacle, at this point, and rest on it, without acting on the center of suspension.

lanced on every side: so that it may be stopped, by an immovable obstacle, at this point, and rest on it, without acting on the center of suspension.

Laws of the CENTER of percussion—1. The center of percussion is the same with the center of oscillation, where the percussive body revolves round a fixed point; and is determined in the same manner, viz. by considering the impetus of the parts, as so many weights applied to an inflexible right line, void of gravity; i. e. by dividing the sum of the products of the forces of the parts, multiplied by their distances from the point of suspension, by the sum of the forces. What, therefore, has been above shewn of the center of oscillation, will hold of the center of percussion, where the percussive body moves round a fixed point.

2. The center of percussion is the same with the center of gravity, if all the parts of the percussive body be carried with a parallel motion, or with the same celerity; for the momenta are the products of the weights into the celerities. Wherefore, to multiply equiponderating bodies by the same velocity, is the same thing as to take equimultiples; but the equimultiples of equiponderating bodies, themselves equiponderate; therefore, equivalent momenta are disposed about the center of gravity: consequently the center of percussion in this case coincides with that of gravity; and what is shewn of the one, will hold of the other.

CENTER of a parallelogram, or polygon, the point wherein its diagonals intersect.

CENTER of a sphere is a point from which all the lines drawn to the surface, are equal.

The center of the semicircle, by whose revolutions the sphere is generated, is also that of the sphere.

Hermes Trismegistus defines God an intellectual sphere, whose center is every-where, and circumference no-where.

CENTER-wheel of a watch. See WATCH-work.

CENTER of a squadron or of a fleet, is the middle of a LINE, which is always the station of the admiral, or commander in chief, and ought to be proportionably the strongest, because it reaches from the van and rear;

CENTERING of an optic glass, the grinding it so as that the thickest part is exactly in the middle.

One of the greatest difficulties in grinding large optic glasses is, that in figures so little convex, the least difference will put the center two or three inches out of the middle. Dr. Hook notes, that though it were better the thickest part of a long object glass were exactly in the middle, yet it may be a very good one when it is an inch or two out of it. Phil. Trans. N^o 4. p. 57. Id. ibid. p. 64. seq.

Mr. Cassini the younger has a discourse expresses on the necessity of well centering the object glass of a large telescope, that is, of grinding them so, that the centre may fall exactly in the axis of the telescope. Mem. Acad. Sc. an. 1710, p. 299, seq. See OBJECT-glass.

CENTESIMA usura, that wherein the interest in an hundred months became equal to the principal; i. e. where the money is laid out at one per cent. per month, answering to what in our style would be called 12 per cent. for the Romans reckoned their interest not by the year, but by the month.

CENTESIMATION, Centesimatio, the punishing every hundredth man.

Macrinus sometimes decimated, and sometimes centesimated the soldiers. The latter term seems to have been introduced by himself to the honour of his clemency, as being contented to centesimate those who deserved decimation, or vicefimation.

CENTGRAVIUS, in Middle Age Writers, the same with CENTENARIUS.

CENTILOQUIUM, from centum, a hundred, and loquor, I speak, denotes a collection of a hundred sentences, opinions, or sayings.

CENTINODIUM, an officinal plant, popularly called KNOT-grass; by the botanists polygonum; reputed an astringent and vulnerary.

CENTIPES. See SCOLOPENDRA.

CENTNER, or Docimastic HUNDRED, in Metallurgy and Assaying, is a weight divisible, first into as hundred, and thence into a greater number of other smaller parts; but though the word is the same, both with the assayers and metallurgists, yet it is to be understood as expressing a very different quantity in their different acceptation of it. The weights of the metallurgists are easily understood, as being of the common proportion, but those of the assayers are a thousand times smaller than these, as the portions of metals or ores examined by the assayers are usually very small.

The metallurgists, who extract metals out of their ores, use a weight divided into a hundred equal parts, each part a pound; the whole they call a centner or hundred weight; the pound is divided into thirty-two parts, or half ounces; and the half ounce into two quarters of ounces, and these each into two drams.

These

These divisions and denominations of the metallurgists are easily understood; but the same words, though they are equally used by assayers, with them express very different quantities; for as the *centner* of the metallurgists contains a hundred pounds, the *centner* of the assayers is really no more than one dram, to which the other parts are proportioned.

As the assayers weights are divided into such an extreme degree of minuteness, and are so very different from all the common weights, the assayers usually make them themselves, in the following manner, out of small silver, or fine folder plates, of such a size, that the mark or their weight, according to the division of the dram, which is the *docimaestic*, or assaying *centner*, may be put upon them. They first take for a basis one weight, being about two-thirds of a common dram: this they mark (64lb.) Then having at hand some granulated lead, washed clean, well dried, and sifted very fine, they put as much of it in one of the small dishes of a fine ballance, as will equipoise the 64lb. (as is it called) just mentioned: then dividing this granulated lead into very nice halves, in the two scales, after taking out the first silver weight, they obtain a perfect equilibrium between the two scales; they then pour the granulated lead out of one dish of the scales, and instead of it put in another silver weight, which they make exactly equiponderant with the lead in the other scale, and mark it (32lb.) If this second weight, when first put into the scale, exceed by much the weight of the lead, they take a little from it by a very fine file; but when it comes very near, they use only a whetstone to wear off an extremely small portion at a time. When it is brought to be perfectly even and equal to the lead, they change the scales to see that no error has been committed, and then go on in the same manner till they have made all the divisions, and all the small weights. Then to have an entire *centner*, or *hundred* weight, they add to the 64lb. (as they call it) a 32lb. and a 4lb. and weighing against them one small weight, they make it equal to them, and mark it (10lb.) This is the *docimaestic*, or assaying *centner*, and is really one dram. Cramer, Art. Ass. p. 108.

CENTO, in *Poetry*, a work wholly composed of verses, or passages, promiscuously taken from other authors; only disposed in a new form, or order: so as to compose a new work, and make a new meaning.

The word is Latin, *cento*, which primarily signifies a cloak made of patches, and that from *κεντρον*. Aufonius has laid down the rules to be observed in composing *centos*. The pieces, he says, may be taken either from the same poet, or from several; and the verses may be either entire, or divided into two; one half to be connected with another half taken elsewhere; but two verses are never to be taken running, nor is much less than half a verse to be taken. Agreeably to these rules, he has made a pleasant nuptial *cento* from Virgil.

Proba Falconia has written the life of Jesus Christ in *centos* taken from Virgil: the like is done by Alex. Ross, in his *Christiados*; and by Stephen de Pleurre, canon regular of St. Victor at Paris.

CENTONARI, in *Antiquity*, a sort of officers or operators, whose business was to make *centones*, or coats patched of leather and cloth, wherewith to cover the *vineæ*, under which the besiegers made their approaches, as well as the towers and machines used to batter the place, and prevent their being set on fire by the enemy. In the Theodosian code we have a title, *De centonariis & dendrophoris*. And in ancient inscriptions, the *centonarii* are joined with the *ignarii*, or carpenters, *ferrarii* or smiths, &c. who made but one company, under the denomination of *collegium fabrorum & centonariorum*.

CENTRAL, something relating to centre, or **CENTER**.

Thus we say, *central eclipse*, *central fire*, *central forces*, *central rule*, &c.

CENTRAL forces, are the *vires*, or powers, whereby a moving body either tends towards the centre of motion, or recedes from it.

Central forces are divided into two kinds, with regard to their different relations to the centre, viz. the *centripetal* and the *centrifugal*.

The doctrine of *central*, or *centripetal*, and *centrifugal forces*, has been much cultivated by mathematicians, as being of extensive use in the theory of gravity and other physico-mathematical sciences.

In this doctrine it is supposed, that a body at rest never moves itself; and that a body in motion never changes the velocity or direction of its motion of itself; but that every motion would continue uniform, and its direction rectilinear, unless some external force or resistance affected it. Hence, when a body at rest always tends to move, or when the velocity of any rectilinear motion is accelerated continually, or when the direction of a motion is continually varied, and a curve line described:

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these are supposed to proceed equally from the influence of some power that acts incessantly; which may be measured either by the pressure of the quiescent body against the obstacle that hinders it to move, in the first case; or by the acceleration of the motion, in the second; or by the flexure of the curve described, in the third case; due regard being had to the time in which these effects are produced, and other circumstances, according to the principles of mechanics. Effects of the power of gravity of each kind fall under our constant observation near the surface of the earth; for the same power which renders bodies heavy while they are at rest, accelerates them when they descend perpendicularly, and bends their motion into a curve line when they are projected in any other direction than that of their gravity. But we can judge of the powers that act on the celestial bodies by effects of the last kind only. And hence it is that the doctrine of *central forces* is of so much use in the theory of the planetary motions.

Sir Isaac Newton has treated of *central forces* in book I. § 2. of his *Principles*. M. de Moivre has given elegant general theorems relating to the same subject in the *Phil. Transf.* and in his *Miscel. Analyt.* p. 231.

Let MPQ (*Tab. II. Analysis, fig. 57.*) be any given curve in the perimeter of which a body moves: let P be the place of the body in the curve, S the centre of forces, PG the radius of concavity or curvature, ST the perpendicular drawn from the centre of forces to the tangent of the curve in P, then will the *centripetal force* be

every where proportional to the quantity $\frac{SP}{PG \times ST \text{ cub.}}$

See *Miscel. Analyt.* p. 231.

What is there called the *centre of force* is the point to which the *central force* is always directed.

Monsieur Varignon has also given two general theorems on this subject in the *Memoirs of the Acad. Scienc. ann. 1700, 1701*, and has shewn their application to the motions of the planets. See also the same *Memoirs*, ann. 1706, 1710.

Mr. Mac-Laurin has also treated the subject of *central forces* very fully in his *Fluxions*, from art. 416 to 493, where he gives a great variety of expressions for these forces, and several elegant methods of investigating them.

Sir Isaac Newton has demonstrated this fundamental theorem of *central forces*, that the areas which revolving bodies describe by radii drawn to an immoveable centre, lie in the same immoveable planes, and are proportional to the times in which they are described. *Princip. lib. i. prop. 1.*

A late eminent mathematician observes, that this law, which is originally Kepler's, is the only general principle in the doctrine of *centripital forces*; but since this law, as Sir Isaac Newton himself has proved, cannot hold whenever a body has a gravity or force to any other than one and the same point, there seems to be wanting some law that may serve to explain the motions of the moon and satellites which have a gravity towards two different centres: the law he lays down for this purpose is,

That where a body is deflected by two forces tending constantly to two fixed points, it will describe, by lines drawn from the two fixed points, equal solids in equal times, about the line joining those fixed points. See Machin, of the laws of the moon's motion, in the postscript. This short treatise is published at the end of the English translation of Sir Isaac Newton's *Principles*. See a demonstration of this law by Mr. W. Jones in the *Phil. Transf.* vol. lix. art. 12. p. 74, &c.

CENTRAL forces, laws of. 1. The following rule, for which we are obliged to the marquis de l'Hôpital, opens at once all the mysteries of *central forces*. Suppose a body of any determinate weight to move uniformly round a centre with any certain velocity; find from what height it must have fallen to acquire that velocity; then, as the radius of the circle it describes is to double that height, so is its weight to its centrifugal force.

2. The *central force* of a body moving in the periphery of a circle, is as the square of the indefinitely small arch AE, divided by the diameter AB. *Tab. Mechanics, fig. 25, N^o 1.* Let this arch be the distance which the body describes in a given particle of time; then, from the nature of the circle, $AE^2 = AB \times AM$, and therefore $AM = \frac{AE^2}{AB}$. Now

AM is the space through which the body is drawn from the tangent in the given time; and though 2 AM is the proper measure of the *central force*, yet when the forces compared are all computed in the same manner, from the nascent, or indefinitely small subtenses of contemporaneous arches, it is of no consequence whether we consider those subtenses, or their doubles, as the measures of the forces, since the ratio is in both cases the same. Since then a body, by an equable motion, in equal times

describes equal arches AE; the *central force*, wherewith the body is impelled in the periphery of the circle, is constantly the same.

3. If two bodies describe different peripheries by an equable motion, their *central forces* are in a ratio, compounded of the duplicate ratio of their celerities; and the reciprocal one of their diameters: because the ratio of the celerities is in this case the same with that of the arches or spaces described in the same time; and the celerities are evidently in the subduplicate of the products of the diameters multiplied by the forces. Hence, if the celerities be equal, the *central forces* will be reciprocally as their diameters; and if the diameters AB and HL be equal, i. e. if each moveable proceed in the same periphery, but with unequal celerities, the *central forces* will be in a duplicate ratio of the velocities.

If the *central forces* of the two bodies moving in different peripheries be equal, the diameters of the circles AB and HL will be in a duplicate ratio of the celerities.

4. The *central forces* are in a ratio compounded of the direct ratio of the diameters, and the reciprocal one of the squares of the times. For the diameters are as the peripheries, which are the spaces run in the periodic times: and these are in the compound ratio of their times and celerities directly; therefore, representing the times by T, t, the celerities by C, c, and the diameters by D, d; $D : d :: C \times T : c \times t$; consequently $\frac{C^2 \times T^2}{D^2} = \frac{c^2 \times t^2}{d^2}$, and $\frac{t^2}{d} : \frac{T^2}{D} :: \frac{C^2}{d} : \frac{c^2}{D}$; and there-

fore, by art. 3. the *central forces* are in the proportion required. And when the circles are equal, the *central forces* are reciprocally as the squares of the times.

5. If two bodies, equal in weight, describe peripheries of unequal circles, in equal times, their *central forces* are as their diameters AB, and HL (*Tab. Mechanics, fig. 25*). And hence, if the *central forces* of two bodies, describing peripheries of two unequal circles, be as their diameters, they pass over the same in equal times.

6. If two bodies moving in unequal peripheries, be acted on by the same *central force*, the time in the larger is to that in the smaller, in a subduplicate ratio of the greater diameter AB, to the less HL; wherefore $T^2 : t^2 :: D : d$, that is, the diameters of the circles in whose peripheries those bodies are acted on by the same *central force* are in a duplicate ratio of the times. Hence also the times wherein similar peripheries or arches are run over by bodies impelled by the same *central force*, are in proportion to their velocities.

7. If the times wherein the bodies are carried through the same entire peripheries, or similar arches, be as the diameters of the circles, the *central forces* are reciprocally as the same diameters.

8. If a body move uniformly in the periphery of a circle, with the velocity it acquires by falling the height AF; the *central force* will be to the gravity as double the altitude AF to the radius CA.—If therefore the gravity of the body be called G, the centrifugal force will be $2AF \times G \div CA$.

9. If a heavy body move equably in the periphery of a circle, and with the velocity which it acquires by falling through a height equal to half the radius; the *central force* will be equal to the gravity.—And again, if the *central force* be equal to the gravity, it moves in the periphery of the circle with the same velocity which it acquires in falling a height equal to half the radius.

10. If the *central force* be equal to the gravity, the time it takes up in the entire periphery, is to the time of its fall through half the radius, as the periphery to the radius.

11. If two bodies move in unequal peripheries, and with an unequal velocity, which is reciprocally in a subduplicate ratio of the diameters; the *central forces* are in a duplicate ratio of the distances from the centre of the forces, taken reciprocally.

12. If two bodies move in unequal peripheries, with celerities which are reciprocally as the diameters; their *central forces* will be reciprocally as the cubes of their distances from the centre of their forces.

13. If the velocities of two bodies, moving in unequal peripheries, be reciprocally in a subduplicate ratio of the diameters; the squares of the times wherein they pass the whole periphery, or similar arches, are in a triplicate ratio of the distances from the centre of the forces; wherefore, if the *central forces* be reciprocally in a duplicate ratio of the distances from the centre, the squares of the times wherein the entire peripheries, or similar arches are passed over, are also in a triplicate ratio of the distances.

From this, and some of the foregoing theorems, we may deduce the velocity and periodic time of a body revolving in a circle, by means of its own gravity, at any given distance from the earth's centre. Let d be the space through which a heavy body descends at the sur-

face of the earth, in the first second of time, then $2d$ will be the measure of the force of gravity at the surface: and r being assumed for the earth's radius, the velocity in a circle at its surface, in one second, will be $\sqrt{2rd}$, by art. 2. And the time of revolution will be =

$$\frac{3,14159, \&c. \times 2r}{\sqrt{2rd}} = 3,14159, \&c. \times \sqrt{\frac{2r}{d}} \text{ (seconds)}$$

because the space described in a given time, which is the true measure of the celerity, is to the whole periphery, viz. $3,14159 \times 2r$, as the said time is to the true measure of the periodic time: the two foregoing expressions, substituting for r , 21000000 feet, and for d , $16\frac{1}{2}$, will be nearly equal to 26000 feet, and 5075 seconds, respectively. Let R represent the radius of another circle described by a projectile about the earth's centre; since the force of gravitation varies inversely as the square

of the distance, we shall have $r^{-\frac{1}{2}} : R^{-\frac{1}{2}} :: 26000 \text{ feet, the velocity in a second at the surface, to } 26000$

$\times \sqrt{\frac{r}{R}}$, the velocity in the circle whose radius is R :

and by art. 13. $r^{\frac{3}{2}} : R^{\frac{3}{2}} :: 5075 \text{ seconds, the periodic time at the surface : } 5075 \times \sqrt{\frac{R^3}{r^3}}$, the time of revo-

lution in the circle R . Let $R = 60r$, or the distance of the moon from the earth, and the above expression will give 2360000 seconds, or 27,3 days nearly, for the periodic time at that distance. Thus also the ratio of the forces of gravitation of the moon towards the sun and earth may be estimated. For 1 year being the periodic

time of the earth and moon about the sun, and $\frac{1}{178}$ the

square of the proportional periodic time of the moon about the earth, we have, by art. 4. $\frac{94000000}{1} : 240000$

$\times 178 :: 2,2, \&c. : 1$; or this is the proportion of the gravitation of the moon towards the sun to her gravitation towards the earth. Again, we may hence compute the centrifugal force of a body at the equator, arising from the earth's rotation. The time of revolution, when the centrifugal force would become equal to that of gravity, as has been shewn above, is 5075 seconds: and by art. 4. 86160^2 , which is the square of the number of seconds in 23 hours 56 minutes, the time of the earth's entire rotation, is to 5075^2 , as the force of gravity, which may be denoted by unit, to $\frac{1}{289}$, the centri-

fugal force required. Simpson's Fluxions, vol. i. p. 240, &c.

14. If a body move in a curve line, in such manner as that the radius CB, *fig. 25*, N° 2, drawn from it to the fixed point C, placed in the same plane, describes areas BAC, BCE, &c. proportional to the times, or equal in any given time, it is solicited towards the point C, by a centripetal force.

15. If a body proceed according to the direction of the right line AD, and be solicited by a centripetal force towards a fixed point C, placed in the same plane; it describes a curve, whose cavity is towards C, and whose several areas, comprehended between two radii AC and CB, are proportional to the times.

16. However the *central forces* differ from one another, they may be compared together; for they are always in a ratio compounded of the ratio of the quantities of matter in the revolving bodies, and the ratio of the distances from the centre; and also in an inverse ratio of the squares of the periodical times. If then you multiply the quantity of matter in each body by its distance from the centre, and divide the product by the square of the periodical time, the quotients of the division will be to one another in the said compound ratio, that is, as the *central forces*.

17. When the quantities of matter are equal, the distances themselves must be divided by the square of the periodical times, to determine the proportion of the *central forces*: in that case, if the squares of the periodical times be to one another as the cubes of the distances, the quotients of the divisions, as well as the *central forces*, will be in an inverse ratio of the squares of the distances.

18. When the force by which a body solicited towards a point is not every where the same, but is either increased or diminished in proportion to the distance from the centre; several curves will thence arise in a certain proportion. If the force decreases in an inverse ratio of the squares of the distances from that point, the body will describe an ellipsis, which is an oval curve, in which there are two points called *foci*, and the point towards which the force is directed falls upon one of them; so that

that in every revolution the body once approaches to, and once recedes from it. The circle also belongs to that sort of curves, and so in that case the body may also describe a circle. The body may also (by supposing a greater celerity in it) describe the two remaining conic sections, viz. the parabola and hyperbola curves, which do not return into themselves: on the contrary, if the force increases with the distance, and that in a ratio of the distance itself, the body will again describe an ellipse: but the point to which the force is directed is the centre of the ellipse; and the body, in each revolution, will twice approach to, and again twice recede from that point. In this case also a body may move in a circle, for the reason above mentioned.

CENTRAL Rule. is a rule or method discovered by our countryman Thomas Baker, rector of Nympton in Devon, whereby to find the centre of a circle designed to cut the parabola in as many points as an equation to be constructed hath real roots.

Its principal use is in the construction of equations; and he has applied it with good success as far as biquadratics. The *central rule* is chiefly founded on this property of the parabola: that if a line be inscribed in that curve perpendicular to any diameter, a rectangle formed of the segments of this inscript is equal to a rectangle made of the intercepted diameter and parameter of the axis.

The *central rule* has the advantage over Cartes's and De-Laterres's methods of constructing equations, in that both these are subject to the trouble of bearing the equation by taking away the second term. This we are freed from in Baker's method, which shews us how to construct all equations not exceeding the fourth power, by the intersection of a circle and parabola, without the omission or change of any terms. See Phil. Trans. N° 157.

CENTRATION, *centratio*. See CONCENTRATION.

Paracelsus used the word *centratio*, for the change or conversion of a saline principle into a corrosive and ulcerating quality. According to him, a *centrum salis* is the beginning of ulcers.

CENTRIFUGAL force is that whereby a body revolving round a centre, endeavours to recede from it.

It is one of the established laws of nature, that all motion is of itself rectilinear; and that the moving body never recedes from its first right line, till some new impulse be superadded in a different direction: after that new impulse the motion becomes compounded, but it continues still rectilinear, though the direction of the line be altered. To move in a curve, it must receive a new impulse, and that in a different direction every moment; a curve not being reducible to right lines, unless infinitely small ones. If then a body continually drawn towards a centre be projected in a line that does not go through that centre, it will describe a curve; in each point whereof, A (*Tab. Mechanics*, fig. 25. N° I.) it will endeavour to recede from the curve, and proceed in the tangent AD; and, if nothing hindered, it would actually proceed; so as in the same time wherein it describes the arch AE, it would recede the length of the line DE, perpendicular to AD, by its *centrifugal force*. The *centrifugal force*, therefore, is as the right line DE, perpendicular to AD; supposing the arch AE infinitely small.

The effect of the *centrifugal force* is such, that a body obliged to describe a circle, always describes the largest it possibly can; a greater circle being, as it were, less circular, and less distant from a right line, than a small one. A body therefore suffers more violence, and exerts its *centrifugal force* more, when it describes a little circle than when a large one: that is, the *centrifugal force* is always proportional, other circumstances being alike, to the circumference of the curve in which the revolving body is carried round.

It is the same in other curves as in circles; for a curve, whatever it be, may be esteemed as composed of an infinity of arches of infinitely small circles, all described on different radii; so that it is at those places where the curve has the greatest curvity, that the little arches are most circular: thus in the same curve, the *centrifugal force* of the body that describes it, varies according to the several points wherein it is found.

CENTRIFUGAL wheel. See WHEEL.

CENTRINE, in *Ichthyology*, the name by which most authors call the *porcus piscis*. It is properly of the *galeus* kind, but much thicker and shorter than any other of that genus, and from head to tail is somewhat of a triangular figure; its broad and flat belly making one side of the triangle, and its two sides, which meet at the back, the other two. Aldrov. de Pisc. lib. iii. cap. 141.

It has its name of *porcus piscis* either from the shape of its back, which, rising into a ridge, resembles that of a hog, or from its loving like the hog to wallow in mud.

CENTRINES, in *Physiology*, a species of insects hatched in the wild fig-tree, and used in CAPRIFICATION.

CENTRIPETAL force is that power whereby a moveable body, impelled in the right line AG (*Tab. Mechanics*, fig. 25. N° I.) is perpetually drawn out of its rectilinear motion and solicited to proceed in a curve. The *centripetal force*, therefore, is as the right line DE; supposing the arch AE infinitely small. Hence, in circles, the *centripetal* and *centrifugal forces* are equal.

CENTRISCUS, in *Zoology*, a genus of the order of *nantes*, in the class of *amphibia*: the characters of which are, that the head is lengthened out into a very narrow beak, the aperture is recurved, the abdomen carinated, and the belly fins united.

CENTRO-BARYC method, from *κεντρον* and *βαρυς*, heavy, in *Mechanics*, is a method of measuring or determining the quantity of a surface, or a solid, by considering it as formed by motion, and multiplying it into the way of its centre of gravity.

The doctrine is comprised in the following theorem, with its corollaries.

Every figure, whether superficial or solid, generated by the motion of a line or figure, is equal to the factum of the generating magnitude into the way of its centre of gravity, or the line which its centre of gravity describes.

Demonst. For suppose the weight of the whole generating magnitude collected in the centre of gravity; the whole weight produced by its motion will be equal to the factum of the weight moved into the centre of gravity. But when lines and figures are considered like homogeneous heavy bodies, their weights are as their bulks; and therefore the weight moved is the generating magnitude; and the weight produced that generated. The figure generated, therefore, is equal to the factum of the magnitude into the way of its centre of gravity. Q. E. D.

Corol. 1. Since a parallelogram ABCD (*Tab. Mechanics*, fig. 26.) is described, if the right line AB proceed according to the direction of another AC, with a motion still parallel to itself; and the way of the centre of gravity E is equal to the right line EF, perpendicular to CD, that is, to the altitude of the parallelogram: its area is equal to the factum of the base CD, or the describing line into the altitude EF.

Corol. 2. In the same manner it appears, that the solidity of all bodies, described by a plane descending according to the direction of any right line AC, is had by multiplying the describing plane by the altitude.

Corol. 3. Since a circle is described, if the radius CL, (fig. 27.) revolve round a centre C, and the centre of gravity of the radius CL be in the middle F, the way of the centre of gravity is the periphery of a circle X, described by a subduple radius: consequently the area of the circle is equal to the factum of the radius CL, into the periphery described by the subduple radius CF.

Corol. 4. If a rectangle ABCD (*Tab. Mechanics*, fig. 28.) revolve about its axis AD; the rectangle will describe a cylinder, and the side BC the superficies of a cylinder. But the centre of gravity of the right line BC, is in the middle F; and the centre of gravity of the generating plane in the middle G of the right line EF. The way of this latter, therefore, is the periphery of a circle described by the radius EF. Wherefore, the superficies of the cylinder is the factum of the altitude BC into the periphery of a circle described by the radius EF, or the base. And the solidity of the cylinder is the factum of the generating rectangle ABCD into the periphery of a circle described by the radius EG, which is subduple of EF, or of the semidiameter of the cylinder.

Suppose v. gr. the altitude of the describing plane, and therefore of the cylinder BC = a; the semidiameter of the base DC = r; then will EG = $\frac{1}{2}r$: and supposing the ratio of the semidiameter to the periphery = 1 : m, the periphery described by the radius $\frac{1}{2}r = \frac{1}{2}mr$. Therefore multiplying $\frac{1}{2}mr$ by the area of the rectangle AC = ar; the solidity of the cylinder will be = $\frac{1}{2}mar^2$. But $\frac{1}{2}mar^2 = \frac{1}{2}r \times mr \times a$; and $\frac{1}{2}mr^2$ is the area of the circle described by the radius EG. It is evident, therefore, the cylinder is equal to the factum of the base into the altitude.

Corol. 5. In like manner, since the centre of gravity of the right line AB (*Tab. Mechanics*, fig. 17.) is in the middle M, and the surface of a cone is described, if the triangle ABC revolves about its axis; if PM = $\frac{1}{2}BC$; the superficies of the cone will be equal to the factum of its side AB, into the periphery described by the radius PM, or the subduple diameter of the base BC.

Suppose, v. gr. BC = r, AB = a, the ratio of the radius to the periphery 1 : m; then will PM = $\frac{1}{2}r$, and the periphery described by this radius = $\frac{1}{2}mr$. Therefore multiplying $\frac{1}{2}mr$ into the side of the cone AB, the product is the superficies or $\frac{1}{2}amr$. But $\frac{1}{2}amr$ is also the factum of $\frac{1}{2}a$ and mr : therefore, the surface of the cone is the product of the periphery into half the side.

Corol. 6. If the triangle ACB (*Tab. Mechanics* fig. 29.) revolve about its axis, it describes a cone; but if CB be bisected in D, and the right line AD be drawn, and

$AO = \frac{2}{3} AD$; the centre of gravity will be in O. The solidity of the cone, therefore, is equal to the factum of the triangle CAB into the periphery described by the radius PO; but $AD:AO::BD:OP$; and $AO = \frac{2}{3} AD$, and $DB = \frac{1}{2} CB$. Therefore, $OP = \frac{2}{3} BD = \frac{1}{3} CB$.

Suppose, v. gr. $BC = r$, $AB = a$; the ratio of the radius to the periphery $= 1:m$. Then will $OP = \frac{1}{3} r$, the periphery described by this radius $\frac{1}{3} mr$; the triangle ACB $= \frac{1}{2} ar$; and therefore, the solidity of the cone $\frac{1}{2} mr \frac{1}{2} ar = \frac{1}{6} amr^2$; but $\frac{1}{6} amr^2 = \frac{1}{2} r \times mr \times \frac{1}{3} a$: or the factum of the base of the cone into the third part of the altitude. See TRIANGLE.

This elegant theorem, which may be ranked among the chief inventions in geometry of the last age, was taken notice of long ago by Pappus; but the Jesuit Guldinus was the first who set it in its full light, and exhibited its use in a variety of examples. Several other geometers after Guldinus and Pappus, have also used it in measuring solids, and surfaces generated by a rotation round a fixed axis; especially before the late invention of the integral calculus: and it may still take place in some cases, where the integral calculus would be more difficult. M. Leibnitz has observed, that the method would hold though the axis or centre be continually changed during the generative motion.

CENTRONIA, in *Ichthyology*, the name by which the *echini marini* have been lately distinguished. Dr. Hill makes them a distinct series of animals, living under the defence of shelly coverings, formed of one piece, and furnished with a vast number of spines, moveable at the creature's pleasure.

The species of *centronia* are very numerous, but may be all comprehended under the following divisions. 1. The roundish or subglobose kind; called by Klein, *CIDARIS*. See *TURBAN-shell*.

2. The cordated kinds; called by Klein, *SPATANGI* and *SPATAGOIDES*.

3. The flat kinds; called by Klein *PLACENTÆ*.

Klein, who has been at much pains to arrange these bodies, has divided them into a number of other genera; but they may be all ranked under one or other of these divisions. But beside the known recent species, we meet with several others, fossil, of a very singular figure; for which see *ECHINITES* and *ECHINI fossiles*.

CENTRUM, in *Geometry, Mechanics, &c.* See *CENTER*.

CENTRUM phonicum, in *Acoustics*, is the place where the speaker stands in polysyllabical and articulate echoes.

CENTRUM phonocampticum, is the place or object, that returns the voice in an echo.

CENTRUM tendinosum, in *Anatomy*, a point, or centre, wherein the tails of the muscles of the diaphragm meet. This centre is perforated towards the right side, for the *vena cava*; towards the left, backward: its fleshy part gives way to the *gula*. The descending trunk of the great artery, thoracic duct, and *vena azygos*, pass between its two inferior processes. See *DIAPHRAGM*.

CENTRY Box, a wooden cell, or lodge, made to shelter the centinel, or centry, from the injuries of the weather. In a fortification, such lodges are usually placed on the flanked angles of the bastions, on those of the shoulder, and sometimes in the middle of the curtain.

CENTUM-MORBIA, in *Botany*, a name used by some authors for the common moneywort or nummularia, from its supposed virtues.

CENTUMVIRATE, among the Romans, a court composed of one hundred magistrates, or judges, appointed to decide private differences between the people.

The *centumviri* where a body of men chosen, three out of each tribe; so that their number amounted to five more than their name imports: their business was to judge of matters relating to testaments, tutorage, inheritances, and such other matters of less weight and moment, as the prætors committed to them. Their body was afterwards increased to a hundred and eighty.

The *centumviri* were called together by setting up a spear; at first, by those who had discharged the office of quæstor; afterwards, by the decemviri.

CENTUNCULUS, in *Botany*, a name used by some authors for the gnaphalium, or cudweed.

CENTUNCULUS, in the Linnæan system of *Botany*. This makes a distinct genus of plants, of the *tertrandria monogynia* class; the characters of which are these: the cup is a wide perianthium, divided into four oval and pointed segments, and remaining after the flower is fallen; these also are larger than the segments of the flower; the flower is composed of a single petal, in form of a roundish tube, with a rim divided into four segments of an oval figure: the stamina are four filaments nearly of the length of the flower; the antheræ are simple; the germen of the pistil is roundish, and situated in the tube of the flower; the style is slender, of the length of the

flower, and remains when the petal is fallen; the stigma is simple; the fruit is of a globose capsule, containing only one cell, which splits open horizontally; the seeds are small, numerous, and roundish. There is one species.

CENTURIAL Inscriptions, a denomination given by some to those inscriptions inserted in the face of Severus's wall, which make mention of the centuries and cohorts by whom such parts of the wall are supposed to have been erected. In which sense, *centurial inscriptions* stand contradistinguished from *legionary*.

CENTURIATA Comitia, in *Antiquity*, those assemblies of the Romans, wherein the people gave their votes by centuries.

CENTURIATOR, an appellation given to certain learned Germans of the city of Magdeburg, who, in the early days of the Reformation, composed a body of church history divided into *CENTURIES* of years.

Baronius is said to have written his *Annals* by way of opposition to the *centuriators* of Magdeburg.

CENTURION, *Centurio*, among the Romans, an officer in the infantry, who commanded a century, or a hundred men.

The first *centurion* of the first cohort of each legion, was called *primipilus*, *primopilus*, or *primipili centurio*, sometimes *primus centurio*: he was not under the command of any tribune as all the rest were: and had four centuries under his direction. He guarded the standard and the eagle of the legion.

CENTURY, a thing divided, or ranged into a hundred parts. At the time when the Roman people were assembled for creating of magistrates, establishing of laws, or deliberating on public affairs, they were divided into *centuries*; and to the end their suffrages might be more easily collected, they voted by *centuries*: this was done in the Campus Martius; and these assemblies were hence called *comitia centuriata*.

The denomination *CENTURY*, *centuria*, was given to the horsemen or *equites* belonging to each tribe, which at first were only an hundred; but the same name, *centuria equitum*, was retained when the number was afterwards doubled, and even tripled: just as it was with the word tribe, which at first denoted a third part of the people; but was still retained, after the people were divided into six parts. *Mem. Acad. Inscript. tom. ii. p. 101.*

The Roman cohorts were distributed into decuries, commanded by decurions; and *centuries* by centurions. Each *COHORT* consisted of six *centuries* and a *LEGION* of sixty.

CENTURY, in *Chronology*, is the space of one hundred years. Church-history is computed chiefly by *centuries*, commencing from our Saviour's incarnation.

In this sense, we say, the first *century*, the fathers of the second *century*, the councils of the third *century*, &c.

CENTUSSIS, a Roman coin, containing a hundred *asses*. See *As*.

CEOAN, in *Ornithology*, the name of a bird common in the Spanish West Indies, and described by Nieremberg, who also calls it *avis nivea*. It is a little larger than our largest thrush, and very remarkable for the facility with which it learns to imitate the human speech.

CEORLE. See *CHURLE*.

CEPA, the onion, in *Botany*, &c. See *ONION*.

CEPÆA, in *Botany*, a name given by some authors to the common *anagallis aquatica*, or water-brook lime.

CEPHALALGIA, from *κεφαλη*, head, and *αλγος*, pain, in *Medicine*, is understood, in the general, of any *HEAD-ach*; but properly signifies only a fresh one.—When it becomes inveterate, it is called *cephalæa*; and, when it only possesses half the head, *hemicrania*.

CEPHALALGIA hiaco-hæmatitica, a name given by some medical writers to that species of *HEAD-ach*, called by others the *CLAVUS hystericus*.

CEPHALANTHUS, in *Botany*. See *BUTTON-tree*.

CEPHALIC, in *Medicine*, is applied to any thing belonging to the *HEAD* or its parts.

The word is formed of *κεφαλη*, head.

CEPHALICS, or *CEPHALIC Medicines*, are such as are proper for disorders of the head.

These are generally of a volatile, spirituous, or aromatic nature, or at least they are joined with such; and are supposed to be of service, by the volatility of their particles insinuating into the nerves, and mixing with the animal spirits directly, as well as by the common circulation. Fixed bodies can only become *cephalic* by accident. Thus, spirit of lavender is supposed directly to act upon the nerves of the palate, &c. upon which account, it is frequently taken dropped on sugar, or bread: and sal volatile, by smelling to, is supposed to be assistant to the head, by its volatile particles entering the olfactory nerves. As to aromatic *cephalics*, as the species of *diantha*, powder de gutteta, nutmeg, &c. they act chiefly by their aromatic parts warming the nervous system, and increasing

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increasing their vibrations, by which the nervous fluid circulates more freely.

Cephalics are different, according to the diversity of causes, which may happen to obstruct the circulation of the humours of the brain. If the cause is of a cold and mucous kind, the *cephalics* to be prescribed, must be of a heating, stimulating, fragrant, and aromatic quality: if, on the contrary, the disorder arises from an excess of heat in the body, the *cephalics* to be exhibited must be of a cooling and refrigerating nature.

Cephalics are either *internal*, when for instance they are exhibited by the mouth, in order to produce their effects by the general circulation of the fluids: or by way of clysters, which often produce the most happy consequences, by making a revulsion from the superior and more noble parts; or they are such as are *external*; to which class belong errhines, proper liquors for washing the head, medicated cups, and other remedies commonly called topics, the materials of which are also used against disorders of other parts of the body.

With respect to *cephalic* topics in general, we must observe, that the head is less capable of bearing moist than dry applications; because the former, by distending or relaxing the vessels, produce congestions of humours, which prove hurtful to the brain. Nor do moist preparations applied to the head ever answer any valuable purpose, except in those cases alone where the disorder arises from an excess of heat and dryness; or from an inflammatory disposition in the head.

CEPHALIC Vein, in *Anatomy*, is a vein of the arm between the skin and the muscles, divided into two branches, *external* and *internal*. The external goes down to the wrist, where it joins the *basilica*, and turns up to the back of the hand: the internal branch, together with a sprig of the *basilica*, makes the *mediana*.—See *Tab. Anat. (Angiol.) fig. 6. lit. n.*

It is thus called, because the ancients used to open it in disorders of the head; from a mistaken notion, that it had a nearer concern with the head than any other of the veins.

CEPHALOIDES, a denomination given by some writers, who discover virtues in plants from their signatures, to those which bear any resemblance to a human head; such are the poppy, piony, and the like.

CEPHALOMANTIA, from *κεφαλη*, and *μαντεια*, *divination*, an ancient species of divination, or method of foretelling futurity, by a dead man's skull.

CEPHALONOMANTIA, a method of divination, or revealing secrets, by means of an ass's head broiled on the coals.

The word is compounded of *κεφαλη*, *head*, *ονος*, *ass*, and *μαντεια*, *divination*.

After muttering a few prayers, the names of several persons suspected of a theft, or the like, were repeated over: he at whose name the ass's jaws made any motion, or the teeth began to chatter, was held for convicted.

CEPHALOPHARYNGÆI, in *Anatomy*, two muscles of the orifice of the *œsophagus*, called the *pharynx*.

They have their origin in the articulation of the head with the first *vertebra*, and are inserted into the upper part of the *pharynx*: they serve to draw it upwards and backwards.

CEPHALOPONIA, from *κεφαλη* and *πονος*, *pain*, a denomination given by some to the *cephalgia*, or *HEAD-ACH*.

CEPHALUS, in *Ichthyology*, a name given by Aristotle, Ælian, Appian, and others, to the *mullet* or *mullet*, called also by some *capito*.

CEPHALUS, is also a name given by some naturalists to the *sargus*, called also *gardo*, and *gardon*; a fish very little, if at all, differing from our roach.

CEPHEUS, in *Astronomy*, a constellation of the northern hemisphere; whose stars, in Ptolemy's Catalogue, are thirteen; in Tycho's, eleven; in Hevelius's, fifty-one; in the Britannic Catalogue, thirty-five. The order, names, longitudes, latitudes, magnitudes, &c. whereof are as follow:

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
In the preced. foot	α	♏	28 51 22	75 28 30	5
In the preced. arm	β	♏	0 37 40	73 57 30	5
In the bend of the preced. arm	γ	♏	0 12 57	71 46 22	4
	δ	♏	14 55 55	74 7 30	6
In the preced. shoulder	ε	♏	8 30 33	68 56 20	3
5.			14 18 38	69 59 30	6
			20 30 18	70 2 55	6
	β	♏	1 17 53	71 9 0	3
In the girdle, against the preced. side	γ	♏	10 42 10	66 47 28	6
			10 5 8	65 29 3	5

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Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
	α	♏	4 13 47	70 16 30	5
	β	♏	9 35 5	65 2 35	7
	γ	♏	Unknown	Unknown	6
That preced. the tiara	δ	♏	7 41 48	61 52 50	6
In Cepheus's neck	ε	♏	10 58 16	62 54 22	7.6
15.					
In the breast	ζ	♏	10 26 48	69 24 0	5.6
	η	♏	19 54 39	65 46 5	5
	θ	♏	Unknown	Unknown	
	ι	♏	15 33 17	64 18 26	6
	κ	♏	16 29 22	64 36 48	6
20.					
Middle of 3 in the tiara	λ	♏	9 39 45	61 9 41	4.5
North. and small. of the same	μ	♏	11 40 46	61 54 50	6
South in the tiara	ν	♏	8 40 50	59 59 5	4
	ξ	♏	8 40 33	68 25 55	5.6
	ο	♏	18 31 44	63 24 4	7
25.					
That following the tiara	π	♏	24 5 35	63 57 10	7
	ρ	♏	13 19 5	59 33 25	4.5
	σ	♏	Unknown	Unknown	6
	τ	♏	26 37 34	68 23 4	6
	υ	♏	22 53 40	62 2 10	6
30.					
Preced. in the following arm	φ	♏	13 24 20	67 0 10	6
In the following leg.	χ	♏	28 58 30	62 36 50	4
Latter in the hind arm	ψ	♏	19 14 46	65 33 0	5
In the hind foot	ω	♏	5 41 55	61 23 46	5
	υ	♏	25 48 35	64 36 30	3
35.					

CEPI Corpus, in *Law*, a return made by the sheriff, upon a *capias*, or other process to the like purpose; signifying, that he hath taken the body of the party.

CEPION, in *Antiquity*, the name of a particular air, invented by a disciple of Terpander, and designed to be played on the *CITHARA*.

CEPIONITES, in *Natural History*, a name given by Pliny and other ancient writers, to a species of stone, seeming to approach to the nature of the *JASPER*. Pliny tells us, that there were many kinds of it, some more pellucid than others, and some colourless; others variegated with green, and the other colours of the jaspers and agates: they were all used in the ornamenting of houses: and the least beautiful served, when well polished, to make speculums of.

CEPITES, in *Natural History*, a name used by the ancients to express a gem which gave the representation of the several clusters of plants and flowers in the beds of a garden, with naked veins, expressing the walks between. The common text of Pliny is unintelligible, where he gives the description of this stone; but Salmasius has restored it from some old copies, so as to make it sense and expressive of this meaning. The stone was probably no other than a peculiar kind of that agate which the ancients called *dentrites*, and we the *MOCOA stones*.

CEPOLA, in *Ichthyology*, a genus of the *thoracici* in the class of fishes; the characters of which are, that the head is roundish and compressed, the mouth flat, the teeth crooked, the branchiostegic membrane consists of six small bones, the body uniform and naked, and the abdomen scarce as long as the head.

CEPOLAPITES, in *Natural History*, a name given by some to the stone properly called **CEPITES**, a kind of *MOCOA agate*.

CEPPHUS, in *Ornithology*, the name of a bird of the *larus* or gull kind; but, except in its feet and beak, very much resembling the common duck. It is a moderately large bird, but is so thick-feathered, that it appears much more so than it really is. It is of a variegated colour, of a mixture of white, brown, and yellow; but the long wing and tail-feathers are black: its legs are greenish; but the membrane which connects the toes is brown. See *Phil. Trans. vol. lii. part i. N° 24.*

CEPULA, a name by which Gesner and some other authors have called the common *tania*. It is derived from the Italian *cepole*; the common name of the same fish in the markets of Rome. It is a species of the **CEPOLA**.

CEPUS, in *Zoology*, a name given by some to those monkeys of the smaller kind, which have more or less green among their other colours.

CERACHATES, in the *Natural History of the Ancients*, the name of a species of agate of a plain yellow colour, and very much resembling yellow wax. We have it from the East-Indies, as also from New Spain and some other parts of America; and our jewellers sometimes work it into toys of small value.

CERAMBYX, in *Zoology*. See *Capricorn BERTLE*.

CERAMUM, an ancient *MEASURE*, answering to what was otherwise called *AMPHORA* and *CADUS*.

CERASTES, the *horned snake*, in *Zoology*, the name of a species of serpent, which has on its forehead two protuberances, that look like shells, but of a more solid texture, and from their resemblance of horns have given it this name: these are often no larger than grains of barley: its teeth are like those of the viper, and are placed in the same order: it is of the number of viviparous serpents, and is remarkable among the serpent class for its long enduring thirst. It is found in Lybia and Arabia, particularly about the town of Suez.

CERASTES was also a name given by the ancient Greeks to a stag when at his full growth, or at the end of its fourth year.

CERASTIUM, in *Botany*. See *MOUSE-ear*.

CERASUS, in *Botany*. See *CHERRY-tree*.

CERATE. See *CERATUM*.

CERATIAS, among *Ancient Naturalists*, denotes a horned comet.

The word is formed from *κερας*, a *horn*. Such is that said to have appeared when Xerxes passed his army into Greece.

CERATION, *Ceratio*, in *Chemistry*, the operation of waxing.

CERATITES a name given by many authors to the substance more usually called by authors *UNICORNU fossilis*, and found in great plenty in the caverns of Hart's forest in Germany.

CERATIUM, or *CERATION*, a name given by the *Ancient Physicians* to a small weight. The *ceration* is properly the name of a tree called the carob, or *siliqua dulcis*, the sweet pipe-tree: this tree bears a long pod, in which are contained several seeds among the pulp: these seeds are also called *ceration* and *jembut* by the Arabians; and being dried, they were used as a weight to proportion the doses of medicines. Thus the small weight, which took its origin from them, was called *ceration*; as that small weight, which took its origin from a grain of barley, was called *granum*.

CERATIUM was also a small silver coin, the third part of an *obolus*, and the same with what the Romans called *folles*.

CERATOCARPUS, in *Botany*, a name given by Buxbaum to a new genus of plants, belonging to the class of *monœcia monandria* in the Linnæan system; the characters of which are, that the leaves are slender and grassy, the flowers apetalous, and having no cup, but standing upon the embryo fruit; the fruit, when ripe, is of a triangular figure, resembling that of a shepherd's purse, but running out into horns, and composed of two valves. Each of these fruits contains only one seed, and that of a very singular figure; it is long and slender, and not flat, but rounded, and each of its extremities is bent round in the manner of an arch, which are held together in their approach to one another by a membrane; the root is fibrose and annual, the stalk woody and branched, the leaves rigid and hollowed along the middle, and the flowers are yellow. It grows in marshy places near the Caspian sea, and in the neighbourhood of Astracan; and toward autumn the stalks are usually torn up by the winds, and blown about the marshes in great abundance. *Act. Petrop.* vol. i. p. 244.

The author named it *ceratocarpus*, *horned fruit*, from the seed-vessels running out into two horns: he observes, that the description of the *ceratoides* of Tournefort's corollary approaches to this plant in many points; but differs so much in others, that either Tournefort must mean another plant, or else he must have informed himself but very imperfectly as to this.

CERATOGLOSSUM, in *Anatomy*, a pair of muscles of the tongue, thus described by Mr. Cowper; "the *ceratoglossum* has a broad fleshy origination, at the superior part of the *os hyoides*, laterally; whence it ascends to its insertion, at the root of the tongue. This, with its partner, acting, draws the tongue into the mouth directly: if only one of them act, it moves the tongue on one side."

The word is derived from *κερας*, *horn*, and *γλωσσα*, *tongue*; its form bearing some resemblance to a horn.

CERATOIDES, in *Anatomy*, the *CORNEA tunica*. See *CORNEA*.

CERATOIDES is also a denomination given to the *os hyoides* or *bicorne*. See *HYOIDES*.

CERATOMALAGMA, a cerate or cerecloth.

CERATONIA, in *Botany*. See *CAROB*.

CERATOPHYLLUM, in *Botany*, the name by which Linnæus calls a genus of plants, of the *monœcia polyandria* class; called by others *dichotophyllum*, and *hydroceratophyllum*. The characters are these: the flowers are some male, others female, on the same plant; in the male flowers the cup is divided into many segments, which are pointed, and equal in size; there are no petals; the stamina are slender filaments, double in number to

the segments of the cup, being usually sixteen or twenty, and are scarce conspicuous; the antheræ are oblong, erect, and longer than the cup: in the female flowers the cup and corolla are the same as in the male; the germen of the pistil is compressed, and of an oval figure; there is no style, but the stigma is obtuse and oblique; the fruit is an oval nut, of a pointed figure, and having only one cell. Vaillant describes one species of this genus, the seeds of which have three spines, one standing forward, and the other two behind.

CERATUM, *CERATE*, in *Medicine*, a kind of stiff unguent, or liniment, made of oil and wax, with other ingredients; used externally in several diseases, especially those of the skin.

It takes its name from its capital ingredient, wax, called in Latin *cera*.

Its consistence is thicker than that of a liniment; the last having usually two ounces of wax to two of oil; but the *cerate*, four of wax to two of oil; yet it is thinner than a plaster.

There are *cerates* of various kinds, *refrigerative*, *stomachic*, &c. *cerate of sulphur*, of *saunders*, *refracting cerate of bricks*, *divine cerate*, &c.

There is a particular one, called the *refrigerative cerate of Galen*, made of white wax and *oleum rosæ omphacin*.

CERATUM epuloticum, a name given in the late London Dispensatory to the composition commonly called *Turner's cerate*, and there ordered to be made in this manner: take oil olive, a pound; yellow wax and prepared calamy, of each half a pound; melt the wax in the oil, and when the mixture begins to congeal again, sprinkle in the powder, and continue stirring it till the whole is cold.

CERATUM mercuriale, a form of medicine prescribed in the late London Pharmacopœia, and ordered to be made in the following manner; take yellow wax, and tried hog's lard, of each half a pound; quicksilver, three ounces; simple balsam of sulphur, a dram: melt the wax and lard, and then add to them gradually the quicksilver, first well divided by the balsam of sulphur.

CERAULA, in *Antiquity*, a kind of musician, who blows or plays on the horn.

In which sense, the word amounts to the same with the Latin *cornium*.

CERAUNIA, *CERAUNIAS*, or *CERAUNIUS lapis*, in *Natural History*, a sort of stony figured stone, of no certain colour, but of a pyramidal or wedge-like figure; popularly supposed to fall from the clouds in thunder-storms, and to be possessed of divers notable virtues; as of promoting sleep, preserving from lightning, &c.

The word is formed from *κεραυνος*, a *thunder-bolt*.

The *ceraunia* is the same with what is otherwise called the *thunder-stone* or *thunder-bolt*; and sometimes also *sagitta*, or *arrows-head*, on account of its shape.

The *ceraunia* are frequently confounded with the *OMBRIA* and *BRONTIA*, as being all supposed to have the same origin.

The generality of naturalists take the *ceraunia* for a native stone, formed among pyrites, of a saline, concrete mineral juice. Mercatus and Dr. Woodward assert it to be artificial, and to have been fashioned thus by tools.

The *ceraunia*, according to these authors, are *silices*, or heads of the ancient weapons of war, in use before the invention of iron; which upon the introduction of that metal, growing into disuse, were dispersed in the fields through this and that neighbouring country.

CERAUNIA, in *Botany*, is used by some authors for *orpin*.

CERAUNIUS albus, in *Natural History*, a name given by Pliny to a gem or precious stone, of the nature of the *asteria*, but somewhat inferior to it in beauty. Pliny tells us, that it was a very bright gem, of a crystalline appearance, but with a cast of bluish; and that it was found in Caramania. Solinus gives us much the same account, but makes Germany the place of its origin. It is indeed written *Germania* in several of the old copies in Pliny, but the most correct have it as it is printed, *Caramania*, and *Caramania* was a country from which the Romans had many gems.

CERAUNITES, in *Natural History*, a name given by several writers to the *BELEMNITES*.

CERBERA, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flower is of one leaf, funnel-shaped, spread open at the top, where it is divided into five large segments; with five large stamina in the middle of the tube. In the centre is situated a roundish germen, which afterward becomes a large, fleshy, roundish berry, divided into two cells, each containing a single large compressed nut. There are two species, natives of the West Indies, and the Brasils.

CERBERUS, in *Astronomy*, a small northern constellation near *Hercules*, consisting, in Hevelius's Catalogue, of

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four stars, which are enumerated under HERCULES in the Britannic Catalogue.

CERBERUS, among *Chemists*, denotes MERCURY.

The name CERBERUS, is also given by some to a famous purging powder, more usually called *pulvis cornachinus*, and *pulvis comitis Warwicensis*. See CORNACHINE powder.

CERBERUS *chemicus*, in *Chemistry*, a phrase used by Hoffman and others to express the common nitre or salt-petre, which they have called also *sal infernalis*.

CERBERUS, in *Mythology*, a name which the ancient poets have given to a dog with three heads and mouths, born of Tiphon and Echidna and stationed at the gate of hell. Some have supposed that *Cerberus* is the symbol of the earth, or of all-devouring time; and that its three mouths represents the present, past, and future. The victory obtained by Hercules over this monster, denotes the conquest which this hero acquired over his passions. Dr. Bryant supposes, that *Cerberus* was the name of a place, and that it signified the temple of the Sun; deriving it from *Kir-Abor*, the place of light. This temple was also called *Tor-Caph-El*, which was changed to *τρικεφαλός*; and hence *Cerberus* was supposed to have had three heads. It was likewise called *Tor-Keren*, *Turris regia*; whence *τρικεφαλός*, from *τρεῖς*, three, and *κεφαλή*, head. Anal. of Mythology, vol. i. p. 409, &c.

CERCASI, in the *Eastern Military Orders*, are a body of horse in the service of the grand signior.

CERCELE, in *Heraldry*. A Cross CERCELE, is a CROSS which, opening at the ends, turns round both ways, like a ram's horn.

The cross *cercele* differs from the cross ANCHORED, as the latter turns but a little rounding, whereas the former turns quite round.

CERCIS, in *Botany*, the name given by Linnæus to the genus of plants called *siliquastrum* by Tournefort, Rivinus and others. See JUDAS-tree.

CERCOPITHECUS, in *Natural History*, the name of a species of long-tailed-monkeys.

The word is derived from *κέκος*, a tail, and *πίθηκος* a monkey.

Aldrovandus, Marcgraave, and others, have given the figures and histories of many of the *cercopitheci*. The former of these authors speaks of some as large as mastiff dogs, having tails five cubits long. In Brasil there is a yellowish kind, which smells of musk. As these monkeys climb trees, if in danger of falling, they save themselves not only by their feet, but by their tails, wrapping them round the boughs of trees. The Zygantes in Africa esteem their flesh good meat.

CERCOSIS, in *Medicine*, a preternatural extension and tumidity of the female CLITORIS, so as to project beyond the *labia pudendi*.

CERDONIANS, a sect who maintained most of the errors of Simon Magus, Saturninus, and the Manichees.

They took their name from their leader *Cerdo*, a Syrian, who came to Rome in the time of pope Hyginus; and there abjured his errors: but he did this in appearance only: for he was afterwards convicted of persisting in them, and accordingly was cast out of the church again. *Cerdo* asserted two principles, the one good, and the other evil; between these, he imagined an intermediate kind of deity, of a mixed nature: this last, according to him, was creator of the world, and the God that appeared under the old law. To his jurisdiction the Jews were subject; and idolatrous nations were under the empire of the evil principle. The good Being, whom he called *unknown*, was the father of Jesus Christ; who he taught, was only incarnate in appearance, who was not born of a Virgin; nor did he suffer death, but in appearance. Marcion, his disciple, succeeded him in his errors: whence the MARCIONITES.

CEREALES *adiles*, two officers of ancient Rome, erected under Julius Cæsar, appointed to have the superintendency of the corn and grain for the provision of the city. They also presided in the *cerealia*. See ÆDILE.

CEREALES *ludi*, solemn sports held in honour of Ceres, wherein the matrons represented the grief and lamentation of Ceres for the loss of her daughter Proserpine, and her travels to find her again.

CEREALIA, in *Antiquity*, feasts of Ceres instituted by Triptolemus, son of Celeus, king of Eleusine, in Attica, in gratitude for his having been instructed by Ceres, who was supposed to have been his nurse, in the art of cultivating corn, and making bread.

There were two feasts of this kind at Athens: the one called ELEUSINIA, the other THESMOPHORIA.

What both agreed in, and was common to all the *Cerealia* was, that they were celebrated with a great deal of religion and purity; so that it was esteemed a great pollution to meddle, in those days, in conjugal matters.

It was not Ceres alone that was honoured here, but also Bacchus. The victims offered were hogs, because of

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the waste they make in the products of the earth; whether there was any wine offered, or not, is matter of much debate among the critics. Plautus and Macrobius seem to countenance the negative side; Cato and Virgil, the positive.

The *Cerealia* passed from the Greeks to the Romans, who held them for eight days successively; commencing, as generally held, on the fifth of the ides of April. It was the women alone who were concerned in the celebration, all dressed in white: the men, likewise in white, were only spectators. They eat nothing till after sun-set; in memory of Ceres, who in search after her daughter took no repast but in the evening.

After the battle of Cannæ, the desolation was so great at Rome, that there were no women to celebrate this feast, because they were all in mourning; so that it was omitted that year.

CEREALIA *semina*, an appellation given by some to what we call *legumina* or pulse.

CEREBELLUM, or CEREBEL, in *Anatomy*, the hinder part of the brain.—See *Tab. Anat. (Osteol.) fig. 5. lit. c.c.* The *cerbellum* is esteemed a kind of little brain by itself, as the word imports, which is a diminutive of *cerebrum*. It is placed in the hinder and lower part of the skull, underneath the hind part of the brain, or *cerebrum*: it lies open to the *cerebrum* at bottom; but at top it is separated from it by a duplicature of the *dura mater*. Its figure somewhat resembles a flat bowl, broader than it is long. Its substance is harder, drier, and more solid, than that of the brain, but of the same nature and kind; being composed, like it, of a cortical, or glandulous, and a medullary part: the branches of which last, when opened, resemble those of a tree, meeting in the middle, and forming a kind of stem, which runs quite through it. Its colour is yellowish, that of the brain being whiter. Its surface is unequal, and furrowed, but not so much as that of the *cerebrum*; appearing rather as if laminated, like some shell; the middle circles being the largest and deepest: between the *laminae* are duplicatures of the *pia mater*. The fore and hind parts of the *cerbellum* are terminated by apophyses, called *vermiformes*, from the resemblance they bear to worms: it is joined to the *medulla oblongata* by two processes, called by Willis, *pedunculi*.

Besides these, there are two or three other medullary processes, which passing along the *medulla oblongata*, form an arch; from the discoverer called *pons Varoli*.

The blood-vessels of the *cerbellum* are the same with those of the *cerebrum*; and the use the same, viz. to separate the nervous juice from the blood, and convey it through the several parts of the body.

Dr. Willis, however, distinguishes between the functions of the *cerebrum*, and *cerbellum*; making the first the principle of voluntary motions, and actions; and the last the principle of involuntary ones, viz. that of respiration, the motion of the heart, &c.

It is commonly asserted, that a wound either in the cortex, or medulla, of the *cerbellum*, is mortal; though it is not in the brain, from which there have been entire parts taken away without harm. The truth is, we have instances of people living some time, not only without any *cerebrum*, but also without any *cerbellum*.

Willis and Boerhaave suppose the *cerbellum* to be the seat of the vital principle: but this opinion is liable to difficulties. The observations of M. de la Peyronie shew, that wounds in the *cerbellum* of dogs are not immediately mortal; and we have more than one account of persons living with a scirrhus *cerbellum*. See Phil. Trans. N° 474. sect. 3. and Mem. de l'Acad. Royale des Scienc. 1705.

CEREBRUM, in *Anatomy*, the BRAIN, properly so called; in contradistinction from the *cerbellum*.

CEREBRUM *Jovis*, in *Ichthyology*, a name given by Ennius the poet to a peculiar fish of the *labrus* kind, called by the generality of authors *scarus*: it is distinguished by Artedi from the other species of the same genus, by the name of the LABRUS, *qui scarus auctorum est*.

CEREFOLIUM. See CHERVIL.

CEREIS, in *Botany*, a name used by some authors, and supposed to have been used by the ancients for the *siliquastrum*, or JUDAS's tree.

CERELÆUM, a composition of WAX and OIL.

Some also give the same denomination to the *oleum cerae*, otherwise called *butter of wax*.

CEREMONIAL is used for the set or system of rules and ceremonies which custom has introduced for regulating our behaviour; and which persons practise towards each other, either out of duty, decency, or civility.

CEREMONIAL, in a more particular sense, denotes the manner wherein princes and their ambassadors use to receive and treat one another. The *ceremonial* is a kind of law introduced by compact, custom, prescription, and which

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which sovereigns and their ambassadors are to observe at their interviews, that none of them may either receive more or less marks of respect than they are entitled to. Some distinguish three occasions on which the *ceremonial* is to take place: viz. when princes meet in person; when they write to each other; and when they send ambassadors.

There are endless disputes among sovereigns about the *ceremonial*: some endeavouring to be on a level, and some to be superior, to others. Numerous schemes have been proposed for fixing the place and rank of each prince; but they have not been accepted of by any, except some alternate princes, as they are called in Germany. See PRECEDENCY.

CEREMONIAL is more particularly used in speaking of the laws and regulations given by Moses, relating to the worship of God among the ancient Jews.

In which sense, it amounts to much the same with what we otherwise call *levitical* law; and stands contradistinguished from the *moral* as well as the *judicial* law.

It is disputed whether the observation of the SABBATH be a *ceremonial* or a *moral* law.

The *ceremonial* law prescribes the forms, usages, rites, &c. relating to sacred places, utensils, priests, levites, prophets, congregations, garments, feasts, sacrifices, sabbaths, &c.

Most of the *ceremonial* laws of the Jews had some relation to those idolatrous customs which had been established among them before the publication of the *levitical* law.

CEREMONIALE, a book in which is prescribed the order of the ceremonies to be observed in certain actions and occasions of solemnity and pomp.

The *ceremonial* of the Roman church is called *Ordo Romanus*.

The Roman *ceremonial* was first published by the bishop of Corcyra, in 1516; at which the college of cardinals were so scandalised, that some of them voted to have the author as well as book burnt, for his temerity in exposing the sacred ceremonies to the eyes of the profane people.

CEREMONY, an assemblage of several actions, forms, and circumstances, serving to render a thing more magnificent and solemn.

The word comes from the Latin *ceremonia*, quasi *Cereris munia*, on account of the great number of ceremonies used in making the offerings to Ceres; or because the first religious ceremonies were those of Ceres. Hence Cicero calls *Cereres antiquissimam, religiosissimam principem omnium sacrorum, quæ apud omnes gentes fiunt*.

We have an ample and magnificent account of the religious *ceremonies* and customs of all the nations in the world, represented in figures designed by Picart, with historical explanations, and divers curious dissertations, &c. *Ceremonies & Coutumes Religieuses de tous les Peuples du Monde*, 6 tom. fol. Amst. 1723.

M. Porree, in 1646, published a history of ancient *ceremonies*; tracing the rise, growth, and introduction of each rite into the church, and its gradual advancement to superstition therein. *Traité des Anciennes Ceremonies*. Amst. 1646. 12mo.

Many of them were borrowed from Judaism; but more, as it should seem, from Paganism.

Dr. Middleton has given a fine discourse on the conformity between the popish and pagan *ceremonies*; which he exemplifies in the use of incense, holy water, lamps and candles before the shrines of the saints, votive gifts or offerings round the shrines of the deceased, &c. In effect, the altars, images, crosses, processions, miracles, and legends; nay, even the very hierarchy, pontificate, religious orders, &c. of the present Romans, he shews are all copied from their heathen ancestors. Who then can doubt of the idolatry of popery, when we see the present people of Rome worshipping at this day in the same temples, at the same altars, sometimes the same images, and always with the same *ceremonies*, as the old Romans?

CEREMONY is also applied to those respects and honours which people pay to each other, out of mere civility and good breeding. China is the land of *ceremonies*. The Chinese have annexed such an idea of respect and gravity to certain garments, that the missionaries dare not say mass without their boots on.

CEREMONY, *habit of*, denotes the ornaments and external badges of a profession, dignity, or office.

CEREMONY, *officers of*, those whose business is to see the customary *ceremonies* duly observed in actions of pomp and solemnity. Such are marshals, serjeants at arms, &c.

In our court is a master and assistant of the *ceremonies*: The French have a grand-master of the *ceremonies*, as well as a master and assistant. In churches of the Romish communion there are also masters of the *ceremonies*, to see that every thing be performed as prescribed in the ritual.

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CEREPOLIUM, in *Botany*, a name used by Pliny to express the gingidium, an umbelliferous plant of the nature of the chervil or cerefolium; and it is very probable that this name is only a false spelling of that word. Columella makes the *cerepolium* and gingidium different; but it may only be that in different ages they applied these names to different species of the same genus of umbelliferous plants. Neophytus tells us, that the gingidium of the ancients was called by the later writers bisacutum; a name very well expressing its seeds, which are long and slender, and are pointed at both ends.

CERES, in *Mythology*, the daughter of Saturn and Ops, the goddess of corn and tillage. Sometimes Ceres is taken for the Moon; as Liber, Bacchus, is for the sun. By metonymy, the word is used to signify *bread*, and all manner of food.

CEREUS, in *Botany*. See TORCH-thistle.

CERIGO, in *Natural History*, a name by which many authors have called that remarkable American animal called the OPOSSUM.

The Americans in some places call this animal in their language *carigüeya*; and it is probable that his name *cerigo* is only a corruption of that word, though it be received generally in the world as a proper name, and used as such by Maffei, Barlaeus, Nieremberg, and many others.

CERINTHE, among the *Ancients*, was used by some to express that substance called by others *ambrosia* and *sandarach*, and by some *erithace*. See WAX.

CERINTHE, in *Botany*. See HONEY-wort.

CERINTHIAN, a sect that took their name from *Cerintus*, contemporary with St. John; who formed a singular system of doctrine and discipline, by combining the doctrines of Christ with the opinions and errors of the Jews and Gnostics.

Cerintus ascribed the creation of the world, and the legislation of the Jews, to a created being, who derived from the supreme God extraordinary virtues and powers, but afterwards became apostate and degraded. He supposed that Jesus was a mere man, born of Joseph and Mary; but that, in his baptism, Christ, who was one of the *Æons*, descended upon him in the form of a dove; and that he was commissioned to oppose the degenerate God of the Jews, and to destroy his empire. In consequence of which, by his instigation, the man Jesus was seized and crucified; but Jesus ascended up on high, without suffering at all. He recommended to his followers the worship of the supreme God in conjunction with his Son; he required them to abandon the lawgiver of the Jews; and though they were permitted to retain a part of the Mosaic law, yet they were to make the precepts of Christ the rule of their conduct. For their encouragement, he promised them the resurrection of the body; after which the millennium was to commence, under the government of Christ united to the man Jesus; and this he represented as consisting in eating and drinking, nuptial entertainments, and other festivities.

Some authors ascribe the book of the Apocalypse to *Cerintus*; adding, that he put it off under the name of St. John, the better to authorise his reveries touching Christ's reign in the flesh: but it is justly observed by the bishop of London, in his third Pastoral Letter, p. 58, that his millenary state was not the life of saints, as the Apocalypse represents it, but the life of libertines: and it is even certain he published some works of this kind, under the title of Apocalypses.

St. Epiphanius observes, that when a *Cerinthian* died without baptism, another person was baptised in his stead.

They received the Gospel of St. Mathew, to countenance their doctrine of circumcision, from Christ's being circumcised; but they omitted the genealogy. And they discarded the Epistles of St. Paul, because that apostle held circumcision abolished.

CERITES, the *wax-stone*, a name used by some old authors for that yellow agate usually called CERACHATES.

CERNUA, in *Ichthyography*, the name of a small freshwater fish; called by others the *aurata*, *aspreto*, and *perca minor*, or *small perch*; and in English the RUFFE. It is very much of the shape and figure of the common perch; seldom, at its utmost growth, being known to exceed six inches: and it differs in this also, that it has none of those black transverse lines with which the back and sides of the common perch are variegated. It is caught in many of our rivers; as the Yare at Norwich, &c. See also ORPHEUS.

CEROCHYTOS, in *Antiquity*, a method of painting in wax, melted and coloured with pigments for the purpose, and applied with pencils.

The word is compounded of *κηρός*, *cera*, *wax*, and *χύνω*, *fundo*, *I melt down*. Plin. Hist. Nat. lib. xxxv. cap. 11. and lib. xxi. cap. 14.

CEROMA

CEROMA, originally denoted a mixture of oil and wax, with which the ancient wrestlers rubbed themselves, not only to make their limbs more sleek, and less capable of being laid hold of, but more pliable, and fit for exercise.

The name *ceroma* is sometimes applied by ancient physicians to a cerate or cerecloth.

The champions, ready to engage in the *palestra*, having stripped themselves naked, were first anointed with oil, then strewed over with dust, to which was lastly added wax. From the last ingredient, this composition was denominated *ceroma*, from *cera*, wax.

CEROMANTIA, an ancient method of DIVINATION, by means of wax melted over a vessel of water, and let drop in three distinct spaces; observing the figure, situation, distance, and concretion of the drops.

CEROPEGIA, in *Botany*, a genus of the *pentandria monogynia* class. The flower consists of a single petal; it has two small erect leaves, plumose seeds, and the limb of the corolla is connivent.

CEROSTROTUM, in *Ancient Writers*, denotes a sort of picture composed of pieces of horn; answering to what among us is called MOSAIC work.

Some write the word *cerostratum*, and suppose it primarily to denote a sort of pavement composed of pieces of wood, inlaid and joined with slips of horn, variously coloured and figured.

Salmasius will have *cerostrata* to denote a method of painting, or enamelling with wax, otherwise called CEROCYOTOS.

CERPASUS, in *Natural History*, a name given by Uranius to a poisonous drug of the Abyssines; probably the same with the *carpasus* of the Greeks.

CERRUS, in *Botany*, a name given by many authors to the *agilops*, or bitter oak; or oak that has large acorns, and a prickly cup.

CERRUS, in *Ichthyology*, a name given by some of the old writers, Pliny, Martial, and others, to the fish called by the generality of writers *smaris*, by some *mæna candida*. It is of the SPARUS kind, according to the Ardeian system, and is distinguished from the other fishes of that genus by its having a black spot in the middle of each side, and the pectoral and tail fins red.

CERTHIA, in *Zoology*. See CREEPER.

CERTIFICANDO *de recognitione stapulæ*, is a writ commanding the mayor of the staple to certify to the lord chancellor a statute staple taken before him, where the party himself detains it, and refuseth to bring in the same. Reg. Orig. 152. There is the like writ to certify a statute merchant; and in divers other cases. Ib. 148. 151, &c.

CERTIFICATE, a testimony given in writing, to assure and notify the truth of any thing to a court of justice, or the like. See TESTIMONIAL.

CERTIFICATE of costs, in *Law*, relates to the case of a plaintiff, who, in an action of trespass, is allowed no more costs than damages, when the jury give less damages than 40s. unless the judge certify under his hand that the freehold or title of the land came chiefly in question. To this rule there are two exceptions: the one is grounded on stat. 8 and 9 W. III. c. 11. whereby the plaintiff obtains full costs, if the judge certify that the trespass was wilful and malicious. The other exception is by stat. 4 and 5 W. and M. c. 23. which gives full costs against any inferior tradesman, apprentice, or other dissolute person, who is convicted of a trespass in hawking, hunting, fishing, or fowling upon another's land. Blackst. Com. vol. iii. p. 214.

CERTIFICATE into Chancery. See CASE stated, &c.

CERTIFICATE of Bankrupt, is a declaration in his favour, written and signed by four parts in five of his creditors (those under 20l. excepted), and authenticated under the hands and seals of the commissioners, and by them transmitted to the lord chancellor. The certificate is allowed of course, if no cause be shewn to the contrary; in consequence of which, the bankrupt is entitled to a decent allowance out of his effects for his future maintenance. If they do not amount to 10s. in the pound, he is left to the discretion of the commissioners, who are to allow him any sum not exceeding three per cent. if they pay 10s. in the pound, he is to be allowed five per cent. if 12s. 6d. seven and a half per cent. if 15s. ten per cent. provided the allowance does not in the first case exceed 200l. in the second 250l. and in the third, 300l.

He is likewise discharged hereby from all debts owing at the time of his bankruptcy. However, he has no title to these advantages, if he conceals a fictitious debt produced by any creditor; if he has given above 100l. for a marriage portion to any of his children, unless at that time he had sufficient to pay his debts; if he has lost at any one time 5l. or in the whole 100l. within a twelve-month before by gaming, or lost to the value of 100l. by

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stock-jobbing. Persons who are thus cleared, and become bankrupts again, unless they pay 15s. in the pound, are indemnified hereby only from bodily confinement, any future estate remaining liable to their creditors.

CERTIFICATE of the Poor, is an acknowledgment from the parish to which they belong of their being parishioners; which prevents their removal till they become actually chargeable. Such certificated persons can obtain a settlement only by renting a tenement of 10l. per annum, or by serving an annual office in the parish in consequence of a legal appointment; but no apprentice or servant of such persons can gain a settlement.

CERTIFICATE, trial by, is a mode of trial allowed in such cases, where the evidence of the person certifying is the only proper criterion of the point in dispute. Blackst. Com. vol. iii. p. 333, &c.

CERTIFICATION of assise of novel disseisin, is a writ granted for re-examining a matter passed by assise before justices. It is used where a person appears by his bailiff to an assise, brought by another, and has lost the cause.

CERTIORARI, or **CERTIORARI FACIAS**, in *Law*, a writ issuing out of the chancery to an inferior court, to call up the records of a cause there depending, that justice may be done therein, upon complaint that the party who seeks the said writ, hath received hard usage, or is not like to have an impartial trial in the said court. Fitz. N. B. fol. 242. This writ is either returnable in the king's bench, and then hath these words, *nobis mittatis*; or in the common bench, and then hath *justiciariis nostris de banco*; or in the chancery, and then it has *in cancellaria nostra*; or into the court of parliament, or into that of the lord high steward of Great Britain, in case of indictments against a peer.

Indictments from inferior courts, and proceedings of the quarter sessions of the peace, &c. may be removed into B. R. by *certiorari*: and it is said a *certiorari* to remove an indictment is good, although it bear date before the taking thereof.

CERTITUDE, is properly a quality of the judgment, importing an adhesion of the mind to the proposition we affirm, or the strength wherewith we adhere to it.

Certitude is of the same nature with the evidence that produces it: the evidence is in the things that the mind sees and considers, i. e. in the ideas: *certitude* is in the judgment the mind makes of those ideas.

The schoolmen distinguish two kinds of *certitudes*: the one of *speculation*, arising from the evidence of the thing; the other of *adhesion*, which arises from the importance thereof, this last they apply to matters of faith.

Further, the schools distinguish three other kinds of *certitude*, with regard to the three different kinds of evidence whence they arise.

CERTITUDE, metaphysical, is that arising from a metaphysical evidence: such is that a geometrician has of the truth of this proposition, "That the three angles of a triangle are equal to two right ones."

CERTITUDE, physical, is that arising from physical evidence: such is that a man has, that there is fire on his hand, when he feels it blaze and feels it burn.

CERTITUDE, moral, is that founded on moral evidence; such is that a person has, that he has got, or lost a cause, when his attorney and friends send him an express notice of it, or a copy of the judgment, &c.

Moral certitude is frequently equivalent to metaphysical *certitude*. Thus a criminal who hears his sentence read, frequently makes no doubt either of his condemnation or execution; and yet has nothing, here, beyond a moral *certitude*; for metaphysical *certitude* he has none: neither has he any physical *certitude*, except as to what relates to the reading of the sentence, and the action of the executioner, when he takes him into his possession.

In the Philosophical Transactions, we have an algebraic calculation of the degrees of moral *certitude*, arising from human testimony in all its cases; whether immediate, mediate, concurring, oral, or written.

The author thereof shews, that if the report pass through several reporters hands before it arrive, each conveying $\frac{2}{3}$ of *certitude*; after twelve transmissions, it will only be an equal lay, whether it be true or not: if the proportion of *certitude* be fixed at $\frac{100}{100}$, it will come to half from the 70th hand; if at $\frac{100}{100}$, from the 695th hand.

For concurring evidences, if two reporters have each $\frac{1}{2}$ of certainty, they will both give an assurance of $\frac{1}{2}$, or of 35 to 1; if three, of $\frac{1}{3}$; and the co-attestation of ten would give $\frac{100}{100}$, of certainty. He shews, farther, that if there be six particulars in a narrative, all equally remarkable; and that he to whom the report is given has $\frac{2}{3}$ of *certitude* for the whole; there is 35 to 1 against the failure in any one certain particular.

He proceeds to compute the certainty of tradition, both oral and written, in whole and part; successively trans-

mitted, and also co-attested by several successors of transmittents.

See also an ingenious argument deduced from the Doctrine of Chances, and applied to enforce the practice of virtue, in the conclusion to Dr. Price's Review of the principal Questions in Morals.

CERT-MONEY, *Head money*, a common fine, paid yearly by the tenants of several manors to the lords thereof; and sometimes to the hundred, *pro certo letæ*, for the certain keeping of the leet.—This, in ancient records is called *certum letæ*.

CERVI *Cornu*. See *Hart's Horn*.

CERVICAL Nerves, are seven pair of nerves, so called, as having their origin in the *cervix*, or neck.—See *Tab. Anat. (Osteol.) fig. 6. lit. dd.*

They are thus called from *cervix*, neck.

The first pair arises between the first and second *vertebræ* of the neck; and, contrary to the rest, comes out before and behind: whereas the other six pair come out laterally from the junctures of the *vertebræ*, through particular perforations: this first pair goes to the muscles of the head and ear. The second pair, according to Dr. Willis, contributes the main branch towards the formation of the diaphragmatic nerves; which, according to Vieussens, spring only from the fourth and sixth pair. The three last pair joining with the two first of the dorsum or thorax, make the brachial nerves. All the *cervical nerves* send innumerable branches to the muscles, and other parts of the head, neck, and shoulders.

CERVICAL Vessels, among *Anatomists*, denote the arteries, veins, &c. which pass through the *vertebræ* and muscles of the neck, up to the skull.

CERVICALES Descendentes, a pair of muscles, antagonists to the *sacro lumbares*; coming from the third, fourth, fifth and sixth *vertebræ* of the neck.

Most authors reckon these, though improperly, a production and part of the *sacro lumbus*.

CERVICARIA, in *Botany*, a term used by some authors to express the *thapsia* of the shops, or lesser *libanotis* of Theophrastus.

CERVICARIA is also a name given by some to the *tracheolum*.

CERVICEM flexentium primus, in *Anatomy*, a name given by Spigelius, and some others, to a muscle of the neck, called by Cowper, Winslow, and Albinus, by a much shorter name, the *longus colli*.

CERVICIS tertius, in *Anatomy*, a name given by Fallopius and others to a muscle called by Albinus *transversalis cervicis*; and by Winslow, *transversalis magnus*.

CERVIX, in *Anatomy*, properly denotes the hind part of the neck; as contradistinguished from the fore part, which is called *jugulum*, or the throat.

CERVIX of the SCAPULA, denotes the head of the shoulder-blade, or that upper process whose *sinus* receives the head of the *humerus*.

CERVIX of the Uterus, the neck of the *UTERUS*, or that oblong canal, or passage between the internal and external orifices, which receives and incloses the *penis* like a sheath; whence it is also called *VAGINA*.

The *cervix uteri*, in maids is very narrow, except in the time of the *menstrues*; scarce wide enough to admit a goose's quill: its inner extremity is called *osculum internum*, which is kept sealed up with a kind of glutinous matter, issuing from the glands about it.

CERUMEN, a thick, viscous, bitter, excrementitious humour, separated from the blood by proper glands placed in the *meatus auditorius*, or outer passage of the *EAR*.

This is also called *cerumen aurium*; in English, *EAR-wax*. See an account of experiments on *cerumen*, to discover the best method of dissolving it; with the cause of deafness. *Lond. Medic. Observ. &c. vol. iv. p. 198.*

It is by some ranked in the class of medicines; especially that species of it obtained from the human ears, and which is used both internally and externally.

CERUSSE, **CERUSE**, a white calx of *LEAD*, used in painting, and cosmetics; made by calcining that metal in the vapour of vinegar.

Cerusse is made of thin laminæ, or plates of lead, made up into rolls, and so placed as to receive and imbibe the fumes of vinegar, contained in a vessel set over a moderate fire.

The laminæ are thus converted into a white rust; which is gathered together, and ground up with water, and formed into little cakes. Cardan shews how to make a sort of *cerusse* of tin and urine.

Cerusse makes a beautiful white colour, and is much used by the painters both in oil and water colours. It makes the principal ingredient in the fucus used by the ladies for the complexion. Taken inwardly, it is a dangerous poison; it soon shews its malignity, spoiling the breath and teeth, and hastening wrinkles, and all the symptoms of old age. Even the external use of it as a paint or

enamel, for it is said that it has been so used, is attended with very disagreeable, and, in the end, with fatal consequences. Its effects in nervous disorders are terrible; witness the case of Mr. Butler at Moscow. See a curious account of it in the *Phil. Transf. vol. 1. part i. N^o 2. and vol. liv. N^o 2. an. 1764.*

Cerusse is the only white hitherto found fit for painting in oil; the discovery of some other white for this purpose is desirable, not only from the faults of *cerusse* as a paint, but also from its injuring the health of its manufacturers, and producing a dreadful disease, which lead and all its preparations frequently occasion, called the *COLIC of minerals*, or the *COLIC of painters*.

Cerusse, like the other preparations of lead, is drying, sedative, and lenient; as such it is employed, but only externally; it is an ingredient in many ointments, plasters, and other pharmaceutical preparations designed for external maladies.

The best *cerusse* is that of Venice; but this is rare: that chiefly used, is either English or Dutch, both of which have more chalk in them than *WHITE-lead*; the latter however, is the better of the two.

The manner of preparing *cerusse* in quantities at Venice, is described by sir Phil. Vernatti. The plates for this purpose are large, and about the thickness of a knife's back; and rolled up, but so as that the surfaces no where touch. Each roll is put in a separate pot, wherein it is upheld by a little bar from the bottom, that it may not touch the vinegar, which is also put into the pot, to effect the conversion. The pots are then covered with a plate of lead as close as may be, and over this with a board; after which they are let down into a bed of horse-dung, big enough to contain four hundred pots. After three weeks continuance the pots are taken up, the plates unrolled, laid on a board, and beaten with battledores till all the flakes come off; which, when they prove good, are hard, thick, and weighty; when otherwise, porous and light, and sometimes black or burned, if the dung proves not well ordered: sometimes also there will be no flakes, or *cerusse* at all. From the beating-table it is carried to the mill, ground with water between two stones to an almost impalpable fineness: lastly, it is moulded into small parcels, and exposed to the sun to dry, and harden for use. Vernatti, in *Phil. Transf. N^o 138. p. 935. seq.*

The Chinese make an use of this preparation of lead, which it is easier to see the advantages of, than to comprehend the manner in which they are brought about. The China vessels, when they have been baked and finished as to the matter, and even covered with their varnish, will yet receive into their very substance, the colours which those people mix up with an addition of *cerusse*, and, as some of the old accounts say, of copperas and salt-petre; but though these latter ingredients had used to be added, the *cerusse* alone supplies their place at this time, at least in very many things. It would be worth while to try an admixture of *cerusse* with the colours used in painting on glass; and this, after a second baking, might perhaps be found to incorporate itself in the same manner that it does into China ware, and recover the long secret of letting in the strongest colours, without hurting the transparency.

CERUSSE of antimony. See *ANTIMONY*.

CERVULA, or **CERVULUS**, in *Middle Age Writers*, a kind of sport, celebrated by pagans, and after their example by the Christians, on New-Year's Day; when they run about in masquerade, dressed in imitation of deer, and other beasts. We find divers censures of the fathers, and decrees of councils, against the observance of this ceremony. Even litanies, were composed, and fasting prescribed, for that day, *ad calcandum gentiliū consuetudinē*. Du-Cange.

CERVUS. See *STAG*.

CERVUS volans, in *Natural History*, a name given by authors to the stag-fly, or stag-horned beetle, a very large species of beetle with horns sloped, and somewhat like those of a stag. It is of a blackish colour, and its horns are usually of the same colour; though in some of a purplish cast, and in some few they have been found of the colour of red coral. They are an inch and a half, or more, in length when full grown.

This is the kind of stag-beetle usually found in Essex, and some other counties; but beside this we have another species, which is produced of a hexapode worm, frequently found in old wood. This species is of a deeper black than the former, and its horns send out only one branch.

CERYX, in *Natural History*, a name by which Pliny, and other old authors, have called the three genera of shell-fish, since distinguished under the names of *BUCCINUM*, *PURPURA*, and *MUREX*. *Hist. Nat. Eclair. p. 281.*

CERYX, in *Antiquity*. The *ceryes* were a sort of public ministers,

ministers, appointed to proclaim or publish things aloud in assemblies.

The *ceryx* among the Greeks, answered to the *præco* among the Romans.

Our criers have only a small part of their office and authority.

There were two kinds of *ceryces*, *civil* and *sacred*.

CERYCES, *civil*, those appointed to call assemblies, and make silence therein; also to go on messages, and do the office of our heralds, &c.

CERYCES, *sacred*, were a sort of priests, whose office was to proclaim silence in the public games, and sacrifices, publish the names of the conquerors, proclaim feasts, and the like.

The priesthood of the *ceryces* was annexed to a particular family, the descendants of Ceryx, son of Eumolpus. To them it also belonged to lead solemn victims to slaughter.

Before the ceremonies began, they called silence in the assembly, by the formula, *Εὐφημίῃσι σὺν πᾶσι ἐσὼ λεῶς*; answering to the *favete linguis* of the Romans. When the service was over they dismissed the people with this formula, *Λαὸν ἀπεσὶς, Ite missa est.*

CE-AR. See **CÆSAR**.

CESARE, in *Logic*, a mode of syllogisms in the second figure wherein the major proposition and conclusion are universal negatives, and the minor an universal affirmative. Such is,

C E No man who betrays his country deserves praise.

S A Every virtuous man merits praise.

R E Therefore no man who betrays his country is virtuous.

CESARIAN section. See **CÆSARIAN section**.

CESIS, in *Botany*, a name by which some authors express the common *daucus sylvestris*, wild carrot, or bird's nest.

CESPITOSE plants, in *Botany*, those which produce many stems from one root.

CESSAMPELUS, in *Botany*, a name given to a hoary species of *convolvulus*. See **CONVOLVULUS**.

CESSATION, the act of intermitting, discontinuing, or interrupting the course of any thing, work, action, or the like.

CESSATION of arms, an armistice, or occasional **TRUCE**.

When the commander of a place finds things reduced to an extremity, so that he must either surrender, or sacrifice the garrison and inhabitants to the mercy of the enemy, he plants a white flag on the breach, or beats the chamade; on which a *cessation* of arms and hostilities take place, to give opportunity for **CAPITULATION**.

CESSATION, *Cessatio à divinis*, in the *Romish Church*, is a penalty inflicted for any notorious injury to the church, by putting a stop to all divine offices, and the administration of the sacraments, and by depriving Christians of church-burial.

CESSAVIT, a writ which lies in divers cases; upon this general ground, that he against whom it is brought, has for two years ceased or neglected to perform such service, or pay such rent, as he is obliged to by his tenure; and has not upon his lands or tenements sufficient goods or chattels to be distrained.

A *cessavit* only lies for annual service, rent, and such like; not for homage or fealty.—The forms and species of *cessavit* are various; as, *cessavit de cantaria*, *cessavit de feodifirma*, *cessavit per biennium*.

CESSION, in a *Legal Sense*, an act whereby a person surrenders up and transmits to another person, a right which belonged to himself.

Cession is a general term; the species whereof are, a *surrender*, *relinquishment*, *transfer*, and *subrogation*; which see.

CESSION is particularly used in the *Civil Law*, for a voluntary and legal surrender of a person's effects to his creditors, to avoid imprisonment.

This practice still obtains in France and other countries; and is done by virtue of letters patent granted in favour of the poor and honest. The *cession* originally carried with it a mark of infamy, and obliged the person to wear a green cap, or bonnet; at Lucca, an orange one: to neglect this, was to forfeit the privileges of the *cession*. This was originally intended to signify, that the *cessionary* was become poor through his own folly.

The Italian lawyers describe the ceremony of *cession* to consist in striking the bare breech three times against a stone, called *lapis vituperii*, in the presence of the judge. Formerly it consisted in giving up the girdles and keys in court; the ancients using to carry at their girdles the chief utensils wherewith they got their living; as the scrivener his *escritoire*, the merchant his bag, &c.

The form of *cession* among the ancient Romans and Gauls was as follows. The *cessionary* gathered up dust in his left hand, from the four corners of the house; and,

standing on the threshold, holding the door-post in his right hand, threw the dust back over his shoulders; then stripping to his shirt, and quitting his girdle and bags, he jumped with a pole over a hedge; hereby letting the world know, that he had nothing left, and that when he jumped, all he was worth was in the air with him.

The judicial *cession* is that which is made by a merchant or trader, who is actually kept in prison by his creditors, and who being absolutely incapable to satisfy them, petitions a court of justice for leave to make *cession*. This judicial *cession* is certainly compulsive on the part of the creditors; since the debtor is commonly allowed the benefit of a *cession* by an order from the judges, notwithstanding the opposition made by the creditors to prevent it; which renders this *cession* more infamous than that which is voluntary.

CESSION, in the *Ecclesiastical Law*, is one manner of vacating or voiding an ecclesiastical benefice.

Cession is an implicit kind of resignation, understood where a person does some act, or takes on himself some charge, which is inconsistent with his holding the benefice he was before possessed of.

By the statute, if a clerk have one benefice of 8*l.* per annum value in the king's books, and takes another, of what value soever, with cure of souls, and without dispensation; the former living is, *ipso facto*, void: and this kind of voidance of a living is called *cession*.

What is called *cession* in other benefices, is called *consecration* in relation to a bishoprick; for if an incumbent be made a bishop, his benefice is said to be void by *consecration*.

CESSIONARY, a **BANKRUPT**. Sometimes it denotes an **ASSIGNEE**.

CESSOR, in *Law*, one dilatory, and delinquent in his duty, or service; and who thereby incurs the danger of the law, and is liable to have the writ *cessavit* brought against them.

When it is said, *the tenant cesseth*, it is meant, he ceaseth to do his duty, or service, to which he is bound.

CESTRATUM, a work enamelled, or painted with a cestron. The word is also written **CEROSTROTUM** and *cerostratum*.

CESTREUS, in *Ichthyology*, the name of a fish of the mullet kind, but having a much smaller and narrower head, and its sides variegated with much shorter longitudinal lines. It is eaten in many places, but is accounted much inferior to the mullet. See **MULLET**.

CESTRON, in *Antiquity*, the instrument wherewith they painted, or enamelled, in horn, or ivory.

CESTROPHENDONA, in the *Ancient Military Art*, a compound kind of dart, or missile weapon, balanced with feathers like an arrow, and cast by a large sling; used chiefly by the Macedonians, in their wars under Perseus, with the Romans.

The word is composed of *κερπός*, a sort of dart called by the Latins *tragula*, and *σφενδον*, *funda*, a sling. Liv. lib. xl. p. 65.

CESTRUM, in *Botany*. See **Bastard JASMINE**.

CESTRUM, in the *Materia Medica of the Ancients*, a name given to a plant often mentioned, but very ill explained to us by the generality of writers.

CESTUI, a French term, literally signifying *he*, or *him*; frequently used in our law writings. Thus,

CESTUI qui trust, is he who has lands in trust, &c. committed to another for his benefit.

CESTUI qui vie, one for whose life any lands or tenements are granted.

CESTUI qui use, he to whose use another man is enfeoffed in land or tenements.

CESTUS, among *Ancient Poets*, a fine embroidered girdle worn by Venus, endowed with a faculty of charming, and conciliating love.

The word is also written *cestum*, and *ceston*: it comes from *κεσός* a girdle, or other thing embroidered, or wrought with a needle; derived, according to Servius, from *κεστιν*, *pungere*: whence also *incestus*; a term used at first for any indecency by undoing the girdle, &c. but now restrained to that between persons near akin. See **INCEST**.

CESTUS, in *Antiquity*. See **CÆSTUS**.

CESURE, or **CÆSURA**, in *Poetry*. See **CÆSURA**.

CETACEOUS, in *Natural History*, a term applied to all large sea-fishes, and beasts, which bear a resemblance to the **WHALE**.

The word is formed of *cetus*, a whale.

Cetaceous, in a proper sense, denotes only those large fish which are viviparous, or breed their young within their own bodies; and have no gills, but lungs, with which they breathe like quadrupeds; having but one pair of fins, and giving suck to their young. Hought. Collect. N^o 531. tom. iii. p. 272, & seq.

C E T

These scarce differ in any thing from quadrupeds, except the want of feet. They have no AIR-bladder; but are enabled by the air they receive into the lungs in respiration, to render their bodies equiponderant to water. *Cetaceous*, in the ordinary use, is extended to all larger fish, called by the Latins *belluæ marinæ*, or sea-beasts. In which view, *cetaceous* fishes are divided into *greater*, including the whale kind, properly so called; and *lesser*, to which belong the porpoise, shark, dog-fish, &c. These latter are more properly called *cartilaginous* fishes. The sea-fox is ranked by authors in the class of *cetaceous cartilaginous* fishes, not flat, called also *GALEOLÆ*; whose specific difference consists in this, that they have two livers, five gills, or *branchiæ*, on each side, and tufts hanging from the fins, which in the males are under the belly on each side the navel.

Of the *cetaceous* kind, properly so called, there are divers species: some without teeth, or tube to cast up water; others with teeth and a water-tube; and others with a large long horn.

The horn usually called the *unicorn's horn*, is found to be the tooth of a *cetaceous* fish in the icy sea, called *narval*.

CETERACH, in *Botany*, an officinal, agglutinant plant; the same with what is otherwise denominated *asplenium* and *scelopendrium*.

This plant stands recommended as an excellent diuretic, and a promoter of the *menfes*. The whole plant is to be used, and should be gathered in the month of September. It is given by some in jaundices, in quartan agues, and in obstructions of the spleen; but it is much neglected in the present practice. In some parts of Essex, where it is common on the walls of their churches, and on the tombs in the church-yards, the common people tell us wonders of its effects in the stone.

CETERIS paribus. See **CÆTERIS paribus**.

CETRA, in *Antiquity*, a small leathern shield, used by the ancient Spaniards, Moors, and even Britons.

The African *cetra* are said by Pliny to have been impenetrable, and made of elephants skins.

The *cetra* was much the same with the **DELTA**. Whence Livy calls the Macedonians *peltastæ*, *cetrati*.

CETUS, in *Astronomy*, the *Whale*; a large constellation of the southern hemisphere, under Pisces, and next the water of Aquarius.

The stars in the constellation *Cetus*, in Ptolemy's Catalogue, are twenty-two; in Tycho's, twenty-one; in Hevelius's, forty-five; in the Britannic Catalogue, ninety-seven. The order, names, longitudes, latitudes, magnitudes, &c. whereof, are as follow.

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
Of those in triangle preceded. the tail, by Ptolemy ranked among the informes of Aquarius.	Mid. 80	♏	18 37 9	14 14 25	6
		♏	19 25 37	16 14 22	4.5
		♏	22 28 40	10 5 0	6
		♏	26 39 45	3 12 42	6
		♏	26 48 35	3 9 54	6
5.	No. f	♏	21 57 12	15 16 3	5
	So. b	♏	21 12 12	18 45 54	5
North. in the extrem. of the tail		♏	26 35 0	10 1 30	3
		♏	25 56 22	13 27 15	6
		♏	1 45 50	2 42 0	6.7
10.		♏	2 5 16	3 59 56	6
		♏	59 7	6 37 17	6
		♏	2 18 26	6 47 28	6
		♏	3 56 51	3 8 56	6
Bright. and south. of the tail		♏	4 13 26	4 15 16	6
15.		♏	28 13 2	20 46 52	3
		♏	1 33 31	14 7 45	5
N. of those prec. in the □ in the root of the tail	N. φ	♏	0 54 30	16 18 39	6
S. of the preceding side of the □	φ	♏	2 57 0	14 44 14	5
		♏	7 25 18	6 17 50	6
20.		♏	4 40 46	13 24 8	6
S. of the following side	φ	♏	4 2 32	15 53 50	5
	φ	♏	4 37 39	16 15 51	5
		♏	8 20 24	10 41 0	6
		♏	11 56 19	0 48 29	6
25.		♏	10 0 38	5 2 10	6
		♏	6 49 9	15 38 59	6
		♏	6 58 49	15 34 29	6
		♏	12 7 10	4 49 16	6
		♏	7 23 52	15 39 56	6
30.		♏	7 25 18	16 7 16	3
Prec. in the poster. part of the body		♏	8 20 10	15 6 47	6

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Names and situations of the stars.	Bayer's Cha.	Signs.	Longit.	Latitude.	Magnitude.
		♏	12 53 10	4 40 57	6
		♏	11 22 38	9 8 43	6
		♏	13 21 58	4 50 31	6
35.		♏	9 48 3	13 24 58	6
		♏	9 42 4	14 37 59	5
		♏	12 23 56	8 14 45	6
		♏	12 23 25	9 49 33	6
		♏	12 32 10	9 38 12	6
40.		♏	10 35 55	14 41 39	6
		♏	13 54 25	8 17 42	6
		♏	14 34 28	8 30 6	6
		♏	11 55 6	15 35 44	6
Subf. in the poster. part of the body		♏	11 53 52	15 46 30	3
45.		♏	9 36 36	21 50 7	5
		♏	10 34 17	20 32 40	6
		♏	7 21 44	28 37 56	6
		♏	11 17 50	23 41 24	6
		♏	11 45 30	23 33 56	6
50.		♏	21 10 42	4 43 10	6
Mid. of 3 in the middle of the body	τ	♏	13 35 48	24 57 32	4.3
Contig. to the north. in the body	χ	♏	17 0 46	20 30 12	5
		♏	25 24 42	0 26 39	6
North. in the middle of the body	ζ	♏	17 36 47	20 21 19	3
55.		♏	13 33 32	32 3 28	4
South. in the middle of the body	υ	♏	15 8 32	30 47 52	5
		♏	23 3 55	13 32 34	6
Another, and more south	υ	♏	15 4 15	31 2 29	4.5
		♏	24 22 44	11 39 53	6
60.		♏	24 21 32	12 9 13	7
		♏	24 56 2	14 29 13	6.7
		♏	25 28 16	14 8 3	6
		♏	29 15 5	4 24 38	6
		♏	29 42 36	4 17 5	4
Preced. in the crest	ξ	♏	25 45 20	14 50 5	6
65.		♏	25 20 13	18 58 51	6
New one in the neck of Cetus	ο	♏	27 11 15	15 56 38	2.3
		♏	28 59 42	13 0 56	6
		♏	28 36 4	14 14 1	6
70.		♏	28 37 36	16 15 12	6
Prec. south. in the □ of the breast	δ	♏	25 22 10	25 15 50	4
Subseq. of two in the crest	ε	♏	3 7 35	5 53 7	4.5
	υ	♏	21 37 0	34 14 5	6
	δ	♏	0 59 19	15 12 15	5.6
75.		♏	25 46 2	28 32 48	4
South. prec. in the □ of the breast	σ	♏	29 13 58	21 50 36	6
Against the eye-brow	υ	♏	4 3 9	9 12 26	4.5
		♏	0 55 37	17 49 1	6
		♏	29 34 34	21 55 44	6
80.		♏	1 32 55	17 52 43	6
Prec. in the mouth against the cheek	δ	♏	3 14 26	14 29 57	3
N. of those following in the square of the breast	ε	♏	29 0 15	26 0 25	3
	δ	♏	3 18 39	15 35 39	6
		♏	7 14 22	4 48 29	6
85.		♏	5 7 3	12 1 26	3
In the middle of the mouth That against the forehead	υ	♏	7 34 50	5 35 33	4
	μ	♏	8 20 32	3 22 22	6
South. of those that follow in the square of the breast	π	♏	29 24 53	28 16 32	4.3
		♏	27 44 30	32 46 20	8
90.		♏	10 45 6	7 49 12	4
That against the nostrils	λ	♏	9 59 15	12 36 59	2
Bright star of the jaw	α	♏	10 5 8	12 22 55	6
		♏	11 2 13	18 25 42	6
		♏	12 31 35	18 33 42	6
Inform. following the bright star of the jaw	κ	♏	13 57 58	14 29 21	5
	κ	♏	14 30 25	14 18 25	4

In the mandible of *Cetus* is a variable star, which appears and disappears periodically, passing through the several degrees of magnitude, both increasing and diminishing, in about 333 days. Hevel. in Phil. Trans. N^o 66. p. 2028. Marald. in Mem. Acad. Scienc. an. 1719. p. 122, seq.

CETUS, in *Ichthyology*. See **WHALE**.

CEVADILLA, in *Botany*, a name used by some authors for the *hordeum causticum Indicum*, or Indian caustic barley.

CEURAWATH,

CEURAWATH, the name of a particular sect of Banians in the East Indies, who hold the metempsychosis with so much superstition, that they will not kill the least insect; their priests carry a piece of linen over their mouth, that no flies may enter. All the other sects of Banians have an aversion for this; and continually exhort their auditors to shun all discourse and conversation with them. See **BANIANS**.

CHA, in *Commerce*, a silk stuff very thin and light, made in China, which most commonly serves the inhabitants for a summer dress; it is somewhat like our taffeties or lustrings.

CHAA, in *Botany*, a name given by some authors to the tea-tree.

CHABNAM, or **ROSEE**, in *Commerce*, a kind of muslin or cotton linen, very clear and fine: it comes from the East Indies, particularly from Bengal.

CHACE. See **CHASE**.

CHACING. See **CHASING**.

CHACK, in the *Manege*, is taken in the same sense as *beat upon the hand*; it is applied to a horse when his head is not steady, but he tosses up his nose, and shakes it all of a sudden, to avoid the subjection of the bridle. Turkish horses have this fault frequently. We say, they beat upon the hand; and neither the best bits, nor the best hand, can ever fix their heads. Croats, or Croatian horses, are also subject to *chack* upon the hand; which proceeds from this, that their bars are too sharp and ridged, or edged, so that they cannot bear the pressure of a bit, though ever so gentle. If a horse had not too sensible, or too tender a mouth, he would not beat upon the hand: but in order to fix and secure his head, you need only to put under his nose-band a small flat band of iron, bent archwise, which answers to a martingale. This will hinder him to beat upon the hand, but will not break him of the habit; for as soon as the martingale is taken off, he will fall into the same vice again.

CHACON, or **CHACONE**, a kind of dance, in manner of a saraband, borrowed from the Spaniards, and by them from the Moors. The bass always consists of four notes, with three crotchets in a bar, which proceed in conjunct degrees: and whereon they make divers concords and couplets, with the same burden.

The word is formed of the Spanish *chacóna*, which may probably be derived from the Persian *shack*, a king, thus intimating that this might have been a royal dance; not, as others pretend, from the Italian *Cecone*, a blind man, the inventor.

CHADCHOD, in *Jewish Antiquity*. Ezekiel mentions *chadchod* among the several merchandizes which were brought to Tyre. The old interpreters not very well knowing the meaning of this term, continued it in their translation. Sr. Jerom acknowledges that he could not discover the signification of it. The Chaldee interprets it pearls; others think that the onyx, ruby, carbuncle, crystal, or diamond is meant by it. Ezek. chap. xxvii. ver. 16. Calmet. Dict. Bibl. in voc.

CHÆLÆ cancrorum. See **CRABS** claws.

CHÆROPHYLLUM, in *Botany*. See **CHERVIL**.

CHÆRUS, in *Ichthyology*, a name given by Strabo, and some other of the old Greek writers, to the fish we now call the *caprifiscus*. Rondeletius and Salvian were the first who properly described this fish. See **GOAT-fish**.

CHÆTIA, in *Zoology*, the name of a species of insects of the *apteria* kind, without any visible limbs.

The *chætia* resembles a hair, or a piece of fine thread; its surface is smooth, its body rounded, and very slender. It is called in English the hair-worm. Hill's Hist. Anim. p. 14.

CHÆTODON, in *Ichthyology*, the name of a genus of the *acanthopterygious* or *thoracic* fishes; the characters of which are these: the branchiostegic membrane on each side contains five or six small bones; the body is compressed, broad, thin, and short; the back has but one fin, which reaches all along it: the tail is large, and there are in all six fins beside it; the mouth is small, the lips may be opened and extended, but naturally they cover a part of the teeth: the teeth in the jaws are oblong, contiguous to each other, and flexible: the scales are rough; and the eyes are not covered with the skin of the head. There are several species.

The name is derived from *χαῖτα*, a thin filament, and *ὄδους*, a tooth; and expresses that the teeth may be divided into thin and fine filaments, resembling bristles.

CHAFE, or **CHAFING** of a rope, in *Sea-Language*, is said of a rope that is galled or fretted, or when the rope runs against any thing.

The cable is *chafed* in the *hawse*, signifies that it is fretted or begun to be worn out there.

CHAFE-Wax, or **CHAUFEE-Wax**, an officer in **CHANCERY**, whose business it is to fit the wax for the sealing of writs, patents, and other instruments issued thence.

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CHAFF, in *Husbandry*, the husks of the corn, separated by screening or winnowing it. It signifies also the rind of corn; and straw cut small for the use of cattle.

CHAFER, in *Zoology*, a species of beetle. See **SCARABÆUS**.

CHAFERCONNERS, in *Commerce*, printed linens manufactured in the Great Mogul's dominions. They are imported by the way of Surat; and are of the number of those linens prohibited in France.

CHAFFERS, in our *Statutes*, seem to signify wares or merchandize. 3 Edw. IV. c. 4.

The original French of the statute is *chaffares*.

CHAFFERY, or **CHAFERY**, in the *Iron-Works*, the name of one of the two principal forges. The other is called the *finery*. When the iron has been wrought at the finery into what is called an *ancony* or square mass, hammered into a bar in its middle, but with its two ends rough, the business to be done at the *chaffery* is the reducing the whole to the same shape, by hammering down these rough ends to the shape of the middle part.

CHAFFINCH, in *Ornithology*, a species of the **FRINGILLA**, with a ferruginous breast; the wings black, spotted with white.

CHAGREEN, or **CHAGRIN**, in *Commerce*. See **SHAGREEN**.

CHAIN, *Catena*, a series of several rings, or links, fitted into one another.

There are *chains* of divers matters, sizes, and forms, and for divers uses.—Ports, rivers, streets, &c. are closed with iron *chains*: rebellious cities are punished by taking away their *chains*, and barriers.

The arms of the kingdom of Navarre are, *Chains or, in a field gules*. The occasion hereof is referred to the kings of Spain leagued against the Moors; who having gained a celebrated victory against them in 1212, in the distribution of the spoils, the magnificent tent of Miralmumin fell to the king of Navarre; as being the first that broke and forced the *chains* thereof.

CHAIN, a gold, is one of the ornaments or badges of the dignity of a lord mayor of London; and remains to the person, after his being divested of that magistrature, as a mark that he has passed the chair.

Something like this, Chorier observes, obtained among the ancient Gauls: the principal ornament of their people in power and authority was a gold *chain* which they wore on all occasions; and even in battle, to distinguish them from the common soldiers. Hist. de Dauph. lib. iii. p. 130.

CHAIN also denotes a kind of string, or twisted wire; serving to hang watches, tweezer-cases, and other valuable toys upon. The invention of this piece of curious work was owing to the English: whence, in foreign countries, it is denominated the *English chain*. It was some time before foreigners undertook to imitate them, and at last with no extraordinary success: those of Paris have come nearest. These *chains* were at first usually either of silver or gold, some of gilt copper; the thread or wire of each kind must be very fine.

For the fabric, or making of these **CHAINS**; a part of the wire is folded into little links of an oval form; the longest diameter about three lines; the shortest, one. These, after they have been exactly foldered, are again folded into two; and then bound together, or interwoven, by means of several other little threads of the same thickness; some whereof, which pass from one end to the other, imitate the warp of a stuff; and the others, which pass transverse, the woof. There are at least four thousand little links in a chain of four pendants; which are, by this means, bound so equally, and withal so firmly together, that the eye is deceived, and takes the whole to consist of one entire piece.

CHAIN is also a kind of measure in France, applied to fewel-wood, sheaves of corn in estimating the tythes, hay, and horses. These measures are divided variously, according to the uses for which they are intended.

CHAIN-pump. See **PUMP**, and **Bur-PUMP**.

CHAIN-shot, in *War*, two bullets, or rather half-bullets, linked together by a chain. Their use at sea is to shoot down yards, or masts; or to cut the rigging of a ship.

CHAIN, in *Surveying*, is a MEASURE, consisting of a certain number of links of iron wire, usually a hundred; serving to take the dimensions of fields, &c.

This is what Merfenne takes to be the *arvpendium* of the ancients.

The *chain* is of various dimensions, as the length or number of links varies: that commonly used in measuring land, called *Gunter's chain*, is in length four poles or perches; or sixty-six feet, or a hundred links; each link being seven inches $\frac{1}{8}$. Whence it is easy to reduce any number of those links to feet, or any number of feet to links.

This *chain* is entirely adapted to English measures; and

its chief convenience is in finding readily the numbers contained in a given field. When the proportions of square feet and acres differ, the *chain* to have the same advantages as Gunter's *chain*, must also be varied. Thus in Scotland, the *chain* ought to be of 74 feet, or 24 Scotch ells, if no regard be had to the difference between the Scotch and English foot: but if regard be had to this difference, the Scotch *chain* ought to consist of $74\frac{2}{3}$ English feet, or 74 feet 4 inches, and $\frac{2}{3}$ of an inch. This *chain* being divided into a hundred links, each of these will be $8\frac{2}{3}$ inches. See FOOT and ACRE.

That ordinarily used for large distances, is in length a hundred feet: each link one foot.

For small parcels, as gardens, &c. is sometimes used a small *chain* of one pole, or sixteen feet and a half length: each link one inch $\frac{2}{3}$.

Some in lieu of *chains* use ropes; but these are liable to several irregularities; both from the different degrees of moisture, and of the force which stretches them. Schwenterus, in his Practical Geometry, tells us, he has observed a rope sixteen feet long, reduced to fifteen in an hour's time, by the mere falling of a hoar frost. To obviate these inconveniencies, Wolfius directs, that the little strands whereof the rope consists be twisted contrary ways, and the rope dipped in boiling hot oil; and when dry, drawn through melted wax. A rope thus prepared, will not get or lose any thing in length, even though kept under water all day.

Use of the CHAIN in Surveying.—The manner of applying the *chain* in measuring lengths, is too popular to need description. In entering down the dimensions taken by the *chain*, the *chains* and links are separated by a dot; the former being integers, and the latter decimals: thus a line sixty-three *chains* fifty-five links long, is written 63.55. If the links be short of ten, a cypher is prefixed, thus 10 *chains*, 8 links, are written 10.08.

To find the area of a field, &c. the dimensions whereof are given in CHAINS and links. 1st. Multiply the links by one another, according to the rules referred to under AREA; and from the product cut off five figures towards the right; which is nothing more than dividing by 100000, the number of square links in an acre: those remaining on the left will be acres. 2dly, Multiply the five figures cut off by four, the number of roods in an acre; and cutting off five again from the product on the right, those remaining on the left will be roods. Lastly, Multiply the five thus cut off by forty, the fourth part of the square perches in an acre; and cutting off five, as before, on the right, those remaining on the left are square perches.

To take an angle DAE (Tab. Surveying, fig. 1.) by the CHAIN. Measure a small distance from the vertex A along each leg, v. g. to d and c; then measure the distance dc: to lay this down, draw AE at pleasure, and from your scale set off the distance measured on it. See SCALE. Then taking in your compasses the length measured on the other side, on the vertex A, as a centre, describe an arch dc; and on the point c, as a centre, with the measured distance of cd, describe another arch ab. Through the point where this intersects the former arch, draw a line AD. So is the angle plotted; and its quantity, if required, may be measured on a line of chords. See CHORD.

To take the plan or plot of any place, as ABCDE (fig. 2.) by the CHAIN. Draw a rough sketch of the place by the eye; and measuring the several sides AB, BC, CD, DE, enter down the lengths on the respective lines; then if the plan be to be taken within-side of the place, instead of measuring the angles, as before, measure the diagonals AD, BD. Thus will the figure be reduced into three triangles, whose sides are all known, as in the former case; and may be laid down on paper, according to the method above.

If the plan be to be taken without-side the place, the angles must be taken thus; v. g. for the angle BCD, produce the lines BC and CD to any certain equal distance; v. g. to a and b, five *chains*: and measure the distance of ab. Thus have you an isosceles triangle Cab, wherein the angle aCb = BCD its opposite one is had: thus is the quantity of BCD found, and the angle laid down as before.

By the CHAIN to find the distance between two objects inaccessible in respect of each other. From some place, as C (fig. 3.) whence the common distance to each object A and B, is accessible in a right line; measure the distance CA, which suppose fifty *chains*; and continue the line to D, viz. fifty more: measure also BC, which suppose thirty *chains*; and produce the line to E, viz. thirty more. Thus will be formed the triangle CDE, equal and similar to the triangle ABC; consequently the distance DE, being measured, will give the inaccessible distance required.

By the CHAIN to find the distance of an inaccessible object, v. g. the breadth of a river. On one side place a pole, four or five feet high, perpendicularly, having a slit a-top, with a straight piece of wire, or the like, two or three inches long, put through the same. This is to be slipped up or down, till, looking along it, you find it point full on the other side of the river; then turning the pole with the wire in the same direction, observe the point on the dry land, to which it points when looked along as before: measure the distance from the pole to this last point; it is the same with that of the first required.

CHAINS, *catenæ*, in Ecclesiastical History, denote collections of such theological opinions and scriptural interpretations, as had been received by the ancient doctors of the church. See CATENA.

CHAINS, *hanging in*, a kind of punishment inflicted on murderers. By stat. 25 Geo. II. c. 37. the judge shall direct such to be executed on the next day but one, unless Sunday intervene; and their bodies to be delivered to the surgeons to be dissected and anatomized: and he may direct them afterwards to be hung in *chains*. During the interval between sentence and execution, the prisoner shall be kept alone, and sustained only with bread and water. The judge, however, hath power to respite the execution, and relax the other restraints of the act. Blackst. Com. vol. iv. p. 20.

CHAINS, in Ship-building, are those irons by which the shrouds of the masts are made fast to the *chain-wales*. Top-CHAIN. See TOP-chains.

CHAIN-WALES, in a ship, are the broad timbers which are made projecting horizontally from her sides, to which, with *chains*, the shrouds are fastened, and by them spread out, the better to secure the masts.

CHAIR, *Cathedra*, was anciently used for the pulpit, or fuggellum, whence the priest spoke to the people.

It is still applied to the place whence professors and regents in universities deliver their lectures, and teach the sciences to their pupils: thus, we say, the professor's *chair*, the doctor's *chair*, &c.

CHAIR, *curule*, was an ivory seat placed on a car, wherein were seated the prime magistrates of Rome, and those to whom the honour of a triumph had been granted.

CHAIR, *sedan*, a vehicle supported by poles, wherein persons are carried; borne by two men. There are two hundred *chairs* allowed by act of parliament; and no person is obliged to pay for a hackney-chair, more than the rate allowed by the act for a hackney-coach driven two third parts of the said distance. 9 Ann. c. 23. § 8. Their number is since increased by 10 Ann. c. 19. and 12 Geo. I. c. 12. to four hundred. See HACKNEY-COACHES.

CHAIR is also applied by the Romanists to certain feasts, held anciently in commemoration of the translation of the see, or seat of the vicarage of Christ, by St. Peter.

The perforated *chair*, wherein the new-elected pope is placed, F. Mabillon observes is to be seen at Rome: but the origin thereof he does not attribute, as is commonly done, to the adventure of pope Joan; but says there is a mystery in it; and it is intended, forsooth, to explain to the pope those words of Scripture, that *God draws the poor from out of the dust and mire*.

CHAIRMAN, the PRESIDENT, or speaker of an assembly, company, &c.

We say the *chairman* of a committee, &c.

CHAISE, a sort of light open chariot, or calash.

Aurelius Victor relates, that Trajan first introduced the use of post-chaises: but the invention is generally ascribed to Augustus; and was probably only improved by Trajan, and succeeding emperors. Goth. in Cod. Theodos. tom. ii. p. 506, &c.

CHALAPA, in Botany and the *Materia Medica*, is a name given to JALAP.

CHALASTIC Medicines, are such as have the faculty of relaxing the parts; when, on account of their extraordinary tension, or swelling, they occasion pain.

The word comes from χαλαω, I relax.

Of this kind are butter, and many oils, &c.

CHALASTICUM sal, in the *Materia Medica*, a name given by some writers to the sal gem.

CHALAZA, among Naturalists, a white knotty kind of string at each end of an EGG, formed of a plexus of the fibres of the membranes whereby the yolk and white are connected together.

Its use, according to Hervey, is to be as it were the poles of this microcosm, and the connexion of all the membranes twisted and knit together: whereby the liquors are not only conserved, each in its place, but also in its due position to the rest.

Dr. Derham adds, that they also serve to keep one and the same part of the yolk uppermost, let the egg be turned which way it will; which is done by the following mechanism: the *chalazæ* are specifically heavier than the whites wherein they swim; and being braced to the membrane

membrane of the yolk, a little out of the axis, they cause one side of the yolk to be heavier than the other. The yolk being thus by the *chalazæ* made buoyant, and kept swimming in the midst of two whites, is by its own heavy side kept with the same side always uppermost: which uppermost side he imagines to be that whereon the *cicatricula* lies.

CHALAZIAS, in *Natural History*, the name of a small stone, described by Pliny and other ancient writers, and said to have been of the size and colour of a common hail-stone, and of the hardness of the diamond. It was probably no other than the small pebble-crystals of the Indies, which are at this time frequent on the shores of rivers there, from the bigness of a large pin's head to that of a pea; and as they lie in great clusters together, without any other stones among them, they make a sort of coarse sand, which much resembles a cluster of hail-stones.

CHALAZITES, in *Natural History*, a name given by some to the *chalazias*.

CHALCANTHUM, in *Natural History*, a name used by many authors to signify the substance called by others **CHALCITIS**.

Chalcanthum has been used as the generical name of a set of fossils; the characters of which are, that they are compound or metallic salts, of a coarse and irregular structure, considerably hard, and naturally impure and opaque; in which they differ from the native vitriols, which are fine, of a regular structure, and naturally pure and pellucid.

CHALCANTHUM, in *Medicine*, the same with **VITRIOL**.

Some have also used *chalcanthum* corruptly for **COLCOTHAR**, or **VITRIOL rubified**.

CHALCANTHUM chlorum, in the *Materia Medica*, a name given by some of the old Greek writers to the *melanteria*, a yellowish vitriolic mineral, which turned black on being wetted with common water.

CHALCAS, in *Botany*, a genus of the *decandria monogynia* class: the calyx of which is separated into five segments, and the corolla bell-shaped, with unguiculated petals.

CHALCEDONIUS, the name of a medicine described by Galen: and directed by him to be infused into the ears, in inveterate disorders of that part.

CHALCEDONY. See **CALCEDONY**.

CHALCEDONY, in the *Glass Trade*. See **GLASS-chalcedony**.

CHALCEMBOLON, in *Antiquity*, a ship, the rostrum of which was of brass.

The word is compounded of *χαλκος*, *brass*, and *εμβολον*, *rostrum*.

CHALCHUS, in *Ichthyology*, a name given by the ancient Greeks to the fish which we call the **DOREE**. It seems to have obtained both these names from its colour; the one from the word *chalcos*, *brass*; and the other from *doree*, *gilded*.

CHALCIDIC, **CHALCIDICUM**, or **CHALCEDONIUM**, in the *Ancient Architecture*, a large magnificent hall belonging to a tribunal or court of justice.

Festus says, it took its name from the city Chalcis; but he does not give the reason. Philander will have it to be the court, or tribunal, where affairs of money and coinage were regulated; so called from *χαλκος*, *brass*, and *δικη*, *justice*. Others say, the money was struck in it; and derive the word from *καλός*, and *οικος*, *house*.

In Vitruvius, it is used for the auditory of a **BASILICA**: in other of the ancient writers, for a hall, or apartment, where the heathens imagined their gods to eat.

CHALCIDICA lacerta, in *Zoology*, a sort of serpent, so called from its resemblance in colour to the *chalcedony*. Its bite is succeeded by a pellucid tumour, which has a kind of shining blackness at the margin. Drank in wine, it cures its own bite, according to Paulus Ægineta. It is also called *seps*.

CHALCIDICUM, in *Antiquity*, sometimes denoted a dining-room. See **CHALCIDIC**.

CHALCIS, in *Ichthyology*, a name by which some have called the pilchard; called by others *celerinus*, and *apua membras*. See **PILCHARD**.

CHALCIS was also the name given by Aristotle, Ælian, Appian, and the other Greek writers, to the common herring. See **CLUPEA**.

CHALCITARIUM, in the *Materia Medica of the Ancients*, a name given by the Greeks of the middle ages to the *colcothar*, or *calcanthum*. Some have applied it to the *CHALCITIS* alone, but others, make it express the vitriols in general. It is derived from the Arabian word *colcothar*.

CHALCITIS, a kind of vitriolic mineral, reddish like copper, friable, and having yellow shining veins within. It has the taste of the blue vitriol of copper, and dissolves very easily in aqueous liquors. There are two other minerals, called *misy* and *sory*, very much like the *chalcitis*. In effect, the ancients confounded them together; and not only the *misy* and *sory*, but also the **MELANTERIA**;

or rather, they imagined a successive transmutation of the four minerals, which began with *chalcitis*, then became *misy*, then *melanteria*, and lastly *sory*, where it fixed. The generality have esteemed it one of the lost fossils of the ancients, though its name still stands in the prescription for the Venice treacle. This is, however, as erroneous an opinion as the other; the true *chalcitis* of the ancients being yet existent, and in the Turkish dominions commonly known, and in frequent use as a medicine. The Turks calcine it in a strong fire, afterwards give it internally as a powerful astringent; and, it is said, with great success.

There is no doubt but that this is the very substance described by the ancient Greeks, under the name *chalcitis*; the description of Dioscorides perfectly agreeing with, and very well expressing it. He accounts it one of the more slightly corrosive medicines, and recommends the external use of it in collyriums, and in hæmorrhages, in an erysipelas, and in the herpes. But the ancients seem not to have known the use of it internally so early as in these times; though among the Romans it was well known also in internal prescription, and made an ingredient in the famous *theriaca Andromachi*.

The moderns make these four distinct matters; though the chief difference between them is supposed to lie in the different tenuity or grossness of their substance.

Some say, the **MISY** is formed on the *chalcitis*, as verdigrise on copper, being properly its rust; and that *chalcitis* is formed in the same manner on the **SORY**.

This is certain, they are all found in copper mines: but the modern druggists know little of any of them.

The *chalcitis* is brought from Germany: it is very caustic and escharotic. Its chief use is in the composition of Venice treacle: in lieu of it is frequently substituted *chalcanthum rubified*, or *copperas*.

Chalcitis and *colcothar* were of the same signification; they expressed a vitriolic mineral, which Avicenna tells us was yellow. It was a kind of what he calls *alzagiat*, or *zagi*, a word expressing all the vitriolic minerals in general: the other sorts of which were, the *calcadis*, which was white; the *calcanthum*, which was green; and the **SORY**, which was red.

CHALCOGRAPHY, the art of **ENGRAVING** on copper and brass.

CHALCOLIBANON, a word mentioned in the Apocalypse of St. John, and very much misunderstood by the interpreters, who generally render it *brass*; but the word will bear no such signification. When the name of a metal is prefixed to some other word, it only denotes the thing mentioned after the metal to be of the colour of that metal. This word is formed of *χαλκος*, *brass*, and *olibanum*, *frankincense*. We have many parallel compounds, and all understood in the same way, the name of the metal only expressing the thing to be of its colour: thus *chrysomela* are apples of the colour of gold, &c. This, therefore, can only signify frankincense of the colour of brass, that is, yellow.

CHALCOMUIA, the *brass fly*, in *Natural History*, the name of a fly, whose wings are of the colour of polished brass. It is of the carnivorous kind, feeding on other flies, beetles, and on the bodies of serpents, when dead; whence it has been also called by some *ophioborus*; others have called it *hesychicus*.

CHALCOPHTHONGUS, in *Natural History*, a word used by Pliny, and other writers, as the name of a peculiar species of marble, which was very hard, and of a deep black colour, and when struck upon, sounded like brass.

CHALCOSMARAGDUS, in *Natural History*, a name given by the ancients to what they called a species of the emerald, found about the copper mines of the island of Cyprus, and of a dusky appearance, and veined with yellow.

The ancients were very indeterminate in the characters of the gems, and one or other of them have called almost every green stone in the world an emerald. This was probably only a dirty green spar or crystal tinged with copper, and such as we daily find about our own copper mines.

CHALCUS, among the *Ancient Greek Physicians*, a weight of about two grains, the same as *æreolus* or *æreolum*.

CHALDEE, or **CHALDAIC Language**, that spoken by the Chaldeans, or people of Chaldea.

The *Chaldee* is a dialect of the Hebrew.

CHALDEE Paraphrase, in the Rabbinical style, is called **TARGUM**.

There are three *Chaldee* paraphrases in Walton's Polyglot; viz. that of Onkelos, that of Jonathan son of Uzziel, and that of Jerusalem.

CHALDRON, **CHALDER**, or **CHAUDRON of coals**, a dry English measure, consisting of thirty-six bushels heaped up, according to the sealed bushel kept at Guildhall, London.

The *chaldron* should weigh two thousand pounds. — On ship-board, twenty-one *chaldrons* of coals are allowed to the score. See COAL.

CHALEF, in the botanical writings of the ancient Arabs, the name of a tree often occurring, and seldom explained. The best account we have of the *chalef* or *chalaf*, is in the writings of Prosper Alpinus on the Egyptian plants, who tells us, that it is a kind of willow, growing in Egypt and in Mesopotamia.

CHALICE, the cup, or vessel, used to administer the wine in, in the eucharist; and, by the Romanists, in the mass.

CHALICE, or CUP-shell. See SHELL.

CHALINOS, in *Antiquity*, the bit or that part of a bridle which is put into the mouth of a horse. But it was, among the ancient physicians, also used to express that part of the cheeks, which, on each side, is contiguous to the angles of the mouth.

CHALIZA, in the *Jewish Customs*, the ceremony whereby a woman who is left a widow, pulls off her brother-in-law's shoes, who should espouse her, and by this means is allowed to be at liberty to marry whom she pleases. The word signifies *extractio vel exuviae*.

CHALK, the white fossil substance, usually reckoned a stone, but of a friable kind, which cannot therefore be polished as marble, &c. It is found also in powder, and has all the properties which characterize calcareous earths: but, Dr. Stare observes, that, when examined by the hydrostatical balance, it is found to want much of the weight and consistence of a real stone: so that he thinks it more justly ranked among the earths.

This he observes to be the case not only in *chalk*, but in various other bodies taken for granted to be stones; some whereof are nearer to earth than stone; others nothing but earth, sulphur, metal, &c.

CHALK, *alkaline* or *vulgar*, called *Creta*, from the island of Crete, now Candia, where the best was formerly found, is of two sorts; the first, a hard, dry strong *chalk*, used for making LIME: the other, a soft, unctuous *chalk*, used to manure lands.

This sort of *chalk*, used instead of marle by way of a manure, is a very fine improvement for some sorts of land, especially the first time it is laid on. It changes the very nature of the soil, and makes it rich for a time; but it soon exhausts itself, and requires dunging to keep it in heart afterwards. A second *chalking* will prove of very little benefit to those lands which succeeded ever so well with the first, unless they have lain a long time to recover themselves after it. It is from hence that the farmers have their trite saying, that *chalk* makes a rich tenant, but a poor landlord.

The best method therefore of using *chalk*, is to mix one load of it with two loads of dung or mud; this will make it not only a temporary, but a lasting advantage to the ground. It is the best improvement for sour and cold lands, and is observed always to do most good to those lands that lie farthest off from any natural beds of it; the ground near *chalk*-beds partaking of their nature though there is no *chalk* distinguished in them by the eye. The common method of *chalking* lands, is to lay twelve or fourteen load of *chalk* upon every acre, and this will sometimes make the land bring very rich crops for fourteen or fifteen years together.

It is best to carry the *chalk* upon a lay a year or two before it is plowed up; by this means it will sweeten the surface of the earth, and will not work so much downwards, as it will if plowed up at first. It makes corn yield well; and when laid upon grass ground, it makes the grass sweet and rich; and the cattle that feed upon it grow fat soon. The cows also that feed in these pastures, are observed to give better milk than ordinary.

Chalk is found in large strata, chiefly in the south-east part of Britain: so that if a straight line was drawn on a map from Dorchester to the coast of Norfolk, it would nearly include the *chalky* strata of this island; for no considerable quantity is dug beyond that line.

They have a very easy way of digging *chalk* in Kent. It lies on the sides of hills, and the workman undermines it as far as he thinks proper; then digging a trench at the top, as far distant from the edge as the undermining goes at bottom, they fill this with water, and that soaks through in the space of one night, and the whole flake falls down at once.

In other parts of the kingdom, *chalk* generally lies deeper, and they are often forced to dig for it in considerable depths, and draw it up in buckets; yet in these places, it sells cheap enough at the mouth of the pit to be worth buying, even to carry a great way, for manure. See SOIL.

Chalk raises an effervescence with acid liquors, and is therefore deservedly looked upon as an alkaline or absorbent earth. It is used with success to allay the too

great acidity of the juices of the stomach, particularly in the disease commonly called the heart-burn; as also in coughs arising from a sharp phlegm, hæmorrhages, and is said to kill worms. In a word, the property of all alkaline earths is not only to absorb acids, but to allay the acrimony of the fluids, and especially to restrain the violent motion of the bile, by detaining the salts and sulphur thereof, in their fixed parts. Powdered *chalk* is given with milk, to prevent its growing acid on the stomach; and externally it is commended for drying wounds, ulcers, and fissures in the nipples. It is likewise used by sugar-bakers, and in the manufacture of glass, and other mechanical operations.

There are various kinds of *chalk*, usually distinguished by their different colours.

CHALK, *ash* and *grey*. See MELIA.

CHALK, *black*, a light earthy substance, of a fine black colour, compact and laminated texture, and smooth surface. It is easily reduced into an impalpable soft powder, without hurting its colour: it becomes white with a reddish cast in the fire, and very friable; and it is neither dissolved, nor loses its colour, in acids. It seems to be of a stony bituminous kind. This substance is used for drawing black lines on paper; and is in various ways very convenient for painters, both in oil and water colours. This useful earth is said to come from Italy and Germany; but many parts of England and Wales furnish substances, nearly, if not entirely, of the same quality, and equally serviceable both for marking, and as black paints. Such is the chalky substance called KILLOW. See Lewis's *Commercium Phil. Techn.* p. 324.

Wallerius says, that in Sweden, near Huneberg, a black earth is found as diffusible in water as Indian ink.

CHALK, *brown*. See TRIPOLI.

French CHALK. See MOROCTHUS.

CHALK, *fungous*. See AGARIC mineral, and LAC luna.

CHALK, *red*, an earth much used by painters and artificers, and common in the colour shops of London, and elsewhere. It is properly an indurated clayey ochre, and is dug in Germany, Italy, Spain, and France, but in the greatest quantity in Flanders. Its characters, by which it is distinguished from other red earths, are these: it is of a fine, even, and firm texture; very heavy, and very hard; of a pale red on the outside; but when broken, of a deep dusky chocolate colour within. It adheres firmly to the tongue, is perfectly insipid to the taste, and makes no effervescence with acids. It makes excellent crayons, but does not mix with oil. It is used in Germany medicinally, in hæmorrhages, dysenteries, and other fluxes.

CHALK, *silver*, the English name of a kind of earth not properly a *chalk*. See ARGENTARIA Creta.

CHALK, *yellow*. See TRIPOLI.

CHALK-stones, in *Medicine*, a term used for the concretions of calcareous matter in the hands and feet of people violently afflicted with the gout. Leewenhoeck has been at the pains of examining these by the microscope. He divides them into three parts. The first part is composed of various small parcels of matter, looking like grains of white sand: this is harder and drier, and also whiter than the rest. When examined with large magnifiers, these are found to be composed of oblong particles, laid closely and evenly together: though the whole small stones are opaque, these component parts of them are pellucid, and resemble pieces of horse hair cut short, only that they are somewhat pointed at both ends. These are so extremely thin, that Mr. Leewenhoeck computes that a thousand of them placed together would not amount to the size of one hair of our heads. The whole stones in this harder part of the *chalk*, are not composed of these particles, but there are confusedly thrown among them some broken parts of other substances, and in a few places some globules of blood and small remains of other juices.

The second kind of *chalky* matter is less hard and less white than the former, and is composed of fragments or irregular parts of those oblong bodies which compose the first or hardest kind; and these are mixed among tough and clear matter, interspersed with the small and broken globules of blood discoverable in the former, but in much greater quantity.

And the third kind appears red to the naked eye, and when examined with glasses, is found to be a mere tough and clammy white matter, in which a great number of globules of blood are interspersed; these give it the red appearance it has. *Phil. Trans.* N^o 168. p. 906. See an account of a great quantity of *chalky* matter passed by a gouty person with his urine; and observations on the *chalk* of the joints of some gouty people; in the *Mem. of the A. D. S.* an. 1747. H. 56. and in the *Coll. Acad. P. Etr.* tom. vii. p. 84.

CHALKING, in our *Old Laws*, seems to be some duty laid on merchandize; what it was particularly we do not find:

find: but in the rolls of parliament it is said, the merchants of the staple require to be eased of divers new impositions, as *chalking*, ironage, wharfage, &c.

CHALLENGE, a cartel, or invitation to a DUEL, or other combat.

The word *challenge* was anciently translated *calumnia*.

Challenges to fight, either by word or letter, or bearing such *challenges*, are punishable, by fine and imprisonment; and if they arise from gaming, the offender shall forfeit all his goods to the crown, and be imprisoned two years.

9 Ann. cap. 14.

CHALLENGE, in *Law*, is an exception made to jurors who are returned to pass on a trial.

Challenge to the jurors is either made to the array, or to the poll: to the array as when the whole number is excepted against, as partially impanelled. If the sheriff be of affinity to either of the parties; or if any one or more of the jurors are returned at the nomination of either party, or for any other partiality, the array shall be quashed. To the poll, as when particulars are excepted against, as not indifferent.

These may be *challenged*, 1. *Propter honoris respectum*, as when a lord of parliament is impanelled. 2. *Propter defectum*, as in the case of an alien born, which is defect of birth; or of a slave or bondman, which is defect of liberty; or in case of insufficient estate. This latter exception has undergone several alterations by different statutes; but by 4 and 5 W. and M. cap. 24. the qualification is 10*l.* per annum in England, and 6*l.* in Wales, either of freehold or copyhold lands; and by 3 Geo. II. cap. 25. the holder of a lease on life or lives, or for the term of five hundred years absolute, of the clear yearly value of 20*l.* per annum, is qualified to serve on juries. 3. *Propter affectum*, or on suspicion of partiality: and this kind of *challenge* is *principal* or *to the favour*; in the former case the cause of suspicion is obvious; and in the latter, when only some probable circumstances of suspicion are pleaded, which are to be determined by TRIORS. 4. *Propter delictum*, or on account of some crime, which disqualifies the juror, by affecting his credit, as conviction of treason, felony, perjury, or conspiracy: judgment of the pillory; branding or whipping, outlawry or excommunication; attain of false verdict, or forgery, &c.

Challenge to the jurors, is also divided into *challenge principal*, and *challenge per cause*: i. e. upon cause or reason alledged.

Challenge principal, otherwise called *challenge peremptory*, is what the law allows without cause alledged: or farther examination: thus, a prisoner at the bar, arraigned on felony, may peremptorily *challenge* twenty, one after another, alledging no cause but his own dislike; and they will be set aside, and new ones chosen in their room. 22 Hen. VIII. cap. 14. and 1 and 2 Ph. and Mar. cap. 10. In case of high treason, no *challenge peremptory* was formerly allowed; but by stat. 7 W. III. liberty is given *peremptorily* to *challenge* thirty-five.

Yet there seems to be a difference between *challenge principal* and *challenge peremptory*; the latter being only in matters criminal, and without any cause alledged; the former mostly in civil cases, and with assigning some such cause, as being found true, the law allows: v. g. if either party alledge, that one of the jurors is the son, brother, cousin, or tenant, of the other, the exception is good. Also in the plea of the death of a man, or in any action real or personal, where the debt or damages amount to forty shillings, it is a good *challenge* to a juror, that he cannot dispend forty shillings per annum of freehold.

Challenge upon reason or cause, is when the party does alledge some such exception as is sufficient upon acknowledgment of the truth of it; v. g. if the son of the juror have married the daughter of the other party, or the like.

CHALLENGE, in *Hunting*. When hounds, at first finding the scent of their game, presently open, and cry, the huntsman say *they challenge*.

CHALYBEAT, in *Medicine*, something that partakes of the nature of steel, or iron; or that is impregnated with particles of those metals. See MINERAL waters, and WINE.

Chalybeats act chiefly as absorbents, and deobstruents. Iron, M. Lemery observes, is a mixture of an oily substance with a metallic matter; but the oil is predominant in the mixture; and between the parts mixed are large pores. Hence, iron becomes easily dissolvable; and its oil easily disengages itself: but when once decomposed, i. e. when once the oil is separated from the pure, ferruginous, or metallic part, no dissolvent has any effect on the *caput mortuum*.

Hence appears the absurdity of that common practice, of calcining iron to such a degree, as to convert it into what the chemists call a *crocus*, or saffron. This operation

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must of necessity take away all, or most of the oily substance; and leave nothing but the indissoluble *caput mortuum*. The oil here separated should properly have been separated by the heat of the stomach; whence, according to Mr. Lemery, it would have carried into the blood a new spirituous salutary juice: he observes also, that iron acts as an absorbent, from the largeness of its pores, and the ease wherewith all kinds of salts, even gross ones, insinuate themselves into them: even scorbutic acids are absorbed thereby. Farther, it is not all, that peccant acids enter iron; but in entering they also expel and express that salutary juice, which is also put in motion, and disposed to be evacuated by the natural heat. Thus is iron doubly advantageous, both by the oil it furnishes the blood withal, and by the salts it frees it from. The action of the particles of a *chalybeat*, by their elasticity, together with the *momentum* they give the blood by their ponderosity, make it not only preferable to most other deobstruents, but also proper in other cases: especially where there is a viscosity of the juices: the blood depauperated, and where the circulation is languid; as in most hectic and hypochondriac cases.

CHAM, or **KHAN**, the title given to the sovereign princes of Tartary.

The word in the Persian, signifies *mighty lord*; in the Slavonic, *emperor*. Sperlingius, in his Dissertation on the Danish term of majesty, *koning*, *king*, thinks the Tartarian *cham* may be well derived from it; adding, that in the North they say *kan*, *kennen*, *konge*, *konning*, &c. The term *cham* is also applied, among the Persians, to the great lords of the court, and the governors of provinces.

CHAMA, in *Natural History*, the name of a large genus of bivalve shells, the characters of which are these: they are usually smooth, though in some places a little rugose, and have in some few a number of spines. The valves of the shell are equal, elate, and convex, and the mouth gaping, not closing fast, and even in all parts, as in the oyster.

The fish contained in this genus of shells, have all a hot taste like that of pepper, and inflame the mouth in a troublesome manner. The French have hence called them flames and *flamets*, and in some parts of the same nation they are called *lavignons* and *pelourdes*.

The ancients used the several species of this shell to engrave figures on; and as they thought, could give the several parts of the engraved figure the colours of the several coats of the shell, by cutting deeper or less deep into it. Thus they could give the flesh of a man its natural white, and his garments a blue or a yellow, according to the nature of the species of *chama* they worked on. We find several of these antique works; and it is thought by some, that this was the first invention of that sort of engraved gem, which we call *camea*. The species of the *chama* are very numerous. *Tab. of Shells*, N° 18.

CHAMADE, in *War*, a certain beat of a drum, or sound of a trumpet, which is given the enemy as a signal, to inform them of some proposition to be made to the commander, either to capitulate, or have leave to bury their dead, make a truce, or the like.

Menage derives the word from the Italian *chiamata*, of *clamare*, to cry.

CHAMÆBALANUS, in *Botany*, a name given by many of the Greek authors to the apios, from its having numerous tubera among its roots, buried under the ground. Some have explained the same word as a name of the bulbocastanum, or earth-nut, but it is wrong to confound two roots of such very different characters together; and it does not appear that the Greek authors of note ever used it in any other sense but as the name of the apios. The name pseudo-apios has indeed been given by some to the bulbocastanum roots, but it was a name founded on ignorance, and likely to produce great errors.

CHAMÆBATOS, in the *Materia Medica*, the name given by some to the common dewberry-bush, or RUBUS.

CHAMÆCERASUS, in *Botany*. See HONEYSUCKLE.

CHAMÆCERASUS is also used by Dioscorides, and some of the old botanists, for the *alkekengi*, or, as we call it, the winter-cherry. It had this name from its fruit greatly resembling a cherry, and the plant not growing up to a tree, but rising only a little way from the ground. Care must be taken in reading the botanical writers, to distinguish when this plant is meant by the name *chamæcerasus*, and when the shrub.

CHAMÆCLEMA, in *Botany*, a name by which some authors have called the GROUND-ivy.

CHAMÆCRISTA, in *Botany*. See CASSIA.

CHAMÆDAPHNE, in *Botany*, a name by which Pliny, and some other authors, call the *vinca perivina*, or periwinkle, and others the spurge-laurel.

It is also used by Columna, and some other authors, for

the broad-leaved *rufcus*, commonly called the Alexandrian bay, *LAURUS Alexandrina*. See BUTCHER'S BROOM.

CHAMÆDAPHNE is also the name given by Buxbaum to a new genus of plants, not observed by former botanists, and found frequently in boggy places, in the northern parts of the world. The flowers consist of one leaf each, and are of the globose campaniform kind; the fruit is divided into five cells, and contains very numerous, and very small seeds, of a roundish shape; and the whole plant, in its manner of growth, much resembles our Solomon's seal. One thing very singular is observed in this plant, which is, that it retains its leaves all the winter, but sheds them in the middle of summer. In the latter end of May and beginning of June, the flowers are seen to wither, and at this time there arise a number of new shoots from the axæ of the lower leaves; these all rise up to bear leaves, and by the middle of July are well covered with them. In the mean time the old leaves fall off, and the stalks of the former year are left naked, except that they have the fruit on them. The new shoots have, besides leaves, the buds of the next year's flowers, and those so perfect, that on opening them the minute parts of the stamina may be perceived. In August and September, when the cold comes on, the leaves become blackish, and the whole plant seems to be decaying; but in the succeeding spring, as soon as the sun has appeared bright for a few days, the leaves re-assume their former green, the whole plant seems to revive, and is soon seen covered with flowers, and exhibiting a beautiful appearance. The stalks of the former year die down to the origin of these new ones; so that though the plant annually grows several inches in height, yet it is never the taller for its great age, as much dying of the height of a former year as is added anew from the succeeding one. Act. Petrop. vol. i. p. 243.

Buxbaum, who first described this plant, called it *chamædaphne*, the dwarf bay, from its low stature, and its resemblance to the common bay-tree in the shape of its leaves, which are oval and pointed. See ANDROMEDA.

CHAMÆDROPE, in *Botany*, a name given by some of the ancient writers to the common GERMANDER.

CHAMÆDRYS. See GERMANDER.

CHAMÆLEA, in *Botany*. See WIDOW-wail.

CHAMÆLEON, in *Zoology*. See CAMELEON.

CHAMÆLEON, in *Astronomy*. See CAMELEON.

CHAMÆLEON-thistle, in *Botany*, the name of a kind of thistle of which there are two kinds described by Dioscorides, and others of the ancient Greeks, and called the white and the black *chamæleon*-thistles. The white *chamæleon* is an innocent plant, its root esculent, and a gum which exsudes from it in the hot countries, not only innocent, but agreeable, the women using it to perfume their breath, and chewing it in their mouths as we do mastic.

It may seem strange to some to find this plant thus mentioned as a safe, esculent, and useful one; whereas Pliny and many other writers have declared it to be a poison. The later authors are to be excused in this, as having followed Pliny. The error of this author, who has misled the others, may be easily discovered by tracing his accounts up to the Greeks, from whom he borrowed the greater part of what we find in him, and whom he often, as in this case, has copied carelessly, and translated badly.

CHAMÆMORUS, in *Botany*, the name of a genus of plants, the characters of which are these: the flower consists of five leaves; and the fruit is composed of many acini, in form of the mulberry.

There is only one species of this plant known, which grows on the tops of the highest hills in the north part of England, but cannot be cultivated in a garden by any art.

CHAMÆNERIUM, in *Botany*. See WILLOW Herb.

CHAMÆPITYS, in *Botany*, *Ground-pine*, a species of GERMANDER.

CHAMERIPHES, in *Botany*, a name given by Pontedera to a genus of plants called by Linnæus *CHAMEROPS*.

CHAMERODODENDROS, *Dwarf Rose-bay*, a species of the *KALMIA*, according to Miller, and of the *RHODODENDRON* in the Linnæan system.

CHAMEROPS. See *Dwarf-PALM*.

CHAMANIM, in the *Jewish Antiquities*, is the Hebrew name for that which the Greeks call *pyraia*, or *pyrateria*; and St. Jerom in *Leviticus* has translated *simulachra*, in *Isaiah*, *delubra*. Lev. ch. xxvii. ver. 30. *Isaiah*, ch. xxvii. ver. 9.

These *chamanim* were, according to rabbi Solomon, idols exposed to the sun upon the tops of houses. Abenezra says, they were portable chapels or temples, made in form of chariots, in honour of the sun.

What the Greeks call *pyraia*, were temples consecrated to the sun and fire, wherein a perpetual fire was kept up. They were built upon eminences, and were large enclosures without coving, where the sun was worshipped. Herodotus and Strabo speak of them; and the *Guebres* or worshippers of fire in Persia and the Indies have still these *pyraia*. Strabo says, that in his time there were many of these temples to be seen in Cappadocia, consecrated to the goddess Anaita, and the god Homanus, Anaita is, in all probability, the moon, and Homanus the sun. Herod. lib. i. p. 87. Strab. lib. xv.

The word *chamanim* is derived from *chaman*, which signifies to warm. Calmet.

CHAMARIM, a word mentioned in several places of the Hebrew Bible, and generally translated *the priests of the idols*, or *priests clothed in black*, because *chamar* signifies black, or blackness.

Camar, in Arabic, signifies the moon; Isis is the same deity. Grotius thinks the Roman priests called *camilli*, came from the Hebrew *chamarim*. They, among the heathens, who sacrificed to the infernal gods, were dressed in black.

CHAMÆXYLON, in *Botany*, a name by which some authors have called the *gnaphalium*, or CUDWEED.

CHAMBER, in *Building*, a member of a lodging, or piece of an apartment, ordinarily intended for sleeping in; and called by the Latins *cubiculum*.

The word comes from the Latin *camera*; and that, according to Nicod, from the Greek *ναυαα*, vault, or curve; the term *chamber* being originally confined to places arched over.

A complete apartment is to consist of a hall, antechamber, chamber, and cabinet.

As to the proportions of chambers, their length should be to the breadth as $1\frac{1}{2}$ to 1, or some small matter less, but ought never to exceed that proportion; and as for the height, it should be three fourths of the breadth. The height of the chambers of the second story, should be a twelfth part less than the height of those below; thus, if the height of the first story be sixteen feet, that of the second will be fourteen feet eight inches. As to the height of the third story, it should be only three fourths of the second.

In building bed-chambers, regard should be had as well to the situation of the bed, as to that of the chimney. For which reason, the chimney ought not to be placed just in the middle, but distant from it about two feet, or two and an half, in order to make room for the bed, which prevents this inequality from being discerned. See BED-Chamber.

CHAMBER, privy.—Gentlemen of the Privy-CHAMBER are servants of the king, who are to wait and attend on him and the queen at court, and in their diversions, progresses, &c.

Six of these are appointed by the lord-chamberlain, together with a peer, and a master of the ceremonies, to attend all ambassadors from crowned heads in their public entries. Their number is fifty.

Their institution is owing to king Henry VII. As a singular mark of favour, they are empowered to execute the king's verbal command, and without producing any written order; their person and character being deemed sufficient authority.

CHAMBER in policy, is used for the place where certain assemblies are held; also for assemblies themselves.

Of these there are various kinds; some established for the administration of justice; others for matters of commerce, &c. Of the first kind among us was the

Star-CHAMBER. See COURT of *Star-Chamber*.

CHAMBER, Imperial, is a court of jurisdiction held anciently at Spire, but since transferred to Wetzlar; in which are determined the differences arising among the princes and cities of the empire.

It was at first ambulatory; in 1473, it was fixed at Augs-burg, then removed to Frankfort, and thence to Worms, in 1497; afterwards it was removed to Nuremberg and Ratisbon; again to Worms and Nuremberg; and from this last to Ellingen; thence, in 1527, to Spire; where Charles V. rendered it sedentary, in 1530.

At its first institution it consisted of sixteen assessors; but the Reformation ensuing, occasioned the number to be increased: by the treaty of Osnabrug, in 1648, there were appointed fifty assessors; whereof twenty-four were to be protestants, and twenty-six catholics; besides five presidents, two of them protestants, the rest catholics.

As the princes and circles of the empire are not always exact in filling up the vacancies in this chamber, the number of the assessors is now reduced to sixteen.

This chamber has a right of judging by appeal, and is the last resort of all civil affairs of the states and subjects of the empire, in the same manner as the aulic council residing at Vienna. Processes are here almost endless, on

account of the infinite number of ceremonies and formalities wherewith they are embarrassed.

The *imperial chamber* is frequently afraid to pronounce sentence, for fear of exposing its awards to some disgrace, the princes sometimes not permitting such to be executed as displease them.

CHAMBER of accounts, is a sovereign court in France, where accounts are rendered of all the king's revenues: inventories and avowals thereof registered; oaths of fidelity taken, and other things relating to the finances transacted. The French have also

CHAMBERS, ecclesiastical, which judge, by appeal, of differences arising on the raising of tithes: of these *ecclesiastical chambers* there are nine; viz. at Paris, Bourdeaux, Rouen, Lyons, Tours, Tholouse, Bourges, Pau, and Aix: they usually consist of the archbishop of the place, as president; other archbishops and bishops, a deputy of each of the dioceses, and three counsellors of parliament. The *chamber* chooses as many counsellors out of the clergy as it thinks proper; as also a promoter.

CHAMBER, apostolical, at Rome, is that wherein affairs relating to the revenues and domains of the church and the pope are transacted.

CHAMBER of audiences, or *grand CHAMBER*, a jurisdiction in each parliament of France.

At the first institution of their parliament, there were two *chambers*, and two kinds of counsellors; the one the *grand chamber* for audiences, the counsellors whereof were called *jugeurs*, who only judged; the other the *chamber of inquests*; the counsellors whereof were called *rappor-teurs*; who only reported processes by writing.

CHAMBER, direction, is a court instituted in Old Spain, for the regulation of divers affairs relating to their commerce to the Spanish West Indies.

CHAMBER of the edict, or *Mi-party*, was a court established by virtue of the edicts of pacification, in favour of those of the reformed religion: wherein the number of judges of either religion were the same; and to which recourse was had in all affairs wherein any of the protestants were concerned. This *chamber* is now suppressed.

CHAMBER of London. See **CHAMBERLAIN**.

CHAMBER of assurance, in France, denotes a society of merchants and others, established by a decree of the council of state in 1668, for conducting the business of insuring: but in Holland, it signifies a court of justice, where causes relating to insurances are tried.

CHAMBER of Booksellers, in Paris, denotes a society consisting of a Syndic and assistants, elected by four delegates from the printers, and twelve from the booksellers, whose business is to superintend and regulate the trade of printing, and selling books, prints, &c. In the visitation of books, performed by at least three persons of the society, all libels against the honour of God, and the welfare of the state, and all books printed in violation of their regulations and privileges, are suppressed.

CHAMBERS of commerce, are assemblies of merchants and dealers, where they treat about matters relating to commerce. Of these there are several, established in most of the chief cities of France, by virtue of an arret of the 30th of August, 1701. Indeed there were some before this general establishment, particularly one at Marseilles, and another at Dunkirk.

CHAMBERS of the king, *regiæ cameræ*, in our old records, are used for the havens or ports of the kingdom.

CHAMBER, in War, is used for the place where the powder of a mine is lodged.

The *chamber of a mine* is a cavity of five or six cubic feet, generally made of a cubical form.

CHAMBER of a mortar, or *cannon*, is a cell, or cavity, at the bottom of the barrel, or chace, where the charge of powder is lodged.

The different form of the *chamber* is found by experiment to have an influence on the range of the piece. A cubical *chamber* carries the ball to a less distance than a circular one; and that less than a cylindrical one.

Mr. Robins, apprehending that the charge of powder is instantaneously fired, concluded, that no particular form of *chambers* can be of any advantage; and this seems to be a just conclusion from his theory. But professor Euler has advanced many strong objections to this theory; and he observes in the result, that the same quantity of powder will fire sooner in a globular space, than in a space of any other form: and accordingly recommends to make the cavity behind the ball as nearly globular as possible. See the *True Principles of Gunnery* investigated and explained, &c. 1777, p. 93.

Though *chambers* are now disused, Mr. Muller observes, that in large cannons they are an improvement not to be neglected; because pieces, having *chambers*, require a less charge than they would otherwise do: and he recommends a *chamber* in all pieces of twenty-four pound ball and upwards, whose diameter should be two thirds the

diameter of the bore, and length equal to that diameter: See *Tab. Gunnery*, fig. 1. And he adds, that though this *chamber* contains but one ninth part of the shot's weight of powder, yet the effect it produces is nearly equal to that of a fourth part, which is sufficient in large pieces. Muller's *Treat. of Artillery*, p. 96.

CHAMBERS, iron, in a *FIRE ship*, are ten inches long, and 3.5 in diameter. They are breeched against a piece of wood fixed across the ports, and let into another a little higher. When loaded, they are almost filled with corned powder, and have a wooden tompon well driven into their muzzles. They are primed with a quick-match thrust through their vents into the powder, with a part of it hanging out. When the ship is fired, they blow open the ports; and the port-lids either fall downward, or are carried away, and thus give vent to the fire out of the sides of the ship.

CHAMBERDEKINS, in our *Old Statutes*, a denomination for certain Irish beggars, which by statute 1 Hen. V. cap. 7, and 8. were to leave England within a certain time. They were called in the statute *chamberdeakynz*, and said to be clerks mendicants. Blount says they are called *chamber-deacons* in the parliament-roll.

CHAMBERLAIN, an officer who has the management or direction of a chamber.

The word *chamberlain*, according to Ragueau, originally signified a gentleman who was to sleep in the king's bed-chamber, at his bed's feet, in the absence of the queen. There are almost as many kinds of *chamberlains* as chambers: the principal are as follow.

Lord great CHAMBERLAIN of England, an officer of great antiquity and honour; being ranked the sixth great officer of the crown: a considerable part of his function is at the coronation of a king; when he dresses him, carries the coif, sword, and gloves, to be used on that occasion; the gold sword and scabbard to be offered by the king; and the robe royal and crown: he also undresses him, and waits on him at dinner; having for his fee the king's bed, and all the furniture of his chamber, the night-apparel, and the silver basin wherein the king washes, with the towels.

To him likewise belongs the provision of every thing in the house of lords, in the time of parliament; to which end he has an apartment near the lords house. He has the government of the palace of Westminster, and issues out warrants for preparing, fitting out, and furnishing Westminster-hall, against coronations, trials of peers, &c.

He disposes of the sword of state, to be carried by whom he pleases; and when he goes to parliament, is on the right hand of the sword, the lord marshal being on the left. On all solemn occasions, the keys of Westminster-hall, of the Court of Wards, and Court of Repuests, are delivered to him.

To him belong livery and lodging in the king's court; and he has certain fees from every bishop at his doing homage to the king, and from every peer at his creation. Under his command are, the gentleman-usher of the black rod, the yeoman-usher, and door-keepers.

This honour was long held by the earls of Oxford; viz. from the time of Henry I. by an estate-tail, or inheritance; but in later coronations by the marquis Lindsey, afterward duke of Ancaster, by an estate or inheritance from a daughter and heir general.

Lord CHAMBERLAIN of the household, an officer who has the oversight and direction of all officers belonging to the king's chamber, except the precinct of the *BED-chamber*; which is absolutely under the groom of the stole.

He has the oversight and direction of the officers of the wardrobe, of the removing wardrobes, beds, tents, revels, music, comedians, hunting, messengers, trumpeters, drummers, handicrafts, and other tradesmen retained in the king's service: as also of all serjeants at arms, physicians, apothecaries, surgeons, barbers, the king's chaplains, &c. and administers the oath to all officers above stairs. There is also a *Lord Chamberlain* of her majesty's household.

There are also **CHAMBERLAINS of the king's courts**, of the *Exchequer*, of *North Wales*, of the *city of London*, &c. In these cases, this officer is commonly the receiver of all rents and revenues belonging to the place whereof he is *chamberlain*.

When there is no prince of Wales, and earl of Chester, the *Chamberlain* of Chester hath the receipt and return of all writs coming thither out of any of the king's courts. In the *Exchequer*, there are two *chamberlains*, who keep a controulment of the pells of receipts, and exitus, and have certain keys of the treasury and records: they also keep the keys of that treasury where the leagues of the king's predecessors, and divers ancient books, as *Dooms-day Book*, and the *Black-Book* of the *Exchequer*, remain.

The **CHAMBERLAIN** of London keeps the city-money, which is laid up in the chamber of London, an apartment in Guildhall: he also presides over the affairs of masters and apprentices; and makes free of the city, &c. His office lasts but for a year, being chosen annually on Midsummer-day; but the custom usually obtains to re-chuse the same person; unless he has been chargeable with any misdemeanor in his office.

CHAMBERLAIN, *vice*. See **VICE-CHAMBERLAIN**.

CHAMBRANLE, in *Architecture* and *Joinery*, the border, frame, or ornament of stone, or wood, surrounding the three sides of doors, windows, and chimneys.

The *chambranle* is different in the different orders; when it is plain, and without mouldings, it is called simply and properly, *band*, *case*, or *frame*.

The *chambranle* consists of three parts; the two sides, called *ascendants*; and the top, called the *traverse*, or *supercilium*.

The *chambranle* of an ordinary door is frequently called *door-case*; of a window, a *window-frame*.

CHAMELEIA, in *Natural History*, a word used by some authors as a name for a peculiar species of **CHAMA**, but by others as a name for all those *chamæ* that have smooth surfaces, which are a very great number.

CHAMELOT, in *Commerce*. See **CAMBLET**.

CHAMFER, or **CHAMFERET**, in *Architecture*, an ornament consisting of half a scotia; being a kind of small furrow, or gutter, on a column; called also *strix*, and *stria*.

CHAMFERING, or **CHAMFRAINING**, is used for cutting the edge, or any thing aslope, or **BEVEL**.

CHAMOIS, in *Zoology*, is used by some, particularly the French, for the creature from whose skin the *chamois* leather is made. See *Tab. of Quadrupeds*, N^o 8.

It is known among naturalists by the name of **RUPICAPRA**. It is very common in the mountains of Helvetia, and in many other places. In the figure of its body it seems to approach very much to the stag kind; its belly, forehead, inner part of its ears and throat, are white; it has a yellow stroke on each side near the eyes, and the rest of the body is a deep brown; its tail also is of the same colour, and that equally on all sides, not white on that part next the body, as is the case in the deer.

The male and female both have horns, which are a hand's breadth and a half long, rough toward the bottom, and somewhat knotty; a new knot growing every year; they are nearly straight, but at the top bent into the shape of a hook, black, and not smooth, but longitudinally striated with slender streaks, and their inner cavity is filled up with a solid bone proceeding from the skull.

This creature has two remarkable holes always open behind its ears; these, some have imagined, served for respiration; and Appian, who had the *poetica licentia* for whatever he chose to say, seems to have led them into this; but there is no sort of probability of truth in it, since the skull is seen immediately under these holes, and there is no perforation through it, nor any duct discoverable from them. The vulgar have also some remarkable opinions founded on the structure of the horns of the creature; the one, that in depressing them to rub his back, he often gets them so far within the skin that he cannot get them out again; and the other, that he hangs by the horns to the rocks.

CHAMOMILE, *Anthemis*, in *Botany*, a genus of the *syngenesia polygamia superflua* class. Its characters are these: it is a plant with a compound flower, the border or rays of the flower being composed of many female flowers, whose petals are stretched out like tongues on one side. The middle or disk of the flower is composed of many hermaphrodite florets, which are funnel-shaped, erect, and cut into five parts at the top. The germen is situated at the bottom, which afterward becomes an oblong naked seed. There are fifteen species.

The first sort is the common *chamomile*, which grows in plenty upon commons, and other waste lands: it is a trailing perennial plant, which puts out roots from the branches as they lie on the ground. The flowers of this sort are ordered for medicinal use; but the market people generally sell the double flowers, which are much larger, but not so strong as the single.

The second sort is a common annual weed, which grows among corn: it flowers in May, so is called *May-weed*; though some have applied that title improperly to the *cotula foetida*, which rarely flowers till late in June; this is the third sort.

Another sort is the **PELLITORY** of Spain, the roots of which are used for the tooth ach; being extremely warm, when they are applied to the part affected, they draw out the cold rheum, and are often serviceable.

The common *chamomile* is digestive, laxative, and emollient; it mitigates pain, and promotes the menses and urine; the leaves dried are said to answer these purposes

better than any other part of the plant: for all others, the flowers are used. These are given in infusion, as a gentle emetic, very large quantities of the infusion being drank warm. They are also used in emollient decoctions, and are a general ingredient in clysters. It is very remarkable of the flowers of this plant, that, like those of the common yarrow, they yield by distillation a fine sky-blue oil.

CHAMOS, or **CHEMOSH**, the idol or god of the Moabites.

The name of *Chamos* comes from a root, which, in Arabic, signifies *to make haste*; for which reason many believe *Chamos* to be the sun, whose precipitate course might well procure it the name of swift or speedy.

Farther particulars may be seen in Calmet's Dissertation on Baal Peor and *Chamos*, prefixed to his Comment on the book of Numbers.

CHAMPADA, in *Natural History*, the name of a tree common in the woods of Malacca, and bearing a fruit much valued by the natives. It is a large tree very full of branches, and these are very knotty, and, when cut, throw forth a thick and acrid juice, like that of the tithymal. The fruit grows on the trunk and thick branches of the tree: the first appearance towards this is a large button or bud; this, by degrees opens into a flower consisting of a great number of leaves, among which, when open, are seen the rudiments of the fruit; this appears very small at first, but it soon grows to a very considerable bigness, being, when ripe, twelve or fourteen inches long, and as much in circumference; it is shaped much like a melon. The rind is green, and is all over divided into small pentagons, in the centre of each of which is a small black spot. The pedicle is thick and woody, and entering into the substance of the fruit, it divides itself into several branched fibres, which run through the whole substance of it, and meet in a point at the end. Within this large fruit there are contained a large number of kernels, of the size of our common chestnuts, all hanging together in bunches, so as to resemble a cluster of grapes; these are confined in a narrow compass, being pressed firmly upon one another while the fruit is whole, but as soon as this is cut or burst open, they fly farther asunder, and hang to the stalks like grapes that are placed at a distance on the bunch, as some of our oblong kinds are. The people of Malacca are very fond of this fruit; they suck the pulpy matter which surrounds the kernels, and which is of a sweet and luscious taste, but of a disagreeable raw smell. The Indians are very fond of this fruit, as well for its qualities as its taste, for it is very heating, and, when taken in large quantities, will inebriate people in the same manner as strong liquors. The kernels are much of the nature of our chestnuts, but of a less agreeable taste; they are eaten by way of food, rather than as a delicacy, and the common way of eating them is boiled in water. Mem. Acad. Scienc. Par. 1699, p. 640.

CHAMPAGNE, in *Heraldry*, a name given by Ferne, and some other writers, to the line differing from the common lines, and called also **URDEE**, and by Upton *vere*, from its resemblance to the ends of the figures of that sort of fur which is called *vair* by heralds.

CHAMPAIN. See **CAMPAIGN**, and **CHAMPION**.

A Point **CHAMPAIN**, in *Heraldry*, is a mark of dishonour, in the coat of arms of him who kills a prisoner of war after he has cried quarter.

CHAMPART, in our *Old Customs*, a duty, or tenure, by which the tenant was to pay part of the fruits of the ground to the lord. It is also written *chaumpert*, and in the middle-age Latin is called *campipars*, *camparcium*.

CHAMPARTORS, or **CHAMPERTORS**, are those who move pleas, or suits, or cause them to be moved, either by their own procurement or others; and sue them at their proper costs, to have part of the land, or other matter in variance: against whom lies a writ of *champarty*.

CHAMPARTY, or **CHAMPERTY**, in *Law*, a maintenance of any man in his suit, upon condition of having part of the thing in question, be it lands or goods, in case it be recovered.

The word comes from the French, *champ*, *field*, and *parti*, *divided*; the field, or thing contested for, being supposed to be divided between the *champertor*, or maintainer, and the person in whose right he sues.

This seems to have been an ancient grievance; for notwithstanding several statutes against it, and a form of writ accommodated to them, in the time of Edward I. yet in that of Edward III. it was enacted, that whereas redress on the former statute was only to be had in the king's bench, which then followed the court: for the future it should likewise be cognizable by the justices of the common pleas, and judges of assize.

CHAMPION, properly signifies a person who undertakes a

a COMBAT, in the place or quarrel of another: though the word is also sometimes used for him who fights in his own cause.

Hottoman defines *champion*, *certator pro alio datus in duello, in campo dictus, qui circus erat decertantibus definitus*: hence also the word *camp-fight*.

Du-Cange observes, that *champions*, in the just sense of the word, were persons who fought in lieu of those who being obliged by custom to accept the duel, had yet a just excuse for dispensing with it, as being too old, or infirm, being ecclesiastic, or the like. He adds, that the *champions* were usually retained or hired for sums of money, and were held infamous.

There were also some vassals, who, by the faith and homage sworn to their lord, were obliged to fight for them in case of need.

Some authors hold, that any person was allowed the benefit of a *champion*, excepting parricides, and those accused of very heinous offences.

This custom of deciding differences by combat, was derived from the North; whence it passed into Germany, and, with the Saxons, into England, and insensibly through the rest of Europe. See DUEL.

When two *champions* were chosen to maintain the pro and the con, it was always required there should be a decree of the judge to authorize the combat. When the judge had pronounced sentence, the accused threw a gage, or pledge, ordinarily a glove, or gauntlet; which being taken up by the accuser, they were both taken into safe custody till the day of battle appointed by the judge.

If either of them fled after this, he was declared infamous, and deemed to have committed the crime in question. Nor were the accuser and accused now allowed to make up the matter; at least, not without the consent of the judge; which was never granted, without making the lord satisfaction for the right of inheritance to the effects of the vanquished.

Before the *champions* took the field, their heads were shaved, and they made oath, that "they believed the person who retained them was in the right; and that they would defend his cause to the utmost of their power." The weapons they used in a combat were a sword and buckler; some say, in England, only a club and buckler: when on horseback, they were armed at all points. In a civil combat, on a writ of right, the only weapons allowed them were *batons*, or staves, of an ell long, and a four cornered leather target. Their weapons were blessed in the field by the priest, with great ceremony; and each took an oath he had no charm upon him.

In the civil combat, a piece of ground was marked out of sixty feet square, enclosed with lists, and on one side a court erected for the judges of the court of common pleas, who attended in their scarlet robes. The court was to sit by sun-rising: and proclamation being made, the *champions* were introduced by two knights, and were dressed in a suit of armour, with red sandals, bare-legged from the knee downwards, bare-headed, and with bare arms to the elbows.

The action then began; at the sound of a trumpet they were to go to blows; after the number of blows or rencounters expressed in the cartel, the judges of the combat threw a rod into the air, to advertise the *champions* that the combat was ended. If it lasted till night, or ended with equal advantage on either side, the accused was reputed victor.

The punishment of the vanquished was that which the crime merited, whereof he was accused: if it were a capital crime, the vanquished was disarmed, let out of the field, and immediately executed, together with the party whose cause he maintained. If the conquered *champion* fought in the cause of a woman, she was burnt.

In civil combat, the combatants were bound to fight till the stars appeared in the evening; and if the *champion* of the tenant was able to defend himself till the stars appeared, the tenant prevailed in his cause; or if victory declared itself for either party, by the death of the other, which seldom happened, or by his proving *recreant*, and pronouncing the word CRAVEN, judgment was finally given in his favour. Black. Com. book iii. p. 339, &c.

CHAMPION of the king, is an officer, whose business is, at the coronation of the king of England, to ride into Westminster-hall, armed cap-a-pe, when the king is at dinner, and throw down his gauntlet by way of challenge; pronouncing by a herald, "That if any man shall deny, or gainsay the king's title to the crown, he is there ready to defend it in single combat, &c." Which done, the king drinks to him, sending him a guilt cup with a cover, full of wine; which the *champion* drinks, and has the cup for his fee.

This office, ever since the coronation of Richard II. has been continued in the family of Dymocke, who held the

manor of Scrivelsby in Lincolnshire, hereditary from the family of the Marmions, who had it before, by grand serjeantry; on condition that the lord thereof should be the king's *champion*.

CHAMPION, or rather CHAMPAIN-lands, are lands not inclosed; or large fields, downs, or places without woods or hedges.

CHANCE, a term we apply to events, to denote that they happen without any necessary, or foreknown cause: or it is used to denote the bare possibility of an event, when nothing is known either to produce or hinder it.

Our aim is, to ascribe those things to *chance*, which are not necessarily produced as the natural effects of any proper cause, which we can discover; but our ignorance and precipitancy lead us to attribute effects to *chance*, which have necessary and determinate causes.

When we say a thing happens by *chance*, we really mean no more than that its cause is unknown to us: not, as some vainly imagine, that *chance* itself can be the cause of any thing. From this consideration, Dr. Bently takes occasion to expose the folly of that old tenet, *the world was made by chance*.

The case of the painter, who, unable to express the foam at the mouth of a horse he had painted, threw his sponge in despair at the piece, and, by *chance*, did that which he could not before do by design, is an eminent instance of the force of *chance*: yet, it is obvious, all we here mean by *chance*, is, that the painter was not aware of the effect; or that he did not throw the sponge with such a view; not but that he actually did every thing necessary to produce the effect; inasmuch that, considering the direction wherein he threw the sponge, together with its form, specific gravity, the colours wherewith it was smeared, and the distance of the hand from the piece, it was impossible, on the present system of things, that the effect should not follow.

Chance is frequently personified, and erected into a chimerical being, whom we conceive as acting arbitrarily, and producing all the effects whose real causes do not appear to us: in which sense, the word coincides with the *Tuxn*, and *Fortuna*, of the ancients.

CHANCE is confounded with *Fate* and *Destiny*; and the word is also used for the manner of deciding things, the conduct or direction of which is left at large, and not reducible to any determinate rules or measures; or where there is no ground for preference: as at cards, dice, lotteries, &c.

CHANCE, for the laws of, or the proportion of hazard in gaming, see GAMING. See also EXPECTATION and PROBABILITY.

The ancient *sorts*, or *chance*, M. Placette observes, was instituted by God himself; and in the Old Testament we find several standing laws, and express commands, which prescribed its use on certain occasions: hence the Scripture says, the *lot*, or *chance*, fell on St. Matthias; when it was in question who should fill Judas's place in the apostolate.

Hence also arose the *sortes sanctorum*, or method of determining things among the ancient Christians, by opening some of the sacred books, and pitching on the first verse they cast their eye on, as a sure prognostic of what was to befall them. The *sortes Homericae*, *Virgilianae*, *Prænestinae*, &c. used by the heathens, were with the same view, and in the same manner. See SORTES.

St. Augustine seems to approve of this method of determining things future, and owns that he had practised it himself; grounded on this supposition, that God presides over *chance*, and on Proverbs xvi. ver. 33.

Many among the modern divines hold *chance* to be conducted in a particular manner by Providence, and esteem it an extraordinary way which God uses to declare his will, and a kind of immediate revelation.

CHANCE-Medley, in Law, the accidental killing of a man not altogether without the killer's fault, though without any evil intent.

Stamford calls it, *Homicide by misadventure*: West calls it *homicide mixed*; and says, it is when the killer's ignorance or negligence is joined with the *chance*; as supposing a man lopping trees by the highway, and a bow falling *chance* to kill a passenger, the party here offends in not having given warning, whereby the slain might have been induced to take more heed; or when a workman, in throwing down rubbish from a house, after warning to take care, kills a person; or a school-master in correcting his scholar, a master his servant, or an officer in whipping a criminal, in a reasonable manner, happens to occasion his death, it is *chance-medley* and misadventure. 3 Inst. 56. Dalt. 351. But if a man throws stones in a highway where persons usually pass, or shoot an arrow, &c. in a market-place, among a great number of people; or if a workman cast down rubbish from a house in cities and towns, where people are continually passing; or a

school-master, master, &c. correct his scholar, servant, &c. in a degree exceeding the bounds of moderation, it is manslaughter; and if with an improper instrument of correction, as with a sword or iron bar, or by kicking, stamping, &c. in a cruel manner, it is murder.

CHANCEL, is properly that part of the choir of a church, between the altar and communion-table, and the balustrade, or rail that incloses it; where the minister is placed at the celebration of the communion.

The word comes from the Latin *cancellus*, which in the lower Latin is used in the same sense, from *cancelli*, lattices, or cross-bars, wherewith chancels were anciently encompassed, as they now are with rails.

The right of a seat and a sepulchre in the *chancel*, is one of the privileges of the founders of a church. The repairs of the *chancel* belong by usage, in most parishes, to the rector or vicar, or both.

CHANCELLOR, an officer, supposed originally to have been a notary, or scribe, under the emperors, and named *cancellarius*, because he sat behind a lattice, called in Latin *cancellus*, to avoid being crowded by the people.

Naude says, it was the emperor himself who sat and rendered justice within the lattice; the *chancellor* attending at the door thereof whence he took his title.

Others say, he had it from this, that all letters, addressees, petitions, &c. to the king, being first examined by him, were *cancelled*, where amiss: others, because all patents, commissions, and warrants, coming from the king, were examined and cancelled by him. Others, because he *cancelled* and annulled the sentences of other courts.

Du-Cange, from Joannes de Janua, fetches the original of the word *chancellor* from Palestine, where the houses being flat, and made in form of a terrace, with parapets or pallisadoes, called *cancelli*; those who mounted these houses to rehearse any harangue, were called *cancellarii*; whence the name passed to those who pleaded at the bar, which he calls *cancelli forenses*, and at length to the judge who presided; and lastly to the king's secretaries.

This officer is now in great authority in all countries: the person who bears it with us, or the

Lord High CHANCELLOR of England, is the first lay person of the realm, next after the king, and princes of the blood, in all civil affairs. He is the chief administrator of justice next the sovereign, being the judge of the court of chancery; and to him belongs the appointment of all the justices of peace in the kingdom.

All other justices are tied to the strict law; but the *chancellor* has the king's absolute power to moderate the rigour of the written law, to govern his judgment by the law of nature and conscience, and to order all things *secundum equum & bonum*. Accordingly, Stamford says, the *chancellor* has two powers, the one absolute, the other ordinary; meaning, that though by his ordinary power he must observe the same form of procedure as other judges, yet in his absolute power he is not limited by any written law, but by conscience and equity.

The offices of *lord-chancellor* and *lord-keeper* are by the statute 5 Eliz. made the same thing; till that time they were different, and frequently subsisted at the same time in different persons; sometimes the *lord-chancellor* had a *vice-chancellor*, who was keeper of the seal.

The keeper was created *per traditionem magni sigilli*, but the *lord-chancellor* by patent, though now that he has the keeper's office, he is created in like manner by giving him the seal. The *chancellor* is a privy-counsellor by his office, and likewise speaker of the house of lords. See **PARLIAMENT**.

Though he be sole judge of the court of chancery, yet in matters of much difficulty he sometimes consults the other judges; so that this office may be discharged by one who is no professed lawyer, as anciently it commonly was by an ecclesiastic, who presided over the king's chapel, and became keeper of the king's conscience, visitor in the king's right of all hospitals and colleges of royal foundation, patron of all the king's livings under the value of 20*l.* per ann. in the king's books, guardian of all infants, idiots, and lunatics; and superintendent of all charitable institutions. He has twelve assistants, or coadjutors, anciently called *clerici*, as then being in holy orders, now *Masters in Chancery*, the first whereof is the *Master of the Rolls*. See **MASTER of the Rolls**, **MASTERS in Chancery**, &c.

CHANCELLOR of a cathedral. His office is thus described in the Monasticon; viz. to hear the lessons and lectures read in the church, either by himself, or his vicar; to correct and set right the reader when he reads amiss; to inspect schools, to hear causes, apply the seal, write and dispatch the letters of the chapter, keep the books, take care there be frequent preachings, both in the church, and out of it, and assign the office of preaching to whom he lists.

CHANCELLOR of a diocese, is a judge of the bishop's court held in the cathedral of each diocese.

He was anciently called *ecclesiasticus*, and *ecclesie causfidicus*, the church-lawyer. See **Bishop's COURT**.

CHANCELLOR of the duchy of Lancaster, is an officer, the head of that court, whose business is to judge and determine all controversies between the king and his tenants of the duchy-land; and otherwise to direct all the king's affairs relating to that court. See **Duchy-COURT**.

CHANCELLOR of the Exchequer, is an officer, supposed by some to have been created for moderating extremities in the exchequer.

He sometimes sits in that court and the exchequer-chamber, and with the rest of the court, orders things to the king's best benefit. He is always in commission with the lord treasurer for letting lands accruing to the crown by dissolution of abbeys, and otherwise he has power, with others, to compound for forfeitures on penal statutes, bonds, and recognizances entered into by the king. He has great authority in managing the royal revenue, and in matters of first-fruits.

The court of equity, in the exchequer-chamber, is held before the lord-treasurer, *chancellor*, and barons, as that of common law before the barons only.

CHANCELLOR of the order of the GARTER, and other military orders, is an officer who seals the commissions and mandates of the chapter, and assembly of the knights, keeps the register of their deliberations, and delivers acts thereof under the seal of the order.

CHANCELLOR of an university, is he who seals the diplomas or letters of degrees, provision, &c. given in the university.

The *chancellor* of Oxford, is their chief magistrate, elected by the students themselves: his office is *durante vita*, to govern the university, preserve and defend its rights and privileges, convoke assemblies, and do justice among the members under his jurisdiction.

Under the *chancellor* is the *vice-chancellor*, who is chosen annually, being nominated by the *chancellor*, and elected by the university in convocation. His business is to supply the *chancellor's* absence.

At his entrance upon his office, he chooses four *pro-vice-chancellors*, out of the heads of colleges, to one of whom he deposes his power in his absence.

The *chancellor of Cambridge* is in most respects the same with that of Oxford; only he does not hold his office *durante vita*, but may be elected every three years.

He has under him a commissary, who holds a court of record of civil causes, for all persons of the university under the degree of master of arts.

The *vice-chancellor* of Cambridge is chosen annually by the senate, out of two persons nominated by the heads of the several colleges and halls.

CHANCERON, in *Natural History*, a name given by the French writers to the small caterpillar that eats the corn, and does vast mischief in their public granaries. The butterfly which produces this creature has white wings with black spots in them. The caterpillar, when first hatched, is one of the smallest that we are acquainted with. It spins a great number of fine threads, as soon as hatched from the egg, and in many of these it fastens itself to every thing that lies near it.

Toward the latter end of summer these caterpillars leave the corn and mount up the walls of the granary, where they search for a proper place of rest, and, when they have pitched upon such a one, they eat their way into it and burying themselves in a hole, they cover their whole body with a web of silk of their own spinning, and there change into a sort of brownish red chrysalides. These remain the whole winter without life or motion; but in the months of April and May the butterflies are hatched out of them, and the males and females couple together, immediately after which the female lays her eggs, and the foundation is laid for a new progeny, who, during the remainder of the summer, are to destroy and spoil the corn, under the form of caterpillars. The female thrusts out a sort of tube from her tail, by means of which she opens a way into the grain, and lodges her egg, which in fifteen or sixteen days is hatched into the caterpillar; as soon as hatched, it begins to eat, and, devouring greedily, it soon marks the place where it lies, by a quantity of the husks which it leaves there. Deslandes, Trait. Phys.

CHANCERY. See **COURT of chancery**.

CHANCRE, in *Medicine*, a malignant ulcer, which gnaws and eats the flesh, usually occasioned by some venereal disorder.

Chancres are reputed among the first symptoms that appear in the venereal disease; and Antonius Musa Brasavolus observes, that the pustules on the prepuce, glans, or both, are occasioned by the sharpness of humours which are stirred in the time of coition, and the malignant quality of the venereal teint contained in the vagina, or that flows from the adverse party. This being premised, it is certain the *chancres* on the *frænum* and prepuce

prépuce differ very much from those on the glans, and other parts.

CHANDELIER, or **CHANDELEER**, in *Fortification*, a wooden frame, made of two pieces, fixed cross-ways on two other pieces, at about four feet asunder, and on their interfections are erected two vertical pieces of five feet high, each supported by three buttresses; the interval of these two pieces is filled up with fascines, or faggots, to cover the workmen instead of a parapet. See *Tab. Fortif. fig. 25*.

Chandeliers are sometimes also made to prevent the enemy from seeing what passes within.

The difference between *chandeliers* and blinds, consists in this, that the former serve to cover the pioneers before, and the latter also cover them over head.

CHANDELIER signifies also a candlestick, lamp, &c.

CHANE, in *Ichthyology*, a name given by Aristotle, Athenæus, and the other Greek writers, to the fish called by other authors *hiatula chauna*, and *chaunus*. It is truly a species of the *labrus*, and is distinguished by Artedi by the name of the forked-tail *LABRUS*, with the lower-jaw longer than the upper, and with black transverse lines on the sides.

CHANFRIN, in the *Manege*, is the fore-part of a horse's head, extending from under the ears, along the interval between the eye-brows, down to his nose.

CHANGE, in *Commerce*. See **EXCHANGE**.

CHANGE, in the *Manege*. To *change* a horse, or *change* hand, is to turn or bear the horse's head from one hand to the other, from the right to the left, or from the left to the right. You should never *change* your horse without pushing him forward upon the turn; and after the turn, push him on straight, in order to a stop.

CHANGE of species, in *Husbandry*. See **SPECIES**.

CHANGER, or **CHAUNGER**, an officer belonging to the king's **MINT**, who changes money for gold, or silver bullion.

CHANGER, *money*, is a **BANKER**, who deals in the exchange, receipt, and payment of moneys.

CHANGES, in *Arithmetic*, &c. the permutations or variations of any number of quantities; with regard to their position, order, &c.

To find all the possible changes of any number of quantities, or how oft their order may be varied.

Suppose two quantities *a* and *b*. Since they may be either wrote *ab* or *ba*, it is evident, their changes are $2 = 2 \times 1$.

Suppose three quantities *a*, *b*, *c*: their changes will

c a b be as in the margin; as is evident by combining *c*

a c b first with *ab*, then with *ba*; and hence the num-

a b c ber of changes arises $3 \times 2 \times 1 = 6$. If the quanti-

ties be 4, each may be combined four ways with

c b a each order of the other three; whence the num-

b c a ber of changes arise $6 \times 4 = 4 \times 3 \times 2 \times 1 = 24$.

b a c Wherefore, if the number of quantities be sup-

posed *n*, the number of changes will be $n \times n - 1 \times$

$n - 2 \times n - 3 \times n - 4$, &c. to $n - n$. If the same quantity

occur twice, the changes of two will be found *bb*, of three

bab, *abb*, *bba*; of four *cbab*, *bcaab*, *baabc*. And thus

the number of changes in the first case will be $1 = (2 \times 1)$

$\div 2 \times 1$; in the second, $3 = (3 \times 2 \times 1) \div 2 \times 1$; in the

third, $12 = (4 \times 3 \times 2 \times 1) \div 2 \times 1$.

If a fifth letter be added, in each series of four quanti-

ties, it will beget five changes, whence the number of all

the changes will be $60 = (5 \times 4 \times 3 \times 2 \times 1) \div 2 \times 1$. Hence

if the number of quantities be *n*, the number of changes will

be $(n \times n - 1 \times n - 2 \times n - 3 \times n - 4, \&c.) \div 2 \times 1$. From

these special formulæ may be collected a general one; viz.

if *n* be the number of quantities, and *m* the number which

shews how oft the same quantity occurs; we shall have

$(n \times n - 1 \times n - 2 \times n - 3 \times n - 4 \times n - 5 \times n - 6 \times n - 7,$

$\&c. (\div) m - 1 \times m - 2 \times m - 3, \&c.) \div (1 \times 1 - 1 \times 1 - 2 \times$

$1 - 3 \times 1 - 4, \&c. m \times n - 1 \times m - 2 \times m - 3, \&c.) r \times$

$r - 1 \times r - 2 \times r - 3, \&c.$

Suppose, for instance, $n = 6, l = 3, r = 3$. The number

of changes will be $(6 \times 5 \times 4 \times 3 \times 2 \times 1) \div 3 \times 1 \times 2 \times 3 \times$

$2 \times 1 = 6 \times 5 \times 4 \div 3 \times 2 = 2 \times 5 \times 2 = 20$.

Hence, suppose thirteen persons at a table, if it be re-

quired how oft they may change places; we shall find the

number $13 \times 12 \times 11 \times 10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times$

$1 = 6227020800$. See **ALTERNATION**.

In this manner may all the possible **ANAGRAMS** of any

word be found in all languages, and that without any

study. Suppose v. g. it were required to find the ana-

grams of the word *Roma*, the number of changes will be

$4 \times 3 \times 2 \times 1 = 24$. Thus,

ROMA orma mroa arom

roam oram mrao armo

rmoa omra mora aorm

rmao omar maor aomr

raom oarm maro amro

ramo oamr maor amor

The **ANAGRAMS** therefore of the word *Roma*, furnishing any word of known signification in the Latin tongue, are seven; viz. *Roma, ramo, oram, mora, maro, armo, amor*. Wallis's *Algebra*, p. 117.

Whether this new method of anagrammatizing be like to prove of much service to that art, is left to the poets.

CHANGES of insects. See *Transformation of INSECTS*.

CHANNA, in *Ichthyology*, the name of a fish caught in great plenty in the Mediterranean, and brought to market in Italy, and elsewhere, among the sea-pearch, which it nearly resembles.

There is an observation, that in all the fish of this kind which have been examined by naturalists, there have been found none but females. This is as old as Aristotle. Whether it be fact, would require many observations to determine; if it should be proved so, the whole seems to end in this; that the *channa* is no distinct species, but only the female of some other fish.

There is another fish, not unlike this, called *cannadella*, or rather *channadella*, which at Marseilles is known by the name of *channa*.

CHANNADELLA, in *Ichthyology*, a name given by Bello-nius, and others, to a species of the *labrus*, called also *sachettus* and *hepatus piscis*. See **CHANE**.

CHANNEL, in *Anatomy*, *Chirurgery*, &c. See **CANAL**.

CHANNEL, or *bed of a RIVER*. See **RIVER**.

CHANNEL is also applied to divers arms of the sea, where the waters run within the land; or to certain narrow seas, confined between two adjacent continents, or between an island and continent.

In this sense we say, *St. George's Channel*, the British *Channel*, the *Channel* of the Black Sea, of Constantinople, &c.

CHANNEL, in *Building*. See **GUTTER**.

CHANNEL of the volute, in the Ionic capital, is the face of its circumvolution, inclosed by a listel. See **VOLUTE**.

CHANNEL of the larmier, is the hollow fossit of a cornice, which makes the *pendant mouchette*. See **LARMIER**.

CHANNEL, in the *Manege*, is used for that concavity in the middle of the lower-jaw of a horse, where the tongue lies. This hollow being bounded on each side by the bars, terminates in the grinders or maxillary teeth. The barbles grow in this *channel*.

CHANNELLINGS. See **FLUTINGS**.

CHANT, **CANTUS**, is used for the vocal music of churches.

In church history, we meet with divers kinds of *chant*, or *song*: the first is the **AMBROSIAN chant**, established by St. Ambrose.

The second, the *Gregorian chant*, introduced by pope Gregory the Great, who established schools of *chanters*, and corrected the church song.

This is still retained in the church under the name of *plain song*: at first it was called the *Roman song*.

The *plain*, or *Gregorian chant*, is where the choir and people sing in unison, or altogether in the same manner. See **CHORAL SERVICE**.

CHANT Royal. See **COMEDY**.

CHANCLATE, in *Building*, a piece of wood fastened near the ends of the rafters, and projecting beyond the wall, to support two or three rows of tiles, so placed to prevent the rain-water, from trickling down the sides of the wall.

CHANTOR, in the *Jewish Antiquities*. In the temple of Jerusalem, there was a great number of Levites, who were employed in singing the praises of God, and in playing upon instruments before his altar. In the reign of David there were four thousand singing men, with their heads and president.

The *chantors* and Levites who were employed in singing, playing upon instruments, and other functions of the temple, had no habits distinct from the rest of the people. Nevertheless, in the ceremony of removing the ark to the temple of Jerusalem built by Solomon, the *chantors* appeared dressed in tunics of byssus, or fine linen. Josephus remarks, that in king Agrippa's time they obtained the favour from that prince of wearing a linen robe in the temple, like the priests. Agrippa believed it would be for the honour of his reign, to signalize it by so considerable a change as this. The other Levites, employed in different exercises under the command of the priests in the temple, procured likewise commission to learn to sing, to the end that they might enjoy the same privileges with their brethren.

CHANTOR, or **CHAUNTOR**, a person who sings in the choir of a cathedral.

All great chapters have *chantors* and chaplains to ease and assist the canons, and officiate in their absence.

St. Gregory first instituted the office of *chantors*, erecting them into a body, called *schola cantorum*: though Anastasius seems to attribute their rise to pope Hilary, who lived a hundred years before Gregory.

But the word grows obsolete in this sense, and instead thereof, we use the word *chorister*, or singing-man.

CHANTOR is used, by way of excellence, for the præcentor, or master of the choir; which is one of the dignities of the chapter.

The *chantor* bears the cope and the staff at solemn festivals; and gives tune to the rest at the beginning of psalms and anthems. At St. David's in Wales, where they have no dean, he is next in dignity to the bishop.

The ancients called the *chantor*, *primicerius canterum*.

To him formerly belonged the direction of the deacons, and other inferior ministers.

CHANTRY, or **CHAUNTRY**. See **CHAUNTRY**.

CHAOLGY, the history or description of the **CHAOS**.

Orpheus, in his *Chaslogy*, sets forth the different alterations, secretions, and divers forms, which matter went through till it became inhabitable: this amounts to the same with what we otherwise call *cosmogony*, or the creation of the world.

Dr. Burnet likewise gives us a *Chaology*, in his Theory of the Earth. He represents the *chaos*, as it was at first, entire, undivided, and universally rude and deformed; or the *tohu bobu*: then shews how it came divided into its respective regions; how the homogeneous matter gathered itself apart from all of a contrary principle; and lastly, how it hardened, and became a solid habitable globe.

CHAOMANTIA, among the *Enthusiastical Chemists*, is the art of making presages from observations on the air.

CHAOS, among the *Ancient Philosophers*, was described a dark, turbulent kind of atmosphere; or a disorderly system or mixture, of all sorts of particles together, without any form or regularity; out of which the world was formed.

Chaos is every where represented as the first principle, ovum, or seed of nature, and the world. All the ancient sophists, sages, naturalists, philosophers, theologues, and poets, hold that *chaos* was the eldest and first principle, το αρχαιον χαος.

The Barbarians, Phœnicians, Egyptians, Persians, &c. all refer the origin of the world to a rude, mixed, confused mass of matter. The Greeks, Orpheus, Hesiod, Menander, Aristophanes, Euripides, and the writers of the Cyclic Poems, all speak of the first *chaos*: the Ionic and Platonic philosophers build the world out of it. The Stoics hold that, as the world was first made of a *chaos*, it shall at last be reduced to a *chaos*; and that its periods and revolutions in the mean time are only transitions from one *chaos* to another. Lastly, the Latins, as Ennius, Varro, Ovid, Lucretius, Statius, &c. are all of the same opinion. Nor is there any sect or nation whatever, that does not derive their *διακοσμησις*, the structure of the world, from a *chaos*.

The opinion first arose among the Barbarians, whence it spread to the Greeks, and from the Greeks to the Romans, and other nations.

Dr. Burnet observes, that besides Aristotle, and a few other Pseudo-Pythagoreans, nobody ever asserted, that our world was always, from eternity, of the same nature, form, and structure, as at present: but that it had been the standing opinion of the wise men of all ages, that what we now call the terrestrial globe, was originally an unformed, indigested mass of heterogeneous matter, called *chaos*; and no more than the rudiments and materials of the present world.

It does not appear who first broached the notion of a *chaos*. Moses, the eldest of all writers, derives the origin of this world, from a confusion of matter, dark, void, deep, without form, which he calls *tohu bobu*; which is precisely the *chaos* of the Greek and Barbarian philosophers. Moses goes no farther than the *chaos*; nor tells us whence it took its origin, or whence its confused state; and where Moses stops, there, precisely, do all the rest.

Dr. Burnet endeavours to shew, that as the ancient philosophers, &c. who wrote of the cosmogony, acknowledged a *chaos* for the principle of the world; so the divines, or writers of the theogony, derive the origin or generation of the fabled gods from the same principle.

Mr. Whiston supposes the ancient *chaos*, the origin of our earth, to have been the atmosphere of a comet; which, though new, yet, all things considered, is not the most improbable assertion. He endeavours to make it out by many arguments, drawn from the agreement which appears to be between them.

So that, according to him, every planet is a **COMET**, formed into a regular and lasting constitution, and placed at a proper distance from the sun, revolving in a nearly circular orbit; and a comet is a **PLANET** either beginning to be destroyed, or re-made; that is, a *chaos*, or planet unformed, or in its primæval state, and placed, as yet, in an orbit very eccentric.

CHAOS, in the phrase of Paracelsus, imports the air. It has also some other significations among the alchemists.

CHAOASES, an order of horse in the service of the grand signior. These and the *muteferriker* were originally the guards of the sultans in Egypt, and their leaders were his two vizirs, that always accompanied him. They now always go out with the bashaw.

The body of the *chaoases* seems originally to have been the guard out of which the sultan used to send persons to execute his orders.

CHAP, in *Ornithology*, denotes either of the mandibles of a bird's **BEAK**, which are distinguished by the epithets *upper* and *lower*.

CHAP. See **CHIEBLAIN**.

CHAPEAU, in a general sense. See **HAT**.

CHAPEAU is sometimes also used to denote the cap, or coronet, armed with ermine, borne by dukes; and of late frequently met with above an helmet instead of a wreath, under gentlemen's or noblemen's crests. *Tab. III. Heraldry, fig. 91.*

The crest is borne on the *chapeau*; and by the *chapeau* the crest and coat are separated; it being a rule, that no crest must touch the shield immediately.

CHAPEL, or **CHAPPEL**, a kind of little church, served by an incumbent, properly under the denomination of a *chaplain*. The word *chapel*, according to some, comes from *καπηλια*, little tents, or booths, set up by traders in fairs to shelter them from the weather. Papias fetches it both from the Greek and Latin, *quasi capiens*, *χαος*, or *populum*, vel *laudem*: others derive it from the *chape*, or cope, which served to cover the body: others, *à pellibus caprarum*; because these places were anciently covered with goatkins. Rebuff derives it from *cappa*, St. Martin's cope, which the kings of France carried to war with them as the standard, and preserved very carefully in particular tents, thence called *chapels*.

There are two kinds of *chapels*; the one consecrated, and held as benefices; the other secular, being of the nature of oratories.

The first are built apart, and at a distance from the parish church; being neither parishes, cathedrals, nor priories, but subsisting of themselves.

These are called by the canonists *sub dio*, and by us *chapels of ease*; as being erected at a distance from the mother-church, where the parish is large and wide, for the ease and convenience of some of the parishioners who reside far off.

These are served by some inferior pastor, provided either by the rector of the parish, or by those for whose ease and benefit they are intended, by prayers or preaching merely. Some of these are also parochial, having the parochial rights of christening and burying, and differing from a church only in the want of a rectory, and endowment.

The second kind are frequently built in, or adjoining to a church, as a part thereof; having only a desk, &c. to read prayers in; and, in the Romish churches, an altar, &c. to celebrate mass on; but without any baptistery, or font. These the canonists call *sub tecto*. They are generally erected by some considerable person, for the use of their own families; *ut ibidem familiaria sepulchra sibi constituent*. The twenty-first canon of the council of Agda, held in 506, allows private persons the use of *chapels*; but with prohibition to all clerks to officiate in them without leave from the bishop.

CHAPELS, *free*, are those *chapels of ease* which have a settled revenue for perpetual maintenance of a pastor, &c. by charitable donatives of lands, or rents bestowed on them; so as not to be any charge either to the rector, or the parishioners; and they are thus called, because they are *free* from all ordinary jurisdiction.

There are several collegiate churches in France, which they call *saintes chapelles*, *holy chapels*; as those of Paris, Dijon, Bourges, Bourbon, &c. These are so denominated from being repositories of certain relics.

Hence all those places where relics were preserved came to be called *chapels*; and the persons who had the care of them *chaplains*.

CHAPEL is also a name given to a printer's workhouse; because, say some authors, printing was first actually performed in *chapels*, or churches: or, according to others, because Caxton, an early printer, exercised the art in one of the *chapels* in Westminster Abbey.

In this sense they say, the orders, or laws of the *chapel*, the secrets of the *chapel*, &c.

CHAPEL, *knights of the*, was an order of knights instituted by king Henry VIII. in his testament, to the number of thirteen; though these have been increased to the number of twenty-six; they are called also *poor knights*.

These are not knights of the order of the Garter; but are, as it were, their assistants or deputies, serving to discharge all their offices in the funeral services of the kings of England.

They are subject to the office of the canons of Windsor, and live on pensions which the order assigns them.

They bear the blue or red cloke, with the arms of St. George on the left shoulder; but the cloke is only cloth, and they wear no sort of garter: which distinguishes them sufficiently from the knights of the Garter.

CHAPLET, in the *Manege*, a couple of stirrup-leathers, mounted each of them with a stirrup, and joining at top in a sort of leather buckle, called the head of the *chaplet*, by which they are made fast to the pommel of the saddle, after being adjusted to the rider's length and bore. They are used both to avoid the trouble of taking up or letting down the stirrups every time that a gentleman mounts on a different horse and saddle, and to supply what is wanting in the academy saddles, which have no stirrups to them.

CHAPELING a *ship*, is the art of turning her round in a light breeze of wind, when she is close hauled, so that she will lie the same way as she did before. This is commonly occasioned by the negligence of the steersman, or by a sudden change of the wind.

CHAPELRY, *Capellania*, is used for a certain precinct belonging to a chapel, having the same relation to it that a parish has to a church.

CHAPERON, **CHAPERONNE**, or **CHAPERON**, properly signifies a sort of hood, or covering of the head, anciently worn both by men and women, the nobles and the populace, and afterwards appropriated to the doctors, and licentiates in colleges, &c.

Hence the name passed to certain little shields, and other funeral devices, placed on the foreheads of the horses that drew the hearses in pompous funerals, and which are still called *chaperoons*, or *shafferoons*; because such devices were originally fastened on the *chaperoons*, or hoods, worn by these horses, with their other coverings of state.

CHAPERON of a *bit mouth*, in the *Manege*, is only used for scatch-mouths, and all others that are not cannon-mouths, signifying the end of the bit that joins to the branch just by the banquet. In scatch-mouths the *chaperon* is round, but in others it is oval: and the same part that in scatch and other mouths is called *chaperon*, is in cannon-mouths called *fronceau*.

CHAPTERS, in *Architecture*, the crowns or upper parts of a pillar. See **CAPITAL**.

CHAPTERS with *mouldings*, are those which have no ornaments, as the Tuscan and Doric.

CHAPTERS with *sculptures*, are those which are adorned with leaves and carved works, the finest of which is of the Corinthian order.

CHAPTERS, in *Law*, were anciently a summary of such matters as were to be inquired of, or presented before justices in eyre, justices of assize, or of the peace, in their sessions.

Chapters are now taken for articles delivered by the mouth of the justice, in his charge to the inquest: though it appears from Bracton and Briton, they were formerly written exhortations given by the justices for the good observation of the laws, and the king's peace; first read in open court, then delivered in writing to the grand inquest; which the grand jury, or inquest, were likewise to answer to upon their oaths, either affirmatively, or negatively.

CHAPLAIN properly signifies a person provided with a **CHAPEL**; or who discharges the duty thereof.

CHAPLAIN is also used for an ecclesiastical person, in the house of a prince or person of quality, who officiates in their chapels, &c.

With us there are forty-eight *chaplains* to the king, who wait four each month, preach in the chapel, read the service to the family, and to the king in his private oratory, and say grace in the absence of the clerk of the closet. While in waiting they have a table, and attendance, but no salary.

An archbishop may retain eight *chaplains*; a duke or a bishop, six; a marquis or earl, five; a viscount, four; a baron, knight of the Garter, or lord chancellor, three; a duchess, marchioness, countess, baroness, the treasurer and comptroller of the king's house, the king's secretary, dean of the chapel, almoner and master of the rolls, two each; the chief justice of the king's bench, one: all of whom may purchase a licence or dispensation, and take two benefices with cure of souls. Stat. 22 Hen. VIII. c. 13.

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Every judge of the king's bench and common pleas, the chancellor and chief baron of the exchequer, the king's attorney and solicitor-general, may each of them have one, entitled to one benefice with cure, and non-resident. Stat. 25. Hen. VIII. c. 16.

And also the groom of the stole, treasurer of the king's chamber, and chancellor of the duchy of Lancaster, may retain each one *chaplain*. Stat. 33 Hen. VIII. c. 28.

A *chaplain* must be retained by letters testimonial under hand and seal, or he is not a *chaplain* within the statute: and a *chaplain* thus qualified may hold his livings, though dismissed from attendance, during life; nor can a nobleman, though he may retain other chaplains in his family, qualify any of them to hold pluralities whilst the first are living. 4 Rep. 90.

The first *chaplains* are said to have been those instituted by the ancient kings of France, for preserving the *chape*, or *cape*, with the other relics of St. Martin, which the kings kept in their palace; and carried out with them to the war. The first *chaplain* is said to have been Gul. de Mesmes, *chaplain* to St. Louis.

CHAPLAINS in the order of **MALTA**, is used for the second rank, or class, in that order; otherwise called *diaco*.

The knights make the first class, and the *chaplains* the second.

CHAPLAINS of the pope, are the auditors, or judges of causes in the sacred place; so called, because the pope anciently gave audience in his chapel, for the decision of cases sent from the several parts of Christendom.

He hither summoned as assessors the most learned lawyers of his time; and they hence acquired the appellation of *capellani*, *chaplains*.

It is from the decrees formerly given by these, that the body of decretals is composed: their number pope Sixtus IV. reduced to twelve.

Some say the shrines of relics were covered with a kind of tent, *cape*, or *capella*, i. e. *little cape*; and that hence the priests who had the care of them, were called *chaplains*. In time these relics were reposit in a little church, either contiguous to a larger, or separate from it; and the same name, *capella*, which was given to the cover, was also given to the place where it was lodged; and hence the priest who superintended it came to be called *chaplain*.

CHAPLET, **CHAPLET**, or a string of beads, used in the Romish church, to keep account of the number of Pater-nosters and Ave-Mary's, to be rehearsed in honour of God and the holy Virgin.

Chaplets are otherwise called *Pater-nosters*. A **ROSARY** is a *chaplet* of fifteen decads of Ave-Mary's,

Menage derives the word from *chapeau*, *hat*; because of the resemblance the thing bears to a hatband, or *chaplet* of roses, *chapeau de roses*. The modern Latins call it *capellina*; the Italians more frequently *corona*.

Larrey and P. Viret ascribe the first invention of the *chaplet* to Peter the Hermit, well known in the history of the croisades.

There is a *chaplet* of our Saviour, consisting of thirty-three beads, in honour of his thirty-three years living on earth, instituted by father Michael, the Camaldulian.

The Orientals have a kind of *chaplets*, which they call *chains*, and which they use in their prayers, rehearsing one of the perfections of God on each link or bead. The great mogul is said to have eighteen of these chains, all of precious stones, some diamonds, others rubies, pearls, &c.

The Turks have likewise *chaplets*, which they bear in the hand, or hang at the girdle: but father Daudini observes, that they differ from those used by the Romanists, in that they are all of the same bigness, and have not that distinction into decads; though they consist of six decads or sixty beads. He adds, that the muskmen have presently run over the *chaplet*, the prayers being extremely short, as containing only these words, *Praise to God*; or these, *Glory to God*, for each bead.

Besides the common *chaplet*, they have likewise a larger one, consisting of one hundred beads, where there is some distinction, as being divided by little threads into three parts, one of which they repeat thirty times *Soubhan Allah*, i. e. *God is worthy to be praised*; on another, *Ellam Allah*, *Glory be to God*; and on the third, *Alla echer*, *God is great*. These thrice thirty times making only ninety, to complete the number one hundred, they add other prayers for the beginning of the *chaplet*.

He adds, that the Mahometan *chaplet* appears to have had its rise from the *mea heracoth*, or *hundred benedictions*; which the Jews are obliged to repeat daily, and which we find in their prayer-books, the Jews and Mahometans having this in common, that they seldom do any thing without pronouncing some laud, or benediction.

CHAPLET, or **CHAPLET**, in *Architecture*, a little moulding, cut, or carved into round beads, pearls, olives, or the like.—See *Tab. Archit. fig. 12*.

A *chaplet*, in effect, is little else but a BAGUETTE enriched with sculpture.

CHAPOTENSIS, in *Writers of the Middle Age*, a kind of coin. We do not find any certain account of its value.

Du-Cange inclines to think it the same as the CHATUS.

CHAPPAR, a COURIER of the king of Persia, who carries dispatches from court to the provinces, and from the provinces to the court.

The word, in the original Persian, signifies *courier*.

The posts, M. Tavernier tells us, are not established and regulated in Persia as among us: when the court sends out a *chappar*, the sophi's master of the horse furnishes him with a single horse, how long soever the journey be, and a man to run after him; when his horse is weary, he takes that of the first horseman he meets with, who dares not make the least refusal, and sends his own home by the man who follows him.

As for the master of the new horse he has taken, he must run, or at least send after the *chappar*, to retake him, when the *chappar* dismounts some other horseman to change him.

CHAPPE, in *Heraldry*, the partition of an escutcheon, by lines drawn from the centre of the upper edge to the three angles below: as represented in *Tab. Herald. fig. 14.* which they blazon *chappe*, or *and vert*.

The sections of the sides are to be of a different colour from the rest. Mackenzie calls it, *A chief party per bend dexter, or sinister, or both.*

CHAPPEL, or CHAPEL. See CHAPEL.

CHAPTER, *Capitulum*, a community of ecclesiastics belonging to a cathedral, or collegiate church.

The chief, or head of the *chapter*, is the dean; the body consists of canons, or prebendaries, &c.

The *chapter* has now no longer any share in the administration of the diocese, during the life of the bishop; but succeeds to the whole episcopal jurisdiction during the vacancy of the see.

The origin of *chapters* is derived from hence, that anciently the bishops had their clergy residing with them in their cathedrals, to assist them in the performance of sacred offices, and in the government of the church; and even after parochial settlements were made, there was still a body of clerks who continued with the bishop, and were indeed his family, maintained out of his income.

After the monastic life grew into request, many bishops chose monks rather than seculars for their attendants.

These bodies, either monastics or seculars, then, had the same privilege of choosing the bishop, and being his council, which the whole clergy of the diocese had before; but, by degrees, their dependence on the bishop grew less and less; and then they had distinct parcels of the bishop's estate assigned them for their maintenance; till at last the bishop had little more left than the power of visiting them.

On the other hand these capitular bodies by degrees also lost their privileges; particularly that of choosing the bishop, for which the kings of England had a long struggle with the pope: but at last Henry VIII. got this power vested in the crown; and now the deans and *chapters* have only the shadow of it.

The same prince likewise expelled the monks from the cathedrals, and placed secular canons in their room; those he thus regulated, are called *deans and chapters of the new foundation*; such are Canterbury, Winchester, Worcester, Ely, Carlisle, Durham, Rochester, and Norwich: such also are the *chapters* of the four new sees, of Peterborough, Oxford, Gloucester, and Bristol.

CHAPTER is also applied to the assemblies held by religious and military orders, for deliberating on their affairs, and regulating their discipline.

Papias says they are so called, *quod capitula ibi legantur*.

The establishment of general *chapters* of religious orders is owing to the Cistercians, who held the first in 1116, and were soon followed by the other orders.

CHAPTER is also used for a division of a book; contrived for keeping the matters treated thereon more separate, clear, and distinct.

The ancients were unacquainted with the division of books into *chapters* and sections. Papias says, the name *chapter*, *caput*, arose hence, *quod sit alterius sententia caput*, or *quod capiat totam summam*. St. Augustine compares *chapters* to inns, inasmuch as these refresh the reader, as those the traveller.

The division of the BIBLE into *chapters* is attributed by some to Stephen Langton, archbishop of Canterbury, in the reigns of king John and Henry III. But it was really done by Cardinal Hugo, who flourished about the year 1240, the author of the first scripture CONCORDANCE, with a view of rendering this work an useful index to the scripture. The *chapters* were again subdivided

not into verses, but by the letters A, B, C, D, E, F, G, placed in the margin, at an equal distance from each other, according to the length of the *chapters*. In some, all the seven letters were used; in others fewer, as the length of the *chapter* required. In 1445, Rabbi Nathan, a famous rabbi among the Western Jews, finished a concordance to the Hebrew Bible, in the manner of Hugo's above mentioned; and introduced the division of the Hebrew Bible into *chapters*: he also improved on his plan, by using the ancient division into verses, and by numbering them, fixing the numerical letters in the margin at every fifth verse. Athias, in his edition of the Bible, 1661 and 1667, introduced the Indian figures, and placed them at every verse. Vatablus published a Latin Bible, in which the same kind of division was adopted; though some say this division and distinction by numbers was first used in R. Stephens's Latin Bible, published at Paris 1557. R. Stephens made the same division of the *chapters* of the New Testament into verses, for the sake of a Concordance to the Greek Testament, which was printed by his son H. Stephens.

CHAPTERS, *the three*, is a phrase famous in *Ecclesiastical History*, signifying a volume published by Theodoret, an adherent of Nestorius, against St. Cyril; consisting of a letter of Ibas, priest of Nedesia, to Maris, a bishop of Persia; of extracts from the works of Diodorus of Tarsus; and Theodore of Mopsuestia, wherein the same doctrines were taught, that were contended for by Nestorius; and of two pieces of Theodoret, the one against the council of Ephesus, the other against the anathemas of St. Cyril.

These make the famous three *chapters*; which were first condemned by an edict of Justinian, A. D. 544, and since by various councils, and many popes.

CHAPTREL. See IMPOST.

CHAR, in *Ichthyology*. See CHARRE.

CHAR of lead, denotes the quantity of thirty pigs.

CHARA, in *Botany*, the name given by Linnæus to a genus of plants, of the *monoecia monandria* class; resembling the horse-tails in general appearance, and called by some HIPURIS. The characters of the genus are these: the cup is very small, and consists of two leaves. Vaillant describes a monopetalous flower in this cup, but others say there is no flower or corolla at all. There is no appearance of stamina, but the single anthera or apex is of a globose figure, and is affixed to the cup; the germen of the pistil is of an oval figure; there is no style, but the stigmata are three in number, and are very broad; the seed is single, and of an oblong oval figure.

CHARA, in *Astronomy*, the name of one of the CANES venatici.

CHARABE, or CARABE, is sometimes used for AMBER; as also for the juice of the poplar-tree.

CHARACTER, in a general sense, signifies a mark, or figure drawn on paper, metal, stone, or other matter, with a pen, graver, chisel, or other instrument, to signify or denote any thing.

The word is χαρακτήρ; formed from the verb χαρασσειν, *insculpere, to engrave, impress, &c.*

The various kinds of *characters* may be reduced to three heads, viz. *literal characters, numeral characters, and abbreviations.*

CHARACTER, *literal*, is a letter of the alphabet, serving to indicate some articulate sound, expressive of some idea, or conception of the mind.

These may be divided, with regard to their nature and use, into *nominal, real, and emblematical.*

CHARACTERS, *nominal*, are those we properly call *letters*; which serve to express the name of things.

CHARACTERS, *real*, are those, that instead of names express things and ideas.

CHARACTERS, *emblematical, or symbolical*, have this in common with real ones, that they express the things themselves; but they also have this farther, that they in some measure personate them, and exhibit their form: such are the hieroglyphics of the ancient Egyptians.

CHARACTERS, *literal*, may again be divided, with regard to their invention and use, into *particular and general.*

CHARACTERS, *particular*, are those peculiar to this or that nation, or that have been so: such are the Roman, Italic, Greek, Hebrew, Arabic, Gothic, Chinese, &c. *characters.*

CHARACTERS, *universal*, are also *real characters*, and make what some authors call a *philosophical language.*

The diversity of *characters* used by the several nations to express the same idea, is found the chief obstacle to the advancement of learning: to remove this, several authors have taken occasion to propose plans of *characters* that should be universal, and which each people should read in their own language. The *character* here is to be *real*,

real, not nominal; to express things, and notions; not, as the common ones do, letters or sounds: yet to be mute, like letters, and arbitrary; not emblematical, like hieroglyphics.

Thus, every one should retain their own language, yet every one understand that of each other, without learning it; only by seeing a real or universal *character*, which should signify the same thing to all people, by what sounds soever each expressed it in his particular idiom. For, instance, by seeing the *character* destined to signify *to drink*, an Englishman should read *to drink*; a Frenchman, *boire*; Latin, *bibere*; a Greek, *πινεν*; a Jew, *שמו*, a German, *trinken*; and so of the rest: in the same manner as seeing a horse, each person expresses it after their own manner; but all mean the same animal. This real *character* is no chimera; the Chinese and Japanese have already something like it. They have a common *character* which each of those nations understand alike in their several languages; though they pronounce it with such different sounds, that they do not understand a tittle of one another in speaking.

The first, and most considerable attempts for a real *character*, or philosophical language, in Europe, are those of bishop Wilkins, and Dalgarno: but these, with how much art soever they were contrived, have yet proved ineffectual.

M. Leibnitz had some thoughts the same way: he thinks those great men did not hit the right method; and adds, it was probable, indeed, that, by this means, people, who do not understand one another, might easily have a commerce together; but that they have not hit on true, *real characters*.

According to him, the *characters* should resemble those used in algebra: which, in effect, are very simple, yet very expressive; without any thing superfluous or equivocal; and contain all the varieties required.

The real *character* of bishop Wilkins has its just applause: Dr. Hook recommends it on his own knowledge and experience, as a most excellent scheme; and to engage the world to the study thereof, published some fine inventions of his own therein.

M. Leibnitz tells us, he had under consideration an *alphabet of human thoughts*; in order to a new philosophical language, on his own scheme; but his death prevented this from being brought to maturity.

M. Lodwick, in the Philosophical Transactions, gives us a plan of an *universal alphabet*, or *character* of another kind: this was to contain an enumeration of all such single sounds, or letters, as are used in any language; by means whereof people should be enabled to pronounce truly and readily any language; to describe the pronunciation of any language that should be pronounced in their hearing; so, as others accustomed to this language, though they had never heard the language pronounced, should at first be able truly to pronounce it: and lastly, this *character* to serve as a standard to perpetuate the sounds of any language. Abridgm. vol. iii. p. 373.

In the Journal Litteraire, an. 1720, we have a very ingenious project for an universal *character*: the author, after obviating the objections that might be made against the feasibility of such schemes in the general, proposes his own: his *characters* are to be the common Arabic, or numeral figures. The combinations of these nine are sufficient to express distinctly an incredible quantity of numbers, much more than we shall need terms to signify our actions, goods, evils, duties, passions, &c. Thus is all the trouble of framing and learning any new *characters* at once saved; the Arabic figures having already all the universality required.

The advantages are immense: for, 1. We have here a stable, faithful interpreter; never to be corrupted or changed, as the popular languages continually are. 2. Whereas the difficulty of pronouncing a foreign language, is such as usually gives the learner the greatest trouble, and there are even some sounds which foreigners never attain to; in the *character* here proposed, this difficulty has no place: every nation is to pronounce them according to the particular pronunciation that already obtains among them. All the difficulty is, the accustoming the pen and the eye to affix certain notions to *characters* that do not, at first sight, exhibit them. But this trouble is no more than we find in the study of any language whatever.

The inflexions of words are here to be expressed by the common letters: for instance, the same *character* shall express a *filly*, or a *colt*, a *horse*, or a *mare*, an *old horse*, or an *old mare*, as accompanied with this or that distinctive letter, which shall shew the sex, youth, maturity, or old age: a letter is also to express the bigness or size of things, thus, v. g. a man with this or that letter, to signify a *great man*, or a *little man*, &c.

The use of these letters belongs to the grammar, which once well understood, would abridge the vocabulary exceedingly. An advantage of this grammar is, that it would only have one declension, and one conjugation: those numerous anomalies of grammarians are exceeding troublesome, and arise hence, that the common languages are governed by the populace, who never reason on what is best: but in the *character* here proposed, men of sense introducing it, would have a new ground, whereon to build regularly.

The difficulty is not in inventing the most simple, easy, and commodious *character*, but in engaging the several nations to use it; there being nothing they agree less in than the understanding and pursuing their common interest.

CHARACTERS, *literal*, again, may be divided, with respect to the nations among whom they have been invented, and used, into *Greek characters*, *Roman characters*, *Hebrew characters*, &c.

The *character* now ordinarily used throughout Europe, is the *Latin character* of the ancients.

The *Latin character* was formed from the Greek, and that from the Phœnician, which Cadmus brought into Greece.

The Phœnician *character* was the same with that of the ancient Hebrew, which subsisted to the time of the Babylonish captivity; after which they used that of the Assyrians, which is the square Hebrew, now in use; the ancient being only found on some Hebrew medals, commonly called *Samaritan medals*.

Postellus, and others, shew, that beside the Phœnician, the Chaldee, Syriac, and Arabic *characters*, were likewise formed from the ancient Hebrew.

The French were the first who, with the Latin of St. Gregory, admitted the *Latin characters*. And in a provincial synod, held in 1091, at Leon in Spain, the use of the Gothic *characters*, invented by Ulphilas, was abolished, and the Latin ones established.

Medallists observe, that the Greek *character*, consisting only of majuscule letters, has preserved its uniformity on all medals, as low as the times of Gallienus. there being no alteration found in the turn of the *character*, notwithstanding the many considerable ones both in the use and pronunciation. From the time of Gallienus, it appears somewhat weaker and rounder; from the time of Constantine to Michael, the space of five hundred years, we find only *Latin characters*; and after Michael, the Greek *characters* recommence; but from that time they began to alter with the language, which was then a mixture of GREEK and LATIN.

The *LATIN* medals preserve both their *character* and language, as low as the translation of the seat of the empire to Constantinople. Towards the time of Decius the *character* began to alter, and to lose of its roundness and beauty: some time after it retrieved itself, and subsisted tolerably till the time of Justin; when it fell into the last barbarity mentioned, under Michael; though it afterwards grew worse and degenerated into the Gothic: so that the rounder and better formed the *character* is on a medal, the greater pretence it as to antiquity.

CHARACTERS, *numeral*, are those used to express numbers.

Numeral characters are either *letters*; or *figures*, otherwise called digits. The kinds now chiefly in use, are the common, and the Roman: to which may be added the GREEK, and another called the FRENCH *character*; as also the letters of other alphabets which have been made use of to express numbers.

COMMON *character* is that ordinarily called the *Arabic*, as supposed to have been invented by the Arab astronomers; though the Arabs themselves call it the *Indian character*; as if they had borrowed it from the people of India.

The *Arabic characters* are ten, viz. 1, 2, 3, 4, 5, 6, 7, 8, 9, 0; the last is called *cipher*.

The *Arabic character* is used almost throughout Europe, and that on almost all occasions; in commerce, in measuring, astronomical calculations, &c.

Roman character consists of the majuscule letters of the Roman alphabet; whence probably its name: or perhaps, from its being used by the ancient Romans on their coins, and in the inscriptions of their public monuments, erected in honour of their gods, and great men; on their sepulchres, &c.

The numeral letters that compose the *Roman character* are in number seven, viz. I, V, X, L, C, D, M.

The I denotes one, V five, X ten, L fifty, C a hundred, D five hundred, and M a thousand.

The I, repeated twice, makes two, II; thrice, three, III; four is expressed thus, IV, I before V or X taking an unit from the number expressed by each of those letters.

To express six, an I is added to a V, VI; for seven, two, VII;

VII; and for eight, three, VIII: nine is expressed by an I before X, IX; agreeable to the preceding remark. The like remark may be made of the X before L or C, except that the diminution is by tens, not units: thus, XL signifies forty, and XC ninety: an L followed with an X, fixty, LX, &c. The C before D or M, diminishes each by a hundred.

Besides the letter D, which expresses five hundred, that number may also be expressed by an I before a C inverted, thus, ID; and thus, in lieu of the M, which signifies a thousand, is sometimes used an I between two C's, the one direct, the other inverted: agreeable to this, six hundred may be expressed IDC; and seven hundred, IDCC, &c.

The addition of C and D before, or after, raises CID by tens thus, CCIDD, 10000; CCCIDD, 100,000, &c. This is the common way of notation, formerly used by the Romans; who also expressed any number of thousands by a line drawn over any numeral less than a thousand; e. g. \overline{V} , 5000; \overline{LX} , 60,000: so likewise \overline{M} is 1,000,000; \overline{MM} is 2,000,000, &c.

Besides which (I.) certain liberties or variations have been admitted, at least by some modern writers; e. g. IIX, 8; IICIX, 89. (II.) And certain characters have been used, which seem to have been derived from the letters; e. g. M, by which they express (Mille) 1000, was formed from CXD, or CID; half of which, viz. IC, stood for 500. (III.) And for easier writings of these characters, 1. ID seems to have been altered into D; 2. IDD into Δ , or ∇ ; 3. CID into α or Λ , whence Ψ ∇ , 1000; Ψ Ψ , 200, V. X.

In Roman inscriptions, we meet with the characters α and Θ , used to express a thousand. The usual note of a thousand, is either I between two CC's (direct and reversed) thus, CID; or else X, thus, CXD. The former figure, when closed at top, exactly resembles an ancient M, thus, Θ ; and the latter, when shut up, the figure of 8, inclined thus α .

We also find in some inscriptions, the character Θ , which is X between two CD's, but closed on all sides. But the learned Dr. Taylor seems to suspect the accuracy of the copy of the inscription from whence this character is taken. See Phil. Trans. N^o 482. § 2. D

As to the origin and use of the character X, so often met with on the coins, utensils, and manuscripts of the ancients; see X.

CHARACTERS, *Hebrew*. See HEBREW.

Greek numerals. The Greeks had three ways of expressing numbers. (I.) The most simple was, for every single letter, according to its place in the alphabet, to denote a number from α 1 to ω 24; in which manner the books of Homer's Ilias are distinguished. (II.) Another way was by dividing the alphabet into, (1.) 8 Units: α 1, β 2, &c. (2.) 8 Tens: ι 10, κ 20, &c. (3.) 8 Hundreds: ρ 100, σ 200, &c. N. B. Thousands they expressed by a point, or accent under a letter, e. g. α 1000, β 2000, &c. (III.) A third way was by six capital letters, thus I [α for $\mu\alpha$] 1, II [$\pi\epsilon\upsilon\tau\epsilon$] 5, Δ [$\delta\epsilon\kappa\alpha$] 10, H [$\eta\epsilon\kappa\alpha\tau\omicron\nu$] 100, X [$\chi\iota\lambda\iota\alpha$] 1000, M [$\mu\upsilon\epsilon\iota\alpha$] 10000: and when the letter II inclosed any of these, except I, it shewed the inclosed letter to be five times its own value, as, $\overline{\Delta}$ 50, \overline{H} 500, \overline{X} 5000, \overline{M} 50000.

N. B. 6,90,900 are expressed by character η .

Hebrew numerals. The Hebrew alphabet was divided into 9 Units: א 1, ב 2, &c.—9 Tens: י 10, כ 20, &c.—9 Hundreds: ק 100, ר 200, &c. ש 500, ז 600, ח 700, ט 800, צ 900.—Thousands, (1.) were sometimes expressed by the units prefixed, to hundreds, as, קלל, 1534, &c. and even to tens, as קכ, 1070, &c. (2.) But generally by the word אָלֶפֶס, 1000; אָלֶפֶסֶת, 2000; אָלֶפֶסֶתֶת, with the other numerals prefixed, to signify the number of thousands: e. gr. אָלֶפֶסֶתֶתֶת, 3000, &c.

CHARACTER *French*, so called, because invented, and chiefly used by the French, is more usually denoted, *character of account*, or *finance*.

It consists of six figures; partly taken from the letters of the usual current hand, and partly invented by the contriver; the six characters are j, b, x, L, C, γ. The j consonant standing for one, the b for five, the x for ten, the L for fifty, the C for a hundred, and the last character γ for a thousand.

This character is only an imitation of the Roman character: and its use in most respects the same, particularly in what relates to the combination of certain letters; which placed before or after others, diminish or increase their value. Indeed it has these things peculiar in it, that when several things occur successively, only the last is expressed. 2dly, That ninety, and the following num-

bers to one hundred, are expressed, thus, $jjjj^{xxx}$, ninety; $jjjj^{xxxj}$, ninety-one; $jjjj^{xxx} xjj$, &c.

It is principally used in the chambers of accounts, in the accounts given in by treasurers, receivers, farmers, and other persons concerned in the management of the revenue.

CHARACTERS, in *Printing*, denote the letters or types, by the various arrangement whereof, are composed forms; whence impressions are taken, by means of a press, on paper.

For the method of casting these CHARACTERS, see Letter FOUNDRY.

CHARACTER is also used in several of the arts, for a symbol, contrived for a more concise, immediate, and artful conveyance of the knowledge of things.

In this sense of the word, Paulus Diaconus refers the invention of characters to Ennius; who, he says, contrived the first eleven hundred. To these were many more added by Tyro, Cicero's freedman, and by Philagyrus, Fannius, and Aquila, freedmen of Mæcenas.

Lasty, L. Annæus Seneca made a collection of them, reduced them into order, and increased their number to five thousand. Tyro's notes may be seen at the end of Gruter's inscriptions.

Valerius Probus, a grammarian, in the time of Nero, laboured to good purpose in explaining the notes of the ancients. P. Diaconus wrote an ample treatise of the explication of the characters in law, under the reign of the emperor Conrad I. and Goltzius another for those of medals.

Characters, or symbols are now chiefly affected in the several parts of mathematics; particularly in algebra, geometry, trigonometry, and astronomy: as also in medicine, chemistry, music, &c. The principal of each kind we shall here subjoin.

CHARACTERS used in *Arithmetic and Algebra*.

a, b, c, and d, the first letters of the alphabet, are the signs or characters that denote given quantities; and x, y, z, &c. the last letters, are the characters of quantities sought. Some for the former, use consonants, or large letters, and vowels, or small ones, for the latter.

Note, Equal quantities are denoted by the same character.

m, n, r, s, t, &c. are characters of indeterminate exponents, both of ratios and power; thus; x^m , y^n , z^r , &c. denote indeterminate powers of different kinds: m x, n y, r z, different multiples, or submultiples of the quantities x, y, z, according as m, n, r, are either whole numbers or fractions.

+ Is the sign of real existence, and is called the *affirmative*, or *passive* sign; importing the quantities to which it is prefixed, to have a real and positive nature.

It is also the sign of addition, and is read *plus*, or *more*; thus 9 + 3, is read 9 plus 3; or 9 more 3: that is, the sum 9 and 3, equal to 12.

— Before a single quantity, is the sign of *negation* or *negative* existence: shewing the quantity to which it is prefixed to be less than nothing.

Between quantities, it is also the sign of subtraction, and is read *minus*, or *less*; thus 14 — 2, is read 14 minus, or abating 2; that is, the remainder of 14, after 2 has been subtracted, viz. 12.

= Is the sign of equality: thus, 9 + 3 = 14 — 2; signifies 9 plus 3 to be equal to 14 minus 2.

This character was first introduced by Harriot: Des Cartes in lieu of it uses \propto . Before Harriot there was no sign of equality at all.

Wolfius, and some other authors, use the same character = for the identity of ratios; or to denote the terms to be in a geometrical proportion; which most authors express thus: :

× Is the sign of multiplication, denoting the quantities on either side to be multiplied into one another: thus 4 × 6, is read 4 multiplied by 6; or the factum, or product of 4 and 6 = 24; or the rectangle between 4 and 6.

Ordinarily, however, in algebra, the sign is omitted, and the two quantities put together: thus b d expresses the product of the two numbers denoted by b and d, which suppose 2 and 4, the product whereof is 8, signified by b d.

Wolfius, and others, make the sign of multiplication a dot (.) between the two factors: thus 6.2 signifies the product of 6 and 2 = 12.

Where one or both the factors are compounded of several letters, they are distinguished by a line drawn over them: thus, the factum of $a + b - c$ into d, is wrote $d \times a + b - c$.

Guido Grandio, and after him Leibnitz, Wolfius, and others, to avoid the perplexity of lines, in lieu thereof distinguish the compound factors, by including them in a parenthesis, thus $(a + b - c) d$.

\div Is the *character* of *division*: thus, $a \div b$ denotes the quantity a to be divided by b .
Indeed, ordinarily, in algebra, the quotient is expressed fraction-wise; thus, $\frac{a}{b}$ denotes the quotient of a divided by b .

Wolffius, &c. make the sign of division ($:$) thus, $8 : 4$ denotes the quotient of 8 divided by $4 = 2$.

If either the divisor or dividend, or both, be composed of several letters, v. g. $a + b$, divided by c ; instead of writing the quotient fraction-wise, thus, $\frac{a+b}{c}$. Wolffius,

&c. include the compound quantities in a parenthesis; thus, $(a + b : c)$, or $(a + b) : c$.

\odot Is the *character* of *involution*, or of producing the square of any quantity, by multiplying it by itself.

$\sqrt{}$ The *character* of *evolution*, or of extracting the roots out of the several powers; the reverse of \odot .

\neg Is the sign of *majority*, or of the excess of one quantity beyond another; some use this \neg , or this \neg .

\angle Is the sign of *minority*. These two *characters* were first introduced by Harriot, and have since been used by Wallis and Lamy. Other authors use others; some this \neg .

\sim The sign of *SIMILITUDE* commended in the *Miscellanea Berolinensia*, and used by Leibnitz, Wolffius, and others; though the generality of authors use none. The same *character* is used by other authors for the difference between two quantities, while it is yet unknown which is the greater.

$\sqrt{}$ Is the *character* of *radicality*, and shews that the root of the quantity to which it is prefixed, is extracted, or to be extracted: thus, $\sqrt{25}$, or $\sqrt[3]{25}$, denotes the square root of 25, viz. 5; and $\sqrt[3]{25}$ the cube root of 25. See *Root*.

This *character* sometimes affects several quantities distinguished by a line drawn over them, thus, $\sqrt{b + d}$, denotes the square root of the sum of b and d .

Wolffius, &c. in lieu hereof, includes the roots composed of several quantities in a parenthesis, adding its index: thus, $(a + b - c)^2$ denotes the square of $a + b - c$, ordinarily written $a + b - c$.

$:$ Is the *character* of arithmetical proportion disjunct; thus, $7 : 3 : 13 : 9$, intimates 3 to be exceeded by 7, as much as 9 by 13; viz. by 4.

$::$ This is the *character* of identity of ratio, and geometrical proportion disjunct; thus, $8 : 4 :: 30 : 15$, expresses the ratio of 30 to 15 to be the same with that of 8 to 4; or that the four terms are in geometrical proportion, viz. 8 to 4, as 30 to 15.

Wolffius, in lieu hereof, uses the *character* of equality $=$: which he prefers to the former, as being more scientific and expressive.

\div The *character* of geometrical proportion continued, implying the ratio to be carried on without interruption: thus, $2, 4, 8, 16, 32, \div$ are in the same uninterrupted proportion.

When one or more terms in an equation are wanting, their places are usually marked with one or more asterisks; as, $y^2 + py + \frac{1}{2}p^2 - py - \frac{1}{2}p^2 + q = 0$.

Characters of decimals. See *SEPARATRIX*.

CHARACTERS used in Astronomy.

♄ <i>Character</i> of Saturn.	♊ <i>Character</i> of Gemini.
♃ Jupiter.	♋ Cancer.
♂ Mars.	♌ Leo.
♀ Venus.	♍ Virgo.
♁ Mercury.	♎ Libra.
☉ The Sun.	♏ Scorpio.
☾ The Moon.	♐ Sagittarius.
♁ The Earth, or δ .	♑ Capricornus.
♈ Aries.	♒ Aquarius.
♉ Taurus.	♓ Pisces.

CHARACTERS of the Aspects, Nodes, &c.

S Conjunction.	Δ Trine.
SS Semisextile.	Bq Biquintile.
* Sextile.	Vc Quincunx.
Q Quintile.	8 Opposition.
□ Quartile.	♏ Scorpion's head.
Td Tridecile.	♏ Scorpion's tail.

CHARACTERS of Time.

A. M. (*ante meridiem*) or M. morning.
O. or M. noon.
P. M. (*post meridiem*) or A. afternoon.

CHARACTERS used in Chemistry, Medicine, and Pharmacy.

Authors are very redundant, and even fanciful, in pharmaceutical *characters*: but the most useful are exhibited in the *Table of CHEMICAL, &c. Characters*.

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CHARACTERS in Commerce.

D^o *Ditto*, the same.
 N^o *Numero*, or number.
 F^o *Folio*, or page.
 R^o *Recto*, } folio.
 V^o *Verso*, }

L or £ *sterling*, pound sterling.

s Shilling.

d Pence, or Deniers.

ff Pound weight.

C or H Hundred weight, or 112 pound.

q^r Quarters.

p^r Per, or by. As $\text{p}^r \text{ ann}$. by the year. $\text{p}^r \text{ cent}$. in the hundred, &c.

R^x Rixdollar.

D^c Ducat.

P. S. Postscript.

CHARACTERS in Geometry and Trigonometry.

\parallel Is the *character* of parallelism; implying two lines or planes to be equidistant from one another. See *PARALLEL*.

Δ *Character* of a triangle. See *TRIANGLE*.

\square A square.

= Equality of sides.

\square A rectangle.

$<$ An angle.

\odot A circle.

L A right angle.

= Equality of angles.

\perp A perpendicular.

$^\circ$ A degree; thus, 75° implies 75 degrees.

$'$ A minute, or prime; thus, $50'$ implies 50 minutes.

$"$, $'''$, &c. the *characters* of seconds, thirds, fourths, &c. of a degree: thus, $5''$, $6'''$, $18''''$, $20''''$, denote 5 seconds, 6 thirds, 18 fourths, and 20 fifths.

Note. The same *characters* are sometimes used, when the progression is by tens, as it is here by sixties.

CHARACTERS in Grammar, Rhetoric, Poetry, &c.

$,$ *Character* of a Comma.

$!$ Emphasis, or accent.

$;$ Semicolon.

B^e *Breve*.

$:$ Colon.

D^i *Dialysis*.

$.$ Period.

C^r *Caret*, and *Circumflex*.

$!$ Exclamation.

Q^u *Quotation*.

$?$ Interrogation.

$+$ and $*$ *References*.

$()$ Parenthesis.

\S *Section*, or *Division*.

$-$ Hyphen.

¶ *Paragraph*.

Apostrophe .

LL. D. *Doctor of Laws*, or, of the *Civil and Canon Laws*.

SS. T. D. *Sacro-Sanctæ Theologiæ Doctor*, or D. D. i. e.

Doctor in Divinity.

M. D. *Doctor in Physic*.

V. D. M. *Verbi Dei Minister*, *Minister of the Word of God*.

A. M. *Artium Magister*, *Master of Arts*.

A. B. *Artium Baccalaureus*, *Bachelor of Arts*.

F. R. S. *Fellow of the Royal Society*.

F. A. S. *Fellow of the Antiquarian Society*.

CHARACTERS used in Arithmetic of Infinites.

The *character* of an infinitesimal, or fluxion; thus, \dot{x} , \dot{y} , &c. express the fluxions, or differentials of the variable quantities x and y , two, three, or more dots, denote second, third, or higher fluxions.

This method of denoting the fluxions, we owe to Sir Isaac Newton, the inventor of fluxions: it is adhered to by the English; but foreigners generally follow M. Leibnitz, and in lieu of a dot, prefix the letter d to the variable quantity; on pretence of avoiding the confusion arising from the multiplication of dots in the differencing of differentials.

d The *character* of a differential of a variable quantity; thus, dx is the differential of x ; dy the differential of y . The *character* was first introduced by M. Leibnitz; and is followed by all but the English. See *CALCULUS Differentialis*.

CHARACTERS among the ancient Lawyers, and in Ancient Inscriptions.

\S Paragrapho

Bonis auspiciis.

ff Digestis

Scto. Senatusconsulto.

E. Extra.

P. P. *Pater Patriæ*.

S. P. Q. R. *Senatus Populusque Romanus*.

C. Code.

B AV. *Bonis avibus*, or

T. Titulus, &c.

CHARACTERS used in Music.

Characters of the Musical notes, with their proportions.

C A Large 8.

C A Long 4.

C Breve 2.

C Semibreve 1.

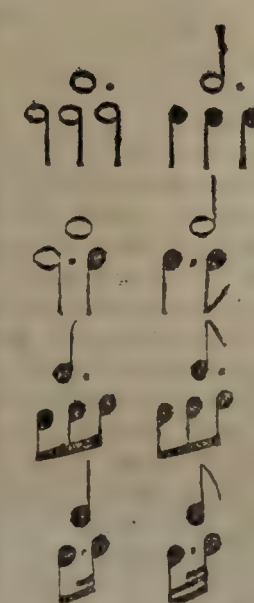
C Minim $\frac{1}{2}$.

C Crotchet $\frac{1}{4}$.

C Quaver $\frac{1}{8}$.

C or C Semiquaver $\frac{1}{16}$.

C or C Demisemiquaver $\frac{1}{32}$.



C H A

* *Character of a sharp note.* This character at the beginning of a line or space, denotes all the notes in that line, or space, to be taken a semitone higher than in the natural series. And the same affects all their octaves, above and below, though not marked.

When the *character* is prefixed to any particular note, it shews that note alone to be a semitone higher than it would be without such a *character*.

Character of a flat note. This *character*, at the beginning of a line, or space, shews, that all the notes in that line, or space, are to be taken a semitone lower than in the natural series; affecting, in like manner, all the octaves both above and below. When prefixed to any note, it shews that note alone to be a semitone lower than it would otherwise be.

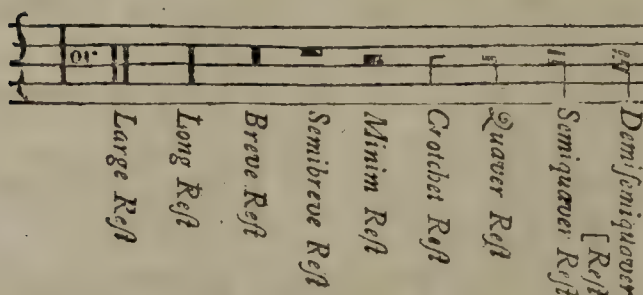
Character of a natural note. Where, in a line or series of artificial notes, marked at the beginning for either sharps or flats, the natural note happens to be required, it is denoted by this *character*.

Character of a treble clef.

Mean clef.

Bass clef.

Rests or Pauses of Time.



CHARACTERS on Tomb-stones.

S. V. *Siste, Viator; Stay, Traveller.*

M. S. *Memoriae Sacrum; Sacred to Memory.*

D. M. *Dies Manibus.*

IHS. *Jesus.*

XP. A *character* found on ancient monuments; about the meaning of which authors are not agreed. See CATHACOMB.

CHARACTER is also used for a certain manner, air, or assemblage of qualities, resulting from several particular marks, which distinguish a thing from any other, so as it may be known thereby.

Thus, we say, the *character* of Achilles; generosity and greatness of mind formed the *character* of the Romans; Cicero had a *character* of politeness, which is wanting in Demosthenes; every passion has its peculiar *character*.

The writers of *characters* are, Theophrastus, whose fragments are still extant; Du Moulin, in his *Exemplar Morum*; Paschal, in his *Characteres Virtutum & Viti-orum*; M. de la Chambre, in his *Characters of the Passions*; and De la Bruyere, in his *Characters and Manners of the Age*.

CHARACTER, in *Poetry*, especially the epopea and drama, is the result of the manners, or that which each person has peculiar and singular in his manners, whereby he is distinguished from others.

The poetical *character*, Bossu observes, is not properly any virtue or quality in particular; but it is a composition of several, mixed and combined in various degrees, according to the occasions of the fable, and the unity of the action. All the simple qualities that enter this compound, must not have the same rank, nor be equal to each other; since, in that case, one prevailing on one occasion, and another on another, the *character* will appear changeable; and the poem, as well as the hero, will seem animated with several souls.

There must, therefore, be one to reign over all the rest; and this must be found in some degree in every part: just as the same hero in several paintings, should have the same lines and features, how different soever his postures and passions may be.

This first quality, in Homer's Achilles, is wrath; in Ulysses, dissimulation; and in Virgil's Aeneas, mildness: each of which may, by way of eminence, be called the *character* of those heroes.

These are never to go alone, but always are to be accompanied with others, to give them the greater lustre; either by hiding their defects, as in Achilles, whose anger is palliated by great courage: or by making them centre in some solid virtue, as in Ulysses, whose dissimulation makes a part of his prudence; and Aeneas, whose mildness is chiefly employed in a submission to the will of the gods.

C H A

For *characters* in Printing, see CORRECTION.

CHARACTERS of Time.

2, or $\frac{2}{4}$, or $\frac{4}{8}$, *characters* of common, or duple time: signifying the measure of two crotchets to be equal to two notes; whereof four make a semibreve.

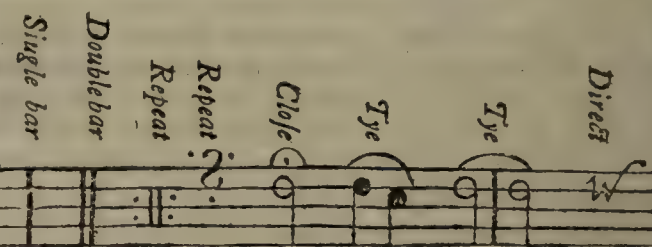
Characters that distinguish the movements in common time: the first implying slow; the second, brisk; third, very quick.

$\frac{3}{4}$, $\frac{3}{8}$, $\frac{3}{16}$, $\frac{3}{32}$, $\frac{3}{64}$; *characters* of the simple triple time; whose measure is equal either to three semibreves, or to three minims, &c.

$\frac{6}{4}$, or $\frac{6}{8}$, or $\frac{6}{16}$; *characters* of mixed triple time; where the measure is equal to six crotchets, or six quavers, &c.

$\frac{9}{4}$, or $\frac{9}{8}$, or $\frac{9}{16}$; $\frac{9}{32}$, $\frac{9}{64}$; *characters* of compound triple time.

$\frac{12}{4}$, or $\frac{12}{8}$, or $\frac{12}{16}$; or $\frac{12}{32}$, or $\frac{12}{64}$; *characters* of the fourth species of triple time; called, the measure of twelve times.



These secondary qualities of courage, prudence, and submission, make the goodness of the *characters* of those heroes, and even of the poems.

Bossu adds, that the quality of courage must always have a share in the *character* of a hero, to serve as a support to the rest: the heroic *character*, therefore, he makes a compound of three kinds of qualities. Those of the first kind are necessary and essential to the fable; those of the second are the supplements, or the embellishments of the first; and courage, which sustains the other two; makes the third.

The first, which is the chief, is to be some universal quality, to have place on all occasions, and to distinguish the hero wherever it is found.

For the unity of *character*, we have Horace's express command, *Sit quodvis simplex dundaxat & unum*. Bossu adds, that the *character* is not less the soul of the hero, and the whole action, than the fable is of the poem; and of consequence the unity must be as exact in the one as the other; which accordingly we find observed both by Homer and Virgil.

The unity of *character* is somewhat different from that of the manners: in the latter, the unity and equality consists in not giving contrary sentiments to the same person; which is not sufficient to the unity of *character*; but to this must be added, that the same spirit must always appear on all occasions, whether contrary, or otherwise: thus, Aeneas shewing great goodness in the first part of the poem, and much valour in the second, but without discovering any of his former piety, and gentleness; there had been no offence against the evenness of the manners, but much against the unity of the *character*.

So that besides the qualities which have their particular place on different occasions, there must be one to have place throughout, and to reign over all the others. Without this there is no *character*: as would be the case should a poet give his hero the piety of Aeneas, and the courage of Achilles, without considering the severity of the one, and the mildness of the other.

A hero, it is true, may be made as brave as Achilles, as mild or pious as Aeneas, and, if the writer thinks proper, as prudent as Ulysses: but it would be a mere chimera to imagine a hero with the particular courage of Achilles, the piety of Aeneas, and the prudence of Ulysses, at the same time.

The unity of *character* is not only to be kept in the hero, and the several other persons of the piece; but also in that of the poem itself: that is, all the *characters*, how opposite soever, must centre and re-unite in that of the hero; and be so swayed by it, as that this alone may seem to govern throughout the whole. Thus Homer makes wrath prevail throughout the whole Iliad; and

artifice

artifice and dissimulation throughout the *Odyssey*, the hero's *character* is perceived every where, has its full sway, and is favoured by the similitude of the *characters* of some of the other persons. Virgil had a great difficulty to grapple with to preserve his unity; because of the direct opposition between the humours of his hero, and those of some other of his persons, as Turnus, Mezentius, Dido, &c. He therefore takes care not to carry those opposite *characters* to their full length, but moderates and restrains them: and as that moderation could not flow naturally from the persons themselves, it is produced either by some passion, as in Dido; or some dependence, as in Turnus and Mezentius. To this artifice he adds episodes, accommodated to the general *character*, by which he interrupts the particular actions, which require an opposite *character*.

Claudian's conduct, in this respect, is unpardonable; from the horrible *characters* of Pluto, and the Furies, with all the terrors of hell, he passes to the gaiety and pleasures of the Graces, gilded palaces, flowery fields, &c. He has as many different prevailing *characters* in his three books, as Homer and Virgil in their sixty.

CHARACTER is also used for certain visible qualities, which claim respect or reverence to those vested therewith.

The majesty of kings gives them a *character*, which procures respect from the people. A bishop should sustain his *character* by learning and solid piety, rather than by wordly lustre, &c.

CHARACTER is also used among *Divines*, especially those of the Romish church, for an indelible mark, or impression, which certain sacraments are supposed to leave behind them in those who receive them.

The sacraments that leave this *character* are incapable of being repeated. The *character* is generally supposed to be something physical.

The sacraments of baptism, confirmation, and ordination, in particular, leave such indelible *character*.

CHARACTERS of fishes, *characteres piscium*, are those marks by which each particular fish is distinguished from those other species of the same genus to which it belongs, and by which it is to be referred to its genus. These *characters* are the essential foundation of all the natural divisions in this part of history, and by means of these alone the young student is led to the real knowledge of the bodies under consideration, whether according to the works of other authors, or some new system of his own. The naturalists of former ages did not pay a sufficient regard to these marks, and consequently could not hit upon the natural divisions of bodies, but had recourse to the artificial distinctions taken from accidents or variable properties in them, and the general external appearance usually gave rules to them; hence the uncertainty and confusion of the divisions of the old authors, and method and regularity of those of the moderns. See *GENERICAL name*.

CHARACTERS of plants. See *GENUS*, &c.

CHARACTERISTIC, in the general, is that which *characterizes* a thing or person, i. e. constitutes its *character*, whereby it is distinguished from all others.

CHARACTERISTIC is peculiarly used in *Grammar*, for the principal letter of a word; which is preserved in most of its tenses and moods, its derivatives and compounds.

The *characteristic* frequently shews its etymology; and ought constantly to be retained in its orthography; such is the letter *r* in *course*, *fort*, &c.

The *characteristics* are of great use in the Greek grammar, especially in the formation of the tenses; as being the same in the same tenses of all verbs of the same conjugation excepting in the present tense, which has several *characteristics*: and the future, the aoristus primus, the preterperfect, and the plusquam perfect tense of the fourth conjugation, which have two *characteristics*.

CHARACTERISTIC of a LOGARITHM, is its INDEX or exponent.

CHARACTERISTIC triangle of a curve. See *CURVE*.

CHARADRIUS, in *Ornithology*, a name by which Gesner and Aldrovandus have called the OEDICNEMUS, a bird very improperly called in the English the *stone-CURLEW*. Aldrov. lib. xiii. cap. 15.

CHARADRIUS, in the Linnæan system of *Ornithology*, is a distinct genus of birds, of the order of the *Grallæ*; the distinguishing character of which is, that the feet have each three toes, the point of the bill is cylindrical and obtuse, and the nostrils linear. Of this genus there are twelve species. See *Tab. IV. of Birds*, N^o 45.

CHARAG, the tribute which Christians and Jews pay to the grand signior.

It consists of ten, twelve, or fifteen francs *per ann.* according to the estate of the party. Men begin to pay it at nine, or at sixteen years old; women are dispensed with, as also priests, rabbins, and religious.

CHARAIMS, a sect of the Jews in Egypt. They live by

themselves, and have a separate synagogue; and as the other Jews are remarkable for their eyes, so these are for their large noses, which run through all the families of this sect. These are the ancient Essenes. They strictly observe the five books of Moses, according to the letter, and receive no written traditions. It is said that the other Jews would join the *Charaims*, but those not having observed the exact rules of the law with regard to divorces, these think they live in adultery.

CHARANTIA, in *Botany*, a name by which some authors have called the male balsam. Ger. Emac. Ind. 2.

CHARAX, in *Ichthyology*, a name given by *Ælian*, *Appian*, and many other of the Greek writers, to the fish called by later writers the *CARASSIUS*.

It is properly a species of the *CYPRINUS*, distinguished by the name of the *cyprinus* with twenty rays in the back fin, and with the *linea lateralis* straight.

CHARBON, in the *Mange*, signifies that little black spot or mark that remains after a large spot, in the cavity of the corner teeth of a horse. About the seventh or eighth year when the cavity fills, the tooth being smooth and equal it is said to be raised.

CHARCOAL, a sort of artificial coal, or fuel consisting of wood half burnt; chiefly used where a clear strong fire, without smoke, is required; the humidity of the wood being here mostly dissipated and exhaled in the fire wherein it was prepared.

The microscope discovers a surprising number of pores in *charcoal*: they are disposed in order, and traverse it lengthwise; so that there is no piece of *charcoal*, how long soever, but may be easily blown through. If a piece be broken pretty short, it may be seen through with a microscope. In a range the eighteenth part of an inch long Dr. Hook reckoned one hundred and fifty pores; whence he concludes, that in a *charcoal* of an inch diameter, there are no less than five millions seven hundred twenty-four thousand pores.

It is to this prodigious number of pores, that the blackness of *charcoal* is owing: for the rays of light, striking on the *charcoal*, are received and absorbed in its pores, instead of being reflected; whence the body must of necessity appear black, blackness in a body being no more than a want of reflection.

Dr. Priestley conjectures, that this is owing to the oil of the wood, made empyreumatic, and burnt to a certain degree; and that it is connected with the phlogiston united to the earth of the plant, when the union is strengthened by an intense heat. The same ingenious philosopher has discovered that *charcoal* is an excellent conductor of electricity; and that the degree of its conducting power depends on the degree of heat with which it is prepared; and he ascribes this power to the phlogiston united with it in the process, intimating that the strength of the conducting power may depend more on the perfect union between the inflammable principle and its base, which results from the degree of heat only, than on the quantity of phlogiston thus united to the earth. He adds, that as *charcoal*, when separated from the external air, will bear a greater degree of heat, without being dissipated into vapour, than silver or gold, it may be possible to make this substance a better conductor of electricity than the most perfect metals. Wood in the process of being reduced to *charcoal* is diminished both in weight and bulk: nevertheless wood and *charcoal*, expand by a certain degree of heat, but the latter in the greatest proportion; and a greater degree of heat makes them contract.

The noxiousness of air infected with the fumes of burning *charcoal* is well known: the cause of this has been sufficiently explained by Dr. Priestley, &c. who accounts for it by the diminution of the air, in consequence of being overcharged with phlogiston, and the deposition of fixed air. See *AIR, fixed*. Priestley's *Electricity*, vol. ii. p. 193. *Exper. and Obs. on Air*, vol. i. p. 129. and vol. ii. p. 241. or *Phil. Trans.* vol. lx. art. 19. p. 211.

Mathematical instrument-makers, engravers, &c. find *charcoal* of great use to polish their brads and copper-plates, after they have been rubbed clean with powdered pumice-stone. Mr. Boyle says, that the more curious burn it a second time, and quench it in a convenient fluid. Plates of horn are polishable the same way, and a gloss may be afterwards given with tripoly.

Charcoal and soot-black are the two most durable and useful blacks of the painter, and the varnish-maker. Those of the former kind are used both as pigments and pencils; and *charcoal* crayons prepared from the willow are preferred on account of their softness. See concerning them Lewis's *Commercium Phil. Techn.* p. 536.

Charcoal tinges glass in fusion yellow, reddish, &c. and by baking stains it yellow. See *ibid.* p. 628. See also his observations on the differences of different *charcoals*, &c. and of the manner of distinguishing between the vegetable and animal, *ibid.* p. 336, & seq.

Charcoal was anciently used to distinguish the bounds of estates and inheritances; as being supposed incorruptible, when let very deep within the ground. In effect, it preserves itself so long, that there are many pieces found entire in the ancient tombs of the northern nations.

M. Dodart says, there is sometimes found *charcoal* made of corn, probably as old as the days of Cæsar; he adds, that it has kept so well, that the wheat may be still distinguished from the rye; which he looks on as a proof of its incorruptibility.

CHARCOAL, method of making.—The best is that made of oak, cut into lengths of about three feet. The ground whereon the operation is to be performed, is bared of all the turf, and other combustible matter; and is in form circular, a stake being driven in the centre. This area is filled up with wood, eight feet high, placed alternatively lengthwise, and perpendicularly; then coped a-top in the form of a sugar-loaf, and all inequalities filled up with small wood, till it lie very close: the whole is then to be covered over moderately thick with turf, and other rubbish.

A moveable screen being then set up against the wind, the stake is pulled up, and fire set to the pile, by pouring into the cavity some *charcoal*, and other coal fully kindled: the vent, or funnel a-top, is then covered with turf, and vent holes are made through the stuff that covers the pile, two or three feet apart, quite round, a foot from the top. The next day a new range of holes is made, a foot and a half below the first, and thus on to the bottom: observing, that as the pile cools, and sinks to the centre, it must be continually fed with short wood, that no part remain unfired; and that if any part chars faster than other, the vent holes there are to be stopped up. A parcel is thus burnt in five or six days: as it cools, the smoke grows thinner and bluer. The heap requires two or three days to cool; which is promoted by stopping the vents, and stripping off the covering by degrees, about a yard at a time; at first only taking off the coarsest part, and leaving the rest, that the pile may neither cool too fast, nor endanger the reduction of the whole into ashes. Lastly, the coals are taken out from round the bottom, by which means the whole mass, coals and rubbish, sinks down, and extinguishes the fire at once.

Charcoal, for powder-mills, is usually made of elder-wood; the process is the same; but is finished in two days.

CHARDS, in Gardening.—The *chards* of artichokes are the leaves of good artichoke-plants, tied and wrapped up, all over but the top, in straw, during the autumn and winter: this makes them grow white, and lose some of their bitterness.

CHARDS of beets are white beets, covered with dry dung during the winter season, when they produce large tops with a downy cotton shoot; which is the true *chard*, to be used in potages, intermesses, &c.

CHARGE, in Electricity, in a strict sense, denotes the accumulation of the electric matter on one surface of an electric, as a pane of glass, Leyden phial, &c. whilst an equal quantity passes off from the opposite surface: or, more generally, electrics are said to be *charged* when the equilibrium of the electric matter on the opposite surfaces is destroyed, by communicating one kind of electricity to one side, and the contrary kind to the opposite side: nor can the equilibrium be restored till a communication be made by means of conducting substances between the two opposite surfaces. And when this is done the electric is said to be discharged. The *charge* properly refers to one side, in contradistinction from the other; since the whole quantity in the electric is the same *before* and *after* the operation of *charging*; and the operation cannot succeed, unless what is gained on one side be lost by the other, by means of conductors applied to it, and communicating either with the earth, or with a sufficient number of non-electrics. In order to facilitate the communication of the electricity to an electric plate, &c. the opposite surfaces are coated with some conducting substance, usually with tin-foil, within some distance from the edge; in consequence of which the electricity communicated to one part of the coating is readily diffused through all parts of the surface of the electric in contact with it: and a *discharge* is easily made by forming a communication with any conductor from one coating to the other. If the opposite coatings approach too near each other, the electric matter forces a passage from one surface to the other before the *charge* is complete. And some kinds of glass have the property of conducting the electricity over the surface, so that they are altogether unfit for the operation of *charging* and *discharging*. If indeed the *charge* is too high, and the glass plate or phial too thin, the attraction between the two opposite electricities forces a passage through the glass and makes a spontaneous *discharge*, and the glass becomes unfit for farther use. See **CONDUCTORS, ELECTRICS, LEYDEN Phial, &c.**

CHARGE, in Gunnery, the load of a piece; or the quantity of powder and ball, or shot, wherewith it is to be prepared for execution.

The rules for *charging* large pieces in war, are, that the piece be first cleaned or scoured, within side; that the proper quantity of gunpowder be next driven in, and rammed down; care, however, being taken, that the powder be not bruised in ramming, for that weakens its effect; that a little quantity of paper, hay, or the like, be rammed over it, and that then the ball or shot be intruded.

If the ball be red-hot, a tampion, or trencher of green wood, is to be driven in before it.

The weight of gun-powder necessary for a *charge*, is commonly in a subduple proportion to that of the ball. See **CANNON.**

In the British navy, the allowance for thirty-two-pounders is but seven-sixteenths of the weight of the bullet. But a late author is of opinion, that if the powder in all ship cannon whatever was reduced to one-third weight of the ball, or even less, it would be a considerable advantage, not only by saving ammunition, but by keeping the guns cooler and quieter, and at the same time more effectually injuring the vessels of the enemy. With the present allowance of powder, the guns are heated, and their tackle and furniture strained, and this only to render the bullet less efficacious. For a bullet which can but just pass through a piece of timber, and loses almost all its motion thereby, has a much better chance of rending and fracturing it, than if it passed through with a much greater velocity. See Robins's Tracts, vol. i. p. 290, 291.

Professor Euler observes, in his investigation of this subject, that in every case there is a certain *charge* which will communicate the greatest velocity to the ball; so that by increasing or diminishing it, the motion of the ball will be diminished; and he concludes by a fluxionary calculus, that an iron ball will go out of a twenty-four-pounder with the greatest velocity when the piece is charged, so that the powder extends in length $7\frac{1}{2}$ CALIBERS. Since this is about $\frac{2}{3}$ of the weight of the ball, and the common *charge* half its weight, the maximum, or greatest *charge*, will be thrice the common *charge*. He has also computed the following table, representing the *charges* for the greatest velocity.

Length of the cylinder in calibers.	Length of the powder in calibers.	Weight of the powder in 100 parts of the wt. of the ball.
2	0.82	16
4	1.54	31
6	2.18	43
8	2.78	56
10	3.35	67
12	3.86	77
14	4.30	86
16	4.77	95
18	5.20	104
20	5.59	112
22	5.96	119
24	6.32	126
26	6.66	133
28	6.99	140
30	7.31	146
32	7.61	152
34	7.90	158
36	8.18	163
38	8.44	169
40	8.69	174
42	8.93	179
44	9.18	184
46	9.42	188
48	9.66	193
50	9.89	198
52	10.11	202
54	10.31	206
56	10.51	210
58	10.71	214
60	10.90	218

From the calculations by which this table is formed, Euler concludes, that the *charges* assigned by Mr. Robins for the greatest velocity are much too great. See True Principles of Gunnery investigated and explained, &c. 1777. p. 129. 266.

Mr. Robins observes, that the *charge* is not to be determined by the greatest velocity that may be produced; but that it should be such a quantity of powder as will produce the least velocity necessary for the purpose in view; and if the **WINDAGE** be moderate, no field-piece should ever be loaded with more than $\frac{1}{2}$, or at the utmost $\frac{2}{3}$ of the weight of its bullet in powder; nor should the

the *charge* of any battering piece exceed $\frac{1}{3}$ of the weight of its bullet. *Tracts, &c.* vol. i. p. 266, &c.

CHARGE, in *Heraldry*, is applied to any figure, or thing, borne or represented in an escutcheon, or coat of arms; whether it be animal, vegetable, or other matter.

Too many *charges* are not deemed so honourable as fewer. *Charges* peculiar to the art and usage of armory, as the cross, chief, pale, fesse, &c. are called *proper charges*; and frequently ordinaries.

Bloom restrains the term *charges* to those additions, or rewards of honours, frequently placed on escutcheons; as cantons, quarters, girones, flusques, &c.

CHARGE, in *Law*, denotes the instructions given to the grand jury with respect to the articles of their inquiry, by the judge who presides on the bench.

CHARGE, in *Law*, also signifies a thing done that bindeth him who doth it; or that which is his to the performance of it; and **DISCHARGE** is the removal of that *charge*. Lands may be *charged* in various ways; as, by grant of rent out of it, by statutes, judgments, conditions, warranties, &c.

CHARGE, in the *Manege*, a sort of unguent, made of oil, honey, grease, turpentine, and sometimes of lees of wine, and other matters, applied externally to a horse, &c. for the cure of strains, bruises, and swellings.

CHARGE, or rather **OVERCHARGE**, in *Painting*, is an exaggerated representation of any person; wherein the likeness is preserved, but at the same time ridiculed.

Few painters have the genius necessary to succeed in these *charges*: the method is, to select and heighten something already amiss in the face, whether by way of defect, or redundancy: thus, v. gr. if nature has given a man a nose a little larger than ordinary, the painter falls in with her, and makes the nose extravagantly long: or if the nose be naturally too short, in the painting it will be a mere stump; and thus of the other parts.

CHARGE of lead, is thirty-six pigs. See **LEAD**, **PIG**, &c.

CHARGE, in *Sea Language*, is sometimes used for burden; thus a *ship of charge* is such as draws much water, or swims deep in the sea; though sometimes an unweildy ship, that will not ware nor steer, is called a ship of *charge*.

CHARGED, in *Heraldry*. A shield, carrying on it some figure or impress, is said to be *charged* therewith.

So, also, when one bearing, or *charge*, has another figure added upon it, it is properly said to be *charged*.

CHARGED cylinder, is that part of the chase of a gun where the powder and ball are contained.

CHARIENTISMUS, in *Rhetoric*, a figure wherein a taunting expression is softened by a jest.

CHAR. See **CHARR**.

CHARIOT. See **COACH**.

The curious may see various representations of *chariots* and accounts of improvements on *chariots*, and of different constructions, *Mac. tom. ii. p. 39. tom. iii. p. 33. p. 41. p. 197. and p. 31.* And in the *Mem. of the A. D. S. an. 1761. Hist. 161. and an. 1719. Hist. 81.*

The ancients made use of *chariots* in war. These were of different kinds; but the most terrible were those armed with pikes and scythes, thus; the beam to which the horses were fastened were armed with pikes, having iron points to them which projected forward; the yokes of the horses had likewise two long points of three cubits: to the axle-tree also were fixed iron spits, armed at their extremities with scythes; between the spokes of the wheels were placed javelins, and the very felines of the wheels were furnished with scythes, which tore every thing they met with to pieces.

The axle-tree was longer than usual, and the wheels stronger, that they might be able to resist the shock of the motion, and the *chariot* be less subject to overturn. The driver's seat was a kind of little tower, made of very solid wood, and raised breast-high. The charioteer was armed all over, and covered with iron. Sometimes several men well armed were put in those *chariots*, who fought with darts and arrows. *Biodor. Sicul. lib. xvii. Q. Curt. lib. iv. Xenoph. Cyropæd. lib. vi.* See a Dissertation on the Ancient *Chariot* by Mr. Pownall, in *Berenger's Art of Horsemanship*, vol. i. p. 271, &c.

CHARIOTS, in *Mythology*, were sometimes consecrated to the sun: and the Scripture observes, that Josiah burnt those which had been offered to the sun by the kings his predecessors. This superstitious custom was an imitation of the heathens, and principally of the Persians, who had horses and *chariots* consecrated in honour of the sun. Herodotus, Xenophon, and Quintus Curtius, speak of white *chariots*, crowned, which were consecrated to the sun, among the Persians, and in their ceremonies were drawn with white horses, consecrated to the same luminary.

CHARISIA, in *Pagan Theology*, a wake or night-festival instituted in honour of the graces. It continued the whole

night, most of which time was spent in dancing; after which, cakes made of yellow flour, mixed with honey, and other sweet-meats were distributed among the assistants. The word is also used to signify the sweet-meats distributed on such occasions.

CHARISIUS, in *Pagan Theology*, a surname given to Jupiter.

The word is derived from *χαρις*, *favour*; he being the god by whose influence men obtain the favour and affection of one another. On which account the Greeks used at their meals to make a libation of a cup to **JUPITER Charisius**.

CHARISTIA, a family-feast celebrated among the Romans, on the eleventh of the calends of March; i. e. on the nineteenth of February, in honour of the goddess *Concord*.

The word comes from *χαρις*, *grace, favour*; q. d. a day of reconciliation, or of restoring into favour. It was also called *dies charæ cognationis*. Vigenere, on *Livy*, calls it *the day of good cheer*.

The *charistia* were instituted to re-establish peace and amity, in families embroiled, or at variance among themselves. It consisted in a great entertainment made in each family, to which no strangers were admitted, but only relations and kindred. The joy and freedom inspired by the repast, was looked upon as a proper means to reunite divided minds; to which the good offices of so many friends would greatly contribute.

CHARISTICARY, *Commendatary*, or *Donatary*, a person to whom is given the enjoyment of the revenues of a monastery, hospital, or benefice.

The *charisticaries* among the Greeks, were a kind of donataries, or commendataries, who enjoyed all the revenues of hospitals and monasteries, without giving an account thereof to any person.—The original of this abuse is referred to the Iconoclastæ, particularly Constantine Copronymus, the avowed enemy of the monks, whose monasteries he gave away to strangers.

In after-times, the emperors and patriarchs gave many to people of quality, not by way or gift, to reap any temporal advantage from them; but to repair, beautify, and patronize them. At length avarice crept in, and those in good condition were given, especially such as were rich; and at last they were all given away, rich and poor, those of men and of women; and that to laymen, and married men.

M. Coutelier, in his *Ecclesiæ Græcæ Monumenta*, gives us the form of these donations: they were granted for life, and sometimes for two lives. See **ABBOT**.

CHARITABLE Uses, in *Law*. See **COMMISSION** and **MORTMAIN**.

CHARITATIVE, in the *Canon Law*. A *charitative aid*, or *subsidy*, is a moderate allowance, which a council grants a bishop upon any urgent occasion; e. gr. when his revenues will not bear his expences to a council, &c.

CHARITY, one of the three grand theological virtues; consisting in the love of God, and our neighbour.

Charity is the habit or disposition of loving God with all our heart, and our neighbour as ourselves. It has two material objects, therefore, as the school expresses it; viz. God, and our neighbour.

CHARITY is also used for the effect of a moral virtue, which consists in supplying the necessities of others, whether with money, counsel, assistance, or the like.

CHARITY, *briefs*. See **BRIEF**.

CHARITY, *feasts of*. See **AGAPÆ**.

CHARITY-schools, are schools erected and maintained in various parishes, by the voluntary contributions of the inhabitants, for teaching poor children to read, write, and other necessary parts of education.

In most *charity-schools* the children are likewise clothed, and put out to trades, services, &c. on the same charitable foundation.

Charity-schools have spread throughout most of the considerable towns of England and Wales.

In London we had likewise a **CHARITABLE Corporation** for the relief of the industrious poor, erected under queen Anne; for enabling indigent manufacturers and traders to take up money at common and legal interest; there being a sum of 30,000*l.* raised for that end.

CHARITY, *order of*. There are several religious orders which bear this title: one instituted by St. John de Dieu, for the assistance of the sick: this institute was approved of in 1520, by Leo X. and confirmed by Paul V. in 1617. The religious of this order apply themselves wholly to the service of the diseased.

CHARITY of the Holy Virgin, is a religious order established in the diocese of Chalons, by Guy lord Joinville, &c. towards the close of the thirteenth century, approved under the rule of St. Augustine, by the popes Boniface VIII. and Clement VI.

In each parish of Paris, there is a society of women,

who apply themselves to find out and relieve the wants of the poor of the parish; and on this account called, *Dames de la Charité*, and *Seurs de la Charité*.

CHARKING, or **CHARRING**, the burning of wood to make **CHARCOAL**.

CHARKS, pit-coal charred, or charred. See **COAL**.

CHARLATAN, or **CHARLETAN**, an **EMPIRIC**, or quack, who retails his medicines on a public stage, and draws the people about him with his buffoonries, feats of activity, &c.

The word, according to Calepine, comes from the Italian *ceretano*, of *Cæretum*, a town near Spoleto in Italy, where these impostors are said to have first risen. Menage derives it from *ciarlatano*, and that from *circulatorius*, of *circulator*, a quack.

CHARLES'S WAIN, in *Astronomy*, seven stars in the constellation *Ursa Minor*.

CHARLOCK, in *Husbandry*; for the botanical characters, see **MUSTARD**; a very troublesome weed among corn, being more frequent than almost any other. There are two principal kinds of it; the one with a yellow flower, the other with a white. Some fields are particularly subject to be over-run with it, especially those which have been manured with cow-dung alone, that being a manure very favourable to the growth of it. The farmers in some places are so sensible of this, that they always mix horse-dung with their cow-dung, when they use it for arable land.

When barley, as is often the case, is infested with this weed to such a degree as to endanger the crop, it is a very good method to mow down the *charlock* in May, when it is flower, cutting it so low as just to take off the tops of the leaves of the barley with it: by this means the barley will get up above the weed; and people have got four quarters of grain from an acre of such land, as would have yielded them scarce any thing without this expedient. Where any land is particularly subject to this weed, the best method is to sow it with grass-seed, and make a pasture of it; for then this plant will not be troublesome, as it does not grow where there is a coat of grass upon the ground.

CHARM, a magic power, or spell, by which, with the assistance of the devil, forcerers and witches are supposed to do wondrous things, far surpassing the powers of nature. See **MAGIC**.

The word comes from the Latin *carmen*, *verse*.

Phylacteries, ligatures, &c. are, all, kinds of *charms*.

CHARNEL, a portico, or gallery, anciently near the church-yard; over which were disposed the bones of the dead, when the flesh was consumed.

The *charnels*, or *charnel-houses*, are now usually contiguous to the church.

CHARNUB, in the *Materia Medica*, a name given by some of the ancient writers to the *siliqua dulcis*, or carob-tree. The Arabian physicians mention two kinds of this; the Syrian, and Nabathæan: the first they call *aljembut*, and the other *alnabat*. Avicenna tells us, that the first of these was a purge, and was given with success in pains of the bowels; and the other an astringent, given in profluvia of the menses.

CHARONIUS, *Charonæan*, is used as an epithet for caves, some of which are found in Italy, and in other parts of the world, where the air is so loaded with a poisonous vapour, that animals cannot live in them even a few moments.

CHARR, in *Ichthyology*, a name given to a fish of the trutraceous kind, of which there are two species, distinguished by the *red charr*, and the *gilt charr*; the former of which is called by some of the ichthyographers *UMBLA minor*, and by Linnæus *salmo alpinus*; and the latter, the *CARPIO lacus benaci*.

CHARR, *red*, is a large fish, longer and slenderer in its general shape than the trout, caught in the lakes of Wales, Westmoreland, and of the mountainous parts of Europe; and is esteemed a very fine fish; but its flesh does not boil so red as that of the trout.

The *red charr* is called by the Welch *torgoch*; a compound of *tor*, the lower part of the belly; and *goch*, red; *Anglicè*, *red-belly*. In one respect the *charr* seems nearly allied to the eel and tench, being very slimy; and the curing and potting them well, depend on draining them properly of this mucilaginous quality. See an account of the Welch *charrs*, in *Phil. Trans.* vol. xlix. part i. N^o 34. p. 212.

The Westmoreland *charrs* called *case charrs*, spawn about Michaelmas; and at this time will take a bait, and at no other. They are supposed to be in the highest perfection about May, and in the summer, though rarely caught after April. The *charrs* of Wales are rather smaller, and of a paler colour than those of Westmoreland.

CHARR, *gelt*, or *barren*, is one which had not spawned the preceding season, and on that account reckoned to be in greatest perfection.

CHARR, *gelt*, is something like the trout in figure; but it is broader, and its belly is prominent, especially when the fish is large: the actual size is about a foot in length, which it rarely exceeds. This is very common in some of the lakes in Italy, but is not peculiar to that kingdom, as has by some been imagined, being frequent in some foreign, and in some of the northern lakes; and there is no doubt, but that the fish there caught, and called the *gilt charr*, and the *CARPIO lacus benaci*, are entirely the same fish. It is a very finely flavoured fish, and much valued at the tables of the great.

This species spawns from the beginning of January to the end of March: and they are taken in greatest plenty from the end of September to the end of November.

CHART, or *Sea-CHART*, a hydrographical map; or a projection of some part of the sea, *in plano*; for the use of navigation.

The invention of *sea-charts*, Fourtier refers to Henry son of John king of Portugal. They differ very considerably from geographical, or land-maps, which are of no use in navigation. Nor are *sea-charts* all of the same kind; some being what we call *plain charts*, others *reduced*, or *Mercator's charts*, and others *globular charts*.

CHARTS, *plain*, are those wherein the meridians and parallels are exhibited by right lines parallel to each other.

These, Ptolemy, in his *Geography*, rejects for the following faults, though their inventor judged them of good use; and experience has confirmed his judgment, especially in short voyages. Their defects are, 1. That since in reality all the meridians meet in the poles, it is absurd to represent them, especially in large *charts*, by parallel right lines. 2. That *plain charts* exhibit the degrees of the several parallels, equal to those of the equator; and of consequence the distances of places lying east and west, much larger than they should be. And, 3. In a *plain chart*, while the same rhumb is kept, the vessel appears to sail in a great circle, which is yet false.

But notwithstanding these defects in the *plain chart*, yet the easiness of its application has so reconciled it to the mariners, that it is used almost alone; in exclusion of the more accurate ones.

Construction of a plain CHART.—1. Draw a right line as AB (*Tab. Navigation*, fig. 9.), and divide it into as many equal parts, as there are degrees of latitude in the portion of the sea to be represented. 2. Add another to it at right angles BC, divided into as many parts, and those equal to one another, and to the former, as there are degrees of longitude in the portion of the sea to be represented. 3. Complete the parallelogram ABCD, and resolve its area into little squares; then right lines, parallel to AB and CD, will be meridians; and those parallel to AD and BC parallels. 4. The coasts, islands, bays, sands, rocks, &c. insert from a table of longitudes and latitudes, in the same manner as is laid down under **MAP**.

Hence, 1. The latitude and longitude of a ship being given, her place is easily exhibited in the *chart*. 2. The places F and G, to and from which the ship sails, being given in a map, the right line FG, drawn from the one to the other, makes, with the meridian AB, an angle AFG, equal to the inclination of the rhumb; and since the parts F 1, 12, 2 G, intercepted between equidistant parallels, are equal; and the inclination of the right line FG, to all the meridians or right lines parallel to AB, is the same; the right line FG truly represents the rhumb. After the same manner it may be shewn, that this *chart* exhibits *latus mecdynamicum*, or miles of longitude, truly. It follows, that *plain charts*, may be used to very good purpose in directing a ship; provided care be taken there escape no error in the distance of the places F and G.

Construction of a Scale to correct the errors of the distances in plain CHARTS.—1. Upon the right line AB (*fig. 10.*), from the map transfer five degrees, and divide them into 300 equal parts, or geographical miles. 2. On this describe a small circle ACB, to be divided into 90 equal parts: if then it be desired to know how many miles make five degrees in the parallel fifty; in the compasses take the interval fifty, and transfer it on to the diameter AB; the number of miles required will here be shewn. It follows, that if a ship sail on an eastern or western rhumb, out of the equator; the miles answering to the degrees of longitude will be found as in the preceding article. If it sail on any collateral rhumb, still the sailing is supposed to be an eastern or western rhumb, in an intermediate parallel, between the parallel of the place whence the ship proceeds, and parallel of the place at which she arrives.

It is true, this reduction, by an arithmetically mean parallel, is not accurate; yet it is frequently used in practice, as being accommodated to the apprehensions of the generality of mariners. In effect, it does not err considerably, if the whole course be divided into parts,

parts, whereof each does not exceed one degree; whence it appears adviseable, not to take the diameter of the semicircle *AB* above one degree, and to divide it at most into geographical miles.

For the application of the plain CHART in sailing, see *Plain SAILING*.

CHART, *reduced*, or CHART of *reduction*, is that wherein the meridians are represented by right lines converging towards the poles; and the parallels by right lines parallel to one another, but unequal. These, therefore, it appears by their construction, must correct the errors of the plain charts.

But since the parallels should cut the meridians at right angles; these charts are defective, inasmuch as they exhibit the parallels inclined to the meridians.

Hence, another kind of *reduced charts* has been invented, wherein the meridians are parallel, but the degrees thereof unequal; these are called *Mercator's Charts*.

CHART, *Mercator's*, is that wherein the meridians and parallels are represented by parallel right lines; but the degrees of the meridians are unequal; still increasing, as they approach the pole, in the same proportion as those of the parallels decrease: by means whereof, the same proportion is preserved between them, as on the globe.

This chart has its name from that of the author who first proposed it for use in the year 1556, and made the first chart of this projection, Gerardus Mercator: but neither was the thought originally his own, as having been hinted by Ptolemy near two thousand years ago; nor is the perfection of it owing to him; our countryman Mr. Wright being the first who demonstrated it, about the year 1590, and shewed a ready way of constructing it, by enlarging the meridian line by the continual addition of secants. See his *Correction of Errors in Navigation*, published in 1599.

For a farther account of Mr. Wright's method, and the construction of a table of meridional parts, see *MERIDIONAL parts*.

Construction of *Mercator's CHART*.—I. Draw a right line, and divide it into equal parts, representing degrees of longitude either in the equator, or in the parallel wherein the chart is to terminate. From the several points of division erect perpendiculars to represent meridians; so as right lines may cut them all under the same angle, and therefore represent rhumbs; thus far as in the plain chart.

That the degrees of the meridians may have their just proportion to those of the parallels, the former are to be increased; in regard the latter continue the same, because of the parallelism of the meridians.

With the interval therefore of one degree in the equator *CD* (*Tab. Navig. fig. 11.*) describe the quadrant *CDE*, and in *D* erect a perpendicular *DG*; make the arch *DL* equal to the parallel of latitude, and through *L* draw *CG*: this *CG* will be the enlarged degree of the meridian, to be transferred to the meridian of the chart: the rest as in plain charts.

In practice, suppose it required to draw a *Mercator's chart* from the fortieth degree of north latitude to the fiftieth, and from the sixth degree of longitude to the eighteenth. First draw a right line representing the fortieth parallel of the equator; which divide into twelve parts, for the twelve degrees of longitude the chart is to contain. Then take a line of equal parts, on a scale whereof a hundred parts are equal to each of these degrees of longitude; and at each extreme of the line raise two perpendiculars, to represent two parallel meridians to be divided by the continual addition of secants, which are proved to increase in the same proportion, as the degrees of longitude should decrease.

Thus, for the distance from forty degrees of latitude, take $131\frac{1}{2}$ equal parts, from the scale which is the secant of forty degrees thirty minutes. For the distance from forty-one degrees to forty-two degrees, take $133\frac{1}{2}$ equal parts, from the scale which is the secant of forty-one degrees thirty minutes; and so on to the last degree of your chart, which will be 154 equal parts, viz. the secant of forty-nine degrees thirty minutes, and will give the distance from forty-nine degrees of latitude to fifty degrees. By this means, the degrees of latitude will be augmented, in the same proportion as the degrees of longitude on the globe decrease.

The meridians being divided, add the card, or compass; choosing some convenient place near the middle thereof: from this draw a line parallel to the divided meridians, which will be the north rhumb; and from this the other thirty-one points of the compass are to be set off.

Lastly, Lay down the towns, ports, islands, coasts, &c. from a table of longitudes and latitudes; and the chart is complete. In *Mercator's chart*, the scale changes as the latitude is changed: if then, v. g. a ship sails be-

tween the fortieth and fiftieth parallels of latitude, the degrees of the meridians between those two parallels, are to be the scale for measuring the ship's way: whence it follows, that though the degrees of longitude be equal in extent on the chart, yet they must contain unequal numbers of miles, or leagues; and that they will decrease as they approach nearer the pole, because measured by a magnitude continually increasing. This chart is demonstratively true; though to appearance false: it is found by experience very accurate, and withal very easy of application. In effect, it has all the qualifications required to render it of service in navigation; yet do the generality of mariners decline the use of it, and rather choose to keep the old erroneous plain chart.

For the use of *Mercator's CHART* in sailing, see *Mercator's SAILING*.

CHART, *globular*, is a projection so called, from the conformity it bears to the globe itself: this has been since the others proposed to the world by Messrs. Senex, Wilfon, and Harris; wherein the meridians are inclined: the parallels equidistant, and curvilinear; and the rhumbs real spirals, as on the surface of the globe.

We might be allowed to expect something from this, as it came out under the protection of his majesty's patent, and with the recommendation of several able navigators, and among others, that of Dr. Halley; and as it has now stood the test of a pretty severe inquisition. We shall only add, that the projection is perfectly agreeable to nature, and therefore easily conceivable; and that it has been found to answer very exactly, even in very large distances; where its failure, if it hath any, must needs be most conspicuous.

CHARTS composed by rhumbs and distances, are those wherein there are no meridians or parallels; but all is effected by the rhumbs, and the scale of miles.

These are chiefly used by the French, and especially in the Mediterranean.

They are patched up, without any great art, from the observations of the mariners; any regular account, therefore, how to make them, would be needless. They are only used in short voyages.

See a dissertation on charts, by Dr. Murdoch, in the *Phil. Trans.* vol. 1. art. 73. with remarks upon it by Mr. Mountaine, art. 74.

CHARTA primarily signifies a sort of PAPER made of the plant papyrus, or biblus.

CHARTA *emporetica*, in Pharmacy, &c. a kind of PAPER made very soft and porous, and used to filter withal.

CHARTA is also used in *Ancient Customs* for a CHARTER, or deed in writing.

CHARTA *de foresta*. See CHARTER of the forest.

CHARTA magna, the great charter, is an ancient instrument, containing several privileges, and liberties, granted to the church and state; by Edward the Confessor, together with others relating to the feudal laws of William the Conqueror, granted by Henry I. all confirmed by the succeeding princes about thirty times. See MAGNA charta.

CHARTA *pardonationis se defendendo*, is the form of a pardon for a person's killing another man in his own defence.

CHARTA *pardonationis utlagariae*, is the form of a pardon of a man who is outlawed.

CHARTA *simplex*, is a single DEED, or deed-poll.

CHARTARIUS, the same with CHARTOPHYLAX.

CHARTEL. See CARTEL, CHAMPION, COMBAT, DUEL, &c.

CHARTER, *Charta*, an instrument, or written evidence of a thing under the seal of a prince, lord, church, chapter, or community.

The word charter comes from the Latin *charta*, anciently used for a public or authentic act; from *χαρτις*, thick paper, or pastboard, whereon public acts were used to be written.

Bracton says, donations are sometimes made in charters, in *perpetuam rei memoriam*. He adds, that of charters, some are royal, others of private persons.

Of royal, some are private, some common, some universal.

Of private charters, some are *de puro feoffamento*, others *de conditionali feoffamento*, others of recognition, pure or conditional, others of confirmation, &c.

CHARTERS of community, were certain privileges first obtained by violence, or purchase, and afterwards freely bestowed by emperors, kings, and barons; whereby the inhabitants of towns and cities were enfranchised, all marks of servitude abolished, and these cities, &c. were formed into corporations and bodies politick, to be governed by a council and magistrates of their own nomination. The first person who conferred these privileges, was Lewis the Gros in France, about the beginning of the twelfth century: and his example was soon very generally followed. See CITIES.

CHARTER of the forest, is that wherein the laws of the FOREST are comprised and established.

CHARTER, Great, *Magna charta*. See **MAGNA CHARTA**.

CHARTERS of the king, are those whereby a king makes a grant to a person, or community; v. gr. a *charter of exemption*, that a person should not be impanelled on a jury, &c. See **LETTERS patent**.

CHARTER of pardon, is that whereby a person is forgiven a felony, or other offence against the king's crown and dignity. See **PARDON**.

CHARTER governments in America, are in the nature of civil corporations, with the power of making bye-laws for their own interior regulation, not contrary to the laws of England; and with such rights and authorities as are specially given them in their several *charters* of incorporation. The form of government is borrowed from that of England. They have a governor named by the king (or in some proprietary colonies by the proprietor), who is his representative deputy. They have courts of justice of their own, from whose decision an appeal (as some say, in the nature of a reference by way of arbitration) lies to the king in council here in England. Their general assemblies, which are their house of commons, together with their council of state, being their upper house, with the concurrence of the king, or his representative the governor, make laws suited to their own emergencies. But it is particularly declared, by stat. 7 and 8 W. III. c. 22. that all laws, bye-laws, usages, and customs, which shall be in practice in any of the plantations, repugnant to any law, made or to be made in this kingdom, relative to the said plantations, shall be utterly void and of none effect. These are called *charter governments*, by way of distinction from the *provincial establishments*, the constitutions of which depend on the respective commissions issued by the crown to the governors, and the instructions attending them; under the authority of which, provincial assemblies are constituted, with the power of making local ordinances, not repugnant to the laws of England; and also from *proprietary governments*, granted out by the crown to individuals, in the nature of feudatory principalities, with all the inferior regalities, and subordinate powers of legislation, which formerly belonged to the owners of counties palatine. See farther Blackstone's Comm. vol. i. p. 108.

CHARTER-HOUSE. See **CHARTREUSE**.

CHARTER-LAND, in Law, is such as a man holds by *charter*, that is, by evidence in writing; otherwise called **FREEHOLD**.

This the Saxons called **BOCK-LAND**; which Lambard renders, *terra ex scripto*.

It was held on more easy conditions than the folk-land, or *terra sine scripto*, held without writing: the former being *hereditaria libera & immunis*; whereas the latter *censum pensitabat annuum, atque officiorum quadam servitute erat obligatus*.

CHARTERER is in some places, as Cheshire, used for a **FREEHOLDER**.

CHARTERPARTY, in Commerce, denotes the instrument of freightage, or articles of agreement for the hire of a vessel.

The *charterparty* is to be in writing; and is to be signed both by the proprietor, or the master of the ship, and the merchant who freights it.

The *charterparty* is to contain the name and the burden of the vessel; those of the master and the freighter; the price, or rate of freight; the time of loading, and unloading; and the other conditions agreed on.

It is properly a deed, or policy, whereby the master, or proprietor of the vessel, engages to furnish immediately a tight sound vessel, well equipped, caulked and stopped, provided with anchors, sails, cordage, and all other furniture to make the voyage required, as equipage, hands, victuals, and other munitions; in consideration of a certain sum to be paid by the merchant for the freight. Lastly, the ship, with all its furniture, and the cargo, are respectively subjected to the conditions of the *charterparty*.

The *charterparty* differs from a *bill of lading*, in that the first is for the entire freight, or lading, and that both for going and returning; whereas the latter is only for a part of the freight, or at most only for the voyage one way.

The common law construes *charterparties*, as near as may be, according to the intention of them, and not according to the literal sense of traders, or those that merchant-dise by sea; but they must be regularly pleaded.

The president Boyer says, the word comes from hence, that *per medium charta incidebatur, & sic fiebat charta partita*; because in the time when notaries were less common, there was only one instrument made for both parties: this they cut in two, and gave each his portion, and joined them together at their return, to know if

each had done his part. This he observes to have been practised in his time: agreeable to the method of the Romans, who, in their stipulations, used to break a staff, each party retaining a moiety thereof as a mark.

CHARTIS reddendis, a writ which lies against him that has charters of feoffment intrusted to his keeping, and refuseth to deliver them to the owner.

CHARTOPHYLACIUM, a place where records were kept.

CHARTOPHYLAX, an officer in the church of Constantinople, intrusted with the custody of the archives.

The word is formed from *χαρτα*, and *φυλαττω*, *custodio*; and signifies *charter-keeper*.

Codin calls the *grand chartophylax* the judge of all causes, and the right arm of the patriarch. He adds, that he was the depositary or keeper of all the *charters* relating to the ecclesiastical rights; and that he presided over matrimonial causes, and was judge of all the clergy. He drew up all sentences and decisions of the patriarch, who signed and sealed them: he presided in the grand council of the patriarch: he took cognizance of all matters and causes ecclesiastical and civil, whether among the clergy, the monks, or the people.

He took place of all the bishops, though himself only a deacon; and, on occasion, discharged the functions of the priests: he had twelve notaries under him.

The *chartophylax* was much the same at Constantinople with the *chartulary* at Rome.

There were, in reality, two officers who bore this title; the one for the court, the other for the patriarch; the first was called also *registrator*, and the latter *scriniarius*: though the two are usually confounded together. Leunclavius, and others, confound *chartophylax* with *chartulary*.

CHARTREUSE, a celebrated monastery of Carthusians; so called from the name of a steep rocky place, in a frightful desert, five leagues from Grenoble in France; where S. Bruno retired from the world, and first instituted the order of Carthusians.

The name has since passed to all houses of Carthusians; and that near Grenoble, is now distinguished by the name of the *great Chartreuse*.

That of London, corruptly called *Charter-house*, is now converted into a college, called also from its founder *Sutton's hospital*; first endowed with 4000*l.* per ann. since improved to 6000*l.*

It is to consist of decayed gentlemen, soldiers, and merchants; eighty of whom have a plentiful maintenance of diet, lodging, cloaths, physic, &c. living together in a collegiate manner: and of scholars, or youths, forty-four of whom are taught, and supplied with necessaries; and such of them as are fit for the university sent thither, with an exhibition of 20*l.* per ann. for eight years; the rest are put to trades.

For the superintendency of this hospital there are sixteen governors, generally of the prime quality; vacancies being supplied by the election of the remaining governors. The ordinary officers are, a master, preacher, register, treasurer, schoolmaster, &c.

CHARTREUX, religious of the order of St. Bruno, called also **CARTHUSIANS**.

CHARTULARY, *Chartularius*, a title given to an ancient officer in the Latin church, who had the care of charters and papers relating to public affairs.

The *chartulary* presided in ecclesiastical judgments, in lieu of the pope.

In the Greek church, the *chartulary* was called *chartophylax*; but his office was there much more considerable; and some even distinguish the *chartulary* from the **CHARTOPHYLAX** in the Greek church.

CHARVIL, in Botany. See **CHERVIL**.

CHARYBDIS, in Geography, originally the name of a rock in the streights of Messina, between Italy and Sicily; much celebrated in the writings of the ancient poets.

CHARYBDIS is also a word used by Dr. Plott to express certain openings which he supposes in the bottom of the sea, by which its waters are received and conveyed by a subterranean circulation to the origin of fountains and springs. The *fluxus moschonicus*, or *maalsfrome* on the coast of Norway, is supposed to be owing to some such subterranean indraught; and it is advanced also, that the Mediterranean sea could not be emptied of the vast quantities of waters which it receives, but must overflow the land of Egypt, unless swallowed by some such *charybdis*, which is either in some part of the basin of that sea, or near the mouth of it; in which case, it may be the occasion of that strong under-current, described by all those who have treated of this sea. An immense *charybdis*, placed near the stright's mouth, may be hid under the immensity of waters there; but as it would absorb the deep waters continually, and that in large quan-

quantities, it would necessarily cause such an undercurrent there. See VAPOUR.

CHASCUSA, or **CASCUSA**, in the *Botanical Writings of the Ancients*, a name given by the Greeks to the *antirrhinum* of the Latin writers. It has been supposed by some, that the *chascusa*, or *cascusa*, was the same with the *phyteuma* of Dioscorides; but that author tells us the *phyteuma* was prickly, and had leaves like the *struthium*, which was a kind of thistle used in the dying of wool; whereas Pliny tells us, that the *chascusa*, or *antirrhinum*, has leaves like those of flax, that is, smooth, narrow, and oblong.

CHASE, or **CHACE**, in *Law*, is used for a driving of cattle to or from any place; as to a distress, a fortlet, &c.

CHASE, or **CHACE**, is also a place of retreat for deer and wild beasts; of a middle kind, between a forest and a park; being usually less than a forest, and not possessed of so many privileges; but wanting, v. gr. courts of attachment, swainmote, and justice-seat.

Yet it is of a larger extent, and stocked both with a greater diversity of wild beasts, or game, and more keepers, than a park. Crompton observes, that a forest cannot be in the hands of a subject, but it forthwith loses its name, and becomes a *chase*: in regard, all those courts lose their nature when they come into the hands of a subject; and that none but the king can make a lord chief justice in eyre of the forest.

By the common law, no person is at liberty to take or kill any beasts of *chase*, but such as hath an ancient *chase* or park; unless they be also beasts of prey.

Yet the same author adds, that a forest may be granted by the king to a subject, in so ample a manner, as that there may be courts equivalent to a court of attachment, swainmote, and justice-seat.

CHACE, *wild goose*, a term used to express a sort of racing on horseback, used formerly, which resembled the flying of wild-geese, those birds generally going a train one after another, not in confused flocks as other fowls do. In this sort of race the two horses after running twelve score yards had liberty, which horse soever could get the leading, to ride what ground the jockey pleased, the hindmost horse being bound to follow him within a certain distance agreed on by articles, or else to be whipped in by the tryers and judges who rode by; and which ever horse could distance the other, won the race. This sort of racing was not long in common use, for it was found inhuman and destructive to good horses, when two such horses were matched together. For in this case neither was able to distance the other, until they were both ready to sink under their riders, and often two very good horses were both spoiled, and the wagers forced to be drawn at last. The mischief of this sort of racing soon introduced the method now in use, of running only a certain quantity of ground, and determining the plate or wager, by the coming in first at the post.

CHASE, in *Sea-Language*, signifies a vessel pursued by another, apprehended or known to be an enemy. Hence, to *chase* is to pursue a ship; which is called also *giving chase*.

In *chasing* at sea, these rules are generally observed: if the *chased* be found any thing to the windward, the *chaser* is to bring all his tacks aboard, and to shape his course to meet her at the nearest angle. If the *chased* be to the leeward, then the *chaser* may come in with her, except she bear upright before the wind, and so outfall her; or that she bring herself close by the wind, and the *chaser* prove the more leeward ship, and so lose her that way. If the *chase* be found right a-head, and so the *chaser* be put to a stern-chase, then the best sailer shall carry it, if there be sea-room and day-light. Being come up close with the *chase*, endeavour to cross her fore-foot; and by that means you will both hinder her way, and avoid the fury of her ordnance (except those in her *chase*), and use your own if required, to more advantage; and that as well your *chase*-pieces, at your first getting up within reach, as your broad-side and quarter-pieces, as you pass thwart her hawse, and scour her decks from stem to stern. If she makes away from you, ply your guns, as many as possible, at her sails, yards, masts, and general tackling; and, being near, spare not your case-shot, or cross-bar-shot, to make the greater damage.

CHASE, *stern*, is when the chaser follows the chased a-stern, directly upon the same point of the compass.

To lie in a ship's fore-foot in a *chase*, is to sail, and meet with her by the nearest distance, and so to cross her in her way, or to come across her fore-foot.

A ship is said to have a *good chase*, when she is so built forward on, or a-stern, that she can carry many guns to shoot forwards, or backwards; according to which, she is said to have a *good forward*, or *good stern-chase*.

CHASE-guns, are such whose ports are either in the head, called *bow-chases* (and then they are used in chasing of

others); or in the stern, called *stern-chases*, which are only useful when they are pursued or chased by any other ship.

CHASE of a gun, is that part of the bore, which begins at the same circle where the second reinforce ends, and terminates at the extremity of the muzzle: or it is the part denoted by F B. fig. 1. Tab. Gunnery. If the length of a gun be divided into seven equal parts, the *chase* is four of these parts, wanting the diameter of the bore. Some have called the whole length of the bore the *chase*. See CANNON.

CHASE-girdle, is the part under FI in the same figure; and the *CHASE-astagal* and *fillet* is represented at x.

CHASING, a method of working, or enriching gold, silver, &c. properly called **ENCHASING**.

CHASLEU. See **CISLEU**.

CHASM, *Χασμ*. See **GROTTO** and **HIATUS**.

CHASME, or **CHASMOS**, among *Ancient Physicians*, denotes oscitation, or gaping. Hippocrates informs us, that long respiration is a cure for continual **OSCITATION**.

CHASUE-tree. See **AGNUS castus**, and **VITEX**.

CHASTISEMENTS, or **CORRECTIONS**, in the *Manege*, are the severe and rigorous effects of the aids; for when the aids are given with severity, they become punishments.

CHASTITY. The Roman law justifies homicide in defence of the *chastity* either of one's self or relations; and according to Selden (*De Leg. Heb. lib. iv. cap. 3.*) the law in the Jewish republic had the same latitude. The English law also justifies a woman in killing one who attempts to ravish her. *Bac. Elem. 34. 1 Hawk. P. c. 71.* And the father or husband may justify killing a man, who attempts a rape upon his wife or daughter: and the forcible attempt of a more detestable crime may be equally resisted by the death of the unnatural aggressor. *Blackst. Com. vol. iv. p. 181.*

CHATE, in *Botany*, a name given by some authors to a species of wild CUCUMBER; called by others *cucumis Egyptius rotundi-folius*, the round-leaved cucumber of Egypt.

CHATELET, anciently signified a little **CASTLE**, or fortress, wherein the *chatelain*, or governor, lodged.

The word is a diminutive of *chateau*, formed from *castellum*, a diminutive of *castrum*; or from *castelletum*, a diminutive of *castellum*, *castle*.

At present the term is used for certain courts of justice established in several cities in France: the *grand chatelet* in Paris, v. gr. is the place where the presidial, or ordinary court of justice of the prevot of Paris is kept; consisting of a presidial, a civil chamber, a criminal chamber, and a chamber of policy. The term signifies the same at Montpellier, Orleans, &c.

The *little chatelet* at Paris is an ancient fort, now serving as a prison.

CHAT-PARD, in *Natural History*, a creature of the **LEOPARD** kind. See **PARDUS**.

The French academicians, who dissected this creature with great care, found a defect of spermatie vessels, and other parts absolutely necessary to generation; and this not proceeding from castration, but from some other cause.

CHATELS, *Catalis*, *Catalla*, a Norman term, under which were anciently comprehended all moveable goods; those immoveable being termed *fief*, or, as we now say, *fee*.

Spelman defines *chattels* to be *bona quæcunque mobilia & immobilia; propriè tamen ea bonorum pars, quæ in animalibus consistat, à quorum capitibus res ipse, alias capita, alias capitalia dictæ sunt.*

CHATELS, in the modern sense of the word, are all sorts of goods, moveable or immoveable, except such as are in nature of freehold, or parcel thereof.

Chattels are either *personal* or *real*.

CHATELS personal, are such as do either belong immediately to the person of a man, as his horse, sword, &c. or such things as being injuriously withheld from him, a man has no way to recover but by **PERSONAL** action: or, strictly speaking, they are things *moveable*, which the owner may carry with him from one place to another; such as animals, household furniture, money, jewels, corn, garments, and every thing that is capable of being removed.

Chattels personal are, immediately upon the death of the testator, in the actual possession of the executors; whereas *chattels real* are not in his possession till he hath made an entry, or recovered them. An owner of *chattels* is said to be *possessed* of them; but a person is said to be *seised* of a freehold.

CHATELS real, are either such as do not appertain immediately to the person, but to some other thing, by way of dependence; as charters of land, apples upon a

tree, &c. or such as necessarily issue out of some immovable thing to a person, as a lease, or rent for years. They are called *chattels*, because their duration is limited to a certain time; and *real*, because they are interests annexed to, and issuing out of *real* estates.

CHATTERER, in *Ornithology*. See **AMPELIS** and **GARULUS**.

CHATUS, in *Middle Age Writers*, a kind of gold coin.

CHATUS was also called, by some French writers, *mailles aûchat*.

Du-Cange makes it a question, whether the *chatus* was the same coin as the *chapoteusis*, and supposes that the latter might be formed from *chati Pictavenses*; in French, *chats de Poitou*.

CHAVARIGHTS, a sect of Mahometans, who deny that God ever sent a prophet that was infallible; and who had a commission to give a law to mankind: they pretend likewise that if such an office should ever become necessary, it would not be confined to a single family, but that every man of probity and virtue would be capable of that honour.

CHAUD-Medley, in *Law*, and according to its proper etymology, denotes an affray that happens in the heat of blood or passion. See **CHANCE-Medley**.

CHAULIODONTA, from *χαλαω*, I put forth, and *odus*, tooth; among *Ancient Naturalists*, is applied to those animals, the teeth of which grow to a great length out of their mouths; as the boar and the elephant.

CHAUMPERT. See **CHAMPART**.

CHAUNTOR, **CHAUNTER**. See **CHANTOR**.

CHAUNTRY, or **CHANTRY**, was anciently a church, or chapel, endowed with lands, or other yearly revenue, for the maintenance of one or more priests, daily saying or singing mass for the souls of the donors, and such others as they appointed. These *chauntries* were dissolved by 1 Ed. VI. cap. 14.

Hence, *chantry-rents*, are rents paid to the crown by the tenants, or purchasers of *chantry lands*.

CHAUFFE-WAX. See **CHAFFE-WAX**.

CHAURUS, or **CHORUS**, among the Romans, the north-west wind, or that which blew between the wind called *favonius* and the north.

CHAUSE Trappes. See **CALTROP** and **CROWSFEET**.

CHAUSSE' trop-haut, in the *Manege*. A white-footed horse is said to be such, when the white marks run too high upon the legs.

CHAYQUARONA, in *Zoology*, a name given by the Portuguese to a fish of the **TURDUS** kind, caught on the Brazilian shores, and more frequently called by authors by its Brazilian name, **PIRUMBU**.

CHAZINZARIANS, or **CHATZINZARIANS**, a sect in Armenia in the seventh century.

The word is formed of the Armenian *chazus*, *cross*. In the Greek text of Nicephorus, they are called *Chatzinzarians* *Χατζινζαριοι*.

They are also called *Staurolatræ*, which, in Greek, signifies the same as *Chazinzarians* in Armenian, viz. *adorers of the cross*; they being charged with paying adoration to the cross alone.

In other respects they were Nestorians; and admitted two persons in Jesus Christ. Nicephorus, lib. xviii. cap. 54. ascribes other singularities to them, particularly their holding an annual feast, in memory of the dog of their false prophet Sergius; which they called *Artzibartzes*.

CHEATS, in *Law*, are deceitful practices in defrauding, or endeavouring to defraud another of his known right, by some artful and dishonest device; as by playing with false dice, by fraudulently obtaining the execution of deeds and trusts, by suppressing wills, by raising money under false pretences, &c. Any deceitful practice, whether in trade or otherwise, is punishable with fine, imprisonment, and pillory. And by the statutes 33 Hen. VIII. cap. 1. and 30 Geo. II. cap. 24. if any man defraud another of any valuable chattels by any false token, counterfeit letter, or false pretences, or pawns or disposes of another's goods without the consent of the owner, he shall suffer such punishment by imprisonment, fine, pillory, transportation, whipping, or other corporal pains, as the court shall direct. And by 9 Anne, cap. 14. if any person *cheats* at play, and at one time wins more than 10*l*. or any valuable thing, he may be indicted thereupon, and shall forfeit five times the value, shall be deemed infamous, and suffer such corporal punishment as in case of wilful perjury. Blackst. Com. vol. iv. p. 158, and 173.

CHECAYA, in *Turkish Affairs*, is the second officer of the janizaries, and synonymous with lieutenant, or the second in any office.

CHECK-roll, a roll, or book, containing the names of such as are attendants, and in pay to the king, or other great persons; as their household servants.

It is otherwise called the *chequer-roll*. See **ROLL**.

CHECK, *clerk of the*, in the king's household, has the *check* and controulment of the yeomen of the guard, and all the ushers belonging to the royal family; allowing their absence or defects in attendance, or diminishing their wages for same, &c.—He also, by himself, or deputy, takes the view of those that are to watch in the court, and has the setting of the watch. 33 Hen. VIII. c. 12.

CHECK, *clerk of the*, in the king's dock-yards, is also the name of an officer, who keeps a muster or register of all the men employed aboard his majesty's ships and vessels, and of the artificers and others in the service of the navy, in the port to which he belongs.

CHECK, in *Falconry*, is where a hawk forsakes her proper game, to follow rooks, pies, or other birds that cross her in her flight.

CHECKER. See **EXCHEQUER**.

CHECKER-course, in *Brick-Making*. See **BRICK**.

CHECKY, in *Heraldry*, is where the shield, or a part thereof, as a bordure, &c. is chequered, or divided into chequers, or squares. See *Tab. Heraldry*, fig. 15.

Where there is but one row of squares, it is not properly called *checky*, but *countercompounded*.

Checky, according to Colombiere, is one of the most noble and ancient figures in all armory; and ought never to be given, but to persons who have distinguished themselves in war: for it represents a chess-board, which itself is a representation of a field of battle. The pawns and men, placed on both sides, represent the soldiers of the two armies; which move, attack, advance, or retire according to the will of the two gamesters, who are the generals.

Checky is always composed of metal, and colour. Some authors, however, would have it ranked among the sorts of furs.

When the whole escutcheon is chequered, it should ordinarily contain six ranges: there is no need of blazoning to express them; only it must be observed, to begin to blazon by the first square in chief on the dexter side. So that if that be *or*, and the next *gules*, the house, or family, is said to bear *checky*, *or*, and *gules*.

When the whole shield is not chequered, but only the chief, a bend, cross, or the like, the number of ranges should be expressed.

CHEEK, in *Anatomy*, that part of the face situated below the eyes on either side.

Wounds of the *cheeks*, if small, may be cured by means of the dry future; but, if very large, will require the bloody one, to bring their lips together: they are then easily healed with vulnerary balsams. But if it happen that one of Steno's salivary ducts is wounded in its passage across the *cheek* from the parotid gland, the constant discharge of saliva into the wound will prevent the cure, till the duct is perforated in the internal part of the *cheek*, to make a passage for the saliva into the mouth. This method is proposed by Cheselden in his anatomy.

CHEEKS, a general name among *Mechanics*, for almost all those pieces of their machines and instruments, that are double, and perfectly alike.

The *cheeks of a printing press*, are its two principal pieces: they are placed perpendicular, and parallel to each other; serving to sustain the three sommers, viz. the head, shelve, and winter, and to bear the spindle, and other parts of the machine.

The *cheeks of a turner's lathe*, are two long pieces of wood, between which are placed the *puppets*, which are either pointed, or otherwise, serving to support the work, and the mandrils of the workman. These two pieces are placed parallel to the horizon, separated from one another by the thickness of the tail of the *puppets*, and joined with tenons to two other pieces of wood, placed perpendicularly, called the *legs of the lathe*.

Cheeks of the glazier's vice, are two pieces of iron joined parallel at top and bottom; in which are the axis, or spindles, little wheel, cushions, &c. whereof the machine is composed.

CHEEKS of a mortar, or **BRACKETS**, in *Artillery*, are made of strong planks of wood, bound with thick plates of iron, and are fixed to the bed by four bolts; they rise on each side of the mortar, and serve to keep her at what elevation is given her, by the help of strong bolts of iron which go through both *cheeks*, both under and behind the mortar, betwixt which are driven coins of wood; these bolts are called the bracket-bolts, and the bolts which are put one in each end of the bed, are the traverse-bolts, because with hand-spikes the mortar is by these traversed to the right or left.

CHEEKS, in *Ship-Building*, are two pieces of timber, fitted on each side of the mast, at the top, serving to strengthen the masts there. The uppermost bail or piece of timber in the beak of a ship, is called the *cheek*. The knees which fasten the beak-head to the bow of the ship, are called

called *checks*; and the sides of any block, or the sides of a ship's carriage of a gun, are called *checks*.

CHEEKS, *upper and lower*, are those pieces of timber on each side of the *TRAIL-board*.

CHEESE, a kind of food; being a preparation of milk curdled by means of rennet, and afterwards dried, and hardened.

Cheese is nothing but milk purged of its serum, or whey; and sometimes too of the cream, or butyrous part of the milk.

Cheese, when new, is found to load the stomach, by reason of its moisture and viscosity; and when too old, it heats and inflames it by its salts. The physicians advise it to be eat in small quantities: hence that Latin verse,

Casus ille bonus, quem dat avara manus.

Dr. Quincy says, it cannot be too old: it is certain, the more it abounds with salts, the more will it contribute to digestion, and the clearing of the stomach of other food. Indeed some condemn all use of *cheese*; sheltering themselves under that ancient maxim, *Casus est nequam, quia concoquit omnia se quam*.

The Laplanders make a sort of *cheese* of the milk of their rein-deer, which is not only of great service to them as food, but on many other occasions. Scheffer's Hist of Lapl.

CHEESE Rennet, in *Botany*. See *LADY'S Bedstraw*.

CHEEVANCE. See *CHEVISANCE*.

CHEF. See *CHIEF*.

CHEF d'oeuvre. See *MASTERPIECE*.

CHEGGIO, in *Botany*, a name given to a sort of lactescent plant, common in Cambaya. It is reported by authors, and by the people of the country, that those knobs and beards of this plant which grow facing the north, are a very noble medicine in the cure of apoplexies and other nervous disorders, but that those knots and beards of the same plant which look southward are poisonous. Redi proved some of this famous plant, and gave it several fair trials, but found the history of its nature and effects wholly false.

CHEILOCACÆ, among *Physicians*, literally signifies the *lip-evil*. It is a swelling of the lips, to which the inhabitants of northern countries, especially children, are said to be very subject; particularly those in England and Ireland, if we may credit Castellus.

CHEIRANTHUS, in *Botany*. See *Stock Gilly-flower*.

CHEKAO, in *Natural History*, the name of an earth found in many parts of the East Indies, and sometimes used by the Chinese in their porcelain manufactures. It is a hard and stony earth, and the manner of using it is this: they first calcine it in an open furnace, and then beat it to a fine powder. This powder they mix with large quantities of water; and stirring the whole together, they let the coarser part subside, and pouring off the rest, yet thick as cream, they leave it to settle, and use the matter at the bottom, which is found in form of soft paste, and will retain that humidity a long time. This supplies the place of the earth called *boache*, in the making that elegant sort of china-ware which is all white, and has flowers which seem formed by a mere vapour within its surface. The manner of their using it is this: they first make the vessel of the common matter of the manufacture; when this is almost dry, they paint upon it the flowers, or whatever other figures they please, with a pencil dip in this preparation of the *chekao*; when this is thoroughly dry, they cover the whole vessel with the varnish, in the common way, and bake it as usual. The consequence is, that the whole is white; but the body of the vessel, the figures, and the varnish, being three different substances, each has its own particular white; and the flowers, being painted in the finest white of all, are distinctly seen through the varnish upon the vessel, and seem as if traced by a fine vapour only. The *boache* does this as well as the *chekao*, and has beside this the quality of serving for the making the porcelain ware, either alone, or in the place of the *kaolin*: the *chekao* has not this property, nor any other substance beside this *boache*, which appears to be the same with our steatites or soap-rock.

CHELA, in *Medicine*, has several significations. It imports a forked probe, mentioned by Hippocrates, lib. ii. De Morbis, used in extracting a polypus of the nose. But in Rufus Ephesus. cap. iv. *chelæ* implies the extremities of the *cilia*, which touch each other when the eyes are shut. But the most frequent signification of *chelæ* is claws, particularly those of the crab.

Chelæ further signifies fissures in the heels, feet, or pudenta.

CHELANDIUM, in *Middle Age Writers*, is used for a kind of vessel or ship. It is also called *chelandrium*, *chelindrus*, *chelindra*, *salandra*, and *salandria*, and, by the Byzantine writers, *χελανδριον*. It is mentioned by Ditmar as a

vessel of great length, carrying oars, and a hundred and fifty seamen. It seems to have resembled an Italian galley.

CHELANDURUS, in *Middle Age Writers*, a small kind of *CHELANDIUM*.

CHELAZIUM, a name used by some authors for a moveable tubercle in the eye-lid, commonly called in English a *sticthe* or *stye*.

CHELIDON, in *Ichthyology*, the name given by many of the old Greek writers to a kind of flying-fish, called by some authors *milvus* and *hirundo*, and by some *accipiter*, or the *HAWK-fish*. It is properly a species of *trigla*, and is distinguished by Artedi by the name of the *trigla* with the head a little aculeated, and with a singular fin near the pectoral fins. This method of reducing the fish to their true genera, and distinguishing them by their proper specific names, is the only method of truly knowing them. The arbitrary names of *milvus* and *hirundo* carry so little idea of the peculiar fish with them, that they may be as well applied to one species as another; and accordingly we find two or three different species of the *trigla* called *milvus*, &c. by different authors.

CHELIDONIA, among the Romans, a name given to the wind more commonly called *FAVONIUS*.

It was only called *chelidonia* for a fortnight in the middle of February, because at that time the swallow makes its first appearance.

CHELIDONIUM, in *Botany*. See *CELANDINE*.

CHELIDONIUS, in *Botany*, a name given by some writers to the *ANEMONE*. The reason seems to have been its flowering about the time of the swallows coming from their winter retreats.

CHELIDONIUS, in *Insectology*, the name of a fly called the swallow fly, by reason of its swift flight. It is in most parts of a brown colour, and has black prominent shoulders, a black head, and short black antennæ. The wings are silvery, and edged with black. It often sits a long time together on the leaves of plants; but is very quick-sighted, and when any person comes near it, it is gone in a moment, and usually takes such long flights, that it is not easily caught afterwards.

CHELIDONIUS, in *Natural History*, a stone pretended to be found in the stomachs of young swallows; much esteemed by some for the falling sickness.

The word is formed from *χελιδων*, a swallow. See *SWALLOW-stone*.

CHELON, in *Zoology*, the name of a fish of the mullet kind, and much resembling the common mullet in its general shape, but its eyes are more prominent, and its head smaller. It has also its side-lines, which run from the head to the tail, very evenly ranged, and placed at equal distances, and its lips are remarkably thick and prominent. It is of the size of the common *MULLET*.

CHELONE, in *Botany*, a genus of the *didynamia angiospermia* class. Its characters are these: the flower is of the ringent kind, having a short cylindrical tube, which is swollen at the chaps, where it is oblong, convex above, and plain below; the mouth almost closed. It hath four stamina, the two side ones being a little longer than the other. It hath an oval germen, which afterward becomes an oval capsule, having two cells, which are filled with flat, roundish seeds, having a border. There are three species, which grow naturally in North America.

CHELONITES, a stone said to be found in the Indian tortoises, and to have the faculty of resisting poison.

The word is formed from *χελων*, a tortoise.

Some confound the *chelonites* with the *bufonites*, or toad-stones.

CHELSEA College. See *HOSPITAL*.

CHELYDRUS, in *Natural History*, a species of serpents, the same with the *CHERSYDRUS*.

CHELYS, among the *Ancients*, a musical instrument of the pulsative kind, said to be invented by Mercury, and formed of a shell found in the river Nile, at the time of low water.

CHELYSMA, in *Antiquity*, a thick piece of wood which the Greeks fixed to the keels of their ships, to save them from being worn or broken. It was also called *cuneus*.

CHEMA, according to Blancard, is the name of a certain measure sometimes mentioned by the Greek physicians, and which he thinks contains two small spoonfuls.

The determined weight of this quantity cannot be accurately ascertained, in consequence of the different specific gravities of different substances: just as, at present, the word *spoonful* is used in a vague and undetermined sense, especially with respect to substances, of which it is a matter of indifference whether a little more or a little less be used.

CHEME, among the Romans, was a liquid measure, containing the fifth part of a *CYATHUS*.

CHEMICAL glasses, how to cement when cracked, see *CEMENT*.

CHEMIN

CHEMIN *des rondes*, in *Fortification*. See *WAY* of the rounds.

CHEMISE, in *Fortification*, a wall wherewith a bastion, or ditch, is lined, for its greater support and strength.

CHEMISE, *fire*, is a piece of linen cloth, steeped in a composition of oil of petrol, camphor, and other combustible matters; used at sea, to set fire to an enemy's vessel.

CHEMISTRY. See *CHYMISTRY*.

CHEMOSIS, in *Medicine*, a disease of the eye, proceeding from an inflammation, when the white of the eye swells above the black, and overtops it to such a degree, that there appears a sort of *χῆμα*, *hiatus*, or gap between them, whence it takes its name. Galen calls it a red and carnosus inflammation of the *cornea tunica*.

Dr. Burghart, in a *chemosis* where the *cornea* was already burst, dilated the opening, and extracted the crystalline lens, which had come forward before the *iris*. The lens was so changed and suppurated, that it resembled a piece of white amber: after extracting it, the pain of the eye became milder.

CHENCE, in *Old Customs*, seems to be much the same as *AMABYR*.

CHENILLES, *fausse*, *bastard caterpillars*. See *FAUSSE*.

CHENISCUS, from *χην*, a *goose*; among the *Ancients*, an ornament in the form of little geese, used on the prows and sterns of their ships.

CHENOCORPUS, *Goose-dung*, in *Medicine*, is accounted very acrimonious and resolvent, and therefore prescribed with success in the jaundice. The greenish dung is esteemed the best. It is gathered in the meadows in spring time, and being dried with a moderate heat, and pulverised, is given from half a dram to a full dram at a dose. It is recommended also in the scurvy, and other diseases.

CHENOPODIUM, in *Botany*. See *GOOSE-FOOT*.

CHENSERS, in our *Statutes*, is used for such as paid tribute or *cense*, quit-rent, or chief-rent.

CHEQ, or *CHERIF*, the prince, or high-priest of Mecca; sovereign pontiff of the Mussulmans; and owned as such by all the sects into which they are divided.

The grand signior, sophies, mogols, khans of Tartary, &c. send him yearly presents; especially tapestry, to cover Mahomet's tomb, and tents for himself: for the *cheq* has a tent near the mosque of Mecca, wherein he lives during the seventeen days of devotion in pilgrimage to Mecca. The tapestry and tent are changed each year, and pieces thereof are sent to the princes who furnish new ones.

His revenue is very considerable, consisting of presents made by the Mahometan princes, and pilgrims, to the mosque of Mecca and Medina.

The *cheq* subsists all the pilgrims during the seventeen days of devotion; on which account he is every year furnished with a very considerable sum of money from the grand signior: the better to obtain this, he makes him believe, that there are constantly, during this time, seventy thousand pilgrims; and that, should the number fall short, the angels, in form of men, would make it up.

CHERAMIS, in *Antiquity*, a medical measure. According to Erotian on Hippocrates, it was the hollow of a shell-fish called *myax*, and took that name from *χρημα*, which signifies a *hollow place*. It frequently occurs in Hippocrates, and seems not much different from the *chema*, which in Galen's Exegesis is expounded by it. Cornavius also explains *cheramis* by the measure of a *chema*; and Calvus on another passage expounds it by a *pugil*.

CHEREF, a title assumed by the emperors of Morocco. See *CALIPHATE*.

CHEREM, among the Jews, is used to signify a species of *ANNIHILATION*.

The Hebrew word *cherim* signifies properly to *destroy*, *exterminate*, *devote*, *anathematize*.

CHEREM is sometimes likewise taken for that which is consecrated, vowed, or offered to the Lord, so that it may no longer be employed in common or profane uses. There are some who assert, that persons thus devoted were put to death; whereof, they say, Jephtha's daughter is a memorable example. Judg. xi. 29, &c.

CHEREM is also used for a kind of excommunication in use among the Jews. See *NIDDUI*.

CHERLERIA, in *Botany*, a name given by Haller and Linnaeus to a genus of plants of the *decandria trigynia* class, the characters of which are these: the perianthium is composed of five equal lanceolated leaves. There are no petals; but there stand within the cup five very small, roundish, and emerginated *nectaria*, disposed in a circular order. The stamina are ten fuculated filaments, five of which are affixed to the *nectaria*. The *antheræ* are simple; the germen of the pistil is of an oval figure; the styles are three, and stand open; the stigmata are

simple. The fruit is an oval capsule, composed of three valves, and divided into three cells. The seeds are numerous, convex on one side, and angular on the other.

The *nectaria* of this genus shew, that they are of kin to the *sedums* or houseleeks; but in the fruit it differs altogether from the *sedums*, and rather approaches to the nature of the *lychnis*; it would therefore be very improper to confound it with either of those genera.

CHERMES, in *Zoology*, a genus of four-winged insects, the characters of which are these: its *rostrum*, or trunk, is situated under its breast; the abdomen is mucronated, or pointed, at the hinder extremity; and the legs are formed for leaping.

These insects, which in English are called bugs, take particular denominations from the trees or plants on which they feed: as the *elm-BUG*, the *fir-BUG*, the *birch-BUG*, the *maple-BUG*, the *willow-BUG*, the *nettle-BUG*, &c.

CHERMITES, or *CHERNITES*, in the *Natural History* of the *Ancients*, a name given by many to a species of very bright and white marble or alabaster, which seems to have been the same with that called afterwards *LYGDINUM marmor*.

CHERNIBS, in *Antiquity*, a vessel wherein people used to wash their hands before they went to attend religious service.

The word is derived from *χερ*, the *hand*, and *νιπτω*, to *wash*.

CHERRY-Tree, *Cerasus*, in *Botany*, the name of a genus of trees, according to some writers, but a species of the *PRUNUS* in the Linnaean system. For the botanical characters, see *PLUM-Tree*.

This tree is called *cerasus*, according to Servius, from the name of a city in Pontus, which Lucullus destroyed; and the fruit of it was brought by him to Rome, in the year of the city 680, and into Britain about a hundred and twenty years afterwards, or A. D. 55. Soon after it was spread through most parts of Europe. The species of the *cherry-tree* enumerated by Miller are five, viz. 1. the common or Kentish *cherry*, from which many modern botanists suppose that most of the varieties cultivated in the English gardens are derived; such as the early May *cherry*, the May-duke *cherry*, the arch-duke *cherry*, the Flemish *cherry*, the red-heart, the white-heart, the black-heart, the amber-heart, the ox-heart, the lukeward, the carnation, the Hertfordshire-heart, the morrello, the bleeding-heart, and the yellow Spanish *cherry*, besides two sorts with double flowers, which are propagated for ornament. 2. The *cherry-tree* with spear-shaped sawed leaves, or the greater wild *cherry-tree* with a sweetish fruit, whose juice yields a black colour. This is a black *cherry*, supposed to be a native of England. This tree grows to a large size, produces beautiful flowers, affords good food for birds, and the wood of it is useful for turners. The French plant them for avenues to their houses, where other trees will not thrive, and cultivate them for the manufacture of hoops. The varieties raised by seeds from this tree are the black coroun, which is a good bearer, and yields excellent fruit, and the small wild *cherry*. 3. The *cherry-tree* with oval spear-shaped leaves, and flowers growing in clusters, commonly called the cluster *cherry*. 4. The *cherry-tree* with flowers growing in round bunches, and oval-leaves, called the *Mahaleb*, or perfumed *cherry*. The wood of this sort is esteemed by the French for cabinet-making, on account of its agreeable odour. 5. The *cherry-tree* with smooth, spear-shaped, entire leaves, of a bluish green on their under side, and spreading branches, called the dwarf *Canada cherry*.

The several sorts of *cherry-trees* are propagated by binding or grafting the several kinds into stocks of the black or wild red *cherries*, which are strong shooters, and of a longer duration than any of the garden kinds. The stones of these two kinds are sown in a bed of light sandy earth in autumn, and the young stocks produced from them are to remain where they rise till the second autumn after their sowing, when in October they should be planted out into a rich earth, at three feet distance from row to row, and at about ten inches distance in the rows. The second year after the planting out, they will be fit to bud, if they are intended for dwarfs; but if they are intended for standards, they will not be tall enough till the fourth year; for they should be budded or grafted near six feet from the ground. The grafting is usually performed in summer, and the head of the stock is to be cut off in the beginning of the March following, about six inches above the bud; and if the bud has shot well, and there is any fear of its being displaced by winds, it must be gently tied up to the part of the stock left above it. The autumn afterwards, these trees will be fit to remove, and be set where they are to remain; or they may be left two years. Many, when they plant these trees in their places, lop off a great part of their heads,

heads, but this is an injury that often kills them; and when they escape, they seldom get well over it for four or five years. If the trees are intended for walls, it is advisable to plant dwarfs between the standards, that these may cover the lower part of the wall, while the others spread over the upper part; and when the dwarfs rise to fill the whole walls, the standards should be taken entirely away. When these trees are taken up from the nursery, the dead fibres of the roots must be carefully taken off, and the upper part of the stock which is above the bud, must be cut off close down to the back part of it: the dud must be placed directly from the wall.

Cherry-trees thrive best in a dry hazley loam, and in a gravelly soil are very subject to blights, and seldom stand long good. They should be placed at fourteen feet asunder, with a standard-tree between each two. In pruning these trees, their shoots should never be shortened, for they mostly produce their fruit from their extreme part. All the fore-right shoots are to be displaced, and the others trained horizontally; and where there is a vacancy in the wall, the branches being shortened, will throw up a shoot or two to fill it.

CHERRY, *Barbadoes*, *Malpighia*, in *Botany*, a genus of the *decandria trigynia* class. Its characters are these: the flower hath five kidney-shaped petals, which are concave, and spread open; and ten awl-shaped stamina, with two mellow glands adhering to the empalement. It has a small roundish germen, supporting three slender styles; the germen turns to a large, furrowed, globular berry, with one cell, inclosing three rough, angular stony seeds. There are eight species, natives of the West Indies, where the fruit is eaten by the natives.

CHERRY, *Cornelian*, *Cornus*, in *Botany*, a genus of the *tetrandria monogynia* class. Its characters are these: it hath many flowers, which are included in one common four-leaved coloured involucre; the flowers have four plain petals, and four erect stamina, which are longer than the petals. The round germen situated below the empalement becomes an oval or roundish berry, inclosing a nut with two cells, having an oblong kernel. There are six species. *Miller's Gard. Dict.*

The fruit of this tree is cooling, drying, and astringent, strengthens the stomach, stops all kinds of fluxes, and is good in fevers, especially if accompanied with a diarrhæa. The only officinal preparation of this fruit is the *rob de cornis*.

CHERRY, *Dwarf*, and **CHERRY** of the *Alps*, *Lonicera*. See *Upright HONEY-SUCKLE*.

CHERRY, *Hottentot*, *Maurocenia*, in *Botany*, *Lin. Gen. Plant. edit. 2. 289*. Its characters are these: the flower has five oval petals, which spread open; it hath five stamina, which are situated between the petals; and in the centre is situated a roundish germen, crowned by a trifid stigma. The germen turns to an oval berry with one or two cells, each containing a single oval seed. There are three species, natives of the Cape of Good Hope, and one discovered at Jamaica. This plant is annexed to the genus of *CASSINE*, in the last edition of *Linnaeus's Genera*.

CHERRY, *Winter*, *Physalis*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flower has a swelling permanent empalement, which is five-cornered, and cut at the top into five acute points; the flower has one wheel-shaped petal, with a short tube, and a large brim, which is five cornered, and plaited; it has five small awl-shaped stamina, which join together, and a roundish germen supporting a slender style, crowned by an obtuse stigma; the germen afterwards turns to an almost globular berry, with two cells inclosed in the large inflated empalement, filled with compressed kidney-shaped seeds. There are sixteen species.

This plant is easily propagated, either by seed, or by parting the roots. Its only beauty is in the autumn, when the fruit is ripe, at which time their red bladders opening and disclosing the cherry-shaped fruit, make a pretty appearance.

The leaves are cooling, and of the nature of common night-shade. The berries are a singular good diuretic, and useful against the gravel and stone: being boiled in milk, and sweetened with sugar, they cure the heat of urine, making bloody water, and ulcers in the kidneys and bladder. They relieve the jaundice by opening obstructions of the liver and gall-bladder; and the dropsy, by carrying off the water through the urinary passages.

The only officinal preparation is the *trochisci alkekengi*.

CHERRY-brandy, a drink made of brandy, with the addition of cherries.

The cherries commonly used therein, are of the black kind; with these, a bottle being half filled, is filled up with brandy, or spirits. The whole is to be shaken up now-and-then; and in a month's time it becomes fit for use.

To sweeten it, and improve the flavour, some choose to put in sugar, with a quantity of raspberries.

CHERRY-wine is made by adding two pounds of sugar to every two gallons of the juice of cherries. The liquor is afterwards put into a vessel to ferment; and after standing about two months in the cask, is bottled off with a little sugar, for use.

CHERSA, called also *fecula*, in some medical writers, signifies a root reduced to a farinaceous powder. This way of preparation some condemn, as exhausting the virtues of the drug, and rendering it good for nothing; others defend it.

CHERSÆA, *earthy*, from *χρησος*, *earth*; an epithet of the three species of ASPs, mentioned by Galen and Aegineta.

CHERSETUM, in *Old Customs*, is used for *churchset*. See *CHURCH-SCOT*.

CHERSONESUS, in *Geography*, a peninsula; or a continent almost encompassed round with the sea, only joining to the main land, by a narrow neck, or isthmus.

The word is Greek, *χερσονησος*; of *χρησος*, *land*, and *νησος*, *island*; which signifies the same.

This term is used by the moderns, in complaisance to the ancients, who called all their peninsulas by this name: accordingly, such places as were hereby distinguished among them retain the name among us; as the *Chersonesus* of Peloponnesus, of Thrace, *Chersonesus Cimbrica*, *Aurea*, &c.

CHERSYDRUS, *χερσυδρος*, an amphibious serpent; so called, because it lives first in watry places, whence it is called *hydrus*; after which it shifts its habitation, and lives on dry ground, and thence has its compound appellation *chersydrus*.

CHERT, or **CHERK**, in *Natural History*, a name given by some of our miners to a peculiar fine kind of stone found in strata, but of the hardness and smoothness of flint. It is called also in some places *whern*, and by some authors *nicomia*.

Dr. Martyn, when he examined the mines of Derbyshire, found great quantities of this stone, and in some places varying from its common colours and manner of appearance. In some places instead of the thin strata which this stone usually forms, he found it in beds of three or four yards thick, and sometimes much more. Such thick strata of it he also found in the Peak of Derbyshire. He observed, that they were always found among strata of lime-stone; and that sometimes the chert did not form regular strata, but lay in large loose nodules. In many places the chert was black, and in others of a dark greenish colour; the workmen hence call them black cherts, and green cherts. *Phil. Trans. N° 407*.

Cherts are used as grinding-stones for calcined flints, and other hard substances; but are of too smooth and close a texture for grinding corn.

CHERUB, or **CHERUBIM**, a celestial spirit, which, in the *HIERARCHY*, is placed next in order to the seraphim. The word is formed of the Hebrew *כרוב*, *cherub*; the plural whereof is *cherubim*.

The figure of the *cherubim* was not always uniform, since they are differently described in the shapes of men, eagles, oxen, lions, and in a composition of all these figures put together. Moses likewise calls these symbolical or hieroglyphical representations, which were represented in embroideries upon the veils of the tabernacle, *cherubim* of costly work. Such were the symbolical figures which the Egyptians placed at the gates of their temples, and the images of the generality of their gods, which were commonly nothing but statues composed of men and animals.

CHERUBIM was also the name of an ancient military order in Sweden, otherwise called the *order of Seraphim*. It was instituted by Magnus IV. in 1334, and abolished by Charles IX. It took its denomination from the golden figures of *cherubim*, whereof the collar of the order was composed.

CHERVILL, *Charophyllum*, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these: it is a plant with umbellated flowers; the principal umbel is spreading, and composed of several small ones called rays: the flowers have five heart-shaped inflexed petals, and five stamina. The germen is situated below the flower, supporting two reflexed styles, which afterward becomes an oblong pointed fruit, dividing in two parts, each having one seed, which is convex on one side, and plain on the other. There are five species.

The first sort grows naturally on the sides of highways, and the borders of the fields in most parts of England, so is never cultivated in gardens. It is frequently called cow-parsley, but from what reason does not appear, because few animals care to eat it, except the ass; it having in a less degree something of the quality of hemlock. It is a weed which should be rooted out of all pastures early in the spring, for it is one of the most early plants

in shooting, and by the beginning of April the leaves are near two feet high.

The fourth sort is the common garden *chervil*, and flowers in May and June. Its leaves and seeds are used in medicine; the seed contains the principal virtue of the plant, and is esteemed a great medicine in jaundices and dropsies. It is very certain that it is a powerful diuretic, and therefore recommended in the gravel and stone; and likewise a promoter of the menses. It resolves coagulated blood, and generally disposes the person to sleep. It is used also externally in fomentation in colicky pains and retention of urine.

The leaves of this plant are what the good women call *sweet fern*, from which they distil a water, and esteem it a very great remedy for colics.

This will thrive on any soil, and in any situation.

CHESS, an ingenious game, performed with little round pieces of wood, on a board divided into sixty-four squares; where skill and address are so indispensably requisite, that chance has no place; and a person never loses but by his own fault.

Sarasin has a precise treatise on the different opinions of the origin of the Latin *schacchi*; whence the French *echecs*, and our *chefs*, is formed. Menage is also very full on the same head. Leunclavius takes it to come from the *uscoches*, famous Turkish robbers. P. Sirmond from the German *schacke*, theft; and that from *calculus*. He takes *chefs* to be the same with *ludus latruncularum* of the Romans, but mistakenly. This opinion is countenanced by Vossius and Salmasius, who derived the word from *calculus*, as used for *latrunculus*. Some derive it from the Hebrew *סח*, *sejag*, *sepes*, whence *vallare*, *vallavit*; and *מור*, *mut*, *mori*, *mortuus*; others again from *שחק*, *schok*, *lusus*, and *מור*, *mori*; whence *chefs* and *chefs-mate*. Fabricius says, a celebrated Persian astronomer, one Schatrenschah, invented the game of *chefs*; and gave it his own name, which it still bears in that country. Nicod derives it from *scheque*, or *xegue*, a Moorish word for *lord*, *king*, and *prince*: Bochart adds, that *schach* is originally Persian, and that *schachmat*, in that language, signifies the *king is dead*.

But the learned Hyde has shewn from undoubted authorities, that this game was first invented in India, and passed from thence to Persia before the year of Christ 576, and from Persia to Arabia. He adds, that the antiquity of this game is traced much higher, or to the middle of the second century, in an Irish chronicle, the authenticity of which is doubtful. And he shews, that *shah*, i. e. *rex*, was a term much in use among the orientals, whilst engaged in this play, and that they used it to caution the king against any danger; and hence the Europeans and others have denominated the game *shachiludium* and *shahiludium*, and in English *chefs*, from this circumstance. He also derives the word *mat* from the Persian *manit*, *lassatus est*; and says, that it was used in play, when any of the men was fixed in its place, or taken captive. See *Historia Shahiludii apud Syntagma Dissertationum*, &c. Hyde, editum a Doctore Sharpe, vol. ii. p. 1, &c.

Donatus, on Terence's Eunuch, observes, that Pyrrhus, the most knowing and expert prince of his age, ranging a battle, made use of the men at *chefs* to form his designs; and to shew the secrets thereof to others. Vopiscus, in his life of Proculus, informs us, that one of the Roman emperors had the title Augustus given him, because of his gaining ten games at *chefs* successively.

Tamerlane is also recorded as a very expert gamester at *chefs*.

Chefs is doubtless a most ancient and universal game; the common opinion is, that it was invented by Palamedes at the siege of Troy. Others attribute the invention to Diomedes, who lived in the time of Alexander; the romance of the Rose ascribes it to one Attalus; but the truth is, the game is so very ancient, there is no tracing its author.

In China it makes a considerable part of the education of their females, and seems to take the place of dancing among us. In Spain, whole cities challenge each other at *chefs*; and it has been much in use in most parts of Europe.

John of Salisbury relates, that in a battle between the French and English in 1117, an English knight seized the bridle of Louis le Gros, and crying to his comrades *the king is taken*, that prince struck him to the ground with his sword, saying, *Ne sçais tu pas qu'aux echecs on ne prend pas le roy? Dost thou not know, that at chefs the king is never taken?* The reason is, that when the king is reduced to such a pass, that there is no way for him to escape, the game ends, without exposing the royal piece to farther affront.

Lydgate, a monk of St. Edmund's Bury, calls it the *game-royal*. It was anciently of such repute in Ireland, that

some of their best estates depended upon it; and it is a condition whereby two noble families enjoy their lands, that the one engages the other every year at this game: and the Italians have been so much addicted to it, that a father, who has died before the conclusion of a game at *chefs*, has bound his son to finish it; and the same custom is said to obtain among the Germans. See Hyde, *ubi supra*, &c. p. 7 and 8.

Cardinal Cajetan, and other casuists, rank *chefs* in the number of prohibited games, as requiring too much application; and Montagne blames it as too serious for a game.

In this game each player has eight dignified pieces, viz. a king, a queen, two bishops, two knights, and two rooks, and also eight pawns, which were anciently called *scachi*, q. d. *milites*, and made in different figures, and of various materials, mostly of wood or ivory. These pieces are distinguished by being painted in white and black colours.

As to their disposition on the board, the white king is to be placed on the fourth black house from the corner of the board, in the first and lower rank; and the black king is to be placed on the fourth white house on the opposite, or adversary's side of the board. The queens are placed next to the kings, on houses of their own colour. Next to the king and queen, on each hand, place the two bishops; next to them, the two knights; and last of all, on the corners of the board, the two rooks. As to the pawns, they are placed, without distinction, on the second rank of the house, one before each of the dignified pieces.

Having thus disposed the men, the onset is commonly begun by the pawns, which march straight forward in their own file, one house at a time, except the first move, when they may advance two houses, but they never move backwards: the manner of their taking the adversary's men is sideways, in the next house forward; where, having captivated the enemy, they move forward as before. The rook goes forward or cross-ways through the whole file, and back again. The knight skips backward and forward to the next house, save one, of a different colour, with a sidling march, or aslope, and thus kills his enemies that fall in his way, or guards his friends that may be exposed on that side. The bishop walks always in the same colour of the field which he is placed in at first, forward or backward, aslope or diagonally, as far as he pleases. The queen's walk is more universal, as she takes all the steps of the fore mentioned pieces excepting that of the knight; and as to the king's motion, it is one house at a time, and that in any direction. As to the value of the different pieces, next to the king is the queen, after her the rooks, then the bishops, and last of all the knights. The difference of the worth of pawns is not so great as that of noblemen; however, the king's bishop's pawn is the best, and therefore particular care is taken of them. It ought also to be observed, that, whereas any man may be taken, when he falls within the reach of any of the adversary's pieces, it is otherwise with the king, who, in such a case, is only to be saluted with the word *check* (*shak*), warning him of his danger, out of which he must move; and if he cannot move without exposing himself to a similar inconvenience, it is *check-mate*, and the game is lost.

CHESS-trees, in *Ship-Building*, are two small pieces of timber with a hole in them, bolted on each side of the ship, and placed as far before the main-mast as the length of the main beam; their use is to confine the clue of the main-sail, and for this purpose a rope passes through, that usually extends the clue of the sail to windward.

CHEST, in *Anatomy*, that part of the body which contains the heart and lungs. See **BREAST** and **THORAX**.

CHEST, in *Commerce*, a kind of measure, containing an uncertain quantity of several commodities.

A *chest of sugar*, v. g. contains from ten to fifteen hundred weight; a *chest of glass*, from 200 to 300 feet; of *Castile soap*, from two and a half to three hundred weight; of *indigo*, from one and a half to two hundred weight; five score to the hundred.

CHEST at *Chatham* was established in 1588, for the benefit of maimed and superannuated English mariners, out of which pensions are paid to such for their lives. This fund was at first raised by a voluntary monthly contribution of the mariners out of their pay, and afterwards made perpetual by queen Elizabeth.

CHESTNUT, *Castanea*, from *Castana*, a city in Thessaly, where this tree anciently grew in great plenty, in *Botany*, is ranged by Linnæus in the class of *monoecia polyandria*, and joined to the genus of *fagus* or **BEECH**. Its characters are these: it hath male and female flowers on the same tree, sometimes at separate distances, at other times near each other. The male flowers form a sort of catkin, have no petals, but include about ten or twelve bristly

bristly stamina. The female flowers are of one leaf, divided into four parts; having no petals, but a germen fixed to the empalement, which becomes a roundish fruit armed with soft spines, including one or more nuts. There are three species.

The *chestnut* tree is a tree which deserves our care as much as any of the trees which are propagated in this country, either for its use or beauty; being one of the best sorts of timber, and affording a good shade. It will grow to a great size, and spread its branches finely on every side where it has room. The leaves are large, of a lucid green, nor are they so liable to be eaten by insects as those of the oak. There is no better food for deer, and many other animals, than their nuts; which most of them prefer to acorns: yet they should not be planted near habitations; because when they are in flower they emit a disagreeable odour, very offensive to most people.

Some remains of old decayed *chestnuts* in Enfield chase, plainly prove that this tree is not so great a stranger to this climate as many people believe. Dr. Ducarel maintains, in his *Anglo-Norman Antiquities*, that they are indigenous or native trees of this island; for this purpose he alledges, that many of our old buildings in London, and other places, contain a great quantity of this timber; that *chestnut* trees were familiarly known to the Saxons, and that they are very common still in several parts of England, particularly in the north-east part of Kent; and that remains of them are seen in the forest of Dean and elsewhere. The Hon. Mr. Daines Barrington has controverted this opinion. See on the subject, *Phil. Trans.* vol. lix. N^o 5. and vol. lxi. N^o 17, 18, 19, and 20.

Chestnut trees may be cultivated in England, to afford equal profit with any of the large timber trees; the wood being of equal value with the best oak, and for many purposes far exceeding it. It is particularly good for vessels for all kinds of liquor; having a property, when once thoroughly seasoned, of maintaining its bulk constantly, without shrinking, or swelling, as other timber is too apt to do; and it is said that all the large casks for their wines in Italy, are made of this timber: it is for this and many more purposes, in greater esteem among the Italians than any other timber whatever. It is also very valuable for pipes to convey water under ground, as enduring longer than elm, or any other wood.

These trees are propagated by planting the nuts in February, in beds of fresh undunged earth. The best nuts for sowing, are such as are brought from Portugal or Spain, which are commonly sold in winter for eating; provided they are not kiln dried, which is frequently done to foreign nuts to prevent their sprouting in the passage. The time generally allowed them in the nursery is three or four years; but the younger they are transplanted, the better they will succeed.

See an ingenious and an effectual method of preserving *chestnuts*, discovered by Mr. Ellis. *Phil. Trans.* vol. li. part i. p. 213. an. 1759.

CHESTNUT, horse, Hippocastanum, æsculus, in Botany. Its characters are these: the empalement of the flower is slightly cut into five segments; the flower is composed of five unequal petals, folded at their border, and waved; and it has seven stamina. The empalement becomes a thick, rounded, echinated capsule, opening into three cells, in one or two of which are lodged globular seeds. We have but one species.

The *horse chestnut* was brought from the northern parts of Asia about the year 1550, and sent to Vienna about the year 1588.

As this tree is quick in its growth, so in a few years it will arrive to a size large enough to afford a good shade in summer; as also to produce plenty of flowers. Trees raised from nuts, have in twelve or fourteen years become large enough to shade two or three chairs under the spread of their branches; and have been covered with flowers in the season. But the wood is of little value.

In Turkey the nuts of this tree are ground, and mixed with the provender for their horses, especially those which are troubled with coughs, or are broken-winded: in both which disorders they are accounted very good.

M. Raimont, a gentleman of Anjou, gave them, mixed with other food, to his cows: and they increased the quantity of milk, without injuring its quality: and he apprehends, that if they were blanched and rasped, or otherwise prepared, they might be given to hogs and poultry. *Memoirs of the Royal Society of Agriculture at Tours*, vol. i. p. 121.

Jo. Jac. Zannichelli affirms, that after a great many trials, he has found the bark of the *hippocastanum* to have the same effect as the *PERUVIAN bark*.

The *horse chestnut* is employed for the purpose of bleaching yarn, in France and Switzerland; and it is recommended in the *Memoirs of the Society of Berne*, vol. ii. part 2. as capable of extensive use in whitening not only flax and hemp, but also silk and wool. It contains an astringent saponaceous juice, which is obtained by peeling the nuts, and grinding or rasping them. They are then mixed with hot rain or running water, in the proportion of twenty nuts to ten or twelve quarts of water. Wove caps and stockings were milled in this water, and took the dye extremely well; and successful trials were made of it in fulling stuffs and cloths. Linen washed in this water takes a pleasing light sky-blue colour; and the filaments of hemp, steeped in it for some days, were easily separated. The author of the memoir above referred to, imagines, that if the meal of the *chestnuts* could be made into cakes or balls, it would answer the purposes of soap in washing and fulling. The sediment, after infusion, loses its bitter taste, and becomes good food for fowls when mixed with bran.

CHESTNUT, scarlet flowering horse, Pavia, in Botany. This genus is joined to *æsculus* in the Linnæan distribution. Its characters are these: the flower has a small empalement of one leaf, indented at five parts at the top: it has five roundish petals, waived and plaited on their borders, and narrow at their base, which are inserted in the empalement. It hath eight stamina, which are declined, as long as the petals; terminated by rising summits, and a roundish germen sitting upon an awl-shaped style, crowned by an acuminate stigma. The germen afterward becomes an oval, pear-shaped, leathery capsule with three cells, in which is sometimes one, and at others two, almost globular seeds.

This plant grows naturally in Carolina and the Brasils; from the first, the seeds were brought to England, where the plants have been of late years much cultivated in the gardens. This tree may be propagated by bud-dings, or grafting it upon the common *horse chestnut*, which is the usual method practised by the nurserymen: but the trees thus raised seldom make a good appearance long; for the stock of the common *horse chestnut*, will be more than twice the size of the other, and frequently put out shoots below the graft; and sometimes the grafts are blown out of the stocks, after ten years growth. But these stocks render the trees hardy, and of a large growth.

CHESTNUT, Indian rose. See *MESUA*.

CHEST-ROPE, in a ship, is the same with the guest or gift-rope, and is added to the boat-rope, when the boat is towed at the stern of the ship, to keep her from shearing, i. e. from swinging to and fro.

CHEVAGE, or CHIEFAGE, according to Bracton, signifies a tribute by the head; or a kind of poll-money, anciently paid by such as held lands in villainage, or otherwise to their lords, in acknowledgment.

The word is formed of the French, *chef*, head.

The word seems also to have been used for a sum of money yearly given to a man of power, for his patronage and protection, as to a chief, head, or leader.

In the first sense Coke observes, there is still a kind of *chevage* subsisting in Wales, called *amabyr*; paid to the prince of Wales for the marriage of his daughters; anciently by all, now only by some. Lambard writes it *chivage*.

The Jews, allowed to live in England, long paid *chevage*, or poll-money; viz. three pence per head: it was paid at Easter.

CHEVAL, de frise, in Fortification, a large piece of timber, either round or cut into several faces, pierced, and traversed with wooden spikes, armed or pointed with iron, five or six feet long. See *Tab. Fortif. fig. 15*.

The term is French, and properly signifies a *Friesland horse*; as having been first invented in that country. It is also called a *turnpike*, or *tourniquet*.

Its use is, to defend a passage, stop a breach, or make a retrenchment to stop the cavalry.

It is sometimes also mounted on wheels, with artificial fires, to roll down in an assault.

Errard observes, that the prince of Orange used to inclose his camp with *chevaux de frise*; placing them over one another.

On a medal of Licinius, is found a kind of *cheval de frise*, made with spikes interposed; serving to express a fortified camp.

CHEVALER, in the Manege. A horse is said to *chevaler*, when, in passing upon a walk, or a trot, his far fore-leg crosses or over-laps the other fore-leg every second time or motion.

CHEVALIER, a French term, ordinarily signifying a knight.

The word is formed of the French, *cheval*, horse; and that of the Latin *cavallus*.

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It is used, in *Heraldry*, to signify any *cavalier* or horseman armed at all points; by the Romans called *CATA-PHRACTUS eques*, now out of use, and only to be seen in coat armour.

CHEVAN. See **CHIUN.**

CHEVANTIA, in our *Old Law Writers*, is used for a loan or advance of money upon credit.

CHEVAUX de frise. See **CHEVAL de frise.**

CHEVELLE, a term used by the *French Herald*s to express a head where the hair is of a different colour from the rest of the head.

CHEVILS, or **KEVELS**, in *Ship-building*. See **KEVELS.**

CHEVIN, a name used in some parts of England for the chub. See **CAPITO**, and **FISHING.**

CHEVISANCE, in the *Law of England*, is said to be an agreement, and composition, or bargain between a creditor and debtor; but it seems chiefly to denote an indirect gain, in point of usury, &c. In our statutes it is often mentioned, and most commonly used for an unlawful bargain or contract. See the statutes against usury, anno 12 Annæ.

The word is said to be derived from the law French *chevir*, to come to the end, or finish any thing; in the same sense as the modern French use *achever*.

CHEVRETTE, in *Artillery*, an engine to raise guns or mortars into their carriages; it is made of two pieces of wood of about four feet long, standing upright upon a third, which is square: they are about a foot asunder, and parallel, and are pierced with holes exactly opposite to one another, having a bolt of iron, which being put through these holes, higher or lower at pleasure, serves with a hand-spike, which takes its poise over this bolt, to raise any thing by force.

CHEVRON, or **CHEVERON**, in *Heraldry*, one of the honourable ordinaries of a shield; representing two rafters of a house joined together, without any division. It descends from the chief towards the extremities of the coat, in form of a pair of compasses half open. Thus, he bears gules, a chevron argent. See *Tab. Heraldry*, fig. 16.

The chevron is the symbol of protection, say some; or of constancy, according to others: some say, it represents the knights spurs; others, the head-attire of priestesses; others, a piece of the list, or the barrier or fence of a park.

When it is alone, it should take up a fifth part of the field, according to Leigh; and according to others, a third part: when it is accompanied with any other bearings, its breadth must be adjusted thereby.

It is borne divers ways: sometimes in chief, sometimes in base, sometimes enarched, sometimes reversed, &c. The chevron, is sometimes charged with another chevron, one third of its own height.

Two chevrons are allowed in the same field, but no more: when they exceed that number, they are called *chevron-wise*, or *chevronels*. There are chevrons of several pieces. A chevron is said to be *abased*, when its point does not approach the head of the chief, nor reach farther than the middle of the coat; *mutilated*, when it does not touch the extremes of the coat; *cloven*, when the upper point is taken off, so that the pieces only touch at one of the angles; *broken*, when one branch is separated into two pieces; *couched*, when the point is turned towards one side of the escutcheon: *divided*, when the branches are of several metals, or when metal is opposed to colour; and *inverted*, when the point is towards the point of the coat, and its branches towards the chief.

A coat is said to be *chevroned*, when it is filled with an equal number of chevrons, of colour and metal.

Counterchevroned, is when it is so divided, as that colour is opposed to metal, and *vice versa*.

Per Chevron, or *Party per Chevron*, is when the field is divided by only two single lines, rising from the two base points, and meeting in a point above, as the chevron does.

CHEVRONEL, a diminutive of *chevron*; and, as such only containing half a chevron.

CHEVRONNE, or **CHEVRONNY**, signifies the parting of the shield, several times *chevronwise*: Gibbon says, *chevronee of six*.

CHEWING-balls, a sort of balls contrived for horses to chew, not swallow at once; not intended as food, but as incentives to appetite; and on other medicinal occasions very useful to these animals. The receipt now most esteemed for these balls is this: take liver of antimony, and assa foetida, of each one pound; wood of the bay-tree, and juniper wood, of each half a pound; pellitory of Spain, two ounces: let all these be powdered together; then add as much fine grape-verjuice as is necessary to make the whole into a paste. This is to be formed into balls of about an ounce and half weight, which are to be dried in the sun. These are the *chewing-*

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balls, and are to be used one at a time in the following manner. The ball is to be wrapped up in a linen rag, and a thread is to be fastened to this, in such a manner that it may be tied to the bit of the bridle, and kept in the mouth: when the bridle is taken off, the horse will immediately eat: and when one ball is consumed, another is to be tied up, and put in its place, till the intent is answered.

CHIA terra. See **TERRA Chia.**

CHIAN marble. See **MARBLE.**

CHIAOUS, an officer in the grand signior's court, doing the business of an usher.

The word, in the original Turkish, signifies *envoy*.

He bears arms offensive and defensive, and has the care of prisoners of distinction. His badge is a staff covered with silver; and he is armed with a scymitar, bow, and arrows.

The emperor usually chooses one of this rank to send as ambassador to other princes.

The *chiaous* are under the direction of the *chiaous-baschi*, an officer who assists at the divan, and introduces those who have business there.

CHIARO scuro, & obscuro, among *Painters*. See **CLAIR obscure.**

CHIASMOS, in *Ancient Greek Medical Writers*, is the concurrence or meeting of any two things under the form and figure of a cross, or the letter X *chi*, whence it is named. The adverbs *χιαστί*, and *χιαστικώς*, signify the same thing: thus the optic nerves are said to meet *χιαστικώς*, so as to cross each other.

CHIASTOS, the name of a bandage in Oribasius, so called from its resembling a cross, or the letter X.

CHIASTOS, in *Rhetoric*, the same with what is otherwise called **DIALLELOS**.

CHIAUSI, among the Turks, officers employed in executing the vizirs, bashaws, and other great men; the orders for doing which the grand signior sends them wrapped up in a black cloth; on the reception of which they immediately perform their office.

CHICANE, or **CHICANERY**, in *Law*, an abuse of judiciary proceeding, tending to delay the cause, and deceive or impose on the judge, or the parties.

Some derive the word from *ciccum*, the skin of a pomegranate; whence the Spaniards formed their *chico*, little, slender; *chicane* being conversant about trifles.

The French call solicitors, attorneys, &c. *gens de chicane*.

CHICANE is also applied, in the schools, to vain sophisms, distinctions, and subtilties, which immortalise disputes, and obscure the truth: as, the *chicane* of courts does justice.

CHICH pea. See **Chich PEA.**

CHICHLING vetch. See **VETCH.**

CHICKEN, in *Ornithology*, the young of the gallinaceous order of birds, and especially of the common hen. Chickens require no meat for two days after they are hatched: and they are first fed with small oat-meal, dry or steeped in milk, and the crumbs of white bread: and as they acquire strength, with curds, cheese-parings, &c. Green chives chopped with their food will preserve them from the rye, and other diseases of the head: and care should be taken to furnish them with a proper supply of clean water. In order to have fat crammed chickens, they should be cooped up when the hen forsakes them, and fed with wheat meal mixed with milk, and made into a paste: this diet will fatten them in about a fortnight. See **COCK**, **FOWL**, and **HATCHING.**

CHICKEN-pox. See **POX.**

CHICKWEED, *Alfine*, in *Botany*, the name of a very large genus of plants; for the characters of which, see **AL-SINE.**

The *alfine* is a medicinal plant, called also *morfus gallinae*, popularly *chickweed*, on account of its being much coveted by poultry.

The word is *αλφιν*, formed of *αλφει*, a wood or grove, on account of this plant's delighting chiefly to grow in shady places.

Alfinc is also called *myofoton*, q. d. *mouse-ear*, on account of the resemblance its leaves bear to the ears of that animal.

It is held a cooler, calmer, thickner, &c. in most respects resembling pellitory of the wall; though now little used in medicine.

Some commend its distilled water against fervors of the blood, and consumptions of the body, arising from hectic, &c. The herb fried in linseed oil, and externally applied to the belly, is said to relieve the iliac pain.

CHICKWEED, African. See **MOLLUGO.**

CHICKWEED, *berry-bearing*, *Cucubalus*, in *Botany*, a genus of the *decandria trigynia* class. Its characters are these: the flower has five petals, with tails as long as the em-palement, but spread open at the top; and ten stamina, five of which are alternately inserted in the tail of the petals.

petals, in the centre is situated an oblong germent, supporting three styles. The empalement becomes a pointed clove capsule with three cells, opening at top into five parts, and filled with many roundish seeds. According to Miller, there are thirteen species: but according to Tournefort, only one. Linnæus enumerates fifteen species.

CHICKWEED, great, *Stellaria*, in *Botany*, a genus of the *decandria tryginia* class; having a five-leaved patent calyx, five bipartite petals, and a single-celled polyspermous capsule. There are eight species.

CHICKWEED, mountain, *Moehringia*, in *Botany*. See *MOEHRINGIA*.

CHICKWEED, mouse-ear, *Cerastium*. See *MOUSE-ear*.

CHICKWEED, sea, *Arenaria*, in *Botany*, a genus of the *decandria tryginia* class: the characters of which are, that the calyx consists of five patent leaves; the corolla, of five entire petals; and the fruit is a capsule containing one cell with several seeds. There are twenty species.

CHICKWEED, small water. See *MONTIA*.

CHICORACEOUS, in *Botany*. M. Vaillant divides plants with composite flowers into three classes or families; the *cynarocephalous*, the *corymbiferous*, and the *chicoraceous*.

CHICUATLI, in *Ornithology*, the Indian name of a bird described by Nieremberg, and by him called *noctua canora*. Its beak is long, black, and slender; its head is marked with undulated streaks of yellow near the eyes. Its breast and belly are of a whitish colour, and it has some black feathers intermixed with white ones on the throat: its back is variegated with black, yellow, and grey. It is found principally among the mountains; where it generally runs about the ground; it is easily bred in cages, and feeds on any thing that is offered it. It is most frequent in the hotter climates, and is usually fat and nourishing.

CHIEF, a term denoting head, or a principal thing or person. The word is formed of the French *chef*, head.

We say the *chief* of a party; the *chief* of a family, &c. Agamemnon was the *chief* of the Greeks who besieged Troy. The Romans sometimes refused triumphs to their victorious general, because the conduct of the *chief* was not answerable to his success. The abbots that are *chiefs* of their order are all regular; and it is there the general chapters are held.

CHIEF baron. See *BARONS* and *COURT of exchequer*.

CHIEF, in *Heraldry*, is the upper part of the escutcheon, reaching quite across, from side to side.

The arms of France are, three golden fleurs de lys, in a field azure; two in *chief*, and one in point.

CHIEF is more particularly used for one of the honourable ordinaries, placed athwart the top of the coat, and containing one third part of its height. *Tab. I. Heraldry fig. 41*. When the escutcheon is cut in stone, or in relievo, the *chief* stands out prominent beyond the rest; and is supposed to represent the diadem of the ancient kings and prelates; or the casque of the knights.

It is frequently without any ornament; sometimes it is charged with other bearings; sometimes it is of a colour of metal different from that of the coat.

The line that bounds it at the bottom is sometimes straight, sometimes indented, engrailed, embattled, lozenged; &c. Thus, say they, the field is gules, a *chief* argent, &c. Again, he bears, gules, a *chief* crenelle, or embattled, argent.

Sometimes one *chief* is borne on another; expressed by a line drawn along the upper part of the *chief*: when the line is along the under part, it is called a *fillet*. The first is an addition of honour, the second a diminution.

The *chief* is said to be *abased*, when it is detached from the upper edge of the coat, by the colour of the field which is over it; and which retrenches from it one third of its height. We also say, a *chief* is *cheveroned*, *paled*, or *bended*, when it has a chevron, pale, or bend, contiguous to it, and of the same colour with itself. A *chief* is said to be *supported*, when the two thirds at top are of the colour of the field, and that at bottom of a different colour.

In CHIEF. By this is understood any thing borne in the *chief* part, or top of the escutcheon.

CHIEF justice, in *Law*. See *JUSTICE*.

CHIEF justiciary of England. See *JUSTICIARY*.

CHIEF lord, denotes the feudal lord, or *LORD* of an *HONOUR*, on whom others depend.

CHIEF, holding in. See *CAPITE*, and *TENURE*.

CHIEF pledge, is the same as *HEADBOROUGH*.

CHIEF point. See *POINT*.

CHIEF rents, *Reditus capitales*, in *Law*, denote the rents of freeholders of manors. See *QUIT-rents*.

CHIEFTAIN, the chief leader, or general of an army; or the like.

CHIEPA, in *Ichthyology*, a name used by some authors for the fish more usually known by the name of the *alausa*, and called in English the *SHAD*, or the mother of herrings. See *AGONUS*.

CHIFFIR, or **CHIFIR**, according to Libavius, in the preparation of the philosophers stone, is called *lapis animalis*, Vol. I. N° 66.

as the mineral is called *chaos minerale*. Johnson says, that the *chifir minerale* is by some interpreted *gold*, but that he rather takes it to be any sulphur of the metalline kind. **CHIFUNG**, among the Chinese, the name of an herb found about Canton, by which the sailors pretend to know how many storms will happen every year. This they compute from the number of knots or joints; and from the distances of the knots from the root, they determine what month the storms will fall in.

CHILBLAIN, *pernio*, in *Medicine*, a tumor afflicting the feet and hands; accompanied with an inflammation, pain, and sometimes an ulcer, or solution of continuity; in which case it takes the denomination of *chaps*, on the hands; and *kibes* on the heels.

Chilblain is compounded of *chill* and *blain*; q. d. a blain, or sore, contracted by cold.

Chilblains are occasioned by excessive cold stopping the motion of the blood in the capillary arteries and superficial veins.

The tumor from white generally inclines to blueness. For the prevention of *chilblains*, the skin should be rendered firmer by frequent washing and bathing in cold water; the vicious quality of the temperaments or humours which contributes to this disorder, should be corrected by the milder preparations of antimony, and moderate purges. For the cure of *chilblains*, it is usual to wash them with warm brine, urine &c. but *petroleum*, or warm Hungary water, with spirit of wine camphorated, used with a sponge, are much better. For chaps and kibes, nothing exceeds the *unguentum desiccativum rubrum*, or *diapompholyx* mixed with a little camphor; and used, for the dressings, with *emplastrum de minio*; or *diachylon simplex*, let down with oil or roses.

When these tumors tend to suppuration, it is proper to treat them like other recent abscesses: the best method is first to cleanse the wound with some digestive ointment, then to dress it with balsam of Peru, or other similar application; and, lastly, to apply some of the lead or litharge plasters. Oil of myrrh *per deliquium* is also found of great service in these cases; as is also the applying a compress, dipped in a mixture of equal parts of lime-water, and camphorated spirit of wine over the other remedies.

In people who have been used to be afflicted with *chilblains* at the return of a certain season, it will be found a great preservative against those troublesome tumors, to anoint the parts where they are expected to appear both before and during the access of the severe cold, with oil of turpentine or petroleum; and, when the disorder first begins to shew itself, it is a very good method to wrap round the affected part a piece of a hog's bladder, well wetted with one or other of those oils; and care must be taken to keep off the cold.

CHILD, a term of relation to parent.

We say, *NATURAL child*, *LEGITIMATE child*, *PUTATIVE child*, *BASTARD child*, *ADOPTIVE child*, *POSTHUMOUS child*, &c.

Dr. Derham, computes, that marriages, one with another, produce four *children*; not only in England, but in other parts also. See *MARRIAGE*.

It is well known that *children*, for some time after they are born, see but very imperfectly; and M. Petit, after taking a great deal of pains to investigate the cause of it, found it to be owing in part to the thickness of their *CORNEA*, and the small quantity of their aqueous humour. Not that the mere thickness of the *cornea* could have this effect; but because the thickness is owing to its not being well stretched, and consequently having wrinkles and inequalities on its surface, which occasion an irregular refraction of the light. On the same account also the *cornea* has not a sufficient degree of convexity to bring the *PENCILS* of rays to a focus soon enough. All these defects, he shews, are remedied by the increase of the aqueous humour. See Dr. Priestley's *History of Vision*, &c. 4to. p. 187.

Dr. Harris has an express treatise *Of the Acute Diseases of Children*, *De Morbis Acutis Infantum*. He takes them all to arise from the humours in the *primæ viæ* growing sour, and degenerating into acidities: which is confirmed from their sour belches and dejections. Hence, all that is required to cure them, is to combat this acidity; which is to be effected two ways: by disposing it to be evacuated, and by actual evacuation by rhubarb, and other gentle purgatives.

To dispose the peccant acid for evacuation, no sudorifics or cordials are to be used, those remedies being too violent; but magnesia, crabs-eyes and claws, oyster-shells, cuttle-fish bones, egg-shells, chalk, coral, pearls, bezoar, burnt ivory, scrapings of the unicorn's horn, Armenian bole, *terra sigillata*, and *lapis hæmatites*; the Goa-stone, and the confection of hyacinth: but of all these, he prefers old shells that have lain long on the edge of the sea, exposed to the sun, which is better than any chemical furnace.

Bartholine, Paré, Licetus, and many other writers, give

an account of a petrified child, which has seemed wholly incredible to some people. The child, however, which they describe, is still in being, and is kept as a great rarity in the king of Denmark's museum at Copenhagen. The woman who went big with this, lived at Sens in Champaign, in the year 1582; it was cut out of her belly, and was universally supposed to have lain there about twenty years. That it is a real human *fœtus*, and not artificial, is evident to the eye of any observer: and the upper part of it when examined, is found to be of a substance resembling the gypsum or stone of which they make the plaster of Paris: the lower part is much harder: the thighs and buttocks being perfect stone, of a reddish colour, and as hard as common quarry stone: the grain and surface of this part appear exactly like that of the calculi, or stones taken out of human bladders; and the whole substance examined ever so nearly, and felt ever so carefully, appears to be absolute stone. It was carried from Sens to Paris, and there purchased by a goldsmith of Venice; and Frederick the Third, king of Denmark, purchased it at Venice of this man for a very large sum, and added it to his collection of rarities. Phil. Transf. N^o 285, p. 1400. See INFANTS.

Children, besides the honour and reverence which they owe to their parents, ought likewise to contribute to their support, when they need assistance. The Athenian laws obliged all children to provide for their father, when reduced to poverty; with an exception to spurious children, to those whose chastity had been defiled by consent of the father, and to those who had not been put into any way of gaining a livelihood. Our laws agree with those of Athens in the first particular; but in the other cases, a child is compellable by stat. 43 Eliz. c. 2. if able, to provide for a wicked and unnatural progenitor. Blackst. Com. vol. i. p. 453. See PARENT, &c.

CHILD-bed.

CHILD-birth.

} See DELIVERY.

CHILDREN, *exposing of*. See EXPOSING.

CHILDREN, *naming of*. See NAME.

CHILDREN, *overlaying of*. This is a misfortune which frequently happens; to prevent which, the Florentines have contrived an instrument called ARCTIO.

CHILD-wit, a power to take a fine of a bond-woman unlawfully gotten with child; that is, without consent of her lord.

Every reputed father of a base child, got within the manor of Writtel in Essex, pays to the lord, for a fine, 3s. 4d. where, it seems, child-wit extends to free as well as bond-women.—*Quicumque fecerit child-wit; archiepiscopus aut totum, aut dimidiam emendationis partem habebit, quietum esse de child-wit.* Du-Cange.

CHILDREN, *charity*. See CHARITY-school, and HOSPITAL.

CHILDERMASS Day, called also Innocents-Day, an anniversary feast of the church, held on the 28th of December, in memory of the children of Bethlehem, massacred by order of Herod.

CHILIAD, an assemblage of several things ranged by thousands.

The word is formed of *χιλιας*, mille, a thousand.

CHILIAGON, in Geometry, a regular plane figure of 1000 sides and angles. We can easily demonstrate, that the sum of all its angles is equal to 1996 right ones; for the internal angles of every plane figure are equal to twice as many right angles as the figure hath sides, except those four, which are about the centre of the figure, from whence it may be resolved into as many triangles as it has sides. The author of l'Art de Penfer, p. 44. 45, brings this instance to shew the distinction between imagining and conceiving. See NOTION.

CHILIARCHA, or CHILIARCHUS, an officer in the armies of the ancients, who had the command of a thousand men. The word comes from *χιλιας*, a thousand, and *αρχη*, command.

CHILIARTÆ, in Church-History, the same with MILLENARIII.

CHILIASTS. See MILLENARIII.

CHILMINAR, CHELMINAR, or TCHELMINAR, the noblest and most beautiful piece of architecture remaining of all antiquity: being the ruins of the famous palace of Persepolis, to which Alexander the Great, being drunk, set fire, at the persuasion of the courtesan Thaïs.

Authors and travellers are exceedingly minute in their descriptions of the *Chilminar*; particularly Gracias de Silva Figueroa, Pietro de la Valle, Chardin, and Le Brun. A general idea thereof may be conceived as follows:

There appear the remains of near fourscore columns; the fragments whereof are at least six feet high: but there are only nineteen that can be called entire: with a twentieth all alone, 150 paces from the rest.

A rock of black hard marble serves for the foundation of the edifice. The ascent to the first plan of the building is by fourscore and fifteen steps, cut in the rock. The gate of the palace is twenty feet wide; on one side is the fi-

gure of an elephant, and on the other of a rhinoceros; each thirty feet high, and of a shining marble; near these animals are two columns; and not far off the figure of a Pegasus.

After this gate is passed, there are found a great number of columns of white marble; the remains whereof shew the magnificence of the work: the smallest of these columns is fifteen cubits high, the largest eighteen; each has forty flutings, three inches broad; whence the height of the whole may be guessed at, with the other proportions. Near the gate is an inscription on a square piece of marble, smooth as glass, containing about twelve lines: the characters are of a very extraordinary figure, resembling triangles and pyramids.

These noble ruins are now the shelter of beasts, and birds of prey. Besides the inscription above mentioned, there are others in Arabic, Persian, and Greek. Dr. Hyde observes, that the inscriptions are very rude and unartful; and that some, if not all of them, are in praise of Alexander the Great; and therefore are later than that conqueror.

M. Le Brun took his voyage to the East Indies, merely for the sake of viewing the *Chilminar*.

CHILON, among the Greek *Physiologists*, one who has great lips, called by the Latins *labeo*. Thus also among the species of fishes, under the class of *capitones*, some are called *chilones*, that is, *labeones*.

CHILTENHAM water, contains a neutral purgative salt, somewhat resembling Glauber's *sal mirabile*. It contains no alkaline or acid salt, no iron, copperas, or sulphur. These waters are thought useful in lax constitutions, where the humours are alcaliscent, but hurtful when aciscent. See Phil. Transf. N^o 461. sect. 21, and the remarks. See WATER.

CHIMALATH, in Botany, a name given by some authors to the great *corona solis*, or sun-flower.

CHIMERA, or CHIMÆRA, a fabulous monster, which the poets feign to have the head or breast of a lion, the belly of a goat, and the tail of a dragon; and to have been killed by Bellerophon, mounted on the horse Pegasus.

The foundation of the fable is this: that anciently in Lycia, there was a volcano, or burning mountain, of this name; the top whereof, which was desert, only inhabited by lions: the middle, having good pastures, was frequented by goats: and the foot, being marshy, by serpents. Thus Ovid:

—*mediis in partibus hircum,*

Petūs & ora leæ candam serpentis habebit.

Bellerophon being the first who caused this mountain to be inhabited, it was feigned he slew *Chimera*. Pliny says, the fire thereof would burn in water, and could be extinguished with nothing but earth, or dung.

CHIMERA is used in Writers of the Middle Age, for a kind of vessel or ship. It seems to have been less than the chelandium.

CHIMES of a clock, a kind of periodical music, produced at certain hours of the day, by a particular apparatus added to a clock; such as a *chime*-barrel, bells and hammers, &c.

To calculate numbers for the *chimes*, and to fit and divide the *chime*-barrel, it must be observed, that the barrel must be as long in turning round, as you are in singing the tune it is to play.

As for the *chime*-barrel, it may be made up of certain bars which run athwart it, with a convenient number of holes punched in them, to put in the pins that are to draw each hammer: by this means, the tune may be changed, without changing the barrel. In this case, the pins, or nuts, which draw the hammers, must hang down from the bar, some more, some less; and some must stand upright in the bar: the reason whereof is, to play the time of the tune rightly. For the distance of each of these bars may be a semibreve; but the usual way is, to have the pins, which draw the hammers, fixed on the barrel.

For the placing of these pins, you may proceed by the way of changes on bells; viz. 1, 2, 3, 4, &c. or rather make use of the musical notes: where it must be observed, what is the compass of the tune, or how many notes, or bells, there are from the highest to the lowest; and accordingly, the barrel must be divided from end to end.

Thus, in the following example, each of the tunes is eight notes in compass; and, accordingly, the barrel is divided into eight parts: these divisions are struck round the barrel; opposite to which are the hammer-tails.

We speak here as if there was only one hammer to each bell, that it may be more clearly apprehended; but when two notes of the same sound come together in a tune, there must be two hammers to the bell to strike it; so that if in all the tunes you intend to *chime* of eight notes compass, there should happen to be such double

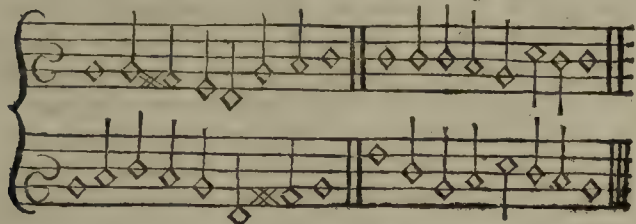
notes

notes on every bell; instead of eight, you must have sixteen hammers; and, accordingly, you must divide the barrel, and strike sixteen strokes round it, opposite to each hammer-tail: then you are to divide it round about, into as many divisions as there are musical bars, semibreves, minims, &c. in the tune.

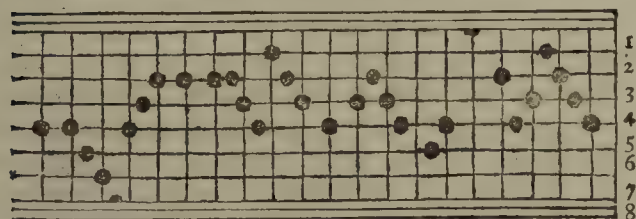
Thus the hundredth psalm tune has twenty semibreves, and each division of it is a semibreve: the first note of it, also, is a semibreve; and therefore on the *chime*-barrel there must be a whole division, from five to five; as you may understand plainly, if you conceive the surface of a *chime*-barrel to be represented by the following tables; as if the cylindrical superficies of the barrel were stretched out at length, or extended on a plane: and then such a table, so divided, if it were to be wrapped round the barrel, would shew the places where all the pins are to stand in the barrel: for the dots running about the table, are the places of the pins that play the tune.

Indeed, if the *chimes* are to be complete, you ought to have a set of bells to the gamut notes; so as that each bell, having the true sound of *sol, la, mi, fa*, you may play any tune with its flats and sharps; nay, you may, by this means, play both the bass and treble with one barrel: and by setting the names of your bells at the head of any tune, that tune may easily be transferred to the *chime*-barrel, without any skill in music. But it must be observed, that each line in the music is three notes distant: that is, there is a note between each line, as well as upon it.

The notes of the hundredth Psalm.



A Table for dividing the Chime-barrel of the hundredth Psalm.



CHIMIN, or **CHEMIN**, in *Law*, a road, or way. See **HIGHWAY** and **ROAD**.

CHIMINAGE, a toll for wayfarage, or passage through a forest. The feudists call it *pedagium*.

CHIMNEY, in *Architecture*, a part of a house, or lodging, wherein the fire is made.

The word *chimney* comes from the French *cheminée*; and that from the Latin *caminata*, a chamber wherein is a chimney: *caminata* again, comes from *caminus*; and that from the Greek *καμινος*, a chimney; of *καω*, *uro*, I burn. The parts of a chimney are, the jambs, or sides; the back, or hood; the mantle-tree, resting on the jambs; the tube, or funnel, which conveys away the smoke; the chimney-piece, or moulding, on the fore-side of the jambs over the mantle-tree; and the hearth, or fire-place.

Palladio settles the proportions of a chamber-chimney thus: breadth on the inside, five and a half, six, or seven feet; height to the mantle-tree, four, or four and a half; depth, two, or two and a half feet.

According to Wolfius, the breadth of the aperture, at bottom, should be to the height, as three to two; to the depth, as four to two. In small apartments, the breadth is three feet; in larger, five; in bed-chambers, four; in small banquetting-rooms, five and a half; in large, six: but the height is never to exceed two and a half; lest there being too much room for the air and wind, the smoke be driven down into the room. Nor must the height be too little; lest the smoke miss its way, and be checked at first setting out. The same author advises to have an aperture, through which the external air may, on occasion, be let into the flame, to drive up the smoke; which the internal air would otherwise be unable to do.

The mouth of the tube, or that part joined to the chimney back, Felibien orders to be a little narrower than the rest; that the smoke coming to be repelled downwards, meeting with this obstacle, may be prevented from getting into the room.

Some make the funnel twisted, to prevent the smoke's descending too easily; but the better expedient is, to make the funnel narrower at bottom than at top; the fire impelling it upward more easily when contracted at bottom; and in mounting, it finds more space to disengage itself, and therefore has less occasion to return into the chamber.

To prevent smoking **CHIMNEYS**, M. Lucar advises two holes,

or two pipes, one over the other, to be left in each side of the chimney; one sloping upwards, the other downwards: through one of these, he says, the smoke will pass in any position.

De l'Orme orders a brass ball full of water, with one small aperture, to be hung up in the chimney, at a height a little above the greatest flame: here, as the water grows hot, it will rarefy, and drive through the aperture in a vapoury steam, which will drive up the smoke that would otherwise linger in the funnel.

Others place a kind of moveable vane, or weathercock, on the top of the chimney: so that what way soever the wind comes, the aperture of the chimney will be screened, and the smoke have free egress: but, in truth, the best prevention of a smoking chimney seems to lie in the proper situation of the doors of the room, and the apt falling back of the back, and convenient gathering of the wings and breast of the chimney. The following general regulations relate to the construction of chimneys. No chimney is to be built on the timbers of the floors, but on brick or stone, or on stone corbels or iron brackets, or iron shores supported by brick, or stone foundations. No breast of any chimney is to be turned over on wood, but to be supported by an iron bar, or brick or stone arch. All chimneys must have brick trimmers before them at least eighteen inches broad, with slabs or foot-pieces on them of the same breadth, and six inches longer at each end, than the opening of the chimney when finished. No timber shall be laid in any wall nearer than nine inches to any chimney, or than five inches to any flue, or than eighteen inches to the surface of the hearth. The outside of chimneys and flues in **PARTY**-walls next to vacant ground must be lime-whited, or otherwise distinguished, as soon as any building is erected against the same.

Chimneys are usually supposed a modern invention; the ancients only making use of stoves: but Octavio Ferrari endeavours to prove chimneys in use among the ancients. To this end, he cites the authority of Virgil:

Et jam summa procul villarum culmina fumant.

And that of Appian, who says, "That of those persons proscribed by the triumvirate, some hid themselves in wells, cloacæ, and common-sewers; some in the tops of houses, and chimneys: for so we understand *καπνοδοί* *ὑπορροφίας*, *fumaria sub tecto posita*. Add, that Aristophanes in one of his comedies, introduces his old man, Polycleon; shut up in a chamber; whence he endeavours to make his escape by the chimney. However the few instances remaining among the ancients, together with the obscurity of the rules of Vitruvius on this head; make us rather conclude the use of stoves, whereof the ancients had entire apartments, induced them to neglect this part of building, which the coldness of our climates obliges us to have a principal regard to.

In the year 1709, there appeared a French book, entitled *La Mécanique du Feu*, or the art of augmenting the effects, and diminishing the expence, of fire, by M. Gauger; since published in English, by D. Defaguliers: wherein the author examines what disposition of chimneys is most proper to augment the heat; and proves geometrically, that the disposition of parallel jambs, with the back inclined as in the common chimney, is less fitted for reflecting heat into the room than parabolical jambs, with the bottom of the tablette horizontal.

He gives seven several constructions of his new chimneys, in which there are hollow cavities made by iron plates in the back, jambs, and hearth, through which plates the heat passing, warms the air in those cavities, which is continually coming into the room fresh and warm; and the manner of executing them.

M. Gauger, however, does not appear to be the first inventor of the chimney he describes; the description of a like chimney being found in a German book, printed at Leipzig in 1699. See **FIRE-PLACES** and **STOVES**.

CHIMNEY-jambs, are the sides of a chimney, usually standing out perpendicularly, sometimes circularly, from the back; on the extremities whereof the mantle-tree rests.

CHIMNEY-money, or *hearth money*, a tax imposed by statute 13 and 14 Car. II. c. 10. expressing, that every fire-hearth, and stove of every dwelling, or other house, within England and Wales, except such as pay not to church and poor, shall be chargeable with two shillings *per ann.* payable at Michaelmas and Lady-day, to the king and his heirs. But this tax was declared to be an oppression and badge of slavery, and accordingly abolished by stat. 1 W. and M. c. 10. and the window-tax established in its room. See **FUAGE** and **WINDOW-TAX**.

CHIMNEY-piece, in *Building*, a composition of certain mouldings, of wood or stone, standing on the fore-side of the jambs, and coming over the mantle-tree.

CHIMPANZEE, in *Natural History*, the name of an Angolan animal, very much approaching to the human figure; but of a fierce disposition, and remarkably mischievous. In the year 1738, we had one of these creatures.

tures brought over into England, by the captain of a ship in the Guinea trade; it was of the female sex, and was two feet four inches high: it naturally walked erect, and was hairy on some parts of the body and limbs, and of a strong muscular make. It would eat very coarse food, and was very fond of tea, which it drank out of a cup with milk and sugar, as we do; it slept in the manner of the human species, and in its voice made some imitation of the human speech, when people speak very hastily, but without any articulate sound. The males of this species are very bold, and will fight a man, though they see him armed. It is said that they often set upon, and ravish the negro women, when they meet them in the woods. The creature we saw here was but about twenty months old, and very tame; the parent had it in her arms in the country, and did not part with it till she was killed with a spear by one of the Moors: she was five feet high. Act. Eruditor. Germ. ann. 1739. See ORANG-outang.

CHINA, CHINA-ware, a fine sort of earthen ware, properly called PORCELAIN.

CHINA, gilding on. See GILDING on China.

CHINA, party, See PARTY.

CHINA, broken, a cement for. See CEMENT.

CHINA-CHINA, a name sometimes given to the quinquina, or Peruvian bark. See CORTEX Peruvianus, and QUINQUINA.

CHINA-root, a medicinal root, brought from the East Indies; and lately also from Peru, and New Spain.

It is of a ruddy brown colour, bordering on black, without-side; and white, or reddish, within. It grows chiefly in fenny places, usually covered with the sea; which, upon its withdrawing, leaves great quantities thereof on the shore. The best is that which is firm, ruddy, and fresh.

It is supposed to be the root of a rough sort of *smilax*, called *lampatam* in China, where it grows plentifully; and being exported thence, is called *China*.

It is esteemed a sweetener of the blood; and used as such in decoction, in venereal and scorbutic cases.

It has indeed been a generally received opinion for a considerable time past, that *China-root* is of service in the gout, sciatica, oedematous, tumors, strumæ, imbecility of the stomach, hemicranias, and in ulcers of the reins and bladder; but to be of little effect in the *lues*; or if it be perhaps of any use, yet to be far inferior in virtue to guaiacum.

CHIN-COUGH, a disease which children are chiefly subject to. It consists in a violent and immoderate coughing, to a danger of suffocation.

In the *chin-cough*, Dr. Huxham uses the common evacuations, and proposes to correct the lentor of the blood, and to strengthen the nerves and stomach by mercurials, the cortex, and proper stomachics.

Dr. Burton declares against bleeding, vomiting, and purging in the *chin-cough*, except in very urgent cases; the medicine which he says has had great success, is a scruple of fine powder of cantharides, and as much camphor, mixed with three drams of the extract of Jesuits bark. Of this mixture he gives eight or nine grains to children every third or fourth hour, in a spoonful of some simple water, or some julep, in which a little balsam of capivi had been dissolved. He says this method is not proper in such *chin-coughs* as proceed from thin sharp rheum; but, he believes, that in the *chin-cough* from a tough viscid phlegm, it will scarce ever fail, at least it has not failed yet. Med. Ess. Edinb.

As this disease arises from obstructed perspiration, and a relaxation of the solids, its cure must depend on cleansing and strengthening the stomach, bracing the solids, and, at the same time promoting perspiration and the different secretions. The diet, therefore, should be light, and easy of digestion: the drink should be hyssop or penny-royal tea, sweetened with honey or sugar-candy; or small wine whey. One of the most effectual remedies is change of air. When the disease is violent, and there is any danger of an inflammation of the lungs, or suffocation, repeated bleeding may be proper. Small doses of ipecacuanha should be administered in this disorder. The preparations of rhubarb should also be used, in order to keep the body open. Oily and balsamic medicines, though often exhibited, should be avoided. Millepedes, bruised and infused in small white wine, have been much recommended. Two ounces of these should be allowed to a pint of wine, and a table-spoonful taken three or four times a day. Opiates, as a little of the syrup of poppies, or five, six, or seven drops of laudanum, may be occasionally repeated, to allay the violence of the cough. The feet should be occasionally bathed in luke-warm water, and a Burgundy pitch plaster kept between the shoulders. If the disease continues, unattended with a fever, the bark and other bitters are proper medicines. Buchan's Domestic Medicine, ed. 5. p. 309, &c.

CHINE, in the *Manege*, is used for the back-bone, or the ridge of the back of a horse. The French call it *ecline*, and the ancient Italian masters *esquine*.

CHINESE Chronology. See CHRONOLOGY.

CHINESE Stove. See KANG.

CHINESE or CHINESE Tongue, the LANGUAGE of the people of China. F. le Comte observes, that the *Chinese* has no analogy to any other language in the world. It only consists of 330 words, which are all monosyllables; at least, they are pronounced so short, that there is no distinguishing above one syllable, or sound, in them. Yet they have four accents, which, by an inflexion of voice, multiply almost every word into four, and give also a harmony and pointed cadence to the most ordinary phrases. Their characters are divided into six sorts: the first exhibiting the shape or image of sensible things; the second indicating the object by some visible addition to the shape or symbol; the third associating two characters to express an object, which neither will denote separately; the fourth expressing the sound, in order to supply the defect of the figure, as *ya* adjoined to the figure of a bird, to represent a duck, &c.; the fifth being a metaphorical application of their characters, whereby their language acquires a force and vivacity of colouring peculiar to itself, but at the same time rendering it extremely obscure; the sixth extending the primitive sense of a character, so that the same character may denote a verb or adverb, an adjective or substantive. From these sources their various characters are derived, and increased from 300 to 80,000.

Some learned men have imagined, particularly Mr. Turbeville Needham, F. R. S. that the *Chinese* characters are the same in many respects as the Egyptian hieroglyphics; and that the sense of the latter may be discovered by the comparative and appropriated signification of the former. But it has been urged, that there is not the least trace now remaining of any communication, since the confusion of tongues, between the *Chinese* and Egyptians: nor can there be discerned any connection between the two modes of writing at this day. Nevertheless, it has been maintained, that the *Chinese* language is one of the most ancient; and perhaps the only one that has been spoken without interruption; and yet remains as a living language, to which it is apprehended the small number and shortness of its words have greatly contributed. The *Chinese* characters have been represented as images for sensible things, and symbols for mental objects, which are tied to no sound, and may be read in every tongue; and this seems to have been the case in the most remote antiquity, when their characters, which are now abbreviated and disfigured, might have been more simple and natural. See farther on this subject, Phil. Trans. vol. lix. N° 66. p. 489, &c. See also WRITING.

CHINNOR, an instrument of music among the Hebrews, consisting of thirty-two chords. Kircher has given a figure of it; for which, see *Tab. Music. fig. 1.*

CHINSE, in *Sea Language*, is used for thrusting oakum into a seam or chink, with the point of a knife or chissel.

CHIO pear, a name given to a small species of pear, called also by some the bastard musk pear, from its resembling the little musk pear in its sweet flavour. Its skin is yellow streaked with red; it is of a roundish shape, and does not hang in clusters, but singly on the tree.

CHIOCOCCA, in *Botany*, a genus of the *pentandria monogynia* class, having a funnel-shaped flower, and a single-celled berry containing two seeds.

CHIONANTHUS, in *Botany*. See SNOW-drop tree.

CHIPPING, a phrase used by the potters and china-men to express that common accident both of our own stone and earthen ware, and the porcelain of China, the flying off of small pieces, or breaking at the edges. Our earthen wares are particularly subject to this, and are always spoiled by it before any other flaw appears in them. Our stone wares escape it better than these, but less than the porcelain of China, which is less subject to it than any other manufacture in the world. The method by which the Chinese defend their ware from this accident, is this: they carefully burn some small bambou canes to a sort of charcoal, which is very light, and very black; this they reduce to a fine powder, and then mix it into a thin paste, with some of the varnish which they use for their ware: they next take the vessels when dried, and not yet baked, to the wheel, and turning them softly round, they, with a pencil dip in this paste, cover the whole circumference with a thin coat of it: after this, the vessel is again dried; and the border made with this paste appears of a pale greyish colour when it is thoroughly dried. They work on it afterwards in the common way, covering both this edge and the rest of the vessel with the common varnish. When the whole is baked on, the colour given by the ashes disappears, and the edges are as white as any other part; only when the baking has not been sufficient, or the edges have not been

being covered with the second varnishing, we sometimes find a dusky edge, as in some of the ordinary thick tea-cups.

It may be a great advantage to our English manufactures to attempt something of this kind. The willow is known to make a very light and black charcoal; but the elder, though a thing seldom used, greatly exceeds it. The young green shoots of this shrub, which are almost all pith, make the lightest and the blackest of all charcoal; this readily mixes with any liquid, and might be easily used in the same way that the Chinese use the charcoal of the bambou cane, which is a light hollow vegetable, more resembling the elder shoots than any other English plant. It is no wonder that the fixed salt and oil contained in this charcoal should be able to penetrate the yet raw edges of the ware, and to give them in the subsequent baking a somewhat different degree of vitrification from the other parts of the vessel, which, though if given to the whole, it might take off from the true semivitrified state of that ware; yet at the edges is not to be regarded, and only serves to defend them from common accidents, and keep them entire.

The Chinese use two cautions in this application: the first in the preparation; the second in the laying it on. They prepare the bambou canes for burning into charcoal, by peeling off the rind. This might easily be done with our elder shoots, which are so succulent, that the bark strips off with a touch. The Chinese say that if this is not done with their bambou, the edges touched with the paste will burst in the baking: this does not seem indeed very probable; but the charcoal will certainly be lighter made from the peeled sticks, and this is a known advantage. The other caution is, never to touch the vessel with hands that have any greasy or fatty substance about them; for if this is done, they always find the vessel crack in that place. *Obs. sur les Cout. de l'Asie.*

CHIPPINGAVEL, or **CHEAPINGAVEL**, in our *Old Writers*, toll paid for buying and selling.

CHIRAGRA, in *Medicine*, the gout in the hands.

The word comes from *χειρ*, *manus*, *hand*, and *αγρα*, *captura*, *seizing*.

The *chiragra* has its seat in the *carpus*, or extreme part of the hand, or the ligaments and junctures of the fingers.

CHIRAMAXIUM, in *Antiquity*, a kind of chariot or conveyance, which was drawn by men instead of horses.

The word is derived from *χειρ*, *the hand*, and *μαξα*, *a chariot*.

CHIRCHSED. See **CHURCH-SCOT**.

CHIRITES, in *Natural History*, a name given by authors to a stone resembling the human hand. The accounts we have of it say, that it is of a white colour, and of the nature of gypsum or plaster-stone; and that it represents the palm of the hand, with the fingers, and their nails on the other side. This seems to have been a name given to some single specimen in a cabinet of some collector; for it is certainly no distinct species of fossil, but a mere *lusus naturæ*, in the configuration of some accidental piece of gypsum.

CHIROGRAPH, *Chirographum*, was anciently a deed which, requiring a counterpart, was engrossed twice on the same piece of parchment, counterwise; leaving a space between, wherein was wrote **CHIROGRAPH**; through the middle whereof the parchment was cut, sometimes straight, sometimes indentedly; and a moiety given to each of the parties.

The word is compounded of *χειρ*, *hand*, and *γραφω*, *scribo*, *I write*; q. d. *hand-writing*.

This was afterwards called *dividenda*, and *chartæ divisæ*; and was the same with what we now call **CHARTER-PARTY**.

The first use of these *chirographs* with us, was in the time of king Henry III.

According to some, a deed was properly a *chirograph*, when it was subscribed by the hand-writing of the vendor, or creditor, and delivered to the buyer, or debtor. These authors make the *chirograph* differ from a *syngraph*, in this; that in the latter, the word *syngraph* was wrote in the middle, and cut through, in the manner just observed of *chirograph*. Those authors, therefore, make the *syngraph* and the *chirograph* a different thing.

CHIROGRAPH was also anciently used for a fine: the manner of ingrossing the fines, and cutting the parchment in two pieces, is still retained in the office called the *Chirographer's Office*.

CHIROGRAPHIER of *fines*, an officer in the common pleas, who ingrosses fines, acknowledged in that court, into a perpetual record (after they have been examined and passed by other officers); and writes and delivers the indentures thereof to the party.

He makes two indentures; one for the buyer, the other

for the seller: and a third indented piece, containing the effect of the fine, and called the *foot of the fine*; and delivers it to the *custos brevium*.

The same officer also, or his deputy, proclaims all fines in court every term, and indorses the proclamations on the back-side of the foot; keeping, withal, the writ of covenant, and the note of the fine.

CHIROMANCY, the art of divining the fate, temperament, and disposition of a person, by the lines and lineaments of the hand: this is otherwise called *palmistry*. The word comes from *χειρ*, *hand*, and *μαντια*, *divination*.

We have a great number of authors on this vain and trifling art: as Artemidorus, Fludd, and Johannes de Indagine. Taisnerus, and M. de le Chambre, are esteemed the best.

CHIRONIA, in *Botany*, a name by which some have called the black bryony. In the Linnæan system it is a genus of the *pentandria monogynia* class: the characters are; the flower hath a permanent empalement of one leaf, cut into five oblong segments: it hath one petal, with a roundish tube divided above into five equal parts, which spread open: it hath five short broad stamina, terminated by large oblong summits, which, when the flowers drop, are spirally twisted: it hath an oval germen, supporting a declining style, which becomes an oval capsule with two cells, filled with small seeds.

CHIRONIUM, in *Medicine*, is sometimes used to signify a great ulcer, and of difficult cure.

CHIRONOMI, on the *Grecian Stage*, were those actors who performed without using words, by the motions of the hand.

CHIRONOMIA, in *Antiquity*, the art of representing, by the motions of the hand, and other gestures of the body, any past transaction, whether of true or fabulous history. This made a part of a liberal education among the ancients: it had the approbation of Socrates, and was ranked by Plato among the political virtues.

CHIROTHECA. See **GLOVE**.

CHIROTHESIA, the imposition of hands in conferring any priestly orders.

The word comes from *χειρ*, *manus*, and *τιθημι*, *pono*, which signifies the laying hands upon another.

CHIROTANIA, the stretching forth, or holding up of hands, in electing any magistrate, &c.

The word comes from *χειρ*, *manus*, and *τενω*, *tendo*, *the action of stretching out the hands*; and because the ancients gave their suffrages by stretching out their hands, they gave the name *chirotonia* to the election of magistrates.

This custom was first established in Greece; as appears from an oration of Demosthenes against Neæra, and that of Æschines against Ctesiphon: thence it passed to the Romans. From prophane authors it passed to ecclesiastical ones; and was used by them, not only in speaking of elections, but also of ordinations. See **IMPOSITION** and **ORDINATION**.

For the difference between *chirothesia*, and *chirotonia*, see Harrington's *Prer. of Popular Government*.

CHIRURGERY, popularly called *Surgery*, the third branch of medicine; consisting in operations performed by the hand, for the cure of wounds, and other disorders.

The word *chirurgery* is formed from *χειρ*, *manus*, *hand*; and *εργον*, *opus*, *operation*.

Chirurgery is divided into *speculative* and *practical*; one whereof does that in effect, which the other teaches to do.

All the operations of *chirurgery* are reduced under four kinds: the first whereof rejoins what has been separated, and is called *synthesis*.

The second divides, with discernment, those parts whose union is prejudicial to health; and is called *diæresis*.

The third extracts, with art, foreign bodies; called *exarsis*.

And the fourth, called *prosthesis*, adds and applies what is wanting.

The principal things that come under the consideration of *chirurgery* are, tumors, ulcers, wounds, dislocations, and fractures.

Chirurgery has the advantage of medicine, in the solidity of its foundation, the certainty of its operations, and the sensibility of its effects; insomuch that those who deny medicine to be of any significance, yet allow the usefulness of *chirurgery*.

Chirurgery is very ancient; and even much more so than medicine, whereof it now makes a branch. It was, in effect, the sole medicine of the first ages; they betaking themselves to the cure of external disorders, before they came to examine or discover what related to the cure of internal ones.

Apis, king of Egypt, is said to be the first inventor of *chirurgery*; after him, Æsculapius composed a treatise of wounds and ulcers: he was succeeded by the philosophers

of the following ages, in whose hands *chirurgery* wholly lay: such were Pythagoras, Empedocles, Parmenides, Democritus, Chiron, Pæon, Cleombrotus, who cured king Antiochus, &c.

Pliny tells us, upon the authority of Cassius Hemina, that Archagathus was the first of the profession that settled at Rome; that the Romans were wonderfully pleased with this *Vulnerarius*, as they called him, at his first coming, and shewed him some extraordinary marks of their esteem, but that they were disgusted at him afterwards, and nicknamed him *Carnifex*, for his cruelty in cutting off limbs. Some pretend, that he was even stoned by them to death in the Campus Martius; but if he really came to such an unlucky end, it is strange Pliny should take no notice of it. Plin. Hist. Nat. lib. xxix. cap. 1.

Chirurgery was cultivated with much more earnestness by Hippocrates, than by any of the preceding physicians: it is said to have been perfected in Egypt by Philoxenus, who wrote several volumes on that subject. Among the Greeks, Gorgias, Sostrates, Heron, the two Apollonii, Ammonius of Alexandria; and at Rome, Trypho the father, Euelpistus, and Meges, made it flourish, each in their time.

The more modern authors, who have contributed most to the perfection of *chirurgery*, are. Paræus, Fab. ab Aquapendente, Harvey, Wharton, Glisson, Du Laurence, Diemerbroeck, Vieussens, Barbette, Dionis, Charriere, Heister, &c.

Scultetus has published a description of all the instruments used in *chirurgery*, under the title of *Armamentarium Chirurgicum*; and our countryman, Mr. Wiseman, serjeant-chirurgion to king Charles II. a folio volume of *chirurgical* treatises, containing practical observations, both in respect to the internals and externals, of a number of cases in each branch of the art, from his own experience, under the title of *Several chirurgical Treatises*. This work has been made use of ever since, by the most knowing of our English *chirurgeons*; and has been the foundation of most *chirurgical* treatises since its publication, anno 1676.

In England there are two distinct companies now occupying the science or faculty of surgery; the one company called *barbers*, the other *surgeons*: which latter were not till very lately incorporated. The two were united to sue and be sued, by the name of masters or governors and commonalty of the mystery of Barbers and Surgeons of London, 32 Hen. VIII. cap. 42.

No person using any barbery, or shaving, in London, was to occupy any surgery, letting of blood, or other matter; drawing of teeth only excepted. And no person using the mystery or craft of surgery was to occupy or exercise the seal or craft of barbery, or shaving; neither by himself, nor any other for his use. 32 Hen. VIII. cap. 42. By the same statute, surgeons were obliged to have signs at their doors.

The French *chirurgeons*, being refused to be admitted into the universities, notwithstanding that their art makes a branch of medicine, one of the four faculties, on pretence of its bordering a little on butchery, or cruelty, associated themselves into a brotherhood, under the protection of St. Cosmus, and St. Damian: on which account, according to the laws of their institution, they are obliged to dress and look to wounds *gratis*, the first Monday of each month.

They distinguish between a *chirurgion of the long robe*, and a *barber chirurgion*: the first has studied physic, and is allowed to wear a gown.

The skill of the other, beside what relates to the management of the beard, is supposed to be confined to the more simple and easy operations in *chirurgery*; as bleeding, tooth-drawing, &c. They were formerly distinguished by badges: those of the long gown bore a case of instruments; and the barber a basin.

CHISSEL, an instrument much used in sculpture, masonry, joinery, carpentry, &c.

There are *chissels* of different kinds; though their chief difference lies in their different size and strength, as being all made of steel well sharpened and tempered: but they have different names, according to the different uses to which they are applied.

The *chissels* used in carpentry and joinery are, 1. The *former*, which is used first of all before the *paring-chissel*, and just after the work is scribed. 2. The *paring-chissel*, which has a fine smooth edge, and is used to pare off, or smooth the irregularities which the *former* makes. This is not struck with a mallet, as the *former* is, but is pressed with the shoulder of the workman. 3. *Skew-former*: this is used for cleansing acute angles with the point, or corner of its narrow edge. 4. The *mortise-chissel*, which is narrow, but very thick and strong, to endure hard blows; and it is cut to a very broad basil: its use is, to cut deep square holes in the wood, for mortises. 5. The *gouge*,

which is a *chissel* with a round edge; one side whereof serves to prepare the way for an augre, and the other to cut such wood as is to be rounded, hollowed, &c. 6. *Socket-chissels*, which are chiefly used by carpenters, &c. to have their shank made with a hollow socket at top, to receive a strong wooden sprig, fitted into it with a shoulder. These *chissels* are distinguished, according to the breadth of the blade, into half-inch *chissels*, three quarters of an inch *chissels*, &c. 7. *Ripping-chissels*, which is a socket *chissel* of an inch broad; having a blunt edge, with no basil to it; its use is to rip, or tear two pieces of wood asunder, by forcing in the blunt edge between them.

CHISELY land, in *Agriculture*, a term appropriated to that sort of land which breaks, when it is turned up by the plough, into pieces like the chips made by the stone-cutter's chissel in the hewing of stones. It is of a middle nature, between the sandy land that falls off from the plough-share, like bran or saw-dust, and the clayey, that is raised in large glebes.

It is of several colours, grey, brown, reddish, and blackish, and usually contains a large quantity of sand, and no small number of pebbles.

CHIT is the name of an instrument used in cleaving laths.

CHITSEE, in *Botany*, the name of a Chinese tree, called also *SETSE*.

CHITTING, in *Gardening*. A seed is said to *chit*, when it first shoots its small roots into the earth.

CHI-TUA, in the *Materia Medica*, a name used by some authors for a kind of *lignum aloes*, which is reddish, and of a very fine scent.

CHIVAGE. See **CHEVAGE**.

CHIVALRY, in *Antiquity*, an institution which succeeded the **CRUSADES**, and which, though founded in caprice, and productive of extravagance, had a very considerable influence in refining the manners of the European nations, during the twelfth, thirteenth, fourteenth, and fifteenth centuries. The objects of this institution were, to check the insolence of overgrown oppressors, to succour the distressed, to rescue the helpless from captivity, to protect or to avenge women, orphans, and ecclesiastics, who could not bear arms in their own defence, to redress wrongs, and to remove grievances. Valour, gallantry, and religion, were blended in this institution; men were trained to knighthood by long previous discipline; they were admitted into the order by solemnities no less devout than pompous; every person of noble birth courted the honour; it was deemed a distinction superior to royalty, and monarchs were found to receive it from the hands of private gentlemen. These various circumstances contributed to render a whimsical institution of substantial benefit to mankind. See Robertson's Hist. of Charles V. vol. i. p. 82, &c. ed. 2. 8vo.

Dr. Hurd, in his *Letters on Chivalry and Romance*, traces the origin of this institution immediately to the feudal constitution; and he supposes that the spirit of *chivalry* had considerably prevailed before the rise of the **CRUSADES**.

CHIVALRY, or **CHEVALRY**, in *Law*, a tenure of land by knight-service; whereby the tenant was anciently bound to perform service in war, to the king, or to the mesne lord of whom he held by that tenure.

By a statute of 12 Car. II. cap. 24. all tenures by *chivalry*, in *capite*, &c. are abolished. See **COURT** and **GUARDIAN**.

CHIUDENDO, in *Italian Music*, to conclude; as *chiudendo col ritornello, col l'aria*, signifies to end with a **RITORNELLO**, or some passages which has been before sung in some parts of the piece.

CHIVEN, in *Zoology*, a name given by many to the **MUSCICAPA**, or *fly-catcher*, a small bird little bigger than the wren.

CHIVES, or **CHIEVES**, in *Botany, the small knobs growing on the ends of the fine threads, or stamina of flowers: by Ray, and others, called also *apices*. See **ANTHERÆ**. Dr. Grew calls the *stamina*, or threads themselves, on which the *apices* are fixed, the *chives*.*

CHIVES, in *Botany*, a very small species of the **ONION** kind, is also called by this name.

CHIUM Marmor. See **MARBLE**.

CHIUM vinum, *Chian wine*, or wine of the growth of the island of Chios, now Scio, is commended by Dioscorides, as affording a good nourishment, fit to drink, less disposed to intoxicate, endued with the virtue of restraining defluxions, and a proper ingredient in ophthalmic medicines. Hence Scribonius Largus directs the dry ingredients in *collyria* for the eyes, to be made up with *Chian wine*.

CHIUN, or **CHEVAN**, in *Hebrew Antiquity*. We meet with this word in the prophet Amos, cited in the Acts of the Apostles. St. Luke reads the passage thus: 2e

took up the tabernacle of Moloch, and the star of your god Remphan, figures which ye made to worship them. The import of the Hebrew is as follows: Ye have borne the tabernacle of your kings, and the pedestal (the chiun) of your images, the star of your gods, which ye made to yourselves. The Septuagint in all probability read *Repham* or *Revan*, instead of *Chiun* or *Chevan*, and took the pedestal for a god.

Some say that the Septuagint, who made their translation in Egypt, changed the word *Chiun* into that of *Remphan*, because they had the same signification. M. Bafnage, in his book entitled *Jewish Antiquities*, after having discoursed a good deal upon *Chion* or *Remphan*, concludes that Moloch was the sun, *Chion*, *Chiun*, or *Remphan*, the moon.

CHIUREA, in *Natural History*, a name given by Cardan, Oviedo, and some others, to the opossum.

CHLÆNA, in *Antiquity*, a kind of thick, shaggy, upper garment; its use was very ancient; for we find Homer makes his heroes first put off their *chlænæ*, and afterwards their tunics, or coats.

CHLAMYDULA, in *Antiquity*, a small upper garment worn by children. See **CHLAMYS**.

CHLAMYS, in *Antiquity*, a military habit, worn by the ancients over the tunic.

Chlamys was the same, in time of war, that the *toga* was in time of peace; each belonged to the patricians. It did not cover the whole body, but chiefly the hind-part; though it also came over the shoulders, and was fastened with a buckle on the breast. There were four or five kinds of *chlamys*; that of children, that of women, and that of men; which last was divided into that of the people, and that of the emperor.

CHLIASMA, in *Medicine*, a warm fomentation of the moist kind; as *pyria* is of the dry kind.

CHLOEIA, in *Antiquity*, a festival celebrated at Athens, in honour of Ceres, to whom, under the name *Χλον*, i. e. *Grass*, they sacrificed a ram.

CHLORA, in *Botany*, a genus of the *ostandria monogynia* class: the calyx is composed of eight leaves; the corolla has a single petal, and is divided into eight sections; and the capsule consists of a single cell, with two valves, containing many seeds.

CHLOREUS, in *Zoology*, a name by which Turner, and some others, have called the common **YELLOW-hammer**, or *emberiza lutea*.

CHLOREUS, in *Zoology*, is also a name by which several authors, and particularly many of the earliest writers, have called the **GALBULA**, a very elegant and beautiful bird of the thrush kind, almost all over yellow.

CHLORIS, in *Ornithology*, the name of the bird commonly called in English the **greenfinch**, a well-known bird of the size of a common sparrow, and remarkable for its green colour, whence it has its name, and for the largeness of its beak, in which it approaches to the *coccothraustes*; it builds in our hedges, and feeds on the seeds of vegetables.

CHLORITES, in *Natural History*, a name given by the ancients to a green stone, seeming to have been a jasper, but so pellucid as to approach to the nature of the coarser emeralds.

CHLOROSIS, in *Medicine*, a feminine disease, vulgarly called the *green-sickness*, *white jaundice*, &c.

The word *chlorosis* signifies *greenness*, *verdure*; formed from *χλον*, *grass*.

Its usual subjects are, girls, maids, and widows; or even wives, whose husbands are deficient, &c. It gives a pale, yellow, or greenish tincture to the complexion, with a circle of violet under the eyes. The patient is melancholy and uneasy; has frequently a low wandering fever, with an unequal pulse, vomiting, heaviness, listlessness, drowsiness, difficulty of breathing, longing for absurd foods, &c.

It comes on, commonly, antecedent to, or about the time of the eruption of the menses. Though the stoppage of the menses is not always the cause of this distemper; for they sometimes, though but seldom, flow regularly, in the progress thereof. According to Etmüller, the suppression of the menses is rather the effect than the cause of this disease.

The cure is chiefly to be attempted by chalybeats and bitters. In the colder constitutions, decoctions of guaiacum are found of use.

CHNUS, in *Hippocrates*, is a fine soft wool, to which he compares an aqueous spleen, on account of its softness.

CHOANA, in *Ancient Anatomists*, a cavity in the brain like a funnel, called also *pelvis*.

CHOASPITES, a name given by the ancients to a species of the *chrysoprassus*, a gem of a mixed colour between yellow and green. It was called *choaspites* from the name of a river in which it was frequently found.

CHOCK, in *Sea Language*, a wedge used to confine a cask,

or other heavy body, to prevent it from fetching away when the ship is in motion.

CHOCOLATE, a kind of cake, or confection, prepared of certain drugs; the *basis*, or principal whereof, is the *cacao-nut*.

The name *chocolate* is also given to a drink, prepared from this cake, of a dusky colour, soft, and oily; usually drank hot, and esteemed not only an excellent food, as being very nourishing, but also a good medicine; at least a diet, for keeping up the warmth of the stomach, and assisting digestion.

The Spaniards were the first who brought *chocolate* into use in Europe; and that, perhaps, as much out of interest, to have the better market for their cacao-nuts, vanilla, and other drugs which their West Indies furnish, and which enter the composition of *chocolate*, as out of regard to those extraordinary virtues which their authors so amply enumerate in it. The qualities above mentioned are all that the generality of physicians, and others, allow it.

For the statutes relating to the manufacture and trade of *chocolate* in Great Britain, see 10 Geo. I. cap. 10. § 1. 2. 18. 19. 22. 24. 11 Geo. I. cap. 10. § 13. 23. 25. 11 Geo. I. cap. 30. § 14. 15.

CHOCOLATE, *original manner of making*. The method first used by the Spaniards was very simple, and the same with that in use among the Indians: they only used cacao-nut, maize, and raw sugar, as expressed from the canes, with a little achiote, or rocou, to give it a colour: of these four drugs, ground between two stones, and mixed together in a certain proportion, they made a kind of bread, which served them equally for solid food, and for drink; eating it dry when hungry, and steeping it in hot water when thirsty.

This drink the Mexicans called *chocolate*, from *chacoo*, *sound*; and *alte*, or *atte*, *water*; q. d. *water that makes a noise*: from the noise which the instrument, used to mill and prepare the liquor, made in the water.

But the Spaniards, and other nations, afterwards added a great number of other ingredients to the composition of *chocolate*; all of which, however, vanilla alone excepted, spoil, rather than mend it.

CHOCOLATE, *method of making, now in use among the Spaniards of Mexico*. The fruit, being gathered from the cacao-tree, is dried in the sun, and the kernel taken out, and roasted at the fire, in an iron pan pierced full of holes; then pounded in a mortar; then ground on a marble stone, with a grinder of the same matter, till it be brought into the consistence of a paste; mixing with it more or less sugar, as it is to be more or less sweet. In proportion as the paste advances, they add some long pepper, a little achiote, and, lastly, vanilla: some add cinnamon, cloves, and anise; and those who love perfumes, musk and ambergris.

There is also a kind of Mexican *chocolate*, in the composition whereof there enter almonds and filberts; but it is rather to spare the cacao, than to render the *chocolate* better; and, accordingly, this is looked on as sophisticated *chocolate*.

CHOCOLATE, *the, made in Spain*, differs somewhat from that made in Mexico: for, besides the drugs used in this last, they had two or three kinds of flowers, pods of campeche, and generally almonds and hazel nuts. The usual proportion, at Madrid, is, to an hundred kernels of cacao, to add two grains of *chile*, or Mexican pepper; or, in lieu thereof, Indian pepper; a handful of anise; as many flowers, called by the natives *vinacaxtlides*, or little ears; six white roses in powder; a little machusia; a pod of campeche; two drachms of cinnamon; a dozen almonds, and as many hazel nuts; with achiote enough to give it a reddish tincture; the sugar and vanilla are mixed at discretion; as also the musk and ambergris. They frequently work their paste with orange-water, which they think gives it a greater consistence and firmness.

The paste is usually made up into cakes, sometimes into large rolls; and sometimes the cakes are made up of pure *chocolate*, without any admixture; those who use it being to add what quantity they please of sugar, cinnamon, and vanilla, when in the water.

Among us, in England, the *chocolate* is chiefly made thus simple and unmixed, though (perhaps not unadulterated) of the kernel of the cacao; excepting that sometimes sugar, and sometimes vanilla, is added: any other ingredients being scarce known among us.

The newest *chocolate* is esteemed the best; the drug never keeping well above two years, but usually degenerating much before that time.

It is to be kept in brown paper, put up in a box; and that in another, in a dry place.

Mr. Henly, an ingenious electrician, has lately discovered that *chocolate*, fresh from the mill, as it cools in the

tin-pans, into which it is received, becomes strongly electrical; and that it retains this property for some time after it has been turned out of the pans, but soon loses it by handling. The power may be once or twice renewed by melting it again in an iron ladle, and pouring it into the tin pans as at first; but when it becomes dry and powdery, the power is not capable of being revived by simple melting: but if a small quantity of olive-oil be added, and well mixed with the *chocolate* in the ladle, its electricity will be completely restored by cooling it in the tin pan as before. From this experiment he conjectures, that there is a great affinity between phlogiston and the electric fluid, if indeed they be not the same thing. Phil. Trans. vol. lxvii. part i. p. 94, &c.

The manners of preparing the mass into a liquor, with the proportions, are various: ordinarily, the *chocolate* is boiled in water, sometimes in milk; and sometimes, by good oeconomists, in water-gruel: when boiled, it is milled, or agitated with a wooden machine for the purpose, and boiled again, till it be of the proper consistence for drinking; then sugared, if the mass were pure; then milled afresh, and poured off.

Note, the best *chocolate* is that which dissolves entirely in the water; leaving no grounds, or sediment, at the bottom of the pot.

The Spaniards esteem it the last misfortune that can befall a man, to be reduced to want *chocolate*: they are never known to leave it, excepting for some other liquor that will intoxicate.

CHOCOLATE-tree. See CACAO.

CHOENICIS, in the *Ancient Surgery*, the trepan, so called by Galen and Ægineta, and mentioned by Celsus, where he calls it *modiolus*.

CHOENIX, an attic dry measure, containing three *cotylæ*, or one *sextarius* and an half, which is two pounds and a quarter. Its mark was a χ with an ν over it.

The *choenix* likewise contained the forty-eighth part of a medimnus, and was otherwise called HEMEROTROPHIS.

CHOERINÆ, in *Antiquity*, a kind of sea-shell, with which the ancient Greeks used to give their suffrage, or vote.

CHOEROGRYLLUS. See Hedge-HOG.

CHOES, in *Antiquity*, an Athenian festival in honour of Bacchus, celebrated in the month Anthesterion.

CHOIR, that part of a church, cathedral, &c. where the clergy and choristers, or singers, are placed.

The word, according to Isidore, is derived à *coronis circumstantiam*; because, anciently, the choristers were disposed round the altar to sing; which is still the manner of building altars among the Greeks.

The *choir* with us is distinguished from the chancel, or sanctuary, where the communion is celebrated: as also from the nave, or body of the church, where the people are placed.

The patron is said to be obliged to repair the *choir* of a church; and the parishioners the nave.

The *choir* was not separated from the nave, till the time of Constantine: from that time the *choir* was railed in with a ballustrade, with curtains drawn over, not to be opened till after the consecration.

In the twelfth century they began to inclose the *choir* with walls; but the ancient ballustrades have been since restored; out of a view to the beauty of the architecture. The chantor is master of the *choir*.

In nunneries, the *choir* is a large hall, adjoining to the body of the church, separated by a grate, where the religious sing the office.

CHOIR music, music sung in a chorus, as in churches. It is sometimes used for *musica piena*, *canto fermo*, or what we call *plain chant*, or *song*.

CHOIROS, in *Ichthyology*, a name given by Aristotle and others of the old Greek writers to the *cernua* or *acerina* of the Latins, called by us the RUFFE. This fish has been called by a great variety of names, but it is properly a species of perch, or PERCA, and is distinguished from the others of that genus by Artedi under the name of the perch with only one fin on the back, and with a cavernous head.

CHOLAGOGUE, a medicine which purges the bile downward.

The word comes from *χολη*, bile; and *αγειν*, to lead, or draw.

Of these some are simple, others compound; and both the one and the other are distinguished into three kinds, with regard to their activity; the *benign*, the *moderate*, and the *violent*.

Of the first kind are, MANNA, CASSIA, roses, tamarinds, *oleum ricini*, &c.

Of the second are SENA, RHUBARB, ALOES, &c.

Of the third JALAP, SCAMMONY, &c.

CHOLEDOCHUS, in *Anatomy*, a term applied to a canal,

or duct, called also *ductus communis*; formed of the union of the *porus bilarius*, and *ductus cysticus*.

The word comes from *χολη*, *choler*; and *δεχομαι*, I receive, or contain.

The *choledochus ductus*, passing obliquely to the lower-end of the *duodenum*, serves to convey the BILE from the LIVER to the intestines. Some have imagined, that it conveyed the bile from the liver to the GALL-bladder: but it being observed, that it is the *duodenum*, not the gall-bladder, that swells, upon blowing through this duct, it is evident, the bile contained therein is conveyed nowhere else but to the *duodenum*.

CHOLER, See BILE.

CHOLERA MORBUS, a sudden overflowing, or eruption of the BILE, or bilious matters, both upwards and downwards.

It is supposed to have its rise from the great abundance of bilious humours; which, being very acrimonious, vellitate the membranes of the stomach and intestines; and, by that means, occasion unusual and violent contractions.

It is very dangerous: whence the French anciently called it *trousse-galand*.

It has its name, either from the great quantity of *choler* it evacuates; or because the matter is incessantly expelled at the intestines, which they anciently called *cholades*.

Dr. Sydenham observes, it generally attacks people about the latter end of summer; and proceeds, not unfrequently, from surfeits: that the cure depends upon large quantities of chicken-broth, drank so as to excite vomiting plentifully; and that the broth is also to be injected clysterwise: after which, he says, the cure is to be completed by laudanum, given at proper intervals, and in proper doses.

The remedy in the Indies for the *cholera morbus*, or *mandechin*, is, to keep the patient from drinking; and to burn the soles of his feet.

The free use of the columbo root has been found an excellent remedy in this disease.

COLOBAPHIS, in *Natural History*, a name given by some of the ancient Greeks to a peculiar kind of emerald which was inferior to many others, and was of a colour tending to yellow.

It is plain that the Romans called all the green crystals found in copper-mines by the name of emeralds; for they express in their descriptions all the defects we find in these crystals, such as their having hairs, or substances like hairs; within, as also salts, and the like.

CHOLOMA, or CHOLOSIS, signifies, according to Galen, any distortion of a member, or depravation of it with respect to motion. It is taken also, in a particular sense, for halting or lameness of a leg, arising from luxation.

CHOMER. See CORUS.

CHONDRILLA, in *Botany*, See GUM-succory.

CHONDROGLOSSUM, in *Anatomy*, a very small muscle of the tongue, mentioned by Verheyen, and several other authors, exceedingly short and narrow; arising from the cartilaginous processes of the *os hyoides*, and meeting in the middle of the basis of the tongue, where it is inserted, forming an arch under it.

This pair of muscles is not found in all subjects; whence some have questioned its existence.

CHONDROPTERYGII, in *Natural History*, a name given by Artedi and Linnæus to one of the great classes or families of the fishes: the characters of which are, that the rays of the fins are not bony, but cartilaginous.

The bones of the body of these fishes are also cartilaginous, and the mouth in most of the species is placed in the lower part of the body.

The word is derived from *χονδρος*, a cartilage, and *πτερυγιον* a wing or fin. Of this order are the *scate*, *sturgeon*, *lamprey*, &c.

CHONDROS, in *Ancient Medical Writers*, the same as ALICA.

It signifies also some grumous concretion, as of *massich*, or frankincense.

It is, besides, the Greek word for a cartilage.

CHONDROSYNDESMUS, in *Ancient Medical Writers*, signifies a cartilaginous ligament.

The word is derived from *χονδρος*, a cartilage, and *συνδεσμος*, a ligament.

CHOP-CHURCH, or CHURCH-CHOPPER, a name, or rather nick-name, given to parsons, who make a practice of exchanging benefices.

Chop-church occurs in an ancient statute as a lawful trade, or occupation; and some of the judges say, it was a good addition. Brook holds, that it was no occupation, but only a thing permissible by law.

CHOPIN, or CHOPINE, a French and Scotch liquid measure, containing half their PINT.

CHORAGIUM, in *Antiquity*, was used to denote the funeral of a young unmarried woman.

Some

Some think it should be writ *choragium*, from *χορηγία*, *puella*, and *αγω*, *duco*. But Pitiscus chooses rather to derive it from *chorus*; because a chorus or company of virgins always attended such funerals.

CHORAGIUM signified also the tiring or dressing-room belonging to the stage; and sometimes was taken for the dress itself.

CHORAGUS, in *Antiquity*, he who had the superintendence of the chorus, whose business it was to take care they observed the rules of the music, and performed their parts with decorum.

CHORAGI were likewise certain Athenian citizens chosen annually, who were obliged to be at the expence of players, singers, dancers, and musicians, as often as there was occasion, at the celebration of their public festivals.

CHORAIC music, a sort of music proper for dancing, by the variety of its different motions.

CHORAL, signifies any person that, by virtue of any of the orders of the clergy, was in ancient times admitted to sit and serve God in the choir.

Dugdale, in his History of St. Paul's Church, says, that there were with the chorus formerly six vicars *choral* belonging to that church.

CHORAL Service. See **SERVICE** and **SINGING**.

CHORD, or **CORD**, primarily denotes a slender rope, or cordage.

The word is formed of *chorda*, and that from *χορδή*, a gut; whereof strings may be made.

CHORD, **CHORDA**, in *Anatomy*, a little nerve extended over the *membrana tympani*, or drum of the ear. See **TYMPANUM**.

Anatomists are not agreed about the use of the *chorda tympani*: some say, it serves to vary and modify the sound of the tympanum, in the same manner as the strings, or braces, stretched over the war-drum: others will have it to be no more than a branch of the fifth pair.

CHORD, **CHORDA**, in *Geometry*, a right line connecting the two extremes of an arch.

Or, it is a right line, terminated at each extreme in the circumference of a circle, without passing through the centre; and dividing the circle into two unequal parts, called *segments*. Such is the line A B, *Tab. Geometry*, fig. 6.

CHORD of the complement of an arch is the chord that subtends the rest of the arch; or so much as makes up the arch a semicircle.

The chord is perpendicular to a line drawn from the centre of the circle to the middle of the arch, as C E; and has the same disposition thereto, as the cord, or string of a bow, has to the arrow; which occasioned the ancient geometricians to call this line the *chord* of the arch, and the other the *sagitta*, or *arrow*; the former of which names is still continued, though the latter is disused. What the ancients called *sagitta*, is now termed the *versed sine*.

Half the chord of the double arch B D, is what we now call the *right sine*; and the excess of the radius beyond the chord D E, the *versed sine*.

The chord of an angle, and the chord of its complement to a whole circle, are the same thing: the chord of fifty degrees is also the chord of 310.

It is demonstrated, in geometry, that the radius C E, bisecting the chord B A in D, does also bisect the arch in E, and is perpendicular to the chord A B, and *vice versa*: and again, if the right line N E bisect the chord A B, and be perpendicular thereto; that it passes through the centre, and does bisect both the arch A E B, and the circle A N B.

Hence we derive several useful corollaries: as, 1. To divide a given arch A B into two equal parts; draw a perpendicular to the middle point D of the chord A B; this bisects the given arch A B.

2. To describe a circle, that shall pass through any three points, A, B, C, fig. 7. From A and C describe arches intersecting in D and E; and also others, G and H, from C and B: draw the right lines D E and G H; the point of intersection I, is the centre of the circle to be described through A, B, and C.

Demonstration. For the points A, B, and C, are in the periphery of some circle; and therefore the lines A C and C B are chords: but E D is perpendicular to A C, and G H to B C; E D bisects A C, and G H bisects B C; whereof each passes through the centre. Now as D E and G H only intersect in I; I will be the centre of a circle, passing through the given points, A, C, and B. Hence, assuming three points in the periphery, or arch, of any circle, the centre may be found, and the given arch completed: hence, also, if three points of one periphery do agree or coincide with three points of another; the whole peripheries agree, and therefore the circles are equal.

And hence, lastly, every triangle may be inscribed in a circle.

The chord of an arch A B (fig. 6.) and the radius C E, being given; to find the chord of the half-arch A E. From the square of the radius C E, subtract the square of half the given chord A D, the remainder is the square of D C; from which, extract the square root; and then D C subtracted from the radius E C, leaves D E. Add the squares of A D, and E O; the sum is the square of A E: whence, the root being extracted, we have the chord of the half-arch A E.

CHORDS, *line of*, is one of the lines of the sector and plain scale. See its description and use under **SECTOR** and **PLAIN SCALE**. See also **SINE**.

CHORDS, or **CORDS**, in *Music*, denote the strings, or lines, by whose vibrations the sensation of sound is excited; and by whose divisions the several degrees of tune are determined. They are called *ords*, or *chords*, from the Greek *χορδή*, a name which the physicians give to the intestines; in regard the strings of musical instruments are ordinarily made of guts: though others are made of brass or iron wire; as those of spinets, harpsichords, &c.

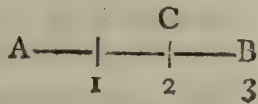
Chords of gold wire, in harpsichords, yield a sound almost twice as strong as those of brass: chords, or strings, of steel, yield a feebler sound than those of brass; as being both less heavy, and less ductile.

Mr. Perrault observes, that of late they have invented a way of changing the chords, to render the sound stronger, without altering the tone.

The sixth chord of bass-viol, and the tenth of large theorbo, consist of fifty threads, or guts: there are some of them a hundred feet long twisted and polished with equisetum, or horse-tail.

CHORDS, for the division of, so as to constitute any given interval, the rules are as follow: 1. To assign such part of a chord A B, as shall constitute any concord, v. g. a fifth, or any other interval, with the whole.

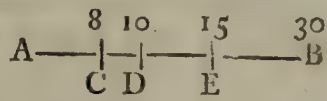
Divide A B into as many parts, as the greatest number of the interval has units; v. g. the fifth being 2 : 3, the line is divided into 3. Of these take as many of the lesser number, v. g. 2 = A C; then is A C the part sought: that is, two lines, whose length are to each other as A B to A C, make a fifth.



Hence, if it be required to find several different sections of the line A B, v. g. such as shall be 8ve, fifth, and 3d g: reduce the given ratios 1 : 2, 2 : 3, and 4 : 5, to one fundamental; the series become 33 : 24, 20, 15. The fundamental is 30, and the sections sought are 24, the third g; 20 the fifth; and 15, the octave.

2. To find several sections of a line A B, that from the least, gradually to the whole, shall contain a given series of intervals in any given order; viz. so that the least to the next greater contains a third g; that to the next greater, a fifth; and that to the whole, an octave.

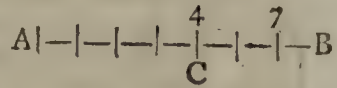
Reduce the three ratios 4 : 5, 2 : 3, 1 : 2, to one series; hence we have 8 : 10 : 15 : 30: divide the line into the number of parts of the greatest extreme of the series; viz. 30. we have the



sections sought at the points of division, answering to the several numbers of the series, viz. at the points C, D, and E; so that A C to A D is a third, A D to A E a fifth, and A E to A B octave.

3. To divide a line A B into two parts, to contain betwixt them any interval, v. g. a fourth.

Add together the numbers containing the ratio of the interval, v. g. 3 : 4; and the line divided into as many parts as the sum contains, v. g. 7; taken to any of the given numbers, v. g. 4, or C, gives the thing sought.



4. For the harmonical division of **CHORDS**. To find two sections of a line, which with the whole shall be in harmonical proportion, with regard to their quantity.

Take any three numbers in harmonical proportion, as 3, 4, 6; and divide the whole line into as many parts as the greatest of these three numbers, v. g. 6; and at the points of division answering to the other two numbers, v. g. 3 and 4, you have the sections sought.

5. To find two sections of a line, which together with the whole shall be harmonical, with respect to quality, or tune. Take any three numbers concords with each other, v. g. 2, 3, and 8, and divide the line by the greatest; the points of division answering to the other two, give the sections sought.

6. To divide a **CHORD** A B, in the most simple manner, so as to exhibit all the original concords.

Divide the line into two equal parts at C, and subdivide the part CB into equal parts at D; and again, the part CD into two equal parts at E. Here AC to AB is an octave; AC to AD a fifth; AD to AB a fourth; AC to AE a third *g*; AE to AD a third *l*; AE to EB a sixth *g*; and AE to AB a sixth *l*. Malcolm's Treat. of Music, ch. 6. sect. 1, 2, 3.

To find the number of vibrations made by a musical chord or string, in a given time, its weight, length, and tension being given. Let N represent the weight of the chord; L its length; P the tension, or weight equivalent to it, by which the chord is extended; and D the length of a given pendulum; p the circumference of a circle, the diameter of which is 1: then will the number of vibrations made by the given chord, while the pendulum vibrates once, be expressed by $p \sqrt{\frac{DP}{LN}}$. If we take

L for the number of inches and decimals contained in the length of the chord, and the proportion of the tension to the weight of the chord as n to 1, then will the number of vibrations of the chord in one second be $\frac{355}{113} \sqrt{\frac{39.2n}{L}}$. Where $\frac{355}{113}$ denotes the proportion of the circumference to the diameter of the circle; and 39.2 the length of a pendulum vibrating seconds, in inches and decimals of an inch, English measure. This last expression coincides with Mr. Euler's rule, only we here express in English what he gives in Rhinland measure. To illustrate this rule by an example: suppose the length of the chord to be 18.7 inches, its weight $6\frac{1}{2}$ grains, and the tension or weight extending this chord to be 8 lb. troy, or 46080 grains. Then $L=18.7$, and $n = \frac{46080}{6.5} = 7432$. The number of vibrations therefore by the rule will be $\frac{355}{113} \sqrt{\frac{39.2 \times 7432}{18.7}} = 392$. Taylor's Method.

Increm. Prop. 23. Tentam. Nov. Theor. Mus. p. 6, 7. See also Mac Laurin's Fluxions, sect. 929.

By logarithms the rule may be thus expressed, $\frac{L+W}{2} +$

$C=V$. Where L is the logarithm of the ratio of a pendulum, vibrating seconds, to the length of the given string; W the logarithm of the ratio of the tension to the weight of the string; C the logarithm of the ratio of the circumference of a circle to its diameter, or 0.4971500; and lastly, V=logarithm of the required number of vibrations in one second. In every chord, the number of vibrations in a given time will be as $\sqrt{\frac{n}{a}}$, that is,

the square root of the extending weight divided by the weight of the chord, and its length. If therefore chords be of the same length, their vibrations in a given time will be as the square roots of the extending weights, divided by the weights of the chords. If chords be equal in length and weight, their vibrations will be as the square roots of their lengths, multiplied by their weight: that is, reciprocally as the lengths of the chords, because the weights of the chords will in this case be proportional to their lengths. Euler, *ibid.* p. 7. See also Smith's Harmonies, prop. 23 and 24.

Mr. Euler informs us, that he found the chord, making 392 vibrations in a second, to be at unison with the key called *a* in instruments, that is, an octave and sixth major above the lowest C in our harpichords or violoncellos. Consequently the note C, being to *a* as 3 to 10, will make 118 vibrations in one second. And the highest C, or *c'''*, as Mr. Euler calls it, being four octaves above the lowest *c*, will vibrate 1888 times in one second of time. Mr. Euler supposes the limits of the human ear to be, with respect to gravity, two octaves lower than C; and with respect to acuteness, two octaves higher than *c'''*. See INTERVAL and VIBRATION.

CHORD is sometimes also used for accord. Thus we say the common chords to such a bass note, meaning its third, fifth, and octave.

CHORD is also used in Music, for the note or string to be touched, or sounded; in which sense it is applicable to all the intervals of music.

CHORDAPSUS, in Medicine, a disease of the intestines, otherwise called *volvulus*, the *iliac passion*, and *miserere mei*: though others make it a distinct species of the *miserere*.

The word comes from *χορδῆ*, gut; and *ἀπλω*, *nefto*, I knot, or tie.

Galen defines it, a tumidity, or inflation of the small intestines, which makes them appear filled, and stretched like a chord. Archigenes makes it a kind of *miserere*; consisting in a tumor in a certain place of the small intestines, which sinks in, and gives way to the hand, when

pressed: he adds, that it is exceedingly dangerous, and ordinarily kills in three or four hours, unless it comes to suppuration; which, however, does not remove all the danger.

It is probable, however, that the *chordapsus* is, in reality, nothing else but the *miserere* not well understood. Cellus informs us, that in his time they were esteemed the same thing.

CHORDEE, in Medicine, an inflammation and contraction of the *frænum*, and under part of the *penis*; so as to render erection painful.

It happens in *gonorrhæas*, and is generally proportional to the degree of the *virus* received; so that in virulent *gonorrhæas*, it is usually a very troublesome symptom.

It proceeds from the acrimony of the matter which runs from the *urethra*, irritating the under-part of the *penis*; by which it is, as it were, tied or held forcibly downwards in erection, especially its *frænum*. Dr. Rutherford of Edinburgh, in his Clinical Lectures, attributes it to the inflammation and swelling of the *corpus cavernosum urethræ*. When the acrimony is considerable, it sometimes gives rise to unnatural erections, or the symptom called a *priapism*.

If the *chordæ* be violent, or does not decrease proportionally to the other symptoms in *gonorrhæas*, an emetic of turbit mineral is usually given with success; it causing a revulsion from the part.

Though women have no glans or *frænum* to be affected with the sharp running, yet the sphincter of the *vagina*, *clitoris*, and lips themselves, are inflamed after the same manner; and therefore the method of their cure must be the same; which is by such medicines as allay the pressing inflammation, and secure the parts against their being corroded by the sharpness of the corruption.

CHOREA *sancti Viti*, in Medicine. See VITUS's Dance.

CHOREPISCOPUS, an officer in the ancient church, about whose function the learned are extremely divided. The word comes from *χωρος*, a region, or little country, and *ἐπισκοπος*, a bishop, or overseer.

The *chorepiscopi* were suffragan or local bishops, holding a middle rank between bishops and presbyters, and delegated to exercise episcopal jurisdiction within certain districts, when the boundaries of particular churches, over which separate bishops presided, were considerably enlarged.

It is not certain when this office was first introduced: some trace it to the close of the first century; others tell us, that *chorepiscopi* were not known in the East till the beginning of the fourth century; and in the West, about the year 439. They ceased, both in the East and West, in the tenth century.

CHOREPISCOPUS is also the name of a dignity still subsisting in some cathedrals, particularly in Germany; signifying the same with *chori episcopus*, or bishop of the choir.

The word in this sense, does not come from *χωρος*, place, but *χορος*, choir, &c.

In the church of Cologne, &c. the first chanter is called *chorepiscopus*.

CHOREUS, a foot in the ancient poetry, more commonly called *trochæus*, or TROCHEE.

CHORIAMBUS, in the Latin Poetry, a foot compounded of a *choræus*, or *trochæus*, and an *iambus*.

It consists of four syllables; of which the first and last are long, and the two middle ones short: as *filioſum*.

CHORION, the exterior membrane which invests the *fœtus* in the womb.

The word comes from the Greek *χωρεω*, *capere*, to contain.

It is very thick and strong; on the inside, where it joins another membrane, called *amnios*, very smooth; but rough and uneven withoutside; interspersed with a great number of vessels, and fastened to the *matrix*, or womb, by means of the *placenta*, which adheres very closely to it.

This membrane is found in all animals.

The *chorion*, with the *amnios* and *placenta*, make what we call the SECUNDINE, or after-birth.

CHORIST, or CHORISTER, a chanter or singer in the choir.

CHORIZANTES, the name of a sect in Germany, ann. 1374, said to be demoniacs that assembled in streets and churches,

We may suppose their enemies called them demoniacs. Du-Cange does not mention any of their tenets.

CHORO favorito, in the Italian Music, a chorus, in which are employed the best voices and instruments to sing the recitatives, play the ritornellos, &c. It is otherwise called the little chorus, or *choro recitante*.

CHORO spezzato, in the Italian Music, a composition of two, three, or more chorusses. It is often met with instead of *tutti* or *da capella*, which mean the grand chorus. *A doi, a tre, a quattro chori*, is for two, three, or four chorusses. When after the name of a part we find

primo,

primo, 1^o *choro*, we must understand that it is to be played in the first chorus; if 2^o, II do, or *secondo choro*, the part must be sung or played in the second chorus. And consequently it shews, that the composition is for eight voices or different parts.

CHOROBATES, a kind of water-level, used among the ancients; composed of a double square, in form of a T, described by Vitruvius.

The word comes from *χωρεῖν*, to over-run a country.

CHOROGRAPHY, the art of making a MAP, or description of some country or province.

The word comes from *χωρος*, region, and *γραφω*, I describe.

Chorography is distinguished from *GEOGRAPHY*, as the description of a particular country is from that of the whole earth. And from *topography*, as the description of the same country is from that of a single place, town, or district in it.

CHOROIDES, or **CHOROEIDES**, in *Anatomy*, a term applied to several parts of the body; bearing some resemblance to the chorion.

The word is formed from *χοριον*, chorion, and *ειδος*, likeness.

CHOROIDES is particularly used for the inner membrane which immediately invests the brain; so called as being intermingled with a great number of blood-vessels, like the chorion; but more usually denominated the *pia mater*, or *MENINX tenuis*.

Plexus, or **Lacis CHOROIDES**, is a knot of veins and arteries in the anterior ventricle of the brain, woven out of the branches of the carotid.

CHOROIDES is also applied to the inner, and posterior tunic of the eye, immediately under the sclerotica.

It is soft, thin, and black; and its inner, or concave surface, is very smooth and polished. It has its name from its being interspersed with vessels. Its anterior part is called the *uvea*; or rather the *iris*, as the internal surface is called the *Ruyfchian coat*.

Next under the *choroides* is the *retina*. Ruyfch, indeed, says, he has found another tunic between the *choroides* and *retina*; and denominates it from himself, *tunica Ruyfchiana*. He adds, that it grows so firmly to the *choroides*, that it is over-looked in the common dissections.

But Verheyen, though he found the *choroides* of a bird divisible into two membranes, could never separate those of the human eyes; and therefore he thinks there needed not any new name. The *choroides* is, for the most part, black in men; though it appears often, as M. Pecquet has observed, in very different shades; in lions, camels, bears, sheep, cattle, dogs, cats, and most fishes, it is of a shining colour, like the brilliance of silver, or the lustre of oriental pearl; and makes, what naturalists call the *tapis*, or colour of the eye.

M. Mariotte maintains, that vision is performed rather in the *choroides* than the *retina*; in which he agrees with Bar. Torinus, and is seconded by M. Mery; but most other authors are of a different sentiment.

He was led to this hypothesis by observing that part of the *retina*, at the insertion of the optic nerve, is insensible to the impression of light, and that in this part the *choroides* is wanting.

He was confirmed in opinion, that the *retina* could not be the seat of vision, because of its transparency; though M. Pecquet observes in reply, that it is very imperfectly transparent, only resembling oiled paper. He urges likewise the greater sensibility of the *choroides* than that of the *retina*, as is evident by the alternate contraction and dilatation of the *iris*, which is a continuation of the *choroides*, in light and shade.

It has been replied, that some-creatures, such as the porcupine and sea-calf, have the optic nerves inserted into the axis of their eyes. This fact, according to Dr. Porterfield, overturns Mariotte's hypothesis of the *choroides* being the principal and immediate organ of sight.

Mr. Le Cat strenuously defends Mariotte's opinion, that the *choroid coat*, which is the production of the *pia mater*, and not the *retina*, is the immediate organ of vision.

The *retina*, according to him, is to the *choroid* what the *epidermis* is to the skin; receiving the impression of light, and preparing it for its proper organ. Mr. Michell has likewise urged some farther considerations in favour of the *choroides* as the proper seat of vision, deduced from its greater sensibility, and from the variety of its colours in different animals, according to their situation and necessity. He adds, that the *choroides* is in no case transparent, and has no reflecting surface beyond it, and that it is better formed as an organ of distinct vision than the *retina*. M. de la Hire has advanced another hypothesis; alleging, that the *choroides* receives the impressions of images, in order to transmit them to the *retina*. Against which hypothesis, Mr. Michell objects, that the impressions which are thus secondarily communicated to the nerves must be fainter, and that it is more natural to suppose, that the impression first made upon the *choroides* should be

conveyed to the brain by its own proper nerves. Priestley's *History of Vision*, chap. ii. p. 189, &c. See **VISION**.

It had been long observed that the *choroides* in men is black; but no observation had been made on the change it suffers by age, before M. Petit, who perceived that it appears quite brown under the *retina* in children, and grows considerably brighter as they advance in age.

CHORUS, in *Dramatic Poetry*, one, or more persons, present on the stage during the representation, and supposed to be by-standers thereto, without any particular share or interest in the action.

Tragedy, in its origin, M. Dacier observes, was no more than a single *chorus*, who trod the stage alone, and without any other actors; singing dithyrambics, or hymns, in honour of Bacchus. Thespis, to relieve the *chorus*, added an actor, who rehearsed the adventures of some of their heroes. Æschylus, finding a single person too dry an entertainment, added a second; and at the same time greatly reduced the singing of the *chorus*, to make more room for the recitation.

Every thing introduced between the four songs of the *chorus*, they called by the term *episode*; and those four songs made the four intervals, or acts of the piece.

But when once tragedy began to be formed, those recitatives, or episodes, which at first were only intended as accessory parts, to give the *chorus* a breathing time, became now the principal parts of the performance: and whereas, before, they were taken from various subjects, they were now all drawn from one and the same.

The *chorus*, by degrees, became inserted and incorporated into the action, to which at first it was only intended as an addition or ornament. Sometimes the *chorus* was to speak, and then their chief, whom they called *Coryphæus*, spoke in behalf of all the rest: the singing was performed by the whole company; so that when the *Coryphæus* struck into a song, the *chorus* immediately joined him.

Besides the four songs, which made the division of the piece, and which were managed by the *chorus*, the *chorus* sometimes also joined the actors in the course of the representation, with their plaints and lamentations; on occasion of any unhappy accidents that befel them.

But the proper function of the *chorus*, when tragedy was formed, and that for which it seemed chiefly retained, was to shew the intervals of the acts: while the actors were behind the scenes, the *chorus* engaged the spectators; their songs chiefly turned on what was just exhibited; and were not to contain any thing but what was suited to the subject, and had a natural connexion with it: so that the *chorus* concurred with the actors for advancing the action.

It is a fault observed in Euripides's tragedies, that his *choruses* are detached from the action, and not taken from the same subject. There were some other poets, who, to save the pains of composing *choruses*, and adapting them to the piece, contented themselves with inventing songs, which had no relation at all to the action. These foreign *choruses* were the less pardonable, as the *chorus* was esteemed to act a part in the piece: and to represent the spectators, who were looked on as interested therein; inasmuch that the *chorus* was not always to be mute, even in the course of the acts. In the modern tragedies the *chorus* is laid aside, and the music supplies its place.

That which occasioned the suppression of the *chorus* was its being incompatible with certain complots, and secret deliberations of the actors. For it is in no-wise probable, that such machinations should be carried on in the eyes of persons interested in the action. As the *chorus*, therefore, never went off the stage, there seemed a necessity of laying it aside, to give the greater probability to those kinds of intrigues, which require secrecy.

M. Dacier observes, there was a *chorus*, or *grex*, also in the ancient comedy: but this too is suppressed in the new: chiefly because it was made use of to reprove vices, by attacking particular persons.

The *chorus* in comedy was at first no more than a single person, who spoke in the ancient compositions for the stage; the poets, by degrees, added to him another; then two, afterwards three, and at last more: so that the most ancient comedies had nothing but the *chorus*, and were only so many lectures of virtue.

CHORUS, to give the, among the Greeks, was to purchase a dramatic piece of the poet, and defray the expences of its representation.

The person who did this was called *choragus*. At Athens, the office of *choragus* was imposed on the *archon*; and at Rome on the *ædiles*.

CHORUS is likewise used in music, where, at certain periods of a song, the whole company are to join the singer in repeating certain couplets, verses, or clauses.

CHOSE, thing. This word, in *Law*, is used in various circumstances, and with various epithets; as,

CHOSE in *action*, is not any thing corporeal, but only a right, v. gr. an annuity, obligation, covenant, &c.

Chose in action, may also be called *chose in suspense*, as having no real existence, and not being properly in possession: being a thing, as it is expressed, rather in *potentia* than in *esse*.

No *chose in action* could, by the ancient common law, be transferred or assigned; but this is now allowed; and the form of doing it is in the nature of a declaration of trust, and an agreement to permit the assignee to make use of the name of the assignor, in order to recover the possession: and when a debt or bond is assigned over, it must still be sued in the original creditor's name.

CHOSE *local*, is something annexed to a place, v. gr. a mill.

CHOSE *transitory*, something moveable, and which may be transported from place to place.

CHOUAN, in the *Materia Medica*, the name of a small seed, called by some also carmine seed. It is a very light and chaffy seed, in a great measure resembling worm-feed, of an acid taste, and a yellowish green colour, but is larger than worm-feed. It is brought into Europe from Turkey, and many parts of the East, and the choice should be made of such as is largest, cleanest, of the greenest colour, and least marked with specks or holes. It is not used in medicine, but is of some value among the people who make **CARMINE** for the painters. It is called *fontanium viride*, or the green worm-feed, in our catalogues of the *Materia Medica*, but is unknown in the shops. Lemery.

CHOUGH *Coracias*, in Zoology. See **CORACIAS**.

CHOUS, in the *Eastern Military Orders*, the title of the messengers of the divan of janisaries. There are several degrees of honour in this post. When a person is first advanced to it, he is called a *cuchuck*, or little *chous*; after this he is advanced to be the *alloy chous*, that is, the messenger of the ceremonies; and from this, having passed through the office of *petelma*, or procurator of the effects of the body, he is advanced to be the *bas chous*.

CHOUX, in *Natural History*, a name given by the French to a species of shell-fish of the *cordiform* or *bucardium* kind. Fabius Columna has elegantly described it, and Lister has given a figure of it twice over, in two different parts of his book. There is another species less elegant, and wanting the hollowed ribs. See **CORDIFORMIS**.

CHOWDER-Beer, a provincial phrase of Devonshire, denoting a cheap and easy prepared drink, highly commended for preventing the scurvy in long voyages, or for the cure of it where it may have been contracted. It is prepared in the following manner: take twelve gallons of water, in which put three pounds and a half of black spruce; boil it for three hours, and having taken out the fir or spruce, mix with the liquor seven pounds of melasses, and just boil it up; strain it through a sieve, and, when milk warm, put to it about four spoonfuls of yeast to work it. In two or three days stop the bung of the cask, and in five or six days, when fine, bottle it for drinking. Two gallons of melasses are sufficient for an hoghead of liquor; but if melasses cannot be procured, treacle or coarse sugar will answer the purpose.

CHRABRATE, in *Natural History*, a name given by the writers of the middle ages to a pellucid stone, said to have great virtues against disorders of the liver and spleen, and many other imaginary qualities. It appears by their descriptions to have been no other than the common pebble crystal.

CHREMPIS, in *Ichthyology*, a name given by the eldest Greek writers to the fish since called *chromis*. It is a species of the *spari*, and is distinguished by Arty by the name of the *sparus* with the second ray of the belly-fins very long.

CHRENECRUDA, a term occurring in *Writers of the Middle Age*, and expressing a custom of those times, but its signification is doubtful. It is mentioned in *Lege Sallica*, Tit. 61. which says, he who kills a man, and hath not wherewithal to satisfy the law, or pay the fine, makes oath that he has delivered up every thing he was possessed of; the truth of which must be confirmed by the oaths of twelve other persons. Then he invites his next relations by the father's side to pay off the remainder of the fine, having first made over to them all his effects by the following ceremony. He goes into his house, and taking in his hand a small quantity of dust from each of the four corners, he returns to the door, and with his face inward throws the dust with his left hand over his shoulders upon his nearest of kin. Which done, he strips to his shirt; and coming out with a pole in his hand jumps over the hedge. His relations, whether one or several, are upon this obliged to pay off the composition for the murder. And if these (or any one of them) are not able to pay, *iterum super illum chrenecruda qui pauperior est, jactat, & ille totam legem componat.*

Whence it appears, that *chrenecruda jactare*, is the same with throwing the dust, gathered from the four corners of the house. Goldastus and Spelman translate it *viridem herbam, green-grass*, from the German *gruen kraut*, or from the Dutch *groen, green*, and *gruid, grass*. Wendelinus is of a contrary opinion, who thinks that by this word *denotari purificationis approbationem*, from *chrein, pure, chaste, clean*, and *keuren, to prove*; so that it must refer to the oaths of the twelve jurors. Be this as it will, king Childebert reformed this law by a decree, chap. 15. both because it favoured of pagan ceremonies, and because several persons were thereby obliged to make over all their effects: *De chrenecruda lex quam paganorum tempore observabant, deinceps nunquam valcat, quia per ipsam cecidit multorum potestas.*

CHRISM, from *χρῖω, I anoint*, oil consecrated by the bishop, and used in the Romish and Greek churches, in the administration of baptism, confirmation, ordination, and extreme unction, which is prepared on holy Thursday with much ceremony. In Spain, it was anciently the custom for the bishop to take one third of a sol for the *chrism* distributed to each church, on account of the balsam that entered its composition.

Du Cange observes, there are two kinds of *chrism*; the one prepared of oil of balsam, used in baptism, confirmation, and ordination; the other of oil alone, consecrated by the bishop, used anciently for the catechumens, and still in extreme unction.

The Maronites, before their reconciliation with Rome, besides oil of balsam, used musk, saffron, cinnamon, roses, white frankincense, and several other drugs mentioned by Rynaldus, in 1541, with the doses of each. The Jesuit Dandini, who went to mount Libanus in quality of the pope's nuncio, ordained, in a synod held there in 1596, that *chrism* for the future, should be made only of two ingredients, oil and balsam; the one representing the human nature of Jesus Christ, the other his divine nature.

The action of imposing the *chrism*, is called *chrismation*: this the generality of the Romish divines hold to be the next matter of the sacrament of confirmation.

The *chrismation* in baptism is performed by the priest; that in confirmation by the bishop; that in ordination, &c. is more usually styled *unction*.

CHRISM *pence*, **CHRISMATIS** *denarii*, or **CHRISMALES** *denarii*, a tribute anciently paid to the bishop by the parish-clergy, for their *chrism*, consecrated at Easter for the ensuing year: this was afterwards condemned as *simoniacal*.

CHRISOM, **CHRISMALE**, was anciently the face-cloth, or piece of linen laid over the child's head when it was baptized.

Whence, in our bills of mortality, children who die in the month are, called *chrisoms*.—The time between the child's birth and baptism, was also called *chrisomus*.

CHRIST, an appellation synonymous with **MESSIAH**, usually added to Jesus: and, together therewith, denoting the Saviour of the world.

The word *χρῖστος* signified *anointed*, from *χρῖω, inungo, I anoint*.

Sometimes the word *Christ* is used singly, by way of *anthonomasis*, to denote a person sent from God, as an anointed prophet, king, or priest.

CHRIST, *Order of*, a military order, founded in 1318, by Dionysius I. king of Portugal, to animate his nobles against the Moors.

Pope John XXII. confirmed it in 1320, and appointed the knights the rule of St. Bennet. Alexander VI. permitted them to marry. The order became afterwards insensibly reunited to the crown of Portugal; and the king took upon him the administration of it.

The arms of the order are, gules, a patriarchal cross, charged with another cross argent. They had their residence, at first, at Castromarin; afterwards they removed to the city of Thomar, as being nearer to the Moors of Andalusia and Estramadura.

CHRIST is also the name of a military order in Livonia, instituted in 1205, by Albert bishop of Riga. The end of their institution was to defend the new Christians who were successively converted in Livonia, but were persecuted by the heathens.

They wore on their cloaks a sword with a cross over it; whence they were also denominated *Brothers of the sword*.

CHRIST-thorn, in Botany, *Paliurus*. See **CHRIST-THORN**.

CHRISTENING. See **BAPTISM**.

CHRISTIAN, something that relates to **CHRIST**.

The king of France bears the title, or surname, of the *most Christian king*. The French antiquaries trace the origin of the appellation up to Gregory the Great; who, writing a letter to Charles Martel, occasionally gave him that title, which his successors have since retained.

Lambecius,

Lambecius, in the third tome of his Catalogue of the emperor's library, holds, that the quality of *most Christian* was not ascribed to the ancient French kings, Louis le Debonair, &c. as kings of France, but as emperors of Germany: but the French historians endeavour to refute this plea.

CHRISTIAN Church. See CHURCH.

CHRISTIAN Court. See COURT Christian.

CHRISTIAN Name, that given at baptism. See NAME.

CHRISTIAN Religion, or CHRISTIANITY, that instituted by Jesus Christ, comprehending doctrines of faith, and rules of practice, all of which are contained in the New Testament, and are designed to recover mankind from ignorance and vice, from guilt and death, to true knowledge and virtue, to the divine favour, and everlasting life. Its aptitude to this end, its conformity to reason, and to the state of man, the sublimity and excellence of its doctrines, the equally venerable and lovely character of its author, the purity of its precepts, its benign tendency and salutary effects, concur, with the external evidence of PROPHECY and MIRACLES, to establish its divine origin and truth.

CHRISTIAN is peculiarly and absolutely used for a person who believes in Christ, and is baptized in his name.

The name *Christian* was first given at Antioch, in the year 42, to such as believed in Christ, as we read in the Acts: till that time they were called *disciples*.

CHRISTIANS of St. John, a corrupt sect of *Christians*, very numerous in Bassora, and the neighbouring towns.

They formerly inhabited along the river Jordan, where St. John baptized: and it was thence they had their name. But after the Mahometans became masters of Palestine, they retired into Mesopotamia and Chaldea.

They hold an anniversary feast of five days; during which, they all go to their bishops, who baptize them with the baptism of St. John; their baptism is always performed in rivers, and that only on Sundays.

They have no notion of the third person of the Trinity; nor have they any canonical books, but several which are full of charms, &c. Their bishopricks descend by inheritance, as our estates do; though they have the ceremony of an election. There is no satisfactory account of the origin or principles of this sect. See SABÆANS.

CHRISTIANS of St. Thomas, or *San Thomà*, a sect of ancient *Christians* found in the East Indies, when the Europeans touched at the port of Calicut; who pretend to be descended from those St. Thomas converted in the East Indies; whence the name.

The natives call them, by way of contempt, *Nazarenes*; their more honourable appellation is *Mappuleymar*. See THOMÆANS.

Some learned men in Europe say, it was not St. Thomas the apostle that converted that country, but another St. Thomas: others say, it was a Nestorian merchant, called Thomas. It is certain they are Nestorians, and have been so a long time; inasmuch that *Christians of St. Thomas* now passes for the name of a sect.

They have a patriarch, who resides at Mosul. The pope has made several attempts to reduce them under his obedience, but to no purpose.

CHRISTMAS, the feast of the nativity of Jesus Christ.

It appears from St. Chrysostom, that in the primitive times, *Christmas* and Epiphany were celebrated at one and the same feast: that father observes, it was but of a little while that *Christmas* had been celebrated at Antioch on the twenty-fifth of December, as a distinct feast; and that the use thereof came from the West. The Armenians made but one feast of them, as low as the twelfth century.

It is commonly maintained, that pope Telesphorus was the first who ordered the feast of the Nativity to be held on the twenty-fifth of December. John, archbishop of Nice, in an epistle upon this subject, relates that at the instance of St. Cyril of Jerusalem, pope Julius procured a strict enquiry to be made into the day of our Saviour's nativity, which being found to be on the twenty-fifth of December, they began thenceforth to celebrate the feast on that day. However, the precise day, or even the month, in which our Saviour was born, is extremely uncertain. Some, as Clemens Alexandrinus informs us, affixed it to the twenty-fifth of the month Pachon, corresponding to the sixteenth of May. But there are some circumstances which should rather lead us to conclude, that he was born in autumn; as this was, in every respect, the most proper season of the year for a general assentment, which took place at the birth of Christ, and which required personal attendance; and as there were shepherds watching their flocks by night at the time when Christ was born; and therefore it is probable, that the era of the Nativity was either in September or October, A. U. 748 or 749. See EPOCHÀ.

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CHRISTMAS Rose. See HELLEBORE.

CHRISTOGENON, from *Xristos*, *Christ*, and *γινωμαι*, *I am born*; in the Greek Church, a fast of forty days, immediately preceding the supposed time of Christ's nativity.

CHRISTOLYTI, a sect mentioned by Damascenus; so called, because they maintained that Christ descended into hell, body and soul; and that he left both there; ascending to heaven with his divinity alone.

The words come from *Xristos*, *Christ*, and *λυω*, *I dissolve*.

CHRISTOMACHI, *Χριστομαχοι*, in *Church History*, a designation given to all sorts of heretics who deny the divinity of our Saviour, or hold heterodox opinions concerning his incarnation.

The word comes from the Greek *Xristos*, *Christ*, and *μαχομαι*, *I fight or oppose*.

CHRISTOPHORIANA, called by some *αἵα*. See HERB *Christopher*.

CHRISTOPHORUS *piscis*, a name by which some have called the *faber*, or as we call it the *doree*, or *jaune doree*, the gilded fish.

CHROÆ, in the *Musie of the Ancients*. See COLOURS, GENUS, and SPECIES.

CHROASTACES, in *Natural History*, a genus of pellucid gems, comprehending all those of variable colours, as viewed in different lights; of which kind are the opal and the ASTERIA, or the *cat's oculus*.

CHROMA, in the *Botanical Writings of the Ancients*, a word used to express a famous root brought from Syria into Greece, and used by the women of that country to paint their cheeks red. It was also called *rhizium* and *fucus*, and by the Latins *radicula*.

CHROMA, in *Rhetoric*, a colour, or fair pretence.

The word is Greek, and literally denotes *colour*.

CHROMA, in the *Italian Music*. The Italians take this term from the Greeks, but use it to signify a note or character of time, by us called a quaver, and when the word *femi* is added thereto, it means our semiquaver. Eight of the former are contained in a bar, and sixteen of the latter in common time.

CHROMA is also a graceful way of singing, or playing with quavers and trilloes.

CHROMA also sometimes signifies the same as the chromatic DIESIS or semitone minor.

CHROMA is also used to signify the *genus chromaticum*. In this sense we find it used by Aristoxenus, and in Ptolemy's Harmonies.

CHROMATIC, in the *Ancient Music*, the second of the three *genera*, or kinds, in which the consonant intervals were subdivided into their concinnous parts.

The other two kinds were, the *enharmonic*, and the *diatonic*. The chromatic consisted of semitones, and minor thirds: it had its name, either because the Greeks marked it with the character of colour, which they call *χρωμα*; or, as P. Parran suggests, because the *chromatic* kind is a medium between the other two, as colour is between black and white; or else because the *chromatic* kind varies and embellishes the diatonic kind, by its semitones; which have the same effect in music, with variety of colours in painting. M. Rousseau says, that this species of music was written in coloured notes. Aristoxenus divides the *chromatic genus* into three species: the *molle*, *hemiolion*, and *tonicum*: Ptolemy, into *molle* or *antiquum*, and *intensum*.

These species were also called *chroai*, or colours of the *genera*: the *molle* expresses a progression by small intervals, the *intensum* by greater.

The *chromatic* and *enharmonic* kinds only contain the smallest of the diatonic degrees; so that they have the same proportion to the diatonic, as fractions have to integers.

Boethius, and after him Zarlino, attribute the invention of the *chromatic* genus to Timotheus a Milesian, in the time of Alexander the Great. The Spartans banished it from their city, on account of its softness. The character of this genus, according to Aristides Quintilianus, were sweetness and pathos.

Mr. Malcolm observes, that we are at a loss what use the ancients could make of these divisions and subdivisions into *genera* and *species*. All acknowledge the diatonic to be the true melody; the others seem only humorous irregularities calculated to please the fancy by their novelty and oddness; and were besides so very difficult, that few, if any, are said to have ever practised them accurately.

The moderns have been much perplexed to understand the different species of the *chromatic* music in use among the ancient Greeks. Most of our musicians have no other notion of the *chromatic* than of a melody proceeding by semitones, major and minor. This is what Brossard says of it. But this is not sufficient to convey a true notion of the *chromatic*. Dr. Pepusch has given us a clearer light in this affair: his doctrine is as follows.

The ancients distinguished three sorts of *chromatic*, which were denoted by the names, *molle*, *sesquialterum*, and *tonicum*.

The *chromaticum molle* was a division of the diatessaron, or fourth, into three intervals, which were two subsequent semitones minor, and the interval, which is the complement of these two to the fourth; and this interval will be found equal to a third minor, added to an enharmonic diesis. This species is not to be met with among the moderns.

The *chromaticum sesquialterum*, or *hemiolium*, was a division of the fourth into a semitone major, a semitone minor, and a third minor. This is mentioned by Ptolemy as the *chromatic* of Didymus. It occurs in modern compositions.

The *chromaticum tonicum*, or *tonicum*, was a division of the fourth into a semitone major succeeded by another semitone major, and the complement of these two to the fourth, which is the interval commonly called a superfluous tone. This often occurs in modern music. Dict. de Musique, p. 19. Phil. Trans. N° 481. p. 272. Wallis, Append. Ptolem. Harm. p. 164.

CHROMATIC is also applied by some to the science of colours; and in painting, it is used to signify the colouring.

CHROMIS, in *Ichthyology*, the name of a little fish caught frequently in the Mediterranean, which seldom exceeds three inches in length, is moderately thick, and of a dusky brown colour.

Artedi, who very accurately examined this fish, does not allow it a distinct generical name, but makes it only a species of his genus of the *spari*, calling it the SPARUS with the second ray of each belly-fin carried to a great length.

CHROMIS is also the name by which Bellonius, and some others have called a large fish caught in the Mediterranean, more usually known by the name of UMBRA, and brought to market in Italy while young and small.

CHRONIC, CHRONICAL, in *Medicine*, is applied to a slow DISEASE, which lasts a long time; at least upwards of forty days: such are the gout, dropsy, asthma, &c.

The word comes from χρόνος, *time*.

Chronic diseases stand in opposition to acute diseases, which are speedy, and hasten to a crisis; as fevers, small-pox, &c.

Chronic diseases are usually owing either to some natural defect in the constitution, or to an irregular manner of living; and most of the *chronical* diseases, says Dr. Cheyne, the infirmities of old age, and the short periods of the lives of Englishmen, are owing to repletion: this is evident hence, that evacuation, of one kind or another, is nine parts in ten of their remedy.

The sources of *chronical* distempers, says the same author, are, 1. Viscidity in the juices, or the over-largeness of their constituent particles; which, not being sufficiently broken by the concoctive powers, stop and retard the circulation. Or, 2. Too great abundance of sharp acrimonious salts; whereby the juices themselves are rendered so corrosive, as to burst or wear out the solids. Or, 3. A relaxation, or want of due force or springiness of the solids themselves.

An excess in the quantity of our meats and drinks begets the first; the bad condition of the same food the second; and both together, with want of due exercise, the third.

The causes of all *chronical* disorders according to Dr. Cadogan, in his Essay on the Gout, &c. are indolence, intemperance, or vexation. And Dr. Fothergill observes, that in the cure of all *chronic* complaints, however distant their seat may be from the stomach, those will have the greatest success who attentively consider the present state of the organ; who remove every obstruction to its performing the office of digestion with ease, constancy, and expedition. Lond. Med. Obs. vol. i. p. 314.

CHRONICLE, CHRONICON, denotes a history digested in order of time; though the term is seldom used but in speaking of our old English histories, as Holinshed's *Chronicle*, Stow's *Chronicle*, &c. See ANNALS.

CHRONICLES, in the *Canon of Scripture*, are two sacred books called by the Greeks *Paralipomena*, Παράλειπμενα, because they contain many supplemental relations omitted in the other historical books. They are an abridgment of sacred history, to the return of the Jews from the Babylonish captivity. The first book traces the genealogies of the Israelites from Adam, relates the death of Saul, and gives a brief account of David's reign. The second traces the progress of the kingdom of Judah, its various revolutions, its period under Zedekiah, and the restoration of the Jews by Cyrus.

CHRONOGRAM, a kind of composition, whose numeral letters, joined together, make up some date, or epocha. See ANAGRAM.

The word is compounded of χρόνος, *time*, and γράμμα, *letter*.

CHRONOLOGICAL, belonging to CHRONOLOGY. *Chronological characters*, are characters by which times are distinguished. Of these some are *natural* or *astronomical*; others are *artificial*, or *historical*. *Natural chronological characters* are such as depend on the motion of the stars, as eclipses, solstices, equinoxes, the different aspect of planets, &c. *Artificial chronological characters*, are those which men have established, as the solar CYCLE, the lunar CYCLE, &c. *Historical chronological characters* are those which are supported by the testimonies of historians, when they fix the dates of certain events to certain periods. We say also *chronological* tables, abridgments, machines, &c. M. Bardeu du Bourg invented a curious *chronological* machine, of which there is a particular account communicated by himself, in the Encyclopedie, tom. iii. p. 400. 1°.

CHRONOLOGY, the art of measuring and distinguishing time; or the doctrine of epochas, &c.

The word is compounded of χρόνος, *time*, and λόγος, *discourse*.

Sturmius divides *chronology* into five distinct branches: viz. *metaphysical*, *physical*, *political*, *historical*, and *ecclesiastical*; according to the various relations, or habitudes, wherein TIME is considered; viz. as in itself; as connected and subjected to the affections, states, and alterations of natural things; as accommodated to civil uses, as matched with events that pass in the world; and particularly, as it relates to the celebration of Easter.

There is more difficulty in *chronology* than every one is aware of; it requires not only the knowledge of astronomy and geography, and consequently that of arithmetic, geometry, and trigonometry, both plain and spherical, but also a laboured application to the ancient monuments. Its use is very great: it is called one of the eyes of history; and serves many good purposes in theology.

CHRONOLOGY, *Chinese*. No nation has boasted more of its antiquity than the Chinese: but though we allow them to trace their origin as far back as the deluge, they have few, if any, authentic records of their history for so long a period as five hundred years before the Christian æra. This, however, may probably be owing to the general destruction of ancient remains by the tyrant Tin-chi-hoang, in the year 213, or, as some say, 246, before the Christian æra. We learn from a *chronological* table of the Chinese history, for which we are obliged to an illustrious Tartar, who was viceroy of Canton in the year 1724, and a Latin translation of which was published at Rome in 1730, that the most remote epocha of the Chinese *chronology* does not surpass the first year of a prince called Guei-lie-wang, who began his reign four hundred and twenty-four years before the vulgar æra. This opinion is confirmed by the testimony of two of the most approved historians of China, who admit nothing into their histories previous to this period. The Chinese in their computation, make use of a cycle of sixty years, called *kiatse*, from the denomination given to the first year of it, which serves as the basis of their whole *chronology*. Every year of this cycle is marked with two letters, which distinguish it from the others; and all the years of the emperors for above two thousand years, have names in history common to them with the corresponding years of the cycle. Phil. Trans. abr. vol. viii. part iv. p. 13, &c. According to M. Freret, in his Essays, the Chinese date the epocha of Yao, one of their first emperors, about the year 2145, or as others state it, 2057 years before Christ; and reckon their first astronomical observations, and the composition of their famous calendar, to have preceded Yao a hundred and fifty years: and thence it is inferred, that the astronomical observations of the Chinese and Chaldeans coincide. Later authors date the rise and progress of the sciences in China from the grand dynasty of Tcheou, about twelve hundred years before the Christian æra, and shew, that all historical relations of events prior to the reign of Yao are fabulous. Mem. de l'Histoire des Sciences, &c. Chinois; a work compiled by the missionaries of Pekin, vol. i. Paris, 1776. But it may be expected that some new light will be thrown on this obscure and uncertain subject of investigation by the General History of China, in 12 vols. 4to. announced to the public by the abbé Groffier.

CHRONOLOGY, *Newtonian principles of*. Sir Isaac Newton has shewn, that the *chronology* of ancient kingdoms is involved in the greatest uncertainty; that the Europeans in particular had no *chronology* before the Persian empire, which began five hundred and thirty-six years before Christ, when Cyrus conquered Darius the Mede; that the antiquities of the Greeks are full of fables, because their writings were of verse only, till the conquest of Asia by Cyrus the Persian, about which time Pherecydes, Syrius,

Syrius, and Cadmus Mileſius introduced profe. After this time ſeveral of the Greek hiſtorians introduced the computation by generations. The *chronology* of the Latins was ſtill more uncertain: their old records were burnt by the Gauls a hundred and twenty years after the expulſion of their kings, ſixty-four years before the death of Alexander the Great, and before Chriſt 388. The *chronologers* of Gaul, Spain, Germany, Scythia, Sweden, Britain, and Ireland, are of a ſtill later date. For Scythia, beyond the Danube, had no letters, till Ulphilas, their biſhop, formed them, about ſix hundred years after the death of Alexander the Great, or about A. D. 276. Germany had none till it received them from the weſtern empire of the Latins, about A. D. 400. The Huns had none in the days of Procopius, about A. D. 526. Sweden and Norway received them ſtill later.

After a general account of the defects and obſcurity of the ancient *chronology*, ſir Iſaac obſerves, that, though many of the ancients computed by generations and ſucceſſions, yet the Egyptians, Greeks, and Latins, reckoned the reigns of kings equal to generations of men, and three of them to a hundred, and ſometimes to a hundred and twenty years; and this was the foundation of their technical *chronology*. He then proceeds to evince, from the ordinary courſe of nature, and a detail of hiſtorical facts, the difference between *reigns* and *generations*; and that, though the latter, from father to ſon, may at an average be reckoned about thirty-three years, or three of them equal to a hundred years, yet when they are taken by the eldeſt ſons, three of them cannot be computed at more than about ſeventy-five or eighty years; and the reigns of kings are ſtill ſhorter, ſo that eighteen or twenty years may be allowed a juſt medium. He then fixes on four remarkable periods, viz. the return of the Heraclides into the Peloponneſus, the taking of Troy, the Argonautic expedition, and the return of Sefoſtris into Egypt, after his wars in Thrace; and ſettles the epocha of each by the true value of a generation. We ſhall confine ourſelves to his eſtimate of that of the Argonautic expedition. Having fixed the return of the Heraclides to about the hundred and fifty-ninth year after the death of Solomon, and the deſtruction of Troy to about the ſeventy-fixth year after the ſame period, he obſerves, that Hercules the Argonaut was the father of Hyllus, the father of Cleodius, the father of Ariſtomachus, the father of Ariſtodemus, who conducted the Heraclides into Peloponneſus; ſo that their return was four generations, reckoning by the chief of the family, later than the Argonautic expedition, which therefore happened about forty-three years after the death of Solomon. This is farther confirmed by another argument. *Æſculapius* and Hercules were Argonauts. Hippocrates was the eighteenth incluſively from the former by the father's ſide, and the nineteenth from the latter by the mother's ſide; allowing twenty-eight or thirty years to each of them, the ſeventeen intervals by the father, and the eighteen intervals by the mother, will, at a medium, give five hundred and ſeven years; and theſe, reckoning back from the commencement of the Peloponneſian war, or four hundred and thirty-fiſt year before Chriſt, when Hippocrates began to flouriſh, will place the Argonautic expedition in the forty-third year after Solomon's death, or nine hundred and thirty-seven years before Chriſt.

The other kind of reaſoning, by which ſir Iſaac endeavours to eſtabliſh this epocha, is purely aſtronomical. The ſphere was formed by Chiron and Muſæus at the time, and for the uſe of the Argonautic expedition, as ſeveral of the aſteriſms referring to this event plainly ſhew: and at this time the cardinal points of the equinoxes and ſoliſtices were placed in the middle of the conſtellation, Aries, Cancer, Chelæ and Capricorn. Our author eſtabliſhes this point by a conſideration of the ancient Greek calendar, which conſiſted of twelve lunar months, and each month of thirty days, and which required an intercalary month. Of courſe this luniſolar year, with the intercalary month, began ſometimes a week or a fortnight before or after the equinox or ſoliſtice; and hence the fiſt aſtronomers were led to the above mentioned diſpoſition of the equinoxes and ſoliſtices; and that this was really the caſe, is confirmed by the teſtimonies of Eudoxus, Aratus, and Hipparchus. On theſe principles, ſir Iſaac proceeds to argue in this manner. The equinoctial colure in the end of the year 1689, cut the ecliptic in $8^{\circ} 6' 44''$, and by this reckoning the equinox was then gone back $36^{\circ} 44'$ ſince the Argonautic expedition. But it recedes $50''$ in a year, or 1° in ſeventy-two years, and conſequently $36^{\circ} 44'$ in 2645 years; which counted backward from the beginning of 1690, will place this expedition about twenty-five years after the death of Solomon. But, as there is no neceſ-

ſity for allowing that the *middle* of the conſtellations, according to the general account of the ancients, ſhould be preciſely the middle between the *prima Arietis*, and *ultima Caudæ*, this great author proceeds to examine what were thoſe ſtars, through which Eudoxus made the colures to paſs in the primitive ſphere, and in this way to fix the poſition of the cardinal points. From the mean of five places he finds, that the great circle, which in the primitive ſphere, deſcribed by Eudoxus, or at the time of the Argonautic expedition, was the equinoctial colure, did, in the end of 1689, cut the ecliptic in $8^{\circ} 6' 29' 15''$. He likewiſe, in the ſame manner, determines the mean place of the ſoliſticial colure to be $83^{\circ} 6' 28' 46''$, and as it is at right angles with the other, concludes that it is rightly drawn. Hence he infers, that the cardinal points, in the interval between that expedition, and the year 1689, have receded from theſe colures 1 ſign 6° and $29'$; which, allowing ſeventy-two years to a degree, amounts to 2627 years; and theſe counted backwards, as above, will place the Argonautic expedition forty-three years after the death of Solomon. Our author hath, by other methods of a ſimilar nature, eſtabliſhed this epocha, and reduced the age of the world about five hundred years. This elaborate ſyſtem hath not eſcaped cenſure. M. Freret and M. Souciet have attacked it on much the ſame ground: the former hath confounded *reigns* and *generations*, which are carefully diſtinguiſhed in this ſyſtem. The aſtronomical objections of both have been answered by ſir Iſaac Newton himſelf and by Dr. Halley. Phil. Tranſ. abr. vol. viii. part iv. p. 4, &c. Newton's Chronology, ch. i.

M. Gibert, in a letter publiſhed at Amſterdam in 1743, has attempted to reduce the Babylonian, Egyptian, and Chaldean annals, to our *chronology*. He begins with ſhewing by the authorities of Macrobius, Eudoxus, Varro, Diodorus Siculus, Pliny, Plutarch, St. Auguſtin, &c. that by a year, the ancients meant the revolution of any planet in the heavens; ſo that it conſiſted ſometimes only of one day. Thus, according to him, the ſolar day was the aſtronomical year of the Chaldeans; and the boated period of 473,000 years aſſigned to their obſervations is reduced to 1297 years, nine months; the number of years which elapſed, according to Eusebius, from the fiſt diſcoveries of Atlas in aſtronomy, in the 384th year of Abraham, to the march of Alexander into Aſia in the year 1682 of the ſame æra; and the ſeventeen thouſand years added by Beroſus, to the obſervations of the Chaldeans, reduced in the ſame manner, will give forty-fix years, and ſix or ſeven months, being the exact interval between Alexander's march, and the fiſt year of the hundred and twenty-third Olympiad, or the time to which Beroſus carried his hiſtory. Epigenius attributes 720,000 years to the obſervations preſerved at Babylon; but theſe, according to M. Gibert's ſyſtem, amount only to 1971 years, three months, which differ from Caliſthenes's period of 1903 years, allotted to the ſame obſervations, only by ſixty-eight years, the period elapſed from the taking of Babylon by Alexander, which terminated the latter account, and to the time of Ptolemy Philadelphus, to which Epigenius extended his account.

CHRONOLOGY, ſacred. The ſyſtems of ſacred *chronology* have been very various. Nor is this to be wondered at, ſince our three biblical copies of principal note give a very different account of the fiſt ages of the world. The Hebrew text reckons about 4000 years from Adam to Chriſt, and to the flood 1656 years; the Samaritan makes this interval longer, and reckons from Adam to the flood only 1307 years; and the verſion of the Septuagint removes the creation of the world to 6000 years before Chriſt. The interval between the creation and flood, according to Eusebius and the Septuagint, is 2242 years; according to Joſephus and the Septuagint 2256 years; and according to Julius Africanus, Epiphanius, Petavius, and the Septuagint, it is reckoned at 2262 years. Many attempts have been made to reconcile theſe differences; but none are quite ſatisfactory. See EPOCHÆ, SAMARITAN, &c.

Walton, and I. Voſſius, give the preference to the account of the Septuagint. Walton's Prolegomena. Voſſii Chronologia ſacra. Others have defended the Hebrew text. The reader may find an abſtract of the different opinions of learned men on this ſubject, in Strauchius's Brev. Chron. tranſlated by Sault, p. 166, &c. and p. 176.

The more eminent writers on *chronology*, among the ancients, are Julius Africanus in the third century: Dionyſius Exiguus, Eusebius, and Cyril.

Among the moderns, Bede, Funccius, Mercator, Lilius, Clavius, Scaliger, Vieta, Petavius, Caſſini, Muſter, Calviſius, Hardouin, Capellus, Uſher, Newton, Marſham, Helvicus,

Helvicius, I. Vossius, Pagi, &c. Strauchius, Perron, Freret, &c.

CHRONOMETER, or **CHROMETER**, as it is sometimes written, a general name for any instrument used in the measuring of TIME.

The word is composed of *χρονος*, time, and *μετρον*, measure.

In this sense, clocks, watches, dials, &c. are *chronometers*: though there are some other instruments peculiarly called by the name *chronometer*; particularly one described by M. Sauveur, in his Principles of Acoustics: so contrived as to measure a small part of time very exactly, even to the sixteenth part of a second.

We have a description of one of these, made by the ingenious Mr. George Graham, in Desaguliers's Experiments. Philosoph. vol. i. p. 373, 374.

A *chronometer* is of great use for measuring small parts of time in astronomical observations, the time of the fall of bodies, the velocity of running waters, &c. But long spaces of time cannot be measured by it with sufficient exactness, unless its pendulum be made to vibrate in a cycloid; because, otherwise, it is liable to err considerably, as all clocks are which have short pendulums that swing large arcs of a circle.

CHRONOSCOPE, a word sometimes used for a PENDULUM, or machine, to measure time,

The word is formed of *χρονος*, time, and *σκοπετομαι*, I consider.

CHROSTASIMA, in *Natural History*, a name used by Dr. Hill, for all pellucid gems, which have one simple and permanent appearance in all lights.

Of this kind are the DIAMOND, the CARBUNCLE, the AMETHYST, the SAPPHIRE, the BERYL, EMERALD, and the TOPAZ.

CHRYSALIS, a term used by modern writers of natural history of insects, in the same sense with NYMPHA and AURELIA.

The word seems to imply a peculiar yellow, or golden colour, usually in the *nymphæ* of some species of insects: from *χρυσος*, gold: but this is purely accidental, and is not found in all *nymphæ*.

Some confine the word *chrysalis* to the *nymphæ* of butterflies and moths. See PUPPET.

CHRYSANTHEMUM, in *Botany*. See CORN-MARY-GOLD.

CHRYSANTHEMUM, *Bastard*, in *Botany*, *Silphium*, a genus of the *syngenesia polygamia necessaria* class. Its characters are these: the common empalement of the flower is oval, imbricated, and permanent; the scales are oval, prominent, and reflexed in the middle; the disk of the flower is composed of hermaphrodite florets, which are tubulous, indented in five parts at the top; these have five short hair-like stamina, terminated by cylindrical summits, and a slender taper germen, supporting a long hairy style, crowned by a single stigma; these are barren: the rays of the flower are composed of a few female half florets, which are long, spear-shaped, and for the most part have three indentures at their points; these have a heart-shaped germen, with a short single style, having two bristly stigmas of the same length, and are succeeded by single heart-shaped seeds, with a membranaceous border, indented at the top, each point ending with a horn or tooth, and are separated by linear chaff, ripening in the empalement. There are four species, natives of America.

CHRYSANTHEMUM, *Hard-seeded*, *Chrysanthemoides*, or *Osteospermum*, in *Botany*, a genus of the *syngenesia polygamia necessaria* class. The characters are these: the flower hath an hemispherical empalement, which is single, and cut into many segments: the flower is composed of several hermaphrodite flowers in the disk, which are tubulous, and cut at the brim in five parts: these are surrounded by several female flowers, which are radiated, each having a narrow tongue, which is cut into three parts at the top; the hermaphrodite flowers have each five slender, short stamina, terminated by cylindrical summits, with a small germen supporting a slender style, crowned by an obsolete stigma; these are barren: the female flowers have each a globular germen, supporting a slender style, crowned by an indented stigma; the germen afterwards becomes one single hard seed. Miller enumerates five species, some of which are brought from America, and others from the Cape of Good Hope.

CHRYSANTHERINUS lapis, in *Natural History*, a name given by old writers to a stone, famous for its imaginary virtues of preventing children from sicknesses during the time of dentition, by being worn round the neck by way of necklace; we have no farther account given us of it by authors, than that it was a very brittle stone, and not easily worked into form.

CHRYSARGYRUM, a tribute formerly levied on courtiers, and persons of ill fame.

Hoffman says, it was paid in gold and silver; whence its name *χρυσος*, gold, and *αργυρος*, silver.

Zosimus says, that Constantine first set it on foot; though there appear some traces of it in the life of Caligula by Suetonius; and that of Alexander by Lampridius. Evagrius says, Constantine found it established, and had some thoughts of abolishing it. It was paid every four years: some say, all petty travellers were liable to it. It was abolished by Anastasius.

M. Godeau thinks the *chrysargyrum* was a general tribute, levied every four years, on persons of all conditions, rich and poor, slaves and freemen; nay, even on all animals, as low as dogs; for each whereof they paid six oboli.

CHRYSITES, a name given by the ancients to yellow LITHARGE, such as we call litharge of gold. We distinguish this only in regard to the colour, and so did the ancient Greeks; but Avicenna and the rest of the Arabians have used this word only for the name of such litharge as was made from gold, or whatever colour it happened to be: the rest they called by the name of *argyrites*, as they tell us, whether it was made of silver, copper, or even of the marcasite melted, and refined by lead. See KLIMIA.

CHRYSOBALANUS, in *Botany*. See *American*, or *Cocoa PLUM*.

CHRYSOBERYL, a precious stone; being a kind of pale beryl, with a tincture of yellow.

CHRYSOCERAUNUS pulvis, is sometimes used for AURUM fulminans.

CHRYSOCERI, in *Antiquity*, a designation given to oxen designed for sacrifices. They were so called from their horns being gilded.

CHRYSOCOLLA, in the *Materia Medica of the Ancients*, the name of a fine green arenaceous powder, properly one of the *faburræ*, and found on the shores of the Red Sea, on those of some parts of America, and in Russia; and that found at this time has all the properties of that mentioned by the ancients. It serves to the folding of gold and other metals, and given internally as a violent and dangerous emetic.

It is of a very elegant colour, ferments violently with aqua fortis, and is wholly dissolved by it, and tinges it with a bluish green: and being calcined, it loses all its green colour.

Chrysocolia is represented by Pliny as found in mines of gold, silver, copper, and lead; its colour, he says, was various, according to that of the matter in which it is found; yellow, if among gold, white in silver, green in copper, and black in lead. The Arabs, and inhabitants of Guzaratte, call the modern *chrysocolia*, which is *borax tincar*, or *tincal*. The best is that found in copper-mines: and the worst in those of lead.

CHRYSOCOLLA is also the name of a sort of precious stones, mentioned by Pliny, lib. xxxvii. cap. 10. who calls it also *amphitane*. He describes it as of a gold colour, and of a square figure; adding, that it has the virtue of attracting iron, and even gold. But this, in all probability, is fabulous; and the stone he speaks of is apparently no other than the cubic pyrites.

CHRYSOCOME, in *Botany*, a name by which some authors call the *stæchas citrina*, or GOLDYLOCKS.

CHRYSOGONON, or **CHRYSOGONUM**, in *Botany*, a name by which some authors have expressed the moth MULLLEIN, or *blattaria*. In the Linnæan system, it is a distinct genus of the *syngenesia polygamia necessaria* class.

CHRYSOGONUM, in the *Materia Medica*, is also the name of a Syrian plant, called the red turnep, the LEONTOPETALON *costa simplicis* of Tournefort.

CHRYSOLACHANON, in *Botany*, a name by which Pliny, and some other authors, have expressed the white garden beet.

CHRYSOLITE, with us, a precious stone, of a dusky green colour, with a cast of yellow.

The *chrysolite* of the ancients was no other than the topaz of the moderns; even in its most pure and perfect state, it is a gem of small beauty, and of no great value. It is found of various sizes, and some of the coarser pieces of it are vastly larger than any of the other gems are ever found to be; its most frequent size, however, when perfect, is about the bigness of a nutmeg. It is found of very various figures, but never columnar; or in the form of crystal; it is in some places found small, and in roundish, or irregular, pebble-like masses, and in others generally oblong and flatted, and is always of a rude surface, and less bright than any other of the native gems. It is caniculated, or striated, lengthwise. Its colour is a dead green, with a faint admixture of a pale yellow; it has three different tinges in the several specimens in different degrees of mixture; but its most usual colour is that of an unripe olive, with somewhat of a brassy colour mixt with it, and sometimes a pale and dusky green, obscured by a mixture of brown, and with a slight

light cast of the same brassy yellow. It is much softer than any of the pellucid gems; its finest pieces do not excel crystal in hardness, and its coarser are much softer; it takes a good polish, however, and in some of its finer specimens makes a tolerable figure, though greatly inferior to the other gems.

Our jewellers take very little notice of it; and, instead of having two or three names for it, as they have for most other of the gems, they call it very often a *prasius*, and the less accurate among them often call the *chrysoprasius* a *chrysolite*.

The *chrysolite* is found in New Spain, and in several parts of Europe, as Silesia, Bohemia, &c. The American, however, are greatly superior to the European, but are usually small; the Bohemian are large, but very few of them are of a good colour, or free from flaws.

The *chrysolite* has been found to exhibit electrical appearances similar to those of the *TOURMALIN*. The fluid moves always along the slender threads or columns, which form the grain of it, without suffering any change from their direction; one end being electrified *plus*, and the other *minus*. Phil. Transf. vol. lii. p. 445.

CHRYSOLITE is also a general name, which the ancients gave to all precious stones, wherein the yellow, or golden, was the prevailing colour.

When the stone was green, they called it *chrysoprasus*: the red and blue too had their particular denominations, which expressed their colour: the gold being signified by *chryso*; which still began the name.

We know but few of these *chrysolites* now: or rather, they are referred to the species of stones which they approach the nearest to: the green to the emerald, the red to the ruby; and so of the rest.

CHRYSOLITE-paste. The way of making an artificial *chrysolite* paste is this: take of prepared crystal two ounces, ordinary red lead eight ounces; mix these well together, and add *crocus martis* made with vinegar, twelve grains: mix all together; put them into a crucible, lute it over, and bake the whole for twenty-four hours, or longer, in a potter's kiln, and it will produce a very elegant resemblance of the true *chrysolite*.

CHRYSOMELA, in *Zoology*, a genus of insects frequently confounded with the beetles, the *antennæ* of which are made in form of bracelets, or necklaces of beads, and are thickest toward their extremity: the body, in figure, approaches to oval, and the *thorax* is oblong and rounded. Of this genus Dr. Hill enumerates a great many species. See *SCARABÆUS*.

CHRYSOMITHRES, in *Ornithology*, the name by which some call the GOLD-FINCH. See *CARDUELIS*.

CHRYSOPAGION, in *Natural History*, a name by which some of the middle age writers have called the gem described by Pliny, under the name of the *chrysolampis*. Salmastius is of opinion that it was only a foul kind of the *chrysoprasus*, of which Pliny says, that some of them were full of specks, and of a variable colour.

CHRYSOPETRON, in *Natural History*, a name given by Pliny and others, to the yellower kind of the ancient topaz, that is, our *chrysolite*.

CHRYSOPHYLLUM, in *Botany*. See *Star-APPLE*.

CHRYSOPHRYS, in *Ichthyology*, a name given by the ancient Greek and Latin authors to a fish called at this time the *AURATA*: it is a species of *SPARUS*. See *GILT-head*.

CHRYSOPILON, in *Natural History*, a name given by some ancients to a species of the beryl, which had a yellowish tinge.

CHRYSOPIS, the *golden-eye*, in *Natural History*, the name of a species of fly, so called from the beautiful gold colour of its eyes. It is a long-bodied fly, with extremely thin and transparent wings of a silvery colour, with green ribs or nerves; the body is green, and the *antennæ* very slender and blackish. This is a very slow flyer, and is common in gardens; it is frequently found on the common elder; it is of a very strong smell.

CHRYSOPRASUS, in *Christian Antiquity*, the tenth of those precious stones which adorned the foundation of the heavenly Jerusalem; the colour of it was green, much like that of a leek, but something inclining to that of gold, as its name imports.

CHRYSOPLENUM. See *Golden SAXIFRAGE*.

CHRYSOXYLON, in *Botany*, a name given by some to the Scythian, or Scythicum lignum, a wood famous for its beautiful yellow colour, and for tinging the hair yellow. This was one of the many substances called by the name of *THAPSUS* by the ancient Greeks, from its colour the word *thapsus* signifying a pale yellow, and being applied by these authors to every thing that had that colour in itself, or could give it to other things.

CRYSTAL. See *CRYSTAL*.

CRYSTAL mineral, the same as *sal prunella*.

CHRYSALLINE. See *CRYSTALLINE*.

CHRYSALLIZATION. See *CRYSTALLIZATION*.

CHTHONIA, in *Antiquity*, a festival kept in honour of

Ceres, called *Chthonia*. For the ceremonies observed in it, see Pott. Archæol. lib. ii. cap. 20.

CHUB, the English name for the fish called the *CAPITO* and *CEPHALUS* by authors, and by some of the ancient Romans *squalus*. It is, according to the Artediani and Linnæan system, a species of the *CYPRINUS*, and the fish called by the French the villain and testard.

The resorts of this fish are easily found; for they are generally holes overshadowed by trees, and this fish will be seen floating in such almost on the surface of the water in a hot day in great numbers. They are but a poor fish for the table, and are very full of bones; but they entertain the angler very much, and are of the number of those that are easily taken. The best manner of fishing for him is thus: prepare a very strong rod of a sufficient length; fix to the hook a grasshopper; place yourself so as to be perfectly out of sight of the fish, and drop in the bait about two feet from the place where a large *chub* lies; if he does not see the angler he very seldom fails biting, and is immediately taken; but he is so strong a fish that he should be taken out carefully, after a great deal of playing, otherwise the tackle will be in danger; a beetle, or any large fly, will answer the purpose in the place of a grasshopper; and if none of them are to be had, the method of fishing must be altered, and the line be long enough for fishing at the bottom. In March and April this fish is to be caught with large red worms; in June and July with flies, snails, and cherries; but in August and September the proper bait is good cheese pounded in a mortar, with some saffron, and a little butter; some make a paste of cheese and Venice turpentine for the *chub* in winter, at which season this fish is better than at any other; the bones are less troublesome in this season, and the flesh is more firm and better tasted; the row is also well flavoured in general. The angler must keep his bait for this fish at the bottom in cold weather, and near the top in hot, and the fish will bite eagerly.

CHUCHIA, in *Zoology*, a name given by Cardan, Oviedo, and some others to the *OPOSSUM*.

CHUNNA, in the *Salic Laws*, is used for an hundred; or rather an hundred pence or *denarii*: the pecuniary penalties of that law are estimated by *chunna*, and reduced to *solidi*, by reckoning forty *denarii* to the *solidum*.

CHUPMESSAHITES, a sect among the Mahometans who believe that Jesus Christ is God, and the true Messiah, the redeemer of the world; but without rendering him any public, or declared worship.

The word, in the Turkish language, signifies *protector of the Christians*.

Ricaut says, there are abundance of these *Chupmessahites* among the people of fashion in Turkey, and some even in the seraglio.

CHURCH, an assembly of persons united by the profession of the same Christian faith, and the participation of the same sacraments.

Bellarmin, and the Romish divines, to this definition add, *Under the same pope, sovereign pontiff, and vicar of Jesus Christ on earth*: in which circumstance it is that the Romish and reformed notion of *church* differ.

Amelotte, and others, make a visible head, or chief, essential to a *church*: accordingly, among the Catholics, the pope; in England, the king; are respectively allowed heads of the *church*. Bishop Hoadley sets aside the notion of a visible head: Christ alone, according to him, is head of the *church*; which position he has maintained with great address, in a celebrated sermon before king George I. on these words, *My kingdom is not of this world*; and in the several vindications thereof.

Sometimes, we consider *church* in a more extensive sense, and divide it into several branches. The *church militant*, is the assembly of the faithful on earth. *Church triumphant*, that of the faithful already in glory. To which the Catholics add the *church patient*, which, according to their doctrines, is that of the faithful in purgatory.

The term *ecclesia*, *ἐκκλησία*, synonymous with our *church*, is used in the Greek and Latin profane authors for any kind of public assembly; and even for the place where the assembly is held. The sacred and ecclesiastical writers sometimes also used it in the same sense; but ordinarily they restrain the term to the Christians; as the term *synagogue*, which originally signifies near the same thing, is in like manner restrained to the Jews.

Thus, in the New Testament, the Greek *ἐκκλησία*, signifies almost always, either the place destined for prayer, as 1 Cor. xiv. 34. or the assembly of the faithful diffused over the whole earth, as Ephes. v. 24. or the faithful of a particular city or province, as 2 Cor. viii. 1. or even of a single family, as Rom. xvi. 5. or the pastors or ministers of a *church*, as Matt. xviii. 17.

The Christian *church* is frequently divided into Greek and Latin.

CHURCH, Greek, or Eastern, comprehends the churches of

all the countries anciently subject to the Greek, or Eastern empire; and through which their language was carried; i. e. all the space extended from Greece to Mesopotamia and Persia, and thence into Egypt; which has been divided ever since the emperor Phocas, from the Roman church.

The Greek church, properly speaking, is that society of Christians, who live in religious communion with the patriarch of Constantinople: and it is divided into two parties; one of which acknowledges his supreme authority and jurisdiction; whilst the other, though joined with him in communion of doctrine and worship, is governed by its own laws, under the jurisdiction of spiritual rulers, independent of all foreign authority. The former branch of the Greek church is divided into four provinces; Constantinople, Alexandria, Antioch, and Jerusalem; over each of which a bishop presides, under the title of patriarch, the chief of whom is the patriarch of Constantinople. The power of electing the patriarch is vested in the twelve bishops who reside nearest this capital; but the right of confirming his election, and of empowering him to exercise his spiritual function, belongs to the Turkish emperor. The Greeks receive the Holy Scriptures, and the decrees of the seven general councils, as the rule of their faith: but no private person has a right to explain, for himself or others, the declarations of Scripture, or the decisions of these councils; the patriarch and his brethren being the only persons authorised to consult these oracles, and declare their meaning. Many attempts have been made to unite them to the reformed church, but they have hitherto been unsuccessful.

CHURCH, *Latin, or Western*, comprehends all the churches of Italy, France, Spain, Africa, the North, and all other countries whither the Romans carried their language.

Great Britain, part of the Netherlands, of Germany, and of the North, have been separated hence ever since the time of Henry VIII. and constitute what we call the reformed church, and what the Romanists call the western schism; as the Greek church does the eastern one.

The reformed CHURCH is again divided into the Lutheran church, the Calvinist church, the church of England, &c.

CHURCH, *Gallican*, denotes the church of France, under the direction and government of its bishops and pastors. This church has always enjoyed certain immunities and franchises, not as grants from the popes, but derived to her from her first original, which she has carefully maintained. These privileges depend on two maxims; viz. 1. That the pope has no authority or right to command or order any thing, general or particular, in which the temporalities and civil rights of this kingdom are concerned. 2. That notwithstanding the pope's supremacy is owned in cases purely spiritual, yet in France, his power is limited and regulated by the decrees and canons of ancient councils received in that realm.

CHURCH, *High*, was a denomination originally given to those, otherwise called NONJURORS, who refused to acknowledge the title of William III. to the crown of Great Britain, under a notion that James II. though excluded, was still their rightful sovereign. This appellation was given them, because they entertained high notions of the dignity and power of the church, and the extent of its prerogatives and jurisdiction. And those, on the contrary, were called low-church men, who disapproved of the secession and obstinacy of the nonjurors, distinguished themselves by their moderation toward dissenters, and were less ardent in extending the limits of church authority. The denomination of high-church men is now more generally applied to all who form pompous and ambitious conceptions of the authority and jurisdiction of the church, and who would raise it to an absolute independence on all human power.

CHURCH is also used for a Christian temple, built and consecrated to the honour of God; and, anciently, under the invocation of some particular saint, whose name it assumed.

In this sense, churches are variously denominated, according to the rank, degree, discipline, &c. as metropolitan church, patriarchal church, cathedral church, parochial church, cardinal church, &c. See each under its proper article, METROPOLIS, PATRIARCH, CATHEDRAL, PAROCHIAL, CARDINAL, &c. In ecclesiastical writers, we meet with grand church, for the chief church of a place, particularly in the Greek liturgy, for the church of St. Sophia at Constantinople, the see of the patriarch, founded by Constantine, and consecrated under Justinian. It was at that time so magnificent, that Justinian is said to have cried out in the consecration thereof, Εἰκητά σε, Σολομών; I have out-done thee, Solomon. The dome, which is said to have been the first that was built, is 330 feet diameter.

The first church publicly built by the Christians, some authors maintain to be that of St. Saviour at Rome, founded by Constantine: others contend, that several churches abroad, called by the name of St. Peter Vivus, were built in honour of that apostle during his life-time.

CHURCH, *Mother, Matrix ecclesia*.

CHURCH, with regard to architecture, Daviler defines a large oblong edifice, in form of a ship, with nave, choir, isles, chapel, belfry, &c. See each part under its proper head.

CHURCH, *simple*, is that which has only a nave and a choir.

CHURCH *with isles*, that which has a row of porticos, in form of vaulted galleries, with chapels in its circumference.

CHURCH *in a Greek cross*, that where the length of a traverse part is equal to that of the nave; so called, because most of the Greek churches are built in this form.

CHURCH *in a Latin cross*, that whose nave is longer than the cross part, as in most of the Gothic churches.

CHURCH *in rotundo*, that whose plan is a perfect circle, in imitation of the Pantheon.

For the form of the ancient Greek churches, when they had all their parts, it was as follows: first was a porch, or portico, called the *vaunt-nave*, *προναός*; this was adorned with columns on the out-side, and on the inside surrounded with a wall; in the middle whereof was a door, through which they passed into a second portico. The first of these porticos was destined for the *energumeni*, and penitents in the first stage of their repentance; the second was much longer, destined for penitents of the second class, and the catechumens, and hence called *υπαὸν*, *ferula*, because those placed in it began to be subject to the discipline of the church. These two porticos took up about one third of the space of the church. From the second portico, they passed into the nave, *ναὸς*, which took up near another third of the church. In the middle, or at one side of the nave, was the ambo, where the deacons and priests read the gospel, and preached. The nave was destined for the reception of the people, who here assisted at prayers.

Near the entrance of this was the BAPTISTERY, or FONT. Beyond the nave was the choir, *χορός*, set with seats, and round: the first seat on the right, next the sanctuary, being for the chanter, or *choragus*.

From the choir, they ascended by steps to the sanctuary, which was entered at three doors. The SANCTUARY had three apses in its length; a great one in the middle; under which was the altar, crowned with a BALDACHIN, supported by four columns. Under each of the small apses, was a kind of table, or cupboard, in manner of a beaufet.

Though, of the Greek churches now remaining, few have all the parts above described; most of them having been reduced to ruins, or converted into mosques.

M. Frezier, engineer to the French king, and F. Cordemoy, a regular canon, have disputed the form of the ancient and modern churches, and the best manner of building them with a good deal of learning, in the Journals de Trevoux.

For the form of the Latin churches, though it be various, yet may all the variety be reduced to two heads; viz. those in form of a ship, and those of a cross.

CHURCH-yard, a place adjoining to a church, employed commonly for the interment of the deceased. See COEMETERIUM.

CHURCH-government, discipline, &c. See ECCLESIASTICAL GOVERNMENT, DISCIPLINE, POLICY, &c.

CHURCH-reves See CHURCH-wardens.

CHURCH-scot, or CHURCH-esset, a payment, or contribution, by the Latin writers frequently called *primitia seminum*; being, at first, a certain measure of wheat, paid to the priest on St. Martin's day, as the first fruits of harvest.

This was enjoined by the laws of king Malcolm IV. and Canut. c. 10. But after this, church-scot came to signify a reserve of corn-rent paid to the secular priests, or to the religious; and sometimes it was taken in so general a sense as to include poultry, or any other provision that was paid in kind to the religious.

CHURCH-wardens, anciently called CHURCH-reves, are officers chosen yearly in Easter week, by the parson, and his parishioners, according to the custom of the place; to look to the church, church-yards, church-revenues, &c. observe the behaviour of the parishioners with regard to faults that come under the jurisdiction of the ecclesiastical court; present scandalous livers to the bishop; take care none preach without licence, &c.

Counsellors and attornies, surgeons and apothecaries, and dissenting ministers, are exempt from this office; and persons who have sued a felon to conviction, and the first assignee of the certificate thereof, are exempted from the office of church-warden, in the parish where the offence was committed. The same exemption extends

to persons serving in the militia, during such service. Dissenters are allowed to execute the office by a sufficient deputy. A person, refusing the office, is liable to excommunication. They are sworn into their office by the archdeacon, who is compellable by a mandamus to admit those whom the parish appoint.

The *church-wardens* are a kind of corporation; and are enabled by law to sue, and be sued, for any thing belonging to the church, or the poor of the parish.

CHURCHING of women after child-birth, took its rise from the Jewish rite of purification. In the Greek church it was limited to the fortieth day after delivery; but in the western parts of Europe no certain time is observed. There is an office in the liturgy for this purpose.

CHURLE, CEORLE, or CARL, in *Saxon Times*, signified a tenant at will, who held of the thanes on condition of rent and service. They were of two sorts: one rented the estate like our farmers: the other tilled and manured the demesnes, and were called ploughmen.

CHURN-Owl. See **OWL**.

CHURR-Worm, a name given by some to the **GRYLLO-TALPA**.

CHYLE, in the *Animal Oeconomy*, a whitish juice, into which the food is immediately converted by digestion, or more properly, by that first branch thereof called **CHYLIFICATION**.

The word comes from *χυλος*, juice.

Some think that all the gross secretions are from the *chyle*; and particularly that *pus* is the product of the *chyle*, and not of the blood or serum. Phil. Trans. N^o 427. § 2.

CHYLIFICATION, the formation of the *chyle*; or the act whereby the **FOOD** is changed into **CHYLE**.

Chylification is begun by comminuting, or breaking the aliment in the mouth, mixing it with saliva, and chewing it with the teeth.

By such means, the food is reduced into a kind of pulp, which falling through the *œsophagus* into the warm stomach, there mixes with the juices thereof; and being thus diluted, begins to ferment, or putrefy, and assumes a very different form from what it had before; growing either acid or rancid.

Here it mixes with a juice separated from the blood by the glands of that part, whose excretory ducts open into the stomach; as also with the remains of the former aliment: and thus it becomes better macerated, diluted, dissolved, and acquires still a greater likeness to the animal fluids, and is called *chyme*.

Add to this, that the fleshy membrane of the stomach continually contracting and pressing its contents by its peristaltic motion, occasions a more intimate mixture, and by degrees works the more fluid parts through the *pylorus* into the *duodenum*; along the sides whereof, and the rest of the *intestina tenuia*, the lacteals are planted; into the minute orifices whereof, the finer part of the mass is received.

The fabric of the stomach being considered, the heat of the circumambient parts, the pulsations of innumerable arteries, the great strokes of the *aorta* underneath, the constant compression of the *diaphragma*, and abdominal muscles; it must necessarily follow, that the finer part of the aliment will be first expelled the stomach; and that the grosser will remain; till, by the repeated action of the fluids, and the contraction and pulsation of the solids, they also become fine enough to go off: thus is the stomach left empty; and by means of its muscular coat, reduced to a state of contraction, and appetite is renewed.

Thus will even the fleshy membranes, cartilages, &c. of animals fed on, be squeezed, and be obliged to give out their juices; and thus is a fluid obtained, that shall have in some measure the same properties with those of our bodies.

This juice being got through the *pylorus* into the *duodenum* and smaller intestines, its liquefaction is still promoted by its mixture with two other dissolvents, the pancreatic juice, and the bile; and by continued fermentation; which divide and subtilize those parts that were left too gross: and by the peristaltic motion of the guts it is protruded forwards. In the passage through the small intestines, the finer part of the mass, which we call the *chyle*, enters the orifices of the lacteal veins of the first kind, wherewith the whole mesentery is intermixed; which either alone, or together with the meseraic veins, discharge themselves into the glands at the basis of the mesentery.

Then the *chyle* is taken up by the lacteals of the second kind, and is conveyed into glands between the two tendons of the *diaphragma*, known heretofore under the name of the *lumbary glands*, now called Pecquet's reservoir, and *receptaculum chyli*; whence, being mixed with great quantities of lymph, it is carried to the heart, by the thoracic duct, and the subclavian vein; wherein

it begins to be mixed with the blood, and to circulate; and in time becomes assimilated thereto. A spirit of vapour, which is nothing else than the *fixed AIR* of the alimentary substances, is set free from the various mixtures during their fermentation in the first passages, enters the composition of the *chyle*, and is transmitted with it to the blood, communicating to it its intestine motion, and thus preventing the natural tendency of the fluids to putrefaction. See **DIGESTION**.

CHYLOSIS, in *Medicine*, the action whereby the aliment is converted into *chyle*, or *chyme*, in the stomach, &c. whether it be by a ferment in the stomach, or the contractile force of the stomach, or both.

CHYME, an animal juice, which is, according to some, the same with that commonly called **CHYLE**.

Some, however, distinguish between *chyme* and *chyle*; restraining the word *chyme* to the mass of food, &c. while in the stomach, before it be sufficiently comminuted and liquefied to pass the *pylorus* into the *duodenum*, and thence into the lacteals, to be further diluted and impregnated with the pancreatic juice; where it commences *chyle*. And others distinguish and denominate them the contrary way.

In the common signification of the word, it denotes every kind of humour which is incrassated by concoction. Galen uses it to signify the gustatory faculty or quality in animals and plants.

CHYMICAL oils. See **CHEMICAL OIL**.

CHYMISTRY, or **CHEMISTRY**, is a science, the object of which is to discover the properties of bodies by analysis and by combination.

Critics are divided as to the etymology of the name *chymistry*: it is usually derived from *χυμος*, juice; or from *χέειν*, to melt. Boerhaave, and others, more justly derive it from the Egyptian *chema*, or *kema*, black; and write it *chemia*, not *chymia*. Others, making Cham the inventor of *chymistry*, derive the term from his name; supporting their etymology on the signification of the word **חם**, *cham*, which in the Hebrew signifies heat, hot, black; all of them bearing some relation to the operations of *chymistry*.

Chymistry is also known under various other names: it is sometimes called the *Hermetical art*, from a supposition of its being invented by Hermes Trismegistus. Others call it the *Egyptian art*, from the people among whom it was first practised: others, the *sacred*, or *divine art*; and *poiesis*, or the art of making gold, &c. Others call it the *spagirie art*; Paracelsus, the *hyssopic art*: and others, *pyrotechnia*. The chief object of *chymistry* is, to analyse, or decompose, natural bodies: reduce them to their first principles; discover their hidden virtues; and demonstrate their inner contexture, or the center as they call it, wherein natural substances concur. In a word, *chymistry* is the anatomy of natural bodies, by means of fire; which is the definition Hanneman gives us of the art.

Boerhaave defines *chymistry* more scientifically: "An art whereby sensible bodies contained in vessels, or capable of being contained therein, are so changed, by means of certain instruments, and principally of fire, that their several powers and virtues are thereby discovered, with a view to philosophy, medicine, &c." This definition appears very prolix and circumstantial, and more like a description than a definition; but with all his endeavours, that author assures us, he could not frame a shorter, that would express the full scope, object, and instruments of *chymistry*, so as to distinguish it from every other art: which is the point all the writers of *chymistry* have stumbled at.

For *chymistry* cannot justly be called the art of resolving bodies, as Regius, Paracelsus, &c. define it; since mechanics will also do that: nor is the matter mended, by saying, it is the art of analysing bodies by fire; as Helmont has done: nor by salt, as others would have it. These definitions include only a part, instead of the whole. And with as little propriety is it termed, the art of separating the pure from the impure; inasmuch as it compounds as well as separates, and frequently mixes the pure with the impure. *Chymistry*, on this footing, appears a very extensive art: its object, or the *materia chymica*, is all sensible bodies, capable of being contained in vessels; and is accordingly divided into three kingdoms, *fossil*, *vegetable*, and *animal*. The operations of *chymistry* include all the changes produced in bodies by natural agents or instruments; viz. decoction, infusion, exhalation, calcination, extraction, distillation, crystallization, &c.

The effects, or productions of *chymistry*, may be reduced to *magisteries*, *extracts*, *tinctures*, *elixirs*, and *clysters*.

The instruments, or agents of *chymistry*, whereby its operations are performed, are fire, water, air, earth, menstruums; and instruments properly so called, as alembics, cucurbits, retorts, pelicans, furnaces, and lutes. See *Table of Chemical Vessels*.

Chymistry, as now conceived, is an assemblage of very different

different parts, which anciently subsisted separate, or at least had a subsistence prior to each other; as the preparing of metals for human uses, the attempts of transmuting the baser metals into gold, the preparing of medicines, &c. If we are to trace the antiquity of *chymistry*, as an art that teaches to convert other metals into gold, or to procure an universal remedy for all diseases, the research will not carry us far back; but as it relates to the discovery of metals in the mine, and the digging, separating, and purifying them, it challenges even the highest antiquity; and is held by some very learned persons to have been practised in the antediluvian world.

Be this as it will, *chymistry*, no doubt, was first practised in Egypt. According to Moses, Tubal Cain should be the first inventor. Profane authors refer it to Vulcan; and some of the latest and best critics endeavour to shew, that Tubal Cain and Vulcan were the same; as indeed there is a great resemblance between their names.

After Tubal Cain, the first *chymist* we read of is Moses; whose skill in *chymistry* is incontestible, from his burning and pulverizing the golden calf the Israelites had set up, and giving it the people to drink; there being scarce a more difficult operation in all *chymistry*, than to make gold potable.

Democritus likewise is said to have been instructed by the Egyptian priests in many *chymical* operations; e. g. in the arts of softening ivory, vitrifying flints, and imitating precious stones. In this abstract of the history of *chymistry*, it is needless to mention the claims of Hermes Trismegistus, or to give any account of books on this subject, under his name, as they are generally reckoned to be spurious. Some authors observe, that Dioclesian, after the taking of Alexandria, ordered all the books of *chymistry*, anciently written by the Egyptians, for making gold and silver, to be sought out and burnt; that they might not have the power of enriching themselves by this art, or of putting themselves, by this means, into a condition of revolting again.

Chymistry had the common fate of the other arts, at the declension of the Eastern empire; and lay buried and forgot till the time of Roger Bacon, who retrieved it. He was followed by Lully, Ripley, Basil Valentine, Paracelsus, Agricola, Van Helmont, Glauber, Boyle, Lemery, Homberg, &c. by whom the art has been carried to its present degree of perfection.

The first *chymists* confined themselves to metals: and they made many absurd and unsuccessful attempts for transmuting metals into gold; whilst some of them, as Raymond, Lully, and Paracelsus in particular, were possessed with the no less extravagant notion of an universal medicine, to which, however, we may attribute the establishment of rational *chymistry* on the ruins of alchemy. In these latter ages, the bounds of *chymistry* have been greatly enlarged; and plants, animals, minerals, &c. have been taken into it.

It is but of late that *chymistry* has been applied to the preparation of medicines: Basil Valentine, and Arnoldus de Villa Nova, seem to have been the first that attempted it. Paracelsus and Van Helmont carried it to such a length, as to render medicine almost wholly *chymical*.

Authors on the subject of *chymistry* are very numerous: Borel has published a catalogue of most of them, under the title of *Bibliotheca Chymica*; containing the names of above four thousand. Barner, physician to the king of Poland, was one of the first who arranged the principal *chymical* experiments, and added rational explications, in a work entitled *Chymia philosophica perfecte delineata*, &c. Norimb. 1689. Becher, Stahl, and Boerhaave deserve to be particularly recorded: the former have established an admirable theory, which is the surest guide in *chymical* researches, and the conformity of which with the phenomena of *chymistry* successive experiments have evinced; and the latter has given both the history, theory, and practice, in an orderly and scientific method. Dr. Friend has attempted to reduce *chymistry* to Newtonianism, and to account for the reasons of the operations on *chymical* principles. There are many later writers, who have either directly or indirectly, in various ways, contributed to the extension of this science. See Dr. Lewis's valuable edition of Neumann's Works; and the English translation of Macquer's Chemical Dictionary, with many additions and improvements annexed to it by the translator.

Chymistry is divided into *metallurgia*, *alchymia*, *chymical pharmacy*, and *chymical philosophy*. See METALLURGIA, ALCHEMY, &c.

Chymistry again is divided into,

CHYMISTRY, commercial, used to denote the application both of technical and philosophical *chymistry*, to the establishing, supporting, or improving any branch of trade or commerce.

CHYMISTRY, æconomical, the application of philosophical,

technical, or commercial *chymistry*, to the service and accommodation of the affairs of a family.

CHYMISTRY, philosophical. Philosophic *chymistry* consists of three parts, viz. *invention*, *rationale*, and *experiment*; whence we may define it to be a particular exercise of the rational and inventive faculties of the mind, leading to experiments, and thence to the discovery of causes, so as to form axioms that shall rationally account for phenomena, and discover rules of practice for producing useful effects. And thus philosophical *chymistry* is not only the key to all the other parts, but it discovers of itself the causes of many natural phenomena, as particularly, earthquakes, volcanoes, vegetation, the growth of minerals, and the like.

This branch of *chymistry* also explains the general forms and qualities of bodies, whereon the properties and effects depend; as volatility and fixedness, fluidity and firmness, colours, tastes, odours, effervescences, fermentation, solution, precipitation, congelation, extraction, and the like.

To this part of *chymistry* it also belongs to bring new inventions to the test, to discover their validity or insufficiency. Thus when any hint is started for a new trade, or method invented for the improvement of an old one, before any attempt is made to apply it in the larger way, it should be experimented in miniature; as the assayer tells the owner of an ore whether it will be worth the erecting large works for it, or not.

CHYMISTRY, technical. By technical *chymistry* is meant the application of philosophical *chymistry* to the immediate service of arts, so as by its means to invent, form, assist, promote, or perfect them in the large way of business.

CHYMISTRY, theory of. Under the theory of this art are to be laid down all the general truths which the particular experiments of chemists have hitherto demonstrated. These are, on this occasion, to be taken for granted, and the whole body of such truths makes the universal theory of *chymistry*, for *chymistry* is no science formed *a priori*; it is no production of the human mind, or raised by reasoning, but collected *a posteriori* from experiments; it took its rise from various operations casually made, and observing those that had one and the same uniform tendency, without any expectation of what followed; and was only reduced into an art, by collecting and comparing the effects of such uncertain experiments, and noting the tendency thereof: so far then as a number of experiments agree to establish any unquestionable truth, so far they may be considered as constituting the theory of *chymistry*. Such a theory is necessary to be premised to every art; and something equivalent to this is practised by every artisan, in teaching his disciple how to proceed orderly in the exercise of his art; and accordingly it would be impossible to teach the practice of *chymistry* to advantage, without having first given some such theory. In the forming such a theory of *chymistry*, a direct use may indeed be made of the demonstrations in physics, as particularly in mechanics, hydrostatics, and hydraulics; since the properties common to all bodies, and what farther affections certainly flow therefrom, have their place in *chymistry*. One cannot, however, be too reserved in this use, since those singular properties found in some bodies, will, if applied to others, falsify the mechanical demonstrations, which might hold true every where else.

Due regard being had to this rule, the discoveries of naturalists and mathematicians will always be advantageous, never injurious to the art of *chymistry*.

CHYMOLOGI, among the *Botanical Students*, such as have employed their time in investigating the qualities and properties of plants from their taste and smell.

CHYMOSIS, in *Medicine*, the act of making, or preparing **CHYME**.

The word comes from *χυμος*, *succus*, of *χew*, *fundo*, I melt.

Chymosis, according to some, is the second of the concoctions made in the body; being a repeated preparation of the most impure and gross parts of the chyle, which being rejected by the lacteals, is imbibed by the mesenterics, and thence carried to the liver, to be there elaborated, purified, and subtilized afresh. It is of this, according to Rogers, that the animal spirits are formed.

CHYMOSIS, or rather **CHEMOSIS**, is also used for an inflammation of the eye-lids, which turns out their inside to fight.

In which sense, the word comes from *χαωω*, *bisco*, I gape.

CHYTILA, in *Antiquity*, a liquor made of wine and oil, and sometimes used in divination.

CHYTRI, among the Athenians, a festival in honour of Bacchus and Mercury, kept on the thirteenth of the month Anthesterion.

CIBDELOPLACIA, in *Natural History*, the name of a genus

genus of spars. The word is derived from *κισθηλος*, *impure*, and *κροσ*, *a crust*. The bodies of this genus are terrene spars, that is, are composed of spar, debased by a very large admixture of earth, and are not therefore of the least brightness or transparence; and are found formed into thin crusts, coating over vegetable and other extraneous bodies in form of incrustations. Of this genus there are five known species, some of them used in medicine, and distinguished by particular names.

CIBDELOSTRACIA, in *Natural History*, the name of a genus of spars. The word is derived from *κισθηλος*, *fouled or adulterated with extraneous matter*, and *οστρακον*, *a crust, or shell*.

The bodies of this genus are crustaceous spars, so highly debased with earth, that they appear to the naked eye mere earths; they are destitute of all brightness or transparence, and are formed into thin plates, and usually found incrusting over the sides of fissures of stones. Of this genus there are seven known species.

CIBORIA, in *Antiquity*, the large husks of Egyptian beans, which are said to have been so large as to serve for drinking cups; whence they had their name *ciborium*, signifying a *cup*: in the Egyptian language.

CIBORIUM, in *Ecclesiastical Writers*, the covering for the altar. This covering is supported by four high columns, and forms a kind of tent for the eucharist, in the Romish churches. Some authors call it *turris gestatoria*, and other *pyxis*. But the *pyxis* is properly the box in which the eucharist is preserved.

CIBOULS. See **ONIONS**.

CIBUS *ferialis*, in *Antiquity*, an entertainment peculiar to a funeral; for which purpose, beans, parsley, lettuce, bread, eggs, lentils, and salt were in use.

CICADA, the *balm cricket*, in *Zoology*, the name of a genus of insects of the order of *hemiptera*, common in Italy, and some other parts of the world, but not found in England. It has large wings, and makes a loud noise, something like that of the cricket. See *Tab. of Insects*, No 5. and **HARVEST-fly**.

They are recommended by some in medicine as remedies for colics, powdered and mixed with pepper; or burnt to ashes alone, are given in nephritic cases.

CICADA *aquatica*, the *water-grasshopper*, a name very injudiciously given by Rondeletius to an animal found frequently in standing waters, of a greyish colour, with six legs, and the appearance of the rudiments of wings; it is remarkable also for having a sort of mask before the face, which it removes or lifts up at pleasure. It is a poor defenceless animal, and is a prey to almost all the other water animals, even to many that are smaller than itself: it has no sort of relation to the **GRASSHOPPER**; but is the hexapode, or worm state of one of the *libella*, or **DRAGON-flies**.

The hinder pair of legs are much longer than the others, and are used in swimming, as oars, in the manner of those of the **NOTONECTA**.

CICADA of *North America*. This insect is seen annually, but in no great numbers, in Pennsylvania; but at certain periods of fourteen or fifteen years, they come forth in such swarms, that they are called *locusts*. They are the prey of so many animals, that their numbers soon decrease; and their duration by order of nature being short, they quickly disappear.

There are two distinct species of *cicadae* in North America. See a curious account of the largest sort, by Mr. Collinson, *Phil. Trans.* vol. liv. No 10. an. 1764.

CICADULA, in *Natural History*, the name given by Mr. Ray to a small species of insect, called by Swammerdam *locust pulex*, and found in May and June on the stalks and leaves of plants, involved in a spumous white matter, commonly called *cuckow-spit*. This spume is not exsuded, as some supposed, from the plant, but from the mouth of the animal; and if it be well wiped away, without injuring the creature, more will be immediately seen issuing out of its mouth, till there is as large a quantity of it as before.

There are several species of this animal, and while they lie in the froth they are of the shape of a louse, some being of a whitish, some of a yellowish, and some of a green colour. The hinder legs are somewhat larger than the others, and there is an appearance of the rudiments of wings at the shoulders. They often change their skins while they live in this froth, and only creep at this time; but when they leave the plant, they hop and fly, having large wings which cover the whole body.

CICATRICULA, in *Natural History*, a little whitish speck, or vesicle, in the coat of the yolk of an egg; wherein the first changes appear towards the formation of the chick. The *cicatricula* is what is otherwise called the eye of the egg.

CICATRISIVE, **CICATRIZANS**, in *Medicine*, is applied to such remedies as are very desiccative; and on that

account aid nature to repair the skin, and to form a cicatrix, or eschar.

Such are Armenian bole, powder of tutty, and the unguents *diapompholygis*, *desiccativum rubrum*, &c.

Cicatrifive medicines are otherwise called *escharotics*, *epulotics*, *incarnatives*, *agglutinants*, &c.

CICATRIX, in *Medicine*, &c. a little seam, or elevation of callous flesh, rising on the skin, and remaining there after the healing of a wound, &c. ordinarily called a *scar*, or *eschar*.

Some derive the word from *circa cutem*: others from *cicatrix* from *occæatrix*; the *cicatrix* being only *obdutiæ vulneris*, the covering up, or hiding of the wound: but it is better derived from *cæatrix*, which has the same force; of the verb *cæcare*, to blind.

The *cicatrix* is the same with regard to the joining of the fleshy parts, as a *callus* is to the bones.

In young infants, these callosities, or scars, sometimes much diminish, and oftentimes quite vanish when come to age, as particularly observed in the pits of the small pox: and, in growing, they are sometimes observed to change their situation.

In large wounds, where there has been a loss of substance, an even *cicatrix* is not to be expected, without great care in the surgeon. When an even, thick, and white matter appears in the wound, it is to be dressed either every day, or every other day, as occasion shall require: the superfluous matter must at every dressing be wiped away with a very light hand; and it is indeed much better to leave some of it in the wound, than to treat that roughly in taking it away; for wiping the wound too roughly, hinders the growth of new flesh; but a little matter being left, only performs the office of oil or balsam, in keeping the parts moist. These rules being observed, new flesh will presently spring up, and the wound unite: but that an even *cicatrix* may be procured, the surgeon must endeavour by degrees to harden the new flesh, by the application of dry lint, covered with a tight bandage. When this does not prove sufficient, it may be proper to use some of the drying balsams, or drying powders, such as tutty, *lapis calaminaris*, mallich, colophony, &c. Rectified spirit of wine is frequently used for this purpose also, with great success, for it carries a very great astringent and drying virtue with it.

See observations on a deep wound of the brain that cicatrized, by Tudecius, in the *Col. Acad.* tom. iii. P. E. p. 407.

CICATRIZING, in *Medicine*. See **CICATRISIVE**.

CICCA, in *Botany*, a genus of the *monoecia tetranaria* class; the male flowers of which have a four-leaved calyx, and no corolla; the female have a three-leaved calyx, no corolla, four styles, and a capsule including four berries.

CICELY, in *Botany*. See **CHERVIL**.

CICER, the *chich-pea*, in *Botany*. See **Chich-PEA**.

CICERBITA, in *Botany*, a name given by some authors to the common fonchus, or sow-thistle.

CICERONIASTRI, or **CICERONIANI**, an appellation given by way of contempt to those moderns, who dispute the propriety of all expressions and words not found in Cicero.

CICERUM *lapis*, the *chich-stone*, in *Natural History*, a name given by some authors to a sort of small round stones, of the nature of the pisolithe or pea-stones, but smaller than those usually are, and of a dusky grey colour. They very exactly resemble the fruit of the cicer or chich-pea, and are found in great abundance near the old Jerusalem.

CICERELLUS, in *Ichthyology*, a name given by Boccone, and some other authors, to the **AMMODYTES** or sandeel, the *tobianus* of Schoneveldt.

CICHORIUM, *succory*, in *Botany*. See **ENDIVE**.

CICINDELA, in *Natural History*, the name of the **GLOW-worm**.

CICINDELA *volans*. See **GLOW-worm**.

CICISBEO, an Italian term, which in its etymology signifies a *whisperer*; which has been bestowed in Italy both on lovers, and on those who to outward appearance act as such, attending on married ladies with as much attention and respect as if they were their lovers. This Italian custom has been spoken of very reproachfully by some writers: Mr. Baretti has taken great pains to vindicate it. He ascribes it to a spirit of gallantry, derived from the ages of chivalry, and much heightened and refined by the revival of the Platonic philosophy in Italy, about the thirteenth century; and by the verses of Petrarch in compliment to the beautiful Laura, and his numerous imitators. Account of the Manners, &c. of Italy, vol. i. chap. 8.

CICLA, in *Botany*, a name given by some to the white beet.

CICLA, in *Ichthyology*, a name given by Artedi, and other

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late writers; to a species of fish called *chickle* by Aristotle and Ælian, and *TURDUS minor* by the generality of late writers. See VERDONE.

CICONIA, in *Ornithology*, the name by which authors call the stork. See STORK.

CICUTA. See HEMLOCK.

There are not wanting authors among the Germans, who recommend the seed of the common *hemlock* against obstructions in the spleen; but as we have already remedies enough in the same intention, which are not suspected as poisonous, it is best to be contented with them, till a great many more trials have been made of this new medicine than we have accounts of at present.

CICUTA is also used, chiefly among the ancients, for a poisonous juice, or liquor, expressed from a plant called *cicuta aquatica*; being the common poison wherewith the state criminals at Athens were put to death.

The *cicuta* of the ancients is a secret now scarce possible to be discovered. Wepfer in an express treatise on the subject, will have it the *OENANTHE cicuta facie, succo viroso*; which he describes by the name of *cicuta aquatica*; and of the dismal effects of which he gives a very ample relation. At least the violence of this plant makes it a much fitter instrument of hasty death than the common *cicuta* or *hemlock*, which is much less malignant. Though some have suggested, that the poisonous draught to which the Athenians doomed their criminals, was an inspissated juice compounded of the juice of *cicuta*, and some other corrosive herbs. Vide Mead's Essay on Poisons, ap. Bibl. Med. tom. iii. p. 281.

Socrates drank the *cicuta*. Plato, in his Dialogue on the Immortality of the Soul, observes, that "The executioner advised Socrates not to talk, for fear of causing the *cicuta* to operate too slowly." M. Petit, in his *Observationes Miscellanæ*, remarks, that this advertisement was not given by the executioner out of humanity, but to save the *cicuta*: for he was only allowed so much poison *per ann.* which if he exceeded, he was to furnish the rest at his own expence. This construction is confirmed by a passage in Plutarch: the executioner who administered the *cicuta* to Phocion, not having enough, Phocion gave him money to buy more; observing, by the way, that it was odd enough, that at Athens a man must pay for every thing, even his own death.

CICUTARIA. See HEMLOCK, and CHERVIL.

CIDARIS, the mitre used by the Jewish high priests. Whenever there is mention of the high priest's mitre, the Hebrew word made use of to express it is always *miznepheth*; and *mygbaath* is used to signify the bonnet belonging to common priests. The rabbins say the same thing is meant by both these terms, and that the bonnet used by priests in general was made of a piece of linen cloth sixteen yards long, which covered their heads like an helmet or a turban: and they allow no other difference to be between the high priest's bonnet, and that of other priests, than this, the one is flatter, and more in the form of a turban, whereas the other worn by ordinary priests rose something more in a point. Exod. xxviii. 4.

It is to be observed, that the Hebrew priests never appeared in the temple without covering their heads. And still at this day it is reckoned an incivility in the East, and a mark of contempt, for any man to pull off his hat or turban to another, or to shew his naked head before any one.

CIDARIS, in *Conchyliology*. See TURBAN-shell.

CIDER, a brisk, tart, cool liquor, prepared from apples. See CYDER.

CIERGE, in *Conchyliology*, a name given by the French to a sea-shell, a species of *VOLUTA*. This is of the colour of common yellow wax, without any variegations on the surface; but when its rough coat is taken off, it makes a very different appearance, having the zones and colours of the onyx. It is preserved in many cabinets, in this state, under the name of the onyx shell.

CIGALE, in *Natural History*, the French name for the *cicada*, particularly for the large kind, called *acheta* by the ancients. See HARVEST-fly.

CIGNE, in *Conchyliology*, the SWAN-shell, a name given by the French virtuosi to a species of *voluta*, which, beside this name, is known by two other very different ones, *cierge* and *onyx*, and is taken by the generality of collectors for three different shells. When it has its natural coat on, it is of a rough surface, and yellow colour, much like that of common wax, whence it is called *cierge*, or the wax-shell. When this coat is just taken off, it appears of a very beautiful white, and is then called the *cigne*, or swan shell; and when it is polished farther down, so as to shew its inner structure, it appears zoned in the manner of the onyx, and is then called the *onyx*.

CIGALON, in *Natural History*, the name by which the

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French writers call the smaller species of *cicada*, as they do the larger the *cigale*. The ancients were acquainted with two species of *cicada*; a great one, and a smaller one: the last of these they called *tettigonia*, and the first *acheta*. It has been usually supposed, that the *cigalon* of the moderns was their *tettigonia*: but Mr. Reaumur observes, that we have in reality three kinds of them, a large, a middling, and a small one, and that the large was their *acheta*, the middle one their *tettigonia*; and that the *cigalon*, or small one, which is about the size of a hornet, was wholly unknown to them. See HARVEST-fly.

CILERY, in *Architecture*, a term used to denote the drapery or leavage on the heads of columns.

CILIA, in *Anatomy*, the hairs wherewith the *palpebrae*, or eye-lids, are fringed; especially the upper, which are larger and stiffer than those of the under.

Their use seems to be, to break the too fierce impression of the rays of light; as also to keep out flies and moths, and other things floating in the air, which might annoy the eye.

These *cilia* spring from a small row of glands, which cover a thin tender cartilage, edging each eye-lid, and serving as a kind of rod, or ring, to stretch them upon.

CILIARE, in *Anatomy*, an epithet given to a part of the eye, called *ligamentum ciliare*; because of its relation to the *cilia*, or hair of the eye-lids.

The *ligamentum ciliare*, called also *processus ciliaris*, consists of a range of black fibres disposed circularly; having their rise in the inner part of the *uvea*, and terminating in the prominent part of the crystalline, which they encompass round.

Anatomists generally imagine their use to be to suspend the crystalline in the globe of the eye, to lengthen or shorten its figure, and bring it nearer to, or farther from the *uvea*; and even to open or contract the pupil as occasion requires, i. e. as near or remote objects, obscure or bright objects, are to be viewed.

The motion of the pupil, some say, is effected by the circular and strait fibres of the *uvea*; others attribute it to the *ciliary* ligament; yet, there is no great doubt, but they both concur in the same action; and that the *ligamentum ciliare* doth, at the same time the pupil opens or shuts, dilate or compress the crystalline, and bring it nearer, or carry it farther off the *retina*. Derham, Phys. Theol.

M. Mariotte denies the *ligamentum ciliare* to have any connexion with the crystalline, or to serve for any purposes thereof.

CILIARIS, in *Anatomy*, a muscle, otherwise called *ORBICULARIS palpebrarum*.

CILIATED leaf, among *Botanists*. See LEAF.

CILICIA terra, in the *Natural History of the Ancients*, a bituminous substance, though called an earth, which, by boiling, became tough like bird-lime, and was used instead of that substance to cover the stocks of the vines, for preserving them from the worms. It probably served in this office in a sort of double capacity, driving those animals away by its nauseous smell, and entangling them if they chanced to get among it.

CILICIUM, a sort of habit made of coarse stuff, of a black or dark colour, formerly in use among the Hebrews, in times of mourning or distress. It was called *Cilicium*, because it came from Cilicia, or rather because the Cilicians invented this kind of habit, made of goat's hair, and used principally in camps and ships, by soldiers and mariners.

CIMA, or **SIMA**, in *Architecture*, a member or moulding, called also *ogee*, and *cymatium*. See Tab. Archit. fig. 8.

CIMELIANTHUS, in *Natural History*, a name given by authors to a species of the *oculus belii*. It is described to be of a white colour, resembling that of marble, with a yellow pupil in the middle. It was found on the shores of the Euphrates.

CIMELIARC, in *Church Architecture*, the room where the plate, vestments, &c. belonging to the church are kept. In English, a vestry.

CIMEX, BUG, in *Natural History*, the name of a genus of insects, the characters of which are these: the head is small; the back, towards the shoulders, is broad, and is covered with a crustaceous substance: its shoulders are of an angular make; and its wings partly crustaceous, partly membranaceous, and are so formed, that they exhibit the figure of a cross, where they meet at the middle of the back; and they have a long proboscis, which is bent under the belly, and always lies straight, not in a spiral form.

Mr. Ray divides the *cimices* into two kinds, those of a shorter, and those of a longer and narrower make. Of the first kind he describes eight species.

Of the other kind of *cimices*, which have longer and narrower bodies, Mr. Ray mentions five kinds.

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The house-bug, or *cimex lectularius*, so extremely troublesome about beds, is of a roundish figure, of a dark cinnamon colour; and when crushed, emits a most offensive smell.

Many are the compositions and ointments prescribed for destroying them; but it is hardly possible to eradicate them when once they get into furniture. Some recommend to wash the bedsteads with oil of turpentine, or to paint them with verdigrease ground in linseed and oil of turpentine: others to make an ointment of wormwood, rue, common oil, and water boiled together, and mixed with sulphur; a mixture of hemp, oil, and ox-gall, has been sometimes used; and an ointment made of equal quantities of black and common soap, and quicksilver, has been applied to the places infested with bugs. After all, cleanliness is the greatest security against these vermin.

There are also two species of water-cimices.

Beside all these, which are properly of the *cimex* kind, there is another set of insects mentioned by Mr. Ray, as nearly approaching to them, and described under the name of the *CIMIFORMES muscæ*.

CIMICIFORMIS musca, in *Natural History*, a name given by Mr. Ray to a kind of insects, partly of the fly, and partly of the *CIMEX* kind. Of these there are eleven species described in his history. These are all found about our hedges in dry places, and are a beautiful set of insects.

CIMICIFUGA, in *Botany*, a genus of the *dioecia polyandria* class, bearing male and female flowers; with a five-leaved calyx, twenty stamens, but no corolla; the capsule is polyspermous.

CIMIER, in the French *Heraldry*. See **CREST**.

CIMOLIA terra, in *Natural History*, a name by which the ancients expressed a very valuable medicinal earth, but which later ages have supposed to be no other than our common tobacco-PIPE clay and FULLER'S earth.

The *Cimolia terra* of the ancients was found in several of the islands of the Archipelago, particularly the island Cimolus, from which it had its name, and which is now called Argentiére; and was used with great success in the St. Anthony's fire, inflammations, and other external affections of a like kind, being applied by way of a cataplasm to the part. They also used, as we do, what we call *Cimolia*, or fuller's earth, for bleaching linen, and cleaning of cloaths. This earth of the ancients, though so long disregarded, and by many supposed lost, is however yet very plentiful in Argentiére, Sphanto, and many other of those islands; and is a marle of a lax and crumbly texture, and a pure bright white colour, and very soft to the touch. It was evidently the substance we now call *scatites*, or the soap-rock, common in Cornwall, and also in the island of Argentiére or Cimolus.

CIMOLIA alba, the officinal name of the earth or clay of which we now make tobacco-pipes. Its distinguishing characters are, that it is a dense, compact, heavy clay, of a dull white colour, and very close texture; it will not easily break between the fingers, and slightly stains the skin in handling. It adheres firmly to the tongue; melts very slowly in the mouth, and is not readily diffusible in water; and is not acted upon by acids. It is found in many places. That of the Isle of Wight is much esteemed for its colour. When applied to use, it is mixed with another sort of white clay, there called Hayter's clay. We have vast plenty of it also near Pool in Dorsetshire, and near Weddensbury in Staffordshire. A third sort of white *Cimolia*, differing from the former in not being unctuous, and suffering no change in the fire, is dug near Lymington in Hampshire, and hitherto applied to no use. A fourth sort, tinged and veined with yellow, which turns to a pale red, acquires in the fire a whiter colour; but no hardness, is dug on the banks of the Medway, near Maidstone, and used for the manufacture of gallypots at Vauxhall. A fifth sort dissolves readily in water, and burns to a greater hardness and a clearer white: it is dug near Barnstaple in Devonshire, and used in making the Brosely tobacco-pipes. A sixth sort is alkaline; suffers little change in the fire; is dug near Wareham in Dorsetshire, and called Pool clay; and used for tobacco-pipes.

CIMOLIA nigra; is of a dark lead-colour, hard, dry, and heavy; of a smooth compact texture, and not viscid: it does not colour the hands; crumbles when dry; adheres to the tongue; diffuses slowly in water; and is not acted upon by acids. It burns perfectly white, and acquires a considerable hardness. The chief pits for this clay are near Northampton, where it is used in the manufacture of tobacco-pipes. It is also mixed with the *criche* clay of Derbyshire, in the proportion of one part to three, in the manufacture of the hard reddish brown ware.

CINÆDA, in *Natural History*, the name of a stone found

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in the head of a fish; of a whitish colour, and oblong figure. The ancients supposed it presaged tempests when its surface looked dusky and obscure; and on the contrary, fair weather, when it looked bright and clear.

CINÆDOLOGIA, among the *Ancients*, a kind of satirical poetry, the chief subjects of which were the *cinædi*.

CINÆDUS, in *Antiquity*, is used to signify a dancer or pantomime.

At first they performed only on the stage, but afterwards were admitted to the entertainments of princes.

CINÆDUS, in *Ichthyology*, the name of a fish common in the Archipelago, about the shores and rocks, supposed by many to be the same species with the alphestes, and of the turdus kind, only with its back fin prickly all its length. It is of a yellowish hue all over, blended and variegated with an admixture of purple; its scales are rounded and indented; and its teeth very strong and firm, and disposed in two rows in each jaw, and are long and sharp.

CINARA, *artichock*, in *Botany*. See **ARTICHOAK**.

CINCHONA, in *Botany*, the name by which Linnæus calls the tree which produces the Jesuits bark. This is a peculiar genus of plants, of the *pentandria monogynia* class; the characters of which are these: the cup is a small perianthium, composed of one leaf, divided into five segments, and remaining after the flower is fallen. The flower consists of one petal, and is of a funnel-shape; it is a long and cylindrical tube, terminating in a wide expanded edge, which is divided into five serrated and pointed segments: the stamens are five small filaments, and the apices oblong, and placed within the tube of the flower; the pistil consists of a roundish germen placed below the cup, a style which is of the length of the flower, and a thick oblong simple stigma; the fruit is a roundish capsule, at the top of which stands the cup by way of a crown; this capsule contains two cells, and when ripe opens longitudinally into two parts. The seeds are very numerous, and are oblong, compressed, and surrounded with a foliaceous edge. See **CORTEX Peruvianus**.

CINCLUS, in *Ornithology*, a species of the **TRINGA**. It is given by some to the bird called in English the greater reed-sparrow, and by the generality of authors **JUNCO**.

CINCLUS is also the name of a species of **STURNUS** or **STARLING**.

CINCLUS prior, is also a name given by Aldrovandus to a bird, the same with what we call the **STINT**.

CINCLUS tertius. See **GIAROLO**.

CINCTURE, or **CEINTURE**, in *Architecture*, a ring, or list, at the top and bottom of the shaft of a column; separating the shaft, at one end, from the base: and at the other from the capital. See *Tab. Archit. fig. 24. and 25.*

The word, in its original French, signifies *girdle*; of the Latin, *cingo*, *I gird*.

That at the bottom is peculiarly called *apophyge*; as if the pillar took its flight hence: and that at top, *colarin*, or collar.

The *cincture* is supposed to be an imitation of the girths, or ferrils, anciently used to strengthen and preserve the primitive wooden columns. See **ORDER**.

CINEFACCTION. See **CINERATION**.

CINERARIA, *sky-flower*, in *Botany*, a genus of the *syngenesia polygamia superflua* class: with a naked receptacle; and single, polyphyllous, equal calyx.

CINERARIA, in *Botany*, a name by which some authors have called the *jacoba maritima*, or sea-ragwort, because of the grey colour of its leaves.

CINERARIUS, in *Antiquity*, an officer retained by the women, whose business it was to provide ashes proper for tinging the hair with a deep yellow colour. He was otherwise called *ciniflo*.

CINERARIUS is also used to signify one who paid a veneration to the ashes and relics of martyrs and saints.

CINERATION, in *Chemistry*, the reduction of wood, or any other combustible matter, into ashes, by means of fire.—This, others call *cinefaction*.

CINERES. See **ASHES**.

CINERES Ætnæ, a name given by authors to a dusty and saline substance thrown out of mount Ætna, in form of powder, and resembling ashes. After an eruption of this mountain, these saline ashes are found scattered about the opening itself, down the sides of the mountain, and over the country for ten miles, or more, round. Those ashes, which are found thrown to the distance of eight or ten miles, are generally taken up in form of a very dry dust, almost insipid to the taste: but what lie upon, and round about the skirts of the mountain, are very different; they are never dry, though they lie many months exposed to the sun's heat, which is very great there, but always feel damp and wet, and are composed of larger or smaller lumps, and not of a fine powder,

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powder, as the more distant are. They are of a very strongly vitriolic taste, resembling that of our common green copperas. From this taste, and from the great quantities of matter resembling a sort of crocus Martis, and with these a great abundance of sulphur, which is burnt away, and the vast quantities also which are sublimed about the mouths, and left unburnt, it appears, that the common pyrites is contained in vast abundance in the bowels of the mountain, since green vitriol and sulphur are its produce, and nothing is so easy as to calcine it with the purple powder resembling crocus Martis which is the third substance so frequent there. This gives great weight to the opinion of those who believe all the eruptions of the burning mountains in the several parts of the world to be owing to this mineral. See PYRITES, and VOLCANO.

NERES clavellati, among *Chemists*, are the ashes of tartar, or lees of wine, burnt.

CINERITIOUS, a term applied to things resembling ashes; particularly in point of colour and consistence.

Thus, the cortical part of the brain is also called the *cineritious* part.

CINGULUM sapientie. See GIRDLE.

CINIFLO, in *Antiquity*, the same with CINERARIUS.

CINNA, in *Botany*, a genus of the *monandria digynia* class.

The calyx is a bivalve single-flowered glume; and the corolla is a bivalve glume. The seed is single.

CINNABAR, in *Natural History*, a mineral substance, red, heavy, and brilliant; found chiefly in the quicksilver mines, and being one of the ores of that mineral.

The word comes from *κνναβα*, the smell of goats; because, says Matthioli, in digging one kind of mineral *cinnabar*, it yields so strong a scent, that the diggers are obliged to stop their nostrils.

Some have wildly imagined *cinnabar* to be DRAGON'S-blood, gathered, as Pliny and Solinus have it, when the dragon and elephant fight together. This fable is refuted by Dioscorides, and Scaliger.

Cinnabar is either *native* or *factitious*.

CINNABAR, *native*, or *mineral*, which is that above mentioned, is found in most places wheret here are quicksilver mines.

It may be esteemed as an ore of quicksilver, or rather, as quicksilver petrified and fixed, by means of sulphur, and a subterraneous heat; chemistry being found to reduce it, without much trouble or loss, to the nature of MERCURY. Each pound of good *cinnabar* yields fourteen ounces of mercury. Accordingly, the principal property and use of this mineral is to yield a most excellent mercury; and that which the alchemists maintain to be the best disposed for attaining to the transmutation of gold.

The principal mines of *cinnabar* are those of Kremnitz in Hungary; of Hydica in Slavonia; of Horowitz in Bohemia; of Carinthia, of Frioul, and of Guangavelica in Peru. The *cinnabar* of the Philippines in Asia is of the highest colour; but the richest is that of Almaden in Spain, on the frontiers of Estramadura.

Jussieu has given a circumstantial memoir on the subject of *cinnabar*, in the A. D. S. an. 1719.

To discover whether a mineral contains mercury, or is true *cinnabar*, Jussieu recommends reddening a bit of it in the fire; and when it appears covered with a little bluish lustre, to put it under a glass cover, through which we are to observe whether the vapours condense under the form of small drops of mercury adhering to the glass, or running down the sides of it. The falsification of *cinnabar*, the same author observes, may be discovered by the colour of its flame when put upon burning coals. If it be blue approaching to violet, and without smell, it is a mark of its purity; if the flame be of a reddish cast, there is ground to suspect that it has been adulterated with MINIUM; and if it boils as it were on the coals, it is a presumption, if not a proof, that it contains a mixture of DRAGON'S-blood. Fixed alkalies, quick-lime, calcareous earths, iron, copper, tin, lead, silver, bismuth, and regulus of antimony, have a greater AFFINITY than mercury has to sulphur, and consequently are capable of decomposing *cinnabar*.

The best mineral *cinnabar* is of a high colour, brilliant, and free from stony matter. It is used by physicians in venereal cases, and others occasioned by sharp serosities. It is esteemed a good cephalic, and accounted of service in epilepsies, and other nervous distempers: and is reckoned of efficacy in cutaneous cases, as the scurvy; and used in fumigations, when its vapours penetrate the pores of the skin, and produce similar effects to those which are produced by mercury administered by friction. Care must be taken, however, that the patient be not exposed to breathe the vapours of the mercury and burning sulphur by which he might be injured.

CINNABAR, *factitious*, or *artificial*, is formed of a mixture

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of mercury and sulphur, sublimed, and thus reduced it to a kind of fine red glebe. The best is of a high colour, and full of fibres, like needles.

The method of preparing *factitious CINNABAR* is thus: they take sulphur, one part, melt it in a pipkin; then put to it, by a little at a time, from six to eight parts of quicksilver, stirring them together till no mercury appears: then letting them cool, they grind the mixture, put it in a bolt-head, bake it, and place it over a naked fire, which they augment by degrees; a coloured fume arises first to the top of the subliming vessel, which, in the farther progress of the heat, becomes, at length, of a red, crimson hue. Taking it off the fire, the *cinnabar* is found at top.

Hoffman says, that *cinnabar* may be produced without sublimation, by shaking or digesting a little mercury with volatile tincture of sulphur, by which means the mercury imbibes the sulphur from the volatile spirit, and forms with it a deep red powder, not inferior, in colour to ordinary *cinnabar*.

This serves for the same medicinal purposes with the *native cinnabar*: besides which it is likewise used by the farriers to make pills for their horses; and by painters, as a colour: it being a very vivid red; but drying with some difficulty.

This *cinnabar*, called also by the painters VERMILION, is rendered more beautiful by grinding it with gum-water, and a little saffron to prevent its growing black.

There is likewise a *blue cinnabar*, made by mixing two parts of sulphur with three of quicksilver, and one of *sul ammoniac*: these being sublimed, produce a beautiful blue substance; whereas quicksilver and sulphur alone produce a red.

The chemists prepare other kinds of artificial *cinnabar* as,

CINNABAR of antimony, so called, because its sulphur has been furnished by antimony, is obtained from the decomposition of corrosive sublimate by antimony. These compound substances are mixed together, and distilled: and during the operation, the marine acid of the corrosive sublimate quits the mercury, and combines with the regulus of antimony, forming *butter of ANTIMONY*; and the mercury of the sublimate, disengaged from its marine acid, unites with the sulphur of the antimony disengaged from its regulus: these two substances, thus united, are sublimed in form of *cinnabar*, after the butter of antimony has been distilled. This kind of *cinnabar* contains more sulphur than the *factitious*, and consequently appears of a darker colour.

Mercury revived from *cinnabar* of antimony is greatly to be preferred to that obtained by any other means, both for amalgamating with metals, and for all uses in medicine; for this mercury is perfectly freed and depurated from its metallic, terrene, and heterogeneous particles, by the sulphur of antimony.

The manner of reviving mercury from *cinnabar* of antimony, is variously delivered by different authors; but most of them prefer the use of pot-ashes to any thing else on the occasion. Hoffman, however, who has written expressly on the subject, says, that filings of steel or copper are greatly to be preferred to these salts. In the making *cinnabar* of antimony, it should be sublimed often, in order to render it quite pure, and perfect: and afterwards, when it is to be given internally, it should be powdered extremely fine, since in the common way of giving these medicines grossly ground, they can only exert their operations in the *prima vie*, it being impossible for them ever to reach the lacteals, and thence to be received into the mass of blood. Many ways have been thought of for exalting the virtues of this excellent medicine, such as solution, fixation, and the drawing a tincture from it. Solution in acid menstrua is wholly to be condemned, for it renders it corrosive and dangerous to be taken internally; and the other insipid and ætherial dissolvents which many chemists boast of, are not yet known. The only medicinal preparation that has been contrived of *cinnabar* on this plan, is that by pouring sweet spirit of vitriol on it. This makes only a slight and superficial solution; but the liquor becomes very rich, its virtues far exceeding the *cinnabar* itself, when taken in powder.

Many ways have been attempted to fix *cinnabar*, by means of common salt, oil of sulphur, and oil of vitriol; and Hoffman gives a method of doing this in so perfect a manner, by means of spirit of nitre and oil of vitriol, that the mercury of it will not tinge gold white, and a piece of the *cinnabar* thus fixed being thrown upon burning charcoal, will burn all away, leaving no remainder. Cneselius boasts of a preparation of *cinnabar* of this kind, with which he cured the gout; and by his own account this seems to be the very preparation; and the same preparation has been found an excellent cure for stubborn

quartans,

quartans, mixed with extract of bark, gentian, and salt of wormwood.

The drawing a tincture from *cinnabar* of antimony seems impracticable for many reasons; all that is pretended to be done of this kind being in reality only drawing a tincture from one part, not from the whole of the medicine; and therefore such a tincture cannot be expected to contain all its virtues.

Cinnabar is the best of all correctors of opium; and an excellent preparation of this kind is published by the same author.

Cinnabar is by some much dreaded as a medicine, in all cases of inflammation, hæmorrhages, and the like distemperatures of the body; but Stahl reports from repeated experience, that it is one of the greatest of all medicines in these very cases, nothing more efficaciously quieting the violent emotions of the blood, or supplying so happily the place of opiates; his general prescription in hæmorrhages, head-achs, and other the like affections, being nitre, crab's eyes, and *cinnabar*. Frid. Hoffman Dissert. de Cin. Ant.

It is held a diaphoretic and alterative; and is used in scrophulous, and other chronic cases.

Hoffman recommends it as a sedative and antispasmodic; Stahl makes it an ingredient in his *temperate powder*. Others deny its internal efficacy, and urge that it is unsoluble by any menstruum.

CINNAMOLOGUS, in *Natural History*, among the ancients, the name given to a bird which built its nest either in the cinnamon-tree, or upon rocks and precipices, with the broken branches of that tree. The ancients have a great many idle traditions concerning this bird: some say it is the phoenix; and others, that it is a peculiar species of fowl. The common opinion of the phoenix building its nest of spices, seems to have given birth to all the idle stories that we hear of this bird in Pliny and other credulous authors.

CINNAMON, an agreeable aromatic spice, brought from the East Indies; the whole taste and flavour of which may be extracted by digestion with spirit of wine.

Cinnamon is allowed to be the bark of a tree growing in the island of Ceylon: and, as some say, also in Java and in Malabar. It is a species of the bay; for the characters of which, see *BAV-tree*.

By *cinnamon* is now understood that only produced in Ceylon; that of Java, Sumatra, and Malabar, is called *CASSIA lignea*.

The *cinnamon-tree* grows in woods, like other trees. It never rises high: its leaves resemble those of the laurel, both as to substance and colour. The flowers, when they first begin to open, are red as scarlet; and if rubbed between the hands, they yield an odour more like that of cloves than of *cinnamon*. Seba says he found them blue, and of the bigness of the Italian bean-flower. The fruit resembles an acorn, or olive; and has neither the smell nor taste of the bark. These berries are an excellent carminative, and are much used in medicine. When boiled in water, it yields an oil, which, as it cools and hardens, becomes as firm and white as tallow; and is called by the Dutch *cinnamon wax*. Its smell is agreeable: and they make candles of it, which are only allowed to be burnt in the king's palace. It is also used in physic, as a balsamic, and healer.

The leaves of the *cinnamon-tree* are called *folia Malabathri*, and yield a bitterish aromatic oil, called *oleum Malabathri*, reputed excellent against cephalalgias, &c.—See an account of the *cinnamon-tree*, by Mr. Watson, F. R. S. Phil. Transf. vol. xlvii. an. 1751 N° 46. p. 301. The chief virtue of the *cinnamon-tree* is in its bark; which, when green, appears to be double: its exterior surface being brownish, and the inner of the common *cinnamon* colour.

It is then divisible into two barks of different colours; but these drying together become inseparable, and pass for the same bark: the brownish colour changing in proportion as it dries.

When the *cinnamon* is fresh taken from the tree, it is flat, and has little taste, smell, or colour; but it twists or convolves, as it dries, in form of a stick, or cane; whence the French call it *cannelle*.

By thus exhaling its superfluous humidity, it acquires a sweet brisk smell, and a sharp pungent taste. It is said that after the tree has been stripped of its bark, in three years it forms a new one, which is as good as the first: but this is not very probable. The Ceylonese cut down their *cinnamon-trees*, as soon as they are stripped, close to the root: and from the stump, there spring up new ones, which in five or six years time become trees fit for barking. A sort of pigeons which feed on the fruit of the *cinnamon-tree*, are the chief agents in propagating it. In carrying the fruit to a distance to their young, they

drop it in various places, where it takes root. Vide Phil. Transf. N° 409. p. 104, seq.

Some hold that the small branches of the same tree make the *CASSIA*; but that is a great mistake.

The natives draw from the roots of the tree a liquor, which, as it hardens, in all respects resembles camphor; and which in reality is a true camphor.

Cinnamon, to be good, must have a brisk, agreeable taste, and a bright brown colour. Its qualities are, to heat and dry; to promote the menses, to fortify the spirits, and to help digestion; but its chief use, in medicine, is as an astringent; with which intention it is prescribed in diarrhoeas, and weaknesses of the stomach.

The *cinnamon* of the ancients was different from that of the moderns; they distinguished five kinds of *cinnamon*: the *mosylitic*; *cinnamon of the mountain*; *black and branched cinnamon*; another white and spongy; and a fifth, of less value, reddish and of a strong smell: as also a *bastard cinnamon*, called *zinziber*. This last species was anciently in very high esteem, but it is now no longer known.

They extract an oil from *cinnamon*, called its *essence*, or *quintessence*, which is an excellent cardiac: it is drawn by distillation, like the oils of other vegetables. Indeed, being heavier than most other essential oils, it requires a greater heat to raise it. And for the same reason it sinks to the bottom of the water that comes over with it into the receiver; whereas others swim on the surface; the essential oil of cloves, saffra, guaiacum, and box, excepted. The Dutch are said to have a method of preparing, or rather, adulterating oil of *cinnamon*, which is kept a secret among themselves. And the common *cinnamon* is often adulterated with that out of which this essence has been extracted.

Cinnamon, by means of fire, furnishes, besides its oil, waters, extracts, and salts; out of which are compounded syrups, and pastils, called *oleo-sacchara*: together with an essence, that serves to turn all manner of wines, white and red, into hypocras.

CINNAMON-water is made by distilling the bark (first infused for some days) in spirit of wine, brandy, or white wine.

All the *cinnamon* consumed in Europe comes from the Dutch; who have got the whole commerce thereof in their own hands, by becoming masters of the isle of Ceylon, and destroying all the other *cinnamon-trees* about the kingdom of Cochin.

The Dutch, who are the proprietors of Ceylon, are so jealous of this tree, which affords so valuable an article of their commerce, that the fruit or young plants are forbidden by an order of the states, to be sent from thence, lest other powers might avail themselves of it. But it appears, from Mr. Watson's account above referred to, that this prohibition has not been of very long standing. The Dutch, however, have been fortunate enough hitherto to keep to it themselves.

CINNAMON, *clove*, is also the bark of a tree growing in Brasil and Madagascar; where it is known under the name of *ravensara*. The Portuguese call it *cravo de marenham*.

This bark pulverised, is sometimes substituted for real cloves, though far short of them in respect of flavour. Saffra is sometimes also called *cinnamon-wood*. See **SASSAFRAS**.

CINNAMON, *white*, which some call *costus corticus*, or *corticofus*, or erroneously *cortex Winteri*, *Winter's bark*, from the person's name who first brought it into England, is the bark of a tree, resembling the olive-tree, frequent in the islands of St. Domingo, Guadaloupe, and Madagascar; called by the natives *simpli*.

This bark, which dries like that of *cinnamon*, is at first brownish, of a sharp biting taste, like pepper, and a smell like musk; as it dries it whitens. Some use it in lieu of nutmeg, and in medicine it is used as a stomachic, and sometimes as an antiscorbutic.

The same tree also yields a gum called *alouch*, sometimes *bdellium*, which is no disagreeable perfume. See **WINTERANUS CORTEX** and **WINTERANIA**.

CINNAMUM, the name given by many of the old writers on the materia medica to *cinnamon*.

The Arabian writers, when they treat of *cinnamon*, have three words by which they express it; these are *felicha*, *dafini*, and *kanfe*.

CINNUS, in *Ancient Medicine*, a drink made of the decoction of wheat, to which was added some flour of barley, honey, and wine.

CINQUEFOIL, *Quinquefolium*, or *Potentilla*, in *Botany*, a genus of the *icosandria polyginia* class. Its characters are these: the empalement of the flower is of one leaf, which is slightly cut into ten parts; the segments are alternately less and reflexed. The flower is composed

of five petals, which are inserted into the empalement, and spread open. It hath twenty awl-shaped stamina inserted in the empalement, terminated by moon-shaped summits. In the centre of the flower are several germina collected into one head, with very slender styles inserted in the sides, crowned by obtuse stigmas. After the flower is past, the germina become a head of roundish seeds, included in the empalement.

There are many species of this genus preserved in botanic gardens, for variety, but they are not cultivated in other places either for use or beauty.

The first sort grows naturally upon cold stiff land in most parts of England, and is a sure mark of the sterility of the soil. It spreads its stalks upon the ground, which send out roots from their joints, and thereby propagate so fast as to spread over ground to a great distance: it flowers great part of the summer. It is never cultivated. The leaves of this plant are used in medicine, and are accounted restraining and vulnerary.

The other sorts are natives of different parts of Europe.

CINQUEFOIL, *marsh.* See COMARUM

CINQUEFOIL root, in the *Materia Medica*, the name of a root which is an ingredient in several of the officinal compositions. The plant which produces it is the common *cinquefoil*, which grows every where by way-sides. The root consists of a cortical and ligneous or sticky part, but the cortical only is used. It is esteemed drying and astringent, and antifebrile. Some have given it in agues, in as large doses as the cortex, and have cured with it. It stops fluxes of the bowels, and is good in disorders of the lungs, and in the *fluor albus*, and gonorrhœas, either in men or women. It is, however, very little regarded in the present practice. See Phil. Trans. vol. xlix. part ii. p. 835.

CINQUE PORTS, *Quinque portus*, five havens that lie on the East part of England, toward France; thus called by way of eminence, on account of their superior importance; as having been thought by our kings to merit a particular regard for their preservation against invasions.

Hence, they have a particular policy, and are governed by a keeper, with the title of *lord warden of the cinque-ports*; which office belongs to the constable of Dover: and their representatives are called barons of the *cinque-ports*.

They have various privileges granted them, as a particular jurisdiction; their warden having the authority of an admiral among them, and sending out writs in his own name: and the king's writs do not run there.

Camden tells us, that William the Conqueror first appointed a warden of the *cinque-ports*; but king John first granted them their privileges: and that upon condition they should provide eighty ships at their own charge, for forty days, as often as the king should have occasion in the wars, he being then strengthened for a navy to recover Normandy.

There are also several towns adjoining, to which the privileges of the *cinque-ports* extend.

There are several courts belonging to these ports; one before the lord-warden; others within the ports themselves, before the mayor and jurats; another which is called *curia Quinque Portuum apud Shepway*: a writ of error lies from the mayor and jurats of each port to the lord warden, in his court of Shepway; and from this court to the king's bench: and a writ of error lies from all the other jurisdictions to the same supreme court of judicature, in token of the superiority of the crown when these franchises were created. All prerogative writs as those of *habeas corpus*, prohibition, *certiorari*, and *mandamus*, may likewise issue to all these jurisdictions. They have likewise a court of chancery, to decide matters of equity, but no original writ issues thence.

These five ports are, Hastings, Romney, Hythe, Dover, and Sandwich; to which Winchelsea and Rye have been since added.—Thorn tells us, that Hastings provided twenty-one vessels, and in each vessel twenty-one men. To this port belong Seaford, Pevensey, Hedney, Winchelsea, Rye, Hamine, Wakebourn, Creneth, and Forthcliffe.—Romney provided five ships, and in each twenty-four men. To this belong Bromhal, Lyde, Oswastone, Dangemares, and Romenhal.—Hythe furnished five ships, and in each twenty-one seamen. To this belongs Westmeath.—Dover the same number as Hastings. To this belong Folkestone, Feversham, and Margate.—Lastly, Sandwich furnished the same with Hythe. To this belong Fordiwic, Reculver, Serre, and Deal.

CINQUE-PORT *net.* See NET.

CINTRE, in *Building*, the mould in which an arch is turned: popularly called *centre*, sometimes also *cradle*.

CINYRA, in the Jewish *Antiquities*, a musical instrument.

This and the Hebrew *cinnor*, which is generally translated *cithara*, *lyra*, or *psalterium*, are the same. It was made of wood, and was played on in the temple of Jerusalem. Josephus says, that the *cinyra* of the temple had ten strings, and that it was touched with a bow. In another place he says that Solomon made a great number of them with a precious kind of metal called *electrum*, wherein he contradicts the Scripture, which informs us that Solomon's *cinnors* were of wood.

CION, or CYON, in *Gardening*, a young shoot, sprout, or sprig, put forth by a tree.

Grafting is performed by the application of the *cion* of one plant upon the stock of another.

To produce a stock of *cions* for grafting, planting, &c. the gardeners sometimes cut off the bodies of trees, a little above the ground, and only leave a stump or root standing; in this case the redundant sap will not fail next spring to put forth a great number of shoots.

In dressing DWARF-trees, a great many *cions* are to be cut off. See PRUNING.

CION, in *Anatomy*, is sometimes used for the UVULA.

CIONES, in *Antiquity*, a kind of idols very common, being only oblong stones erected pillar-wise: whence also they had their name.

CIPHER, or CYPHER, one of the numeral characters, or figures: formed thus 0.

The word *cipher* comes from the Hebrew ספּר *saphar*, to number.

The *cipher* of itself implies a privation of value; but when disposed with other characters on the left thereof, in the common arithmetic, it serves to augment each of their values by ten; and in decimal arithmetic, to lessen the value of each figure to the right thereof, in the same proportion.

CIPHER denotes also a kind of enigmatic character, composed of several letters interwoven; which are ordinarily the initial letters of the persons names, for whom the *cipher* is intended.

These are frequently used on seals, coaches, and other moveables. Anciently merchants and tradesmen were not allowed to bear arms: in lieu thereof they bore their *ciphers*, or the initial letters of their names, artfully interwoven about a cross; of which we have divers instances on tombs, &c.

CIPHER is also applied to certain secret characters, disguised and varied; used for the writing of letters that contain secrets not to be understood by any but those between whom the *cipher* is agreed on. This is now reduced into a separate art, called *cryptographia*, *polygraphia*, and *steganographia*; but it appears to have been little known to the ancients.

De la Guilletiere, in his *Lacedæmon Ancient and Modern*, endeavours to make the ancient Spartans the inventors of the art of writing in *cipher*.

Their scytala, according to him, was the first sketch of this mysterious art; these scytalæ were two rollers of wood, of equal length and thickness; one of them kept by the ephori, the other by the general of the army sent on any expedition against the enemy.

Whensoever those magistrates would send any secret orders to the general, they took a slip of parchment, and rolled it very justly about the scytala which they had reserved; and in this state wrote their intentions, which appeared perfect and consistent while the parchment continued on the roller: when taken off, the writing was maimed, and without connexion: but it was easily retrieved by the general, upon his applying it to his scytala. Polybius says, that Æneas Tacticus, two thousand years ago, collected together twenty different manners of writing, so as not to be understood by any but those in the secret; part whereof were invented by himself, and part used before his time. Trithemius, Bap. Porta, Vigenere, and P. Nicéron, have written expressly on the subject of *ciphers*.

As the writing in *cipher* is become an art; so is the reading, or unravelling thereof, which is called *deciphering*. See DECIPHERING.

CIPHER with a *single key*, is that wherein the same character is constantly used to express the same word, or letter; this is easily deciphered with a little application.

CIPHER with a *double key*, is that wherein the alphabet, or key is changed in each line, or in each word; and wherein are inserted many characters of no significancy, to amuse and perplex the meaning.

CIPHERING, or CYPHERING, is popularly used for the art of accompting; properly called *arithmetic*.

CIPPUS, among *Antiquaries*, a little low column, erected in roads, or other places; with an inscription thereon; either to shew the way to travellers, to serve as a boundary, or preserve the memory of something remarkable, and particularly the grave of a defunct.

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The *cippi* placed in the highway, for the convenience of travellers, were more properly called *miliary columns*. Hottinger has an express treatise of the *cippi* of the Jews, *De cippis Hebræorum*; wherein he takes *cippus* for the tomb-stone of a defunct.

CIPPUS was also used in antiquity for a wooden instrument wherewith criminals and slaves were punished; being a kind of clog, or stocks for the feet.

CIRCADA, a tribute anciently paid to the bishop or archdeacon, for visiting the churches.

CIRCÆA, in *Botany*. See *Enchanter's NIGHT shade*.

CIRCEA. See **CIRCÆA**.

The name *circea* is given by some to the mandrake, or common mandragora.

CIRCELLIONES. See **AGONISTICI**.

CIRCENSES, *ludi*, **CIRCENSIAN games**, or *games of the CIRCUS*, a general term under which were comprehended all combats exhibited in the Roman *circus*, of what kind soever; whether on foot or horseback, or in a car; wrestling, or boxing; with swords, pikes, darts, or arrows; against men, or against beasts; on the ground, or aboard vessels.

There were few except slaves that gave the people this cruel pleasure: it was an exercise that would have disgraced people of any account. See the article **GLADIATORS**.

Some say the *Circensian games* were so called from the Latin *circumenses*; because they were held in a place encompassed round with naked swords, that the combatants might not have an opportunity of escaping.

At first they are said to have been exhibited on the brink of the river Tyber, and the ground encompassed toward the land with naked swords.

Most of the feasts of the Romans were accompanied with *Circensian games*; and the magistrates, or other officers of the republic, frequently presented the people with them on other occasions.—The grand ones were held for five days, commencing on the 15th of September.

CIRCERELLUS, in *Ichthyology*, a name used by some authors for a fish usually called **AMMODYTES**, or the *sand-eel*.

CIRCINALEA Folia. See **LEAF**.

CIRCINNALIS, in *Botany*, a name given by some authors to the **ADIANTHUM**, or *maiden-hair*.

CIRCITOR, in *Ancient Military Discipline*, one whose business it was to go the **ROUNDS**.

CIRCITOR is also used to signify a hawker, or pedlar, who goes about from place to place to vend his goods.

CIRCIUM, a genus of plants according to Tournefort; but comprehended by Linnæus under the *carduus*. See **THISTLE**.

CIRCLE, **CIRCULUS**, in *Geometry*, a plane figure, comprehended under one single line, which returns into itself, having a point in the middle, from which all the lines drawn to its circumference are equal.

Properly speaking, it is the space included within the circumference, or periphery, that is the *circle*: though in the popular use of the word, *circle* is frequently used for the periphery alone. See the article **CIRCUMFERENCE**.

The area of a *circle* is found by multiplying the periphery by the fourth part of the diameter; or half the periphery by half the diameter.—The area is also had by finding a fourth proportional to 1,000,785, and the square of the diameter: or, to 452,355, or to 14, 11, and the square of the diameter. See **DIAMETER**.

Circles, and similar figures inscribed in them, are always as the squares of the diameters: so that they are in a duplicate ratio of their diameters; and therefore of their radii.

A *circle* is equal to a triangle whose base is equal to the periphery, and its altitude to the radius. *Circles*, therefore, are in a ratio compounded of the peripheries and the radii: but they are also in the duplicate ratio of their radii; therefore the peripheries are to each other as the radii.

To find the proportion of the diameter of a **CIRCLE** to its periphery. See **DIAMETER**.

To circumscribe a **CIRCLE** about a given regular polygon: bisect two of the angles of the polygon E and D (*Tab. Geom. fig. 28.*) by the lines EF and DF; and on the point of concurrence F, as on a centre, with the radius EF, describe a *circle*. See **CIRCUMSCRIBING**.

To describe any given regular polygon in a **CIRCLE**: divide 360 by the number of sides, to find the quantity of the angle EFD; which being made in the centre, apply the chord ED to the periphery, as often as it will go: thus is the figure inscribed in the *circle*.

Through three given points, not in a right line. A, B, C, *fig. 7.* to describe a **CIRCLE**. On A and C strike arches intersecting in D and E; and others G and H, from C and B; draw the right lines DE and HG: the point of inter-

section, I, is the centre of the *circle*. Hence, 1st, by assuming three points of the periphery, or the arch of any *circle*, the centre may be found, and the given arch be perfected.

2^{dly}, If three points of any periphery agree, or coincide with three points of another; the whole peripheries agree, and the *circles* are equal.

3^{dly}, Every triangle may be inscribed in a *circle*.

In *Optics*, it is shewn, that a *circle* never appears truly such, unless either the eye be directed perpendicularly to its centre; or the distance of the eye from the centre, when directed obliquely, be equal to the semidiameter of the *circle*: in every other case, the *circle* appears oblong; and to make a *circle* that shall appear such, it must be oblong.

CIRCLES, *parallel* or *concentric*, are such as are equally distant from each other in every point of their peripheries; or are described from the same centre: as, on the contrary, those struck from different centres are said to be *eccentric*.

CIRCLE, the *quadrature of the*, or the manner of making a square, whose surface is perfectly and geometrically equal to that of a *circle*, is a problem that has employed the geometricians of all ages. See the article **QUADRATURE**.

Many maintain it to be impossible: Des Cartes, in particular, insists on it, that a right line, and a *circle*, being of different natures, there can be no strict proportion between them: and, indeed, we are likewise at a loss for the just proportion between the diameter and circumference of a *circle*.

Archimedes is the person who has come the nearest to the quadrature of the *circle*: all the rest have made paralogisms. Charles V. offered a reward of 100,000 crowns to the person who should solve this celebrated problem; and the states of Holland have also proposed a reward for the same.

CIRCLES of the higher kinds, are curves wherein $AP^m : PM^m :: PM : PB$, or, $AP^m : PM^m :: PM^n : PB^n$. *Tab. Analysis, fig. 26. Cor. I.* Suppose $AP = x$, $PM = y$, $AB = a$: then will $PB = a - x$. And consequently $x^m : y^m :: y : a - x$. Hence we have an equation that defines in-

finite circles, viz. $y^{m+1} = ax - x^{m+1}$; and another defining infinite other circles, viz. $y = a - x^{\frac{1}{n}}$.

Cor. II. If $m = 1$, then will $y^2 = ax - x^2$; and therefore a *circle* of the first order is contained under this equation alone. If $m = 2$, $y^3 = ax^2 - x^3$, which equation defines a *circle* of the second order.

CIRCLE of curvature, in *Geometry*, that *circle* the **CURVATURE** of which is equal to that of any curve at a certain point.

It is also called the *circle* of equi-curvature.

CIRCLES of the sphere, are such as cut the mundane sphere and have their periphery either on its moveable surface, or in another immoveable, conterminous, and equidistant surface.

Hence arise two kinds of *circles*, *moveable* and *immoveable*. The first are those whose peripheries are in the moveable surface, and which therefore revolve with its diurnal motion; as the *meridians*, &c.

The latter, having their periphery in the immoveable surface, do not revolve; as the *ecliptic*, *equator*, and its *parallels*, &c.

If a sphere be cut in any manner, the plane of the section will be a *circle*, whose centre is in the diameter of the sphere.

Hence the diameter of a *circle* passing through the centre, being equal to that of the *circle* which generated the sphere; and that of a *circle* which does not pass through the centre, being only equal to some chord of the generating *circle*; the diameter being the greatest of all chords; there hence arises another division of the *circles* of the sphere, viz. into *great* and *lesser*.

CIRCLE, great, of the sphere, is that which divides it into two equal parts, or hemispheres; having its centre in the centre thereof.

Hence all *great circles* are equal, and cut each other into equal portions, or semicircles.

The *great circles* are the *horizon*, *meridian*, *equator*, *ecliptic*, the *colures*, and the *azimuths*; which see in their places.

CIRCLE, lesser, of a sphere, is that which divides the sphere into two unequal parts, and has its centre in the axis of the sphere, but not in the centre thereof.

These are usually denominated from the *great circles* they are parallel to; as *parallels of the equator*, &c.

CIRCLES of altitude, otherwise called *almucantars*, are *circles* parallel to the horizon, having their common pole in the zenith, and still diminishing as they approach the zenith. They have their names from their use; which is to shew the altitude of a star above the horizon.

Some

Some have suspected a variation in the apparent solstitial altitudes of the sun. Something of this kind was perceived by M. Cassini in 1655, by means of the great gnomon in the church of St. Petronius at Bologna; which was farther confirmed by other observations at the royal observatory at Paris. The variation observed by M. Cassini, during the course of twenty-two years, only amounted to a few seconds. And by comparing the observation made by Pytheas at Marseilles three hundred years before Christ, with another made by Cassini in 1672 at the same place, it appears, that in two thousand years time, this difference of altitude has only amounted to a few minutes. V. Mem. Acad. Scienc. 1693. p. 180, seq. See ECLIPTIC.

The altitude of the sun, it is said, may be found to a few seconds, with an instrument of three feet radius. But this is rarely found in fact. A French engineer, M. Hautefeuille, has proposed a new instrument, whereby he pretends to take altitudes even to thirds.

To find the sun's altitude by the globe, see the article GLOBE.

CIRCLES of declination, are great circles intersecting each other in the poles of the world.

CIRCLE of dissipation, in Optics. See the article DISSIPATION.

CIRCLES diurnal, are immoveable circles, supposed to be described by the several stars, and other points of the heavens, in their diurnal rotation round the earth; or rather, in the rotation of the earth round its axis.

Thus if a right-line be conceived to be continued from the centre of a star, perpendicular to the axis of the world, as far as the surface of the sphere of the world, it will describe a diurnal circle for it, in making one revolution about its axis.

The diurnal circles are all unequal: the equator is the greatest.

CIRCLE equant, in the Ptolemaic Astronomy, is a circle described on the centre of the equant.

Its chief use is, to find the variation of the first inequality.

CIRCLES of excursion, are circles parallel to the ecliptic, and at such a distance from it, as that the excursions of the planets towards the poles of the ecliptic, may be included within them; usually fixed at 10 degrees.

It may here be added, that all the circles of the sphere above described, are transferred from the heavens to the earth: and thence come to have a place in geography, as well as in astronomy: all the points of each circle being conceived to be let fall perpendicularly on the surface of the terrestrial globe, and so trace out circles perfectly similar to them.

Thus, the terrestrial equator is a line, conceived precisely under the equinoctial line, which is in the heavens; and so of the rest.

CIRCLES, horary, in Dialling, are the lines which shew the hours on dials; though these be not drawn circular, but nearly straight.

CIRCLE, horary, on the globe, a brazen circle fixed to the north pole, and furnished with an index, shewing the difference of meridians, and serving for the solution of many problems. The usual position of this circle prevents the brass meridian from moving quite round in the horizon; so that globes of the common sort cannot be applied to the solution of many problems. Mr. Harris contrived to remedy this inconvenience, by placing two horary circles under the meridian, one at each pole: these are fixed tight between two brass collars, placed about the axis, but so that they may be easily turned by the hand when the globe is at rest: and when the globe is turned, they are carried round with it, the meridian serving as an index to mark out the horary division. The globe, thus prepared, will serve for solving problems in all latitudes, as well as in places near the equator. Philosophical Transactions abridged vol. viii. p. 352. See GLOBE.

CIRCLE of illumination, is that imaginary circle on the surface of the earth, which is formed by a plane passing through the centre of the earth, so that the line which joins the centres of the sun and earth may be perpendicular to it, and which separates the illuminated hemisphere of the earth from the dark. This Mr. Keil calls the illuminated disc of the earth: and all lines passing from the sun to the earth, which are physically parallel, are perpendicular to the plane of this circle.

CIRCLES of latitude, or secondaries of the ecliptic, are great circles perpendicular to the plane of the ecliptic, passing through the poles thereof, and through every star and planet.

They are so called, because they serve to measure the latitude of the stars, which is nothing but an arch of one of these circles, intercepted between the star and the ecliptic. See SECONDARY circles.

CIRCLES of longitude, are several lesser circles, parallel to the ecliptic; still diminishing, in proportion as they recede from it.

On the arches of these circles, the longitude of the stars is reckoned.

CIRCLE of perpetual apparition, one of the lesser circles parallel to the equator; described by any point of the sphere touching the northern points of the horizon, and carried about with the diurnal motion.

All the stars included within this circle never set, but are ever visible above the horizon.

CIRCLE of perpetual occultation, is another circle at a like distance from the equator, described by the southern point of the horizon; and contains all those stars which never appear in our hemisphere.

The stars situate between these circles alternately rise and set at certain times.

CIRCLES, polar, are immoveable circles, parallel to the equator, and at a distance from the poles equal to the greatest declination of the ecliptic.

That next the northern pole is called the arctic; and that next the southern one the antarctic.

CIRCLES of position, are circles passing through the common intersections of the horizon and meridian, and through any degree of the ecliptic, or the centre of any star, or other point in the heavens: used for finding out the situation or position of any star.

They are usually made six in number; and cut the equator into twelve equal parts, which the astrologers call the celestial houses. Hence some call them circles of the celestial houses.

CIRCLE antarctic. See ANTARCTIC.

CIRCLE, arch of a. See ARCH.

CIRCLE, arctic. See ARCTIC.

CIRCLE, axis of a. See AXIS.

CIRCLE, centre of a. See CENTRE.

CIRCLE, eccentric. See ECCENTRIC.

CIRCLE, equal. See EQUAL.

CIRCLE fairy. See FAIRY.

CIRCLE, right. See RIGHT.

CIRCLES secondary. See SECONDARY.

CIRCLE, segment of a. See SEGMENT.

CIRCLES, vertical, or azimuths. See VERTICAL and AZIMUTH.

CIRCLE, in Logic, that fault of an argument that supposes the principle it should prove, and afterwards proves the principle by the thing it seemed to have proved.

Or a circle in logic, called also syllogistic circle, is when the same terms are proved, *in orbem*, by the same terms; and the parts of the syllogism, alternately, by each other both directly and indirectly.

Thus the papists argue, when they prove the Scriptures to be the word of God by the infallible testimony of their church, and the authority of the church by the Scripture.

There are two kinds of circles; the one material, the other formal.

The formal is that which in two reciprocal syllogisms begs the medium, which is the next cause of the greater extreme. This kind is by no means to be admitted; otherwise, the same thing becomes both prior, and posterior; the cause and effect of itself; which is absurd.

The material circle, called also regressus, consists of two syllogisms, the former whereof proves the cause by the effect; and the latter the effect by the cause: this may be admitted.

CIRCLE, CIRCULUS, is understood among the schoolmen of a vicissitude of generations, arising one out of another.

Thus, good concoction causes a good habit of body; a good habit of body produces strength and vigour; these occasion frequent exercises; and these a good concoction.

It is a celebrated dogma of the Scotists, "There is no circle in causes of the same order or kind."

CIRCLES of the empire, are such provinces and principalities of the empire, as have a right to be present at DIETS.

The division of the empire into six circles was established by Maximilian I. in 1500, at Augsburg; twelve years afterwards he divided it afresh, into ten circles; which partition was confirmed by Charles V. at the diet of Nuremberg, in 1522.

Though the order of these circles has never been well regulated; yet in the imperial matricula, it is as follows: the circle of Austria, that of Burgundy, of the Lower Rhine, of Bavaria, upper Saxony, Franconia, Suabia, Upper Rhine, Westphalia, and the Lower Saxony.

CIRCOLO mezzo, in the Italian Music, is a diminution of four quavers or semiquavers, or notes of equal value, which represent a semicircle proceeding by conjoint degrees.

CIRCUIT, or **CIRCUITY**, in *Law*, a longer course of proceeding, to recover the thing sued for, than is needful. Thus, if a man grant a rent-charge of 10*l.* out of his manor, and after, the grantee disseiseth the grantor of the same manor, who brings an *ASSISE*, and recovers the land, and 20*l.* damages; which being paid, the grantee brings his action for 10*l.* of his rent, due during the time of the disseisin, and which he must have had, if no disseisin had been: this is called *circuit of action*; because, whereas the grantor was to receive 20*l.* damages, and to pay 10*l.* rent, he might have received but 10*l.* for damages, and the grantee have kept the other.

CIRCUIT is also the journey, or progress the *JUDGES* take, twice every year, through the several counties of England and Wales, to hold courts, and administer justice, where recourse cannot so well be had to the king's courts at Westminster.

These were first established, with some little difference, by Henry II. and afterwards expressly ordained by *Magna Charta*.

England is divided into six *circuits*; viz. the Home *circuit*, Norfolk *circuit*, Midland *circuit*, Oxford *circuit*, Western *circuit*, and Northern *circuit*. Two judges are appointed to each *circuit*. In Wales there are two *circuits*, North and South Wales.

There are three *circuits* in Scotland, viz. South, West, and North, which the *lords of justiciary* go twice a year, viz. in May and October. See *JUSTICIARY*.

CIRCUIT, *electrical*, denotes the course of the electric fluid from the charged surface of an electric body, to the opposite surface into which the discharge is made. Some of the first electricians apprehended, that the same particles of the electric fluid, which were thrown on one side of the charged glass, actually made the whole *circuit* of the intervening conductors, and arrived at the opposite side, whereas Dr. Franklin's theory only requires, that the redundancy of electric matter on the charged surface should pass into the bodies, which form that part of the *circuit* which is contiguous to it, driving forward that part of the fluid which they naturally possess, and that the deficiency of the exhausted surface should be supplied by the neighbouring conductors, which form the last part of the *circuit*. On this supposition, a vibrating motion is successively communicated through the whole length of the *circuit*. This *circuit* is always formed of the best conductors, let the length of it be ever so great. Many attempts were made both in France and England, at an early period in the history of electricity, to ascertain the distance to which the electric shock might be carried, and the velocity of its motion. The French philosophers, at different times, made it to pass through a *circuit* of 900 toises, and of 2000 toises, or about two English miles and a half; and they discharged the Leyden phial through a basin of water, the surface of which was about an acre. And M. Monnier found, that, in passing through an iron wire of 950 toises in length, it did not spend a quarter of a second; and that its motion was instantaneous through a wire of 1319 feet. In 1747, Dr. Watson, and other English philosophers, after many experiments of a similar kind, conveyed the electric matter through a *circuit* of four miles; and they concluded from this and another trial, that its velocity is instantaneous. Priestley's *Hist. of Electricity*, vol. i. sect. 2. p. 128. 8vo. ed. 1775. See *ELECTRICAL shock*.

CIRCUITORIES. See *AGONISTIC*.

CIRCULAR, any thing that is described, or moved in a round; as the circumference of a *CIRCLE*, or the surface of a globe.

The *circular* form is of all others the best disposed for motion: and the most capacious.

The modern astronomers shew, that the heavenly bodies do not move in *circular*, but in elliptic *ORBITS*. See *PLANET*, &c.

CIRCULAR arches. See *ARCH*.

CIRCULAR letter, a letter directed to several persons, who have the same interest in some common affair: as in the convocation of assemblies, &c.

CIRCULAR lines, an appellation given by some to such straight lines as are divided from the divisions made in the arch of a circle. Such are *SINES*, *TANGENTS*, *SECANTS*, &c.

CIRCULAR numbers, are such whose powers end in the roots themselves; as 5, whose square is 25, and cube 125. See *NUMBER*.

CIRCULAR parts, *Neper's*, are the complements of the two oblique angles of a right angled spherical triangle, the complement of the hypotenuse, and the two legs, by having any two of which the third is known. See *PART*, *TRIANGLE* and *TRIGONOMETRY*.

CIRCULAR sailing, is that performed in the arch of a great circle.

Circular sailing, of all others, goes the nearest or shortest

way: and yet there are such advantages in *SAILING* by rhumbs, that this latter is generally preferred.

CIRCULAR spots are made on pieces of metal by large electrical explosions. See experiments and observations upon them, in Dr. Priestley's *Hist. of Electricity*, vol. ii. sect. 9. ed. 8vo. and *Phil. Trans.* vol. lviii. p. 68.

These beautiful spots produced by the moderate charge of a large *BATTERY*, discharged between two smooth surfaces of metals, or semi-metals, lying at a small distance from each other, consist of one central spot, and several concentric circles, which are more or less distinct, and more or fewer in number, as the metal upon which they are marked is more easy or difficult of fusion, and as a greater or less force is employed. They are composed of dots or cavities, which indicate a real fusion. If the explosion of a battery, issuing from a pointed body, be repeatedly taken on the plain surface of a piece of metal near the point, or be received from the surface on a point, the metal will be marked with a spot, consisting of all the prismatic colours disposed in circles, and formed of the scales of the metal separated by the force of the explosion. See *COLOURS*.

CIRCULAR winding stairs. See *STAIRS*.

CIRCULAR segment, resistance of a. See *RESISTANCE*.

CIRCULAR velocity, a term in *Astronomy*, signifying the velocity of a planet, or revolving body, which is measured by the arch of a circle: as suppose by A B (*Tab. Astronomy*, fig. 10.) described on the centre of attraction S.

The *circular velocity* of a body moving from B to C, is measured by the arch B C.

CIRCULATING Decimals. See *REPETEND*.

CIRCULATION, the act of moving round, or in a circle. We say the *circulation* of the blood; the *circulation* of the sap; of the spirits, &c.

As in the great world we find a perpetual and orderly *circulation* of waters, conveyed from the sea by subterraneous passages, springs, &c. and returned thither again by rivers, &c. so in the little world, man, a like circuit is observed; the blood being continually driven from the heart, by the arteries, to all parts of the body; and brought back again to the heart by the veins.

CIRCULATION of the blood. See *BLOOD*.

CIRCULATION of the sap, is a natural motion of the nutritious juice of plants, supposed to be conveyed from the root to the extreme parts, and thence back again to the root.

The experiments of several naturalists and gardeners, seem to prove a *circulation* in the body of plants, by veins and arteries, analogous to that in animals.

M. Perrault started the *circulation* of the sap in France, and proposed it, in 1667, to the Royal Academy; though M. Major, a physician of Hamburgh, had published it, unknown to M. Perrault, two years before. A year and a half afterwards, M. Mariotte proposed the same to the academy as a new thing; not knowing that M. Perrault had been before-hand with him; and the great Malpighi appears to have entertained the same thought about the same time.

The opinion, however, was not universally received: some of the ablest botanists; and particularly M. Dodart, protested openly against it.

That author allows of a juice mounting from the root to the extremities of the branches; and of another descending from those extremities to the root: the first imbibed from the soil, and digested in the root, for the nourishment of the plant; the second received from the moist parts of the air, at the extremities of the branches. The rising and descending juices, therefore, according to him, are not the same; or that which rises, never descends, and reciprocally; i. e. there is no *circulation*.

Dr. Tong, in the *Philosophical Transactions*, maintains, that the sap always rises, and never properly descends: having only a subsiding, or recidivation, which he can by no means call a *circulation*.

Mr. Switzer owns himself at a loss for the method where, in a *circulation* should be effected; as well as for the parity of reason commonly urged for a *circulation* of the sap, and of the blood. In animals, he observes the degree of growth, or extension, is but very small: so that the blood, not being employed in any other service, may be easily supposed to circulate: but trees growing to an unlimited tallness, it is probable, the great effort of nature is employed in extending them that way; and that the nutritious juice only ascends. He adds, that, as to the swelling or extension of trees in bulk, it evidently arises from the effusion of the sap from the heart of the tree through the pores; which dilates the whole insensibly, by accumulating circle on circle; which are annual gradations easily observed upon cutting a branch, or trunk, across.

On the other hand it is urged in favour of a *circulation*, that the same experiments of ligature, and incision, which

which evince a *circulation* in animals, have been made in plants; particularly in such as abound in sap; as the sparges, &c. and with the same success; the part between the ligature and the root swelling very considerably, and the other much less.

The ligatures are to be made with metalline rings. Dr. Lister gives us an instance, in the cataputia minor, where the ligature being only a filken thread, tied as hard as possible without breaking the skin; no greater swelling arose on one side the ligature than on the other.

Mr. Lawrence gives us a supposed demonstration of the *circulation* of the sap, from an experiment on the yellow-striped jessamine.—Upon a branch of a plain jessamine, whose stem spreads itself in two or three branches, inoculate a bud of the yellow-striped jessamine, as in autumn; as the tree comes to shoot, the following summer, some of the leaves will be found tinged here and there with yellow, and this even on the branches not inoculated; till, by degrees, the whole tree, even the very wood of the young branches, will be all variegated, or striped with green and yellow.

Mr. Fairchild confirms this experiment, by a similar one of his own; having inoculated a yellow-spotted jessamine-tree, into another jessamine-tree, he found, that though the bough did not take, yet, in a fortnight's time, yellow spots began to appear on a shoot which came out of the ground from another part of the plant. But this only proves the recess of the sap, as Dr. Hales observed.

Blair is of opinion, that there are certain parts of plants which have their peculiar juices, and maintain a *circulation* in themselves, independent of the rest of the plant. The fleshy and thick roots of some plants, and the fruits of others are of this number of peculiar parts. This is analogous to what we see in some parts of animal bodies also. On this scheme, the bark, the wood, and the pith of a tree, may be compared to the bones, the skin, and the marrow of animals: while the nourishment is sent in abundance to one part of these, it is allowed more sparingly to the rest. Thus while a young tree shoots out its tender boughs in spring, the juice ascends upward to them from the root; but when these have acquired their due length, the motion of the sap is determined upward with less violence, and the bark and wood are nourished and increased by it. This is the reason why in spring trees grow in height, and in autumn increase in thickness.

As to the manner of the *circulation*, Malpighi, Grew, &c. by means of microscopes, have discovered, that the wood of plants consist of fine capillary tubes, which run parallel from the root, through the trunk, and may be looked on as arteries; and on the outside of these, betwixt the wood and the inner bark, are other large tubes to do the office of veins.

Now, the root having imbibed a stock of juice from the earth, that juice will be put in motion by the heat; that is, it will be rarefied, and made to ascend in form of a steam, or vapour; meeting, therefore, with the open mouths of the arterial vessels, it will pass through the same to the top and extreme parts of the tree, with a force answerable to the heat by which it is put in motion: when it is there arrived, meeting with the cold of the external air, it is condensed into a liquor; and in that form returns, by its own weight, towards the root through the venal vessels above mentioned.

The ingenious Dr. Hales has clearly shewn, by a variety of experiments and observations, that there is no *circulation* in vegetables analogous to that of the blood in animals. The motion of the sap is solely occasioned by the strong attraction of the capillary sap-vessels, assisted by the vibrations resulting from the warmth of the sun; in consequence of which the sap is carried up to the top of the tallest trees, and perspired off through the leaves. The ascent of the sap is principally promoted by the plentiful perspiration of the leaves; and this power, he observes, does not seem well adapted to make the sap descend from the tops of vegetables, by different vessels, to the root. He allows, indeed, that the sap has an alternate, progressive, and receding motion, occasioned by the interchanges of day and night, warmth and cold, moisture and dryness. That the sap does not descend between the bark and wood, he concludes from the experiment of taking off the bark of a tree, about three or four inches in breadth quite round; the consequence of which will be that the bleeding of the tree above this part will much abate; whereas it ought to have the contrary effect, by intercepting the course of the reflux sap, if it descended by the bark. But this experiment confirms the opinion which he has adopted, that the sap ascends between the bark and the wood, by the vigorous operation of the perspiring leaves, and attracting capillaries. It is likewise alledged, that sea-plants have no

longitudinal capillary sap-vessels, but that their whole substance is composed of vesicles, receiving their nourishment immediately from the surrounding water; so that *circulation* is not necessary in order to vegetation. M. Mustel has farther confirmed this opinion. Having placed several shrubs in pots near the windows of his hot-house, some within, and some on the outside, he contrived to convey a single branch of each through holes in the glass; those whose trunks were in the open air had a branch in the hot-house, and those within the house had a branch exposed to the open air. The consequence of this disposition was, that the branches within the hot-house very soon began to disclose their buds, and to put forth leaves, shoots, and flowers. Some of the external branches were killed by the intense cold; nor was there visible the least sign of vegetation: and yet the branches, within the houses, were not in the least affected by the chilled state of their trunks. Those trees, on the contrary, that were within the house, vegetated, and their branches were covered with leaves and flowers, whilst the single branch that was conveyed to the outside was in the same state with those that grew abroad, and derived no advantage from the heat to which the trunks and other branches were exposed. From these curious and decisive experiments, M. Mustel infers, that there is no regular or general *circulation* of the sap in trees between the trunk and the branches; and that each part of a tree is furnished with a quantity of sap, independent of any supply from the trunk or other branches, sufficient to effect the first production of buds, flowers, and fruits, provided that the juices are put into motion by heat. See on this subject Hales's Statical Essays, vol. i. chap. 4. and vol. ii. Appendix, Observation 7, and Phil. Trans. vol. lxiii. part i. art. 15. p. 126, et seq. See PERSPIRATION, PLANTS, and VEGETATION.

CIRCULATION of the spirits, or nervous juice. That the spirits circulate, is evinced, in the same manner as some authors choose to prove the *circulation* of the blood, viz. that as the heart drives out, every hour, three or four thousand ounces of blood; whereas ordinarily, there is not above two thousand in the whole body; there is a necessity for the blood, driven out, to return to the heart, in order to supply a fund to be expelled.

In like manner it is shewn, that there is formed, each hour, a large quantity of spirits, which are nothing but the more subtil parts of the blood driven out from the heart; whence it is inferred, that these too must circulate.

The course they are supposed to take, is this. The most subtil parts of the arterial blood, being carried from the heart to the brain by the carotid arteries, are thrown violently into the fine net-work wherewith the bottom of the ventricles of the brain is lined; whence the more delicate parts are driven into the mouths of the choroid arteries, where they continue their rapid motion, and discharge themselves at the pores where those vessels terminate around the pineal gland.

Hence they enter that gland, and there form a constant spring of spirits; which, being here purified, enter the cavities of the brain; and insinuating into the pores of its substance, flow into the lymphatics; whence they are carried to the heart by two ways; those from the upper parts by the subclavian veins, and the adjacent vessels; those from the lower, being discharged into Pecquet's reservoir, proceed by the thoracic duct, and at last, by the descending veins, to the heart; whence they begin their course afresh. See ANIMAL spirits.

CIRCULATION, subterranean. Dr. Plott is one of the many authors who have argued for a subterranean *circulation* of water, by means of which many springs and rivers are supplied with that water which they give again to the sea. It is, probable, indeed, that many of the smaller springs are supplied by rains, only where the country and situation are favourable: but the larger rivers, and the springs which supply them, must have their origin from such a subterranean *circulation*, since all the water, that falls in a year in the whole earth, is not one five hundredth part the quantity of that discharged into the sea at the mouths of rivers, as appears by careful and moderate calculations. There are some springs which ebb and flow with the sea: these cannot be doubted as to their origin, which is evidently from that body of water whose motions they are influenced by. Nor is the case much less clear in regard to those lakes which have salt water and sea-fish in them, and yet have no communication with any sea, by any known cut or passage.

The number of shell-fish and parts of sea-animals dug up in several places, at great depths within land, are also urged by some as proofs of such subterranean passages of the sea-water; but these are too universally distributed through the strata of the earth, to have been brought in this manner, and are, therefore, rather supposed to be

owing

owing to the great change made in the earth by the flood in the days of Noah. See VAPOUR, &c.

CIRCULATION, in *Chemistry*, is an operation whereby the same vapour, raised by fire, falls back, to be returned and distilled several times, and thus reduced into its most subtil parts.

Circulation is performed by disposing the liquor in a single vessel, stopped at top, called a *pelican*; or in a double vessel consisting of two pieces, luted on each other; the lower to contain the liquor and its vapours.

It is performed either by the heat of a lamp, or that of ashes, or of sand moderately hot, or in dung, or by the sun. It usually demands a continued heat of several days, sometimes of several weeks, or even several months. By *circulation*, the finest part of the fluid mounts to the top of the vessel; and finding no issue there, falls back again, and rejoins the matter left behind at the bottom, whence it arose: and thus by continuing to rise and fall, alternately, in the vessel, there is effected a kind of *circulation*, or remixtion, of the spirituous parts with the gross ones; whereby the former are rendered finer, and more subtil, and are better disposed to exert their activity, when separated from the latter.

CIRCULATORY, CIRCULATORIUM, in *Chemistry*, the vessel wherein a fluid is put to undergo the process of *CIRCULATION*.

There are two kinds of *circulatories*; the *diota*, or *DOUBLE VESSEL*; and the *PELICAN*.

CIRCULUS, in *Geometry, Logic, &c.* See *CIRCLE*.

CIRCULUS, among *Chemists*, is a round iron instrument, used in cutting off the necks of glass vessels; which they effect thus. The instrument, being heated, is applied to the glass vessel, and there kept till the latter grows hot; then, by a few drops of cold water, or a cold blast thereon, it flies even and regularly off. Thus they cut off the necks of retorts, or cucurbits.

There is another method of doing the same; viz. by tying a thread, first dipped in oil of turpentine, round the place where the section is to be; and then setting fire to the thread.

This done, some cold water being sprinkled on the place, the glass will be cracked through that part precisely where the thread was tied.

CIRCUMAGENTES musculi, in *Anatomy*. See *OBLIQUUS*.

CIRCUMAGENTIUM femoris primus, in *Anatomy*, a name given by Spigelius, and some others to a muscle of the thigh, called by Riolan, and some others, the *iliacus externus*, but more generally, from its shape the *PYRIFORMIS*, and *pyramidalis*.

CIRCUMAMBIENT, an epithet denoting a thing to invest, or encompass another round.

We say, the ambient, or *circumambient* air, &c.

CIRCUMCELLIONES, in *Church History*, a set of illiterate savage peasants, and desperate ruffians, who adhered to the party of the *DONATISTS* towards the end of the fourth century. They assumed the title of vindicators of justice, and protectors of the oppressed, and maintained their cause by force of arms, and filled the whole province of Africa with slaughter and rapine. Constantine the Great, in order to quiet the tumults which they occasioned, abolished the laws that had been enacted against the *Donatists*; however, after his death, their assassinations and massacres were renewed, till they were defeated by Macarius at the battle of Baguia. Many of this frantic mob were afterwards treated with great severity, and the *Donatists* shared their sufferings.

CIRCUMCISION, the act of cutting off the prepuce; or a ceremony, in the Jewish and Mahometan religions, wherein they cut away the foreskin of the males who are to profess the one, or the other law.

Circumcision commenced in the time of Abraham; and was, as it were, the seal of a covenant stipulated between God and him: it was in the year of the world 2178, that Abraham, by divine appointment, *circumcised* himself, and all the males of his family: from which time it became an hereditary practice among his descendants.

The ceremony, however, was not confined to the Jews: Herodorus and Philo Judæus observed, that it obtained also among the Egyptians and Ethiopians. Herodorus says, that the custom was very ancient among each people; so that there was no determining which of them borrowed it from the other. The same historian relates, that the inhabitants of Colchis also used *circumcision*; whence he concludes, that they were originally Egyptians. He adds, that the Phoenicians and Syrians were likewise *circumcised*; but that they borrowed the practice from the Egyptians. And, lastly, that a little before the time when he wrote, *circumcision* had passed from Colchis, to the people inhabiting near Thermoodon and Parthenius.

Marshall is of opinion, that the Hebrews borrowed *circumcision*

from the Egyptians; and that God was not the first author thereof; citing Diodorus Siculus, and Herodorus, as evidences on his side. This latter proposition seems directly contrary to the testimony of Moses; who assures us, Gen. xvii. that Abraham, though ninety-nine years of age, was not *circumcised* till he had the express command of God for it: but as to the former proposition of Marshall, it will admit of more debate. The arguments, on both sides, may be seen in one view, in Spencer de Legibus Hebræor. lib. ii. cap. 4. Be this as it will, it is certain, the practice of *circumcision*, among the Hebrews, differed very considerably from that of the Egyptians. Among the first it was a ceremony of religion, and was performed on the eighth day after the birth of the child; among the latter, it was a point of mere decency and cleanliness; and, as some will have it, of physical necessity; and was not performed till the thirteenth year; and then on girls, as well as boys.

Among the Jews, *circumcision* was performed with a knife of stone. They set aside the practice of *circumcision*, during the forty years of their passage through the wilderness, because *circumcision* being intended as a mark of distinction between the Jews and the Gentiles, it was unnecessary to make any mark at all, in a place wherein there was no body to mix with them. M. Fleury observes that the Jews were not unanimous as to the necessity of *circumcision*; some holding it an essential, others only as a circumstance.

The Turks, before the operation of *circumcision*, squeeze the skin with little pincers, to deaden the sensation; they then cut it off with a razor, and apply a certain powder which heals the wound, and takes off the pain. They never *circumcise* till the seventh or eighth year; as having no notion of its being necessary to salvation.

The Persians *circumcise* their boys at thirteen years, and their girls from nine to fifteen. Those of Madagascar cut off the flesh at three several times; and the most zealous of the relations present catches hold of the preputium, and swallows it.

Herrera tells us, there is a kind of *circumcision* among the Mexicans, though they are very far both from Judaism and Mahometanism: they cut off the foreskin of the virile member, and the ears, as soon as the child is born, with great ceremony.

There is a kind of *circumcision* practised at Otaheite, one of the newly discovered islands in the South Seas. The operation is performed by a priest, and consists in slitting the prepuce through the upper part to prevent its contracting over the glans. The practice seems to have taken its rise from motives of cleanliness. Hawkesworth's Voyages, vol. ii. p. 241.

Circumcision is also practised on women, by cutting off the fore-skin of the clitoris, which bears a near resemblance and analogy to the preputium of the male penis. Strabo says, the Egyptian women were *circumcised*; Belon says the same of the Cophtæ; and P. Jovius and Munster of the subjects of Prester John.

Among the Jews, the father is obliged to have his son *circumcised* on the eighth day; it may not be sooner: but the child's weakness may allow of its being deferred longer. There is a godfather to hold the child, and a godmother to carry it from the house to the synagogue, and to present it there. He who *circumcises* is called, in Hebrew, *Mohel*: any person is chosen for the purpose indifferently; provided he be but capable of the function; which among the Jews, is a title of great merit. The manner of the ceremony, as related by Leo De Modena, is as follows.—Two seats are prepared in the morning with silken cushions; one for the godfather who holds the child; the other, as they say, for the prophet Elias, whom they suppose to assist invisibly. The person who is to *circumcise*, brings the necessary utensils; the razor, styptic, linen, fillet, and oil of roses; to which some add a shell full of sand, to put the preputium in. A psalm is sung till the godmother brings the child, attended with a crowd of women, and delivers it to the godfather; none of them entering the door: the godfather, being seated, sets the child on his lap; then the *circumciser*, taking the razor, and preparing the child for the operation, says, *Blessed be thou, O Lord, who hast joined us circumcision*; and in so saying cuts off the thick skin of the preputium, and with his finger-nails tears off another finer skin remaining; sucking the blood two or three times, as it breaks out, and spitting it out into a glass full of wine: then he lays dragons blood on the wound, with powder of coral, and other things, to staunch the blood; and, lastly, a compress of oil of roses; and thus binds up the whole: this done, he takes a glass of wine, and, blessing it, adds another benediction for the child, and imposes the name.

The manner of *circumcising* among the Turks, differs from

from that of the Jews: for the former, after they have cut off the skin, meddle no farther; but the last tear off the edge of the remaining skin in several places with their thumb-nails; which is the reason why the circumcised Jews are cured much sooner than the Turks.

Those among the Jews who perform the operation of *circumcision*, are distinguished by the length of their thumb-nails.

Circumcision is also used medicinally, when the prepuce is affected with a gangrene, and becomes black.

CIRCUMCISION is also the name of a feast celebrated on the first of January in commemoration of the *circumcision* of our Saviour.

This day was anciently kept a fast, in opposition to the pagan superstitions, who feasted on it in honour of the god Janus.

CIRCUMFERENCE, in *Geometry*, the curve line that incloses a **CIRCLE**, or circular space; called also the **PERIPHERY**.

The word is formed from *circum*, about; and *fero*, I carry.

All lines drawn from the centre of a circle to the *circumference*, called *radii*, are equal.

Any part of the *circumference* is called an *arch*; and a right line drawn from one extreme of the arch to the other, a *chord*.

The *circumference* of every circle is supposed to be divided into 360 equal parts, which are called *degrees*.

The angle at the *circumference* is double that at the centre.

The *circumferences* of circles are to each other as their *radii*.

And, since the *circumference* of one circle is to its radius, as that of any other circle to its radius; the ratio of the *circumference* to the radius is the same in all circles. See **DIAMETER**.

CIRCUMFERENTOR, an instrument used in *surveying*, to take angles by.

The *circumferentor* is very simple, yet expeditious in the practice. It consists of a brass circle and an index all of a piece.—See its figure in *Tab. Surveying*, fig. 7.

On the circle is a card, or compas divided into 360 degrees; the meridian line whereof answers to the middle of the breadth of the index: on the limb, or *circumference*, of the circle, is soldered a brass ring; which, with another fitted with a glass, make a kind of box for the needle, which is suspended on a pivot in the centre of the circle: to each extreme of the index is fitted a sight. The whole is mounted on a staff, with a ball and socket, for the convenience of its motion.

To take an angle by the CIRCUMFERENTOR. Suppose the angle required *E K G* (*Tab. Surveying*, fig. 6): place the instrument, v. g. at *K*, with the flower-de-luce in the card towards you, then direct the sights, till through them you spy *E*; and observe what degree is pointed at by the south end of the needle, which suppose 296: then turn the instrument about, the flower-de-luce still towards you, and direct the sights to *G*; noting the degree at which the south end of the needle points, which suppose, 182.

This done, subtracting the lesser number 182, from the greater 296, the remainder, 114, is the number of degrees of the angle *E K G*.

If the remainder happens to be more than 180 degrees it must be again subtracted from 360 degrees; the last remainder is the quantity of the angle sought.

To take the plot of a field, wood, park, &c. by the CIRCUMFERENTOR.—Suppose *A B C D E F G K* (fig. 8.) an inclosure to be surveyed with the *circumferentor*.

1. Placing the instrument at *A*, the flower-de-luce towards you, direct the sights to *B*; where suppose the south end of the needle to cut 191°; and the ditch, wall, or hedge, measured with the chain, to contain 10 chains, 75 links; which enter down. See **CHAIN**.

2. Placing the instrument at *B*, direct the sights, as before, to *C*; the south end of the needle, v. g. will cut 279°; and the line *B C* will contain 6 chains, 83 links, to be noted as before; then move the instrument to *C*; turn the sights to *D*, and measure *C D*, as before.

In the same manner proceed to *D*, *E*, *F*, *G*, *H*, and, lastly, to *K*; still noting down the degrees of every bearing, or angle, and the distances of every side.

Having thus gone round the field, you will have a table in the following form:

Stations.	Degrees.	Min.	Chains.	Links
A	191	00	10	75
B	279	00	6	83
C	216	30	7	82
&c.				

From this table, the field is to be plotted, or protracted; for the manner whereof, see **PLOTTING**, and **PROTRACTOR**.

Note, Where security is to be consulted rather than dis-

patch, it may be convenient to take back-sights; i. e. to place the instrument so, at each station, as that, looking backwards through the sights to the last station, the north end of the needle may point to the same degree as the south end did, in looking forwards from the last station to this; both which instruments are used, on occasion, as *circumferentors*.

CIRCUMFLEX, in *Grammar*, an accent, serving to note, or distinguish a syllable of an intermediate sound between acute and grave; and generally somewhat long.

The Greeks had three accents; the *acute*, the *grave*, and the *circumflex*; formed thus, ' , ~. In Latin, English, French, &c. the *circumflex* is made thus ^.

The acute raises the voice, and the grave falls, or lowers it: the *circumflex* is a kind of undulation or wavering of the voice between the two.

It is seldom used among the moderns, unless to shew the omission of a letter which made the syllable long and open; a thing much more frequent in the French, than among us: thus they write *pâte*, for *paste*; *tête*, for *teste*; *fûmes*, for *fumes*, &c. They also use the *circumflex* in the participles; some of their authors writing *connu*, *peu*, others, *connû*, *pu*, &c. Father Butler is at a loss for the reason of the *circumflex* on this occasion.

The form of the Greek *circumflex* was anciently the same with that of ours, viz. ^; being a composition of the other two accents ^ in one.—But the copists, changing the form of the characters, and introducing the running-hand, changed also the form of the *circumflex* accent; and instead of making a just angle, rounded it off, adding a dash, through too much haste; and thus formed an s, laid horizontally, which produced this figure ^, instead of this ^.

CIRCUMGYRATION, the wheeling motion of any body round a centre.

CIRCUMINCESSION, in *Theology*, a term whereby the schoolmen use to express the existence of three divine persons in one another, in the mystery of the Trinity. See **PERSON**.

The school divines are not the first authors of this term; Damascenus, in the eighth century, having used the word *επιχώρησις*, which signifies the same thing, in his explication of that text, *I am in my father, and my father is in me*.

CIRCUMLOCUTION, an ambages, or tour of words, used either when a proper term is not at hand, to express a thing naturally and immediately by; or when one chooses not to do it, out of respect, or for some other reason.

The word comes from *circumloquor*, I speak about.

CIRCUMLOCUTION, in *Oratory*, is the avoiding of something disagreeable, or inconvenient, to be expressed in direct terms; by intimating the sense thereof in a kind of paraphrase, so conceived as to soften, or break the force thereof.

Thus Cicero, unable to deny that Clodius was slain by Milo, owns it with this *circumlocution*, "Milo's servants being prevented from assisting their master, who was reported to be killed by Clodius; they, in his absence, and without his privity, or consent, did what every body would expect from their own servants on such an occasion."

CIRCUM-POLAR Stars, are such stars as, being pretty near our north-pole, move round it; and in our latitude, never set, or go below the horizon.

CIRCUMPOTATIO, in *Antiquity*, a funeral feast, provided in honour of the dead.

This was very frequent among the ancient Romans, as well as among the Athenians. Solon, at Athens, and the decemviri at Rome, endeavoured to reform this custom, thinking it absurd that mirth and drunkenness should mingle with sorrow and grief.

CIRCUMSCRIBED figure, in *Geometry*. See **CIRCUMSCRIBING**.

CIRCUMSCRIBED hyperbola, one of the second order, according to sir Isaac Newton, which cuts its asymptotes, and contains the parts cut off within its own space. See **HYPERBOLA**.

CIRCUMSCRIBING, in *Geometry*, denotes the describing a polygonous figure about a circle, in such manner, as that all its sides are tangents to the circumference.

The term is sometimes also used for the describing of a circle about a polygon; so, as that each side is a chord. But in this case, we more usually say, the polygon is inscribed than the circle circumscribed.

Any regular figure *A B C D E*, (*Tab. Geometry*, fig. 9.) inscribed in a circle, is resolved into equal and similar triangles, by radii drawn from the centre of the *circumscribing* circle *F*, to the several angles of the figure; and its area is equal to a rectangled triangle, whose base is equal to the perimeter of the whole polygon; and its height a perpendicular let fall from the centre *F* to one side *A B*.

The

The same may be said of the area of the *circumscribing* polygon *abcde* (fig. 8.); excepting that the height is to be the radius.

The area of every polygon that can be inscribed in a circle is less, and that of every polygon that can be circumscribed, greater than that of the circle: in like manner, the perimeter of the first is less, and that of the second is greater, than the circumference of the circle.

On this principle Archimedes attempted the quadrature of the circle; which is nothing else, in effect, but the measuring of the area, or capacity of a circle.

The side of a hexagon is equal to the radius of a circumscribed circle.

To circumscribe a circle about any given regular polygon, *ABCDE* (fig. 9.); and *vice versa*. Bisect two of the angles, v. g. *A* and *B*; and on the point *F*, where the two lines of bisection intersect, as on a centre, describe a circle with the radius *FA*.

To circumscribe a square about a circle. Draw two diameters, *AB* and *DE* (fig. 5.), intersecting each other in the centre *C*, at right angles. From *AEBD*, with the interval of the radius, make intersections in *F*, *G*, *H*, *I*. Draw the right lines *FG*, *GH*, *HI*, and *IF*. Then is *FGHI* a square circumscribed about the circle.

To circumscribe any regular polygon, v. g. a pentagon, about a circle. Bisect the chord *AE* (fig. 8.) by the perpendicular *FO*, which continue till it cut the arch in *g*. Through *A* and *E*, draw the radii *AF* and *EF*: and through *g*, draw a line parallel to *AE*, meeting the radii continued on each side in *a* and *e*: and then is *ae* one side of the circumscribed polygon. Produce the radius *FB* to *b*, till *Fb = a*; and draw *ab*: this is another side of the polygon; and in the same manner may the rest of the sides be drawn.

CIRCUMSPECTE *agatis*, the title of a statute made ann. 13 Edw. I. relating to prohibitions, prescribing certain cases to the judges, wherein the king's prohibition lies not.

CIRCUMSTANCES, the incidents of an event, or the particularities that accompany an action.

Divines say, the conversion of a sinner depends on a certain assemblage, and a certain management, of external *circumstances*, in the midst whereof he is placed; which arrangements of *circumstances* depends on the providence of God; whence conversion also depends on him.

The *circumstances* of the actions of men, are expressed in this Latin verse:

Quis, quid, ubi, quibus auxiliis, cur, quomodo, quando.

Quis, who denotes the quality, state, age, &c. of the person. *Quid*, what, the greatness, smallness, multitude, fewness, &c. of the thing. *Ubi*, where, the place.

Quibus, *auxiliis*, with what assistances, the instruments, means, &c. *Cur*, why, on what account, with what view. *Quomodo*, how, the quality of the action, as to intention or remissness, designedness or casualty, secrecy or openness. *Quando*, when, the time; as on a holiday, at the hour of prayer, &c.

CIRCUMSTANTIAL *Evidence*, in *Law*, or the doctrine of *presumption*, takes place next to positive proof: circumstances which either necessarily or usually attend facts of a particular nature, that cannot be demonstratively evinced are called presumptions, and are only to be relied on till the contrary be actually proved. See **EVIDENCE** and **PRESUMPTION**.

CIRCUMSTANTIBUS, in *Law*, is used for the supplying, and making up the number of jurors (in case any impannelled appear not; or appearing, be challenged by either party), by adding to them so many of the persons present, or standing by, as will serve the turn. This act of supplying is usually called **TALES de circumstantibus**.

CIRCUMVALLATION, in *Fortification*, a line or trench, with a parapet, thrown up by the besiegers, encompassing all their camp, to defend it against any army that may attempt to relieve the place.

The word is formed from *circum*, about; and *vallum*, wall. The Romans are thought to have first invented lines of *circumvallation* and **CONTRAVALLATION** at the siege of *Veii*.

This line is to be cannon-shot distant from the place, ordinarily, about twelve feet broad, and seven deep. It is bordered with a breast-work, and flanked with redoubts, or little forts, erected from space to space. It serves both to prevent any succour from being sent into the place, to keep in deserters, and to prevent incursions of the enemy's garrison.

Care must be taken, that the line of *Circumvallation* never pass by the foot of an eminence; lest the enemy, seizing on the eminence, lodge his cannon, and command the line.

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CIRCUMVOLUTIONS, in *Architecture*, the turns of the spiral line of the Ionic volute.

The word comes from *circumvolvere*, to turn around; and is also applied to the turns of a wreathed, or twisted COLUMN.

CIRCUS, in *Antiquity*, a large building, either round, or oval; used for exhibiting of shews to the people.

Some derive the word from *Circe*, to whom Tertullian attributes the invention. Cassiodorus says, *Circus* comes *a circuitu*.—The Romans, Servius observes, at first had no other *Circus* but that made by the Tiber on one side, and a pallisade of naked swords on the other. Hence, according to Isidore, came the term *ludi circenses*, quasi *circum enses*. But Scaliger ridicules that etymology.

The Roman *Circus* was a large oblong edifice, arched at one end; encompassed with porticos, and furnished with rows of seats, placed ascending over each other.

In the middle was a kind of foot-bank, or eminence, with obelisks, statues, and posts at each end. This served them for the courses of their *bigæ* and *quadrigæ*.

There were no less than ten *Circuses* at Rome: the largest was built by the elder Tarquin, called *Circus Maximus*, between the Aventine and Palatine mounts. It was so called, either because of its vast circumference, or because the great games were celebrated in it, or again, because it was consecrated to the great gods; viz. to *Vertumnus*, *Neptune*, *Jupiter*, *Juno*, *Minerva*, and the *Dii Penates* of Rome. Dionysius Helicarnassensis says that it was three stadia and a half in length, and four jugera broad; and these measures, according to Pliny, allowing to the Roman stadia 625 Roman feet, each of which is 12 inches, will give for the length 2187 Roman feet, or somewhat more than three English furlongs; and as to breadth, allowing for each of the jugera 240 Roman feet, it will be 960 Roman feet. It was beautified and enlarged by the Roman emperors, so as to seat 250,000 spectators.

The most magnificent *Circuses* were those of Augustus and Nero. There are still some remains of the *Circuses*, at Rome, Nismes, and other places.

The Romans were excessively fond of the games exhibited in the *Circus*: witness that verse in Juvenal,

— *Atque duas tantum res anxius optat,
Panem & Circenses*—

The games of the *CIRCUS*, which some call **CIRCENSIAN** Games, were combats celebrated in the *Circus*, in honour of *Consus* the god of councils; and thence also called *Consualia*.

They were also called *Roman games*, *Ludi Romani*, either on account of their antiquity, as being coeval with the Roman people, or because established by the Romans: and the games held there, the great games, *ludi magni*, because celebrated with more expence and magnificence than others; and because held in honour of the great god *Neptune*, who was their *Consus*.

Those who say they were instituted in honour of the sun, confound the *pompa circensis*, or procession of the *Circus*, with the games.

The games of the *Circus* was instituted by Evander, and re-established by Romulus: the pomp, or procession, was only a part of the games, making the prelude thereof; and consisting of a simple cavalcade of chariots.

Till the time of the elder Tarquin, they were held on an island of the Tiber; and were called *Roman games*: after that prince had built the *Circus*, they took their name therefrom, as being constantly held there.

There were six kinds of exercises in the *Circus*: the first was wrestling, and fighting with swords, with staves, and with pikes; the second was racing; the third, saltatio, dancing; the fourth, disci, quoits, arrows, and cestus; all which were on foot: the fifth was horse-courring; the sixth courses of chariots, whether with two horses, or with four.

In this last exercise, the combatants were at first divided into two squadrons or quadrils; then into four; each bearing the names of the colours they wore; *factio alba*, *ruffea*, &c.

At first there was only white and red; then green was added, and blue. Domitian added two more colours, but they did not continue.

It was Oenomaus who first invented this method of distinguishing the quadrils by colours. The green was for those who represented the earth; the blue for the sea, &c.

CIRCUS, in *Ornithology*, a name by which Bellonius and some others have called the *MILVUS æruginosus* or moor-buzzard.

CIRLUS stultus, in *Ornithology*, the name of a bird of the hortulanus kind, and the size and shape of our common yellow hammer.

CIRRHOSE *Leaf*, in *Botany*. See **LEAF**.

CIRRI, in *Ornithology*, the name of a small species of heron, called by some the *ardea hæmatopus*, or the red-legged HERON. Its legs and feet are very beautifully red.

CIRRUS, in *Ichthyology*, a name given by authors to certain oblong and soft *appendiculæ* hanging from the under jaw of fishes, or from other parts about the mouth, in the manner of little worms, and usually of a cylindric figure, or nearly so. These *cirri* are in some fish hollow at the root; in others they are not so: in those which are hollow at the root, the cavity never runs quite thro'. The way of finding it is by introducing a hog's bristle or a hair into it; but this cannot be forced through to the point, nor can any fluid matter be expressed out of them. The *cirri* often afford characters of distinction to several kinds of fishes, and differ in the several species in regard to number, size, and proportion.

The use that these *cirri* are of to the fish, is little more known than that of the antennæ of insects. If nature had given them only to those fishes which had the eyes placed on the upper part of the head, then they might be supposed to serve to distinguish prey at the bottom, while the eyes were directed to such as offered itself nearer the surface: but as the several kinds of fishes which have them are of different kinds, and have their eyes in various directions, this use cannot be allotted them. It is possible they may be of use to the fish, in giving it the first notice of any distant motion of the water, which they may perceive by their hanging posture sooner than any other part, and thus give notice of the neighbourhood of prey, or of the approach of an enemy.

CIRRUS, in *Antiquity*, an ornament added to the edges and borders of garments, much in the manner of *frimbriæ* or fringes, only that these were single, and run along the borders of the dress; whereas the *cirri* were knotted together, and hung down from the extremities of the robe.

CIRRUS, among *Botanists*, expresses the little fibres which plants send out from their **STALKS**, and by which they are attached to other bodies.

CIRSIUM. See *gentle THISTLE*.

CIRSOCELE, in *Medicine*, a multitude of varices in the testicles, which prodigiously increase their bulk, and hinder the due preparation of the seed; so as sometimes to render castration necessary. This disorder is otherwise called **HERNIA varicosa**.

The word comes from *κίρσος*, *varix*, vein, and *κίρην*, *hernia*.

CIRSOS, in *Medical Writers*, is used for **VARIX**.

CISALPINE, any thing on this side the Alps.

The word is formed from the preposition *cis*, on this side, and *Alpes*; which, though properly confined to the mountains separating Italy and France, yet is used by authors for any very high mountains.—Thus, Ausonius speaks of the Alps, of the Pyreneans, the Alps of the Apennines, &c.

The Romans divided Gaul, and the country now called Lombardy, into *Cisalpine* and *Transalpine*.

That which was *Cisalpine* with regard to the Romans, is *Transalpine* with regard to us.

CISLEU, the ninth month in the ecclesiastical year, and the third in the civil or political year among the Hebrews, containing 30 days: it answers to part of our November and December. An annual fast is observed by the Jews to this day on the 18th of this month, in commemoration of the taking of Jerusalem by Nebuchadnezzar.

CISSAMPELOS, in *Botany*, a genus of the *dioccia monadelphia* class: its characters are these: it is male and female in different plants; the male flowers have no petals, but a single style in the centre, which extends beyond the empalement, terminated by a large summit, having four lobes. The female flowers have four nectariums standing round the oval germen, which is hairy, and after becomes a succulent berry enclosing a single seed. There are two species which grow naturally in the warm parts of America.

The first sort is supposed to be the *pareira*, whose root has been so much esteemed as a diuretic.

CISSITES, in *Natural History*, a name given by the ancients to that species of the flinty *atites*, or **EAGLE-stone**, which is covered with the common white coat of the flints. Pliny mentions it as found principally about Captos, and being externally of a white colour, and rattling when shaken.

CISSOID, in *Geometry*, an algebraic **CURVE**, first invented by Diocles; whence it is peculiarly called the *cissoïd* of Diocles.

The genesis of the *cissoïd* may be thus conceived: to the diameter AB (*Tab. Analysis*, fig. 9.) of the semicircle AQB, draw an indefinite line, at right angles, BC:

then draw the right line AH, and make AM = IH; or in the other quadrant, LC = AN. Thus will the points M and L be in a curve line, AMOL; which is the *cissoïd* of Diocles.

Properties of the CISSOID.—From the genesis it follows,

1. That drawing the right lines PM and KI, perpendicular to AB; we shall have AP : KB :: AM : IH. But AM = IH; consequently, AP = KB. And therefore, AK = PB; and PN = IK.

2. After the same manner it appears, that the *cissoïd* AMO bisects the semicircle AOB.

3. Again, AK : KI : KI : KB. That is, AK : PN :: PN : AP. And again, AK : PN :: AP : PM; therefore, PN : AP :: AP : PM. Consequently, AK, PN, AP, and PM, are four lines in continual proportion. And if PN = *v*, AP = *x*, PM = *y*; $x^2 = v y$. And after the same manner it may be shewn, that AP, PN, AK, and KI, are in continual proportion.

4. In the *cissoïd*, the cube of the abscisse AP is equal to a solid arising from the square of the semiordinate PM, multiplied into the complement of the diameter of the generating circle PB.

Hence, when the point P falls on B, then $x = a$, and $BC = y$; consequently, $y^2 = \frac{a^3}{0}$. Wherefore, $0 : 1 :: a^3 : y^2$;

that is, the value of *y* becomes infinite: and therefore the *cissoïd* AMOL, though it continually approach BC, will never meet it.

5. BC, therefore, is an asymptote of the *cissoïd*.

The ancients made use both of the conchoid and *cissoïd*, for the finding of two mean continual proportionals between two given right lines.

For the *quadrature*, *subnormal*, and *subtangent* of the **CISSOID**: see **QUADRATURE**, **SUBTANGENT**, &c.

CISSOID angle. See **ANGLE**.

CISSUS. This is properly in the Greek writers the name of the ivy. They write it *κισσός*. But the word *κισσός* *cissus*, when the *θ* is changed into an *σ*, by the Cretan and Cyprian dialect, is also *κισσός*, *cissus*. See **CISTUS**.

CISSUS, in *Botany*, a genus of the *tetrandria monogynia* class, with a single seeded berry, and a quadripartite corolla.

CISSYBIUM, in *Antiquity*, a drinking cup most in use among country people. It was so called, either because it was made of the wood of ivy, or was usually crowned with its leaves.

CISTERCIANS, an order of religious, reformed from the Benedictines, consisting of an hundred monasteries, and near as many nunneries.

The order took its rise in 1075, from twenty-one zealous monks in the monastery of Moleme in Burgundy; who, with their abbot Robert, complaining that the rule of St. Benedict was not strictly enough observed, obtained permission of Hugh archbishop of Lyons, and legate of the holy see, to settle in a place called *Cîteaux*, five miles from Dijon.

Here, Eudes duke of Burgundy erected them a house, into which they were admitted in 1098; endowing it with a considerable revenue. The bishop of Chalons gave Robert the pastoral staff, in quality of abbot; and erected the new monastery into an abbey.

They were, in about a century after their first rise, distinguished by the patronage of St. Bernard, abbot of Clairval, whence they obtained the title of *Bernardin* monks; and in the year 1132, they were exempted from the payment of tythes, and invested with other privileges and immunities by Innocent II. In 1152 this order had no fewer than 500 convents, all dedicated to the Blessed Virgin. They came into England in the year 1128, and had their first house at Waverly in Surry. Before their dissolution they had eighty-five houses here. Such was the beginning of the *Cistercians*, so famous in after-times, and now so extended throughout all Europe.

CISTERN, is properly used for a subterraneous reservoir of rain water.

The word, according to some, comes from *cis*, and *terram*, i. e. *in terram*; others derive it from *cista*, a *duet*, &c.

Earthen *cisterns* must be made with good cement, to retain the water. And the bottom should be covered with sand, to sweeten and preserve it.

Authors mention a *cistern* at Constantinople, the vaults whereof are supported by two rows of pillars, 212 in each row; each pillar being two feet in diameter. They are planted circularly, and in radii tending to that in the centre.

Anciently there were *cisterns* all over the country in Palestine. There were some likewise in cities and private houses. As the cities for the most part were built on mountains,

mountains, and the rains fell regularly in Judea at two seasons of the year only, in spring and autumn, people were obliged to keep water in cisterns in the country, for the use of their cattle; and in cities, for the convenience of the inhabitants. There are *cisterns* of very large dimensions to be seen still at this day in Palestine, some whereof are a hundred and fifty paces long, and fifty-four wide. There is one to be seen at Ramah of two and thirty paces in length, and eight and twenty in width. Wells and *cisterns*, fountains and springs, are generally confounded in the scripture language.

If the farmers of England would fall into the method used in Spain, and at Amsterdam, Venice, and other places for saving the rain-water for the whole year, or at least so much of it as would be necessary, in *cisterns*, they would have always water for their cattle in the summer droughts, and many thousand acres of land, now left useless, might be turned to profit.

The best way of preserving the water for the service of the house, is in *cisterns* in the cellars. These may be made with brick or stone, joined with plaister of Paris, which will keep out the wet very well; or with a kind of mortar made of flaked sifted lime, with linseed oil, and tow or cotton. A bed of good sound clay may be laid at the bottom, and on this the bricks for the floor, and then the walls may be raised in the same manner, only leaving spaces behind them, into which clay is to be rammed in the like manner. Thus it will be a clay *cistern*, faced with brick; and the bricks will keep the clay moist, and prevent it from cracking, though it be not full of water. This will do in any shadowy place, as well as in cellars: and thus may a *cistern* be made in a garden, in some shadowy place, and covered over, which may receive the water running from the walks, and will retain it at hand, for the service of the garden, all the year.

Where there is want of water for the cattle in the fields, the way is to dig a pond in some place into which there is a descent; then cover the bottom and sides with a double coat of tough clay, each six inches thick, and each very well rammed: then to cover the bottom with large stones, which will keep the clay moist, and prevent its cracking, when not covered with water. But this is a troublesome thing; for if there happen to be a crack in any part, it is often found necessary to go over the whole work again, before the pond will hold a drop of water.

Another method of making a pond hold water, is to daub it over with clay and mortar mixed together, and then with mortar alone. This has an advantage over the other way, because if any crack happen, it may be mended by a cement of clean hair and tallow, mixed with flaked lime and the yolks of eggs, well beat together. This applied to the crack, will close it safely, without necessity of undoing the whole work, as in the other case.

In chalky countries it is common to find a low place on the downs, and, digging a hole by way of a pit there, they cover the bottom evenly with the chalk rubbish, and when it is wetted by the rain, they ram it well, and afterwards drive cattle into it, and fold sheep in it: the consequence of all such trampling is, that the bottom at length becomes so firm, that it holds the water perfectly well. By one or other of these means, *cisterns* or reservoirs may be made in every part of the country: and our farmers, if they would carefully try one or the other of them, as their land most required, would not have so much to complain of from droughts.

CISTIC } See } CYSTIC.

CIST-Hepatic. } See } CYST-Hepatic.

CISTIS. See CYSTIS, and HYPOCISTIS.

CISTRUM. See SISTRUM.

CISTULA Catoptric. See CATOPTRIC.

CISTUS, the Greeks wrote this word *κισθος*, and, as the word, in the Latin tongue, is only the Greek name with a Roman termination, it undoubtedly ought to be spelt *cisthus*, not *cistus*. The ancient writers have been subject to many misrepresentations from the near resemblance of this word *κισθος*, *cisthus*, to *κισσος*, *cissus*: the former being the name of the plant we call *cistus*, a shrubby herb, with leaves like sage, and a large flower resembling a rose; and the other, the name of the common ivy that climbs upon our walls and trees. Pliny has been deceived by the near resemblance of the two words, and has given the qualities of ivy to the *cistus*, and those of *cissus* to the ivy; but he is the more excusable in this, since we find the two names used indiscriminately, tho' certainly by a mistake of the copyists, in the books of Theophrastus.

CISTUS, in Botany. See Rock ROSE.

Dwarf CISTUS. See Dwarf SUN-flower.

Marsh CISTUS. See Wild ROSEMARY.

Lesser marsh CISTUS. See ANDROMEDA.

CITADEL, or CITTADEL, a fort, or place fortified with four, five, or six bastions; built sometimes in the most eminent part of a city, and sometimes only near the city.

The word is a diminutive of the Italian *citta*, city, q. d. little city.

In the first case, the *citadel* serves to defend the city against enemies.

In the latter, it serves to command it, and keep the inhabitants in their obedience, for which purpose the city is left unfortified on the part toward the *citadel*; but the *citadel* is fortified toward the city.

The most usual form for *citadels* is that of a pentagon: a square being too weak, and hexagon too large.

There is always a large ESPLANADE between the city and *citadel*.

There are usually two gates to a *citadel*, one communicating with the town and the other with the country.

The *citadel* ought to be so formed and situated, that the ditch may be either defended by the faces of the bastions, or by those of the ravelins, in as direct a manner as possible; otherwise the enemy may attack the town in that place, as being weakest, and likewise because the same attacks may serve to reduce both together. The covert-way of the *citadel* ought to be uninterrupted, so that the part next the town may have a free communication with the other.

CITADINESCA, in *Natural History*, a name given by some writers to the Florentine marble, which is supposed to represent towns, palaces, ruins, rivers, &c. These delineations are merely accidental, and are usually much assisted by the imagination, though the natural lines of a stone may sometimes luckily enough represent the ruins of some ancient building, or the course of a river. We have in England a kind of a septaria, or ludus Helmontii, which has sometimes delineations of this kind considerably beautiful, though very irregular. The Florentine marble, as we see it wrought up in the ornaments of cabinets, &c. owes a great deal to the skill of the workmen, who always pick out the proper pieces from the mass, and dispose them in the work so as to make them represent what they please.

CITATION, in the *Ecclesiastical Court*, a summons to appear before an ecclesiastical judge, on some affair relating to the church.

The word comes from *cito*, of *cileo*, I stir up.

In the civil and ordinary courts, it is called *summoning*.

CITATION is also used in speaking of military and monastic as well as ecclesiastical courts. Such a heretic was *cited* to Rome, to a general council, &c.

Knights are *cited* to the general chapters of their order.

King Edward I. of England, was *cited*, by order of Philip IV. of France, to a court of his peers: the *citation* was published by the seigneur d'Arrablay, seneschal of Perigord and Querci; and was pasted up by his order, on the gates of the city of Libourne, which then belonged to king Edward. And for default in not appearing, all his domains and effects in France were confiscated.

CITATION is also an allegation, or quotation of some law, authority, or passage.

CITELLUS, in *Zoology*, the name of a small animal of the mouse kind, which lives in caves and holes of the earth. Its body is of the shape of the common weasels, very long and thin: the tail is very short. Its colour is a pale silvery grey, like that of some rabbits. It resembles the mole in its want of external ears; but it has apertures which serve it to the same purpose, in the manner of birds. They live together in communities, great numbers being usually found in the same cave, with a large store of nuts, chestnuts, and other fruits. Their flesh is very well tasted, and their skin much used in cloathing in the cold countries. They are found not only in the very cold climates, but in Bohemia, Austria, and Hungary.

CITHARA, an ancient musical instrument, by some supposed the same with the *lyra*; or, at least, a particular species of it; by others different: though its precise structure does not appear to be known.

The ancients describe it as being triangular, in form of a Greek delta, Δ: the poets ascribe the invention of it to Apollo.

CITHARA bijuga. See THEORBO.

CITHAREXYLON, in *Botany*, fiddle-wood, a genus of the *didynamia angiospermia* class: its characters are these: the flower is of one leaf, funnel-shaped, and divided at the top into five equal parts; it hath four stamina which adhere to the tube, two of them being longer than the other; in the centre is situated a roundish germen, which afterwards becomes a capsule with two cells, each having a single seed. There are two species, which are natives of the West Indies, and grow to be very large trees, greatly

greatly valued for durability of building: whence the French gave them the name of *fidelle-wood*, which the English have rendered *fiddle-wood*.

CITHAROEDUS, in *Antiquity*, the same with *citharista*. The *citharoedi* had the preference of all other musicians, from whom they were distinguished by an embroidered cloak, which was peculiar to them.

CITHARUS, in *Ichthyology*, the name of a fish common in the markets of Rome and Venice, and frequent in the German and Mediterranean seas. It is a flat fish of the **TURBOT** kind; but it is covered with large scales.

CITIZEN, or **CITTIZEN**, a native or inhabitant of a city, vested with the freedom and rights thereof.

The word comes from *civis*; which authors derive from *ceo*, because the *citizens* live together; or rather from *cio*, *I call together*.

Augustus, upon numbering the Roman *citizens*, found they amounted to upwards of four millions.

To make a good Roman *citizen*, there were three things required; that he was an inhabitant of Rome; that he were enrolled in one of the thirty-five tribes; and that he were capable of dignities.—Those strangers to whom were granted the rights and privileges of Roman *citizens*, were properly only *honorary citizens*.

The seventh law, *de incolis*, makes a great deal of difference between a *citizen* and a mere inhabitant. Birth, alone, made a *citizen*: and intitled to all the privileges of burgeses; time could not acquire it; but the emperor could bestow it.

The Romans were anciently so particularly careful to preserve even their common *citizens* from any mixture of servile blood, that they prohibited all marriages between them and freed slaves, or their children. And it was decreed, as a special privilege and reward to one Hispala, of libertine condition, for her discovery of the impieties of the Bacchanalian mysteries, that a *citizen* might take her to wife, without any disgrace or diminution of his rights. These distinctions, indeed, began to be disregarded towards the end of the republic, with respect to the ordinary *citizens*, but were kept up to the last, with regard to the senate. See **SENATOR**.

CITIZENS in *Parliament*. See **BURGESSES**.

CITOLE, the name of a musical instrument mentioned by the old English poet Gower, probably derived from *cistella*, a little chest, meaning the **DULCIMER**.

CITRAGO, in *Botany*, a name given by some authors to the common garden balm.

CITREAE mensæ, called *thyina* by the Greeks, in *Antiquity*, tables made of the wood of the citrum-tree, very beautiful, and greatly esteemed by the ancient Romans. See **CITRUM**.

CITRIL, in *Ornithology*, a name given by many to the citrinella, or verzellino, a bird common in Italy, and kept in cages for its beauty and fine notes; called by many authors also **THRAUPIS**.

CITRINE, *floechas*, or **ELYCHRISIUM**, in *Botany*. See **CUDWEED**.

CITRINELLA, in *Ornithology*, the name of a small bird, common in Italy, very much resembling our common linnet in shape. Its head and back are green; its rump of a greenish yellow, and its neck, with somewhat of the hindmost part of the head, grey.

It sings very finely, and is kept in cages in many parts of Italy.

Linnaeus enumerates two birds under this name; one a species of the **EMBERIZA**, and the other of the **FRINGILLA**.

CITRINUS, in *Natural History*, the name of a peculiar species of sprig crystal, which is of a beautiful yellow. Many of the common crystals, when in the neighbourhood of lead mines are liable to be accidentally tinged yellow, by an admixture of the particles of that metal; and all these, whether finer, or coarser, have been too frequently confounded together, under the name *citrine*. It is never found colourless, like the other crystals, but has a great variety of tinges, from that of deeper ochres to a pale lemon-colour. It is very plentiful in the West Indies, and is found in some parts of Bohemia. Our jewellers have learnt from the French and Italians, who are very fond of it, to call it *citrine*, and often cut stones for rings out of it, particularly out of the pyramid, which is always finer than the column, and these, after they have passed through two or three hands, are generally mistaken for topazes.

CITRON tree, *Citrus*, in *Botany*, a genus of the *polyadelphica icofandria* class; its characters are these: the flower hath five oblong thick petals, and ten stamina, which are not equal, joining in three bodies at their base: the oval germen in the centre afterward becomes an oblong fruit, with a thick fleshy skin, filled with a succulent pulp, having many cells, each containing two oval seeds.

There are several varieties of this fruit, with which the

English gardens have been supplied from Genoa, where is the great nursery, which supplies the several parts of Europe with this, as well as orange and lemon trees.

Their culture and management is the same with that of the **ORANGE**; but they are tenderer, and should have a warmer situation in winter, otherwise they are subject to cast their fruit; they should also continue a little longer in the house in spring, and be carried sooner into it in autumn, and have a warmer and better defended situation in summer.

The *citron* is an agreeable fruit in colour, taste, smell, &c. resembling a lemon; and serving, like that to cool, and quench thirst.

The *citron* is distinguished from the lemon, in that it is bigger, and its pulp firmer; its smell brisker, and colour higher. It is held excellent against poisons: and Athenæus relates an instance of two persons said to be preserved safe from the most dangerous aspics, by only eating a *citron*.

The distillers, perfumers, confectioners, &c. apply *citrons* to various purposes; and obtain from them essences, oils, confections, waters, &c.

In Italy they make a liquid with the small *citrons*, which they preserve entire: and a dry sweetmeat with the large ones, which they preserve in quarters.

CITRON-water, a well known strong water, or cordial, which may be thus made: take of fine thin lemon-peel eighteen ounces, of orange-peel nine ounces, perfect nutmegs one quarter of a pound, alcohol perfect, that is, the finest and best rectified spirit of wine, two gallons and a half; digest in balneo Mariæ for one night; draw off with a slow fire; then add as much water as will just make the mixture milky (which will be about seven quarts or two gallons) and add also about two pounds of fine sugar-candy.

This composition may be improved by fresh elder-flowers hung in a cloth in the head of the still, sprinkled with ambergrise in powder, or its essence.

CITRON-wood, the wood of an American tree, called by the natives candle-wood, because, being cut into splinters, it burns like a candle. This tree is frequent in the Leeward islands, and grows to a considerable size; the leaves are like those of the bay-tree, but of a finer green; the flower is sweet, and much like those of the orange; the fruit succeeding these is black, and of the size of a pepper-corn. The trunk is so like the yellow saunders in colour, that there was an opinion that it was the same tree, and much of it was imported into Europe, and sold as such; but they were soon found to be different, the true saunders being of a sweet scent, and but moderately heavy, and resinous, but the citron wood is considerably heavy, very oily, and of strong smell. It is of no known use in medicine, but is used in France and Germany by the turners, being a firm fine-grained wood, and taking a fine polish, and with age becoming of a very beautiful brown.

CITRUL, *citrullus*, in *Botany*, a name given to a genus of plants, otherwise called *anguria*. See **Water MELON**.

CITRUM. The *citrea mensæ* have been supposed by some to be made of the *citron-tree*, and by others of the cedar; but it appears plainly that they were made of neither, but of a wood peculiar for its fineness, and very different from both. The ancient Greeks have described the cedar under the name *κεδρος*, and the citron-tree under the name *malus medica*; and beside these, they have described another tree under the name of *thya*.

CITTERN, the old English name of a musical stringed instrument, resembling the **LUTE**, and now called **GUITAR**.

CITULA, in *Ichthyology*, the name given by Paulus Jovius, and others to the fish we call the **DOREE**, and the generality of authors *faber*. Pliny calls it *zeus*, and Artedi has hence made *zeus* the generical name, comprehending this and several other species under this arrangement. The *faber* is called the *zeus* with the prickly belly, and with the tail rounded at the end. This is the true specific name of the *citula*.

CITY, or **CITTY**, *Urbs*, a large town inclosed with a wall.

It is hard to give any just definition of a *city*; because custom has reserved the appellation of towns, to many places which seem to have every thing requisite to constitute *cities*.

Formerly *city*, according to some, was only understood of such towns as were bishops sees: which distinction seems still to hold in England; though no where else. See **BISHOP** and **DIOCESE**.

The term *city* had its rise, among us, since the Conquest; for in the time of the Saxons there were no *cities*, but all great towns were called **BURGHs**.—Thus, London was called *London Burgh*.

And for a long time after the Conquest, *city* and *burgh* were

were used promiscuously. Thus, in the charter of Leicester, that place is called both *civitas*, and *burgus*; which shews a mistake in my lord Coke, where he tells us, that every *city* was, or is, a bishop's see. Nor had Gloucester any bishop then; though it is called a *city* in Domesday. The like may be observed of Cambridge; to which it may be added, that Crompton, reckoning up our *cities*, leaves out Ely, though it had a bishop, and a cathedral.

Yet Chaffanæus, De Consuetud. Burgund. says, France has within its territories 104 *cities*; and gives his reason, because it has so many archbishops and bishops.

Cities and villages held formerly, in the time of the feudal government, of some great lord, on whom they depended for protection, and to whose arbitrary jurisdiction they were subject. But the freedom of *cities* was first established in Italy towards the beginning of the fourth century, in consequence of the prevalence of commerce: and it was thence introduced into France and other countries of Europe. And this establishment of communities, says Dr. Robertson, contributed more, perhaps, than any other cause to introduce regular government, police, and arts, and to diffuse them over Europe. Hist. Charles V. vol. i. p. 36 & seq. ed. ii. 8vo. See CHARACTERS of Community.

CITY, CIVITAS, in speaking of antiquity, signifies a state, or people, with all its dependencies, constituting a particular republic. Such are, still, several *cities* of the empire, and the Swiss cantons.

Though the ancient Gauls were, in effect, only one nation; they were yet divided into several people, which formed as many different states: or, to speak with Cæsar, as many different *civitates*, *cities*. Besides that each *city* had its peculiar assemblies, it sent deputies, too, from time to time, to the general assemblies held on affairs relating to their common interest.

CITY is particularly used to express the heart of the place. At Paris they have the *city* and the *university*; at London we have the *city* and the *suburbs*.

It has been observed that large *cities* are more liable than other places to pestilential and putrid disorders, which is owing to the stagnation and corruption of the air. This is always the case in those which are low and unprovided with common sewers; where the streets are narrow and foul, the houses dirty, water scarce, and jails and hospitals crowded: also, when in sickly times the burials are within the walls, or when dead animals and offals are left to rot in the kennels or on dunghills; when drains are not provided to carry off any large body of stagnating water in the neighbourhood; when *filth* makes the greatest part of the diet, without a proper mixture of greens, bread, wine, or fermented liquors; from the use of old mouldy grain. In proportion to the number of these and the like causes concurring, a *city* will be more or less subject to pestilential diseases, or to receive the leaven of the true plague, brought into it by any merchandize. An excellent writer emphatically calls them the graves of the human species. See *Bills of Mortality*.

However, as great *cities* furnish many materials for vitiating the air, they likewise afford two considerable antidotes; the first arises from the circulation of the air, by means of the constant motion of people and carriages, and of the draughts made by fires: the other depends on the great quantity of an acid produced by fuel, the strongest resister of putrefaction.

CITY, Advocate of the. See ADVOCATE.

CITY, Capital. See CAPITAL.

CITIES, College of. See COLLEGE.

CITIES, Forest. See FOREST.

CITY, Freedom of a. See FREEDOM.

CITY, Honours of the. See HONOURS.

CITIES, Imperial. See IMPERIAL.

CITIES, Municipal. See MUNICIPAL.

CITY, Provost of the. See PROVOST.

CIVES, in Botany, a very small species of onion, which never produces any bulbs, and seldom grows above six inches high in the blade, which is very small and slender, and grows in tufts and bunches. This used to be in great request for sallads in spring, as being milder than other onions which had stood the winter, but at present it is not much regarded. The way of propagating it is by parting the roots in autumn, and planting them, at small distances, three or four in a hole; they will stand the winter very well, and be fit for use early in the spring. See ALLIUM, GARLICK, and ONION.

CIVET, a kind of perfume, bearing the name of the animal whence it is taken.

The word comes from the Arabic *zibet*, or *zebed*, *scum*, *froth*.

The *civet*, or *civet-cat*, *zibeta*, is a little animal, in shape resembling the wolf or dog; its snout is long and small; its ears small and roundish; its hair is like those of the

badger, but very soft: its feet small and legs short. See Tab. Quadrupeds, N° 17.

Some naturalists will have it the same with the hyæna of Aristotle, and call it *hyæna odorifera*. Others suppose it the panther of the ancients, while the generality take it for a kind of wild cat, and call it *felis zibetica*, on account of the perfume it yields, which the Arabs call *zibet*. Linnæus makes it a species of the *VIVERRA*, with an annulated tail, with wave-like streaks of pale grey and black along the back. It is a native of Africa, the Indies, Peru, Brazil, Guinea, &c.

An ample description of the *civet-bag*, its glands, the reservoirs of the perfume, &c. is given by M. Morand, in Mem. Acad. R. Scienc. an. 1728. p. 403. H. 14.

It is gathered from time to time; and still abounds, in proportion as the animal is fed.

There is a very considerable traffic of *civet*, from Bassora, Calicut, and other places, where the animal that produces it is bred; though great part of the *civet* among us is furnished by the Dutch: who bring up a considerable number of the animals.

Before any of these animals were seen in Europe, or it had been observed how the perfume had been gathered, the common opinion, founded on the relations of travellers, was, that it was the sweat of that animal, when irritated and provoked into rage. To this effect, it was said, that the animal was inclosed in an iron cage; and after having been a long time beaten with rods, they gathered with a spoon, through the bars of the cage, and between the thighs of the animal, the sweat or foam, which the rage and agitation had produced; and that, without this precaution, the animal would yield no perfume at all, which is undoubtedly false.

The proper *civet* perfume is only a thick unctuous humour, secreted by certain glands between the two tunics of the bag wherein it is amassed, under the creature's tail, beneath the anus, and between it and the sexual parts of the animal.

Civet must be chosen new, of a good consistence, a palish colour, and a strong smell.

However, the sweat and foam of the animal provoked by fretting, which are highly perfumed, are likewise collected, serve to sophisticate the perfume, or increase its quantity.

Besides the Indian and Dutch *civet*, there is also a *civet* from Brasil, or Guinea, like that of India; and an *occidental civet*, which bears no resemblance to it: this being only a term used to express the human excrements.

Civet is little used in medicine, except in a thickness of hearing from cold; where a grain or two being put in a little cotton, or wool, and the ears stopped therewith, is sometimes of service. It is much used among perfumers and confectioners.

This odoriferous, unctuous animal juice is soluble in oils, but not in spirit of wine, or in water even by means of sugar. Neumann.

CIVIC, CIVICUS, an epithet applied to a kind of crown, made of oaken leaves; anciently bestowed by the Romans on those who saved the life of a fellow-citizen in a battle, or an assault. The *civic* crown was exceedingly esteemed; and was even given as an honour to Augustus; who on this occasion struck coins with this device, OB CIVIS SERVATOS. It was also granted to Cicero, after his discovery of Cataline's conspiracy. See CROWN.

CIVIL, CIVILIS, in its general sense, denotes something that regards the policy, public good, or peace of the citizens, or subjects of a state.

In this sense, we say, *civil* government; *civil* law; *civil* rights; *civil* war, &c.

CIVIL, in a *Legal Sense*, is also applied to the ordinary procedure in an action relating to some pecuniary matter, or interest. In which sense it is opposed to criminal.

CIVIL Action. See ACTION.

CIVIL Architecture. See ARCHITECTURE.

CIVIL Corporations. See CORPORATIONS.

CIVIL Day. See DAY.

CIVIL Death, any thing that retrenches, or cuts off a man from *civil* society: as, a condemnation to the galleys, perpetual banishment, condemnation to death, outlawry, and excommunication; all which make a man cease to be looked on as a citizen.

The term is likewise applied to those who are no longer capable of acting in temporal concerns; as those who renounce the world, who retire and make vows in a monastery, &c.

CIVIL Fruits. See FRUITS.

CIVIL History. See HISTORY.

CIVIL Law, Lex CIVILIS, is defined, in the Institutes, to be the laws peculiar to each city, or each people. But in the modern use, it properly implies the Roman law, contained in the Institutes, the Digest, the Code, and the Novels; otherwise called, *lex scripta*, or the *written laws*.

The Roman law, at its commencement, was very inconsiderable. Under the kings, the people were governed by certain laws prepared by the senate, passed by the kings, and confirmed in an assembly of the people. Papirus was the first who made a collection of the regal laws; which took its name from its author, and was called *jus Papirianum*.

The republic, after abolishing the regal government, still retained the royal laws: to these they added the law of the Twelve Tables, drawn by the decemviri, from the laws of twelve of the principal cities of Greece; and the more equitable among the laws hitherto practised at Rome.

During the time of the republic, and even under the emperors, there were *jurisconfulti*; who making public profession of the study of the law, were consulted on the different senses of the laws, and gave answers to the questions proposed to them hereon; which were called *responsa prudentum*, and by Justinian, the *jurisprudentia media*.

The law of the Twelve Tables was at length found so severe, and conceived in such obscure terms, that it was judged proper to moderate, restrain, and ascertain it, by other laws, proposed to the senate by the consuls, and passed at general assemblies of the people; according to the practice that had obtained under the kings themselves: and these were called by way of emphasis *leges*, or the *laws*. Afterwards, the common people differed with the nobility, and during the secession enacted laws of their own, which were called *plebiscita*; and, upon their subsequent reconciliation, these were admitted and universally enforced. The senate was likewise intrusted with a legislative authority; and new laws were made by them, and called *senatus consulta*, and incorporated with the Roman *civil* law. The prætors, likewise, in the absence of the consuls, had a power of supplying and correcting the *civil* law of the Twelve Tables, and of proposing edicts, which, when approved by the people, were incorporated into the *civil* law, under the title of *jus prætorium*. And the ædiles curules did also in some cases enact and establish laws. These several parts, which have been enumerated, composed the Roman *civil* law, during the republic.

In the time of Julius Cæsar, Offilius, a lawyer, began a collection of the edicts of the prætors; but this was not finished till the time of Adrian, by another lawyer; who also digested the edicts of the ædiles curules, which were made perpetual by the Cornelian law.

In the year of Rome 731, the republic expired; and the whole power of the people was transferred to Augustus, who was contented to publish his new laws in the assembly of the people; to keep up some image of the republic by this formality. Tiberius abolished these occasional assemblies, on pretence of their being too numerous; and in lieu thereof offered his laws to the senate, who never failed to confirm them: inasmuch that the laws of Tiberius, and his successors, who kept the same measures with the senate, were esteemed *senatus consulta*. They were also called *imperial constitutions*, and sometimes *placita principum*. The *responsa prudentum*, obtained from those to whom the emperors gave commission, and to which the judges were obliged to conform, constituted a part of the *jus scriptum*, or written law. The *imperial constitutions*, after they were become very numerous under succeeding emperors, were digested into four codes. See CODE.

Justinian, finding the authority of the Roman law almost abolished in the West, by the declension of the empire, resolved to make a general collection of the whole Roman jurisprudence, and committed the care thereof to his chancellor Trebonianus.

That minister executed his commission with a great deal of diligence, not to say precipitation: a new code was finished in 529, and a digest, or pandect, containing an abridgment of the *responsa prudentum*, in 533.

The same year he published an abridgment thereof, containing the first principles and elements of law, under the title of *Institutes*.

In the course of this reign, Justinian made 168 constitutions, and 13 edicts; which made a considerable alteration in the ancient law, and were called *Novels*.

All these together, viz. the *Code*, the *Digest*, the *Institute*, and the *Novels*, make the *corpus juris civilis*, or body of the *civil* law, as reduced by order of Justinian.

For the space of about 300 years, this system of law obtained without any innovation. But the new constitutions, made by the emperors from time to time, at length occasioning some alterations; the emperor Basil, and Leo his son, composed a new body of the Roman law, chiefly from the Justinian, in the Greek language; dividing it into seven volumes, and sixty books; under the title of *Basilica*. From which time, Justinian's body had but little credit in the East; the *Basilica* taking place of it.

In the West, the *civil* law had a different fortune: for, though some traces of its authority remained in Italy, yet it was little known in Europe, till a copy of Justinian's *Digests* was accidentally found at Amalfi, in Italy, about the year 1130; and this circumstance, together with the policy of the Romish ecclesiastics, contributed to introduce it into several nations, and occasioned that inundation of voluminous comments, with which this system of law, more than any other, is now loaded.

It is true, however, it was never taught publicly till the twelfth century; when the study of it was introduced into several universities abroad, particularly that of Bologna; whence it was carried by Irnerius's disciples into other countries, and in a little time was taught in all the universities.

It was first brought over into England by Theobald, a Norman abbot, who was elected to the see of Canterbury in 1138; and he appointed a professor, viz. Roger, surnamed Vacarius, in the University of Oxford, to teach it to the people of this country. Nevertheless, it gained ground very slowly; king Stephen issued a proclamation, prohibiting the study of it. And though the clergy were attached to it, the laity rather wished to preserve the old constitution. However, the zeal and influence of the clergy prevailed; and the *civil* law acquired great reputation from the reign of king Stephen to the reign of king Edward III. both inclusive. Many transcripts of Justinian's *Institute* are to be found in the writings of our ancient authors, particularly of Bracton and Fleta; and judge Blackstone observes, that the common law would have been lost and over-run by the *civil*, had it not been for the incident of fixing the court of common pleas in one certain spot, and the forming the profession of the municipal law into an aggregate body.

It is allowed, that the *civil* law contains all the principles of natural equity; and that nothing can be better calculated to form good sense, and sound judgment. Hence, though in several countries it has no other authority but that of reason, and justice, it is every-where referred to for authority.

It is not received at this day in any nation without some alterations: and sometimes the feudal law is mixed with it, or general and particular customs; and often, ordinances and statutes cut off a great part of it.

In Turkey, the *Basilics* are only used. In Italy, the canon law, and customs, have excluded a good part of it. In Venice, custom hath almost an absolute government. In the Milanese, the feudal law, and particular customs, bear sway. In Naples and Sicily, the constitutions and laws of the Lombards are said to prevail. In Germany, and Holland, the *civil* law is esteemed to be the municipal law: but yet many parts of it are there grown obsolete; and others are altered, either by the canon law, or a different usage.

In Friesland, it is observed with more strictness: but in the northern parts of Germany, the *jus Saxonicum*, *Lubecense*, or *Culmenfe*, is preferred before it. In Denmark and Sweden it hath scarce any authority at all. In France only a part of it is received; and that part is in some places as a customary law; and in those provinces nearest to Italy, it is received as a municipal written law. In criminal causes, the *civil* law is more regarded in France; but the manner of trial is regulated by ordinances and edicts.

The *civil* law, in Spain and Portugal, is connected with the *jus regium* and custom. In Scotland, the statutes of the federunt, part of the *regiæ majestatis*, and their customs, controul the *civil* law.

In England, it is used in the ecclesiastical courts; in the high court of admiralty; in the court of chivalry; in the two universities; and in the courts of equity: yet in all these it is restrained and directed by the common law. See LAW, COMMON LAW, &c.

CIVIL Liberty. See LIBERTY.

CIVIL List, the money allotted for the support of the king's household, and for defraying certain necessary charges of government. See 1 Geo. III. cap. 3.

CIVIL Month. See MONTH.

CIVIL Obligation. See OBLIGATION.

CIVIL State, consists of the nobility and commonalty, exclusive of the clergy, and of the military and maritime orders.

CIVIL Subjection, in Law, is a species of compulsive obligation, whereby an inferior is constrained by a superior to an action contrary to what his own reason and inclination would suggest: as when a legislator establishes iniquity by a law, and commands a subject to do what is inconsistent with religion or sound morality. This excuse cannot be admitted in *foro conscientiæ*, but it is a sufficient extenuation of *civil* guilt before the municipal tribunal. Blackst. Com. vol. iv. p. 28.

CIVIL War, a war between people of the same state, or the citizens of the same city.

CIVIL Year, is the legal year, or *civil* account of TIME, which every government appoints to be used within its own dominions.

It is thus called, in contradistinction to the natural year; which is measured exactly by the revolution of the heavenly bodies.

CIVILIANS *College*. See COLLEGE.

CIVILISATION, a law, or judgment, which renders a criminal process *CIVIL*.

Civilisation is performed by turning the information into an inquest, or vice versa.

CLACK wool, is to cut off the sheep's mark, which makes it weigh lighter; as to force wool, signifies to clip off the upper and hairy part thereof; and to bard it, is to cut the head and neck from the rest of the fleece. Stat. 8 H. vi. cap. 22.

CLADEUTERIA, in *Antiquity*, a festival celebrated at the time of pruning the vines. It was likewise called *bis-bæa*.

CLADIUS, in *Natural History*, a name given by the ancients to the stag, or deer, when four years old; in this year, or at the end of it, it was also called *cerastes*. The Greeks had names for all the years growth of this animal up to its perfection: in the first year they called it *nebrus*; in the second *pattalea*; in the third *dicrotus*; and in the fourth *cladius*, or *cerastes* toward the end of that year. This name the creature retained all its life afterwards, it being supposed at its full maturity at that time.

CLAIM, in *Law*, a CHALLENGE of interest in any thing that is in POSSESSION of another; at least of a man's own. See NON-CLAIM.

There are divers sorts of *claims*; as *claim by charter*, *by descent*, *by acquisition*, &c.

CLAIM, *Continual*, a *claim* made from time to time, within every year and day, to land, or other thing, which, on some accounts, cannot be attained without danger.

Thus, if I am disseised of land, into which, though I have a right, I do not enter for fear of being beaten; I am to hold on my right of entry at my best opportunity; by approaching as near as I can, once every year, as long as I live: and thus I leave the right of entry to my heir.

CLAIM of liberty, a suit or petition to the king in the court of Exchequer, to have liberties and franchises confirmed there by the king's attorney-general.

CLAIM, *False*. See FALSE.

CLAIM, *Quit*. See QUIT.

CLAIR-OBSCURE, or **CHIARO-SCURO**, in *Painting*, the art of distributing to advantage the lights and shadows of a piece; both with regard to the easing of the eye, and heightening the effect of the whole composition.

Thus, when a painter gives his figures a strong relieve, loosens them from the ground, and sets them free from each other, by the management of his lights and shadows, he is said to understand the *clair-obscure*.

The *clair-obscure* makes one of the great divisions, or branches of painting; the whole of a picture being resolvable into light and shadow. It was first invented in Italy by Hugo da Carpi, in the sixteenth century.

The doctrine of the *clair-obscure* will come under the following rules. Light may either be considered with regard to itself, to its effects, the place wherein it is diffused, or its use. For the 1st, light is either *natural*, or *artificial*.

Natural, either comes immediately from the sun, which is brisk, and its colour various, according to the time of the day; or it is that of a clear air, through which light is spread, and whose colour is a little bluish; or of a cloudy air, which is darker, yet represents objects in their genuine colours with more ease to the eye.

Artificial light proceeds from fire, or flame, which tinges the object with its own colour: but the light it projects is very narrow and confined.

For the 2d, the effects of light are either *principal*, as when the rays fall perpendicularly on the top of a body, without any interruption; or *glancing*, as when it slides along bodies; or *secondary*, which is for things at a distance.

3. For the place, it is either the open champaign, which makes objects appear with great softness: or an inclosed place, where the brightness is more vivid, its diminution more hasty, and its extremes more abrupt.

4. For the use, or application: the light of the sun is always to be supposed without, and over against the picture; that it may heighten the foremost figures: the luminaries themselves never appearing, in regard the best colours cannot express them. The chief light is to meet on the chief group, and as much as possible on the chief figure of the subject. The light is to be pursued over

the great parts, without being crossed, or interrupted with little shadows. The full force of the principal light to be only in one part of the piece; taking care never to make two contrary lights. Not to be scrupulously confined to one universal light; but to suppose other necessary ones, as the opening of the clouds, &c. to loosen some things, and produce other agreeable effects. Lastly, the light to be different, according to the quality of the things whence it proceeds, and the nature of the subjects which receive it.

As for shadows, they are distinguished, 1^o, into those formed on the bodies themselves, by their proper relieves: 2^o, Those made by adjacent bodies: 3^o, Those that make part of an whole: and 4^o, The different effects, according to the difference of places. For the first, since the different effects of lights only appear by shadows, their degrees must be well managed. The place which admits no light, and where the colours are lost, must be darker than any part that has relieve, and disposed in the front. The reflex, or return of the light, brings with it a colour borrowed from the subject that reflects it; and flies off at a greater or less angle, according to the situation of the reflecting body with regard to the luminous one: hence, its effects must be different in colour, and in force; according to the dispositions of bodies. Deepenings, which admit not of any light, or reflux, must never meet on the relieve of any member of any great elevated part; but in the cavities or joints of bodies, the folds of draperies, &c. And to find occasions for introducing great shadows to serve for the repose of the sight, and the loosening of things: instead of many little shadows, which have a pitiful effect.

For the 2d, the shadows made by bodies, are either in plain and smooth places, or on the earth; wherein they are deeper than the bodies that occasion them, as receiving less reflex light; yet still diminish as they depart farther from their cause; or they are on the neighbouring bodies, where they are to follow the form of the said bodies, according to their magnitude and position, with regard to the light.

For the 3d, in shadows that have parts, the painter must observe to take for a light in a shadowed place, the tint, or lustre of the light part; and on the contrary, for the shadow in the lightened part, the tint or lustre in the shadow: to make an agreeable assemblage of colour, shadow, and reflex in the shadowed part, but without interrupting the great masses of shadow: to avoid forming little things in the shadow, as not being perceived, unless closely looked at; and to work, as it were, in the general, and at one sight; never to set the strong shadows against the lights, without softening the harsh contrast by the help of some intermediate colour: though the mass of light may be placed either before or behind that of the shadow, yet it ought to be disposed, as to illumine the principal parts of the subject.

For the 4th, the effects of shadows are different, as the place is either wide and spacious; as in those coming immediately from the sun, which are very sensible, and their extremes pretty abrupt: from the serene air, which are fainter, and more sweet; from the dark air, which appear more diffused, and almost imperceptible; and those from an artificial light, which makes the shadows deep, and their edges very abrupt: or as it is more narrow and confined, where the lights coming from the same place make the shadow more strong, and the reflex less sensible.

CLAIR-OBSCURE, **CHIARO-SCURO** and **OBSCURO**, is also used for a design consisting only of two colours; ordinarily black and white, sometimes black and yellow.

Or, it is a design only washed with one colour; the shadows being of a dusky brown colour, and the lights heightened up with white.

The word is also applied to prints of two colours, taken off at twice; whereof there are volumes in the cabinets of the curious in prints.

The word *clair-obscure*, is compounded of two others: *Clair* is used among the French for those parts of a painting which reflects the most light; and comprehends not only the lights themselves, but also those colours that are luminous. By *obscure*, is meant not only all the shades, but also all the colours that are dusky.

CLAKIS, in *Zoology*, a name given by the people of Lancashire, and some other places, to the **BARNACLE**, a small species of wild goose.

CLAMATOR, in *Antiquity*, was used to signify a domestic officer, whose business was to call the guests to dinner.

CLAMEA *admittenda in itinere per attornatum*, is a writ whereby the king commands the justice in eyre to admit a person's *claim* by an attorney, who, being employed in the king's service, cannot come in person.

CLAMOR, or **CLAMEUR de Haro**, a popular term in the French

French laws, importing a complaint, or cry, whereby any one implores the assistance of justice against the oppression of another.

CLAMOR, *βον*, in *Medicine*, an intenseness of the voice, a loud outcry, a *clamor*. This is sometimes the cause of a rupture of the vessels, and sometimes of a disorder, like an inflammation about the membranes of the fauces and muscles; which may be compared to that ulcerous and inflammatory lassitude, which affects the hands, legs, and loins, after excessive hard labour; the spirituous and humid particles being exhausted, and the fibres and membranes dried and contracted. A *clamor* is sometimes also a sort of remedy, and prescribed as such in order to rouse persons out of a lipothymy, or syncope.

CLAMOR *bellicus*, in *Antiquity*. See **HUZZA** and **SHOUT**.

CLAMPS, in *Gunnery*. See **CAP-squares**.

CLAMPS, in *Ship-building*, are thick planks in a ship's side, used to sustain the ends of the **BEAMS**. They include the whole inner range of the side close under each deck, from the stem to the fashion-piece of the stern. Those of the lower and second decks should be half the thickness of the corresponding timbers in that part, and as broad as they can be procured; and they should be so disposed as not to be pierced by the ports.

CLAMPS, in a *Ship*, are also pieces of timber applied to a mast, or yard, to strengthen it, and prevent the wood from bursting.

CLAMP, also, denotes a little piece of wood, in form of a wheel; used instead of a pulley in a mortice.

CLAMP, is likewise the term for a pile of bricks built up for burning.

CLAMP-nails, are such nails as are used to fasten on *clamps* in building and repairing of ships.

CLAMPING, in *Joinery*, &c. When a piece of board is fitted with the grain, to the end of another piece of board cross the grain; the first board is said to be *clamped*. Thus the ends of large old tables were commonly *clamped*, to preserve them from warping.

CLAMPONNIER, or **CLAPONNIER**, in the *Manege*, a long-jointed horse; that is, one whose pasterns are long, slender, and over-pliant.

The word is obsolete, and is properly applicable only to the ox kind; for *la claponniere* in French, is in them what the pastern is in a horse.

CLANCULARII, a sect of Anabaptists, who denied the necessity of making an open profession of the faith; and taught that a private one would be sufficient.

These were also called *Hortulani*, and *Gardeners*, from the places they chose to assemble in, instead of churches.

CLANDESTINA, in *Botany*. See **LATHRÆA**.

CLANDESTINE, any thing done secretly, and without the knowledge of some of the parties interested in it; or without the proper solemnities.

The word comes from the preposition *clam*, of *κλειω*, *claudio*, I shut; or *κλημια*, *furtum*, *theft*.

Thus, a marriage is said to be *clandestine*, when performed without the publication of banns, the consent of parents, or the knowledge of the ordinary. The council of Trent, and the French ordonnances, annul all *clandestine* marriages. See **MARRIAGE**.

CLANGULA, in *Ornithology*. See **DUCK**.

CLAP, in *Medicine*, the first stage, or state, of the venereal disease, called also a **GONORRHOEA**.

Dr. Cockburn, and others after him, will have the *clap* to consist in an ulceration of the mouths of the glands of the *urethra* in men, and of the glandular *lacunæ* in women; occasioned by the insinuation of an acrimonious, purulent matter, contracted from an infected person in *actu coitus*.

From these glands, issues or gleans a sharp corrosive matter, accompanied with heat of urine, chordee, &c. which makes what is usually termed the first stage of the distemper.

A *clap* appears sometimes sooner, and other times later, though generally in about three or four days after the infection is received; and discovers itself by the running, &c. of the *penis*, with inflammation of the *glans*, or nut of the yard.

The heat, or burning which such persons feel in making water, is a consequence of this excoriation of the *urethra*; the salts contained in the urine pricking and irritating the nervous *fibrillæ* of the *urethra*, thus divested of its natural membrane.

If the person be affected with a *phimosis*, or *paraphimosis*; if the running be of a thin consistence, a yellow or green colour, and in great quantity, and the testicles swelled; it is usually termed a *gonorrhœa virulenta*; and the *clap* supposed to be in its second stage.

Some authors think, that in this degree, or stage, the infection has reached the mass of blood, and the *vesiculæ seminales*: others insist, that these symptoms may be accounted for, from the running, or *virus*, being more

corrosive; and by that means irritating and inflaming the adjacent parts.

The cure of a *clap* consists in proper evacuations, as calomel purgatives, refrigerant emulsions, powders, &c. turbith emetics, and lastly, proper terebinths, &c. to which some add, decoctions of the *lignum vitæ*. As to externals, they are generally comprehended under the form of fomentations, cataplasms, liniments, and lotions.

Late authors, and especially Dr. Cockburn, have insisted on the cure of a *clap* by a particular injection, without the use of any other medicine. This has given a handle to quacks, who, by affecting to do the same by their injections, generally check the running, and occasion a confirmed pox.

Turbith mineral, calomel, &c. given in small doses, and continued for some time, so as to take effect by way of alteratives, have been lately much commended as to success. Mercurial unguents, used in small quantities, so as not to raise a salivation, are said to cure all the stages of the venereal disease: this practice is used at Montpellier.

CLAP-board, a board cut, in order to make casks or vessels.

CLAP-net, in *Birding*, a sort of net contrived for the taking of larks with the looking-glass, by the method called daring, or doring. The nets are spread over an even piece of ground, and the larks are invited into the place by other larks fastened down, and by a looking-glass composed of five-pieces, and fixed in a frame, so that it is turned round very swiftly, backwards and forwards, by a cord pulled by a person at a considerable distance behind a hedge. See **DORING**.

CLAR, or **CLAER**, in *Metallurgy*, bone ashes perfectly calcined, and finely powdered, kept purposely for the covering the insides of **COPPELS**.

CLARAMONT powder, the name of a medicinal powder, very famous in Venice, and some other places, for its virtues in stopping hæmorrhages of all kinds, and in the cure of malignant fevers. It has its name from the person who first found out its virtues, and who has written a book expressly about it. It is white earth found near Baira, not far from Palermo, and is thence called also by some writers, *terra de Baira*.

CLARE, *Nuns of St.* were founded at Assise in Italy, about the year 1212. These nuns observed the rule of St. Francis, and wore habits of the same colour with those of the Franciscan friars: and hence were called *Minoresses*; and their house, without Aldgate, the *Minorities*, where they were settled when first brought over into England, about the year 1293. They had only three houses beside this.

CLARENCIEUX, the second king at arms; thus called from the duke of Clarence, to whom he first belonged.

Lionel, third son of Edward III. having by his wife the honour of Clare in the county of Thomond, was hereupon created duke of Clarence; which dukedom afterwards escheating to Edward IV. he made this herald, who properly belonged to the duke, a king at arms; naming him *Clarencieux*, in French, and *Clarencius* in Latin.

His office is to marshal, and dispose of, the funerals of all the lower nobility; as baronets, knights, esquires, and gentlemen of the South side of Trent: whence he is also called *Surroy*, or *Southroy*, in contradistinction to *NORROY*.

CLARENDON, *Constitutions of*, in *Antiquity*, a charter or code of laws established by the parliament at *Clarendon* in Wiltshire, A. D. 1164; sixteen articles of which related particularly to ecclesiastical matters, and were designed by king Henry II. to check the power of the pope and his clergy, and to limit the total exemption which they claimed from the secular jurisdiction. They were vehemently opposed by Becket: and ten of them were condemned by pope Alexander III. and six tolerated.

CLARET, or **CLAIRET**, *pale red*, a name which the French give to such of their red wines as are not of a deep or high colour. See **WINE**.

The word is a diminutive of *clair*, *bright*, *transparent*. There are various accounts in the Phil. Trans. of attempts to improve the operation of **TAPPING**, by injecting the *abdomen* after the lymph is drawn off with *claret* and other astringents. Ibid. vol. xlix. part ii. N^o 65. an. 1756.

CLARET, *Claretum*, in the *Ancient Pharmacy*, was a kind of wine sweetened with sugar, and impregnated with aromatics; sometimes also called *Hippocras*, or *vinum Hippocraticum*; because supposed to have been first prescribed by Hippocrates.

It has its name *claret*, from its being clarified by percolation through a flannel bag, called *manica Hippocratis*.

CLARIAS, or **CLARIAS Nilotica**, in *Zoology*, the name of a fish of the *silurus* kind, common in the Nile, and brought

brought to market at Memphis, and in many other parts of Egypt, but of an insipid taste, and eaten only by the poorer sort of people. The tail is broad and forked, and has externally two horny appendages of a round figure, and a hand's breadth in length, in which it differs from all other fishes.

CLARICORD, or **MANICORD**, a musical instrument, in form of a spinett.

It has forty-nine or fifty keys, and seventy strings, which bear on five bridges; the first whereof is the highest, the rest diminishing in proportion. Some of the strings are in unison; their number being greater than that of the stops.

There are several little mortises for passing the jacks, armed with little brass hooks, which stop and raise the chords in lieu of the feather used in virginals and spinetts. But what distinguishes it most, is, that the strings are covered with pieces of cloth, which render the sound the sweeter; and deaden it so, as that it cannot be heard to any considerable distance.

Hence some call it the *dumb spinett*; whence it comes to be particularly in use among the nuns, who learn to play, and are unwilling to disturb the silence of the dormitory.

The *claricord* is more ancient than either the spinett or harpsicord; as is observed by Scaliger, who, however, only gives it thirty-five strings.

CLARIFICATION, in *Chemistry*, the act of clearing, or fining of liquors from their grosser parts.

Clarification is performed by decantation, ebullition, despumation, and colature, or filtration.

The term is chiefly applied to juices, decoctions, and syrups, which are *clarified* by filtration, or by passing them through a strainer, after having beat them up into a froth with the whites of eggs; the viscous parts of the eggs, entangling the thick gross particles of the liquor, retain them in the strainer. Sometimes the mixture is boiled; by which means, the eggs entangle the grosser parts, and carry them up to the top in a tough scum; which is either taken off with a spoon, or separated by a flannel bag, as before, called *Hippocrates' sleeve*. Another method is, by letting the liquor stand in a convenient vessel, till the grosser particles settle.

In distilled waters, &c. which have a milky hue, or are turbid, this is generally effected with fine sugar, mixed with a small quantity of alum; which will bear down the oily parts, and leave the rest clear.

Many liquors are *clarified* by passing them through a thick brown paper; among others, hippocras, hydromel, &c. The ancients *clarified* their wines by pouring them from off the lees, into another barrel, through a tin strainer.

Fine and delicate wines are usually *clarified* with ichthyocolla, or fish-glue: the thicker wines with omelette, or whites of eggs diluted in water; sometimes by pouring them through a heap of little chips.

It is an error to suppose, that either isinglass, or omelette, can be prejudicial to the health; since both the one and the other fall down with the lees without producing any ill effect: though Neumann makes a doubt concerning the wholesomeness of wines thus *clarified*; especially if they are drank too soon. That which makes wines unwholesome, is not the *clarifying* by these innocent means, but the mixtures and sophistications of the vintners, to make them brisk, and bring them to life again, after the fret; which is done with *aqua vite*, spices, pigeons dung, &c.

Bay-salt is *clarified* with ox's blood.

Sugar is *clarified* with the whites of eggs, and sugar beat together; and with ox's blood and other materials. See **SUGAR**.

For **MALT liquors**, particularly beer, there are various methods of clearing; the best is by casting into it fixed nitre: some add the quintessence of malt and wine; whites of eggs made into balls with a little flour and isinglass: oil, and quintessence of barley, have the same effect. It is exceedingly cleared and strengthened, by adding to it, during the time of its fermentation, some ardent spirit.

CLARIGATION, in *Roman Antiquity*, a ceremony that always preceded a formal declaration of war. It was performed in this manner; first four heralds, crowned with vervain, were sent to demand satisfaction for the injuries done the Roman state. These heralds, taking the gods to witness that their demands were just, one of them, with a clear voice, demanded restitution within a limited time, commonly thirty-three days; which being expired without any restitution made, then the *pater patratus*, or prince of the heralds, proceeded to the enemies' frontiers, and declared war.

CLARIGATION is also used for apprehending a man, and holding him to bail. The Greeks called this action **ANDROLEPSIA**.

CLARIGATION, in the *Law of Nations*, denotes a loud clear call, or summons made to an enemy, to demand satisfaction for some injury received; in defect whereof, recourse will be had to reprisals.

Clarigation amounts to much the same with what the Greeks call *ανδροληψια*. Though Naude uses the word in a somewhat different manner. "Reprisals," says he, "signify the same as *pignorationes Budæo, aut clarigationes Hermolao*: for, as to the Greek word *ανδροληψια*, it is equivalent to the Latin *pignori potestas*."

CLARINO, in the *Italian Music*, signifies a TRUMPET; thus, *a duoi clarini*, added to any composition, denotes that it was made for two trumpets. See **CORNET**.

CLARION, a kind of trumpet, whose tube is narrower, and its tone acuter and shriller, than the common trumpet.

Menage derives the word from the Italian *clarino*, of the Latin *clarus*, by reason of the clearness of its sound.

Nicod says, the *clarion*, as now used among the Moors, and the Portuguese, who borrowed it from the Moors, served anciently for a treble to several trumpets; which sounded tenor and bass. He adds, that it was only used among the cavalry, and the marines.

CLARION, in *Heraldry*, is a bearing represented in *Tab. Heraldry, fig. 36*.—He bears ruby, three *clarions* topaz; being the arms of the earl of Bath, by the name of Granville.

Guillim takes these *clarions* to be a kind of old-fashioned trumpets; but others rather think, they represent the rudder of a ship; and others a rest for a lance.

CLARISSIMI, among the Romans, a title of honour belonging to the third rank of nobility under the emperors. See **SPECTABILES**.

CLARK-goose, in *Natural History*, a species of wild goose found in Zetland. Phil. Trans. N° 473. sect. 8.

CLARO obscuro. See **CLAIR obscure**.

CLARY, *Sclarea*, in *Botany*; Tourn. Linnæus has joined this genus and the next to the **SALVIA**. Its characters are these: the flower has a tubulous empalement, which widens at the top, and has five acute points at the brim. It is of the lip kind, with one petal, having a crooked tube which enlarges at the chaps, where it is divided into two lips; the upper lips erect and arched, the under lip cut into three segments. It has two stamina, which are situated under the upper lip, terminated by oblong erect summits; and a four-pointed germen, supporting a forked style longer than the upper lip, crowned by a bifid stigma. The germen afterward becomes four roundish seeds, which ripen in the empalement.

There are sixteen species, natives of different places. The first sort grows naturally in Syria, but has been long cultivated in the European gardens, both for the kitchen and shops: it is a biennial plant, which perishes after it has borne seeds. The lower leaves of this are large, rough, wrinkled, oblong, and heart-shaped; and are sawed on the edges.

It is propagated by seeds, which should be sown in the spring; and when fit to remove, may be planted in an open spot of ground in rows, two feet asunder. In the winter and spring following, the leaves, which are the only part used, will be in perfection, and in the summer will run up to flower; and after ripening their seeds, will decay; so that young plants should be annually raised for use.

Clary is accounted to be of a warming and drying nature. Infused in wine, it comforts a cold windy stomach; it is particularly commended to strengthen the kidneys, to relieve a *fluor albus*, and invigorate a cold relaxed womb.

CLARY-water, is composed of brandy, sugar, clary-flowers, and cinnamon, with a little ambergris dissolved in it. It helps digestion, and is cardiac. This water is rendered either purgative or emetic, by adding resin of jalap and scammony, or *crocus metallorum*. Some make *clary-water* of brandy, juice of cherries, strawberries, and gooseberries, sugar, cloves, white pepper, and coriander seeds; infused, sugared, and strained.

CLARY, *wild, Horminum*, in *Botany*; Tourn. Inst. R. H. 178. Its characters are these: the empalement of the flower is permanent, of one leaf, having two lips; the upper ending in three acute points, the under in two. The flower has one petal, divided into two lips; the upper concave, and incurved with a slight indenture at the point; the lower broader, and more indented. It hath two short stamina, situated in the tube of the flower; and in the bottom of the tube are four roundish germina, which become four seeds lodged in the empalement. There are five species, one of which is sometimes called *oculus Christi*. See **OCULUS Christi**.

The English name of this genus of plants is *clary*; but it is an indeterminate one, because it is also used as the name for the *sclarea*, a different genus of plants, though

by many authors confounded with the other under the name *horminum*. Tourn. Inst. p. 178.

Horminum has been much celebrated as a cardiac, but is now less used than formerly. The dried herb, given in infusion or decoction, is good in the *fluor albus*, but should be given with other medicines. It is also commended in colics, flatulencies, and hysteric complaints; also as an antispasmodic, and in epilepsies.

CLASMIUM, in *Natural History*, the name of a genus of fossils of the class of the *GYPsums*; the characters of which are, that they are of a soft texture, and of a dull and opake look, being composed, like all the other gypsums, of irregularly arranged flat particles.

The word is derived from *κλασμος*, a fragment, or small particle, from the flaky small particles of which these bodies are composed. Of this genus there is only one known species; this is of a tolerably regular and even structure, though very coarse and harsh to the touch. It is common in Italy, and is greatly esteemed there: we have of it also in some parts of Derbyshire; but with us it is not particularly regarded, but burnt among the rest. It neither gives fire with steel, nor ferments with *aqua fortis*; but calcines readily in the fire, and affords a very valuable plaster of Paris.

CLASP-nails. See **NAILS**.

CLASPERS, in *Botany*, are tendrils, threads, or ligaments, of a middle nature between those of a root, and trunk; whereby shrubs, and other lesser plants, take hold of trees, or other things near them, for their support, &c.

The wisdom of the Creator is very conspicuous, in this provision for some species of plants, which need it, as ivy, vines, bryony, &c.

The contrivance is various in various subjects. Malpighi observes, that the *claspers* of ivy are roundish, and covered with hair; and, what is very remarkable, they yield a glutinous terebinthine humour, by means whereof, they adhere closely to stones, &c. Nature, he adds, uses no less artifice in the *vitis Canadensis*.

Claspers serve sometimes for support only: as those of the vine, bryony, &c. whose branches being long, slender, and brittle, would be weighed down by their own load, and that of their fruit, but for these *claspers*, which by a natural spire, or circumvolution, catch hold of any adjacent body.

Claspers sometimes also serve for a supply of juice; as in the trunk-roots of ivy, which being a tall plant, and of a compact substance, the sap would not be sufficiently furnished to the upper sprouts, without this expedient.

Claspers also sometimes serve for stabiliment, as those of cucumbers; for propagation, as those of camomile; and for shade, stabiliment, and propagation all together, as those of strawberries:

CLASS, *Classis*, a distribution of persons or things, ranged according to their merit, value, or nature. See **RANK**, &c. The word comes from *classis*, derived by some from the Greek *κλᾶω*, *congrego*, *convoco*; a *class* being nothing but a multitude, assembled apart.

CLASS, in *Botany*, is defined by Linnæus to be an agreement of several genera in the parts of fructification, according to the principles of nature distinguished by art: and he has divided the whole body of vegetables into twenty-four *classes*.

CLASS is particularly used for a distinction among scholars; who are distributed into several *classes* or forms, according to their capacities and attainments.

Quintilian uses the word *classis* in this sense, in the first book of his *Institutiones*.

CLASSIC, **CLASSICAL**, a term chiefly applied to authors read in the *classes* at schools, and who are in great authority there. In this sense, Aquinas, and the master of the sentences, are *classic* authors in the school-divinity; Aristotle, in philosophy; Cicero, and Virgil, in the humanities. Aulus Gellius ranks among *classic* authors, Cicero, Cæsar, Sallust, Virgil, Horace, &c.

The term *classic* seems properly applicable only to authors who lived in the time of the Roman republic, and the Augustan age, when the Latin was in its perfection.

It appears to have taken its rise hence, that an estimate of every person's estate being appointed by Servius Tullius, he divided the Roman people into six bands, which he called *classes*. The estate of those of the first *classis* was not to be under two hundred pounds: and these, by way of eminence, were called *classici*, *classici*.

Hence, also, authors of the first rank came to be called *classici*: all the rest were said to be *infra classē*.

The first *classis*, again, was subdivided into centuries; making fourcore centuries of footmen, and eighteen of horsemen.

Each *classis* consisted, one half of the younger sort, who were to make war abroad; and the other of old men, who staid at home, for the defence of the city.

CLASSICAL learning may be understood to signify such an

acquaintance with the best Latin and Greek writers, as shall enable the reader to perceive and admire the peculiar beauty of their compositions, and to adopt their diction and sentiment. The principal *classic* Greek authors are, Homer, Hesiod, Plato, Demosthenes, Æschines, Xenophon, Plutarch, Isocrates, Epictetus, Lucian, Sophocles, Euripides, Longinus, Theocritus, Anacreon, Pindar, Aristophanes, &c. The chief Latin writers are, Cicero, Livy, Cæsar, Sallust, Virgil, Horace, Terence, Plautus, Juvenal, Ovid, Pliny, Valerius Paterculus, Tacitus, &c.

CLATHRI, in *Antiquity*, bars of iron, or wood, used in securing doors and windows.

There was a goddess that presided over *clathri*, called *Clathra*.

CLATHRUS, in *Botany*, a name given by Micheli, and continued by Linnæus, to a genus of *fungi* in the class of *cryptogamia*; the characters of which are these: they are always of a roundish figure, and have a reticulated and hollowed body, as if full of windows, with ramifications every where annexed.

CLATHRUS is also the name of a species of **TURBO**, in the order of *testacea*, belonging to the class of worms.

CLATTE, in *Heraldry*, a term borrowed from the French, to express such lines as are sometimes found in the old paintings, and engravings of arms. These lines are of an irregular kind, and not reducible to any other proper lines of heraldry, as the engrailed, indented, embattled, or the like.

CLAVARIA, in *Botany*, the name given by Vaillant, and continued by Linnæus, to a genus of *fungi* in the class of *cryptogamia*; the characters of which are, that they grow perpendicularly, and have a simple and uniform surface; these have been called also by the same Vaillant, under some small varieties in the species, *corallo-fungus*; and by Tournefort, *coralloides*. Dillenius has called them *fungoides*.

CLAVARIUM, in *Antiquity*, an allowance which the Roman soldiers had for furnishing nails to secure their shoes with. They raised frequent mutinies, demanding largesses of the emperors under this pretence.

CLAVATA vestimenta, in *Antiquity*, habits adorned with purple *clavi*, which were either broad or narrow. See **CLAVUS**.

CLAUDENDA curia. See **CURIA**.

CLAUDENS palpebras, in *Anatomy*, a name given by Spiegelius, and some others, to one of the muscles of the face, called by Albinus and Winslow, *musculus obicularis palpebrarum*, and by others *sphincter palpebrarum*.

CLAUDICATION. See **LAMENESS**.

CLAVELLATI cineres. See **POT-ashes**.

CLAVES insulæ, a term used in the Isle of Man, where all ambiguous and weighty cases are referred to twelve persons, whom they call *claves insulæ*, i. e. the keys of the island.

CLAVICULÆ, *collar-bones*, in *Anatomy*, two small bones, situate at the basis of the neck, and top of the breast. See *Tab. Anatomy (Osteol.)*, fig. 3. n. 3.

They are about half a foot long, of the thickness of a finger, and a little bent at each end, and that different ways, somewhat like the letter S; and are thus called, as being the keys, *claves*, of the *thorax*.

Their inner substance is spongy, whence they are brittle, easily broken, and easily coalescing again. They are joined to the *acromium* of the *scapula per synchondrosin*; and on the fore-part, *per arthrodiām*, to a *sinus* on each side of the upper part of the *sternum*.

Their use is, to fix the *scapula* with the *sternum* and the arms, and to prevent them from slipping too forward upon the *thorax*.

The two *clavicles* are situated transversely, and a little obliquely, opposite to each other, about the superior and anterior part of the *thorax*, between the *scapula* and the *sternum*. Each *clavicle* resembles in some measure an Italic S, being a long bone irregularly cylindric, bent forwards near the *sternum*, and backwards near the *scapula*, as if it were made up of two arches joined endwise in opposite directions, that which lies on the fore-part of the breast being the largest. The *clavicles* are each divided into a body, or middle part, and two extremities, one anterior, inferior, and internal, which may be termed the pectoral or sternal extremity; the other superior, posterior, and external, which may be named the humeral, or scapular extremity. The pectoral extremity is the thickest, and is of a triangular figure, especially near the end, where it is a little enlarged, and shews a cartilaginous surface, with three angles, of which the lowest is the most prominent, and is turned a little toward the cavity of the *thorax*; near these angles there are several muscular and ligamentary impressions, one of which, near the inferior angle, is sometimes raised like a tubercle. The humeral extremity is flat and broad, and two sides may be considered in it, one superior, the other

other inferior; as likewise two edges, one anterior, the other posterior; and a small articular surface.

The upper side has several inequalities, and in the lower there is a kind of oblong, rough, oblique tuberosity. The posterior edge is convex, thick, and uneven, being that of the small arch of the *clavicle*: the anterior edge is concave, thin, and smooth, every where except near the great arch, where it has a rough impression. The articular surface terminates this extremity, being cartilaginous, turned obliquely forward, and of an oval figure, like that of the *acromium*, with which it is articulated. The body or middle portion, which, together with the pectoral extremity, forms the great curvature of the *clavicle*, is not so thick as the extremities; it is a little flattened both on the upper and lower sides, and therefore two edges may likewise be distinguished in it; the upper side is pretty even, the lower something rougher, and a little depressed by a superficial channel. The edges are rounded, the anterior being convex, the posterior concave; the inner substance of the extremities is cellular, the rest is more solid, consisting of very thick sides, with a narrow cavity more or less filled with reticular bony filaments. Winslow.

Mr. Weitbrecht has described and delineated a ligament, which had not been observed by anatomical writers, stretched from the posterior part of the anterior extremity of each *clavicle*, behind the *sternum*, to the same part of the other *clavicle*, which makes the articulation of the *sternum* and *clavicles* stronger. See Comment. Acad. Petrop. tom. iv. p. 255.

CLAVICLE, fracture of the. The *clavicle* is extremely subject to be fractured, both from its transverse position, and from its smallness. Whether it happens to be broken near the *humerus*, or near the *sternum*, its end that is next the *humerus* always descends lower than the other, from the weight of the arm which was before sustained by the *clavicle* and head of the *sternum*; and notwithstanding that part of it next the *sternum* remains immovable by the descent of its other end, it can scarce happen but they will in some degree collapse over one another.

The reduction of a fractured *clavicle* is not very difficult, especially when the fracture is transverse; nor is it usual for the *humerus*, with the fragment of the *clavicle*, to be so far distorted as not to be easily reduced by the fingers. The difficulty, however, is much greater to keep the bone in its place when the fracture has been reduced; and that most of all when the bone has been broken obliquely. For this there are two reasons; for the circular bandages, with which the bones of the arms, and other extremities are usually held very firm, cannot be applied here, because of the form and disorder of the part; and then the weight of the depending arm soon pulls to pieces what the surgeon has been replacing.

This fracture is to be reduced in the following manner: the patient must be placed on a low seat, and an assistant is to thrust his knee against the middle of the patient's back, between his two shoulders; then laying hold of the heads of both the patient's arms with his hands, he must pull them gently and gradually backwards, by which means the *clavicles* will be properly extended: while this is doing, the surgeon must stand before, and endeavour to replace the bone with both his hands, ordering the assistant to hold the bone in that position; he is then to apply a narrow and thick compress, so as to fill up the cavities above and below the *clavicle*; upon these he is to lay two more narrow compresses made in the form of an X; over all these he is to apply a piece of paste-board, accommodated to the shoulders and neck, and first steeped in spirit of wine, or oxycrate; then he must place a ball under the arm, or else bind it several times with a thick roller, to prevent the *humerus* from subsiding; and, lastly, the whole is to be properly bound up, and the arm suspended by a sash or sling hung across the shoulder, about the neck. The plasters that have been used to be employed on this occasion, have, of later years, been found to be wholly useless.

Whenever there are any loose splinters of the bone that are entirely separated, which, though they should not wound, or hurt the flesh, yet will obstruct the meeting of the *clavicle*, it seems altogether requisite to open the skin, and remove them before the reduction of the bone, treating the wound as usual: but if there should be any splinters which still adhere to the bone, and prick the adjacent parts, and impede the reduction, they must be also either taken off with forceps, or else forced back into their places, by which they may be again united to the bone. But to divide the parts, and remove the fragments, requires great caution, lest some of the large subclavian veins or arteries be wounded in the operation, and thereby a fatal hæmorrhage be produced. Heister, Surg. p. 120.

CLAVICLE, luxated. The *clavicles* are but seldom displaced, by reason of their strong ligaments: but they may be dislocated, however, either from the top of the *sternum*, or *processus acromion* of the *scapula*, to which they are naturally connected. This may be occasioned either by a fall or blow, or by lifting some great weight. With regard to the cure, the sooner assistance is had, the more easily may the reduction of the *clavicle* be performed; but loss of time in this case is of the utmost consequence, inveterate luxations of the *clavicle* being found incurable. The *clavicles* may be dislocated in two manners from the *sternum*, either internally toward the *larynx*, or externally upon the breast. When the first case happens, a cavity may be generally perceived upon the part affected, and the *trachea*, with the carotid veins, and arteries, and nerves, and the *æsophagus*, which are all together, will be very much disturbed or compressed. On the contrary, when it is luxated forward upon the breast, it shews itself by a preternatural tumour, instead of a cavity, in that place.

The *clavicles*, when luxated, are to be replaced by the patient's being set in a low seat, and an assistant's thrusting his knee against the middle of his back, between his shoulders, and laying hold of both his arms, and pulling them gently backwards. By this means the *clavicles* will be extended, and are in that state easily replaced. When this is done, it must be carefully regarded to remove the injuries of the neck. If any kind of luxation requires an accurate retention by bandage, it must certainly be this of the *clavicle*, especially when the luxation has happened some time before the reduction; for, beside that the *clavicles* have scarce any muscles to support them, their ligaments are usually so much stretched and weakened in this case, that they are in no wise sufficient to sustain the weight of the arms. Such luxations of the *clavicles* as happen near the *processus acromion*, are generally much more difficult to discover, and have been too often mistaken, even by surgeons, for luxations of the *humerus*. Whenever this luxation happens, the superior part of the *scapula* sticks up: but in the place, when the *clavicles* are separated from the *acromion* process, a cavity may be observed: most acute pains also arise from this luxation, and the arm can by no means be lifted up. If therefore the luxated *clavicle*, in this case, is not timely reduced, it is no wonder that the use of the arm is entirely lost afterwards. A strict bandage continued about the part for forty days, to make the disunited bones again coalesce, will be found of great service in these cases, and, indeed, is the principal part of the cure. The bones may be replaced by the before advised manner of extension, but nothing can keep them so but a proper and accurately applied bandage. Heister, Surg. p. 158.

CLAVICYMBALUM, in *Antiquity*, a musical instrument with thirty strings, in a perpendicular situation.

Modern writers apply the name to our harpsichords.

CLAVIS, a Latin word, sometimes used in English writers for a key.

CLAUSE, an article, or particular stipulation in a contract; a charge, or condition in a testament, &c.

We say, a *derogatory clause*, *penal clause*, *saving clause*, *codicillary clause*, &c.

CLAUSIT extremum diem. See **DIEM**.

CLAUSTRAL prior. See **PRIOR**.

CLAUSUM fregit, an action of trespass; thus called, because the writ demands the person summoned to answer to *quare clausum fregit*, of the plaintiff, why he committed such a trespass.

CLAVUM Veneris, in *Botany*, a name given by some authors to the *water-LILY*, or *nymphaea*.

CLAVUS, in *Antiquity*, a band, or fillet of purple, worn on the breast by the Roman senators and knights, more or less broad, according to the dignity of the person; from the proportions of which arose the difference of *tunica ANGUSTICLAVIA*, and *LATICLAVIA*. See **TUNICA**. This ornament, according to some, was called *clavus*, *nail*, as being studded with little round plates of gold, or silver, like the heads of nails. Cantelius maintains, that the *clavus* consisted of a kind of purple flowers, sewed upon the stuff.

CLAVUS annalis, in *Antiquity*. So rude and illiterate were the Romans towards the rise of their state, that the driving or fixing a nail was the only method they had of keeping a register of time; for which reason it was called *clavus annalis*. There was an ancient law, ordaining the chief prætor to fix a nail every year on the ides of September; it was driven into the right side of the temple of Jupiter Opt. Max. towards Minerva's temple.

This custom of keeping an account of time, by means of fixing nails, was not peculiar to the Romans, for the Etrurians likewise used to drive nails into the temple of their goddess Nortia, with the same view. Vid. Liv. lib. vii. cap. 3.

CLAVUS,

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CLAVUS, in *Medicine*, a name physicians give to a shooting pain in the head, commonly situate a little above the eyes, viz. on the *sinus frontalis*; and supposed to resemble a boring of the head through with an augre; whence the name. In some it is only in one, and in others in both sides.

It is generally allowed to be a species of an ague, or an intermittent fever: its period of coming or going being usually regular or stated. In some it is quotidian, in others tertian.

The cure consists in giving an emetic a little before the fit, and after, confirming it with a proper quantity of the cortex, &c. as in intermitting fevers: though bleeding and diaphoretics sometimes effect a cure without other assistants.

A pain like to this, on the top of the head, sometimes attacks hysterical persons; which by Dr. Sydenham is termed *clavus hystericus*.

CLAVUS hystericus, in *Medicine*, denotes a peculiar species of head-ach, more frequently attacking women than men, and with them usually owing its origin to a suppression of the menstrual discharges. In some cases, the pain is less violent, and only attends people during the three or four first days of the menstrual discharge. In others, the pain is more violent, and almost continual; and when to the common causes of it there is added a venereal taint, which is no uncommon case, it becomes then the most terrible of all pains in the head.

Signs of it. These are a piercing pain about the forehead or temples, resembling that of a nail driven into the head: this pain sometimes also extends itself over the whole head: with this there generally is a sensation of pain about the sagittal suture in particular, and a remarkable coldness there: often there is an inflation and redness of the face, with a noise and ringing in the ears. To these there are not unfrequently added a slight fever, a chilliness of the extremities, a remarkable lassitude, and want of appetite, with frequent eructations and nausea, and a costiveness of the bowels. It generally returns about the time of the menses; or in cases where it is continual, it rages with more than ordinary violence at that time. Among the women these are most subject to it who live sedentary lives, and feed high, and who are naturally passionate, and of a hasty temper.

Causes of it. Among the natural causes of this terrible pain, the most powerful are, an excretion of blood toward the head, and a stoppage of the menses, and of the discharges by the hæmorrhoidal veins, by injudicious treatment.

Prognostics from it. Nothing gives physicians greater trouble, or more exposes the insufficiency of the art of healing, than the head-achs to which women are subject. The manner of life of the patient is, however, more in fault in these obstinate cases, than either the nature of the disease, or the skill of the prescriber: high living, and idleness, have too many charms, to be quitted easily by those who can enjoy them; and therefore, while the cause always subsists, the cure can be only palliative or temporary, the disorder always returning after a time: yet it is certain by experience, that the most terrible and inveterate disorders of this kind may be removed so as not to return, by the use of proper medicines, and a thorough change in the diet and manner of life of the patient.

Method of cure. The first care in this respect is to keep the bowels lax, for they are almost always naturally costive in this disease: emollient clysters are the most proper means of doing this; and where purges are required beside, they must always be of the most gentle and least velleicating kind. After these, the violent emotions of the blood are to be quieted by powders of nitre, antimony diaphoretic, crab's eyes, and cinnabar; and if there be a spissitude in it, the neutral and diuretic salts are to be given, in a scruple at a time, every day. Tartarum vitriolatum alone, given in this manner, frequently has a very great effect. If it be found necessary, beside this, a gentle opiate may be sometimes given, such as a small dose of the storax pill: and externally, spirit of wine and camphor is not a little serviceable. By way of prevention, it is extremely proper to bleed at spring and autumn every year: and above all things, to keep regular in regard to the menstrual discharges. Gentle purges are to be given at times, and necessary exercise above all things to be advised: and this should always be the more insisted upon, the more averse the patients are to it, and the more they love to indulge in a sedentary course. Junker Consp. Med.

CLAVUS is also used in *Medicine*, for a callus formed on the toes; popularly called a *corn*.

Clavi arise from a too great compression of the *cutis*; which by this means hardens, and forms itself into a knot. See **CALLUS**.

C L E

The cure is by first softening them, as with *emplast. de ranis cum mercurio*, or with *galban. crocat.* with *sal ammiac*; and then pulling them up. A piece of raw beef, applied in manner of a plaster, and frequently shifted, is often found to dissipate them in a little time. Whether these are removed by the knife, or by application of emollient, caustic, or corroding medicines, great caution should be used to avoid injuring any of the subjacent tendons.

After corns are cut away, Harris says the *diachylon simplex* will prevent their growing again; as also will the *galbanum coctum Mynsichti*, and also that soft wax which is used by the lawyers. But above all a clean linen rag bound about the toe, after the callus is cut away; this was much recommended by king Charles II.

CLAWS, among *Zoologists*, denote the sharp pointed nails, with which the feet of certain quadrupeds and birds are furnished.

Elk's CLAWS. See **ELK**.

CLAWS is also used for a close or small measure of land.

CLAWING, or **CLAWING-off**, in *Sea-Language*, signifies the act of beating or turning to windward from a lee-shore, so as to escape the danger of shipwreck.

CLAY, *Argilla*, in *Natural History*, a soft viscous earth, found in various places, and used for various purposes; of several kinds and properties.

Dr. Lister, in the *Philosophical Transactions*, gives us a table of twenty-two several clays found in the several counties of England; five whereof he calls

Pure, i. e. such as are soft like butter, to the teeth, with little or no grittiness in them; viz. 1. **FULLERS-earth**, which he distinguishes by its colour into yellowish, brown, and white. 2. **BOLES**. 3. **Pale yellow clay**. 4. **Cowshot clay**. 5. **Dark blue clay**, or **MARLE**. The other seventeen,

Impure; whereof eight are harsh and dusty when dry; as, 1. **Creta**, chalk, or milk-white clay. 2. **Potters pale yellow clay**. 3. **Blue potters clay**. 4. **Blue clay**, wherein is found the astroites. 5. **Yellow clay**. 6. **Fine red clay**. 7. **Soft chalky blue clay**. 8. **Soft chalky red clay**. Three are stony when dry; viz. 1. **A red stony clay**. 2. **A blue stony clay**. 3. **A white stony clay**.

Three are mixed with sand, or pebbles; viz. 1. **A yellow loam**. 2. **A red sandy clay**. 3. **A second species of the same kind**.

Lastly, three are mixed with flat or thin sand, glittering with mica; viz. 1. **Crouch white clay**. 2. **Grey or bluish tobacco-pipe clay**. 3. **A red clay**. But this is a very unartful disposition.

Dr. Hill has distinguished them by their colours into white, yellow, brown, blue, green, red, and black clays; and enumerated several particular sorts of clay under each of these heads. Mr. Mendes Da Costa also, in his *History of Fossils*, distributes them according to their colour into black, white, ash and grey, red, yellow, brown, blue, green clays; and then subdivides each class into clays which are not acted upon by acids, and alkaline clays.

The distinguishing characters of earths principally used in the potter's trade are these: they are firmly coherent, weighty and compact; stiff, viscid and ductile to a great degree while moist; smooth to the touch, and unctuous, not easily breaking between the fingers, nor readily diffusible in water, and when mixed in it, not readily subsiding from it. It hardens by fire into a kind of stony substance. It is not known that any kind of earth shrinks so much as clay, and hence the purity of clay may be judged from the degree of its contraction. Lewis's *Commercium Phil Techn.* p. 259.

Such as are curious to know more of this subject may be fully gratified by consulting M. Macquer's *Mem. on clays*, in the *Mem. of the A. D. S.* an 1762.

CLAY-lands. See **SOIL**.

CLAYES, in *Fortification*, are wattles made with stakes, interwoven with oziars, &c. to cover lodgments.

CLAYING of lands. See **MANURING**.

CLAYTONIA, in *Botany*, a genus of the *pentandria monogynia* class. The characters are: the flower hath a two-leaved oval empalement, with a transverse base: it hath five oval indented petals, and five recurved stamina, shorter than the petals, and terminated by oblong summits. In the center is situated an oval germen, supporting a single style, crowned by a trifid stigma. The germen becomes a roundish capsule with three cells, opening with three elastic valves, and filled with round seeds. This is a native of Virginia, and we have but one species in our English gardens.

CLEAR, in *Building*, is sometimes used among the workmen for the inside work of a house, &c.

CLEARING of liquors. See **CLARIFICATION**.

CLEATS, in *Ship-building*, are pieces of wood of different shapes, used occasionally to fasten ropes upon, in a ship: some have one arm, some two, and others have no arms but

but are hollowed in the middle, and nailed to the deck or the sides of the ship.

CLEAVERS, CLIVERS, or GOOSE-grass, *aparine*, in *Botany*, the name of a genus of plants, the characters of which are these: the flower consists of one leaf, and is bell-fashioned, very wide, open at the mouth, and divided into several segments; the cup becomes a fruit, which is dry, covered with a very thin skin, and composed of two round bodies, which contain an umbilicated seed. The leaves of this plant are rough and hairy, and stand in rundles round the stalk.

The species of *cleavers* enumerated by Mr. Tournefort, are eleven.

The *cleavers* are known from the madders, by their having a dry fruit; and from crosswort, by having five or more leaves at a joint; and finally, from galium, or ladies bed-straw, by the leaves being rough or hairy. However, Linnæus has classed the goose-grass with smooth seed under *GALIUM*, and the low trailing goose-grass with a blue flower under *valantia*. It is very common on banks under hedges.

The vulgar have an opinion of this plant as an antiscorbutic, and eat it in spring with nettle-tops and the rest of that tribe, to sweeten their blood. It stands recommended by many authors as a remedy for the king's evil; and others have ascribed a very powerful diuretic virtue to it; but these have in general ordered a very bad preparation of it for these purposes, the distilled simple water; doubtless a good decoction must be greatly preferable. We have the assurance of Dr. Palmer, from his own knowledge, that it is an excellent remedy in a *gonorrhœa simplex*.

CLECHE, or CLECHY, in *Heraldry*, is explained by Guillim as an ordinary open to the light, or pierced through with another inner one of the same figure; e. gr. when a cross appears as if charged with another cross of the same colour with the field; or as if the field appeared through the apertures thereof.

The word is French, supposed to be formed of *clef*, *key*; the ends of the cross being thought to bear some resemblance to the bowls of the ancient keys.

But Colombiere, and some other writers, will have this piercing to be only a circumstance of the cross *cleché*, and call it by the name *voidé*, voided. The thing that denominates it *cleché*, is its spreading from the centre towards the extremities, which are very wide, and end in an angle in the middle; as in the figure represented *Tab. Herald. fig. 37*.

CLEDGE, a name given by miners to the upper part of the stratum of fuller's earth. See *FULLER's earth*.

CLEDONISM, CLEDONISMUS, a kind of divination in use among the ancients.

The word is formed from *κληδων*, which signifies two things, *rumor*, a report, and *avis*, a bird: in the first sense, *clendonism* should denote a kind of divination drawn from words occasionally uttered.—Cicero observes, that the Pythagoreans made observation not only of the words of the gods, but of those of men; and accordingly believed the pronouncing of certain words, v. g. *incendium*, at a meal, very unhappy.—Thus, instead of prison, they used the word *domicilium*; and to avoid *erinyes*, furies, said *cumenides*.

In the second sense, **CLEDONISM** should seem a divination drawn from birds; the same with *ornithomantia*.

CLEF, or CLIFF, in *Music*, a mark at the beginning of the lines of a song, which shews the tone, or key, in which the piece is to begin. Or, it is a letter marked on any line, which explains and gives the name to all the rest.

Anciently, every line had a letter marked for a *clef*; now a letter on one line suffices; since by this all the rest are known; reckoned up and down, in the order of the letters.

It is called the *clef*, q. d. *key*, because hereby we know the names of all the other lines and spaces; and consequently the quantity of every degree, or interval.

But because every note in the octave is called a *key*, though in another sense, this letter marked is called in a particular manner the *signed clef*; because being written on any line, it not only signs and marks that one, but it also explains all the rest.

By *clef*, therefore, for distinction-sake, we mean that letter signed on a line, which explains the rest; and by *key*, the principal note of a song, in which the melody closes.

There are three of these *signed clefs*, *c*, *f*, *g*. The *clef* of the highest part in a song, called *treble*, or *alt*, is *g* set on the second line counting upwards. The *clef* of the *bass*, or the lowest part, is *f* on the fourth line upwards: for all the other mean parts, the *clef* is *c*, sometimes on one, sometimes on another line. Indeed, some that are really mean parts, are sometimes set with the *g clef*.

It must, however, be observed, that the ordinary signatures of *clefs* bear little resemblance to those letters. Mr. Malcolm thinks it would be well if we used the letters themselves. Kepler takes great pains to shew, that the common signatures are only corruptions of the letters they represent. See their figures among the other **CHARACTERS of Music**.

The *clefs* are always taken fifths to one another: that is the *clef f* is lowest, *c* a fifth above it, and *g* a fifth above *c*.

When the place of the *clef* is changed, which is not frequent in the *mean clef*, it is with design to make the system comprehend as many notes of the song as possible, and so to have the fewer notes above or below it. If then there be many lines above the *clef*, and few below it, this purpose is answered by placing the *clef* in the first or second line; if there be many notes below the *clef*, it is placed lower in the system. In effect, according to the relation of the other notes to the *clef* note, the particular system is taken differently in the scale, the *clef* line making one in all the variety.

But still, in whatever line of the particular system any *clef* is found, it must be understood to belong to the same of the general system, and to be the same individual note or sound in the scale. By this constant relation of *clefs*, we learn how to compare the several particular systems of the several parts; and know how they communicate in the scale, i. e. which lines are unison, and which not: for it is not to be supposed, that each part has certain bounds, within which another must never come. Some notes of the treble, v. gr. may be lower than some of the mean parts, or even of the bass. To put together therefore into one system all the parts of a composition written separately, the notes of each part must be placed at the same distances above and below the proper *clef*, as they stand in the separate system; and because all the notes that are consonant (or heard together) must stand perpendicularly over each other, that the notes belonging to each part may be distinctly known, they may be made with such differences as shall not confound, or alter their significations with respect to time, but only shew, that they belong to this or that part. Thus we shall see how the parts change and pass through one another; and which, in every note, is highest, lowest, or unison. The use of particular *signed clefs* then, is an improvement with respect to the parts of any composition; for unless some one key in the particular systems were distinguished from the rest, and referred invariably to one place in the scale, the relations could not be distinctly marked.

It must here be observed, that for the performance of any single piece, the *clef* only serves for explaining the intervals in the lines and spaces: so that we need not regard what part of any greater system it is; but the first note may be taken as high or low as we please. For as the proper use of the scale is not to limit the absolute degree of tone; so the proper use of the *signed clef* is not to limit the pitch, at which the first note of any part is to be taken; but to determine the tune of the rest, with relation to the first; and considering all the parts together, to determine the relation of their several notes by the relations of their *clefs* in the scale: thus, their pitch of tune being determined in a certain note of one part; the other notes of that part are determined by the constant relations of the letters of the scale, and the notes of the other parts by the relations of their *clefs*.

In effect, for performing any single part, the *clef* note may be taken in an octave, i. e. at any note of the same name; provided we do not go too high, or too low, for finding the rest of the notes of a song. But in a concert of several parts, all the *clefs* must be taken, not only in the relations, but also in the places of the system above mentioned; that every part may be comprehended in it. The difference of *clefs* in particular systems makes the practice of music much more difficult and perplexed, than it would otherwise be; both with respect to instruments, and to the voice. This occasioned Mr. Salmon to propose a method of reducing all music to one *clef*; whereby the same writing of any piece of music should equally serve to direct the voice, and all instruments; which he calls an *universal character*.

The natural and artificial note expressed by the same letter, as *c* and *c* ♯, are both set on the same line or space. When there is no character of flat or sharp, at the beginning with the *clef*, all the notes are natural: and if in any particular place the artificial note be required, it is signified by the sign of a flat or sharp, set on the line a space before that note.

If a sharp or flat be set at the beginning in any line or space with the *clef*, all the notes on that line or space are artificial ones; i. e. are to be taken a semitone higher or lower than they would be without such sign. And

the same affects all their octaves above and below, though they be not marked so. In the course of the song, if the natural note be sometimes required, it is signified by this character \natural .

The marking of the system thus by flats and sharps, Mr. Malcolm calls the *signature of the clefs*.

CLEFT, in *Grafting*. See **ENGRAFTING**.

CLEFTS, or **CRACKS**, in the heels of horses, are occasioned by hard labour, unwholesome food, want of exercise, and washing them when hot. They are cured by cutting off the hair, and anointing with the oil of hempseed, or linseed, and keeping them clean.

CLEIDION, in *Antiquity*, the same with *clavicula*. See **CLAVICULÆ**.

CLEIDOMASTOIDEUS, in *Anatomy*, a name given by Albinus to a muscle, called by others simply **MASTOIDEUS**, and by Eustachius *septimus caput moventium*.

CLEMA, in *Antiquity*, a species of vine, a twig of which was the ensign of a centurion's office.

CLEMATIS, in *Botany*. See **VIRGIN'S bower**.

CLEMENT, *Constitutions of*. See **APOCALYPTIC CONSTITUTIONS**.

CLEMENT, *Recognitions of*. See **RECOGNITIONS**.

CLEMENTINA, a spurious work attributed to Clement.

CLEMENTINE, a term used among the Augustines, who apply it to a person, who, after having been nine years a superior, ceases to be so, and becomes a private monk, under the command of a superior.

The word has its rise hence, that pope Clement, by a bull prohibited any superior among the Augustines from continuing above nine years in his office.

CLEMENTINES, in the *Canon Law*, are the constitutions of pope Clement V. and the **CANONS** of the council of Vienne.

CLENCH-nails. See **NAILS**.

CLEOME, in *Botany*, a name given by some to the sea-holly, or eringo. Ger. Emac. Ind. 2.

CLEOME, *sinapisstrum* of Tournefort, is a genus of the *tetradynamia filiquosa* class. The characters are; the flower hath a four-leaved empalement, which spreads open; it hath four petals, which incline upward, and spread open; the lower being less than the other; in the bottom there are three mellous glands, which are roundish, and separated by the empalement; it hath six or more stamina, which are incurved, having rising summits fixed to their side; it hath a single style, supporting an oblong germen, which is of the same length with the stamina, and crowned by a thick stigma; the germen becomes a long cylindrical pod, having one cell opening with two valves, and filled with round seeds.

CLEPSYDRA, a kind of water-clock, or an hour-glass serving to measure time by the fall of a certain quantity of water.

The word comes from *κλεπτω*, *condo*, and *ὕδωρ*, *aqua*, *water*.

There have likewise been *clepsydræ* made with mercury. The Egyptians, by this machine measured the course of the sun. Tycho Brahe, in modern days, made use of it to measure the motion of the stars, &c. and Dudley used the same contrivance in making all his maritime observations.

The use of *clepsydræ* is very ancient: they were probably invented in Egypt under the Ptolemies; though some authors ascribe the invention of them to the Greeks, and others to the Romans. Pliny informs us, that Scipio Nafica, about one hundred and fifty years before Christ, gave the first hint for the construction of them; and Pancirollus has particularly described it. According to his account, the *clepsydra* was a vessel made of glass, with a small hole in the bottom of it edged with gold: in the upper part of this vessel a line was drawn, and marked with the twelve hours: the vessel was filled with water, and a cork with a pin fixed in it floated on the surface, and pointed to the first hour; and as the water sunk in the vessel, by issuing out of the small hole, the pin indicated the other hours in proportion to its decrease. Their use was chiefly in the winter; sun-dials served in the summer. They had two great defects; the one, that the water ran out with a greater or less facility, as the air was more or less dense: the other, that the water ran out more readily at the beginning, than towards the conclusion.

M. Amontons has invented a *clepsydra* free from both these inconveniencies, and which is said to have the three grand advantages, of serving the ordinary purpose of clocks; of serving in navigation for the discovery of the longitude; and of measuring the motion of the arteries.

CLEPSYDRA, *construction of a*. To divide any cylindric vessel into parts to be emptied in each division of time; the time wherein the whole, and that wherein any part is to be evacuated, being given.

Suppose, v. gr. a cylindric vessel, whose charge of water

flows out in twelve hours, were required to be divided into parts to be evacuated each hour. 1. As the part of time 1 is to the whole time 12, so is the same time 12 to a fourth proportional, 144. 2. Divide the altitude of the vessel into 144 equal parts: here, the upper division will fall to the last hour: the three next above to the last part but one; the five next to the tenth hour, &c. Lastly, the twenty-three last to the first hour.

For, since the times increase in the series of the natural numbers, 1, 2, 3, 4, 5, &c. and the altitudes, if the numeration be in retrograde order from the twelfth hour, increase in the series of the unequal numbers, 1, 3, 5, 7, 9, &c. the altitudes computed from the twelfth hour, will be as the squares of the times 1, 4, 9, 16, 25, &c. Therefore the square of the whole time 144, comprehends all the parts of the altitude of the vessel to be evacuated. But a third proportional to 1 and 12, is the square of 12; and consequently it is the number of equal parts into which the altitude is to be divided, to be distributed according to the series of the unequal numbers, through the equal intervals of hours. Since, in lieu of parts of the same vessel, other less vessels equal thereto may be substituted; the altitude of a vessel emptied in a given space of time being given, the altitude of another vessel to be emptied in a given time may be found; viz. by making the altitudes as the squares of the times.

Hence we see the method of constructing the *clepsydræ* used by the ancients.

The honourable Mr. Charles Hamilton has described a curious *clepsydra* of a new construction. An open canal *ee*, (see *Tab. Horology*, fig. 1.) supplied with a constant and equal stream by the syphon *d*, has at each end, *f*, *f*, open pipes of exactly equal bores, which deliver the water that runs along the canal *e*, alternately into the vessel, *g* 1, *g* 2, in such a quantity as to raise the water from the mouth of the tantalus *t* exactly in an hour. The canal *ee* is equally poised by the two pipes *f* 1, *f* 2, upon a centre *r*; the ends of the canal *e* are raised alternately, as the cups *zz* are depressed, to which they are connected by lines running over the pulleys *l*, *l*. The cups *zz*, are fixed at each end of the balance *m*, *m*, which moves up and down upon its centre *v*: *n* 1, *n* 2, are the edges of two wheels or pulleys, moving different ways alternately, and fitted to the cylinder *o* by oblique teeth both in the cavity of the wheel and upon the cylinder, which, when the wheel *n* moves one way, that is, in the direction of the minute-hand, meet the teeth of the cylinder and carry the cylinder with it; and when *n* moves the contrary way, slip over those of the cylinder, the teeth not meeting, but receding from each other. One or other of these wheels *nn* continually moves *o* in the same direction, with an equable and uninterrupted motion. A fine chain goes twice round each wheel, having at one end a weight *x*, always out of water, which equiponderates with *y* at the other end, when kept floating on the surface of the water in the vessel *g*, which *y* must always be; the two cups *z*, *z*, one at each end of the balance keep it in equilibrio, till one of them is forced down by the weight and impulse of the water, which it receives from the tantalus *t* *t*: each of these cups *z*, *z*, has likewise a tantalus of its own *bb*, which empties it after the water has done running from *g*, and leaves the two cups again in equilibrio: *q* is a drain to carry off the water. The dial-plate, &c. needs no description. The motion of the *clepsydra* is effected thus: as the end of the canal *ee*, fixed to the pipe *f* 1, is, in the figure, the lowest, all the water supplied by the syphon runs through the pipe *f* 1, into the vessel *g* 1, till it runs over the top of the tantalus *t*; when it immediately runs out at *i* into the cup *z*, at the end of the balance *m*, and forces it down; the balance moving on its centre *v*. When one side of *m* is brought down, the string which connects it to *f* 1, running over the pulley *l*, raises the end *f* 1 of the canal *e*, which turns upon its centre *r*, higher than *f* 2; consequently, all the water which runs through the syphon *d* passes through *f* 2 into *g* 2 till the same operation is performed in that vessel, and so on alternately. As the height the water rises in *g* in an hour, viz. from *s* to *t*, is equal to the circumference of *n*, the float *y* rising through that height along with the water, lets the weight *x* act upon the pulley *n*, which carries with it the cylinder *o*; and this, making a revolution, causes the index *k* to describe an hour on the dial-plate. This revolution is performed by the pulley *n* 1; the next is performed by *n* 2, whilst *n* 1 goes back, as the water in *g* 1 runs out through the tantalus; for *y* must follow the water, as its weight increases out of it. The axis *o* always keeps moving the same way; the index *p* describes the minutes; each tantalus must be wider than the syphon, that the vessels *g* *g* may be emptied as low as *s*, before the water returns to them. See drawings of this instrument in different positions, with a descrip-

a description of it in the Phil. Trans. vol. xlv. art. xiv. p. 171.

CLEPSYDRA is also used for an HOUR-glass of sand.

CLEPSYDRA is also applied to a chemical vessel perforated in the same manner.

CLERGY, CLERUS, the assembly or body of clerks, or ecclesiastics; in contradistinction to the LAITY. See CLERK.

In the Romish church there are two kinds of *clergy*: the one *regular*, comprehending all the religious of both sexes: the other *secular*, comprehending all the ecclesiastics that do not make the monastic vows.

Among the reformed, there are none but secular *clergy*. The Roman *clergy* forms a monarchical state, under the pope, as its supreme head.

The *clergy* in the first century were distinguished by the title of PRESBYTERS or BISHOPS; and some maintain that they were of equal rank and authority. But towards the close of the second century, a notion prevailing, that the ministers of the Christian church succeeded to the character, rights, and privileges of the Jewish priesthood, this produced a subordination of rank among them. The bishops assumed a rank and character similar to those of the Jewish high-priest, the presbyters represented the priests, and the deacons the levites. This distinction was still farther promoted towards the end of the third century, and a new set of ecclesiastical officers was established, such as sub-deacons, acolythi, door-keepers, readers, exorcists, &c. The powers of the *clergy* were considerably extended under the patronage of Constantine the Great, about the close of the fourth century.

The *clergy* was anciently divided into three orders; viz. priests, deacons, and inferior CLERKS; and each order had its chief: the arch-priest was the head of the first order, the arch-deacon of the second, and the dean of the third.

Under the name of *clergy*, were also formerly comprised all the officers of justice; as being supposed to be men of letters.

Though the *clergy* formerly claimed an exemption from all secular jurisdiction, yet Matt. Paris tells us, William the Conqueror subjected the bishops and abbey who held *per baroniam*, and who, till then, had been exempt from all secular service: and ordered they should be no longer free from mortuary services. To this purpose he prescribed arbitrarily what number of soldiers every abbey and bishoprick should provide, to serve him and his successors in war, and laid up the registers of ecclesiastical servitude in his treasury.

But, in effect, the *clergy* were not exempt from all secular service till then; as being bound by the laws of king Edgar to obey the secular magistrate in some things; viz. upon an expedition to the wars, and in contributing to the building and repairing of bridges, &c. See TRINODA necessitas.

The privileges of the English *clergy*, by the ancient statutes, are very considerable: their goods are to pay no toll in fairs or markets; they are exempt from all offices, but their own; from the king's carriages, posts, &c. from appearing at sheriffs' tourns or frank-pledges; and are not to be fined or amerced, according to their spiritual, but their temporal means.

A *clergyman* acknowledging a statute, his body is not to be imprisoned: if he be convicted of a crime, for which the benefit of *clergy* is allowed, he shall not be burnt in the hand. See Benefit of CLERGY.

The *clergy*, by common law, are not to be burdened in the general charges with the laity; nor to be troubled or incumbered, unless expressly named, and charged by the statute; for general words do not affect them. Thus, if a hundred be sued for a robbery, the minister shall not contribute; though the words are, *gentes demorantes*: neither are they assessed to the highway, to the watch, &c. But these privileges are in a great measure lost; the *clergy* being included under general words in later statutes: so that they are liable to all public charges imposed by act of parliament, where they are not particularly excepted. They are not now required to bear temporal offices, as those of sheriff, constable, &c. nor to serve on juries, nor to appear at tourns and leets, nor to serve personally in wars. Their bodies are not to be taken on statutes merchant or staple, &c. nor are they liable to any arrest by *capias*; but a writ should be addressed to the bishop, compelling them to appear: nevertheless, when execution is obtained, a sequestration of the profits of their benefices may be had. *Clergymen* are not liable to be arrested in the church or church-yard, while attending on divine service; and he that beats a *clergyman*, may be obliged to do penance in the spiritual court. See BATTERY.

The revenues of the *clergy* were anciently more considerable than at present: Ethelwolph, in 855, gave them

the tythe of all goods, and the tenth of all the lands in England; free from all secular services, taxes, &c.

The charter whereby this was given them, was confirmed by several of his successors; Edmund, Edgar, Ethelred, Alfred, and William the Conqueror; the last of whom, finding the bishopricks so rich, erected them all into baronies; each barony containing thirteen knights fees, at least. But since the Reformation, the bishopricks are much impaired. See BISHOP.

The revenues of the inferior *clergy*, in the general, are small; a third part of the best benefices being anciently, by the pope's grant, appropriated to monasteries; upon the dissolution whereof they became lay-fees.

Indeed, an addition was made, 2 Annæ; the whole revenue of FIRST-FRUITs and tenths being then granted, to raise a fund for the augmentation of the maintenance of the poor *clergy*: pursuant to which, a corporation was formed, by the name of the governors of the bounty of queen Anne, for the augmentation of the maintenance of the poor *clergy*; to whom the said revenues were conveyed in trust, &c. See AUGMENTATION.

CLERGY, *articles of the*. See ARTICLES.

CLERGY, *proctors of the*. See PROCTORS.

CLERGY, *Privilegium Clericale*, or *Benefit of Clergy*, denotes an ancient privilege of the church, consisting in this, that places consecrated to religious duties were exempted from criminal arrests, whence proceeded SANCTUARIES; and that the persons of *clergymen* were exempted from criminal process before the secular judges in particular cases. This, at first, was an indulgence granted by the civil government, but it was afterwards claimed as an inherent, indefeasible, and *jure divino* right: and the *clergy* endeavoured to extend the exemption not only to almost all kinds of crimes, but to a variety of persons, besides those who were properly of their own order. In England, though this privilege was allowed in some capital cases, it was not universally admitted. The method of granting it was settled in the reign of Henry VI. which required, that the prisoner should first be arraigned, and then claim his *benefit of clergy*, by way of declinatory plea, or, after conviction, by way of arrest of judgment; which latter mode is most usually practised. This privilege was originally confined to those who had the *habitus & tonsuram clericalem*: but in process of time every one was accounted a clerk, and admitted to this *benefit*, who could read; so that, after the invention of printing, and the dissemination of learning, this became a very comprehensive test, including laymen as well as divines; and, therefore, the stat. 4 Hen. VII. cap. 13. distinguishes between lay-scholars, and clerks in holy-orders; and directs that the former should not claim this privilege more than once, and, in order to their being afterwards known, that they should be burnt with a hot iron in the brawn of the left thumb. This distinction was abolished by 28 Hen. VIII. cap. 4. and 32 Hen. VIII. cap. 3. but was virtually restored by 1 Ed. VI. cap. 12. in consequence of which statute peers of the realm, and lords of parliament, were entitled to an equal privilege with the *clergy*, for the first offence, though they could not read, and for all offences *clergyable* to commoners, and some others therein specified. When those, admitted to the privilege of their *clergy*, were thus discharged from the sentence of the law in the king's courts, they were delivered over to the ordinary for *canonical PURGATION*. But by stat. 18 Eliz. cap. 7. all such persons, instead of being committed to the ordinary, are delivered out of prison, provided the judge does not think fit to continue them in goal for a limited time, not exceeding a year.

Some alterations were made in the law respecting this privilege, by 21 Jac. I. cap. 16. and by 3 and 4 W. and M. cap. 9. and 4 and 5 W. and M. cap. 24. in consequence of which all women, all peers, and all commoners who could read, were discharged in *clergyable* felonies; absolutely, if clerks in orders; and for the first offence, upon burning in the hand, if lay, all however, except peers, liable to imprisonment, as before mentioned; and those who could not read, if under the degree of peerage, were hanged. By 5 Anne, cap. 6. the *benefit of clergy* was indiscriminately granted to all who had a right to ask it, without the condition of reading. Again, by 4 Geo. I. cap. 11. and 6 Geo. I. cap. 23. it is enacted, that where any persons shall be convicted of larceny, either grand or petit, and shall be entitled to the *benefit of clergy*, or liable only to the penalties of branding or whipping, the court in their discretion may direct such offenders, instead of burning or whipping, to be transported to America for seven years; and if they return within that time, it shall be felony *without benefit of clergy*.

It appears, from the above account, that the persons to whom this privilege now extends, are clerks in orders, without

without branding or transportation; lords of parliament and peers of the realm, for the first offence; and all commoners, not in orders, whether male or female, for *clergyable* felonies, upon being burnt in the hand, or imprisoned at the discretion of the judge; and in case of larceny, on being transported for seven years, or suffering the punishment more lately substituted in the room of transportation.

This privilege is allowed only in petit treason and felonies; though not in all felonies, as lying in wait on the highway, destroying and ravaging the country, and ARSON. Petit treason, and other acts of felony, besides these, are excluded by particular acts of parliament; the operation of which restores the law to the same rigour of capital punishment in the first offence, which it exerted before the privilege was allowed, and which it still exerts on a second offence in almost all kinds of felonies, unless committed by clerks in actual orders. By the marine law, declared in stat. 28 Hen. VIII. cap. 15. the *benefit of clergy* is not allowed in any case whatever. Those who are entitled to claim this privilege, are for ever discharged of all felonies, committed before conviction, within its extent; and restored to all capacities and credits, and the possession of their lands, as if they had never been convicted. But by conviction they forfeit all their goods to the king, which are not afterwards restored, and are subject to all the disabilities of felons, till they have received either the judgment of the law or a pardon. Blackst. Com. vol. iv. p. 358, &c.

CLERICAL Crown. See CROWN.

CLERICAL Title. See TITLE.

CLERICI non eligantur in officio See QUOD Clerici.

Non residentia pro CLERICIS Regis. See NON residentia.

CLERICO admittendo, a writ directed to the bishop, for the admitting a clerk to a benefice upon a *ne admittas* tried, and found for the party who procured the writ.

CLERICO capto per statutum mercatorum, is a writ for the delivery of a clerk out of prison, who is imprisoned upon the breach of statute-merchant.

CLERICO convicto commissio gaolæ in defectu ordinarii deliberando, is a writ for the delivery of a clerk to his ordinary, that was formerly convicted of felony; by reason his ordinary did not challenge him according to the privilege of clerks.

CLERICO intra sacros ordines constituto non eligendo in officium, is a writ directed to the bailiffs, &c. that have thrust a bailiwick or headship upon one in holy orders; charging them to release him.

CLERK, CLERICUS, a word formerly used to signify a learned man, or man of letters.

The word comes from *κληρος*, used for *clergy*, but more properly signifying *lot*, or *heritage*, because the lot and portion of *clerks* or ecclesiastics is to serve God. Accordingly, *clerus* was at first used to signify those who had a particular attachment to the service of God. The origin of the expression is derived from the old Testament, where the tribe of Levi is called the *lot*, *heritage*, *κληρος*; and God is reciprocally called their portion; because the tribe was consecrated to the service of God, and lived on the offerings made to God, without any other settled provision, as the rest had.

Thus, Pasquier observes, the officers of the counts (*comites*) were anciently created under the title of *clerks of accounts*; and secretaries of state were called *clerks of the secrets*. So *Clericus domini regis*, in the time of Edward I. was rendered in English, the *king's secretary*, or *clerk of his council*.

The term was applied indifferently to all who made any profession of learning; or who knew how to manage the pen: though, originally, it was appropriated to ecclesiastics.

As the nobility and gentry were usually brought up to the exercise of arms; there were none but the clergy left to cultivate the sciences: hence, as the clergy alone made any profession of letters, a very learned man came to be called a *great clerk*, and a stupid ignorant man, a *bad clerk*.

Ronsard, in his old language, uses the word femininely, *clergeffe*, for a learned woman. "Mais trop plus est à craindre une femme clergeffe."

CLERK (in general) is used for all those of the ecclesiastical state, who are in holy orders, of any degree, or kind; from the deacon to the prelate.

Yet, in its utmost latitude, the word *clerk* also includes CHANTORS, ACOLYTHI, EXORCISTÆ, and OSTIARI. The canons excommunicate all those who lay hands on a *clerk*. A council held in Africa prohibited the appointing any *clerk* to be a tutor, guardian, or curator, by testament. The council of Elvira enjoins continence on all *clerks*, bishops, priests, or deacons, on pain of being stripped of their clerical state.

CLERK, *acephalous*, in the sixth century, was a name given to those *clerks* who separated from the bishop, and chose not to live any longer in community with him; in contradistinction to

CLERKS *canonic*, who continued to live with the bishop, according to the canons.

CLERK, in the way of trade and business, is one who exercises any function with the pen.

CLERK is also a title given to several officers of this kind in the royal palace, the courts of justice, revenue, army, navy, &c. The principal of these are as follow.

CLERK of the *Acts*, is an officer of the navy, who receives and enters the commissions and warrants of the lord admiral; and registers the acts and ordinances of the commissioners of the navy.

CLERK of *Affidavits*, in the court of chancery, an officer who files all affidavits made use of in court.

CLERK of *Affise*, is he that writeth all things judicially done by the justices of assise, in their circuits.

CLERK of the *Bails*, an officer belonging to the court of king's bench. Stat. 22 and 23 Car. II. He files the bail-pieces taken in that court, and attends for that purpose.

CLERK of the *Check*. See CHECK.

CLERK of the *Closet*, is a divine, otherwise called *confessor to his majesty*; whose office is to attend at the king's right hand during divine service, to resolve all doubts concerning spiritual matters, to wait on the king in his private oratory, &c.

CLERK of the *Crown*, or *Crown-Office*, in the king's bench court, an officer whose business is to read, frame, and record all indictments against traitors, felons, and other offenders there, arraigned upon any public crime.

CLERK of the *Crown*, in chancery, is an officer, who, by himself, or deputy, is continually to attend the lord-chancellor, or lord-keeper, for special matters of state, by commission, or the like, either immediately from his majesty, or by order of his council; as well ordinary as extraordinary. All general pardons, upon grants of them at the king's coronation, or in parliament; the writs of parliament, with the names of the knights, citizens, and burgeses, are also returned into his office: besides which, he has the making of special pardons, and writs of execution upon bonds of statute staple forfeited.

CLERK of the *Declarations*, an officer in the court of king's bench that files all declarations in causes there depending, after they are engrossed.

CLERK of the *Deliveries*, is an officer in the tower, who takes indentures for all stores issued thence.

CLERK of the *Errors*, in the court of common pleas, transcribes, and certifies into the king's bench, the tenor of the records of the cause, or action, upon which the writ of error, made by the curfitor, is brought there, to be determined.

CLERK of the *Errors*, in the king's bench, transcribes and certifies the records of such causes in that court into the exchequer; if the cause, or action, is by bill.

CLERK of the *Errors*, in the exchequer, transcribes the records certified thither out of the king's bench; and prepares them for judgment in the court of exchequer, to be given by the justices of the common-pleas, and barons, there.

CLERK of the *Essoins*, in the court of common pleas, keeps the essoin-roll, or enters essoins. He also provides parchment, cuts it into rolls, marks the number on them; delivers out all the rolls to every officer, and receives them again when written. See ESSOIN.

CLERK of the *Estreats*, belongs to the exchequer; and, every term, receives the estreats out of the lord-treasurer's remembrancer's office, and writeth them out to be levied for the king. He also maketh schedules of such sums estreated as are to be discharged. See ESTREAT.

CLERKS of the *Green-Cloth*. See GREEN-CLOTH.

CLERK of the *Hamper*, or *Hanaper*, is an officer in chancery, whose business is to receive all money due to the king for the seals of charters, patents, commissions, and writs: as also fees due to the officers for enrolling and examining the same. He is obliged to attend on the lord-chancellor, or lord-keeper, daily, in term-time; and at all times of sealing.

CLERK Comptroller of the *King's House*, an officer of the court, who has place and seat in the compting-house; with authority to allow or disallow the charges and demands of pursuivants, and messengers of the green-cloth, purveyors, &c. He has also the oversight of all defaults and miscarriages of inferior officers; and sits in the compting-house with the superior officers, viz. the lord-steward, treasurer, comptroller, and cofferer, for correcting and redressing things out of order.

CLERK of the *Inrollments of Fines and Recoveries*, in the court of common pleas, is an officer under the three elder judges of

- of that court, and removable at their pleasure, who in-rolls all fines and recoveries, and returns writs of entry, &c. See INROLLMENT.
- CLERK of the *Juries*, or *curata writs*, is an officer belonging to the court of common pleas, who makes out the writs called *habeas corpus*, and *distringas*, for the appearance of juries, either in court, or at the assizes; after the panel is returned upon the *venire facias*. See JURY.
- CLERK of the *Market*, is an officer of the king's house, whose duty is to take the charge of the king's measures, and to keep standards of them, that is, examples of all the measures that ought to be used through the land.
- CLERK *Marshal* of the king's house seems to be an officer who attends the marshal in his court, and records all his proceedings. See MARSHAL. CLERK *martial*, under the master of the horse. See AVENOR.
- CLERK of the *Nichils*, or *Nihils*, is an officer in the exchequer, who makes a roll of all such sums as are *nichilled* by the sheriffs upon their estreats of green wax; and delivers the same into the lord-treasurer's remembrancer's office, to have execution done upon them for the king. See NIHILS.
- CLERK of the *Ordnance*, is an officer in the Tower, who registers all orders relating to the king's ordnance. See ORDNANCE.
- CLERK of the *Outlawries*, is an officer belonging to the court of common pleas; being a deputy to the king's attorney-general, for making out the writs of *capias ut lagatum*, after outlawry; and the king's attorney's name is to every one of those writs.
- CLERK of the *Paper-Office*, is an officer of the king's bench, who makes up the paper-books of special pleadings and demurrers in that court.
- CLERK of the *Papers*, an officer in the court of common pleas, who keeps the papers of the warden of the Fleet, enters commitments and discharges of prisoners, delivers out day-rules, &c.
- CLERK of the *Parcels*, an officer of the exchequer. See PARCEL-Makers.
- CLERK of a *parish*. See PARISH Clerk.
- CLERK of the *Parliament*, is an officer who records all things done in parliament, and engrosses them fairly into parchment rolls, for the better preservation of them to posterity. Of these there are two: one of the house of lords, and the other of the house of commons.
- CLERK of the *Patents*, or letters patent under the great seal. See PATENT.
- CLERK of the *Peace*, is an officer belonging to the session of the peace, whose duty is at the session to read the indictments, to enrol the acts, and draw the processes; to enrol proclamations of rates for servants wages; to enrol the discharge of apprentices; to keep the counter part of the indenture of armour, &c. Also to certify in the king's bench transcripts of indictments, outlawries, attainders, and convictions; had before the justices of the peace within the time limited by statute. He is appointed by the *custos rotulorum* of the county, and liable to be discharged for misdemeanour by the justices of peace in quarter sessions.
- CLERK of the *Pells*, belong to the exchequer: his business is, to enter the tellers bill into a parchment roll, called *pellis receptorum*; and also to make another roll of payment, called *pellis exituum*, wherein he sets down by what warrant the money was paid. 22 and 23 Car. II.
- CLERK of the *Petty Bag*, is an officer in chancery, whereof there are three; the master of the rolls being their chief. Their office is to record the return of all inquisitions out of every county, all liveries granted in the court of wards, all other les mains; to make all patents of customers, gaugers, comptrollers, and aulnagers; congé d'elires for the creations of bishops; summonses of the nobility, clergy, and burgeses, of parliament; commissions directed to the knights and others of every shire, for raising of subsidies; writs for nomination of collectors for the fifteenths; and all traverses upon any office, bill, or otherwise; and to receive the money due to the king for the same. See PETTY-Bag.
- CLERK of the *Pipe*, belongs to the exchequer. See PIPE-Office.
- CLERK of the *Pleas*, is an officer in the exchequer, in whose office the officers of the court, upon special privilege belonging to them, ought to sue, and be sued, upon any action.
- CLERKS of the *Privy Seal*, are four officers who attend the lord-keeper of the privy-seal, or, if there be none such, the principal secretary of state; and write, or make out, all things sent by warrant from the signet to the privy-seal, and to be passed, to the great-seal: as also to make out privy-seals upon any special occasion of the king's affairs; as for loan of money or the like.
- CLERK of the *Rolls*, in Chancery, an officer who searches for, and copies deeds, offices, &c.
- CLERK of the *Rules*, in the court of king's bench, an officer who draws up and enters all the rules and orders made in court, and gives rules of course in divers writs.
- CLERK of the *Sewers*, is an officer belonging to the commissioners of the sewers, who writes down all things they do by virtue of their commission, and the authority given them by 13 El. cap. 9.
- CLERK of a *Ship*, is an officer appointed to take care that nothing be squandered, or spent needlessly. He is obliged to keep a register or journal containing an exact inventory of every thing in the loading of the vessel; as the rigging, apparel, arms, provision, munition, merchandizes; as also the names of the passengers, if there be any; the freight agreed on; a list of the crew, their age, quality, wages; the bargains, purchases, sales, or exchanges the ship makes from its departure; the consumption of provision; and, in short, every thing relating to the expence of the voyage. He also registers the consultations of the captains, pilots, &c. He also does the office of a register in all criminal processes; and of a notary, to make and keep the wills of those who die in the voyage; takes inventories of their effects, &c. the clerk is not allowed to quit the vessel during the voyage, on forfeiture of all his wages, &c. In small vessels, the master, or pilot does the office of clerk.
- CLERK of the *Signet*, is an officer continually attending on the king's principal secretary; who has custody of the privy-signet, as well for sealing the king's private letters, as for such grants as pass his majesty's hands by bills signed. Of these there are four, who attend in their turn, and have their diet at the secretary's table.
- CLERK of the king's *Silver*, is an officer belonging to the common pleas; to whom every fine is brought, after it has been with the *custos brevium*; and by whom the effect of the writ of covenant is entered into a paper-book; and according to that note, all the fines of that term are also recorded in the rolls of the court. See QUEEN Gold.
- CLERK of the *Superfedeas*, is an officer in the court of common pleas, who makes out writs of *superfedeas* (upon the defendants appearing to the exigent on an outlawry) whereby the sheriff is forbid to return the exigent.
- CLERK of the *Treasury*, an officer of the common pleas, who has charge of the records of the *nisi prius*, the fees due for all searches, and the certifying of all records into the king's bench, when a writ of error is brought. He also makes out all writs of *superfedeas de non molestanda*, which are granted for the defendants while the writ of error is depending; and all the exemplifications of records, being in the treasury.
- CLERK of the king's great *Wardrobe*, keeps an account or inventory, in writing, of all things belonging to the king's wardrobe. See WARDROBE.
- CLERK of the *Warrants*, is an officer belonging to the court of common pleas, who enters all warrants of attorney for plaintiff and defendant; and enrolls all deeds of indentures of bargain and sale, which are acknowledged in the court, or before any judges out of the court; and it is his office to estreat into the exchequer all issues, fines, and amerciaments, which grow due to the king in that court, for which he has a standing fee or allowance.
- CLERKS, *misprision of*. See MISPRISION.
- CLERKS, *riding*. See RIDING.
- CLERKS, *six*. See SIX.
- CLERKS, *Apostolic*, in Ecclesiastical History. See JESUITES.
- CLERKS, *Regular* a general denomination comprehending several distinct religious orders, and assumed to denote a reformation attempted to be introduced among them. See THEATINS and FATHERS.
- CLERKS, *Regular, of the company of Jesus*. See JESUITS.
- CLERKS, *Regular, of St. Maicul*. See FATHERS of *Somasquo*.
- CLERKS, *Regular, of St. Paul*. See BARNABITES.
- CLERMONT *Manuscript*, is a copy of St. Paul's Epistles, found in the monastery of Clermont in France, and used by Beza, together with the Cambridge MS. in preparing his edition of the New Testament. This copy is in the octavo form, and is written on fine vellum in Greek and Latin, with some mutilations. Beza supposes that it is of equal antiquity with the Cambridge copy; but both were probably written by a Latin scribe in a later period than he assigns to them. The various readings of this MS. were communicated to archbishop Usher, and they are preserved by Walton. The MS. itself was in the possession of Morinus; and after his death deposited among the MS. copies of the Royal Library at Paris, N° 2245. See the references under the CAMBRIDGE MS.
- CLERODENDRUM, in Botany, the name of a genus of plants of the *didynamia angiospermia* class, the characters of which are these: the calyx is bell-shaped, and divided into five-segments; the tube of the corolla is slender and long

long, and its limb divided into five equal segments. The stamina are very long, and the fruit is a single-seeded berry.

CLEROMANCY, a kind of divination performed by the throwing of dice, or little bones; and observing the points, or marks, turned up.

The word comes from κλεις, *lot*, and μαντεια, *divination*.

At Bura, a city of Achaia, was a temple, and a celebrated oracle of Hercules; where such as consulted the oracle, after praying to the idol, threw four dies, the points whereof being well scanned by the priest, he was supposed to draw an answer from them.

Something of this kind seems to have been practised with regard to Jonah. See Jonah i. 7.

CLEROTI, among the Athenians a kind of public arbitrators. See ΔΙΑΤΕΤΑΕ.

CLETHRA, in *Botany*, Gronov. Fl. Virg. 43. a genus of the *decandria monogynia* class. Its characters are these: the flower hath five long petals, and ten stamina, which are as long as the petals; in the centre is situated a roundish germen, which afterwards becomes a roundish capsule enclosed by the empalement, having three cells, which are full of angular seeds. We know but one species of this genus of shrubs, which is a native of Virginia and Carolina.

It is hardy enough to bear the open air of England; and is one of the most beautiful shrubs at its flowering season. It thrives best in moist land, and in a sheltered situation.

CLETHRITES lapis, a name given by the ancients to such pieces of fossil wood as shewed a grain resembling that of the wood of the alder.

CLEW of the *sale of a ship*, is the lower corner of it which reaches down to that earing where the tackles and sheets are fastened; so that when a sail is made going, or sloping by degrees, she is said to have a *great clew*: and a ship is said to have a *great clew*, when she has a very long yard, and so has much canvas in her sails.

CLEW-garnet, in *Ship Building*, a rope fastened to the *clew* of the sail, and from thence running in a block seized to the middle of the main and fore-yard. It is used to hale up the *clew* of the sail close to the middle of the yard, in order to its being furled.

CLEW-line is the same to the top-sails, top-gallant-sails, and sprit-sails, that the *clew-garnet* is to the main-sail and fore-sail, and has the very same use. In a gust of wind, when a top-sail is to be taken in, they first hale home the lee *clew-line*, and by that means the sail is taken in much easier.

CLINOMANCY, from κλεις, a *key*, and μαντεια, *divination*, a species of divination performed by means of keys. See DACTYLIOMANCY.

CLIENT, **CLIENS**, among the Romans, a citizen who put himself under the protection of some great man, who in that relation was called his patron, *patronus*.

The patron assisted his *client* with his protection, interest, and estate; and the *client* gave his vote for his patron, when he sought any office for himself, or his friends. *Clients* owed respect to the patrons, as these reciprocally owed them their protection.

This right of patronage was appointed by Romulus, to unite the rich and poor together, in such manner as that one might live without contempt, and the other without envy. But the condition of a *client*, in course of time, became little else but a moderate kind of slavery.

By degrees, the custom extended itself beyond Rome; and not only families, but cities, and entire provinces, even out of Italy followed the example. Thus Sicily, v. gr. put itself under the clientela, or protection of Marcellus.

Lazius and Budæus refer the origin of fiefs, and tenures, to the patrons and *clients* of ancient Rome: but the difference is pretty considerable between the relation of vassals and their lords, and that of *clients* and their patrons. See VASSAL.

The *clients*, beside the respect they bore their patrons, and the vote they gave them, were obliged to assist them in all affairs; and even to pay their ransom, if they should be taken prisoners in war, in case they were not able to do it of themselves.

CLIENT is now used for a party in a law-suit who has turned over his cause into the hands of a counsellor, or solicitor.

CLIFFORTIA, in *Botany*, a genus of the *dioecia polyandria* class. Its characters are these: it hath male and female flowers in different plants; the male flowers have a spreading empalement, composed of three small oval concave leaves, but no petals, with a great number of hairy stamina; the female flowers have a permanent empalement, composed of three leaves sitting upon the germen, these have no petals; but the oblong germen,

which is situated below the empalement, supports two long, slender, feathered styles; the germen afterward becomes an oblong taper capsule, with two cells, crowned by the empalement, including one narrow taper seed. There are three species, natives of the Cape of Good Hope.

CLIFT, in the *Manege*, a deficiency in the new, soft, and rough uneven hoof that grows in horse's feet, upon the hoof cast.

It is also called *chink*, *crack*, or *chop*; and by the French *avalure*. See CLEFT.

CLIFTS, in timber. See TIMBER.

CLIMACIDES, among the Greeks, were women servants who assisted their mistresses to get on horseback, by serving as steps for them to ascend by.

CLIMACTERIC, *Annus CLIMACTERICUS*, a critical year, or period in a man's age, wherein, according to astrologers, there is some very notable alteration to happen in the body; and a person is exposed to great danger of death. The word comes from κλιμακτηρ, or κλιμακτηρικος of κλιμαξ, κλιμακος, *scala*; q. d. *by a scale or ladder*.

The first *climacteric* is according to some, the seventh year of a man's life; the rest are multiples of the first, as 14, 21, 49, 56, 63, and 84; which two last are called the *grand climacterics*, and the dangers here are supposed more imminent.

The opinion has a great deal of antiquity on its side. Aulus Gellius says it was borrowed from the Chaldeans; who might probably receive it from Pythagoras, whose philosophy turned much on numbers; and who imagined an extraordinary virtue in the number 7.

Marc. Ficinus gives the foundation of the opinion: he tells us, there is a year assigned for each planet to rule over the body of man, each in his turn: now Saturn being the most maleficent planet of all, every seventh year which falls to his lot, becomes very dangerous; especially those of 63 and 84, when the person is already advanced in years.

Some hold, according to this doctrine every seventh year an established *climacteric*; but others only allow the title to those produced by the multiplication of the climacterical space by an odd number, 3, 5, 7, 9, &c. Others observe every ninth year as a *climacteric*.

Hevelius has a volume under the title of *Annus Climactericus*, describing the loss he sustained in the burning of his observatory, &c. which it seems happened in his first *grand climacteric*.

Suetonius says, Augustus congratulated his nephew upon his having passed his first *grand climacteric*, whereof he was very apprehensive.

Some pretend that the *climacteric* years are also fatal to political bodies which perhaps may be granted, when it is proved that they are so to natural ones.

Authors on this subject, are Plato, Cicero, Macrobius, Aulus Gellius, among the ancients; Argol, Magirus, and Salmatius, among the moderns. And St. Augustine, St. Ambrose, Beda, and Boerius, countenance the opinion.

CLIMATARCHÆ, κλιμαρχαι, were governors of provinces to the Greek emperors.

CLIMATE, **CLIMA**, or **CLIME**, in *Geography*, a part of the surface of the earth, bounded by two circles parallel to the equator, and of such a breadth, as that the longest day in the parallel near the pole, exceeds the longest day in that next the equator by some certain space; viz. half an hour.

The word comes from κλιμα, *inclinamentum*, an *inclination*; because the difference of *climates* arises from the different inclination or obliquity of the sphere.

CLIMATE, *the beginning of the*, is the parallel circle wherein the day is the shortest.

CLIMATE, *the end of the*, is that wherein the day is the longest. The *climates* therefore are reckoned from the equator to the pole; and are so many bands, or zones, terminated by lines parallel to the equator: though, in strictness, there are several *climates* in the breadth of one zone.

Each *climate* only differs from its contiguous ones, in that the longest day in summer is longer or shorter by half an hour in the one place than in the other.

As the *climates* commence from the equator, the first *climate*, at its beginning, has its longest day precisely twelve hours long; at its end, twelve hours and a half: the second, which begins where the first ends, viz. at twelve hours and a half, ends at thirteen hours; and so of the rest, as far as the polar circles, where those which the geographers call *hour-climates* terminate, and *month climates* commence.

As an *hour-climate* is a space comprised between two parallels of the equator, in the first of which the longest day exceeds that in the latter by half an hour; so the *month climate* is a space terminated between two circles parallel

parallel to the polar circles, whose longest day is longer or shorter than that of its contiguous one by a month, or thirty days.

The ancients, who confined the *climates* to what they imagined the habitable parts of the earth, only allowed of seven. The middle of the first they made to pass through Meroe; the second through Sienna; the third through Alexandria; the fourth through Rhodes; the fifth through Rome; the sixth through Pontus; and the seventh through the mouth of the Borysthenes. To these were added two other *climates*: the eighth passing through the Riphæan mountains, and the ninth through Tanais. The moderns, who have sailed farther toward the poles, make thirty *climates* on each side: and in regard the obliquity of the sphere makes a little difference in the length of the longest day; instead of half an hour, some of them only make the difference of *climates* a quarter.

In fixing the *climates*, there ordinarily is no regard had to the refraction.

Vulgarly, the term *climate* is bestowed on any country or region differing from another, either in respect of the seasons, the quality of the soil, or even the manners of the inhabitants; without any regard to the length of the longest day.

Montesquieu, in his *Spirit of Laws*, examines the influence of different *climates* on the manners, characters, and laws of nations. See vol. i. book xiv. xv. xvi. xvii.

Abulfeda, an Arabic author, distinguishes the first kind of *climate* by the term *real climates*; and the latter by that of *apparent climates*.

Varenus gives us a table of thirty *climates*; but without any regard to the refraction. Ricciolus furnishes a more accurate one, wherein the refractions are allowed for: an abstract of which follows.

A Table of CLIMATES.

Middle of Clim.	Longest Day	Lat.	Cli-mates.	Longest Day	Lat.	Middle of Clim.	Latit.	N. Lat. Cont. Day.	N. Lat. Cont. Night.	S. Lat. Cont. Day.	S. Lat. Cont. Night.
I	12 ^h 30	7° 18	VIII	16 ^h 04 ^h 15	15	XV	66° 53	3 ^d	27 ^d	30 ^d	28 ^d
II	13 0	15 36	IX	17 0 53	46	XVI	69 30	62	58	60	59
III	13 30	23 8	X	18 0 57	44	XVII	73 0	93	87	89	88
IV	14 0 29	49	XI	19 0 60	39	XVIII	78 6	124	117	120	118
V	14 30	35 55	XII	20 0 62	44	XIX	84 0	156	148	150	149
VI	15 0 40	32	XIII	22 0 65	10	XX	90 0	188	180	178	177
VII	15 30	44 42	XIV	24 0 65	54						

CLIMATE for plants. See TEMPERATURE.

CLIMAX, or gradation, in *Rhetoric*, a figure, whereby the discourse ascends, as it were, by degrees. Such is that of Cicero to Cataline: *Nihil agis, nihil moliris, nihil cogitas, quod ego non audiam, quod etiam non videam, planeque sentiam: thou dost nothing, movest nothing, thinkest nothing; but I hear it, nay see it, and perfectly understand it.* Thus the same Cicero to Atticus: *Si dormis, expergiscere; si stas, ingredere; si ingrederis, curre; si curris, advola.* See ANTICLIMAX.

CLIMBER, in *Botany*. See VIRGIN'S BOWER.

CLIMIA of the Arabs. See KLIMIA.

CLIMING *Fumitory*, in *Botany*. See FUMITORY, and Phil. Trans. vol. xlix. part ii. p. 841.

CLINCH of a cable, is that part of it which is bent about the ring of the anchor, and then seized or made fast.

CLINCH-bolts, in a ship, are such as are clinched with a re- veting hammer at those ends which come through.

CLINCHER-work, in *Sea-Language*, the disposition of the planks in the side of any vessel, by which the lower edge of every plank overlays the next under it, like the slates on the top of a house.

CLINCHING, in *Sea-Language*, a kind of slight calking used about the ports, on a prospect of foul weather: it is done by driving a little oakum into their seams, that the water may not come in at them.

CLINIC, CLINICUS, a term applied by some church-historians to those among the ancients, who received baptism on their death-bed.

The word *κλινικός* is formed from *κλινω*, a bed.

It was the doctrine of many of the fathers, that baptism absolutely washed away all previous sins, and that there was no atonement for sins committed after baptism. On this account, many deferred that sacrament till they were arrived at the last stage of life, and were pretty safe from the danger of sinning any more; and such were called *clinici*.

Magnus, in the third century, made a doubt whether or no *clinics* were truly baptized, in regard the ceremony was only performed by aspersion, instead of immersion: he consulted St. Chrysostom on the point, who replied to him, that the sacrament does not wash away sin after the manner of a corporal bath; and shews from scripture that aspersion is sufficient. See BAPTISM.

CLINIC is also used, in *Antiquity*, for a patient or person merely sick, even without keeping his bed; as appears from the life of Charlemagne, in Canisius.

CLINICUS is also used for a physician; because physicians are much conversant about the beds of the sick.

They were, however, principally the physicians of emperors that were called by this title.

CLINIC is now seldom used but for a quack; or rather for an empirical nurse, who pretends to have learned the art of curing diseases by attending on the sick.

CLINICA, *medicina*, was particularly used for the method of visiting, and treating sick persons in bed, for the more exact discovery of all the symptoms of their disease.

Le Clerc observes, that Esculapius was the first who exercised the *clinic medicine*.

CLINKERS, among *Brick-Makers*. See BRICK.

CLINOIDES, in *Anatomy*, an epithet given to the four small processes of the os SPHENOIDES, one of the bones of the cranium; so called, say some, from their resembling the feet of a bed.

The word is formed of the Greek *κλινω*, a bed, and *ειδος*, form; either from the resemblance which the three bones bear to the feet of the bed; or from the cavity they form, which resembles a bed itself.

These together form a little cavity, from its shape called *fella turcia*, or *equina*; wherein is placed the pituitary gland.

CLINOPODIUM, in *Botany*, *Field Basil*, a genus of the *didynamia gymnospermia* class. Its characters are these: the flower is of the lip kind, with a short tube enlarging to the mouth; the upper lip is erect, and indented at the top; the under lip is trifid, the middle segment being broad and indented. It hath four stamina under the upper lip, two of which are shorter than the other; in the centre is situated the quadripartite germen, which afterward becomes four oval seeds, shut up in the empalement. There are six species.

The first sort grows naturally by the sides of hedges in most parts of England.

CLIO, one of the MUSES. In the portraits of Apollo and the Muses, dug out of Herculaneum, Clio appears seated, and her head is crowned with laurels. In her left hand she holds an open volume, in which she is reading. On the outside is written ΚΛΕΙΩ ΙCΤΟΡΙΑΝ, *Clio the Historian*; though it should rather be translated *Clio inventor of History*. At her feet are six other rolls, or antique volumes, inclosed in a cylindrical case. Burney's Hist. of Music, vol. i. p. 294.

CLIO, in *Zoology*, the name of a genus of worms, belonging to the order of *mollusca*: the body of which is oblong, and formed for swimming, and furnished with two opposite *alæ* of a membranaceous structure. They are found in the ocean.

CLYPEUS, in *Natural History*, the name of a class of the *echinodermata*, which are very depressed and flat, and in some measure resemble a shield. Of this class there are only two known species.

The first is the discoide echinites of Plot, and the second that of Langius, which has a little higher top.

CLIPPING the coin. See COIN.

CLITONES, the eldest, and all the sons of kings. This word is often met with in our ancient authors.

CLITORIA, in *Botany*, a genus of the *diadelphia decandria* class. Its characters are these: the flower is of the butterfly kind, having a large spreading standard, which is erect; the two wings are oblong, and shorter than the standard; the keel is shorter than the wings, and is hooked; it hath ten stamina, nine of which are joined, and one stands separate; in the centre is situated an oblong germen, which afterward becomes a long, narrow, compressed pod, with one cell, opening with two valves, enclosing several kidney-shaped seeds. There are four species.

CLITORIDIS *musculus*, a name given by Verheyen to the muscle of the female *pudenda*, usually called *erector clitoridis*. This is the only muscle that is proper to this part;

part; the other, called the *inferior clitoridis*, being properly a *sphincter vaginae*, or, as Albinus calls it, *constrictor cunni*.

CLITORIS, in *Anatomy*, a long round body in the fore-part of the vulva, or natural parts of a woman; where the *nymphae* form an angle with each other; being one of the organs of generation in that sex. See *Tab. Anat. (Splanchn.) fig. 9. lit. d. p. fig. 11. lit. m. fig. 13. lit. a.* Its figure represents that of a glans or acorn: ordinarily it is pretty small; but in some women thick; and long. In many respects it represents the penis of a man; whence some call it *mentula*, or *penis muliebris*, the woman's yard. In effect, it is composed of the same parts; it has, like it, two cavernous or spongy bodies; and a glans at the extremity, covered with a preputium; but it is not pierced through like the penis.

This is thought by some to have been first discovered by modern anatomists; but Dr. Tronchin quotes several ancient authors who knew the *clitoris*; and proves that Boerhaave mentioned it before Columbus or Fallopius.

It has two muscles which erect it in coition; on which occasion it swells, and grows hard. Some anatomists pretend too, that it has two *musculi ejaculatores*. See *Tab. Anat. (Splanchn.) fig. 13. lit. f. f.*

Its sensation is exquisite; and it is found the chief seat of pleasure; so that some call it *astrum Veneris*. And hence it is said, some women are apt to abuse it. See **POLLUTION**.

The extremity of this part is sometimes cut off; as in circumcision, where it advances out too far. It is sometimes so large and preponderant, that it bears a full resemblance to the virile member; whence the persons, in whom it is so found, frequently pass for hermaphrodites. The spongy bodies of the *clitoris* arise distinctly from the lower parts of the *os pubis*; and approaching one another unite, and form the body of the *clitoris*. Before their union they are called the *crura clitoridis*; and are twice as long as the body of the *clitoris*.

Its muscles arise from the protuberance of the ischium, and are inserted into its spongy bodies. It has veins and arteries from the hæmorrhoidal vessels, and pudenda; and nerves from the intercostals.

CLIVERS, in *Botany*. See **CLEAVERS**.

CLOACA, among the *Ancients*, was a subterraneous aqueduct, or common-sewer, for the reception and discharge of the filth of a city, or house.

The word is formed from *κλύω*, *I wash away*.

Tarquinius Priscus is said to have been the first who contrived *cloacæ* in ancient Rome; to which end, a canal was first dug through the mountains whereon the city stood, and divided into three branches, called the *great cloaca*.

The care and inspection of the *cloacæ* belonged to the censors, till the time of Augustus, who appointed *curatores cloacarum* on purpose. The Romans had also their *Cloacina*, or goddess, who presided over the *cloacæ*.

CLOACA, in *Comparative Anatomy*, imports that canal in birds, through which the egg descends from the ovary in its exit. In this it is remarkable, that the part which is next the ovary is jagged, like the *morfus diaboli*, and fluctuates in the abdomen without any attachment to the ovary: hence anatomists have been somewhat puzzled to comprehend by what means the egg falls into the ovary. See **EGG**.

CLOATHS, or **CLOTHES**. See **HABIT**.

CLOCK, a kind of movement, or machine, serving to measure, and strike time.

The usual chronometers are watches and *clocks*: the former, in strictness, are such as shew the parts of time; the latter, such as publish it by striking: though the name watch is ordinarily appropriated to pocket *clocks*; and that of *clocks* to larger machines, whether they strike or no.

The parts common to both kinds of movements, see under the article **MOVEMENT**. Those peculiar to watches and *clocks*, see under **WATCH-WORK**, and **CLOCK-WORK**.

The invention of *clocks* with wheels, is referred to Pacificus, archdeacon of Verona, who lived in the time of Lotharius, in the ninth century, son of Lewis the Debonnair; on the credit of an epitaph quoted by Ughelli, and borrowed by him from Panvinus. Others ascribe the invention to Boethius, about the year 510.

They were at first called *nocturnal dials*; to distinguish them from sun-dials, which shewed the hour by the sun's shadow.

Dr. Derham makes *clock-work* of a much older standing; and ranks Archimedes's sphere, mentioned by Claudian, and that of Posidonius, mentioned by Cicero, among machines of this kind; not that either their form or use were the same with those of ours: but that they had the motion from some hidden weights, or springs, with

wheels, or pulleys, or some such *clock-work* principle. Thus he understands the *inclusus variis famulatur spiritus astris*; & *vivum certus motibus urget opus*.

But be this as will, it is certain the art of making *clocks*, such as are now in use, was either first invented, or at least retrieved; in Germany, about two hundred and fifty years ago.

Clock-makers were first introduced into England in 1368, when Edward III. granted a licence for three artists to come over from Delft in Holland, and practise their occupation in this country.

The *water-clocks*, or *clepsydrae*; and sun-dials, have both a much better claim to antiquity.

The French annals mention one of the former kind, sent by Aaron king of Persia to Charlemagne, about the year 807, which seemed to bear some resemblance to the modern *clocks*: it was of brass, and shewed the hours by twelve little balls of the same metal, which fell at the end of each hour, and in falling struck a bell, and made it sound. There were also figures of twelve cavaliers, which at the end of each hour came forth at certain apertures, or windows, in the side of the *clock*, and shut them again, &c.

Among the modern *clocks*, the most eminent for their furniture, and the variety of their motions and figures, are those of Strasburgh, and of Lyons. In the first, a cock claps his wings, and proclaims the hour; the angel opens a door and salutes the Virgin; and the Holy Spirit descends on her, &c. In the second two horsemen encounter, and beat the hour on each other; a door opens, and there appears on the theatre the Virgin with Jesus Christ in her arms; the magi, with their retinue, marching in order, and presenting their gifts; two trumpeters sounding all the while to proclaim the procession.

The invention of **PENDULUM** *clocks* is owing to the happy industry of the last age: the honour of it is disputed between Huygens and Galileo. The former, who has a volume on the subject, declares it was first put in practice in the year 1657, and the description thereof printed in 1658. Becher, *De Nova Temporis dimetiendi Theoria*, anno 1680, contends for Galileo; and relates, though at second-hand, the whole history of the invention: adding that one Tresler, *clock-maker* to the father of the then grand-duke of Tuscany, made the first pendulum *clock* at Florence, by direction of Galileo Galilei; a pattern of which was brought into Holland.

The academy del Cimento say expressly, that the application of the pendulum to the movement of a *clock* was first proposed by Galileo, and first put in practice by his son Vincenzo Galilei, in 1649.

Be the inventor who he will, it is certain the invention never flourished till it came into Huygens's hands, who insists on it, that if ever Galileo thought of such a thing, he never brought it to any degree of perfection.

The first pendulum *clock* made in England, was in the year 1662, by Mr. Fromant, a Dutchman.

Pendulum CLOCK, **Pocket CLOCK**, and **Repeating CLOCK**. See **WATCH**, and **PENDULUM** *clock*.

CLOCK-WORK, is that part of the movement which strikes the hour, &c. on a bell. See *Tab. Horology, fig. 2.*

The wheels it consists of are the great or first wheel H; which is moved by the weight or spring at the barrel G: in sixteen or thirty hour *clocks*, this has usually pins, and is called the *pin-wheel*; in eight-day pieces, the second wheel I is commonly the pin-wheel, or striking-wheel, which is moved by the former. Next the striking-wheel, is the detent-wheel, or hoop-wheel, K, having a hoop almost round it, wherein is a vacancy at which the *clock* locks. The next is the third, or fourth wheel, according to its distance from the first, called the *warning-wheel* L. The last is the flying pinion Q, with a fly, or fan to gather air, and so bridle the rapidity of the *clock's* motion. To these must be added the pinion of report; which drives round the locking-wheel, called also the *count-wheel*; ordinarily with eleven notches in it, unequally distant, to make the *clock* strike the hours. See **WHEEL**.

Besides the wheels, to the *clock* part belongs the ratch, or ratch; a kind of wheel with twelve large fangs, running concentric to the dial-wheel, and serving to lift up the detents every hour, and make the *clock* strike: the detents, or stops, which being lifted up, and let fall, lock and unlock the *clock* in striking; the hammer, as S, which strikes the bell R; the hammer-tails, as T, by which the striking pins draw back the hammers; latches, whereby the work is lifted up and unlocked; and lifting-pieces as P, which lift up and unlock the detents.

For the mechanism of the various parts of a *clock* that serve to move the hands, and shew the time, see **WATCH-work**.

CLOCK-work, theory and calculation of. The method of calculating the numbers of a piece of *clock-work* having something

something in it very entertaining, and at the same time very easy and useful, we shall give the readers the rules relating thereto: referring, for the general rules that obtain in the calculation of all movements of watch as well as *clock-work*, to the article MOVEMENT: and, for the particular rules of watch-work, to the article WATCH-work.

For the strict calculation itself, it bears that affinity to the calculation of watch-work, that, to avoid repetitions, we shall refer to that head: what *clock-work* has peculiar to itself will be conceived from what follows.

CLOCK, rules for calculating the striking part of a. First then, observe, that regard here needs only be had to the counting-wheel, striking-wheel, and detent-wheel, which move round in this proportion: the count-wheel commonly goes round once in 12 or 24 hours: the detent-wheel moves round every stroke the *clock* strikes, or sometimes but once in two strokes; wherefore, it follows, that,

Secondly, As many pins as are in the pin-wheel, so many turns hath the detent-wheel in one turn of the pin-wheel; or, which is the same, the pins of the pin-wheel are the quotients of that wheel divided by the pinion of the detent-wheel. But if the detent-wheel move but once round in two strokes of the *clock*, then the said quotient is but half the number of pins.

Thirdly, As many turns of the pin-wheel as are required to perform the strokes of 12 hours (which are 78), so many turns must the pinion of report have, to turn round the count-wheel once: or thus, the quotient of 78, divided by the number of striking-pins, shall be the quotient for the pinion of report, and the count-wheel; and this is in case the pinion of report be fixed to the arbor of the pin-wheel, which is commonly done.

An example will make all plain: the locking-wheel being 48, the pinion of report 8, the pin-wheel 78, the striking pins are 13, and so of the rest. Note also, that 78 divided by 13 gives 6, the quotient of the pinion of report. As for the warning-wheel, and fly-wheel, it matters little what numbers they have; their use being only to bridle the rapidity of the motion of the other wheels.

The following rules will be of good service in this calculation.

1. To find how many strokes a clock strikes in one turn of the fusee, or barrel. As the turns of the great wheel, or fusee, are to the days of the clock's continuance; so is the number of strokes in 24 hours, viz. 156, to the strokes of one turn of the fusee.

2. To find how many days a clock will go. As the strokes in 24 hours are to those in one turn of the fusee; so are the turns of the fusee to the days of the clock's going.

3. To find the number of turns of the fusee, or barrel. As the strokes in one turn of the fusee are to those of 24 hours; so is the clock's continuance to the turns of the fusee, or great wheel.

4. To find the number of leaves in the pinion of report on the axis of the great wheel. As the number of strokes in the clock's continuance is to the turns of the fusee; so are the strokes in 12 hours, viz. 78, to the quotient of the pinion of report fixed on the arbor of the great wheel.

5. To find the strokes in the clock's continuance. As 12 is to 78, so are the hours of the clock's continuance to the number of strokes in that time.

By stat. 9 and 10 W. III. cap. 28. § 2. no person shall export, or endeavour to export, out of this kingdom, any outward or inward box-case or dial-plate, of gold, silver, brass, or other metal, for clock or watch, without the movement in or with every such box, &c. made up fit for use, with the maker's name engraven thereon; nor shall any person make up any clock or watch, without putting their name and place of abode or freedom, and no other name or place, on every clock or watch; on penalty of forfeiting every such box, case, and dial-plate, clock and watch, not made up and engraven as aforesaid; and 20l. one moiety to the king, the other to those that shall sue for the same.

The ingenious Dr. Franklin has contrived a clock to shew the hours, minutes, and seconds, with only three wheels and two pinions in the whole movement. The dial-plate (*Fig. 8. Tab. II. Horology.*) has the hours engraven upon it in spiral spaces along two diameters of a circle containing four times 60 minutes. The index A goes round in four hours, and counts the minutes from any hours by which it has passed to the next following hour. The time, therefore, in the position of the index shewn in the figure is either 32½ minutes past XII. III. or VIII; and so in every other quarter of the circle, it points to the number of minutes after the hours which the index has left in its motion. The small hand B, in the arch at top, goes round once

in a minute, and shews the seconds. The wheel-work of this clock may be seen in (*fig. 9.*) A is the first or great wheel, containing an hundred and sixty teeth, and going round in four holes with the index A in *fig. 8.* let down by a hole on its axis. This wheel turns a pinion B of ten leaves, which therefore goes round in a quarter of an hour: on the axis of this pinion is the wheel C of an hundred and twenty teeth, which goes round in the same time, and turns a pinion D, of eight leaves, round in a minute, with the second-hand B of *fig. 8.* fixed on its axis, and also the common wheel E of thirty-teeth, for moving a pendulum (by pallets) that vibrates seconds, as in a common clock. This clock is wound up by a line going over a pulley on the axis of the great wheel, like a common thirty-hour clock. Many of these admirably simple machines have been constructed, which measure time exceedingly well. It is subject, however, to the inconvenience of requiring frequent winding by drawing up the weight; and likewise to some uncertainty as to the particular hour shewn by the index A. Mr. Ferguson has proposed to remedy these inconveniencies by the following construction. In the dial-plate of his clock (*fig. 10.*) there is an opening *abcd*, below the centre; through which appears part of a flat plate, on which the 12 hours, with their divisions into quarters, are engraved: this plate turns round in twelve hours, and the index A points out the true hour, &c. B is the minute-hand which goes round the large circle of 60 minutes, whilst the plate *abcd* shifts its place one hour under the fixed index A. There is another opening *efgh*, through which the seconds are seen on a flat moveable ring at the extremity of a fleur-de-lis engraved on the face of the dial-plate. A, in *fig. 11.* is the great wheel of this clock, containing an hundred and twenty teeth, and turning round in twelve hours. The axis of this wheel bears the plate of hours, which may be moved by a pin passing through small holes drilled in the plate, without affecting the wheel-work. The great wheel A turns a pinion B of ten leaves round in an hour, and carries the minute-hand B on its axis round the dial-plate in the same time: on this axis is a wheel C of an hundred and twenty teeth, turning round a pinion D of six leaves in three minutes; on the axis of which there is a wheel E of ninety teeth, that keeps a pendulum in motion, vibrating seconds by pallets, as in a common clock, when the pendulum-wheel has only thirty-teeth, and goes round in a minute. In order to shew the seconds by this clock, a thin plate must be divided into three times sixty, or an hundred and eighty equal parts, and numbered 10, 20, 30, 40, 50, 60, three times successively; and fixed on the same axis with the wheel of ninety teeth, so as to turn round near the back of the dial-plate; and these divisions will shew the seconds through the opening *e, f, g, h, fig. 10.* This clock will go a week without winding, and always shew the precise hour; but this clock, as Mr. Ferguson candidly acknowledges, has two disadvantages, of which Dr. Franklin's clock is free. When the minute-hand B is adjusted, the hour-plate must also be set right by means of a pin; and the smallness of the teeth in the pendulum wheel will cause the pendulum ball to describe but small arcs in its vibrations; and therefore the momentum of the ball will be less, and the times of the vibrations will be more affected by any unequal impulse of the pendulum-wheel on the pallets. Besides, the weight of the flat ring on which the seconds are engraved will load the pivots of the axis of the pendulum-wheel with a great deal of friction, which ought by all possible means to be avoided. To remedy this inconvenience, the second plate might be omitted.

A CLOCK shewing the apparent diurnal motions of the sun and moon, the age and phases of the moon, with the time of her coming to the meridian, and the times of high and low water; by having only two wheels and a pinion added to the common movement, was contrived by Mr. Ferguson, and is described in his Select Exercises. The dial-plate of this clock, (*see Tab. II. Horology, fig. 12.*) contains all the twenty-four hours of the day and night: S is the sun, which serves as an hour index, by going round the dial-plate in twenty-four hours; and M is the moon, which goes round in twenty-four hours, fifty minutes and a half, the time of her going round in the heavens from one meridian to the same meridian again. The sun is fixed to a circular plate, (*see fig. 13.*) and carried round by the motion of that plate, on which the twenty-four hours are engraven; and within them is a circle divided into twenty-nine and a half equal parts for the days of the moon's age, reckoning from new moon to new moon; and each day stands directly under the time, in the twenty-four hour circle, of the moon's coming to the meridian; the XII. under the sun standing for noon, and the opposite XII. for midnight. The moon, M, is fixed

to another circular plate (*fig. 12.*) of the same diameter with that which carries the sun, part of which may be seen through the opening, over which the small wires *a* and *b* pass in the moon-plate: The wire *a* shews the moon's age and time of her coming to the meridian, and *b* shews the time of high-water for that day, in the sun-plate. The distance of these wires answers to the difference of time between the moon's coming to the meridian and high-water at the place for which the clock is made. At London their difference is two hours and a half. Above the moon-plate there is a fixed plate N, supported by a wire A, fixed to it at one end, and fixed at right angles into the dial-plate at the midnight XII. This plate may represent the earth, and the dot L London, or the place to which the clock is adapted. Around this plate there is an elliptic shade on the moon plate, the highest points of which are marked *high-water*, and the lowest *low-water*. As this plate turns round below the plate N, these points come successively even with L, and stand over it at the times when it is high or low water at the given place; which times are pointed by the sun, S, on the dial-plate; and the plate H, above XII. at noon rises or falls with the tide.

As the sun, S, goes round the dial-plate in twenty-four hours, and the moon, M, in twenty-four hours fifty minutes and a half, it is plain that the moon makes only twenty-eight revolutions and a half, whilst the sun makes twenty-nine and a half: so that it will be twenty-nine days and a half from conjunction to conjunction. And thus the wire *a* shifts over one day of the moon's age on the sun-plate in twenty-four hours.

The phases of the moon for every day of her age may be seen through a round hole *m* in the moon plate: thus, at conjunction or new-moon the whole space seen through *m* is black; at opposition or full moon, this space is white: at either quadrature half black and half white; and at every position, the white part resembles the visible part of the moon for every day of her age. The black shaded space N *f* F *l*, (*fig. 13.*) on the sun-plate serves for these appearances. N represents the new moon, F the full moon, and *f* her first quarter, and *l* her last quarter, &c.

The wheel-work and tide-work of this clock are represented in *fig. 14.* A and B are two wheels of equal diameters: A has fifty-seven teeth, with an hollow axis that passes through the dial of the clock, and carries the sun-plate with the sun S. B has fifty-nine teeth, with a solid spindle for its axis, which turns within the hollow axis of A, and carries the moon-plate with the moon M: both wheels are turned round by a pinion C of nineteen leaves, and this pinion is turned round by the common clock-work in eight hours; and as nineteen is the third part of fifty-seven, the wheel A will go round in twenty-four hours; and the wheel B in twenty-four hours fifty minutes and a half: fifty-seven being to twenty-four as fifty-nine to twenty-four hours fifty minutes and a half very nearly. On the back of the wheel B is fixed an elliptical ring D, which, in its revolution, raises and lets down a lever E F, whose centre of motion is on a pin at F; and this, by the upright bar G, raises and lets down the tide plate H, twice in the time of the moon's revolving from the meridian to the meridian again: this plate moves between four rollers R, R, R, R.

A clock of this kind was adapted by Mr. Ferguson to the movement of an old watch: the great wheel of a watch goes round in four hours; on the axis of this he fixed a wheel of twenty teeth, to turn a wheel of forty teeth on the axis of the pinion C; by which means that pinion was turned round in eight hours, the wheel A in twenty-four, and the wheel B in twenty-four hours fifty minutes and a half.

See also a description and drawing of an *astronomical clock*, shewing the apparent daily motions of the sun, moon, and stars, with the times of their rising, southing, and setting, the places of the sun and moon in the ecliptic, and the age and phases of the moon for every day of the year, in Ferguson's Select Exercises, p. 19.

To this article of clock-work we shall subjoin a brief account of two curious contrivances; the one for giving motion to the parts of a clock by making it to descend along an inclined plane, is the invention of Mr. Maurice Wheeler; and the clock itself may be seen in Don Saltero's coffee-house at Chelsea. DE (*see Tab. Horology, fig. 5.*) is the inclined plane on which the clock ABC descends: this consists externally of a hoop about an inch broad, and two sides or plates standing out beyond the hoop about one-eighth of an inch all round, with indented edges, that the clock may not slide, but turn round it whilst it moves down. One of these plates is inscribed with the twenty-four hours, which pass successively under the index L P, *fig. 6.* which is always in a position perpendicular to the horizon, and shews

the hour on the top of the machine: for this reason the lower part of the index, or H L is heaviest, that it may preponderate the other H P, and always keep it pendulous, with its point to the vertical hour; as the movement goes on. Instead of this index, an image may be fixed for ornament on the axis *g*; which with an erected finger performs the office of an index. In order to describe the internal part or mechanism of this clock, let L E T Q be the external circumference of the hoop; and *f*, *f*, the frame-plate, on which is placed the train of wheel work, 1, 2, 3, 4, which is much the same as in other clocks, and is governed by a balance and regulator as in them. But there is no need of a spring and fusee in this clock; their effects being otherwise answered; as we shall see. In this machine the great wheel 1 is placed in the centre, or upon the axis of the movement; and the other wheels and parts towards one side, which would therefore prove a bias to the body of the clock, and cause it to move, even on an horizontal plane, for some short distance; this makes it necessary to fix a thin plate of lead at C, on the opposite part of the hoop, to restore the equilibrium of the movement. This being done, the machine will abide at rest in any position on the horizontal plane H H; but if that plane be changed into the inclined plane D E, it will touch it in the point D; but it cannot rest there, because the centre of gravity at M acting in the direction M I, and the point T having nothing to support it, must continually descend, and carry the body down the plane. But now if any weight P be fixed on the other side of the machine, such as shall remove the centre of gravity from M to the point V in the line L D, which passes through the point D, it will then rest upon the inclined plane, as in the case of the rolling CYLINDER. If this weight P be supposed not fixed, but suspended at the end of an arm, or vectis, which arm or lever is at the same time fastened to a central wheel 1, moving on the axis M of the machine, which wheel by its teeth shall communicate with the train of wheels, &c. on the other side, and the power of the weight be just equal to the friction or resistance of the train, it will remain motionless as it did before when it was fixed. And, consequently, the clock also will be at rest on the inclined plane. But supposing the power of the weight P to be superior to the resistance of the train, it will then put it into motion, and of course the clock likewise; which will then commence a motion down the plane; while the weight P, its vectis P M, and the wheel 1, all constantly retain the same position which they have at first, when the clock begins to move. Hence it is easy to understand, that the weight P may have such an intrinsic gravity, as shall cause it to act upon the train with any required force, so as to produce a motion in the machine of any required velocity; such, for instance, as shall carry it once round in twenty-four hours: then, if the diameters of the plates A B C be four inches, it will describe the length of their circumference, viz. 12,56 inches in one natural day: and, therefore, if the plane be of a sufficient breadth, such a clock may go several days, and would furnish a perpetual motion, if the plane were infinitely extended.

Let S D be drawn through M perpendicular to the inclined plane in the point D; also let L D be perpendicular to the horizontal line H H, passing through D; then is the angle H D E = L D S = D M T; whence it follows that the greater the angle of the plane's elevation is, the greater will be the arch D T, and, consequently, the further will the common centre of gravity be removed from M; therefore the power of P will be augmented, and of course the motion of the whole machine accelerated. Thus it appears, that by duly adjusting the intrinsic weight of P, at first to produce a motion shewing the mean time as near as possible, the time may be afterwards corrected, or the clock made to go faster or slower by raising or depressing the plane, by means of the screw at S. The angle to which the plane is first raised is about ten degrees. The marquis of Worcester is also said to have contrived a watch that moved on a declivity. See farther Phil. Trans. abr. vol. i. p. 468, &c. or N^o 161.

The other contrivance is that of M. de Gennes for making a clock ascend on an inclined plane. To this end let A B D (*fig. 7.*) be the machine on the inclined plane E D E, and let it be kept at rest upon it, or in equilibrio, by the weight P at the end of the lever P M. The circular area C F is one end of a spring barrel in the middle of the movement, in which is included a spring as in a common watch. To this end of the barrel the arm or lever P M is fixed upon the centre M; and thus, when the clock is wound up, the spring moves the barrel, and therefore the lever and weight P in the situation P M. In doing this, the centre of gravity is constantly removed farther from the centre of the machine, and therefore,

it must determine the *clock* to move upwards, which it will continue to do as long as the spring is unbending itself; and thus the weight and its lever P M will preserve the situation they first have, and do the office of a chain and fusee. Phil. Trans. N^o 140. or Abridg. vol. i. p. 467.

By means of the following table, clocks and watches may be so regulated as to measure true equal time.

Days.	H. M.	S.	The stars make 366 revolutions from any point of the compass to the same point again in 365 days and one minute: and therefore, they gain a 365th of a revolution every 24 hours of mean solar time, near enough for regulating any clock or watch.
10	3	56	
20	7	52	
30	11	48	
40	15	44	
50	19	39	This acceleration is at the rate of 3 min. 55 sec. 53 thirds, 59 fourths, in 24 hours; or, in the nearest round numbers, 3 minutes, 56 seconds, by which quantity of time, every star comes round sooner than it did on the day before.
100	39	19	
110	43	15	Therefore, if you mark the precise moment shown by a clock or watch when any star vanishes behind a chimney, or any other object, as seen through a small hole in a thin plate of metal, fixed in a window-shutter; and do this for several nights successively (as suppose twenty) if, at the end of that time, the star vanishes as much sooner than it did the first night, by the clock, as answers to the time denoted in the table for so many days, the clock goes true: otherwise not. If the difference between the clock and star be less than the table shews, the clock goes too fast; if greater, it goes too slow; and must be regulated accordingly, by letting down or raising up the ball of the pendulum, by little and little, by turning the screw-nut under the ball, till you find it keeps true equal time.
120	47	11	
130	51	7	
140	55	3	
150	58	58	
160	2	54	
170	6	50	
180	10	46	
190	14	42	
200	18	38	
210	22	34	
220	26	30	
230	30	26	
240	34	22	
250	38	17	
260	43	13	
270	46	9	
280	50	5	
290	54	1	
300	57	57	

Thus, supposing the star should disappear behind a chimney, any night when it is XII by the clock; and that, on the 20th night afterward, the same star should disappear when the time is 41 minutes 22 seconds past X by the clock; which being subtracted from 12 hours, 0 min. 0 sec. leaves remaining 1 hour, 18 minutes, 38 seconds for the time the star is then faster than the *clock*: look in the table, and against 20, in the left hand column, you will find the acceleration of the star to be 1 hour, 18 min, 31 sec. agreeing exactly with what the difference ought to be between the *clock* and star: which shews that the *clock* measures true equal time, and agrees with the mean solar time, as it ought to do.

To add chimes to a piece of *CLOCK-work*. See CHIMES.

CLOCK, Balance of a. See BALANCE.

CLOCK-makers, Company of. See COMPANY.

CLOCK-makers compasses. See COMPASSES.

CLOERE, a prison or dungeon; it is conjectured from British original; the dungeon or inner prison of Wallingford castle, temp. H. 2. was called *Cloere-brien*, i. e. *carcer Brieni*, &c.

CLOISTER, CLAUSTRUM, an habitation surrounded with walls, and inhabited by canons, or religious.

In a more general sense *cloister* is used for a monastery of religious of either sex.

In a more restrained sense *cloister* is used for the principal part of a regular monastery, consisting of a square built around; ordinarily, between the church, the chapter-house, and the refectory; and over which is the dormitory. See DORMITORY, &c.

The *cloisters* served for several purposes in the ancient monasteries. Petrus Blesensis observes, that it was here the monks held their lectures; the lecture of morality at the north-side, next the church; the school on the west, and the chapter on the east; spiritual meditation, &c. being reserved for the church.

Du Cange concludes, that all these different exercises were performed in the cloister itself; but by mistake. The church, the chapter-house, and the school, were not parts of the *cloister*, but buildings adjoining to it.

Lanfranc observes, that the proper use of the *cloister* was for the monks to meet in, and converse together, at certain hours of the day.

The form of the *cloister* was square; and it had its name *claustrum* from *claudo*, I shut or close, as being inclosed on its four sides with buildings.

Hence, in architecture, a building is said to be in form of a *cloister*, when there are buildings in each of the four sides of the court.

CLOISTERED monks. See MONK.

CLONARIUM, in Botany, that small pedicle which sup-

ports every separate flower, or fruit in a cluster, as every grape in a bunch; every berry in a corymbus of ivy, &c.

CLOSE, in Heraldry. When any bird, addicted to flight, is drawn in a coat of arms, in a standing posture; with its wings close down about it, and not either flying or displayed, they blazon it by the word *close*.

In which sense *close* stands opposed to VOLANT.

Close is not applied to the peacock; dunghill cock, &c. because that is their ordinary posture.

The term *close* is likewise used for the barnacles, or bits of a bridle, when not extended; as they are usually borne.

It is also applied to the bearing a helmet, with the vizor down: a barnacle *close*, helmet *close*, &c.

CLOSE, in Music. See CADENCE.

CLOSE, Breach of, in Law; a species of trespass, denoting every unwarrantable entry on another's soil, which the law supposes to be inclosed, either by a visible fence, or an invisible boundary.

CLOSE Rolls, and *CLOSE Writs*, in Law; charters, or letters of the king, containing grants of lands, &c. sealed with his great seal, and directed to particular persons; and for particular purposes, not being proper for the public inspection, are *closed* up and sealed on the outside; and are therefore called *writs close*, *literæ clausæ*, and they are recorded in the *close rolls*. See LETTERS; and PATENT.

CLOSE field. See FIELD.

CLOSE fights, aboard a ship, are bulk-heads put up fore and aft in the ship, for the men to stand behind in a close engagement, and fire on the enemy; or, if the ships be boarded, to scour the decks.

CLOSE fire. See FIRE, and REVERBERATION.

CLOSE-hauled, in Sea Language, denotes the arrangement or trim of a ship's sails when she endeavours to proceed in the nearest direction possible to that point of the compass from which the wind blows. The keel of larger ships makes an angle of about six points with the line of the wind; but sloops and smaller vessels sail almost a point nearer. All vessels, when *close-hauled*, make nearly a point of lee-way, and this angle increases with the increase of wind and sea. The sails, in this disposition of them, are all extended sideways on the ship; and the term *close-hauled* is then applied to it, because her tacks are drawn close down to her windward side, the sheets hauled close aft, and all the bow-lines are drawn to their utmost extension, in order to keep the sails steady.

CLOSE quarters, in Sea Language, denote strong beams of wood extended along a merchant-ship in several places: as they are a place of retreat, when the ship is boarded by an adversary, they are fitted with small loop-holes, through which the ship's crew may fire small arms to defend themselves and annoy the enemy. They are likewise furnished with powder-chests, filled with powder, old nails, &c. which may be fired upon the boarders.

CLOSE Pound. See POUND.

CLOSET, in Heraldry, signifies the half of a BAR.

CLOSET, Clerk of the. See CLERK.

CLOSH, in our old customs, an unlawful game, forbidden by stat. 14 Edw. IV. c. 3. & 33 Hen. VIII. c. 9. It is said to have been the same with our *nine-pins*, and is called *closh-coyls*, by the 33^d Hen. VIII.

CLOT-bird, in Zoology, a name by which the common OENANTHE is called in many parts of England.

CLOTH, in Commerce, in its general sense, includes all kinds of stuffs woven or manufactured on the loom, whether their threads be of wool, hemp, or flax.

CLOTH is more peculiarly applied to a web, or tissue of woollen threads, interwoven; whereof some, called the *warp*, are extended lengthwise, from one end of the piece to the other; the rest, called the *woof*, are disposed across the first, or breadthwise of the piece.

Cloths are woven on the looms as well as linens, druggets, serges, camblets, &c. They are of various qualities, fine, coarse, strong, &c. some are made of wool, and this of different colours; the wool being dyed and dressed, is first spun, then wove: others are wrought white, destined to be dyed in scarlet, black, blue, green, yellow, &c. Their breadths and lengths are various, according to the places where they are manufactured.

The goodness of *CLOTH* consists, 1^o, In the wool's being fine, and being well dressed. 2^o, In its being spun equably; always observing, however, that the thread of the warp be finer, and better twisted, than that of the woof. 3^o, In the *cloth's* being well wrought and beaten on the loom, so as to be every where equally close and compact. 4^o, In the wool's not being finer and better at one end of the piece than in the rest. 5^o, In the lists being sufficiently strong, and of the same length with the stuff; and that they consist of good matter, as wool, hair, or ostrich feathers, or the hair of Danish dogs; which

which last is the best. 6°, In the *cloth's* being well cleared of the knots, and other imperfections. 7°, In its being well scoured with good fullers-earth, then fulled with the best white soap, and washed out in clear water. See FULLING. 8°, In the hair or knap's being well drawn out with the TEAZLE, or thistle, on the pole, without being too much opened. 9°, In its being shorn close; yet without laying the ground or thread bare. See SHEERING. 10°, In its being well dyed. 11°, In its not being stretched, or pulled farther than is necessary to set it square, and bring it to its just length and breadth. See TENTER. 12°, In its only being pressed cold; hot-pressing being hurtful to *cloth*.

Manufacturing of white CLOTHS for dying. The best wools for the purpose are those of England and Spain; especially those of Lincolnshire, and Segovia.

To use them to the best advantage; when taken out of the bales, they must be scoured, by putting them in a liquor somewhat more than lukewarm, composed of three parts of fair water, and one of urine. After the wool has continued long enough in the liquor to dissolve and loosen the grease, it is taken out, drained, and washed in a running water: it is known to be well scoured, when it feels dry to the touch, and has no smell but the natural smell of the sheep.

In this state it is hung out to dry in the shade; the heat of the sun being apt to make it harsh, and untractable. When dry, it is beat with rods on hurdles of wood, or on ropes, to clear out the dust and grosser filth; the more it is thus beat and cleaned, the more soft it becomes, and the better it spins. After beating, it is well picked to clear the rest of the filth that had escaped the rods.

It is now in a state to be oiled, and carded on large iron cards, placed aslope. The best oil for the purpose is oil of olives; one fifth of which, at least, should be used for the wool destined for the woof, and a ninth for that of the warp.

It is now given out to the spinners; who first card it on the knee, with small fine cards; then spin it on the wheel; observing to make the thread of the warp smaller, by one-third, than that of the woof, and much closer twisted: in order to this, the latter must be spun with the hand, or string open, and the former with it crossed. The thread being thus spun, reeled, and made into skeins; that destined for the woof is wound on spools, i. e. on little tubes, or pieces of paper, or rushes, so disposed as that they may be easily put in the eye of the shuttle. That for the warp is wound on a kind of rochets, or large wooden bobbins, to dispose it for warping.

When warped, it is stiffened with size; whereof, that made of shreds of parchment is the best; and, coarse yarn, used in kerseys, is stiffened by steeping it for a few hours in chalk-water; and, when dry, is given to the weavers, who mount it on the loom.

The warp being on the loom, the weavers, who are two to each loom, one on each side, tread at the same time, alternately, on the same treadle; i. e. now on the right step, and now on the left, which raises and lowers the threads of the warp equally; between which they throw, transversely, the shuttle from the one to the other. And each time that the shuttle is thrown, and so a thread of the woof inserted within the warp, they strike it conjointly with the same frame wherein is fastened the comb, or reed, between whose teeth the threads of the warp, are passed; repeating the stroke as often as is necessary; in some *cloths* no less than twelve or thirteen times, viz fix with the warp open, and seven shut.

It may be observed, that the more the threads of the woof are struck against each other, the closer the *cloth* is: and hence it becomes enabled to sustain the violence of the fulling-mill, as well as of the teasing, or fulling-thistle, without fretting, or opening. The weavers having continued their work till the whole warp is filled with woof, the *cloth* is finished: it is taken off the loom by unrolling it from the beam whereon it had been rolled in proportion as it was woven; and is now given to be cleared of the knots, ends of thread, straws, and other filth; which is done with little iron nippers: and this operation is called *burling*.

In this condition it is carried to the fullery, to be scoured with urine, or a kind of potters clay well cleaned and steeped in water, put along with the cloth in the trough, wherein it is fulled. See FULLING.

The *cloth* being again cleared from the earth, or urine, by washing it in water, is returned to the former hands, to have the lesser filth, small straws, and almost imperceptible knots, taken off as before: it is likewise fine-drawn. See FINE-drawing. Then it is returned to the fuller, to be beat and fulled with hot water, wherein five or six pound of soap has been dissolved. The soap most esteemed is the white, especially that of Genoa. After fulling an hour and a half, it is taken out to be

smoothed, i. e. to be pulled by the lifts lengthways, to take out the wrinkles and creases occasioned by the force of the mallets, or pestles, falling on the *cloth*, when in the troughs: which is often done by racking or tentering the *cloth*. See TENTER.

The smoothing is repeated every two hours, till the fulling be finished, and the *cloth* brought to its proper breadth: after which, it is washed in clear water, to purge it of the soap, and given, all wet, to the carders, to raise the hair, or knap, on the right side, with the thistle, or weed; wherewith they give it two rubs, or courses; the first against the grain, the second with the grain; which operation is called ROUGHING it.

The *cloth* being dried after this operation, the cloth-worker takes it, and gives it its first cut, or SHEERING. This done, the carders resume it, and after wetting it, give as many more rubs, or courses, with the teasle, as the quality of the stuff requires: always observing to begin against the hair, and to end with it; and to begin with a smoother thistle, proceeding still to a sharper, and sharper, as far as the sixth degree.

After this, the *cloth* being dried, is returned to the cloth-worker, who sheers it a second time, and returns it to the carder; who wetting it again, gives it as many courses as he thinks fit, dries it, and gives it back again to the cloth-worker; who after sheering it a third and last time, returns it to the carders, who repeat their operation as before, till the hair, or knap, be well ranged on the surface of the *cloth*, from one end of the piece to the other.

It must be observed, that it is indispensably necessary the *cloth* be wet, while in the carders hands; in order to which, it is sprinkled from time to time with water.

The knap being finished, and the *cloth* dried, the cloth-worker gives it as many cuts as he thinks requisite for the perfection of the stuff. It must also be observed, that all the sheerings must be on the right side, except the two last, which must be on the other; and that the *cloth* cannot be too dry for sheering.

The cloth thus woven, scoured, knapped, and shorn, and sometimes cottoned, or FRIZED, is sent to the dyer. When dyed, it is washed in fair water, and the cloth-worker takes it again, wet as it is, lays the hair, or knap, with a brush on the table, and hangs it on the tenters; where it is stretched both in length and breadth, enough to smooth it, set it square, and bring it to its proper dimensions, without straining it too much; observing to brush it afresh, the way of the hair, while yet a little moist on the tenter.

When quite dry, the *cloth* is taken off from the tenter, and brushed again on the table, to finish the laying of the knap: it is then folded, and laid cold under a press, to make it perfectly smooth and even, and to give it a little gloss.

The gloss is given by laying a leaf of vellum, or cap-paper, in each plait of the piece; and over the whole a square plank of wood: on which, by means of a lever, the screw of a press is brought down, with the degree of force judged necessary, with regard to the quality of the *cloth*. In France, none but scarlets, greens, blues, &c. receive this last preparation; blacks being judged better without it.

Lastly, the *cloth* being taken out of the press, and the papers removed, it is in a condition for sale, or use. See the whole process of manufacturing sheep's wool into *cloth*, described by Sir W. Petty, in Birch's Hist. of the Royal Society, vol. i. p. 55, &c.

For the manufacture of mixt CLOTHS, or those wherein the wools are first dyed, then mixt, spun, and woven of the colours intended; the process, except in what relates to the colour, is mostly the same with that just spoken of.

The method of adjusting the mixture, is by first making a felt, or flock, of the colours of the intended *cloth*, as a specimen; the wool of each colour is weighed, and when the specimen is to the manufacturer's mind, he mixes, for use, a quantity in the same proportion; estimating each grain of the specimen at twenty pounds weight of the same wool in the *cloth* to be made.

Thus, if he would mix three colours, v. gr. coffee-colour, feuille-mort, and pale-blue, the first to be the prevailing-colour, he weighs a quantity of each; for instance, 70 grains of the first, 25 of the second, and 20 of the third; then multiplies each by 20 pounds of wool: and thus gains 1400 pounds for the coffee wool; 500 pounds for the feuille-mort, and 400 for the pale-blue.

The wools of the specimen, thus weighed, are mixed, oiled, carded, moistened with clear water, rubbed with black soap, and in this state wrought a long time in the hands; till they be reduced into a piece of felt like that used by hatters.

It is then rinsed in water, to purge out the oil and soap; and when dry, the hair, or knap, is carded out with the teazle; then shorn carefully, till the ground appear, and the several colours be discoverable.

Lastly, wetting it a little, and pressing it, he examines it well; and if he be not contented with it, makes another felt; if he be, he proceeds to mix his wools: when mixed, it is beat on hurdles, cleaned, oiled, carded, spun, woven, &c. as in white *cloth*.

For the laws relating to the woollen manufactory, see stat. 3 and 4 Edw. III. cap. 2. 3 and 4 Edw. IV. cap. 6. 17 Edw. IV. cap. 1. 5 and 6 Edw. VI. cap. 6. 4 and 5 Ph. and M. cap. 5. 29 Eliz. cap. 20. 1 Jac. I. cap. 8. 7 Jac. I. cap. 7. 21 Jac. I. cap. 18. 12 Car. II. cap. 22. 1 Anne. 7 Anne, cap. 13. 10 Anne, cap. 16. 1 Geo. I. cap. 15. 11 Geo. I. 12 Geo. I. 13 Geo. I. 11 Geo. II. 14 Geo. II.

CLOTH, *casting of lead on*. See CASTING.

CLOTH, *Cocking*. See COCKING *Cloth*.

CLOTH, *Frizing of*. See FRIZING.

CLOTH, *Green*. See GREEN.

CLOTHS, *Hair, in Military Affairs*. See HAIR.

CLOTH, *Housewife's*. See HOUSEWIFE.

CLOTH, *Incombustible*. See ASBESTOS, and LINUM *Incombustible*.

CLOTH, *Painting on*. See PAINTING.

CLOTH, *Scar*. See SEAR-*Cloth*.

CLOUD, in *Physiology*, a collection of condensed VAPOUR, suspended in the atmosphere.

A *cloud* is a congeries of watery particles, or vesiculae raised from the waters, or watery parts of the earth, by the solar, or subterraneous, or electrical fire; which at their first rise from our globe, are too minute, and too much separated by their mutual repulsion, to be perceived; but as they mount, meeting with a greater degree of cold, losing their electricity, or by any other process which nature employs for this purpose, are condensed and rendered opaque, by the reunion of their parts; so as to reflect light, and become visible. For the manner wherein vapours are raised into *clouds*. See EVAPORATION.

These vapours, however raised, being specifically lighter than air, mount in it, till having reached such a region of the atmosphere as is of the same specific gravity with themselves, they will be suspended; till the watery vesicles, which were at first too thin to be perceived, being now condensed by the cold of the superior regions; and consequently the parts set closer together; their density is first augmented so as to render them opaque enough to reflect the sun's light, and become visible; and their specific gravity increased, so as to make them descend: in the former state they are called *clouds*; and in the latter, when they arrive at us, rain.

Clouds, beside their use when they descend in showers, are of service, while suspended in the atmosphere; as they help to mitigate the excessive heat of the torrid zone, and screen it from the beams of the sun, especially when in his zenith.

From the observable motions of the *clouds* it appears, that there are different currents in the air at the same time, and in the same quarter, under one another. Phil. Transf. N^o 458. p. 537.

For the colour of the *clouds*, see COLOUR. For the electricity of the *clouds*, see ATMOSPHERE, CONDUCTORS, ELECTRICITY, EVAPORATION, &c.

CLOUDS, *Magellanic*. See MAGELLANIC *clouds*.

CLODBERRY. See CHAMÆMORUS.

CLOVE-Tree, CARYOPHYLLUS, in *Botany*, a genus of the *polyandria monogynia* class. Its characters are these: it hath a double empalement; the flower is of one leaf, cut into four obtuse parts, upon which the germen is situated: the fruit hath another empalement, which is small, and slightly divided into four parts, which are permanent. The flower hath four blunt petals, and hath many stamina. The germen is situated under the flower, which afterwards becomes a soft berry with two cells, each containing a kidney-shaped seed. There are five species.

The fruit is somewhat in form of a nail; whence the term *clove*, from the French *clou*, nail.

The *clove-tree* was anciently very common in the Molucca islands; where all the European nations, who traffic in spices to the Indies, furnished themselves with what quantity of *cloves* they required. At present there are scarce any found but in the island of Ternate: the Dutch, in order to render themselves masters of that merchandize, having dug up the *clove-trees* of the Moluccas, and transplanted them to Ternate; so that there are none now to be had but through their hands.

The tree is very large; its bark resembles that of the olive-tree, and its leaves those of the laurel: its fruit falling, takes root, and thus it multiplies itself without any culture. It is said, it will not allow any other herb,

or tree, to grow near it; its excessive heat drawing to it all the humidity of the soil.

When the *clove* first begins to appear, it is of a greenish-white colour; as it ripens, it grows brown. Nor is there any preparation necessary in order to render it such as it comes to us, but to dry it in the sun; whatever some authors talk of first steeping it in sea-water, to preserve it from worms.

In the inside of a *clove* are found a style and stamina, with their apices; and towards the larger end, there shoot out from the four angles, four little points like a star; in the middle of which is a round ball, of a lighter colour than the rest, composed of four small scales or leaves, which seem to be the unexpanded petals of the flower. *Cloves* must be chosen dry, brittle, harsh to the touch, well grown, of a dusky-reddish colour, a rough aromatic taste, an agreeable smell, and, if possible, with the shank on. This spice acquires weight by imbibing water, which it will do at some considerable distance. The Dutch, who trade in *cloves*, make a considerable advantage by knowing this secret. They sell them always by weight; and when a bag of *cloves* is ordered, they hang it several hours before they send it in, at about two feet distance over a vessel of water. They carefully watch the time when the *cloves* have imbibed the proper quantity, that the fraud may pass undiscovered. This will add many pounds to the weight, which the unwary purchaser pays for on the spot. This is often practised in the spice islands, and sometimes in Europe: but the degree of moisture must be more carefully watched in the former place; for there a bag of *cloves* will in one night's time attract so much water, that it may be pressed out of them by squeezing them with the hand.

Cloves are the hottest and most acrid of aromatic substances, and their properties are, to warm and dry, to correct a fetid breath, to sharpen the sight, dissipate films in the eyes, fortify the stomach and liver, and stop vomiting. They are used in apoplexies, palsies, lethargies, and other diseases of the brain.

Such of the fruit as escape the gatherers, grow and swell on the tree, and become full of gum; these are sometimes used in medicine, and are called *mother of cloves*.

There is also an oil drawn from *cloves* by distillation, moderately pungent; which, when new, is of a pale-yellow colour, but reddens as it grows old: it is used in medicine as a sovereign remedy for the tooth-ach, and in compositions with the same view as the fruit. It is also much used among the perfumers.

No plant, nor any part of any plant, contains so large a proportion of essential oil as *cloves*; and this oil is heavier than water. From sixteen ounces of *cloves* Neumann obtained, by distillation, two ounces and two drams; and Hoffman obtained from the same quantity an ounce and a half. The pungency of *cloves* is owing to a combination of resin with essential oil.

The oil of *cloves* met with in the shops, and obtained from the Dutch, is highly acrimonious; but this is not the genuine distilled oil of *cloves*. It probably derives its acrimony and high colour from a mixture of the resinous part of the *clove*. Dr. Lewis, in his Mat. Med. observes, that the common oil, as being the most pungent, is best adapted for single purposes, and the genuine oil for those of an internal aromatic.

The natives call the *clove-tree* *chamque*, the Persians and Arabs *karumfel*, and the Turks *kalafour*. They make several preparations both of the flowers and the fruit. See ANTOPHYLLUS.

CLOVE-CINNAMON. See CINNAMON.

CLOVE-WATER, is prepared of brandy, and *cloves* bruised therein and distilled.

CLOVE, in *Commerce*, is used for the two and thirtieth part of a weigh of cheese, i. e. eight pounds. 9 Hen. VI. cap. 8. See WEIGH.

CLOVE-july-flowers, a species of caryophyllus, greatly recommended as cordials, and given in disorders of the head, palpitations of the heart, and in nervous complaints of all kinds. See PINK.

CLOVE-tongue, a name used by some English writers, for the common black hellebore, the root of which is used in medicine.

CLOVER-grass. See TREFOIL.

CLOUGH, or draught, in *Commerce*, an allowance of two pounds in every hundred weight for the turn of the scale; that the commodity may hold out weight when sold out by retail.

CLOUT-NAILS. See NAIL.

CLOUTS, in *Gunnery*, are thin plates of iron nailed on that part of the axle-tree of a gun-carriage, which comes through the nave, and through which the linspin goes.

CLOWN's wound-wort, in *Botany*. See IRON-wort.

CLOYED. The seamen, when any thing is got into the touch-hole of a great gun, so that they cannot with a priming-iron make way for the powder to be put in to

prime it, say the touch-hole is cloyed: wherefore when guns are nailed, &c. they say they are cloyed.

CLUB-antenna, in *Natural History*, a name given by naturalists to such of the horns or *antennæ* of butterflies as represent a club, being larger at the extremities than at the origin.

CLUNY, or **CLUGNI**, a celebrated abbey of Benedictine monks, in a city of that name in France; being the head, or chief of a congregation denominated from them.

It is situated in the Maçonnois, in the province of Burgundy, on the river Rhone; and was founded by William duke of Berry and Aquitain; or, as others say, by the abbot Berno, supported by that duke, in the year 910: but owed its distinguished reputation to Odo, who was created abbot of Cluny in 927.

This order of monks was brought into England by William earl of Warren, son-in-law to William the Conqueror, who built a house for them at Lewes in Sussex, about the year 1077. There were twenty-seven priories and cells of this order in England, which were governed by foreigners, afterwards made denizens.

CLUE of a sail, &c. See **CLEW**.

CLUPEA, in the *Artedean Ichthyology*, the name of a fish, the characters of which are these: it is one of the order of the *malacopterygii*, or soft-finned kind: and in the Linnæan system of the *abdominales*, under which are classed eleven different species. The branchiostege membrane contains on each side eight bones. The belly is very acute, or, as it were, serrated, from the singular situation of the scales; and the back-fin is placed somewhat nearer to the snout than to the tail.

There are four species of this genus, enumerated by Artedi; of which the first is our common herring, the second, the sprat, the third, the shad, and the fourth, the anchovy. See *Tab. of Fishes*, N° 39.

CLUSIA, in *Botany*, the balsam-tree, a genus of the *polygamia monœcia* class. Its characters are these: the flower hath five large roundish concave spreading petals: in the bottom is situated a globular nectarium, including the germen, which is pervious at the top. It hath a great number of single stamina: the oblong oval germen is terminated by a plain star-like stigma, with six obtuse indentures, which afterward becomes an oval capsule, with six furrows and six cells, opening with six valves, which spread in form of a star, including many angular seed fixed to a column, surrounded with pulp. There are two species, natives of the southern parts of America.

CLUSTER-polype. See **POLYPE**.

CLUTIA, in *Botany*, a genus of the *diœcia gynandria* class, and deriving its name from *Clute*, a curious botanist. Its characters are these. It is male and female in different plants; the male flowers have five heart-shaped petals, which are shorter than the empalement, and spread open. They have five exterior nectariums, which are situated in a circle at the bottom of the petals, and five interior, which are situated within the other: they have five stamina situated in the middle of the style. The female flowers have petals like those of the male; these have five double exterior nectariums, but no interior: they have a roundish germen which afterward becomes a globular capsule, with six furrows and three cells, each containing a single seed. There are four species.

CLYDON, from *κλύω*, *I cause to fluctuate*; in *Medical Writers*, is used for the fluctuation of food taken into the stomach, arising from the laxity or weakness of its fibres, and of the abdominal muscles.

CLYMENUM, in *Botany*, the name of a genus of plants, the characters of which are in all respects the same with those of the lathyrus; only in this plant there grow but two leaves on each rib, whereas on the *clymenum* there are several pairs; the rib finally terminating in a clavicle or tendril. Tournefort enumerates three species. *Inst. p.* 396.

CLYPEOLE, in *Botany*, treacle mustard; a genus of the *tetradynamia filiculosa* class. Its characters are these: the flower hath four oblong entire petals, placed in form of a cross, and six stamina; two of which standing opposite, are shorter than the other. In the center is situated a roundish compressed germen, which afterwards becomes an orbicular pod, compressed, erect, and indented at the top, with a longitudinal fissure, opening in two cells, containing round compressed seeds. There are four species, natives of the southern parts of Europe.

CLYPEUS, or **CLYPEUM**, *Buckler*; a piece of defensive armour, which the ancients used to carry upon the arm, to secure them from the blows of their enemies.

The figure of it was either round, oval, or sexangular: in the middle was a boss of iron, or of some other metal, with a sharp point. See **SHIELD**.

CLYSSUS, a chemical production, consisting of the most efficacious principles of any body, extracted, purified, and then remixed.

A *clyffus* is when the several species, or ingredients of a body, are prepared and purified separately, and then combined again. Thus salt, sulphur, oil, spirit, and mercury, reassembled into one body, by long digestion, &c. make a *clyffus*.

CLYSSUS of Antimony, denotes the vapours resulting from the detonation of nitre with antimony.

CLYSSUS of Nitre, signifies the vapours arising from the detonation of nitre with charcoal.

CLYSSUS of Sulphur, denotes an acid liquor obtained by the detonation of sulphur with nitre, and is similar to that of antimony. Particular virtues were formerly ascribed to these liquors, of which they are now found to be destitute.

The rapidity and violence with which NITRE detonates in certain circumstances, may occasion a violent explosion, and the rupture of the vessels. To prevent such accidents, and the disagreeable consequences of them, the inflammable matter should not be very intimately mixed with the nitre, the DETONATION of which is proportionably stronger and quicker as the mixture is more exact and entire; a small quantity only of the mixture should be detonated at a time, and no addition should be made till the detonation of the first small quantity be altogether finished.

There is also a *clyffus* of vitriol, which is a spirit drawn by distillation from vitriol dissolved in vinegar. This is used by physicians in various diseases, and to extract the tinctures of several vegetables.

CLYSSUS is also used among some authors for a kind of *sapa*, or extract, made with eight parts of the juice of a plant, and one of sugar, seethed together into the consistence of honey.

CLYSTER, in *Medicine*, a liquid remedy, or injection, introduced into the intestines by the fundament; in order to refresh them, loosen the belly, moisten and soften the fæces, dissipate wind, &c.

The word comes from *κλύω*, *lavo, abluo, I wash*.

Clysters are sometimes made of bran-water and milk, but more usually of decoctions of certain herbs; to which are added honey, brown sugar, and sometimes lenitive electary, and other drugs. *Clysters* are emollient, carminative, lenitive, astringent, laxative, anodyne, uterine, antifebrile, nourishing, &c.

In Holland, England, and Germany, *clysters* are given by means of a pipe of ivory fastened to a bladder, the patient being made to lie on one side, and to retain the liquor as long as he is able. The French, and some other nations, use a sort of syringe, holding a pint, or more, for this purpose; and this is evidently the better method, as, by this means, liquors are not only more quickly, but more forcibly thrown into the intestines, and are made to pass farther than by the English method. Some also use a leather pipe of half an ell long, which is fastened to the syringe, and to the pipe introduced into the anus, and by this means the patient can give himself the *clyster*.

Great care must be taken in administering *clysters*, that the liquor be neither too hot nor too cold, but only tepid, or moderately warm, both extremes being capable of doing great injury to the bowels.

Clysters are properly used, 1. Where a costive state is to be removed, and the body rendered soluble. 2. For alleviating the pains arising from the colic, stone, dysentery, violent hæmorrhoids, and other disorders of the abdomen. 3. For making revulsions from the head in apoplexies, lethargies, deliriums, and other disorders of that part. 4. In difficult labours, whether the fœtus be dead or alive, especially if the mother be costive, as also for expelling the secundines, when they adhere too firmly to the womb, or remain longer behind than they ought. 5. *Clysters* are able to nourish persons, who, from their power of deglutition being impaired, must otherwise perish of hunger; and for this purpose nourishing liquors must be used, such as broths, and the like, to which a little wine may be added, if the nature of the case will allow it.

A very remarkable *clyster*, which seems to have been invented by the English, and, from us, propagated to others nations, is the smoak of tobacco. When all other *clysters* have proved ineffectual for rendering the body soluble, in the iliac passion, and some other cases, the end has sometimes been obtained by injecting a large quantity of the smoak of tobacco, by means of a proper instrument. There are several kinds of instruments invented for this purpose, and described by Bartholine, Valentini, and others. The general method of making them is this: a box is provided, capable of holding about half an ounce of tobacco; this has two pipes, the one made of ivory, to be introduced into the anus, the other resembles the mouth-piece of some musical instruments, and, by means of blowing into this, the smoak of the lighted tobacco in the box is driven forcibly up the anus: this

this is to be continued till the patient find a strong stimulus to go to stool, and if once doing it does not produce the effect, it is to be repeated till it succeeds. This is of prodigious service in obstinate incarcerated hernias of the scrotum. And Heister observes, that he always found it succeed so well, as never to reduce him to a necessity of having recourse to the knife. When tobacco alone will not answer the purpose, other more stimulating ingredients may be added to it in the box; and this acrid smoke so contracts the diameters of the intestines, that the prolapsed ones are much more easily drawn back into the abdomen, than they otherwise could be. See FUMIGATOR.

Clysters of the liquid kind are prepared of different ingredients, according to the intentions proposed to be answered; and as, in practice, those intentions are principally four, to alter and change, to evacuate, to corroborate, and to mitigate pain; so *clysters* are accordingly contrived to soften the indurated faeces, to correct the acrid, acid, and saline recements, to evacuate the contents of the large intestines, and to corroborate the weak and languid fibres of the intestines in general, and so strengthen their peristaltic motion; or lastly, to mitigate the spasms of their contracted coats, and relax their constricted fibres.

When *clysters* are intended to lubricate and soften the dry and indurated faeces, or to obtund acrid, saline, corrosive, and acid humours, in the large intestines, they are to be prepared with the emollient ingredients, such as broths, milk, decoctions of emollient herbs, as marsh-mallows, and the like, with manna, oil, and the like assistances; and, as all these ingredients have a power of relaxing spasms, as well as of softening the faeces, *clysters* of this kind are extremely beneficial in all spasmodic disorders, fevers, pains, and cases where the patient is costive, whether it be from spasms of the intestines, or from induration of the faeces.

When the intention is at once to evacuate the intestines, and to carry off stagnant humours, then salts, added to the decoctions, admirably answer the end. Glauber's salt, Epsom salt, and sal gem, are all useful for these purposes: in some cases also sal ammoniac; and experience shews, that half an ounce of one of these salts in a *clyster*, will do more toward evacuating the contents of the bowels, than four ounces of any of the common purging electaries. Corroborating *clysters* are to be prepared of the four greater hot seeds, bay and juniper-berries, the carminative oils, &c. and in violent disorders of the head, such as apoplexies, palsies, lethargies, and the like, rue, marjoram, thyme, rosemary, and lavender flowers, are conveniently added to *clysters*: as are mugwort, pennyroyal, feverfew, and the like. When there is any disorder of the womb, or suppression of the menses, the *clysters* of the sedative kind are principally to be composed of oil, or the like fatty ingredients, and such as consist purely of oil alone, are found often to do wonders in allaying the most violent pains.

CLYSTERS, *Nourishing*, are those applied with design to nourish persons who cannot take in any aliment at the mouth. Hildanus tells us, that Aubery, a physician, fed a woman of quality six weeks with *clysters* composed of capons flesh, and other fowls, boiled to a pulp, with yolks of eggs, applied twice a day. It is difficult, however, to conceive how *clysters* should nourish; and the case is briskly controverted in the Memoirs of the French Royal Academy, between M. Littré, who maintains the negative, and M. Lemery.

The arguments used by the first, are, that the materials of the *clyster*, for want of the ordinary passage, want the preparation necessary to be converted into nourishment; and beside that, are out of the road for getting into the blood: for in the first of the large intestines, called the *cæcum*, is a valve called *valvula Bauhini*, to oppose the passage of any food into the small intestines: and there are no lacteal veins in the large intestines, but abundance in the small ones. But the lacteals are the only canals that can carry the chyle into its receptacle, and the chyle is the only substance that can nourish.

To this, M. Lemery objects, that very great anatomists have found lacteals in the large intestines, though but in small numbers: but though there were none, adds he, the meseraic veins are indisputably distributed to these intestines; and may easily be supposed to pump up the most subtil part of a broth, and carry it into the blood. M. Merry has passed a liquor immediately from the large intestines into these veins: besides, the animal machine is so porous throughout, that nature seems to have intended an extraordinary way of conveying fluids into the blood, to be ready on extraordinary occasions.

This notion will appear incontestible, if M. Morin's theory of the passage of the urine be admitted.

Herodotus says, the Egyptians were the first who invented *clysters*; or rather, who applied them to use. Galen

and Pliny add, that they took the hint from a bird of their country, called *ibis*, which they frequently observed to make this kind of injection with its beak, and afterwards to discharge itself several times. Others say, that the *ciconia*, or stork, first taught men the application of *clysters*.

CLYSTERS, *Uterine*, are injections into the uterus; or womb.

CLYSTER, *Catholicum* for. See CATHOLICON.

CNEMODACTYLEUS, in *Anatomy*; a muscle; otherwise called *extensor tertii internodii digitorum*. See EXTENSOR *tertius internodii*; &c.

CNEORUM, in *Botany*; *widow-wail*; a genus of the *triandria monogynia* class. Its characters are these: the flower hath three narrow oblong petals, and three stamina which are shorter than the petals. In the centre is situated an obtuse three-cornered germen, which afterward becomes a globular dry berry with three lobes, having three cells; each containing one round seed. We have but one species.

CNICUS, in *Botany*, *Blessed Thistle*; a genus of the *syngenesia polygamia equalis* class. Its characters are these: the empalement of the flower is scaly; the flower is composed of several hermaphrodite florets, which are uniform; these are funnel-shaped, and cut at the top into five equal segments, having five short hairy stamina. In the centre is situated a short germen crowned with down, which afterward becomes a single seed crowned with down, and shut up in the empalement. There are four species.

The first sort is the *carduus*, which is used in medicine; this is an annual plant; which perishes soon after the seeds are ripe: It grows naturally in Spain, and in the islands of the Archipelago, but is cultivated in gardens in England to supply the market. This plant is so well known as to require no description: See *Tab. of Botany*, Class 12.

COA, in *Natural History*; the name given by Plumier to a genus of plants, called by Linnaeus HIPPOCRATEA.

COACERVATUM *vacuum*. See VACUUM.

COACH, a vehicle for commodious travelling, suspended on leathers, and moved on wheels.

In England, and throughout Europe, the *coaches* are drawn by horses, except in Spain, where they use mules. In a part of the East, especially the dominions of the Great Mogul, their *coaches* are drawn by oxen. In Denmark they sometimes yoke rein-deer in their *coaches*; though this is rather for curiosity than use.

The *coachman* is ordinarily placed on a seat raised before the body of the *coach*. But the Spanish policy has displaced him in that country by a royal ordonnance; on occasion of the duke d'Olivares, who found that a very important secret whereon he had conferred in his *coach*, had been overheard, and revealed by his coachman: since that time, the place of the Spanish coachman is the same with that of the French stage-coachman, and our postillion, viz. on the first horse on the left.

The invention of *coaches* is owing to the French: yet they are not of any great antiquity even in France; scarce reaching earlier than the reign of Francis I.

Their use, at their first rise, was only for the country: and authors observe, as a thing very singular, that there were at first no more than two *coaches* in Paris; the one that of the queen, and the other that of Diana, natural daughter of Henry II.. The first courtier who had one, was Jean de Laval de Bois Dauphin, whose enormous bulk disabled him from travelling on horseback.

Coaches were first introduced into England in 1580, by Fitz-Allen, earl of Arundel, and they were in general use by the nobility and gentry at London about the year 1605. Anderson's Hist. Com. vol. i. p. 421, 469.

Coaches have had the fate of all other inventions to be brought by steps and degrees to their perfection; at present they seem to want nothing, either with regard to ease, or magnificence.

Louis XIV. of France made several sumptuary laws for restraining the excessive richness of *coaches*, prohibiting the use of gold, silver, &c. therein; but they have had the fate to be neglected.

Coaches may be divided into two kinds; those that have iron bows, or necks, and those that have not; both the one and the other hath two principal parts, the body, and the train, or carriage. See CRANE-neck, and PERCH.

The *body* is that part where the passengers are disposed; and the *carriage* is that which sustains the body, and to which the wheels are fastened, that give motion to the whole machine.

Coaches are distinguished, with regard to their structure, into *coaches*, properly so called, *chariots*, *calashes*, and *berlins*. With regard to the circumstances of their use, &c. we distinguish *stage-coache*, *hackney-coaches*, &c.

Chariot, or *Half-COACH*, is a kind of *coach* that has only a seat

seat behind; with a stool, at most, before. When these are very gay, richly garnished, and hath five glasses, they are called *CALASHES*.

Hackney-CoACHES, those exposed to hire, in the streets of London, and some other great cities, at rates fixed by authority.

These first began to ply in the streets of London, or rather waited at inns, in 1625, and were only twenty in number: but they were so much increased in 1635, that king Charles issued an order of council for retraining them. In 1637 he allowed fifty *hackney-coachmen*, each of whom might keep twelve horses. In 1652 their number was limited to two hundred, and in 1654 extended to three hundred. In 1691 four hundred were licensed at 5*l.* annually for each. In 1694 seven hundred were allowed, and taxed by the 5 and 6 W. and M. at 4*l.* per annum. each.

Those in London are under the direction of commissioners, who taken cognizance of all causes and disputes arising thereupon.

By 9 Anne, cap. 23. eight hundred *hackney-coaches* were allowed in London and Westminster; but by 8 Geo. III. cap. 24. the number is increased to one thousand; which are to be licensed by commissioners, and pay a duty of 5*s.* a week for each licence to the crown: and if any person drive a *hackney-coach* without licence, he shall forfeit 5*l.* And coachmen using abusive language, or demanding more than their fare, are liable to a penalty not exceeding 20*s.*

The stat. 1 Geo. I. cap. 57. ordains, that where coachmen refuse to go at, or exact more for their hire than is limited by the act, they shall forfeit not exceeding 3*l.* nor under 10*s.* and the commissioners have power to determine it. The fare of *hackney coachmen* in London, or within ten miles thereof, is 12*s.* 6*d.* per day, allowing twelve hours to the day; and by the hour, not above 1*s.* 6*d.* for the first, and 1*s.* for every hour after; and none are obliged to pay above 1*s.* for the use of any *hackney coach* for any distance, not mentioned in the act, which is not above one mile and four furlongs; nor above 1*s.* 6*d.* for any distance not exceeding two miles. Coachmen are to have numbers on their *coaches*, on tin plates, or shall forfeit 5*l.* and refusing any person to take the number of their *coaches*, or giving a wrong number, incurs the forfeiture of a sum not exceeding 40*s.* None but licensed *coaches* shall ply at funerals for hire, under the penalty of 5*l.* Drivers of *hackney coaches* are to give way to persons of quality, and gentlemen's *coaches*, on the penalty of 10*s.* By 8 Geo. III. cap. 28. every *hackney-coach* is to be provided with cheque-strings; and every coachman plying without them, incurs a penalty of 5*s.* On Sundays there were formerly only a hundred and seventy-five *coaches* to ply, which were to be appointed by the commissioners; but their number is now unlimited.

COACHES, *stage*, are those appointed for the conveyance of travellers from one city or town to another; and these, as well as other coaches, chaises, &c. with four wheels, pay an annual tax of 5*l.*

COACH, in *Sea Language*, denotes a chamber or apartment near the stern, in a ship of war.

COADJUTOR, *Fellow-Helper*, is properly used for a prelate joined to another, to assist him in the discharge of the functions of his prelature; and even, in virtue thereof, to succeed him.

The *coadjutor* has the same privileges with the bishop himself. *Coadjutors* were formerly appointed by kings, for archbishops and bishops grown old, or absent, and not able to superintend their dioceses. But the right of appointing *coadjutors*, in Romish countries, is now reserved to the pope alone.

Coadjutors are also called bishops in *partibus infidelium*; because it is necessary the *coadjutor* of a bishop should be a bishop himself; without which, he cannot discharge the office.

The use of *coadjutors* in the church is borrowed from the Roman empire. Symmachus speaks of assistants, or *coadjutors*, given to magistrates; and calls them *adjutores publici officii*.

The popes, formerly, made a shameful abuse of the *coadjutories*: some they granted to children, and young people, with this clause, *donec ingressus fuerit: till they were capable of entering upon the administration of the office*. Others they granted to persons not in orders, with this clause, *donec accesserit*: and others to persons at a great distance, with this clause, *cum regressus*: but the council of Trent tied down the pope's hands, by adding abundance of restrictions on the article of *coadjutors*.

In nunneries they have *coadjutrices*; who are religious, nominated to succeed the ABBESS, under pretence of aiding her in the discharge of her office.

COADUNATÆ, in *Botany*, an order of plants in the *fragmenta methodi naturalis* of Linnæus.

COAGMENTATION, is used, among *Chemists*, for the act of melting down a matter, by casting in certain powders, and afterwards reducing the whole into a concrete, or solid.

COAGULABLE lymph of the blood. See *LYMPH*.

COAGULATION, in *Chemistry*, denotes certain operations, in which fluid bodies become solid; as, for example, the *CRYSTALLIZATION of salts*. In a general sense, it signifies the condensing, or thickening of a fluid matter without its losing any of the sensible parts which occasioned its fluidity; as we frequently see in blood, milk, &c.

We distinguish between that kind of thickening which is effected by the evaporation of the fluid parts of a body, as is in clay, which condenses in the sun, properly called *hardening*; and that effected without any loss of its substance, called *coagulating*. Thus, we say, that cold *coagulates* blood, &c.

There is one general term, viz. *concretion*, which includes *coagulation*, condensation, and hardening.

By injecting an acid into the vein of an animal, the blood coagulates; which stops its circulation, and brings immediate death. Several poisons have their effect by inducing a *coagulation*.

COAGULATION is performed by six different agents in the general operations in chemistry, and by each of these in several ways.

1. It is performed with water, by congealing, crystallizing, and precipitating; as in the *mercurius vitæ*, and some other such preparations.

2. With oil, which by the force of fire, unites to itself sulphur, salts, and metals.

3. With alcohol, upon the spirit of sal ammoniac, the white of eggs, the serum of the blood, &c.

4. With acid and alkali, growing solid together, as in the *tartarum vitriolatum*.

5. With fixed alkali, as in milk. And, 6. With acid salts, as in milk, serum, and whites of eggs.

COAGULUM, the *coagulum* of the Latins, the *πίτυα*, and the *ταυτο*, of the Greeks, are the same with what in English we call rennet. See *RENNET*.

COAGULUM, in *Chemistry*, denote curdled concretions formed by the mixture of two liquors; such as the precipitate of silver in the formation of *LUNA cornea*, &c.

COAGULUM aluminosum, *alum-curd*, a form of medicine, prescribed long since by Riverius, and now taken into the London dispensatory. It is ordered to be made by putting whites of eggs into a pewter or earthen vessel, and stirring them about with a large lump of alum till they are coagulated.

COAK denotes a sort of fossil coals that have undergone a similar operation to that of charring; whereby they are deprived of their phlegm, acid, and the greatest part of their oil; and are therefore used in furnaces for smelting iron ore, and for drying malt.

COAL, a black, sulphureous, inflammable matter, dug out of the earth; serving in many countries as the common fuel.

This we sometimes call *pit-coal*, *fossil-coal*, *earth-coal*, and *natural coal*, to distinguish it from an artificial fuel made in imitation hereof, by half burning the branches and roots of trees; properly called *charcoal*, and *small coal*: in places, whither coal is brought by sea, it is called *sea-coal*. Coal is one of the class of opaque inflammable fossils, and is distinguished from the rest by being of a glossy hue, soft, friable, not fusible, but easily inflammable, and leaving, after burning, a large residuum of whitish ashes. We have three species of this fossil in common use for our fuel in different parts of the kingdom. 1. A hard dusky black coal. This is in common use with us, under the name of *Scotch coal* (though that name is not restrained to this species alone, but the following is indiscriminately known among the dealers by the same appellation): this is usually of a rough and dusty surface, and is less glossy, when fresh broken, than any other coal. It burns briskly, and turns wholly to ashes, not leaving any cinders. There is a vast deal of this dug about Lymington in Hampshire, whence it is often called by the dealers *Lymington coal*. 2. A hard glossy coal. This is sometimes sold in London with the former, under the name of *Scotch coal*, but it is more determinately known in many parts of the kingdom by the name of *Welsh coal*. It is distinguished from the others by its great hardness, and glossy black, where fresh broken, and is much esteemed for burning with less smoke than any other kind; and in some parts of this kingdom, and generally in Wales, they use it to make malt. 3. The third is our common coal, too well known to need any description, but distinguished from all the others by its shattery friable structure, and its great gloss when fresh broken. It is common in most countries of Europe; though the English coal is of most repute, even in foreign countries; not-

notwithstanding some pretend that of the Fosse in Auvergne not to be inferior to it.

The common *pit-coal* contains a large quantity of sal ammoniac. The mouths of our subterranean fires in the coal countries all afford it, and it is even found in brick-kilns, where nothing but coal is burnt with the clay. It may appear strange indeed to some, that this black substance should yield so white and fine a salt; but chemists know that all volatile salts whatever may be freed from their fœtor and intense colour, by transmuting them into a sal ammoniac, by the mediation of an acid, as the spirit of salt, vitriol, or alum; after sublimation with which, they become white, sweet, and pure. The reason of this change is, that though the salts always carry over some of the fœtid oil with them in a state of volatility, yet being thus in a manner fixed, the fœtid oil must by force of fire rise first, leaving the subsequent sal ammoniac without smell: though it is still a doubt, whether the salt be the better or the worse for this labour. Phil. Transf. N° 130. The goodness of coal is found by its being as free as possible from sulphur, in its heating iron well, and by its burning a long time in the smith's forge. The English coal has this property peculiar to it, that it never lights so perfectly as when water is thrown on it.

The commerce of coal is very considerable in England; great quantities are exported to France, &c. by way of Rouen. The measure whereby it is sold is the chaldron, containing thirty-six bushels, or a little more than twenty-eight hundred weight; allowing a chaldron, Newcastle measure, to be fifty-three hundred weight, and eight Newcastle chaldrons to be equal to fifteen London chaldrons. However the weight of a chaldron of coals has been variously estimated. It appears that the mean quantity of coal, annually imported into London, deduced from an estimate of ten years, viz. from 1770 to 1779, is 658,853 chaldrons, or about 922,396 tons.

Anderfon, in his History of Commerce, fixes the introduction of Newcastle coal into London at so early a period as the year 1305.

In the Memoirs of the French Royal Academy, we have an account of two experiments on the common *pit-coal*, made by M. Des Landes while in England, and which he thinks have escaped the English philosophers.

1st, Pounding some coal, and putting half an ounce of it in a phial of water, the mixture became quite black: but leaving it exposed to the air in a window, during a cold winter night, in the morning it was found frozen, and turned to a reddish colour. The reason of the change must be, that the frost had disengaged the sulphurs of the coal; though one would little expect such an effect from it. 2dly, From an infusion of cinders in brandy, mixed with iron filings, arises a black tincture, which brightens in proportion as it is heated: when arrived at the heat of boiling, the colour becomes perfectly fine and soft, and gives a dye to cloth, which no workman can imitate.

The strata, or veins of coals in coal-pits, are numerous, and their order, quality, &c. are very different in different places. In those at Dudley, in Staffordshire, the strata, below the turf, are two or three clays, a grey stone, and a hard grey rock; then they are expressed in the Philosophical Transactions, to be, 1. coal, called *bench-coal*; 2. *slipper-coal*, less black and shining than the former; 3. *spin-coal*, more black and shining; 4. *stone-coal*, much like *canal-coal*.

These strata have between each of them a bat, or bed, of a peculiar sort of matter, about the thickness of a crown piece. Below these are divers metalline strata; as a black substance called the *dun-row bat*; a grey iron ore, called the *dun-row iron-stone*; a bluish bat, called *white-row*; a blackish iron ore, called *white-row grains*; or *iron-stone*; a grey iron ore, called *mid-row grains*; a black fossil substance, called the *gublin-bat*; a black iron ore, called *gublin iron-stone*; a dark grey iron ore, called *rubble iron-stone*; and lastly the *table-bat*.

Then, 5. comes a coarse sort of coal, called *foot-coal*; a black brittle bat; 6. the *heathen-coal*; 7. a substance like coarse coal; though called a bat, because it does not burn well; and 8. *bench-coal*.

COAL, Bovey, so called from Bovey Heath in Devonshire, where it is found. Dr. Mills, whose paper of remarks upon it is published in the Philosophical Transactions, vol. li. part ii. N° 53. anno 1760, thinks it is the same with the fossil wood, or as the miners call it, the *fossil-coal*, described by Hollman, ib. vol. xlix. p. 506. ib. N° 85.

COAL, Canal. See AMPELITES.

COAL-balls, balls made of coal and clay, or slack, for firing. These balls are made with $\frac{1}{3}$ of clay, without sand or gravel, and $\frac{2}{3}$ of coal-dust, or culm, well mixed, and formed either into round balls or into bricks. This coal-dust being the refuse of the mine, makes this sort of firing cheap. See Phil. Transf. N° 460. sect. 3.

COAL-mines.—Wilfully setting coal-mines on fire, is by statute felony, without benefit of clergy. 10 G. II. c. 32. § 6.

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COAL-foot. See SOOT.

COAL-spirits. Coals distilled in a retort not only afford a phlegm and black oil, but a spirit which is apt to force the lute and break the glasses, and will catch fire at the flame of a candle. We are told that bladders may be filled with this spirit, or inflammable AIR, which may be kept a considerable time. If the bladder be pierced with a pin, and squeezed near the flame of a candle, the spirit will take fire, and afford an amusing spectacle. See Phil. Transf. N° 452. sect. 5. See DAMPS.

Small-COAL is a sort of CHARCOAL, prepared from the spray and brush-wood, stripped off from the branches of coppice-wood, sometimes bound in bays for that purpose, and sometimes prepared without binding.

The wood they dispose on a level floor, and setting a portion of it on fire, they throw on more and more, as fast as it kindles; whence arises a sudden blaze, till all be burnt that was near the place. As soon as all the wood is thrown on, they cast water on the heap from a large dish or scoop; and thus keep plying the heap of glowing coals, which stops the fury of the fire, while, with a rake, they spread it open, and turn it with shovels till no more fire appears. When cold, the coals are put up into sacks for use.

COALESCENCE, the union or growing together of two bodies before separate. It is principally applied to some bones in the body, which are separate during infancy, but afterwards grow together; or to some morbid union of parts which should naturally be distinct from each other. Thus there is a *coalescence* of the sides of the vulva, anus, and nares; of the eye-lids, fingers, toes, and many other parts.

COALITION, the re-union or growing together of parts before separated. See CONGLUTINATION, &c.

COAMINGS, in Ship-Building, are those planks, or that frame, forming a border round the hatches, which raise them up higher than the rest of the deck. Loop-holes for muskets to shoot out at; are often made in the *coamings*, in order to clear the deck of the enemy when the ship is boarded.

COANE, among the Greeks, a name given to a peculiar species of *tutia* or *tutty*, which was always found in a tubular form. It has its name from *κων*, a word used to express a sort of cylindric tube, into which the melted brass was received from the furnace, and in which it was suffered to cool. In cooling, it always deposited a sort of recement on the sides of the vessel or tube, and this was the *tutty* called *coane*.

COAST, a sea-shore, or the country adjoining to the edge of the SEA.

COAST-Mary, or COST-Mary, in Botany. See TANZY.

COASTING, that sort of navigation, wherein the places sailed to and from, are not far distant; so that a ship may sail in sight of the land, or within sounding, between them.

Such are the voyages on the Narrow, or British seas, between England, Holland, and France; also those about the British seas, and in the Mediterranean, &c.

For the performance hereof, there is only required good knowledge of the land, of the time and direction of the tide, of the reigning winds, of the roads and havens, the use of the compass, and of the lead, or sounding-line.

COASTING Pilot. See PILOT.

COASTING, in Agriculture, &c. denotes the transplanting of a tree, and placing it in the same situation, with respect to east, west, north, &c. as it stood before.

COAT, in Anatomy. See TUNICA and EYE.

COAT of arms, in Heraldry, a cloak, or habit, worn by the ancient knights over their arms, both in war and at tournaments; and still borne by the heralds at arms.

It was a kind of furcoat, reaching only as low as the navel; open at the sides, with short sleeves; sometimes furred with ermines and vair; whereon were applied the armories of the knight, embroidered in gold and silver; and enamelled with beaten tin, coloured black, green, red, and blue: whence the rule, never to apply colour on colour, nor metal on metal.

The coats of arms were frequently open and diversified with bands and fillets of several colours, alternately placed, as we still see cloths scarleted, watered, &c. hence they were also called *devizes*, or *devises*, as being divided or composed of several pieces, sewed together; whence the words *fesse*, *pale*, *chevron*, *bend*, *cross*, *saltier*, *lozenge*, &c. which have since become honourable pieces or ordinaries of the shield. See each in its place, BEND, CROSS, FESSE, &c.

Coats of arms, and banners, were never allowed to be worn by any but knights, and ancient nobles. They were not introduced into SEALS, nor indeed to any other use, till about the reign of Richard I. who brought them from the croisade in the Holy Land, where they were first invented and painted on the shields of the knights, to distinguish the variety of persons from every nation,

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who,

who, when completely clad in steel, could not otherwise be known. Blackst. Com. vol. ii. p. 306.

COAT of Mail, jacque de mail, a kind of armour made in form of a shirt, consisting of iron rings wove together net-wise. See MAIL.

COAT, in a *Ship*, a piece of tarred canvas put about that part of the, masts or bowsprit, which joins to the deck, or lies over the stem of a ship. They are also put about the pumps at the decks, that no water may go down there; and they are also used at the rudder's head.

COAT likewise denotes the materials with which the ship's sides and masts are varnished to preserve them, as tar, &c.

COATI, in *Zoology*. See RACKOON.

COATING, in *Chemistry*. See LORICATION.

COATING, in *Electricity*, denotes a covering of sheet-lead, tin-foil, or any other conducting substance, applied to the Leyden phial, or to any electric body, and serving to accumulate the electricity, to increase the force of the CHARGE, and to facilitate the operation of *discharging*. The first person who discovered the use of *coating* in electrical experiments, was Dr. Bevis: it was first applied to the Leyden phial, but has been since extended to a great variety of other electrical substances. When glass plates, or jars, sufficiently wide at the neck, are to be *coated*, the best method is to coat them with tin-foil on both sides, which may be fixed on the glass with varnish, gum-water, bees-wax, &c. but if the internal *coating* cannot be conveniently introduced, brass filings may be used, and stuck to the surface of the glass with gum-water, or bees-wax, &c. However, care should be taken that the opposite *coatings* do not come too near to each other: that of glass jars should be kept at the distance of, at least, two inches from the top. Glass Phials may be *coated* with silver, by burning it into the very substance of the glass, so that nothing can remove it without injuring the glass, together with the metal. Glass, thus *coated* and burnished, exhibits an elegant appearance, has no inequalities in its surface, and is capable of being charged as highly and readily, as when *coated* with tin-foil. Glasses of this kind will discharge spontaneously, and are apt to burst by the explosion. Phil. Trans. vol. lxvii. part i. p. 108.

Electric substances, which are easily melted, such as resin, sealing-wax, &c. may be easily *coated* by pouring them on a circular plate of tin-foil, placed on a marble table, and two inches less in diameter than the electric plates proposed; and then pressing them with a pane of glass, or any thing else with a smooth surface, to the required dimensions. When this is done, let another piece of tin-foil, of equal size with the former, be applied to the upper surface, by pressing it gently with a hot iron. Electric substances in a fluid state may be *coated* by fixing a piece of tin-foil to the bottom of an earthen dish, reaching within an inch of the sides, and by introducing, through a hole in the bottom, a slender wire, so as to communicate with the tin-foil; then pour the fluid electric into the dish; and let a brass plate of the same dimensions with the tin-foil be suspended from a glass arm, or from the prime conductor, and touch the surface of the electric. A plate of air may also be *coated*, by means of two smooth circular boards, about three or four feet in diameter: let one side of each these boards be *coated* with tin-foil, which should be pasted down and burnished, and turned over the edge of the boards. Then insulate the boards in a horizontal position, and with their *coated* sides turned towards each other, and so disposed, that they may be easily moved to or from each other. If these boards are placed at the distance of about an inch asunder they may be used exactly as the *coatings* of a pane of glass. It will be shewn that the electric matter does not reside in the *coating* of a charged electric under the article LEYDEN Phial.

COB nut. See HAZLE.

COBALT, in *Natural History*, a dense, compact and ponderous mineral, very bright and shining, and much resembling some of the antimonial ores. Its specific gravity is about 7,700; and its fusibility nearly as that of copper.

It is sometimes found of a deep, dusky, bluish black, very heavy and hard, and a granulated structure, looking like a piece of pure iron, when fresh broken. At other times, it is more compact and heavy, of a very even texture, and not granulated, or composed of any separate molecules, but resembling a dusky mass of melted lead, not an ore.

The inner part when fresh cut or broken, is in some ores found much more beautiful than in either of these states, being of a fine bright silvery grey, and of a beautiful and evenly striated structure; the striae all running great lengths, but being all variously inflected and undulated, and in some parts broken. These are the more usual appearances of cobalt in its ore: but beside these, it is subject to an alteration in the bowels of the earth, by means of subterraneous fires and sulphur, which re-

duce it to a body which cannot be supposed at first sight the same with *cobalt*, though it proves to be exactly the same substance on a chemical analysis.

In these states, instead of the lead-like appearance of the common kind, it is of a fine florid red colour, though sometimes debased by accidental mixtures to a grey, black, or yellow, either wholly or in part; and in this state it has two subordinate distinctions, as it appears sometimes in form of a compact mass of an uniform texture, and sometimes in a striated and beautifully rigid mass, resembling the fibraria. The three first states of *cobalt* are commonly called *cobalt ore*, without any distinction; but the first of these red kinds is called by the Germans *kupfer nicol*, and the latter or striated one, the flower of *cobalt*. It contains arsenic or ratsbane, and a fixed earth, which on fusion with fluids and pot-ash, or any other alkali salt, yields that fine blue glass which we call smalt, and which our painters and water-women use under the names of smalt and powder-blue. It is dug about Sneeberg and Annaberg, and in some parts of Bohemia. It is always found below, not mixt with the ores of metals, and is very rich in the arsenic in some places, and but poor in others: all our arsenic is made from it. The miners are directed where the veins of *cobalt* lie, by a sort of fossil which they call therefore the flower of *cobalt*: it is a very elegant substance, of a fine blooming red colour, and a radiated structure; sometimes of a paler red, and in form of powder.

Cobalt is found in Germany, Saxony, Bohemia, England, and Scotland, and probably in other parts of Europe: and that it is in the eastern parts of Asia, appears from the colouring on old oriental porcelain. Ours is but a poor kind, but it is met with in considerable plenty on Mendip-hills, and at Gisenep in Cornwall. The German *cobalt* generally contains a large quantity of bismuth, and the Bohemian of silver.

The world is obliged to Kunckel for the history of the several arsenics, zaffer, and smalt, which are all the produce of *cobalt*. See ARSENIC, &c.

Cobalt, when exposed for a considerable time by itself in a heap to the sun and rain, yields an efflorescence of a rose or peach-blossom colour, called by the miners the flower of *cobalt*, and very much resembling the native flowers of *cobalt* described before, but less beautiful: this efflorescence, when properly treated, affords a very fine red colour for the painter's use, and a little green vitriol. Spirit of nitre dissolves the *cobalt* with a violent effervescence; four times the quantity of the acid is sufficient to dissolve some *cobalt*, but other ores require six times or more; this is owing to the purity or impurity of the ore. The solution is of an uncertain colour, according to the other matters contained in the *cobalt*; when it contains vitriol it is blue, when it contains copper, as is often the case, but particularly in that kind called, by the miners, *copper nickle*, which has an appearance of copper on the surface, the solution is then green; it is also sometimes green from the purest ores to appearance. This green colour resembles very much that of salt of steel well purified, but it still seems to have some share of copper in it.

Oil of vitriol, and spirit of sea-salt, act on *cobalt*, but do not properly dissolve it: they may rather be said to erode it, and particularly the acid of vitriol, which turns it into a white powder, so that spirit of nitre seems the proper simple solvent of it Phil. Trans. N° 396. p. 199.

The *cobalt* is roasted in a reverberatory furnace, and the flowers, which it yields in great abundance, are collected in long wooden funnels, which supply the place of chimnies, on the inside of which it sticks in form of soot, and from this soot, or flour, are made all the several sorts of arsenic or ratsbane. If this is only resublimed, or but barely melted in a covered vessel, the substance which we call white arsenic, or common ratsbane, is produced. If a tenth part of sulphur be mixed with them, and they are sublimed together, the product is our yellow arsenic; and the red arsenic is made by adding to the flowers only one fifth of sulphur, and a little copper slag.

When the flowers, or soot of *cobalt*, are all discharged, the remaining matter is powdered very fine, and being mixed with three times the weight of common flints in powder, and wetted with water, the whole concretes into a solid mass, and is what is called ZAFFER.

Two parts of this being fused with three parts of common salt, and one part pot-ash, the whole becomes a beautiful blue substance, called SMALT.

As sprinkling the powder of the calx of flints and *cobalt*, for making them into *zaffer*, gives them a pretty firm coalescence, and even the hardness of a common stone, persons who were unacquainted with the process, have taken *zaffer* for a native mineral.

COBALT is also used by some to express that suffocative vapour or damp in mines, which often proves fatal to the miners. It is common among the Germans, to say on this occasion, that the *cobalt* rose and choked them. See DAMPS.

COBBAN, in *Botany*, a small tree like a peach-tree, which grows in Sumatra, called *Perfice affinis* in *Taprobana*, C. B. *Arbor Getruph*, five cobban, J. B. It bears a small leaf, like that of the tree which produces the *filiqua cathartica*, with short branches, and a yellowish or saffron-coloured bark. The fruit is thick and round like a tennis-ball, inclosing a nut as big as a filberd, which contains a very bitter kernel, tasting like the root of angelica.

The fruit is very proper to quence thirst: but the kernel, however bitter, is far superior in virtue. The inhabitants of Sumatra, where the tree grows, extract an oil from the kernel, which is very efficacious in pains of the liver and spleen, taken inwardly, or used by way of unction; and is also a sovereign remedy in the pain of the gout, to which the inhabitants of that island are very subject.

From the same tree distils a gum, which is very serviceable in the before mentioned disorders, if it be dissolved with a moderate quantity of oil, and applied to the affected parts by way of cataplasin.

COBBING, in *Sea Language*, a punishment inflicted at sea on those who quit their station during the night-watch. It consists of a number of strokes on the breech with a flat piece of wood called the *cobbing-board*.

COBELLA, in *Zoology*. See **COLUBER** and **SERPENT**.

COBITIS, in *Ichthyology*, the name of a small fresh-water fish, commonly called in English the *loach*. It very much resembles our common gudgeon, both in figure and colour, but is much smaller, about two inches being its usual length, and three, or a little more, the utmost that it ever arrives at. Its body is soft and slippery; its tail flat and broad, and it has either extremely minute scales, or none at all. It is of a brown colour, spotted all over with black specks, and it has three pair of beards at its upper-jaw. It is caught in fresh water in many parts of the world, and is esteemed by many a very delicate fish, especially when very young and small.

Artedi enumerates three species of this fish. This is the fish called *misgum* and *fisgum* at Nuremberg and Ratisbon. It has ten or more *cirri* in the mouth.

The word *cobitis* is truly Roman, and used by the best authors to express the same fish we now call by it; but its derivation is uncertain.

Linnaeus makes this a genus of the *abdominales*, including five species.

COBITIS aculeata, called also *cobyitis oxyrynchus*, a small fresh-water fish of the loach kind, but armed with two prickles on the coverings of each of its gills, by means of which it moves nimbly about among the stones. See **DACOLITHUS**.

COBIUS, in *Ichthyology*, a name given by Aristotle, Ælian, Appian, and the other Greek writers, to the *GOBIUS marinus*, or sea-gudgeon of authors, distinguished by Artedi by the name of the blackish variegated goby, with fourteen rays on the second fin of the back. It is called by the French, *goulerot*, or *houlerot*.

COBIUS leucoterus, in *Ichthyology*, a name given by Aristotle, Athenæus, and some other of the old Greek writers, to the fish called *GOBIUS albus* by later authors. It is a genuine species of the goby, and is distinguished by Artedi by the name of the goby with the ventral fin blue, and the rays of the anterior back-fin rising above the membrane. This is a sufficient distinction from all the other *gobii*.

COBLE, a boat used in the turbot fishery, twenty feet six inches long, and five feet broad. It is about one ton burthen, rowed with three pair of oars, and admirably constructed for the encountering a mountainous sea.

COBOB, the name of a dish among the Moors. It is made of several pieces of mutton wrapt up in a cawl, and afterwards roasted in it; the poorer people, instead of the meat, use the heart, liver, and other parts of the entrails, and make a good dish, though not equal to the former. *Phil. Trans. N° 251.*

COBOOSE, in *Sea Language*, is derived from the Dutch *kambuis*, and denotes a fort of box, resembling a sentry-box, used to cover the chimneys of some merchant ships. It generally stands against the barricade, on the fore-part of the quarter-deck. It is called in the West Indies *cobre vega*.

COBRA, *de las cabeças*, in *Zoology*, the Portuguese name for an American species of serpent of the *amphisbæna* kind, whose bite is very fatal. It lives under ground, and feeds on ants. See **IBIJARA**.

COBRA de coral, in *Zoology*, the name of a species of serpent found in America, and called by the natives **IBIBOCA**; it is about two feet long, and has a great deal of a fine red in its variegations.

COBRA de cipo, in *Zoology*, the name given by the Portuguese in America, to a species of serpent more usually known by its Brazilian name **BOITJAPO**.

COBRAS de capello, in *Zoology*, the Portuguese name of a

peculiar species of serpent, called by authors *serpens in coronatus diadematæ*, seu *conspicillo insignis*, and by us the *spectacle-snake*, from the strange resemblance on the back of his head and neck to a pair of spectacles. It grows to somewhat more than the size of our viper; its snout is long; its head flat or depressed; its bite is very terrible. It is thought by many that there is a stone in the back part of its head, which is a remedy for the bite; but the stones commonly sold with us under the name of *lapides cobræ de capello*, are well known to be all artificial compositions.

COBRE de verd, in *Zoology*, the name given by the Portuguese in America, to a species of serpent called by the natives, and, from them, by most authors, **BOIOBI**.

COBWEB. See **WEB** and **SILK**.

COCCEIRA, in *Botany*, a name by which some authors have called the coco-nut tree, the *palma nucifera Indica* of most writers.

COCCIFEROUS, in *Botany*, such plants or trees as bear berries. See **BACCIFEROUS**.

COCCINELLA, in *Zoology*, a genus of insects of the *coleoptera* order, the characters of which are these; the *antennæ* are elevated and truncated; and the *thorax*, with the exterior wings, which are marginated, constitute an hemispherical figure. Of this genus are several species, distinguished by the colour and spots of their wings, among which are comprehended our common *lady-cows*.

COCCO, the name of a plant, in the West Indies, and in some of the islands of the South Sea, called also *Indian kale*.

COCCODES, in *Natural History*, a name given by Mercatus to those stones of the **AMMITES** kind, whose grains are very large.

COCCOLOBA, in *Botany*. See *Sea-side GRAPE*.

COCCOTHAUSTES, in *Ornithology*, the name of a very remarkable bird, considerably larger than the chaffinch, very short-bodied, and large-beaked, whence it is called in English, the *gross-beak* or *hawfinch*. Its head is very large in proportion to its body, and its great beak tapers from a very thick base to a sharp point, resembling the shape of a funnel. It is common in Germany, and lives there in the woods and mountains all summer; in winter it comes into the flat country. It is never seen in England, except in the winter months; it feeds on the kernels in the stones of fruit, as cherry-stones, and the like, and breaks these with great dexterity; it will also eat the seeds of many different plants. Ray.

COCCOTHAUSTES cristata, in *Ornithology*, the name by which naturalists call the bird usually known among us by the name of the *Virginian nightingale*, it being truly a *coccothraustes*, though called by the improper name **NIGHTINGALE**. Ray.

COCCULUS Indicus, a poisonous narcotic berry, known mostly now to poachers, who have got a trick of intoxicating fish therewith, so as to take them out of the water with their hands; for which reason these berries are called *baccæ piscatoriæ*, *fishers-berries*.

The good women use it with stavesacre, for destroying vermin in childrens heads. Brewers have used it also in their brewing; but this is expressly prohibited by act of parliament.

Coccus, in the *Writings of the Ancients*, a name given by some authors to that fine shining red colour used to illuminate the capital letters in manuscripts, and more generally known by the name of *encaustum sacrum*, from its being used in ornamenting the manuscript Bibles, and its resembling the fine red glow of the enamel of that colour.

Coccus, in the *History of Insects*, the name of a very comprehensive genus of the *hemiptera* class, the trunk of which arises from their breast; the body is cetose behind; the wings only two, placed erect, and to be found only in the males.

This genus comprehends all the *progall-insects* of Reaumur.

Coccus, or **Cocos**, in *Botany*, the name of a genus of plants of the *palme* class, called in the *Hortus Malabaricus*, **TEUGA**. It produces male and female flowers on the same plant; the male flowers have the whole ear for their cup, which is divided into three segments; the corolla has three petals; the stamina are six single filaments, of the length of the flower; the apices are oblong and incumbent; the germen of the pistil is so small in these flowers as to be scarce visible; the style is short and thick, and is obscurely trifid, and the stigma is small; these flowers never produce any fruit, yet they are not simply male flowers, but a sort of hermaphrodite ones, the female organs of which are always abortive; the female flowers grow on the same spike with the male; the calyx is divided into five parts, but the segments are very small; the corolla has three petals; the germen of the pistil is of an oval figure, and terminates in a short-pointed style; the stigma is small, and

is divided into three parts. The fruit is very large, and membranaceous; it is of a somewhat rounded figure, but with some obscure traces of a trigonal form; the seed is a very large nut of an oval form, pointed, tri-valve, and obtusely trigonal, as the fruit is; it has three holes in the base, and the kernel is hollow.

The *coco-tree*, which the Malabarians call *teuga*, grows straight, without any branches, and ordinarily is thirty or forty feet high; its wood is too spongy to be used in carpentry. At the top it bears twelve leaves, ten feet long, and half a foot broad, used in the covering of houses, making mats, &c. Above the leaves grows a large excrescence, in form of a cabbage, excellent to eat; but the taking this off is mortal to the tree. Between the leaves and the top arise several shoots, of the thickness of the arm; which, when cut, distil a white sweet, agreeable liquor, serving as a wine, and intoxicating: it becomes acid, if kept a few hours; and at the end of twenty-four hours is converted into a strong vinegar; but it may be prepared into brandy. While this liquor distils, the tree yields no fruit; but when the suckers are let grow, it puts forth a large cluster or branch, wherein the *coco-nuts* are fastened, to the number of ten or twelve.

While they are yet new, and the bark tender, they yield each about half a pint of clear cooling water, which in a little time becomes first a white soft pulp, and at length condenses, and assumes the taste of the nut.

The tree yields fruit thrice a year, and those sometimes as big as a man's head. Many travellers aver, from the size, and the many useful products of this tree, that from a single *coco-tree*, and its fruit, a ship might be built, equipped, and laden with merchandize and provision.

The *cocos* of the Antilles are not so large as those of the East Indies, Africa, and Arabia: the trees seldom exceed twenty-five feet in height; and the fruits are in proportion: these are used among us.

In the kingdom of Siam, the *coco* fruit, dried, and emptied of its pulp, serves as measures, both for things liquid and dry.

As these shells are not all of the same capacity, but are some larger, others less; their content is first measured with cauris, those little Maldives shells, which serve as small money in several states of the Indies. Some *cocos* contain a thousand cauris, others five hundred, &c.

The shell is likewise much used by the miners, carvers, &c. in divers works.

Coccus Maldivia, the Maldivia nut, in the *Materia Medica*, the name of the fruit of the *palma Maldiviensis* of Johnston, an oval-shaped fruit, of a sweet taste, and famous for its virtues in nervous disorders. See Coll. Acad. P. Etr. tom. iii. p. 525.

Coccus Polonicus, an insect which may properly enough be called the *cochineal* of the northern part of the world. As the cochineal loves only the hot climates, this creature affects only the cold ones. It is collected for the use of dyers, but the crops of it are much smaller, more difficultly made, and the drug itself greatly inferior to the true cochineal. It is commonly known by the name of *coccus Polonicus*, or the scarlet grain of Poland. Poland is indeed the place where it is gathered in greatest abundance, but it is not the only one; it is found in many other of the northern countries, and may very possibly be produced in some of the more temperate ones, where it is not known, as it is very much hid by nature from the eyes of common observers.

This kermes of Poland, if it may be so called, is found affixed to the root of a small plant, and usually to the same plant, which has been thence called the *polygonum cocciferum*. Authors have informed us of the same berry, as it is often called, also growing at the roots of the mouse-ear, rupture-wort, pimpernel, and pellitory of the wall, and that it is in no other than dry sandy places, that it is found at the roots of these plants. Breynius, in 1731, printed at Dantzick a very curious account of this production, which proves it incontestibly to be an animal, and gives us many reasons for knowing it to be of the progall-insect class. There is a particular account of this insect in the Philosophical Transactions, vol. liv. N^o 15, and vol. lvi. N^o 26. See COCHINEAL.

COCCYGÆUS anterior, a muscle fixed, by a broad insertion, in the anterior portion of the small transverse ligament at the upper part of the *foramen ovale* of the *os innominatum*; from thence it runs between this great ligament and the *musculus obturator intimus*, with which it is often confounded by anatomists, and contracting in breadth, it is inserted in the lower part of the *os coccygis*.

COCCYGÆUS posterior, a muscle fixed to the inner, or concave edge of the two first *vertebræ* of the *os sacrum*, to the inner and lower edge of the *ligamentum sacro-sciati-*

cum, and to the spine of the *os ischium*; from thence, contracting in breadth, it is inserted in the inside of the *os coccygis*, above the anterior.

COCCYGIS Os, in *Anatomy*, a bone joined to the extremity of the *os sacrum*; composed of three or four bones, whereof the lower is still less than the upper, till the last ends in a small cartilage. See *Tab. Anat. (Osteol.) fig. 7. n. 21.*

It resembles a little tail turned inwards; or rather, as some imagine, the beak of a cuckow; whence the name.

Its use is to sustain the straight gut: it yields to the pressure of the fetus in women in travail; and midwives use to thrust it backwards; but sometimes too violently, which is the occasion of great pain, and several bad effects.

The *os coccygis* may be thrust inwards by a violent fall or blow, and it is often pushed outward in hard births. When this happens, it is usually attended with violent pain and inflammation about the lower part of the spine; abscesses are formed in the *intestinum rectum*, and the feces are constipated, or suppressed. The replacing this bone is not very difficult, if an able surgeon is applied to in time. If it be thrust outwards, it must be depressed into its right place by the thumb; after which compresses dipt in warm wine, or spirits of wine, are to be applied to the part; these are to be made broad above, and narrow below, that they may fill up the *posterior sinus* of the *nates*; and these may be conveniently held on by the T bandage.

When the *os coccygis* happens to be luxated inwards, the fore-finger is to have its nail cut close, and being dipt in oil, it is to be introduced up the *anus*, and must be thrust in as far as possible, that it may the more readily drive out the depressed bone: the other fingers, being placed externally, are to conduct the bone into its right posture. When the bone is replaced, the patient must rest some time upon a bed; and when he sits up, it must be in a chair with a hole in its bottom, lest the affected part should otherwise be compressed or disturbed.

COCCYGIS ossis musculi. These are small, thin, radiated muscles, lying on the inner, or concave side of the *os sacrum*, and neighbouring parts of the *pelvis*. They are four in number, two on each side, one placed more forward, the other more backward; for which reason the first may be termed *coccygæus anterior* five *ischio-coccygæus* and the other *coccygæus posterior*, five *sacro-coccygæus*.

COCCYGRIA, in *Botany*. See SUMACH.

COCCYX, in *Anatomy*. See COCCYGIS Os.

Coccyx, in *Ichthyology*, a name given by Aristotle, and the other old Greek writers, to the fish called *cuculus*, and *LYRA* by other authors. It is a species of the *TRIGLA*, distinguished by Artedi by the name of the *trigla* all over red, with a bifid snout, and the covering of the gills striated.

COCETUM, among the *Ancients*, a kind of drink made of honey and poppies.

COCHIA, in *Medicine*, the name of officinal pills, which are distinguished into the greater and the less: the former is a composition of *hiera picra*, trôches of *Alhandal turpeth*, *diagrydium*, the syrup of buckthorn, taken from *Rhases*, but seldom used in the present practice. The latter is compounded of equal quantities of bright aloes, the purest scammony, and the pulp of colocynth, made into a mass with syrup of buckthorn. Two drams of the distilled oil of cloves are added to an ounce of each of the former ingredients. These pills are prescribed to discuss viscidities, watry humours, and flatulencies.

COCHINEAL, or **COCHENEEL**, a drug used by the dyers, &c. for giving red colours, especially crimsons and scarlets, and for making *CARMINE*; and likewise in medicine as a cardiac, cordial, sudorific, alexipharmic, and febrifuge.

It is brought from the West Indies; but authors have been divided as to its nature; some taking it to be a kind of worm, and others for the berry of a tree. F. Plumier, a celebrated botanist, has maintained the former opinion, and Pomet very absurdly the latter. That author is very wide of the truth in the description he has given of *cochineal*.

The *cochineal*, in the state in which it is brought to us, is in small bodies of an irregular figure, usually convex, and rigid and furrowed on one side, and concave on the other. The colour of the best is a purplish grey, powdered over with a sort of white dust. All that the world knew of it for a long time was, that it was gathered from certain plants in Mexico, and therefore it was naturally supposed to be a seed.

In the year 1692, father Plumier gave Pomet, the French author of a History of Drugs, an account of its being an animal: this however, was disregarded; but Messrs. Hartloeker, De La Hire, and Geoffroy, afterwards evi-

dently proved it to be one; and after this there were printed the depositions, in form, of a number of persons upon the spot, who all declare it to be a viviparous animal, and that it passes a great part of its life fixed to the vegetable body on which it feeds, and that it was a creature subject to no change, nor ever appearing in any other state. These and many other qualities found in the *cochineal*, all analogous to those of the class of *progall-insects*, give great room to believe that it is truly and properly an insect of this class.

There are two kinds of *cochineal*, the finer called *meslique*, the other termed the wild *cochineal*. The first is gathered from such plants of the *opuntia* as are prepared and managed properly on purpose for the production of the animal, the other is found wild on the wild plant, and is much inferior to the *meslique* in value.

* Dampier tells us there are two sorts; one an insect, and the other a seed; and gives a precise description of each kind.

The COCHINEAL worm, *Coccus*, otherwise called the *progall-insect*, is an insect engendered in a fruit resembling a pear: the plant which bears it is five or six feet high.

At the top of the fruit grows a red flower, which, when mature, falls on the fruit; and that opening, discovers a cleft two or three inches in diameter. The fruit then appears full of little red insects, having wings of surprising smallness, and which would continue and die, and rot there, if not taken out.

The Indians therefore spreading a cloth under the tree, shake it with poles, till the insects are forced to quit their lodging, and fly about the tree; which they cannot do many moments, but tumble down dead into the cloth; where they are left till they be entirely dry: when the insect flies, it is red; when it is fallen, black; and when first dried, it is greyish; though it afterwards changes colour. Dampier's Voyages. See *Tab. Nat. Hist. fig. 24.*

The figure of this insect is oval, and its utmost size is that of a small pea. It has six legs armed with claws, two eyes, and a trunk by which it sucks its nourishment. The ants, and many other little animals, are very fond of eating the *cochineals*; and it is with great difficulty that the Indians defend the young brood from those devourers.

After the Indians have gathered the *cochineal* they kill it, otherwise they would lose a great part of their harvest; for the parent race would live some days after their being taken from the plant, and would produce their young, which would be nimble enough to run away in great numbers. Some to kill the creatures plunge them in hot water and afterwards dry them in the sun; others kill them by a proper degree of heat, and others again by smoke.

The accounts from the place where the *cochineal* is produced furnish all these particulars; but to decide the long disputed point, whether they are of the animal or vegetable kingdom, we have the means in our own hands, even in this part of the world. We need only moisten and soak in water, or in vinegar, a number of *cochineals* till they are swelled and distended, to know that every one is the more or less perfect body of an insect; the most imperfect and mutilated specimens always shew the rings of the body, and from observing others it will be easy to find the number and disposition of the legs; parts, or even whole ones, being left on several, and often complete pairs. In this way the legs, antennæ, and proboscis, may be discovered.

If a full-grown *cochineal* be soaked a considerable time in water or vinegar, and afterwards gently pressed, there will frequently be protruded from its hinder part a number of smooth oblong bodies, which might be easily mistaken for eggs; but a good microscope will shew in these the traces of the legs and other lineaments sufficient to prove it to be a true embryo fœtus. These eggs exhibit a vivid crimson hue.

It is easy to see in some the head, and sometimes a tubercle on each side of it, which may very naturally be supposed the eyes, or else the roots of the antennæ or horns. The first pair of legs are thus found to be very near the head of the animal, and, placed exactly as in all the gall-insect and *progall-insect* class; a little above these one may distinguish also the remainder of the trunk situated exactly as in the gall-insects and *progall-insects*; the anus is also easily distinguished.

As the manner of the fecundation of the gall-insects was so long unknown in Europe, it is no wonder that that of the *cochineal* should not be very early discovered in Mexico: but we have an account among Mr. Ruysche's pieces, from whence almost all the true history of this animal is had, that at the season of the *cochineals* becoming big, there is seen continually among them a small butterfly, which is bred upon the same plants, and by

means of which the *cochineals* conceive. This is so strictly analogous to the manner of the gall-insect class, that there is no room to doubt the fact; and it is a farther great proof, how little truth was before in the guesses concerning the class of animals this belonged to. Reaumur's Hist. of Insects, tom. iv.

The female *cochineal* has been long known, and is well described by Reaumur, Dr. Brown, and Linnæus; but neither of them had ever seen the male; and therefore the history of this valuable insect has been very defective. Mr. Ellis, being informed that this insect bred in great abundance on the *cañus opuntia* of Linnæus, in South Carolina and Georgia, as well as on the *cañus coccinellifer* in Mexico and Jamaica, obtained from Dr. Garden some branches of the former, with the insects upon them. In examining several of these specimens, he, at last, discovered three or four minute dead flies with white wings; and having moistened them in spirit of wine, and observing them with a microscope, found that they were of a bright red colour, which convinced him, that these were the true male insects. Dr. Garden, to whom this discovery was communicated, made several observations on the male species. This is very rarely found; so that he imagines there may be a hundred and fifty, or two hundred females, for one male. The male is much less than the female, more active, and better made; and the body of it is of a lighter red than that of the other. See a minute description of the male species, illustrated by microscopical drawings, in the Phil. Transf. vol. lii. part ii. art. 107.

The male-fly of the Polish *cochineal* was also discovered by Dr. Wolfe of Warsaw. See Phil. Transf. vol. liv. p. 95. and vol. lvi. art. 20.

Cochineal has been supposed to possess several medicinal virtues, similar to those of the KERMES; but its principal use is as a colouring drug. When infused or boiled in water it yields a crimson tincture, inclining to a purple. Fixed alkali renders the crimson deeper, but lessens its lustre. Volatile alkali heightens the colour, without diminution of lustre. The best method of applying volatile alkali for this purpose in dying, was found by M. Hellot to be by dipping the cloth dyed with *cochineal* in a solution of sal ammoniac, and then throwing into the solution some pot-ash, by which the volatile alkali of the sal ammoniac is disengaged. By a small quantity of vitriolic acid the crimson decoction of *cochineal* is rendered purple; a greater quantity makes it flesh-coloured; and by adding more still, it becomes colourless. This colour is first changed to a yellow, and afterwards destroyed by nitrous acid. Solution of tin in aqua regia heightens the colour of this decoction to a scarlet, which is darker or brighter as the quantity is less or greater. Other metallic solutions have different effects. French dyers give fire to their scarlets, by the addition of turmeric; but this tinge does not penetrate the cloth, and soon perishes. Woollen cloth requires, for the scarlet dye, about one sixteenth its weight of *cochineal*, part of which is used with tartar in the preparatory liquor, and the rest for finishing the dye, to each of which decoctions a proper quantity of the solution of tin is added. M. Hellot observes, that if *cochineal*, after the usual pulverization, be mixed with one fourth of its weight of pure dry crystals of tartar, and the mixture be levigated into an impalpable powder, the saving of *cochineal*, both for the crimson and scarlet dye, will be about one part in four, without any injury to the colour. The wild or silvester *cochineal* is much inferior to the other: four parts of the former have no greater effect in dying than one of the latter; nor does it give equal beauty to the colour, especially the scarlet. Neumann's Works, with Dr. Lewis's additions, p. 506, &c. See DYING.

Josselin, in his account of the products of New England, mentions a particular kind of sun-flower, called by some a species of *golden-rod*; the stalks of which are covered about the knots, in the summer months, with insects of the size of large fleas. These, preserved in a proper manner, yield a very elegant scarlet colour, and the author thinks might be made to supply the use of *cochineal*. There are whole plantations of the *cochineal* plant, or *tonna*, as the natives call it, about Guatimala, Chepe, and Guexaca, in the kingdom of Mexico. It is called *renegrada*, *jaspeada*, &c. according to the manner of its preparation.

The COCHINEAL grain, or, as Dampier calls it, *sylvestris*, is a red berry, growing in America, found in a fruit resembling that of the *cochineal* plant, or *tonna*. The first shoot produces a yellow flower; then comes the fruit, which is long, and, when ripe, opens with a cleft of three or four inches. The fruit is full of kernels or grains, which fall on the least agitation, and which the Indians take care to gather. Eight or ten of these fruits may yield about an ounce of grain. See fig. 24. n. 4.

This berry yields a dye almost as beautiful as that of the insect; and a person may be easily deceived in them; though the other is much the most esteemed. Dampier is mistaken in supposing this last a seed. It is an animal of the same kind with the other.

COCHLEA, in *Anatomy*, the third part of the labyrinth or inner cavity of the **EAR**.

The *cochlea* lies directly opposite to the semicircular canals, and is properly so called from the resemblance it has to the shells that snails lie in; through its parietes a small branch of the auditory nerve passes.

Its canal is divided by a septum composed of two substances; one almost cartilaginous; the other membranous.

The two canals that are divided by the septum, are called *scala*: whereof the one, looking towards the tympanum, by the fenestra rotunda, is called *scala tympani*; the other, having a communication with the vestibulum, by the fenestra ovalis, is called the *scala vestibuli*: the first lies uppermost, and is the largest; the last lowermost, and is the least.

The parts to be distinguished in this in its true situation, are the *basis*, the *apex*, the spiral *lamina*, the half-septum, by which its cavity is divided into two half-canals; the spindle round which the *cochlea* turns: and lastly, the orifices and union of the two ducts. The basis is turned directly inward, toward the internal *foramen auditorium*; the apex outward, and the axis of the spindle is nearly horizontal; but, in all of these, allowance must be made for the obliquity of the *os petrosum*, in which they lie. The basis of the *cochlea* is gently hollowed, and towards the middle is perforated by several small holes. The spindle is a kind of short cone, with a very large basis, which is the middle of the basis of the *cochlea*; through its whole length runs a double spiral groove, which, through a microscope, shews a great number, of pores. The *cochlea* makes about two turns and a half from the basis to the apex, and the two ducts being strictly united together, through their whole course, form an entire common septum, which must not be confounded with the half-septum, or spiral lamina, as is often done. The first of these may be properly termed the common septum, the other the particular or half-septum; both of them are closely joined to the spindle, being thicker there than in any other place. The common septum is complete, and separates the turns entirely from one another, whereas the half-septum in the skeleton is only a spiral lamina, the breadth of which is terminated all round by a very thin border lying in the middle cavity of the *cochlea*. In a natural state there is a membranous half-septum, which completes the partition between the two ducts. The two half-canals turn jointly about the spindle, one being situated towards the basis of the *cochlea*, the other toward the apex; for which reason, one of them may very well be termed the internal, the other the external; the usual division of them into the upper and lower flight not being agreeable to the natural state, but liable to convey a false idea of it. The spiral volute of the *cochlea* begins at the lower part of the vestibulum, runs from thence forward to the top, then backward down to the bottom, afterwards upward and forward, and so on from the basis, which is turned inward, to the apex, which is turned outward. It is easy hence to know to which ear a *cochlea* has belonged, when it is seen prepared. These two half-canals communicate fully at the apex of the *cochlea*. Their separate openings are toward the basis, one of them being immediately into the lower part of the vestibulum, the other into the fenestra rotunda. The two openings are separated by a particular turning. Winslow's Anat. p. 51.

COCHLEA, in *Conchology*, the name of a very large family of sea shell-fish, which are divided by authors into three distinct genera, from the figure of their mouths, some of which are circular, some semicircular, some oval. These are expressed by the generical names *cochleæ lunares*, *cochleæ semilunares*, and *cochleæ ore depresso*. The two former genera see under **LUNARIS cochleæ**, and **SEMILUNARES cochleæ**.

The characters of the third are these: it has an univalve shell of a broad figure, with a conoid base and an elevated summit, or sometimes a plane and depressed one. It is umbilicated, and of a pearly colour within, and has a mouth of an oval figure, sometimes furnished with teeth, sometimes without any. The conic figure of these shells usually distinguishes them at first sight from all the other kinds.

Some of the species of this genus have their apex elevated to a considerable height, and forming several spiral turns. These are properly called *sabots* by the French, and *trachi* by the authors of other nations. Others have the apex less elevated, and are more of the common shape of snails. And finally, some of them have the

apex quite depressed. This is enough to shew that in shells in general, the elevation of the apex is no genuine character of a genus. Among the *trachi* there is one single species which is umbilicated, the others are none of them so; and hence this forms a very grand distinction. Rondeletius observes that this genus of *cochleæ* was called *trochus*, from the resemblance of some of the species to the shape of a boy's whipping top.

From the figures of these several species of shells, it will be easily seen that the name *trochus*, according to the common derivation of the word, very badly expresses the several kinds, some of which are of that figure, and some no way approaching to it. They are much better expressed by the name *cochleæ ore depresso*, which conveys an idea of an absolute distinction, which takes place in them all, and in no other shells. See *Tab. of Shells*, N^o 5, 6, 7.

COCHLEA, in *Mechanics*, one of the five mechanical powers; otherwise called the **SCREW**.

It is thus denominated, from the resemblance a screw bears to the spiral shell of a snail, which the Latins call *cochlea*.

COCHLEARIA. See *Horse-RADISH*, and *SCURVY-Grass*.

COCK, *Gallus*, in *Ornithology*, the name of the males of gallinaceous birds; the distinguishing characters of which are, that the feet have each four toes, the front of the head has a comb; and the wattles are two, and are naked and flat. See **GALLINÆ** and **GALLINACEOUS**.

In the choice of a *dunghill-cock*, he should be of a large body; very long from the head to the rump, thick in the girth, the neck long, loose, and high; the comb, wattles, and throat large; the eyes round and large, and answerable to the colour of his plumage or main, as grey with grey, yellow with yellow, and so of the rest; his beak should be strong and hooked; and his main or neck-feathers very long and glossy, covering his neck and shoulders; the legs should be strait, and of a long beam, with very large and long spurs, a little bending; the colour should be black, yellow, or brownish; the claws should be long and strong; the tail long, bending back, and covering the whole body; the wings very strong; and the general colour should be reddish. See **FOWL**.

Cock, game. In the choice of the *game* or *fighting-cock*, four things are principally to be considered; these are the shape, colour, courage, and sharpness of the heel. As to the shape, such a one should be chosen as is neither too small nor too large; the very large ones are always clumsy and unwieldy, and the small ones are slow and tedious in fighting, and are generally too weak to stand a very tight battle; another disadvantage in these extremes is, that both are very difficult to be matched; the middle-sized one ought therefore ever to be preferred, as he is generally the most nimble and active with his strength and the matching him is easy. The head ought to be small, the eyes large and brisk, and the beak strong and hooked at the setting on; its colour ought also to answer to that of the principal or general colour of the feathers, whether that be yellow, reddish, or grey. The beam of his leg ought to be very strong, and according to his plumage, either blue, grey, or yellow; and the spurs ought to be rough, long, and sharp, a little bending, and pointing inward. The three colours esteemed in the *game-cock* are grey, yellow, and red, with a black breast. The perfection of a *cock* is not, however, tied down absolutely to these colours; for experience has shewn, that there are *cocks* of other colours which have proved excellent ones, but these are in general the best: the pied *cock* sometimes turns out good, but the white and dun are seldom of any value.

If the neck of a *cock* be invested with a circle of a scarlet complexion, it is a sign that he is strong, vigorous, and has great courage; but, on the contrary, if it be pale and wan, it denotes him to be defective in these material particulars.

In order to prepare a *cock* for fighting, his mane is to be clipped off with a pair of shears close to the flesh, all the way down the neck, from the head to the shoulders; the feathers are also to be clipped off close to the rump, and the redder that appears, the better condition the *cock* is in. The wings are to be spread by the length of the first rising feather, and all the others are to be cut sloping with sharp points, that in rising he may endanger the eyes of his adversary. There must be no feathers left on the crown of the head, that the opponent can take hold of, and his head should be moistened with spittle; then the spurs being put on, he is to be turned into the pit to try his fortune.

The best season for breeding the *game-cocks* is from the beginning of February to the middle or latter end of March; the nest for the hen is to be made of sweet and clean straw, and should be placed in some warm corner,
out

but of the way of disturbance from other fowl; for this sort of interruption provokes this quarrelsome bird in such a manner, as to endanger the eggs. That she may never have occasion to leave the nest, and cool her eggs, it will be proper to lay all sorts of food, that she is likely to approve of, before her, and to put clean water every day, not only for her to drink, but to wash and trim herself in; some ashes, sand, and gravel, should also be sifted on about the nest. The chickens are hatched in about three weeks, and the nest is to be carefully watched about this time; for there are always some of the chickens hatched before the others; these should be taken away as soon as out of the shell, and laid before the fire, or in some warm place in wool, and as soon as the rest are hatched, these should be given back to the hen. They are not to be suffered to go abroad for the first fortnight, and the room they are kept in must be boarded, all other floors being too cold or too moist. At about a month old the chickens may be turned out into a walk of some fresh grass, that they may feed at liberty, and eat worms and other insects; but there must be no puddle of water near the place, for they are apt to get into such, and it occasions them a number of diseases. As soon as the comb and wattles appear on the *cocks*, they must be cut away, and the fore place anointed with fresh butter till it is well. The chickens may be all suffered to run together till they begin to peck one another, then the *cocks* are to be separated; each must have his particular walk, and the more free from disturbance this is, the better. The place of feeding them must either be a boarded floor, or a very soft and dry piece of ground. If the place be hard, as a stony pavement, or a plaistered floor, the taking up their food will injure and blunt their beaks, so that they will never be able to hold fast afterwards. Any white corn is good for the young *game-cock* in his walks, and so is a white bread toast steeped in ale: at times this may be given him steeped in urine, which will serve to scour and cool him very well. There should never be more than three hens allowed to one *cock* in his walk; for if there are more, he will consume his strength in the treading; and though his courage may not fail, yet he will never have the ability to go through a battle. Care is to be taken also as to his roosting place, that the perch be not too small in the gripe, and be so placed, that he may sit on it without straddling; if the perch be crooked it is also very disadvantageous, for it will accustom the *cock* to such an uneven disposition of his feet, that he will be no good striker in the battle. The best method of contriving the roosting place is to have a row of short perches, about eight inches long, and the lowest ten inches from the ground, that he may ascend with the more ease; and when he is come to the roosting perch, be constrained to sit with his legs close together. A *cock* bred in this manner may be fought young; but the best method is not to hazard a battle till he is somewhat more than two years old.

Game-cocks are commonly brought to the state of their greatest strength and activity in about ten days, which Dr. Robinson calls their *athletic weight*; but they will scarce remain twenty-four hours in this condition; nay, some have been known to change for the worse in twelve hours.

COCK, black. See GROUSE.

COCK, bloody-beeled. See HEELER.

COCK, gor. See GOR-cock.

COCK, grubbing a. See GRUBBING.

COCK, high-bearing, is a term used with respect to fighting cocks; denoting one larger than the *cock* he fights. As a *low-bearing cock* is one overmatched for height.

COCK, Indian. See CRAX.

COCK, of the mountain, Urogallus, the name of a bird of the gallinaceous kind, being a species of the TETRAO. See *Tab. of Birds*, N^o 25.

In shape it resembles the turkey, and approaches to it in size. Its legs are feathered down to the toes before, and naked behind. It is common on the Alps, and in some parts of Italy, and is said to be found also in the mountainous parts of Ireland. Its flesh is very delicate.

COCK, wood. See WOOD-cock.

COCK boats, small boats used in rivers, or near the shore, which are of no service at sea, because too tender, weak, and small.

COCK's-comb, in Botany. See LOUSEWORT, and AMARANTH.

COCK of a dial, the pin, style, or gnomon. See GNOMON.

COCK's-foot grass. See GRASS.

COCK's-head. See SAINTFOIN.

COCK-paddle, the Scotch name for the *lumpus*, a sea-fish, common on the English coasts, and called the lump-fish, or sea-owl.

COCK-thropped, a name given by dealers in horses to one

whose wind-pipe is small, and bends like a bow when he bridles his head. See HORSE and HUNTER.

COCK-water, is a stream of water brought in a trough, through a long pole, in order to wash out the sand of the TIN-ore into the *launder*; while it is bruising in the coffer of a stamping-mill.

COCK in a watch or clock. See BALANCE.

COCKS aboard a ship, are little square pieces of brass, with holes in them, and put into wooden shivers to keep them from splitting and galling by the pins of the blocks, in which they move.

COCKATOON, a name usually given to the white MACAW, but more properly belonging to the whole MACAW tribe.

COCKERINGS, an exaction, or tribute in Ireland, now reduced to chief rents.

COCKET, or COCQUET, a SEAL belonging to the king's custom-house.

COCKET, or COCQUET, is a scroll of parchment, sealed and delivered by the officers of the custom-house to the merchants, upon entering their goods; certifying that the goods were customs. It likewise gives name to an office appointed for this purpose.

The same word is also used in the statute of bread and ale, 15 Hen. III. where there is mentioned *cocket-bread*, among several other kinds: it seems to have been hard sea-biscuit, which, perhaps, had then some *cocket*, mark, or seal; or else was so called from its being designed for the use of the cockswains, or seamen.

COCKING Cloth, a device for the catching of pheasants. It consists of a piece of coarse canvas, about an ell square, dipped in a tan-pit to colour it; and kept stretched by two sticks, placed from corner to corner, diagonal-wise; a hole being left to peep through. The sportsman then, being provided with a short gun, carries the cloth before him at arm's-end; under cover of which, he may approach his game as near as he pleases: when near enough, he puts the nose of his gun through the hole, and shoots.

COCKLE, Pectunculus. See PECTEN.

COCKLE. See DARNAL-GRASS.

COCKLE-stairs. See STAIRS.

COCKPIT, a sort of theatre, whereon game-cocks fight their battles. The *cockpit* is usually a house, or hovel, covered over: they fight on the clod, or green sod; which is generally marked out round, and encompassed with seats, one above another.

The *COCKPIT Laws* are principally these: when cocks are set, none are to be on the sod but the two setters. When the cocks are set beak to beak, in the middle of the clod, and there left by the setters, if the set cock does not strike in counting twenty, and six times ten, and twenty after all, the battle is lost: but if he does strike, the battle is to begin again, and they must count again. If any one offers a mark to a groat, or forty to one, and the wager be taken, the cock must be set, and they are to fight it out. Done, and done, is a sufficient bet, or wager, when the cocks are cast on the clod.

COCKPIT, in a man of war, is a place on the lower floor, or deck, abaft the main-captain, lying between the platform, and the steward's room; where are subdivisions, or partitions, for the purser, the surgeon, and his mates. See *Tab. Ship. fig. 2. lit. Z.*

COCKROAD, a contrivance for the taking of woodcocks. This bird lies close by day, under some hedge, or near the root of an old tree, to peck for worms under dry leaves, and will scarce stir out, unless disturbed; as not seeing his way so well in the morning; towards the evening he takes wing, to seek for water, flying generally low; and when he finds any thoroughfare in a wood, he ventures through it.

To take them, therefore, they plant nets in such places; or, for want of such places ready to their hands, they cut roads through woods, thickets, groves, &c.

These roads they usually make thirty-five, or forty feet broad, perfectly strait, and clear; and to two opposite trees they tie the net, which has a stone fastened to each corner. Then, having a stand, or a place to lie concealed in, at a proper distance, with a stake near the same, to fasten the lines of the net to; when they perceive the game flying up the road, they unwind the lines from off the stake; upon which, the stones drawing it down, the birds are entangled in the same.

COCKSWAIN, or COCKSON, an officer on board a man of war, who hath the care of the boat, or sloop, and all things belonging to it. He is always to be ready with his boat's gang, or crew, and to man the boat on all occasions. He sits in the stern of the boat, and steers; and hath a whistle to call and encourage his men.

COCOA, or more properly CACAO, the nut whose kernel yields the chocolate. See CACAO.

COCOI, in Ornithology, the name of a very beautiful bird of the

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the Brails, of the heron-kind, of the bigness of the common stork: its flesh is very well tasted.

COCOON. See **SILK.**

COCROTALION, in *Natural History*, a name given by the ancients to an animal generated between the hyæna and the lions. This animal is described as having many of the qualities of the **MANTICHOVA**; and it seems with some to be only another name for the same beast. It is called also **LEOCROCOTTA**, and *leucocrotta*, and sometimes simply *crocotta* or *cocrotta*.

COCTION, a general name for all alterations made in bodies, by the application of fire, or heat.

There are various species of *coction*; as **MATURATION**, **FRICTION**, **ELIXATION**, **ASSATION**, **TORREFACTION**, **USTION**, **DECOCTION**, and **CONCOCTION**.

Various liquors are used, and different portions of time allotted, for *coction*, according to the different intentions of operators, or the particular natures of the substances to be boiled; so that nothing general can be determined with respect to this, the observation of which would be of general use to the operator: but we are to judge of the manner in which particular substances are to be boiled, from a knowledge of the respective natures of the bodies to be subjected to this operation.

The *coction* of the aliments of the stomach, is their digestion or reduction to a sort of emulsion or chyle.

COD-fish, is the largest of the genus of the *asella*, called **ASELLUS maximus** by authors; and sometimes, **ASELLUS varius**, *five striatus*. The characters by which this is distinguished from other fishes of the same genus are these: its colour on the back and sides is a dusky olive colour, variegated with yellow spots; its belly is white; its sides have a long white line running their whole length, from the gills to the tail, which, at the abdomen, is curved, but elsewhere is straight; its scales are very small, and adhere firmly to the skin; its eyes are large; at the angle of the lower jaw there hangs a single beard, which is short, seldom exceeding a finger's length; its tongue is broad; it has several rows of teeth, one of which is much longer than all the others. Among these there are some moveable teeth, as in the pike; and in the palate, near the orifice of the stomach, and near the gills, it has small clusters of teeth. It has three back-fins, two at the gills, and two at the breast, and two others behind the anus; and the tail is plain.

This fish, according to its age, the places where it is caught, or cured, and other accidents, has also several names given it. From the various places, it is called, the *Haberdeen*, from Aberdeen in Scotland; the *Greenfish*, from Greenland; the *North-sea cod* from the Northern ocean; and the *Iceland-fish*, from Iceland. From other causes, it is called *stock-fish*, from the necessity of beating it with sticks, before it is fit to be dressed; *barrelled-cod*, when cured, and put up in barrels; when young, a *codling*: and by the Dutch and Americans, *cabelow*.

According to the **Artedean** system, it is a species of **GADUS**; and it is distinguished from the other species of that genus, by having beards at the mouth, the upper jaw longest, and tail not forked.

The *cod*, when fresh, produces good juice, and is nourishing; but when salted, and become too old, it is neither so well tasted, nor so easy of digestion. The pickle of *cod* is of a dissolving and drying nature, when outwardly applied; it is also used, among other things, in clysters; for it is laxative, because it contains much salt, irritates the intestinal glands, and forces liquor out of them.

COD-fishery. See **Cod FISHERY.**

CODÁ, in *Italian Music*, literally signifies a tail; but is used often at the end of a canon, for two or three measures to close with, after having repeated it several times. The *coda* serves only to end the piece, which, without it, might be carried on to infinity.

CODÁ lancea, in *Ornithology*, the name given by the Italian authors to the species of duck called by others the *anas caudacuta*, and vulgarly known, in some parts of England, by the names of the **CRACKER**, or *sea-pheasant*. It differs from all other birds of the duck kind in the shape of its tail, which has two feathers longer than the rest, and ending in a point.

CODAGA-bark, a name given to that otherwise called **CONESSI**, or *conessi*.

CODDAM-pulli, in *Botany*, a name by which some authors have called the tree which produces the gamboge, the *gutta gamba* of the shops.

CODDY-moddy, in *Ornithology*, the English name of a common water-fowl of the *larus*, or **GULL** kind, and distinguished by the names of the *larus fuscus*, or *larus Hyernus*.

CODE, **CODEX**, a collection of the laws and constitutions of the Roman emperors; made by order of Justinian.

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The word comes from the Latin *codex*, a paper book; so called à *codicibus*, or *caudicibus arborum*, the trunks of trees; the bark whereof, being stripped off, served the ancients to write their books on.

The *Code* is comprised in twelve books, and makes the second part of the civil or Roman law.

There were several other *Codes* before the time of Justinian; all of them collections, or abridgments of the Roman laws. **Gregorius** and **Hermogenes**, two lawyers, made each a collection of this kind, called, from their names, the *Gregorian Code*, and *Hermogenean Code*. The former included the constitutions of the emperors from **Adrian**, or, as some say, of **Augustus**, to **Dioclesian** and **Maximian**. The latter was compiled in the age of the **Constantines**, and comprised all the imperial constitutions of **Dioclesian** and **Maximian**, besides those of **Claudius**, **Aurelian**, **Probus**, **Carus**, and **Carinus**, to the year 306 or 312. We have nothing remaining of them but a few fragments; the compilations themselves falling to the ground, for want of authority to put them in execution.

Theodosius the Younger was the first emperor who made a *Code*, which was comprised in sixteen books, formed out of the constitutions of the emperors from **Constantine the Great** to his own time; abrogating all other laws not included in it: and this is what we call the *Theodosian Code*; which was published in the year 428, and received and observed, till annulled by the *Code* of Justinian.

The *Theodosian Code* has been a long time lost in the West: **Cujas** took a great deal of pains to retrieve it, and to publish it in a better condition than ever. **Gothofred** has given us a comment of the *Theodosian Code*; a work which cost him thirty years.

In 506, **Alaric** king of the **Goths**, made a new collection of the Roman laws, taken from the three former *Codes*, the *Gregorian*, *Hermogenean*, and *Theodosian*, which he likewise published under the title of the *Theodosian Code*. This *Code* of **Alaric** continued a long time in force, and was all the Roman law received into France.

This *Code* of **Alaric** is sometimes called the *Code* of **Anian**, because compiled by **Anian**, who was chancellor to **Alaric**.

Lastly, the emperor **Justinian**, finding the authority of the Roman law exceedingly weakened in the West, upon the decline of the empire, made a general collection of the whole Roman jurisprudence. The management hereof he committed to his chancellor **Trebonianus**; who chose out the most excellent constitutions of the emperors, from **Adrian** to his own time; and published his work in 529, under the title of the *New Code*.

But because **Justinian** had made several new decisions, which made some alteration in the ancient jurisprudence, he retrenched some of the constitutions inserted by **Trebonianus**, and added his own in their place: on which account he published a new edition of the *Code* in 534, and abrogated the former. See **CIVIL Law**.

There have been various other later *Codes*, particularly of the ancient Gothic, and since of the French kings; as the *Code* of **Frederic**, the *Code* **Michault**, *Code* **Louis**, *Code* **Neron**, *Code* **Henry**, *Code* **Marchand**, *Code* des **Eaux**, *Code* **Noire**, &c.

CODE of canons, *Codex Canonum*. See **CANON**.

CODEX, in *Antiquity*, a kind of punishment by means of a clog, or block of wood, to which slaves, who had offended, were tied fast, and obliged to drag it along with them; and sometimes they sat on it closely bound.

CODIA, *Kωδία*, in *Botany*, is used for the top or head of any plant; but by way of eminence, for that of the white poppy; whence the syrup made therewith, is called *diacodium*.

CODICIL, a schedule, or supplement to a will, or other writing.

It is used as an addition to a testament, when any thing is omitted which the testator would add, explain, alter, or retract; and is of the same nature as a testament, except that it is without an heir, or executor.

So that a *codicil* is a less solemn will, of one that dies either testate or intestate, without the appointment of an heir: testate, when he that hath made his *codicil* hath either before or afterwards made his testament, on which that *codicil* depends, or to which it refers: intestate, when one leaves behind him only a *codicil* without a testament, wherein he gives legacies only to be paid by the heir at law, and not by any heir instituted by will, or testament.

A *codicil*, as well as a will, may be either written, or nuncupative. Some authors call a testament, a great will; and a *codicil*, a little one.

But there is this further difference between a *codicil* and a testament, that a *codicil* cannot contain the institution of an heir; and that in a *codicil*, a man is not obliged to observe

observe strictly all the formalities prescribed by law for solemn testaments.

In customary countries, testaments, properly speaking, are no more than *codicils*; because custom itself names the heir, and does not allow of testamentary inheritors.

Codicils were first brought into use in the time of Augustus, by L. Lentulus: they were originally intended to follow the testament; which was, as it were, their basis. In process of time, *codicils* came to have their effect, even though made before the testament; provided there was nothing in the testament contrary to the *codicil*. People were also allowed to make *codicils* without testaments.

Raymond Lully has a book which he calls *The Codicil*; wherein he pretends to have left his readers the secret of the philosophers stone; provided they do but understand it.

CODLIN-tree. See APPLE-tree.

CODON, in *Antiquity*, a cymbal, or rather little brass-bell, resembling the head of a poppy. They were fastened to the trappings and bridles of horses.

CODON is also used to signify the orifice of a trumpet.

COECUM, in *Anatomy*, the *blind gut*; the first of the thick intestines; so called, because made like a sack, having but one aperture, which serves it both for entrance and exit.

It is situate on the right side, below the kidney; and in length is about the breadth of three or four fingers. In children new-born, and in quadrupeds, it is found full of excrements; but in adults, &c. it frequently disappears, or hangs like a worm.

Its use in adults is very obscure: in a *fœtus*, or infant newly born, it appears to serve as a receptacle of the *fæces* during such time as the animal does not discharge by stool. See APPENDIX.

Dr. Glisson imagines it may likewise serve in such animals as have it large, as dogs, coney, rats, &c. for a kind of second ventricle, or bag, wherein the prepared aliment may be retained, while a richer and more nutritious juice is drawn from it.

Others will have it contain a ferment; and others, the flatus of the intestines: others fancy it may separate a humour, by some glands placed in it to harden the excrements as they pass through the colon.

Dr. Lister assigns the use of the *cæcum* to be, to keep the excrements which pass into the cavity (as most of those of sound animals, he thinks, do), till they are sufficiently drained, baked, and hardened, to receive the figure to be given them by the colon and rectum. He adds, to confirm this, that wherever there are regularly figured excrements of the first kind, there is a capacious *cæcum*, and *vice versa*. This indeed is true, that some animals, which are naturally loose, have either no *cæcum* at all, or very little; as the *talpa*, *echinus terrestris*, *gula*, &c. The intention of nature, in thus providing for the figuration of the excrements he takes to be, first, to prevent diarrhoeas; secondly, to make the creature abide hunger the better (thus it is, that snails, in winter, rest with full intestines); and, lastly, to heighten the digestion and fermentation in the stomach and small guts.

Dr. Musgrave gives us an account, in the Philosophical Transactions, of the *cæcum* of a dog being cut out, without any prejudice to the animal. M. Giles gives us another, of the *cæcum* of a lady being distended so as to form a tumor, that held almost three chopines of a thin, greyish, and almost liquid substance, whereof she died. And Mr. Knowles, a third, of a boy's *cæcum* being vastly extended, and stuffed with cherry-stones, which likewise proved mortal.

Some say, the name *cæcum* is mistaken; not allowing this to be the *cæcum* of the ancients, which they imagine, to be the thick globous part of the colon, immediately appended to the ileum; and therefore give this part the name of *appendicula vermiformis*.

CO-EFFICIENTS, in *Algebra*, are numbers, or given quantities, prefixed to letters, or unknown quantities, into which they are supposed to be multiplied; and therefore, with such letters, or with the quantities represented by them, make a rectangle or product, *co-efficient production*; whence the name.

Thus, in $3a$, or bx , or Cxx ; 3 is the *co-efficient* of $3a$; b , of bx ; and C , of Cxx . If a letter have no number prefixed, it is always supposed to have unit for the *co-efficient*. Thus, a , or bc , import as much as $1a$, or $1bc$. The *co-efficient*, in a quadratic equation, is according to its sign, either the sum, or the difference of the two roots.

In any equation of a higher nature, the *co-efficient* of the second term is always the aggregate of all the roots retaining their proper signs: so that if all the negatives be equal to all the affirmatives, the second term will vanish; and where the second term is thus wanting, it is a sign

that the quantities under contrary signs were thus equal. The *co-efficient* of the third term is the aggregate of all the rectangles arising by the multiplication of every two of the roots, how many ways soever those combinations of duals can be had; as three times in a cubic, six in a biquadratic equation, &c.

The *co-efficient* of the fourth term is the aggregate of all the solids made by the continual multiplication of every three of the roots, how often soever such a ternary can be had; as there may be four in a biquadratic, five in an equation of five dimensions, &c. And thus it will go on infinitely.

CO-EFFICIENTS of the same order, in *Algebra*, is a term sometimes used for the *co-efficients* prefixed to the same unknown quantities, in different equations.

Thus, in the equations
$$\begin{cases} ax+by+cz=m \\ dx+ey+fz=n \\ gx+hy+kz=p \end{cases}$$
 the *co-efficients* a, d, g , are of the same order, being the *co-efficients* of x ; also b, e, h , are of the same order, being the *co-efficients* of y , &c. The *co-efficients* also that affect no unknown quantity, are said to be of the same order.

CO-EFFICIENTS, *opposite*, such as are taken each from a different equation, and from a different order of *co-efficients*. Thus, in the foregoing equations; a, c, k , and a, h, f , as also d, b, k , are *opposite co-efficients*.

COELESTIAL, in a general sense, denotes any thing belonging to *cælum* or the heavens. Thus,

COELESTIAL observations, are observations of the phenomena of the heavenly bodies, made with a proper apparatus of astronomical instruments, in order to determine their places, motions, phases, &c.

The instruments chiefly used in *cælestial* observations are the astronomical GNOMON, QUADRANT, MICROMETER, and TELESCOPE.

Observations in the day-time are easy; because the cross hairs in the focus of the object-glass of the telescope are then distinctly perceivable: in the night, those cross hairs are to be illumined to make them visible.

This illumination is either performed by a candle, placed obliquely near them, so that the smoke does not intercept the rays; or, where this is inconvenient, by making an aperture in the tube of the telescope, near the focus of the object-glass, through which a candle is applied to illumine the cross hairs.

M. De la Hire has made an improvement on the first method, which renders it of very good use; and it is by covering that end of the tube next to the object-glass with a piece of gauze, or fine white silken crape. For, in such case, a link, placed at a good distance from the tube, so enlightens the gauze, as to render the cross hairs very perceivable.

Observations of the sun are not to be made without placing a glass, smoked in the flame of a lamp or candle between the telescope and the eye; to take off from its lustre, which would otherwise damage the eye, were not a good part of its beams intercepted.

Note, when any of the heavenly bodies are observed through a telescope of only two glasses, they appear inverted.

Cælestial observations are chiefly of two kinds: the one, when the objects are in the MERIDIAN; the other, when they are in VERTICAL circles.

COELESTIAL globe. See GLOBE.

COELIA, *κοιλία*, or *κοιλιν*. This has many different significations: first, it imports a cavity in any part of the body, or in any of the viscera; secondly, it implies the same as *aleres*. The *κοιλιν*, with the addition of *ανα*, that is, *ἡ κάτω κοιλιν*, is the lower belly, or intestinal tube.

COELIC artery, the first artery detached from the descending trunk of the aorta into the abdomen.

It divides into two branches, the one on the right side, the other on the left; of which the first gives the *gastrica dextra*, which goes to the stomach; the *cystica*, which goes to the gall-bladder; the *epiplois dextra* to the omentum; the *intestinalis* to the duodenum, and to a part of the jejunum; and the *gastro epiplois* to the stomach, to the omentum, and some branches to the liver, which enter the *capsula communis*, to accompany the branches of the *vena porta*.

The left branch of the *cœliaca* gives the *gastrica dextra*, which is also spread upon the stomach; the *epiplois sinistra*, which goes to the omentum; and the *splénica* to the substance of the spleen. See each branch described in its place.

COELIAC passion, is a sort of diarrhoea, or flux of the belly; wherein the aliment comes away either crude or chylified, in lieu of excrements.

Dr. Freind recommends for this disorder, such medicines as gently stimulate the intestinal tube, and deterge the obstructed glands; such as light and frequent purges, and gentle vomits of ipecacuanha.

Authors frequently confound the *cæliac passion* with the *lientery*; but they are different.

There is also a *COELIAC diabetes*, called *cæliaca urinalis*, wherein the chyle passes off along with, or instead of urine. See *DIABETES*.

COELIAC vein, is that which runs through the *intestinum rectum*. See *RECTUM*.

COELICOLOR, in *Natural History*, a name given by some to the *OPAL*.

COELOMA, in *Medicine*, a hollow and round ulcer, in the horny tunic of the eye.

COELUM. See *HEAVEN*.

COELI fundus. See *FUNDUS*.

COELUM is also used by some anatomists for the cavity of the eye towards the angles or *canthi*. See *EYE*, *CANTHUS*, &c.

COELUS, in *Mythology*, one of the heathen deities, the same with the Greek *Uranus*.

COEMETERIUM. See *CEMETERY*.

COEMPTIONALES, among the Romans, an appellation given to old slaves, which were sold in a lot with others, because they could not be sold alone.

COENA domini, bull. See *BULL*.

COENOBITE, a religious, who lives in a convent, or in community, under a certain rule; in opposition to *ANACHORET*, or *HERMIT*, who lives in solitude.

The word comes from *κοινος*, *communis*, and *βιτα*, *vita*, *life*.

Cassian makes this difference between a *convent* and a *monastery*, that the latter may be applied to the residence of a single religious, or recluse; whereas the *convent* implies *cænobites*, or numbers of religious living in common.

Fleury speaks of three kinds of monks in Egypt: *anachorets*, who live in solitude; *cænobites*, who continue to live in community; and *sarabaites*, who are a kind of monks errant, that stroll from place to place.

He refers the institution of *cænobites* to the times of the apostles, and makes it a kind of imitation of the ordinary lives of the faithful at Jerusalem. Though *St. Pachomius* is ordinarily owned the institutor of the *cænobite* life; as being the first who gave a rule to any community.

COENOBIIUM, the state of living in a society, or community, where all things are in common. *Pythagoras* is thought to be the author or first institutor of this kind of life, his disciples, though some hundreds in number, being obliged all to give up their private estates, in order to be annexed to the joint stock of the whole. The *Essenians* among the Jews, and *Platonists*, are said to have lived in the same manner. Many of the Christians also have thought this the most perfect kind of society, as being that in which Christ and his apostles chose to live. See *COENOBITE*.

COENOTAPH. See *CENOTAPH*.

CO-EQUALITY, a term expressing the relation of *EQUALITY* between two things.

The retainers to *St. Athanasius's* doctrine of the Trinity hold the Son and Holy Spirit *co-equal* with the Father. The *Arians*, &c. deny the *co-equality*. See *TRINITY*, and *ARIAN*.

COERULEUM montanum, signifies *MOUNTAIN-BLUE*, which is called by some authors, *CHRYSOCOLLA*; it is a blue ore of copper.

COERULEUM nativum. See *ARMENIUS lapis*.

COES, among *Miners*, are little houses which the miners make over their mines to lay ore in.

CO-ETERNITY is used among *Divines* to denote the *ETERNITY* of one being equal to that of another.

The orthodox hold the second and third persons in the Trinity *co-eternal* with the first.

COEUR, in *Heraldry*.—*Party en COEUR*, signifies a short line of partition in pale, in the centre of the escutcheon, which extends but a little way, much short of top and bottom; being met by other lines, which form an irregular partition of the escutcheon, as represented in *Tab. Herald. fig. 43*.

CO-EXISTENCE, a term of relation, denoting two or more things to exist together at the same time, &c. See *EXISTENCE*.

COFFEE, in *Natural History*, a seed, or berry, brought from Arabia Felix; used for making a potable liquor of the same name.

That from the Levant is most esteemed, being greener, heavier, and appearing riper and plumper, than that from Mocha; which is larger, lighter, and whiter.

For *coffee-berries*, some substitute peas, beans, rye, and barley, which, roasted, yield an oily matter, resembling in flavour, but less agreeable, as well as much less strong, than *coffee*.

COFFEE also denotes a kind of drink prepared from these berries; very familiar in Europe for more than a hundred years, and among the Turks for two hundred and fifty. Its original is not well known: some ascribe it to the

prior of a monastery, who, being informed by a goatherd, that his cattle, sometimes browsing on the tree, would wake and caper all night, became curious to prove its virtue: accordingly, he first tried it on his monks, to prevent their sleeping at matins. Others from Schehabeddin, refer the invention of *coffee* to the Persians; from whom, they say, it was learned in the fifteenth century by Gemaleddin, musti of Aden, a city near the mouth of the Red Sea; and who, having tried its virtues himself, and found that it dissipated the fumes which oppressed the head, inspired joy, opened the bowels, and prevented sleep, without being incommoded by it; recommended it first to his dervises; with whom he used to spend the night in prayer.

Their example brought *coffee* into vogue at Aden; the professors of the law for study, artisans to work, travellers to walk in the night, in fine, every body at Aden, drank *coffee*. Hence it passed to Mecca, where first the devotees, then the rest of the people, took it. From Arabia Felix it passed to Cairo.

In 1511, Khaia Beg prohibited it, from a persuasion that it inebriated, and that it inclined to things forbidden. But sultan Causou immediately after took off the prohibition, and *coffee* advanced from Egypt to Syria and Constantinople.

The dervises declaimed against it from the Alcoran, which declares that coal is not of the number of things created by God for food. Accordingly, the musti ordered the *coffee-houses* to be shut up; but his successor declaring *coffee* not to be coal, they were opened again.

During the war in Candia, the assemblies of newsmongers making too free with state-affairs, the grand vizier Cuproli suppressed the *coffee-houses* at Constantinople; which suppression, though still in force, does not prevent the public use of the liquor there. Thevenot the traveller was the first who brought it into France; and a Greek servant, called Pesqua, brought into England by Mr. Dan. Edwards, a Turkey merchant, in 1652, to make his *coffee*, first set up the profession of *coffee-man*, and introduced the drink among us: though some say Dr. Harvey had used it before. The first mention of it in our statute-books is in the year 1660, when a duty of four pence was laid on every gallon of *coffee* made and sold; and in 1675, king Charles issued a proclamation to shut up the *coffee-houses*, because they were seminaries of sedition. The French first conveyed some plants to Martinico in 1727, whence it probably spread to the neighbouring islands.

The word *coffee* is originally Arabic: the Turks pronounce it *cahueb*, and the Arabs *cahuah*; which some authors maintain to be a general name for any thing that takes away the appetite; others, for any thing that promotes appetite; and others, again, for any thing that gives strength and vigour.

The Mahometans, it is observed, distinguish three kinds of *cahuah*: the first is wine, or any liquor that inebriates: the second is made of the pods that contain the *coffee-berry*; this they call the *sultanas coffee*, from their having first introduced it, on account of its heating less than the berry, as well as its keeping the bowels open; the third is that made with the berry itself, which alone is used in Europe, the pods being found improper for transportation. Some Europeans, who imported the pods, called them the *flower of the coffee-tree*.

The deep brown colour of the liquor occasioned its being first called *syrup of the Indian mulberry*; under which specious name it first gained ground in Europe.

The preparation of *coffee* consists in roasting, or giving it a just degree of torrefaction, on an earthen, or metal-line plate, till it hath acquired a brownish hue, equally deep on all sides: it is then ground in a mill, as much of it as serves the present occasion. A proper quantity of water is next boiled, and the ground *coffee* put in it. After it has just boiled, it is taken from the fire; and the decoction having stood a-while to settle, and fine, they pour, or decant it into dishes.

The custom is to drink *coffee* as hot as possible, with sugar; though the Turks do not trouble themselves to take off its bitterness with any sugar: their grandees add to each dish a drop of essence of ambergris; others boil it with a couple of cloves; others, a little Indian anise; others, *cacouleh*, or the grain of the cardamomum minus.—*Coffee* is one of the necessaries with which the Turks are obliged to furnish their wives.

The ordinary method of roasting *coffee* among us, is in a tin cylindrical box, full of holes; through the middle whereof runs a spit: under this is a semicircular hearth, wherein is a large charcoal fire: by help of a jack, the spit turns swift, and so roasts the berries; being now and then taken up to be shaken. When the oil rises, and it is become of a dark brown colour, it is emptied into two receivers, made with large hoops, whose bottoms are iron plates, into which these shut: there the *coffee* is shaken,

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Shaken, and left till almost cold; and if it look bright and oily, it is a sign it is well done.

Coffee is taken with very different, nay, frequently with directly opposite intentions; some use it to prevent sleep, others to promote digestion, &c. Its more real virtues, owned by the physicians, consist in this; that being an excellent drier, it carries off fumes and disorders of the head, arising from too much moisture, dissipates merrims, and absorbs acrimonies of the stomach; whence its use after a debauch of strong liquors; and hence also its use in promoting watching, bracing the fibres, and rendering them too tense for the relaxation required in sleep.

It likewise promotes circulation, but that best with people of a pretty corpulent habit; being found hurtful to those who are thin, lean, dry, and of a bilious temperament; as it dries up the nerves, and inclines them to tremors: it is said to be prejudicial likewise to those who digest too fast; where the circulation is too quick, or where there is a spitting of blood arising from the mouths of any of the veins and arteries being too open, or the blood too thin and sharp.

Mr. Boyle mentions an instance of a person to whom *coffee* always proved emetic; and that much drinking of it produced the palsy. It is also known to be purgative to others.

The oily matter that separates from the *coffee*, and appears on its surface when roasted; and its particular smell, which distinguishes it from peas, beans, rye, &c. which some substitute in lieu of *coffee*, are to be the real indications of its effects. If considered with regard to the oil drawn by the retort, this, as well as that, contains volatile principles, both saline and sulphureous.

It is to the dissolution of its salts, and the mixture of its sulphurs in the blood, and its chief faculty of promoting watchfulness is to be attributed; hence also its property of promoting digestion, of precipitating foods, of preventing eructations, and of correcting acrimonies of the stomach, when taken after meals.

Hence also the fermentation in the blood, serviceable to corpulent people: hence also its diuretic virtue. By experience it is found of service to drink a glass of water before *coffee*, to render it laxative; and to mix it with milk or cream, to extinguish its sulphurs, embarrass its saline principles, and to render it nourishing.

S. Pauli, a Danish physician, maintains, that it enervates men, and renders them incapable of generation; and it is certain the Turks attribute the same effects to it; and from the immoderate use thereof, account for that thinness of inhabitants found in their provinces formerly the best peopled. But this opinion is refuted by Du Four. M. Malebranche gave the Royal Academy of Sciences an account of a person cured of an apoplexy, by means of several clysters of *coffee*. It has proved of service in the case of an ASTHMA.

For the laws relating to this commodity, see 6 and 7 W. III. c. 7. 3 and 4 Ann. c. 4. 10. Ann. c. 26. 5 Geo. I. c. 11. 10 Geo. I. c. 10. 11 Geo. I. c. 30. 5 Geo. II. c. 24. 15 Geo. II. c. 11. 5 Geo. III. c. 45. The duty of *coffee* paid on importation is three pence a pound; besides an inland duty to be charged on the maker or seller of 2s. 6d. a pound, excepting for *coffee* grown in America, which pays only 1s. 6d. a pound. No person is allowed to sell or retail *coffee* without a licence, under the penalty of 5l. a month; and no person shall mix any materials to increase the weight, under a penalty of 100l.

COFFE-tree, *Coffea*, in Botany, a genus of the pentandria monogynia class. Its characters are these: the flower hath one petal, which is funnel-shaped, having a narrow cylindrical tube; and is plain at the top, where it is indented in five parts: it hath five stamina, which are fastened to the tube. The roundish germen afterwards becomes an oval berry, containing two hemispherical seeds, plain on one side, and convex on the other. We have but one species, which is supposed to be a native of Arabia Felix, where it was first cultivated for use; and to this day is the country from whence the best *coffee* is brought to Europe. It is a low tree in the native country of its growth, where it seldom rises more than sixteen or eighteen feet high.

The great faults of the American *coffee*, is the want of flavour, or having a disagreeable one; though the berries are much larger than those imported from Arabia. It is the constant practice of the planters to gather the fruit while it is red; at which time the berries are larger, and of greater weight, than those which are permitted to ripen perfectly on the trees, which is not until they are turned black: whereas in Arabia they always shake the berries from the trees, spreading cloths under them to receive them; and take only such as readily fall each time.

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As the *coffee-tree* is an ever-green, it makes a beautiful appearance at every season in the stoves; but particularly when it is in flower, and also when the berries are red, which is generally in the winter; so that they continue a long time in that state: there is scarce any plant therefore which deserves a place in the stove more than this.

It is propagated by the berries; which must be sown soon after they are gathered from the tree; for if they are kept out of the ground any time, they will not grow.

COFFER, a long square box about three feet long, and one and a half broad, used for breaking in pieces tin ore in a stamping-mill.

COFFER, *Capja*, in Architecture, a square depression, or sinking, in each interval between the modillions of the Corinthian cornice; ordinarily filled up with a rose, sometimes with a pomgranate, or other enrichment.

These sinkings, called also *panels*, are of different figures in the compartments of vaults and soffits.

COFFER, in Fortification, denotes a hollow lodgement, athwart a dry moat, from six to seven feet deep, and from sixteen to eighteen feet broad; the upper part made of pieces of timber raised two feet above the level of the moat; which little elevation has hurdles laden with earth for its covering; and serves as a parapet, with embrasures.

The *coffer* is nearly the same with the caponiere, excepting that this last is sometimes made beyond the counterscarpe on the glacis, and the *coffer* always in the moat, taking up its whole breadth, which the caponiere does not.

It differs from the traverse and gallery, in that these latter are made by the besiegers, and the *coffer* by the besieged.

The besieged generally make use of *coffers* to repulse the besiegers when they endeavour to pass the ditch. To save themselves from the fire of these *coffers*, the besiegers throw up the earth on that side towards the *coffer*.

COFFER-dams, in French *Battardeaux*, in Bridge-Building; denote inclosures formed for laying the foundation of piers, and for other works in water, in order to prevent the ambient water from interrupting the workmen. These inclosures are sometimes single, sometimes double, with clay rammed between them: sometimes they are made with piles driven close by one another; sometimes the piles are notched or dove-tailed into one another; but the most usual method is to drive piles with grooves in them, at the distance of five or six feet from each other, and then boards are let down between them. See BRIDGE.

COFFERER of the King's Household, a principal officer in the court, next under the comptroller; who, in the compting-house, and elsewhere at other times, has a special charge and oversight of other officers of the house, for their good demeanour and carriage in their offices: to all whom he pays the wages. See HOUSEHOLD.

COFFIN, in a general sense, a wooden box or trunk, into which the bodies of dead persons are put, in order for burial.

COFFIN, in the *Manege*, the whole hoof of a horse's foot, above the coronet; including the *coffin-bone*, the sole, and the frush.

COFFIN-bone, is a small spongy bone, enclosed in the midst of the hoof, and possessing the whole form of the foot.

COFFIN-joint, is that where the lesser pastern joins the foot. A strain in this joint occasions a stiffness, which can only be removed by blistering and firing.

COFFIN, in the *Manufacture of China*. See CASSETTE.

COGGESHALL's Sliding-Rule, an instrument used in gauging, so called from its inventor. See the description and use under SLIDING-RULE.

COGGLE, or Cog, a small fishing-boat upon the coasts of Yorkshire: and *cogs* (*cogones*) are a kind of little ships or vessels used in the rivers Ouse and Humber. Stat. 23 H. VIII. c. 18. *Præparatis cogonibus, galles, & aliis navibus, &c.* Mat. Paris, ann. 1066. And hence the cogmen, boatmen, and seamen, who after shipwreck or losses by sea, travelled and wandered about to defraud the people by begging and stealing; until they were restrained by divers good laws.

COGITATION, the act or operation of thinking. See THINKING.

COGNATION, in the Civil Law, the bond of relation between all the descendants of the same stock, both males and females: by which it is distinguished from *agnation*, which only comprehends the descendants of the male sex.

In France, for the succession of the crown they follow *agnation*; in England, Spain, &c. *cognition*; women coming to the succession, according to the degree of proximity, in default of males, or their descendants from branch to branch.

In the Roman Law, the words *cognatio* and *cogniti*

are also taken in a more limited sense; *cognatio* signifying only the bond of relation between the descendants from the same stock by women; and *cognati* those between whom there was such a bond of relation subsisting.

COGNIOI, in *Ichthyology*, a name given by some to the fish more usually called *colias*, a kind of mackerel, differing from the common kind in nothing but that it is much smaller.

COGNISEE, or **CONNUSEE**, in *Law*, is the person to whom a fine of lands, &c. is acknowledged.

COGNISOR, or **CONUSOR**, is he that passeth, or acknowledge, a FINE of lands and tenements to another. See **COGNIZANCE**.

COGNITIVE is sometimes applied to that faculty or power of the human mind, by which we know any thing, or are enabled to distinguish truth from falsity.

Latin writers use the term *facultas cognoscitiva* in the same sense.

Hobbes has made use of the term *cognitive* power, for the power of knowing, or conceiving, in contradistinction to *motive* power, or appetite.

COGNITIONIBUS mittendis, in *Law*, a writ to any of the king's justices of the common pleas, who has the power of taking a fine, and who, having taken a fine, defers to certify it, commanding him to certify the same.

COGNIZANCE, or **COGNISANCE**, in *Heraldry*. See **CREST**.

COGNIZANCE, or **CONUSANCE**, in *Law*, is the acknowledgement of a fine; or the concession of a thing done. In which sense we say, *cognoscens latro*, a thief that confesses.

COGNIZANCE is also used for a power, or jurisdiction. Thus, *cognizance of pleas*, denotes an ability to call a plea out of another court; which no one but the king can do, unless he can shew a particular charter for it. Thus, if a scholar, or other privileged person of the universities of Oxford or Cambridge, is impleaded in the courts of Westminster, for any cause of action, except a question of freehold; in such a case, the chancellor or vice-chancellor, by charter confirmed by statute, may put in a claim of *cognizance*; which, if made in time, and accompanied with due proof of the facts alledged, is allowed by the courts.

COGNIZANCE, is sometimes used also for an audience, or hearing of a matter judicially. In which sense we say, *to take cognizance*, &c.

COGNIZANCE, again, is used for a badge on a waterman's, or servingman's sleeve, which is commonly the giver's crest, whereby he is discerned to belong to this or that nobleman, or gentleman.

COGNOVIT actionem, in *Law*, is where a defendant acknowledges or confesses the plaintiff's cause against him to be just and true; and after issue, suffers judgment to be entered against him without trial. But most frequently the defendant confesses one part of the complaint, and traverses or denies the rest.

COGS. See **COGGLE**.

COGWARE is said to be a sort of coarse cloaths, made in divers parts of England, of which mention is made in 13 R. II. c. 10.

CO-HABITATION, implies a concubinage, copulation, or carnal knowledge, between two persons. It is rarely used, except in a criminal sense.

CO-HEIR, a person who shares an inheritance or estate with another **HEIR**.

COHERENCE, a school-term, applied to propositions, discourses, &c. which have a **CONNEXION**, or dependance, on one another.

COHESION, or **COHÆSION**, in *Physics*, the action whereby the particles, or primary corpuscles, whereof natural bodies consist, are connected, or bound together, so as to form particles; and those, again, kept together, so as to form sensible masses, or bodies.

The cause of this *cohesion*, or *nexus materiae*, has extremely perplexed the philosophers of all ages. In all the systems of physics, matter is supposed originally to be in minute, indivisible atoms.

How, and by what principle, these several and distinct corpuscles should come first joined and combined into little systems; and how they should come to persevere in that state of union, is a point of the most difficulty, and even of the most importance, of any in physics.

The opinion maintained by many, is that so strenuously defended by J. Bernouilli, De Gravitate Ætheris; who accounts for the *cohesion* of the parts of matter, from the uniform pressure of the atmosphere: confirming this doctrine from the known experiment of two polished marble plains, which cohere very strongly in the open air, but easily drop a sunder in an exhausted receiver.

However, if two plates of this kind be smeared with oil, to fill up the pores in their surfaces, and prevent the lodgement of air, and one of them be gently rubbed upon

the other, they will adhere so strongly, when suspended even in an exhausted receiver, that the weight of the lower plate will not be able to separate it from the upper one.

But though this theory might serve tolerably well to explain the *cohesion* of compositions, or greater collections of matter; yet it falls short of accounting for that first *cohesion* of the atoms, or primitive corpuscles, whereof the corpuscles of hard bodies are composed.

Sir Isaac Newton delivers his doctrine of *cohesion* thus:

"The particles of all hard homogeneous bodies, which touch one another, *cohere* with a great force; to account for which, some philosophers have recourse to a kind of hooked atoms, which, in effect, is nothing else but to beg the thing in question. Others imagine, that the particles of bodies are connected by rest, i. e. in effect, by nothing at all; and others by conspiring motions, i. e. by a relative rest among themselves. For my self, it rather appears to me, that the particles of bodies *cohere* by an attractive force, whereby they tend mutually toward each other: which force, in the very point of contract, is very great; at little distances is less; and at a little farther distance is quite insensible."

It is not certain in what proportion this force increases or decreases: Desaguliers conjectures, from some phenomena, that it decreases in a biquadratic ratio of the increased distance, so that at twice the distance it acts sixteen times more weakly, &c.

"Now, if compound bodies be so hard, as by experience we find some of them to be, and yet have a great many hidden pores within them, and consist of parts only laid together; no doubt those simple particles which have no pores within them, and which were never divided into parts, must be vastly harder.

"For such hard particles, gathered into a mass, cannot possibly touch in more than a few points: and therefore much less force is required to sever them than to break a solid particle, whose parts touch throughout all their surfaces, without any intermediate pores or interstices. But how such hard particles, only laid together, and touching only in a few points, should come to *cohere* so firmly as in fact we find they do; is inconceivable; unless there be some cause, whereby they are attracted and pressed together.

"Now, the smallest particles of matter may *cohere* by the strongest attractions, and constitute larger, whole attracting force is feebler: and, again, many of these larger particles *cohering*, may constitute others still larger, whose attractive force is still weaker; and so on for several successions, till the progression end in the biggest particle, on which the operations of chemistry, and the colours of natural bodies, do depend; and which by *cohering* compose bodies of a sensible magnitude."

The different degrees of *cohesion*, constitute bodies of different forms and properties. Thus, the same great author observes, the particles of fluids, which do not *cohere* too strongly, and are small enough to render them susceptible of those agitations which keep liquors in a fluid, are most easily separated and rarefied into vapour, and make what the chemists call *volatile bodies*; being rarefied with an easy heat, and again condensed with a moderate cold.

Those whose particles are grosser, and so are less susceptible of agitation, or *cohere* by a stronger attraction, are not separable without a greater degree of heat; and some of them not without fermentation: and these make what the chemists call *fixt bodies*.

Air, in its fixed state, possesses the interstices of solid substances, and probably serves as a bond of union to their constituent parts; for when these parts are separated, the air is discharged, and recovers its elasticity. See **AIR**, *fixed*.

This kind of attraction is evinced by a variety of familiar experiments; as, by the union of two contiguous drops of mercury; by the mutual access of two pieces of cork, floating near each other in a basin of water; by the adhesion of two leaden balls, whose surfaces are scraped and joined together with a gentle twist, which is so considerable, that, if the surfaces are about a quarter of an inch in diameter, they will not be separated by a weight of 100 lb. by the ascent of oil or water between two glass planes, so as to form the hyperbolic curve, when they are made to touch on one side, and kept separate at a small distance on the other—see **ASCENT**; by the depression of mercury, and by the rise of water in **CAPILLARY tubes**, and on the sides of glass vessels; and also in sugar, sponge, and all porous substances. And where this *cohesive* attraction ends, a power of **REPULSION** begins.

Professor Muschenbroeck has made many experiments in

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in order to determine the force of *cohesion* in a great variety of different subjects. The adhesion of polished planes, about two inches in diameter, heated in boiling water, and besmeared with grease, required the following weight to separate them;

	Cold grease.	Hot grease.
Planes of Glass,	- 130lb.	- 300lb.
Brass,	- 150	- 800
Copper,	- 200	- 850
Marble,	- 225	- 600
Silver,	- 150	- 250
Iron,	- 300	- 950

But when the planes were made to adhere to other sorts of matter, the results were as in the following table:

With Water,	- 12 ounces.
Oil,	- 18
Venice turpentine,	- 24
Rosin	- 850lb.
Tallow candle,	- 800
Pitch,	- 1400

In estimating the *absolute cohesion* of bodies, he applied weights to separate them according to their length: his pieces of wood were of a long square figure, each side of which was .26 of an inch, and they were broken asunder by the following weights:

Wood of Linden tree,	1000lb.
Alder,	- 1000
Fir,	- 600
Oak,	- 1150
Elm,	- 950
Beech,	- 1250
Ash,	- 1250

He also tried wires of metal one tenth of a Rhinland inch in diameter: the metals and weights were as follow:

Of Copper,	- 299½lb
Yellow brass,	- 360
Gold,	- 500
Silver,	- 370
Iron,	- 450
Tin,	- 40½
Lead,	- 29½

He then tried the *relative cohesion*, or the force with which bodies resist an action applied to them in a direction perpendicular to their length. For this purpose he put pieces of wood by one end into a square hole of a metal plate, and hung weights towards the other end sufficient to break them at the hole: the weights and distances from the hole are exhibited in the following table:

	Distance.	Weights.
Fir,	9 inches,	- 40 ounces.
Oak,	8½	- 48
Elm,	9	- 44
Pine,	9½	- 36½
Alder,	9¼	- 48
Beech,	7	- 56½

See *Introductio ad Cohærentiam Corporum firmorum apud Physicæ Exper. & Geom. Dissertationes*, p. 431, &c. and *Introductio ad Philos. Nat.* 4to. ed. 1762. tom. i. cap. 21.

COBINATION, in *Chemistry*, a repeated distillation of the same matter with the liquor drawn from it; that liquor being again and again returned upon the matter left at the bottom.

Cobination is a kind of circulation; only differing from it in this, that the liquor is drawn off in *cobination* as in common distillation, and thrown back again; whereas in *CIRCULATION* it rises and falls in the same vessel, without ever being carried out.

The intention of *cobination* is to dissolve the body, or to produce some change upon it. The operation is now neglected; but the ancient *chemists* practised it with great patience and zeal. To make it easier, and to prevent the great trouble of changing or moving the vessels, a particular kind of alembic is contrived, very convenient for the purpose, which is called a *PELICAN*.

COHORS *equitata*, in old inscriptions, has perplexed several antiquaries, who have been taught to consider the *cohorts* as appropriated to the foot service, as the *ala* and *turmæ* were to the horse. Mr. Horsey, in particular, imagines, the *cohors prima Claudia equitata*, which he had met with, was intended to intimate that this *cohort* had been promoted from the horse service; but when, by another inscription, he was led to consider that corps as consisting of a thousand horse, his difficulty is increased to that degree, that he knows not what to affirm upon it. But the learned Dr. Taylor thinks there is an easy solution of this difficulty.

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C O I

The auxiliary or provincial *cohorts*, were either entirely, or purely foot, like the legionary, or ordinary *cohorts*; or else they had a mixture of both kinds of militia, as appears from Gruter, DLXXIV. 5. This latter sort, as they could not properly be ranked under either denomination of horse or foot, being made up of both, seem to have appropriated to themselves the distinguishing title of *cohorts equitata*, corps of infantry with a mixture of horse. And of this term we find frequent mention in inscriptions.

Hyginus also, De Castrametatione, gives us a full and decisive proof of this denomination, and of the number of which such *cohorts* consisted. These troops consisted of a thousand men, part horse and part foot, and were hence called *milliaria*. The proportion of the horse to the foot was 240 to 276. His words are, *Habet cohors equita milliaria pedites septingentos sexaginta, centurias decem; equites ducentos quadraginta, turmas decem.* Vide Phil. Trans. N° 482. sect. 3.

COHORS milliaria. See above *COHORS equitata*.

COHORT, *COHORS*, in *Roman Antiquity*, a body of infantry consisting of five or six hundred men; answering in most respects to our *BATTALION*.

The *cohort* was divided into three maniples, or companies; the manipule into two centuries; and the century into an hundred men.

The first centurion in the first *cohort* was called *primipilus*; and had the charge of the eagle or standard of the legion.—A legion consisted of ten *cohorts*.

When the army was ranged in order of battle, the *cohorts* were disposed in the following manner: the first *cohort* took up the right of the first line, as the companies of grenadiers do in our regiments; the rest followed in their natural order; so that the third was in the centre of the first line of the legion, and the fifth on the left; the second between the first and third; and the fourth between the third and fifth. The five remaining *cohorts* formed a second line in their natural order; thus the sixth was behind the first, and so of the rest.

The first, third, and fifth *cohorts* were esteemed the best; at least it appears so from the posts they took up, which were looked on by the Romans as the most important.

Marius is by some said to have been the first who divided the Roman forces into *cohorts*: which opinion seems confirmed by Rosinus; *Non enim in tota Livii historia cohortium fit mentio. Ideoque docti viri sentiunt a C. Mario primum cohortes esse institutas.* But yet this is a great mistake; for the *cohorts* are often mentioned in Livy, and particularly, lib. xxvii. c. 13 *Marcellus—cohortibus quæ signa amiserant hordeum dari jussit: centurionesque manipulorum quorum signa amissa fuerant districtis gladiis distinctos destituit.* This happened A. U. C. 543. and consequently several years before Marius was born.

COHORTS were distinguished, according to their appointment and office, into *auxiliary*, which were sent by allies; *equitata*, see above; *peditata*, which consisted of foot-soldiers only; *prætorian*, which was formed of the best soldiers, and served to guard the *prætor* or general. This *cohort* was instituted by Publius Posthumus, the dictator. Augustus likewise formed a *cohort* under this appellation, consisting of nine thousand men: which was afterwards increased by Septimius Severus. There were also the *cohort togata*, a kind of militia, which guarded the streets of Rome; the *cohorts vigilum*, instituted by Augustus, which served on occasion of fires; and the *cohorts urbanae*, established by Augustus, to guard the city.

COHUAGIUM, a tribute paid by those who meet promiscuously in a market, or fair; *cobua* signifying a promiscuous multitude of men in a fair, or market, probably from the French *cobue*.

COIF, the badge of a serjeant at law; who is hence also called *SERJEANT of the coif*.

The *coif* is of lawn, and is worn on the head, under the cap, when they are created, and ever after.

The use of the *coif* was to cover the *tonsura clericalis*, or clerical crown; because the crown of the head was originally close shaved, and only a border of hair left around the lower part, which gave it the appearance of a *CROWN*. See *TONSURE*, &c.

COILE, on board of ship. See *QUOIL*.

COILON, in *Antiquity*. See *CAVEA*.

COIN, *Matrice*, in the manufacture of money, medals, and counters, is a piece of steel well tempered, four or five inches deep, square at bottom, and round at top; whereon are engraved, dent-wise, with puncheons, and other instruments, the several figures, marks, &c. to be struck on the moneys, &c. See *COINING*.

For the manner of engraving *COINS*, see *ENGRAVING on steel*.

COIN is more generally used for a piece of metal converted into money, by the impressing of certain marks or figures thereon.

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Coin may be defined, a species of money, struck either with a hammer, or mill.

Hence, *coin* differs from money, as the species does from the genus. Money is any matter, whether metal, wood, leather, glass, horn, paper, fruits, shells, or kernels, which have course as a medium in commerce.

Coins are a particular branch of moneys, viz. such as are made of metal, gold, silver, or copper, and struck according to a certain process called *coinage*.

It is observed, under the article MONEY, that the precise epocha of the invention of money is not known; it is too ancient for our annals; and if we might argue from the necessity and obviousness of the thing, it must be nearly coeval with the world.

Whether *coins* be of equal antiquity, may admit of some doubt; especially as most of the ancient writers are so frequent and express in their mention of leathern moneys, paper moneys, wooden moneys, &c. Some, however, notwithstanding all this, are of opinion, that the first moneys were of metal: the reasons they give, are the firmness, neatness, cleanliness, durableness, and universality of metals; which, however, do rather conclude, that they ought to have been so than that they actually were so.

In effect the very commodities themselves were the first moneys, i. e. they were current for one another by way of exchange; and it was the difficulty of cutting, or dividing certain commodities, and the impossibility of doing it without great loss, that first put men on the expedient of a general medium.

Indeed, thus much may be said in behalf of *coins*, that, on this view, it was natural for men to have their first recourse to metals as being almost the only things whose goodness, and as it were integrity, is not diminished by partition; besides the advantages above expressed, and the conveniences of melting, and returning them again into a mass of any size or weight.

It was probably, then, this property of metals which first accustomed people, who trafficked together, to account them in lieu of quantities of other merchandizes in their exchanges; and at length to substitute them wholly in their stead; and thus arose money: as it was their other property to preserve any mark or impression a long time, which confirmed them in the right; and thus was the first rise of *coins*.

In the first ages, each person cut his metal into pieces of different sizes and forms, according to the quantity to be given for any merchandize, or according to the demand of the seller, or the quantity stipulated between them: to this end they went to market, laden with metal, in proportion to the purchase to be made, and furnished with instruments for proportioning it, and with scales for dealing it out, according as occasion required.

By degrees it was found more commodious to have pieces ready weighed; and as there were different weights required, according to the value of the different wares, all those of the same weight began to be distinguished with the same mark or figure: thus were *coins* carried one step farther.

At length, the growing commerce of money beginning to be disturbed with frauds, both in the weights and the matter, the public authority interposed; and hence arose the first stamps, or impressions, of money: to which succeeded the names of the moneyers; and at length the effigy of the prince, the date, legend, and other precautions to prevent the alterations of the species: and thus were *coins* completed.

On the foot whereon money now stands, it is divided into *real*, or *effective* money; and *imaginary* money, or money of *account*.

COINS, modern, or species, current in Europe, Asia, Africa, and America.—All the current species in the four quarters of the earth, at this day, are either made of metals, or they are shells and fruits.

The metals are, gold, silver, copper, tin, and lead; to which may be added billon, a mixture of silver and copper in a certain proportion.

In Europe none are used beside gold, silver, copper, and billon: In some parts of the East Indies, they likewise use tin and lead: as to shells and fruits, they are the small money in several nations in Asia, Africa, and America.

COINS, British.—In England, the current species of gold are, the guinea, half-guinea, jacobus, laureat, angel, and rose-noble; the four last of which are now seldom met with, having been most of them converted into guineas, chiefly during the reigns of Charles II. and James II.

The silver *coins* are, the crown, half-crown, shilling,

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and six-pence; the copper *coins* are, the half-penny, and farthing.

Value and proportion of the English COINS.

Farthing.									
2		Halipenny.							
48		24		Shilling.					
120		60		2½		Half-crown.			
240		120		5		2		Crown.	
960		480		20		8		4 Pound Account.	
1008		504		21		8½		4½ 1½ Guinea, or piece.	
The Jacobus,		25		10		5		1¼	
The Carolus, or Laureat,		23		9½		4½			

It was made treason to counterfeit the coin of this realm, or to import counterfeit money, with intent to utter it, knowing it to be false, by 25 Edw. III. stat. 5. c. 2.

Counterfeiting foreign *coin*, current in this realm, is made treason by 1 Mary, sess. 2. c. 6.

Clipping, washing, filing the proper *coin* of this realm, or of any other realm current within this realm by proclamation, for lucre or gain, is made treason by 5 Eliz. c. 11.

Impairing, diminishing, falsifying the proper *coin* of this realm, is made treason by 18 Eliz. c. 1.

Making, mending, or assisting in so doing; buying, selling, or having in possession, instruments proper only for the coinage of money; and marking *coin* on the edges, by persons not employed in the mint; are made treason by stat. 8 and 9 W. III. c. 26. sect. 3. which is made perpetual by 7 Ann. c. 25.

Colouring, gilding, casing, or washing any *coin*, resembling the current gold *coin* of the realm, is treason, by stat. 8 and 9 W. III. c. 26. sect. 4. 15 and 16 Geo. II. c. 28.

Lord Hale makes a query whether counterfeiting copper *coin* be not treason within the statute of 25 Edw. III.?

Clippings or filings of the *coin*, bought or sold, or knowingly found in the custody of any person other than the officers of the mint, forfeited with 500*l.* half to the king, and half to the informer, 6 and 7 W. III. c. 19. sect. 4. And the offender shall be branded in the cheek with the letter R.

Selling of blanch copper, or any compositions of metals or minerals, in imitation of standard gold, is made felony by 8 and 9 W. III. c. 26. sect. 6. 9.

Receiving or paying any diminished or counterfeit money, under value, is made felony by 8 and 9 W. III. c. 26. sect. 6. 9. 15 and 16 Geo. II. c. 28.

In Scotland, by the articles of the Union, it is appointed that all the coins be reduced to the English, and the same accounts observed throughout. Till then the Scots had their pounds, shillings, and pence, as in England; but their pound was but twenty pence English, and the others were in proportion: accordingly their mark was 13½*s.* Scotch, current in England at 13½*d.* their noble in proportion.

Beside these they had their turner pence, and half-pence; their penny one twelfth of that of England; besides base money of achisons, babees, and placks: the bodle one sixth of the penny, one fourth of the achison, one third of the babee, and one half of the plack.

In some parts of Scotland and the Isle of Man, the penny is six sevenths of the English penny, the shilling or Manks equal to 10½*d.* and the English shilling equal in value to 14*d.* and the pound or Manks equal to 17*s.* 1½*d.*

In Ireland, the coins are as in England; viz. shillings, pence, &c. with this difference, that their shilling, or harper, is but equal to 11½*d.* sterling; or a shilling English is equal to twenty-six halfpence; whence their pound is only 18*s.* 5½*d.* of English money.

COINS, French.—The only gold *coin* now current in France is, the lewimore, or louis d'or; with the half and the double louis. Till the year 1700 they had gold lys and ecus, or crowns; but they are now no more.

The silver *coins* are, the greater ecu, or crown of six livres, the ecu of three livres, the piece of a livre four sols, and pieces of twelve sols, and of six.

The billon *coins* are of three kinds, each called *sols*; some of twenty-four deniers, others of eighteen, and others of twelve; besides the old half-sol of nine deniers. To these may be added the deniers current in the Lionois, Provence, Dauphiné, and other parts.

Lastly, the copper *coin* is the liard, equal to three deniers; the double liard equal to six, and the sower law of twelve deniers.

Value

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COINS of Brandenburg and Pomerania.

Denier of account,	$\frac{7}{10}$ English penny.
9 deniers,	1 polchen
18,	grosh.
3 polchens,	abraf.
20 groshen,	marc of account,
30,	florin,
90,	rix-dollar of acc.
108 groshen,	albertus,
8 florins,	1 ducat,

COINS of Cologne, Mentz, Triers, and Liege.

Dute,	$\frac{7}{8}$ English penny,
3 dutes,	a cruitzer.
2 cruitzers,	an albus.
8 dutes,	a fliver.
3 flivers,	a plapert.
4 plaperts,	a copstuck,
40 flivers,	a guilder,
2 guilders,	a hard dollar,
4 guilders,	a ducat,

COINS of Bohemia, Silesia, and Hungary.

Fening,	$\frac{7}{8}$ English penny.
2 fenings,	a dreier.
3,	a grosh.
4,	a cruitzer.
2 cruitzers,	a white grosh.
60,	a gould,
90,	a rix-dollar of acc.
2 goulds,	a hard dollar,
4,	a ducat,

COINS of Austria and Swabia.

Fening,	$\frac{7}{8}$ English penny.
2,	a dreier.
4,	a cruitzer.
14,	a grosh.
4 cruitzers,	a batzen,
15 batzen,	a gould.
90 cruitzers,	a rixdollar of acc.
30 batzen,	a specie dollar,
60,	a ducat,

COINS of Franconia.

Fening,	$\frac{7}{8}$ English penny.
4,	a cruitzer.
3 cruitzers,	a keyser grosh.
4,	a batzen,
15,	an ort gould,
60,	a gould,
90,	a rix dollar of acc.
2 goulds,	a hard dollar,
240 cruitzers,	a ducat,

COINS, Italian.—In Italy, the several states have several current moneys: though there are some common to them all; such as the pistole of gold, and the ducatoon and florin of silver; which, being of various weights, fineness, and value; see under the articles PISTOLE, DUCATOON, &c.

COINS of Genoa and Corsica.

Denari,	$\frac{43}{100}$ English penny.
12,	a foldi.
4 foldi,	a chevalet,
20,	a lire of account,
30,	a testoon,
5 liras,	a croifade,
115 foldi,	a pezzo of exch.
6 testoons,	a genouine,
20 liras,	a pistole,

COINS of Piedmont, Savoy, and Sardinia.

Denari,	$\frac{1}{10}$ English penny.
3,	a quatrini.
12,	a foldi.
12 foldi,	a florin of acc.
20,	a lire of acc.
6 florins,	a scudi,
7,	a ducatoon,
13 liras,	a pistole,
16,	a louis d'or,

COINS of Milan, Modena, Parma, &c.

Denari,	$\frac{3}{8}$ English penny.
3,	a quatrini.

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12,	= a foldi.
20 foldi,	a lire of acc.
115,	a scudi cur.
117,	a scudi of exch.
6 liras,	a philip,
22,	a pistole,
23,	a Spanish pistole,

COINS of Leghorn, Florence, &c.

Denari,	$\frac{5}{14}$ English penny.
4,	quatrini.
12,	a foldi.
5 quatrini,	a craca.
8 cracas,	a quilo,
20 foldi,	a lire of account,
6 liras,	a piaftre of exch.
7 $\frac{1}{2}$,	a ducat,
22,	a pistole,

COINS of Rome, &c.

Quatrini,	$\frac{2}{3}$ English penny.
5,	a bayoc.
8 bayocs,	a julio,
10,	a stamp julio,
24,	a testoon,
10 julios,	a crown current,
12,	a crown stamp of account,
18,	a chequin,
31,	a pistole,

COINS of Naples, &c.

Quatrini,	$\frac{2}{3}$ English penny.
3,	a grain.
10 grains,	a carlin,
40 quatrini,	a paulo,
20 grains,	a tarin,
40,	a testoon,
100,	a ducat of exch.
23 tarins,	a pistole,
25,	a Spanish pistole,

COINS of Sicily and Malta.

Pichili,	$\frac{1}{3}$ English penny.
6,	a grain.
8,	a ponti.
10 grains,	a carlin,
20,	a tarin,
6 tarins,	a florin of exch.
13,	a ducat of exch.
60 carlins,	an ounce,
2 ounces,	a pistole,

COINS of Bologna, &c.

Quatrini,	$\frac{1}{10}$ English penny.
6,	a bayoc.
10 bayocs,	a julio,
20,	a lire of account,
3 julios,	a testoon,
85 bayocs,	a scudi of exch.
105,	a ducatoon,
100,	a crown,
31 julios,	a pistole,

COINS of Venice.

Picoli,	$\frac{1}{30}$ English penny.
12,	a foldi.
6 $\frac{1}{2}$ foldi,	a gros of account,
18,	a jule,
20,	a lire of account,
3 jules,	a testoon,
124 foldi,	a ducat cur.
24 gros,	a ducat of exch.
17 liras,	a chequin,

COINS of Switzerland, Basil, &c.

Rap,	$\frac{1}{4}$ English penny.
3,	a fenings.
4 fenings,	a cruitzer.
12,	a fol of account,
15,	a coarse batzen,
18,	a good batzen,
20 fols,	a livre of acc.
60 cruitzers,	a gulden,
108,	a rix-dollar,

COINS of St. Gall.

Heller,	$\frac{1}{10}$ English penny.
2,	a fenings.

4 fenings,

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4 fenings,	= a cruitzer.	l.	s.	d.
12,	a fol of account,	0	0	1½
4 cruitzers,	a coarse batzen,	0	0	2
5,	a good batzen,	0	0	2½
20 fols,	a livre of acc.	0	2	6
60 cruitzers,	a gould,	0	2	6
102,	a rix-dollar.	0	4	3

COINS of Bern, viz. of Lucern, &c.

Denier,	= 1/10 English penny.	l.	s.	d.
4,	a cruitzer.	0	0	1½
3 cruitzers,	a fol of acc.	0	0	1½
4,	a plapert,	0	0	1½
5,	a gros	0	0	2
6,	a batzen,	0	0	2½
20 fols,	a livre of acc.	0	2	0
75 cruitzers,	a gulden,	0	2	6
135,	a crown,	0	4	6

COINS of Geneva.

Denier,	= 1/32 English penny.	l.	s.	d.
2,	a denier current.	0	0	4½
12,	a small fol.	0	0	4½
12 deniers current;	a fol current.	0	0	4½
12 small fols,	a florin of acc.	0	0	4½
20 fols current;	a livre cur. of acc.	0	1	3
10½ florins,	a patacon,	0	3	11¼
15¼ florins,	a croisade,	0	5	10¾
24 florins,	a ducat,	0	9	0

COINS, Polish and Prussian.

Shelon,	= 1/4 English penny.	l.	s.	d.
3,	a grosh.	0	0	2½
5 grosh,	a coustic,	0	0	7
3 coustics,	a tinf,	0	0	8½
18 grosh,	an ort,	0	1	2
30,	a florin,	0	3	6
90,	a rix-dollar of acc.	0	9	4
8 florins,	a ducat,	0	17	6
5 rix-dollars,	a frederic d'or,	0	17	6

COINS of Livonia.

Blacken,	= 1/10 English penny.	l.	s.	d.
6,	a grosh.	0	0	2½
9,	a vording.	0	0	2½
2 grosh,	a whiten.	0	0	2½
6,	a marc,	0	1	2
30,	a florin,	0	3	6
90,	a rix-dollar of acc.	0	4	2½
108,	an albertus,	0	5	0
64 whitens,	a copper-plate dol.	0	5	0

COINS of Denmark, Zealand, and Norway.

Schilling,	= 1/16 English penny.	l.	s.	d.
6,	a duggen,	0	0	3½
16,	a marc of acc.	0	0	9
20,	a rix-marc,	0	0	11½
24,	a rix-ort,	0	1	1½
4 marcs,	a crown,	0	3	0
6,	a rix-dollar,	0	4	6
11,	a ducat,	0	8	3
14,	a hatt ducat,	0	10	6

COINS of Sweden, and Lapland.

Runstick of account,	= 1/36 English penny.	l.	s.	d.
2,	a stiver.	0	0	1½
8,	a copper marc,	0	0	4½
3 copper marcs,	a silver marc,	0	0	6½
4,	a copper dollar,	0	1	2
9,	a caroline,	0	1	6½
3 copper dollars,	a silver dollar,	0	4	8
3 silver dollars,	a rix-dollar,	0	9	4
2 rix dollars,	a ducat,	0	9	4

The Swedish money, properly so called, is a kind of copper, very soft and malleable, cut in little square pieces, or plates, about the thickness of three English crowns, and weighing five pounds and an half; stamped at the four corners with the Swedish arms; and current in Sweden for a rix-ollar, or piece of eight.

COINS of Russia and Muscovy.

Polusca,	= 1/200 English penny.	l.	s.	d.
2,	a denusca.	0	0	1½
2 denuscas,	a copec of acc.	0	0	1½
3 copecs,	an altin,	0	0	5½
10,	a gievenet,	0	1	1½
25,	a polpotin,	0	2	3
50,	a poltin,	0	4	6
100,	a ruble,	0	9	0
2 rubles,	a xervonitz,	0	9	0

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COINS of Turkey, viz. of Morea, Candia, Cyprus, &c.

Mangar,	= 1/10 English penny.	l.	s.	d.
4 mangars,	an asper of acc.	0	0	1½
3 aspers,	a parac,	0	0	3
5,	a bestic,	0	0	6
10,	an ottic,	0	1	0
20,	a solota,	0	4	0
80,	a piafre of acc.	0	5	0
100,	a caragrouch,	0	10	0
10 solotas,	a xeriff,	0	10	0

COINS of the coasts of Barbary, viz. of Algiers, Tunis, &c.

Asper,	= 1/10 English penny.	l.	s.	d.
3,	a medin,	0	0	1½
10,	a rial old plate,	0	1	1½
2 rials,	a double,	0	4	6
4 doubles,	a dollar,	0	3	4
24 medins,	a silver chequin,	0	4	6
30,	a dollar,	0	8	10
180 aspers,	a zequin,	0	16	9
15 doubles,	a pistole,	0	16	9

Other coins of Africa are those of Egypt and Morocco.

COINS of Egypt, &c.

Asper,	= 1/10 English penny.	l.	s.	d.
3,	a medin,	0	0	1½
24 medins,	an Italian ducat,	0	3	4
80 aspers,	a piafre of acc.	0	4	0
30 medins,	a dollar,	0	4	6
96 aspers,	an ecu,	0	5	0
32 medins,	a crown,	0	5	0
200 aspers,	a sultanin,	0	10	0
70 medins,	a pargo dollar,	0	10	6

COINS of Morocco, &c.

Fluce	= 1/12 English penny.	l.	s.	d.
24,	a blanquil,	0	0	2
4 blanquils,	an ounce,	0	0	8
7,	an octavo,	0	1	2
14,	a quarto,	0	2	4
2 quartos,	a medio,	0	4	8
28 blanquils,	a dollar,	0	4	6
54,	a xequin,	0	9	0
100,	a pistole,	0	16	9

COINS, Persian.—These are either silver, or copper; gold they have none. Of the first kind are, the abassi, mamoudi, shahee, and bifti; of the second, the kabefqui, and half-kabefqui: the tela or cherafis, indeed, is gold; but it is less a money than a medal, though it has some course in commerce.

Coz,	= 1/2 English penny.	l.	s.	d.
4,	a bifti,	0	0	1½
10,	a shahee,	0	0	4
20,	a mamooda,	0	0	8
25,	a larin,	0	0	10
4 shahees,	an abahee,	0	1	4
5 abashees,	an or,	0	6	8
12,	a bovello,	0	16	0
50,	a tomond or TOMAN of acc.	3	6	8

Some relations make the bifti a coin worth about one penny half-penny, but others only a term of accompt, signifying ten demars, or one thousandth part of a toman. See TOMAN.

Casbequi, or cabefqui, equals five twelfths of a penny sterling. Tela, or cherafis, is usually struck at the accession of a new king, and at the beginning of a new year; its weight and worth various.

COINS, Chinese.—Throughout the kingdom of China and Tonquin, there are not properly any coins struck: instead of these, they cut their gold and silver into little pieces of different weights. Those of gold, the Dutch, from their figure, which resembles a boat, call *golchuts*: those of silver, the natives call *leam*; the Portuguese, *taels*. Their small money is of copper: ten of these pieces make their shilling, and ten of those their crown, or leam. Beside these, they have a small money of lead, mixed with the scum of copper, having holes in the middle to string them on for the ease of numbering: this species is called *caxa*, *cas*, and *pitis*; and the string, which usually holds two hundred, is called *santa*. They are so very brittle, that they never fall without breaking into a great number of pieces; and, if left all night in salt water, they stick so close together, that they cannot be separated.

There are two kinds of *golchuts*; great, and small. *Golchut*, an ingot, which, at 3/ 3s. per ounce, usually amount to 101/ 5s. sterling. Other *golchuts* only weigh half as much: their value is in proportion.

A caxa,	= $\frac{2}{3}$ English penny.			
10,	a candereen.	l.	s.	d.
10 candereens;	a mace,	0	0	8
35,	a rupee,	0	2	6
2 rupees,	a dollar,	0	4	6
70 candereens,	a rix-dollar,	0	4	4 $\frac{1}{2}$
7 maces,	an ecu,	0	5	0
2 rupees,	a crown,	0	5	0
10 maces,	a tael of acc.	0	6	8

COINS of Japan.—The Japanese strike coupants, both of gold and silver; and copper pieces with holes in the middle, like those of China: six hundred of these make the tael, or tale. Their other moneys, or quasi moneys, are, ingots, which they cut, like the Chinese, of different weights, chiefly three; the largest of the weight of six rials, viz. forty-eight taels, the tael equivalent to seventy-five Dutch stivers. The second equal to six taels and an half; and the third to $\frac{2}{3}$ of a rial, or one tael $\frac{1}{3}$.

Besides these, they have a small silver money, in form of round beans, of no determinate weight, but usually weighed by maifes; the common payment being by ten maifes, which make one tael.

	(Sterling)	l.	s.	d.
Coupant of gold, weighing one ounce	}	6	12	6
fix drachms; its figure is a long oval, the longest diameter about four inches, and the shortest half an inch.				
Other coupants of gold, near $\frac{1}{3}$ of the former, amounting to about				
Coupant of silver, current at				
		2	4	2
		0	4	6

Other coins are as follow:

Piti,	= $\frac{1}{3}$ Eng. penny.	l.	s.	d.
20,	a mace,	0	0	4
15 maces,	an ounce silver,	0	4	10 $\frac{1}{2}$
20 maces,	a tale,	0	6	8
30 maces,	an ingot	0	9	8 $\frac{2}{3}$
13 ounces silver,	an ounce gold,	3	3	0
2 ounces gold,	a Japanese,	6	6	0
2 Japanese,	a double,	12	12	0
21 ounces gold,	a cattee of acc.	66	3	0

COINS of Siam, viz. of Pegu, Malacca, Sumatra, Java, Borneo, &c.

In the dominions of Siam are struck gold pieces five or six grains heavier than the half pistole of Spain; but these are rather pieces of curiosity than of use in commerce. Their silver coin is the tical, or baat; the diminutions whereof are the mayon, or feling, foang, and fompaye. These pieces are all strangely struck: in form they resemble nuts, a little flatted at the extremities; and are some of them cloven like horse-shoes; on two of the sides there are some Siamese letters. Their copper money, called bia, is round and thick: beneath this is the cauris, or cork,

Cori	= $\frac{3}{10000}$ Eng. penny.			
800,	a fettee,	l.	s.	d.
125 fettees,	a fataleer,	0	0	7 $\frac{1}{2}$
250,	a fooco,	0	1	3
500,	a tical,	0	2	6
900,	a dollar,	0	4	6
2 ticals,	a rial,	0	5	0
4 foocos,	an ecu,	0	5	0
8 fataleers,	a crown,	0	5	0

COINS of the coasts and islands of the Indies.—The principal, and those most generally current, are pagodas, rupees, larins, fanos, or fanons, and coupans, each whereof are struck both of gold and silver.

Beside these general coins, there are also particular ones, viz. at Goa, St. Thomas's of gold.—Along the Persian Gulf, about Mecca, and throughout Arabia, the larin; along the coasts of Malabar, and at Goa, the parado and xeraphin of silver.—At Bantam, the fardos; at Malabar, the tare; at Siam the tayl, with its diminutions the mayam, foang, fompaye, and demi-foang: all of silver.—At Surat, Agra, and the rest of Indostan, the pecha, or pessa, and doudous, all of copper.—The basarucos and chedas, of tin. See last and following articles.

COINS, Mogul.—In the dominions of the great Mogul, are roupies, mamoudas, and pechas: the first both of gold and silver; the second of silver alone; and the third of copper.

There are others struck by the princes tributary to him, and the powers bordering on him; but these are scarce current beyond their respective territories: particularly a small silver coin struck by the king of Matoucha, whose territories lie to the north of Agra, of the value of the

pecha of Mogul, but half as heavy again.—The rajah of Parta-jajamoula, to the north of Patna, likewise strikes some little pieces, both of silver and copper, of small value.—The rajah of Ogden, who commands between Brampour, Seronge, and Amadabath, a small silver coin equal to six pence sterling; and another of copper, equal to an halfpenny sterling.—The king of Cheda and Pera, a tin money called cheda.—The king of Achem, little flight gold pieces, worth about fifteen pence sterling.—And tin pieces, eighty of which are equal to the English penny, current in the isles of Sumatra.—The gold coin of the king of Macasser and Celebes, is taken by the Dutch for a florin.—The king of Camboyas strikes only pieces of silver and copper; his gold, wherein he abounds, is negotiated by weight.—The king of Java, and Bantam, in the same island, and those of the Molucca islands, strike only copper coins: they allow foreign silver species to be current in their territories, but they coin none.

COINS of Gazzurat, &c.

Pecka, or pecha,	= $\frac{1}{6}$ Eng. penny.			
2,	a pice,	l.	s.	d.
4 pices,	a fanam, or tanos,	0	0	12
5,	a viz,	0	0	2 $\frac{1}{2}$
16,	an ana,	0	0	7 $\frac{1}{2}$
4 anas,	a rupee,	0	2	6
2 rupees,	an English crown,	0	5	0
14 anas,	a pagoda, denominated from its impression, the Indian idol,	0	8	9
4 pagodas,	a gold rupee,	1	15	0

COINS of Malabar, &c. are those of Bombay, &c. and Goa, &c.

COINS of Bombay, are the

Budgroom, or basaruco,	= $\frac{2}{3}$ Eng. penny.			
2,	a re of account,			
5 rez,	a piece,	l.	s.	d.
16 pices,	a laree,	0	0	5 $\frac{2}{3}$
20 pices,	a quarter,	0	0	6 $\frac{2}{3}$
240 rez,	a xeraphim,	0	1	4 $\frac{1}{2}$
4 quarters,	a rupee,	0	2	3
14 quarters,	a pagoda,	0	8	0
60 quarters,	a gold rupee,	1	15	0

COINS of Goa, &c. are

A re of account,	= $\frac{2}{3}$ Eng. penny.			
2 rez,	a bazsaraco			
2 bazsaracos,	a pecca,	l.	s.	d.
20 rez,	a vintin,	0	0	12 $\frac{1}{2}$
4 vintins,	a laree,	0	0	5 $\frac{2}{3}$
3 larees,	a xeraphim,	0	1	4 $\frac{1}{2}$
42 vintins,	a tangu,	0	4	6
4 tangus,	a paru,	0	18	0
8 tangus,	a gold rupee,	1	15	0

COINS of Coromandel, &c.

A cash,	= $\frac{3}{8}$ Eng. penny.			
5 cash,	a viz,			
2 viz,	a pice,	l.	s.	d.
6 pices,	a pical,	0	0	2 $\frac{1}{2}$
8 pices,	a fanam,	0	0	3
10 fanams,	a rupee,	0	2	6
2 rupees,	an English crown,	0	5	0
36 fanams,	a pagoda,	0	8	9
4 pagodas,	a gold rupee,	1	15	0

COINS of Bengal, &c.

A pice,	= $\frac{1}{3}$ Eng. penny.			
4 pices,	a fanam,			
6,	a viz,	l.	s.	d.
12,	an ana,	0	0	12
10 anas,	a fiano	0	1	6 $\frac{3}{4}$
16,	a rupee,	0	2	6
2 rupees,	a French ecu,	0	5	0
2,	an English crown	0	5	0
56 anas,	a pagoda,	0	8	9

COINS of Arabia.

Carret,	= $\frac{1}{8}$ Eng. penny.			
5 $\frac{1}{2}$ Carrets,	a caveer,			
7,	a comashee,	l.	s.	d.
80,	a larin,	0	0	10 $\frac{1}{8}$
18 comashee,	an abyfs,	0	1	4 $\frac{1}{2}$
60,	a piastre of acc.	0	4	6 $\frac{1}{2}$
80 caveers,	a dollar,	0	4	6
100 comashees,	a sequin,	0	7	6
80 larins,	a tomond of acc,	3	7	6

COI

COINS of the *West Indies*, comprehend those of the English, French, &c. islands.

COINS of the *English islands*, as *Jamaica, Barbadoes, &c.*

A halfpenny account, = $\frac{1}{160}$ Eng. penny.			
2 halfpence,	a penny of acc.	l.	s. d.
7½ pence,	a bit,	0	0 5 $\frac{3}{8}$
12,	a shilling of ac.	0	0 8 $\frac{1}{10}$
75,	a dollar,	0	4 6
7 shillings,	a crown,	0	5 0
20,	a pound of ac.	0	14 3
24,	a pistole,	0	16 9
30,	a guinea,	1	1 0

COINS of the *French islands*, as *St. Domingo, Martinico, &c.*

Half fol of account, = $\frac{1}{160}$ Eng. penny.			
2,	a fol of account,	l.	s. d.
7½ fols	a half scalin,	0	0 2 $\frac{1}{10}$
15,	a scalin,	0	0 5 $\frac{3}{8}$
20,	a livre of account,	0	0 7 $\frac{5}{10}$
7 livres.	a dollar,	0	4 6
8,	an ecu,	0	4 10 $\frac{1}{2}$
26,	a pistole,	0	16 9
32,	a louis d'or,	1	0 0

For all the Spanish, Portuguese, Dutch, and Danish dominions in the West Indies, or on the American continent, see the *coins* of the respective nations: but it must be observed, that the value of the CURRENCY alters according to the plenty or scarcity of *coins* imported. See Universal Table of *Coins*, annexed to Guthrie's Geography.

To the number of current *coins* which have distinct names to specify them may be added many more, both in Europe and Asia, only denominated and known from their value: such are those called simply *pieces*, with the addition of their price; as in Spain, the piece of eight rials; in England, the piece of twenty-one shillings, or guinea; in France, the piece of four francs; pieces of ten fols, or shillings; piece of four fols; piece of two fols; or of six francs, of 30, 15, 6, 4, &c. deniers or pence. See *PIECE*.

COINS, *Shells current for*.—These serve in many places for money; and are brought from the Maldives, and called in the Indies *cowries*: on the coast of Africa they change their names, and are called *bouges*.

In America they take a third name, viz. *porcelains*. Indeed those last do not come from the Maldives; there being shells found in the West Indies much like those of the East.

In the kingdom of Congo there is another kind of shells, called *zimbi*; though some will have them the same with the cowries. Cowries, coris, or bouges, are white shells, current particularly in the states of the Great Mogul: sixty-five are usually reckoned equivalent to the done, a small copper coin, worth about a halfpenny sterling; which brings each cowry to $\frac{1}{130}$ of a penny sterling.

Porcelains are nearly on the same footing with the cowries. See *PORCELAIN*.

Zimbi are current, particularly in the kingdoms of Angola and Congo. Two thousand zimbis make what the negroes call a *macoute*, or *macoute*; which is no real money, whereof there is none in this part of Africa, but only a manner of reckoning: thus, two Flemish knives they esteem a *macoute*; a copper basin, two pounds weight, and twelve inches diameter, three *macoutes*; a fusce ten, &c.

COINS, *Fruits current for*.—There are kinds of fruits current for *coins*; two in America, particularly among the Mexicans; which are the cacao and maïse: the other in the East Indies, viz. almonds, brought thither from Lar, and growing in the deserts of Arabia.

Cacao, fifteen of these are esteemed equivalent to a Spanish rial, or seven pence sterling. See *CACAO*.

Maïse has ceased to be a common money since the discovery of America by the Europeans.

Almonds are chiefly used where the cauris are not current. As the year proves more or less favourable to this fruit, the value of the money is higher or lower: in a common year, forty almonds are set against a percha, or halfpenny sterling; which brings each almond to $\frac{1}{20}$ of a farthing.

COINS, *Ancient*, are those chiefly which have been current among the Greeks, Jews, and Romans.

COI

For *Jewish COINS*, their Values and Proportions stand thus:

Gerah,	(Sterling.)	l.	s.	d.
10 Bekah,		0	0	1 $\frac{5}{16}$
20 2 Shekel,		0	1	1 $\frac{1}{16}$
		0	2	3 $\frac{3}{8}$
1200 120 50 Manch		5	14	0 $\frac{3}{4}$
60000 6000 3000 60 Mina Hebraica,				
		342	3	9
Solidus aureus, or sextula, worth		0	12	0 $\frac{1}{2}$
Siclus aureus, worth		1	16	6
A talent of gold, worth		5475	0	0

Value and Proportion of the ancient Grecian COINS.

Lepton,	(Sterling.)	s.	d.	grs.
7 Chalcus,		0	0	0 $\frac{3}{16}$
14 2 Dichalcus,		0	0	0 $\frac{3}{8}$
28 4 2 Hemibolum,		0	0	1 $\frac{1}{2}$
56 8 4 2 Obolus,		0	1	1 $\frac{1}{16}$
112 16 8 4 2 Diobolum,		0	2	2 $\frac{1}{2}$
224 32 16 8 4 2 Tetrobolum,		0	5	0 $\frac{1}{2}$
336 48 24 12 6 3 1½ Drachma,		0	7	3
662 96 48 24 12 6 3 2 Didrachmon,		1	3	2
1324 112 96 48 24 12 6 4 2 Tetradrach. stater, 2			7	0
1660 384 12 60 30 15 7½ 5 2½ 1¼ Pentadrach. 3			2	3

Note, Of these the drachma, didrachma, &c. were of silver, the rest, for the most part of brass. The other parts, as tridrachm, triobolus, &c. were sometimes coined.

Note also, the drachma is here, with the generality of authors, supposed equal to the denarius: though there is reason to believe, the drachma was somewhat the weightier. See *DRACHMA*, and *DENARIUS*.

(Sterling.)	l.	s.	d.
The Grecian gold coin was the stater aureus, weighing two Attic drachms, or half of the stater argenteus; and exchanging usually for 25 Attic drachms of silver; in our money,	0	16	1 $\frac{1}{2}$
According to our proportion of gold to silver,	1	0	9
There were likewise the stater Cyzicenus, exchanging for 28 Attic drachms, or Stater Phillipicus, and stater Alexandrinus, of the same value.	0	18	1
Stater Daricus, according to Josephus, worth 50 Attic drachms, or Stater Croesus, of the same value.	1	12	3 $\frac{1}{2}$

Value and Proportion of the Roman COINS.

Teruncius,	(Sterling.)	s.	d.	grs.
2 Sembali,		0	0	0 $\frac{1}{16}$
4 2 Libella,		0	0	1 $\frac{1}{16}$
As,		0	0	3 $\frac{1}{8}$
10 5 2½ Sestertius,		0	1	3 $\frac{3}{4}$
20 10 5 2 Quinarius,		0	3	3 $\frac{1}{2}$
Victoriatus,				
40 20 10 4 2 Denarius,		0	7	3

Note, of these the denarius, victoriatus, sestertius, and sometimes the as, were of silver, the rest of brass.

There were sometimes also coined of brass the triens, sextans, uncia, sextula, and dupondius.

(Sterling.)	l.	s.	d.
The Roman gold coin was the aureus, which weighed generally double the denarius; the value of which, according to the first proportion of coinage, mentioned by Pliny, was,	1	4	3 $\frac{1}{2}$
According to the proportion that obtains now amongst us, worth,	1	0	9
According to the decuple proportion, mentioned by Livy and Julius Pollux, worth,	0	12	11
According to the proportion mentioned by Tacitus, and which afterwards obtained, whereby the aureus exchanged for 25 denarii, its value,	0	1	1 $\frac{1}{4}$

These tables are formed on the supposition that silver is worth five shillings, and gold four pounds an ounce. See

See Arbuthnot's Tables of Ancient Coins. See also on this subject an excellent paper by M. Raper, esq. intitled An Enquiry into the Value of the Ancient Greek and Roman Money, in the Phil. Transf. vol. lxi. part ii. art. 48. p. 462. See DENARIUS and DRACHM.

COIN, in *Architecture*, a kind of dye, cut diagonal-wise, after the manner of the flight of a stair case; serving at bottom to support columns in a level; and at top to correct the inclination of an entablature, supporting a vault.

These coins have also the same effect with round balusters, which are not inclined according to any flight.

COIN is also used for a solid angle, composed of two surfaces inclining towards each other; whether that angle be exterior as the *coin* of a wall, a tree, &c. or interior, as the *coin* of a chamber, or chimney, from the word *cuneus*, wedge. See QUOIN.

COIN, or QUOIN, in *Artillery*, a wedge of wood, serving to raise or lower the breech of a gun.

COINS, on board a man of war. See QUOINS.

COIN-moulds. See MOULDS.

Canting COINS, on board a ship, little short pieces of wood, or billets, cut wedge-like, to lie betwixt the casks.

Standing COINS, on board a ship, billets, or pipe-staves, to keep the casks from stirring, or giving way.

Standing-coins are made of barrel boards, about four inches broad, and of a fit length to be driven in between the ends of a cask, about two or three hoops from the chine hoops, to keep the butts from jogging.

COINAGE, or COINING, the art, or act of making money.

Coining, is either performed by the hammer or the mill. The first method is now little used in Europe, especially in England, France, &c. though the only one known till the year 1553, when a new machine, or *coining* mill invented by an engraver, one Antoine Brucher, was first tried in the French king's palace at Paris, for the *coining* of counters; though some attribute the invention of the mill to Varin, a famous engraver, who, in reality, was no more than an improver of it; and others to Aubry Olivia, who had only the inspection of it.

The mill has met with various fate since its first invention; being now used, and again laid by, and the hammer resumed: but it has at length got that footing, by the neatness and perfection of the species struck with it, that there appears no great probability of its ever being again disused. See MILL.

In either kind of *coining*, the pieces of metal are stamped, or struck with a kind of puncheons or dyes, wherein are engraven the prince's effigies, with the arms, legend, &c. The manner of preparing and cutting of which, see under ENGRAVING.

The first operations in *coining* are the mixing and melting of the metal. For the first, it is to be observed, that there are no species coined of pure gold or silver, but always a quantity of ALLOY of copper is mixed with them, or a mixture of silver and copper, for gold; because silver alone would make the gold too pale, and copper too red: the reasons are partly the scarcity of those two metals, partly the necessity of making them harder by some foreign admixture; and partly to defray the expences of *coining*.

Now there are two kinds of alloying or mixing. The proportioning of the alloy with the fine metal is easy in the first case; in the other it is more difficult. See ALLOY. Yet it is readily effected by the following method, taken from the anonymous author of the treatise at the end of that of Mr. Boissard; viz.

Write down the several materials to be melted, their quality, weight, and fineness, in two distinct articles; the one containing those above the standard, the other those under it: by casting up the first, you shall have the excess: by the latter, the defect. Then comparing the two sums, you will find, by subtraction, how much alloy must be added to bring the several matters to the fineness required.

For the melting, if the metal be gold it is done in earthen crucibles; if silver, or copper, in pots or crucibles of iron.

There are two kinds of furnaces proper for the melting of the metals; those with only a draught of wind, and those with bellows. See each explained under FURNACE.

When the gold and silver are in *balneo*, i. e. are entirely melted, they are to be stirred and brewed together; the silver and copper with an iron stirrer, the gold with one of baked earth. In this state they are poured into moulds or frames, for casting them into long flat bars; the method of doing which is exactly the same with that used by the founders, in sand; both with regard to the frame, the manner of working the earth, and that of ranging the models or patterns.

The models are flat plates of copper, about fifteen inches long, and nearly of the thickness of the species to be struck. In each mould are placed eight of these to make bars or plates, ten for half guineas, five for crowns, &c. and in proportion for copper; all the difference between casting the bars of gold, and those of the other metals, consisting in this; that the latter are taken out of the crucibles with ladles, and poured into the aperture of the mould; and that for gold, the pot or crucible is taken off the fire with a kind of tongs, and thence poured into the mould.

Thus far the process is the same, in *coining* either with the mill or the hammer when the bars are taken out of the moulds, the difference commences; so that here the article of *coining* divides into two branches.

COINING by the Mill, or milled Money. — The bars or plates being taken out of the moulds, and scraped and brushed, are passed several times through a mill, to flatten them further, and bring them to a just thickness of the species to be coined; with this difference, however, that the plates of gold are heated again in a furnace, and quenched in water, before they undergo the mill; which softens and renders them more ductile: whereas those of silver pass the mill just as they are, without any heating; and when afterwards they are heated, they are left to cool again of themselves, without water.

The plates, whether gold, silver, or copper, thus reduced as near as possible to their thickness, are cut into round pieces called *blanks* or *planchets*, near the size of the intended species, with a cutting instrument fastened to the lower extremity of an arbor, whose upper end is formed into a screw; which being turned by an iron handle, turns the arbor, and lets the steel, well sharpened, in form of a punch-cutter, fall on the plates; and thus is a piece punched out. See the cutting instrument represented in *Tab. Miscellany, fig. 1.*

These pieces are now given to be adjusted, and brought by filing or rasping, to the weight of the standard, whereby they are to be regulated: and what remains of the plate between the circles is melted again, under the denomination of *fizel*.

The pieces are adjusted in a fine balance: and those which prove too light, are separated from those too heavy; the first to be melted again, and the second to be filed down. For it may be observed, that the mill through which the plates are passed, can never be so just, but there will be some inequality, whence will arise a difference in the blanks. And this inequality, indeed, may be owing to the quality of the matter as well as of the machine; some parts being more porous than others.

When the blanks are adjusted, they are carried to the blanching, or whitening-house, i. e. the place where the gold blanks have their colour given them, and the silver ones are whitened; which is done by heating them in the furnace, and, when taken out and cooled, boiling them successively in two copper vessels, with water, common salt, and tartar; and, after that, scouring them well with sand, and washing them with common water, drying them over a wood fire, in a copper sieve, wherein they are put when taken out of the boiler.

The whitening, or BLANCHING, was formerly performed very differently from what it now is: and as the ancient method is still in use among goldsmiths, and other workmen who use gold and silver, we have made a distinct article of it.

Formerly the planchets, as soon as blanching, were carried to the press, to be struck, and receive their impressions; but now they are first marked with letters or graining, on the edges, to prevent the clipping and paring of the species, which is one of the ways wherein the ancient money used to be damaged. The machine used to mark the edges is very simple, yet ingenious; it consists of two plates of steel, in form of rulers, about the thickness of a line, on which the legend or edging is engraven, half on the one, and half on the other. One of these plates is immoveable, being strongly bound with screws to a copper plate; and that again to a strong board, or table: the other is moveable, and slides on the copper plate by means of a handle, and a wheel, or pinion of iron, the teeth whereof catch in a kind of other teeth, on the surface of the sliding plate. Now, the planchet, being placed horizontally between these two plates, is carried along by the motion of the moveable one; so as by that time it has made half a turn, it is found marked all round. See *Fig. 2.*

This machine is so easy, that a single man is able to mark twenty thousand planchets in a day: Savary pretends it was invented by the sieur Castagin, engineer to the French king, and first used in 1685. But it is certain we had the art of lettering the edges in England long before that time; witness the crowns and half-crowns of Oliver Cromwell.

Cromwell struck in 1658, which for beauty and perfection far exceed any French *coins* we have ever seen. Lastly, the planchets; being thus edged, are to be stamped, i. e. their impression is to be given them in a sort of mill, or press, by the French called a *balancier*, invented towards the latter end of the sixteenth century. See its figure in *Tab. Miscellany*, fig. 3.

Its chief parts are a beam, screw, arbor, &c. all contained in the body of the machine, except the first, which is a long iron bar, with a heavy ball of lead at each end, and rings, to which are fastened cords, which give it motion: this is placed horizontally over the body of the machine. In the middle of the beam is fastened a screw, which, by turning the beam, serves to press the arbor underneath it; to the lower extremity of which arbor, placed perpendicularly, is fastened the dye, or matrice, of the reverse, or arm side, in a kind of box, or case, wherein it is retained by screws: and under this is a box, or case, containing the dye of the image-side, firmly fastened to the lower part of the engine, fig. 4. See MATRICE.

Now when a planchet is to be stamped, it is laid on the image-matrice, upon which two men draw, each on his side, one of the ropes of the beam, and turn the screw fastened in it; which by this motion lowers the arbor to which the dye of the arms is fastened: by which means the metal being in the middle, at once receives an impression on each side, from either dye. As to the press formerly used; it has all the essential parts of a *balancier*, except the beam, which is here as it were, divided, and only drawn one way.

The blanks having now all their marks and impressions, both on the edges and faces, become money; but they have not currency till they have been weighed and examined.

For the COINING of *Medals*, the process is the same, in effect, with that of money: the principal difference consists in this, that money, having but a small relieve, receives its impression at a single stroke of the engine; whereas, for medals, the height of their relieve makes it necessary, that the stroke be repeated several times; to this end the piece is taken out from between the dyes, heated, and returned again; which process, in medallions, and large medals, is sometimes repeated fifteen or twenty times, before the full impression be given; care being taken, every time the planchet is removed, to take off the superfluous metal stretched beyond the circumference, with a file.

Add to this, that medallions, and medals of high relieve, on account of the difficulty of stamping them in the *balancier*, or press, are usually first cast or moulded in sand, like other works of that kind, and are only put in the press to perfect them; because the sand does not leave them clean, smooth, and accurate enough. Medals, therefore, receive their form and impression by degrees; money all at once.

The rule whereby they judge the metal to be sufficiently stamped, is, when feeling it with the hand, it is found firm, and not to be shaken, as filling the dye equally every where.

COINING with the hammer, or hammered money. — In this method of making money, the bars, or plates of gold, silver, or copper, being taken out of the moulds, or frame, as above, are heated and stretched, by beating them on the anvil: when sufficiently beaten, they are cut into pieces; which being again heated, flattened, and farther stretched with the hammer, are adjusted by cutting off the angles with sheers: thus, by cutting and rounding them, they are reduced to the weight of the standard; and their roundness finished with another hammer, which beats down all the points and angles still remaining on the edges. In this manner they are brought to the size of the species to be coined.

In this state the pieces become blanks or planchets, and are carried to the blanching-house: where they undergo the same preparation as the milled money already described, and are given to the minter to stamp them with the hammer.

For this last operation, which finishes the money, they use two punchions, or matrices: the one called the *pile*, and the other the *trufs*, or *quiver*; each engraven dent-wise; the pile bearing the arms, and the trufs the image, or cross; both their legend, date, &c.

The pile, which is about eight inches high, has a kind of talon or heel in the middle, and ends in a point: which figure it had, for the sake of being more easily sunk, and more firmly fastened to the block whereon the money is struck.

The minter, then, laying the planchet horizontally on the pile, and covering it with the trufs, which he holds steadily in his left hand, gives several smart blows on the trufs with an iron mallet held in the right; more or less,

as the graving of the dyes is more or less deep. If after these first strokes, the planchet be not sufficiently flattened, it is returned again between the matrices, exactly in its former position, and the strokes are repeated till the impression be perfect.

Thus is the *coinage* finished, and the planchets converted into money; which, after they have been examined as to their weight, become current.

COINAGE, *English*. — Since the invention of milled money (the author whereof is not agreed on, nor even the country, where it took its rise, though the French lay claim to both) it has been imitated by several other nations; but by none with success equal to that of the English, who carried it to the utmost perfection; both by the beauty of their graving, and by their inventing the impressions on the edges, that admirable expedient, for preventing the alteration of the species, above mentioned.

Till the time of king Charles II. the English money was generally struck with the hammer, as that of other nations; and in effect, it is but very late, viz. in the reign of king William III. that the hammered species ceased to be current. Before they were put down, the English money was in a woeful condition; having been filed and clipped by natives as well as foreigners, especially the Dutch, so as to be scarce left of half the value: the retrieving this distressed state of the English money is looked upon as one of the glories of king William's reign; for which we are obliged, in good measure, to the happy conduct of the earl of Halifax.

The *coinage* of England is now performed wholly in the Tower of London; where there is a corporation for it, under the title of the *mint*.

Formerly there were here, as there are still in other countries, what we call the *rights of seignorage and brassage*; but since the eighteenth year of king Charles II. there is nothing taken, either for the king, or for the expences of *coinage*; it having been settled by act of parliament, that all money should be struck at the public expence: so that weight is returned for weight, to all persons who carry their gold and silver to the Tower.

There is a duty of ten shillings per tun on wine, beer, and brandy imported, called the *coinage* duty, granted for defraying the expence by stat. 18 Car. II. cap. 5. and continued and advanced by subsequent statutes, 4 and 5 Anne. cap. 22. 1 Geo. I. cap. 43. 4 Geo. II. cap. 12. 1 Geo. III. cap. 16, &c.

The species coined in England are esteemed contraband goods, and not to be exported; all foreign species are allowed by act of parliament, made in 1673, to be sent out of the realm; as well as gold and silver in bars, ingots, dust, &c. Indeed, in the session of parliament in 1718, endeavours were made to put a stop to this licence, which drains England of its richest metals; but in vain; the parliament having laid aside the bill, without coming to any resolution.

COINAGE of *Fez and Tunis* is not under any discipline; each goldsmith, Jew, and even every private person, undertaking it at pleasure; which renders their money exceedingly bad, and their commerce very unsafe.

COINAGE, *Muscovite*. — The czar strikes no money but silver, and that only in the cities of Moscow, Novogrod, Twere, and Plescou; to which may be now added Petersburg, the favourite city of her late czarian majesty. The *coinage* of each of these cities is let out to farm, and makes part of the royal revenue.

COINAGE, *Persian*. — All the money made in Persia is struck with the hammer: and the same may be understood of the rest of Asia and America, and the coasts of Africa, and even Muscovy, the invention of the mill not being yet gone out of Europe, nor even established in every part of it. The king's duty, in Persia, is seven and a half per cent. for all the monies coined: which are now reduced to silver and copper: there being no gold coined there, except a kind of medals at the accession of a new sopher.

COINAGE, the *Spanish*, is esteemed one of the least perfect in Europe: it is settled at Seville and Segovia, the only cities where gold and silver are struck. It is true, there are brought from Mexico, Peru, and other provinces of the Spanish America, such vast quantities of pieces of eight, and other species both of gold and silver, that, in this respect, it must be owned, there is no state in the world where so much money is coined, as in that of the king of Spain.

To take the representation of a coin on paper, card, or pasteboard. See MEDAL.

CO-INDICATIONS, in *Medicine*, signs which do not indicate by themselves alone, but together with other circumstances, &c. help the physician to form a judgment.

COINING, in the *Tin-works*, is the marking the tin, when cast into blocks, or slabs, with the figure of the lion rampant.

pant. This is done by the king's officer. The king's custom is four shillings for every hundred weight.

COINUS, in *Natural History*, a name given by some writers to the genus of shells called PORCELLANA and *Concha venera*.

COITION, the intercourse between male and female in the act of generation.

It is observed that frogs are forty days in the act of coition.

Bartholine, &c. relate, that butterflies make an hundred and thirty vibrations of the wings in one act of coition.

COITION is also sometimes used for that mutual attraction, or tendency toward each other, which is found between iron and the magnet.

COJUMERO, in *Ichthyology*, a name given by some to the *manati*, or sea-cow.

COIX, in *Botany*. See *JOB'S TEARS*.

COKE, denotes pit-coal or sea-coal charred. It is prepared by burning them in ovens constructed for this purpose, and extinguishing the fire in the manner used for making CHARCOAL.

COLAPTICE, the art of carving, or cutting, the resemblances and figures of natural things in stone. The term for the artist is *liboxos*.

COLARBASIANS, or COLORASIANS, a sect of Christians in the second century; so called from their leader Colarbasus, a disciple of Valentinus: who, with Marcus, another disciple of the same master, maintained the whole plenitude, and perfection, of truth and religion, to be contained in the Greek alphabet; and that it was upon this account that Jesus Christ was called the *alpha* and *omega*. This sect was a branch of the VALENTINIANS. See also MARCOSIANS.

COLARIN, in *Architecture*. See HYPOTRACHELIUM and GORGERIN.

COLARIN is also used for the CINCTURE.

COLASISI, in *Natural History*, a name given by the people of the Philippine islands to a very small but very beautiful species of the parrot, common in that part of the world, and called by others *cusi* and *gula jisi*.

COLATURE. See FILTRATION.

COLCHESTER-PLOUGH. See PLOUGH.

COLCHICUM, in *Botany*, see MEADOW SAFFRON.

COLCHICUM, in *Medicine*. The general consent of authors condemns the root of the *colchicum* as a poison, on account of its acid and corrosive quality; yet it is evident that the ancients esteemed it greatly; they called it *hierobulbus*. Some even gave it internally, in cases where it was necessary to make the patient vomit, it being esteemed a very good emetic; and others ordered its use externally, bruising it, and applying it to places where there were fixed and violent pains.

Wedelius recommends it as an alexipharmic, and has written a treatise expressly on this subject. He frankly confesses to have taken his knowledge of its virtues from an obscure author, who, in a treatise of the plague, recommends it internally as a very beneficial medicine, and tells us, that people were so well acquainted with its virtues, that they took it in considerable doses, and wore it about their necks, as a preservative against the infection. He found the virtues of this medicine were not confined to the pestilential and petechial fevers alone, but he gave it with the same success in the small-pox, the purple-fever, and even in the worst kind of the measles.

M. Storck, of Vienna, discovered to the public the medicinal virtues of *colchicum*, and by experiments on himself ascertained it to be a most powerful diuretic, and a kind of miraculous remedy in the most desperate dropsies. He digested an ounce of the solid root in a pound of vinegar for twenty-four hours, and then made an oxymel of this vinegar by mixing with it twice its quantity of honey: this medicine administered in doses, of a tea-spoonful, or a dram, promoted a copious discharge of urine. He also found, by many trials, that by giving a dram of it twice a day, and increasing the dose to an ounce or an ounce and a half in the day, it proved a very powerful diuretic, and of excellent service in hydropic and other ferous disorders.

COLCOTHAR, in *Natural History*, &c. The Latin writers of the middle ages use *colcothar* as a name of vitriol in general, which was called by the Greeks *chalcanthum*.

Colcothar is originally an Arabic word, which does not signify the common vitriol, but the *chalcitis*. The word has been spelt *calcuthar*, and from this word *chalcitis* differs not very much. The Greeks of the middle ages followed the Arabians in the use of the word *colcothar*, but added to it a termination proper to their language, and particularly to the custom of those times, which seemed not to express exactly the same thing, but a diminutive of it: they wrote it *colcotharian*, or *chalcitarion*. Thus they also called the *orchis*, *orchidion*, the *ladi*, *eladion*, and so in a thousand other instances. Avicenna uses the

word *zagi* to express this substance, but then he is by no means determinate in it. but makes it include the *mis*, *for*, and *melanteria*, as well as the *chalcitis*, but distinguishing in another place the several kinds of *zagi*, he tells us, that one was the *cha cand*, which was green; a second the *chalcitis*, which was yellow; a third the *for*, which was red. *Alzagiat* is a name also used by him to express all these kinds; and this word the interpreters generally render *atramenta*, inks. This is generally supposed to express their being all black substances, which is not the case; but it properly signifies, that they are all vitriolic fossils: *atramentum* being a name of vitriol, as a substance used in the making of ink.

There are two kinds of *colcothar*, *natural* and *artificial*.

COLCOTHAR, *Natural*, otherwise called *chalcitis*, is a red vitriol, brought from Germany; formed from the common green vitriol, calcined naturally by some subterraneous fire.

COLCOTHAR *Artificial*, is a substance which remains after martial vitriol has been calcined, and distilled for a long time by an intense fire; and by that means reduced to the redness of blood.

Mr. Le Fevre proposes an easy method of making *colcothar of vitriol*: he mixes two parts of filings of iron with one of sulphur, and a little water. After the acid of the sulphur has dissolved the iron, he exposes the paste to the air, and it changes into *colcothar*. See Mem. of the A. D. S. an. 1730, H. 52.

Colcothar of vitriol, after the action of the fire being dulcified, or the metallic parts precipitated by an alkali, or by zink, or any other of the imperfect metals, and sublimed with sal ammoniac, in either case an inflammable sulphur is prepared in the operation, and may be separated both from the sublimed flowers, and from the caput mortuum. This, and the sulphureous smell of spirit of vitriol, together with the sulphur produced by oil of vitriol and spirit of wine, prove abundantly what has been suspected by some, that vitriol contains sulphur as one of its principles, and a natural and necessary part of its composition. Phil. Trans. N^o 103.

Colcothar, after calcination, retains some of its acid and imbibes moisture from the air; but if it is washed in water, the remaining acid is discharged; it no longer attracts moisture, and becomes what is called the *sweet earth* of vitriol. Unwashed *colcothar* is an antiseptic, tonic, astringent, and corrosive, and is therefore applied externally to all putrid, sanious, and fungous ulcers. See VITRIOL.

COLCUICULTIC, in *Ornithology*, the American name of a bird of the partridge kind, described by Nieremberg. It is variegated with black, white, and red, and is a very beautiful bird. Its colours are for the most part disposed not in spots, but in longitudinal lines on the back; but on the belly they are rather in form of small and short spots. Its legs and feet are blue. It is a well-tasted bird.

COLD, something devoid of HEAT, or which contains in it no particles of FIRE.

This definition is agreeable to the sentiments of most of the modern philosophers, who make *cold* a mere negative term; and suppose the thing to consist in a privation, or diminution of heat. Others define *cold*, much on the same principle, to be that state in the minute parts of a body, wherein they are more slowly and faintly agitated than those of the organs of feeling.—In which sense, *cold* is a mere term of relation; and hence the same body becomes liable to be perceived hot or *cold*, as its particles are in a greater or less degree of motion than those of the sensible organs.

Heat is supposed to consist in a particular motion of the parts of the hot body; and hence the nature of *cold*, which is its opposite, is easily deducible: for *cold*, we find, extinguishes, or rather abates heat; whence it seems to follow, that those bodies are *cold*, which check and restrain the motion of the particles wherein heat consists.

Now, there are three kinds of bodies which may do this: viz. either those whose particles are perfectly at rest; or those whose particles are indeed agitated, but that less violently than those of the hot body to which they are applied; or, lastly, those whose particles have a motion proper for exciting the sensation of heat, but which move with a different determination; so as to retain and change the motion of the particles of the organ.

Hence, there arise three different kind of *cold*, or cold bodies: the first is, that *cold* common to all hard bodies, which consists in the rest of their parts. The second is that which arises on plunging any part of our body in water; which consists in this, that the parts of our præcordia, being more briskly agitated than those of the fluid, communicate part of their motion to it. The third, the cold felt on collecting even warm air with a fan, or in blowing hot breath out of our mouth, with the lips

lips close shut; which consists in this, that the direct motion of the particles of air does, in some measure, change and rebate the motion and determination of the parts of the body: and hence it is, that a cold body cannot cool another without heating itself. Hence also it is, that the more parts of a frigid body are at rest, the more must the particles of a warm body, applied to heat them, lose of their motion, and by consequence of their heat. Thus a marble, having more quiescent parts than wood, which is full of pores and interstices, is felt colder than wood. Hence also we see why air, near marble and other dense bodies, feels somewhat colder than in other places.

On this principle, the two latter kinds of *cold* appear somewhat more than privations: the particles inducing the *cold* may be esteemed real frigorific corpuscles; and the coldness be deemed a real quality as well as hotness. These particles do not only check the agitation of those continually diffused from the inner parts of the animal to the outer; but, having an elastic power, they bend and hang about the filaments of the body, pinch and squeeze them; and hence that acute pungent sensation called *cold*.

That *cold* is more than a mere relation, or comparison, is evident from its having real and positive effects; such as FREEZING, CONGELATION, CONDENSATION, RAREFACTION, BURSTING, &c.

Cold is the destroyer of all vegetable life, when increased to an excessive degree; and it is difficult to say how much increase of it the hardier of them are, or are not able to bear. We find many of our garden plants and flowers, which seem to be very stout and hardy, go off at a little increase of *cold* beyond the ordinary standard. In the severe winter in 1683, Mr. Roberts tells us, that the artichokes and cauliflowers all perished; and that the odoriferous suffrutices, such as thyme, sage, lavender-cotton, and the like, were generally killed, very few escaping, except such as had been planted the preceding year, and were therefore so low as to have the advantage of a covering of snow over them; which is the defence nature has given to the natives of the coldest countries, and proves superior to any thing that can be invented by art for their preservation. In the corn-fields, such parts of them as had remained covered with snow, had escaped very well, the corn all looking fresh and vigorous, after the melting of it in the spring: but when the lands had lain so exposed that the snow had melted off, the crop was generally destroyed, and the farmer obliged to sow the place anew. Phil. Trans. N^o 165. See FROST.

Dr. Clarke takes *cold* to be owing to certain nitrous, and other saline particles, endued with particular figures proper to produce such effects. Hence, sal ammoniac, saltpetre, or salt of urine, and many other volatile and alkalizate salts, mixed with water, increase its degree of *cold* very sensibly. Hence also that popular observation, that *cold* prevents corruption; which, however, must not be admitted without an exception; since, if a hard, porous body have its interstices filled with water, and this be too much dilated by freezing, the including body will be burst. And thus it is, that *cold* proves destructive to the parts of some plants.

COLD, Artificial. See FREEZING, or THERMOMETER.

COLD Potential. See POTENTIAL.

COLD Baths. See BATHS.

COLD Fusion. See FUSION.

COLD Diamargariton. See DIAMARGARITON.

COLD Diatrageanth. See DIATRAGACANTH.

COLD Distillations. See DISTILLATION.

COLD, in Medicine, arises from obstructed perspiration, and is found to be productive of inflammatory disorders, as frozen limbs, gangrenes, coughs, pleurisies, peripneumonies, rheumatic pains, consumptions, apoplexies, palsies, &c. which see under their proper heads.

To remove a cold in the beginning, small and repeated bleedings are recommended, which likewise prove beneficial in coughs, and in the confirmed consumption, even after a purulent spitting and hectic symptoms have appeared. The quantity to be taken away at a time, may be from four to seven or eight ounces, once in eight or ten days: concerning which it is observable, that the patients do not find themselves so much relieved on the first as on the second or third night after bleeding.

What we commonly call catching *cold*, may be cured by lying much in bed; by drinking plentifully of warm sack whey, with a few drops of spirits of hartshorn in it; posset-drink, water-gruel, or any other warm small liquor. In short, it ought to be treated first as a small fever, with gentle diaphoretics; and afterward, if any cough or spitting should remain, by softening the breast with a little sugar-candy, and oil of sweet almonds, or a solution of gum ammoniac in barley-water; taking care to go abroad well clothed.

This is a much more easy, natural, and effectual way than the common practice by balsams, linctuses, pectorals, &c. which serve only to spoil the stomach, oppress the spirits, and hurt the constitution.

To prevent the catching of cold, the Jesuits bark is recommended in the Phil. Trans. N^o 478. p. 3. See PERUVIAN-bark.

COLD is also a disease to which horses are subject: this is usually occasioned by want of regular exercise, by overheating them in riding, and suffering them to cool too fast, or neglect of rubbing them down when they come in hot after journeys. The signs of a *cold* are a cough, heaviness, watery eyes, kernels about the ears and under the jaws, gleet of the nose, and rattles in breathing, &c. Bleedings, hot mashes of bran and water, and moderate exercise will, in most cases, be an effectual remedy. To these may be added balls consisting of warm opening ingredients: Dr. Bracken prescribes the following: take anniseed, carraway seed, and greater cardamoms, finely powdered, of each one ounce, two ounces of flower of brimstone, one ounce and a half of turmeric, in fine powder, two drams of saffron, two ounces of Spanish juice dissolved in water, half an ounce of oil of anniseed, one ounce and a half of liquorice powder, and a sufficient quantity of wheat flour: let these ingredients be well beat in a mortar and made into a stiff paste; and given in small quantities about the size of a pullet's egg.

COLD-charge, in *Farriery*, a medicine, consisting of vinegar, bole, and the whites of eggs, mixed to the consistence of a poultice, and spread over the injured part for the cure of strains, &c.

COLD-finch, in *Ornithology*, the name of a bird of the *œnanthe* kind, or nearly approaching to that genus, common about the Peak in Derbyshire. Its belly is white; its breast of a yellowish brown, and its head and back of a brownish or greenish grey; the long feathers of its wings and tail are black, but with some variegation of white toward the end; its beak is slender, straight, and somewhat ridged or triangular; it feeds on worms and other insects.

COLD water. See WATER.

COLDENIA, in *Botany*, a genus of the *tetandria tetragynia* class. Its characters are these; it hath a funnel-shaped flower of one petal, spreading at the top, and obtuse; and four stamina, which are inserted in the tube of the petal. In the centre are inserted four oval germina, each supporting a hairy style: the germina afterward become so many oval, compressed, rough fruits, terminated by four beaks, inclosed by the empalement. We know but one species of this genus, which is a native of India.

COLDSHIRE Iron, such as is brittle when it is cold; see IRON.

COLE-fish, a name for a fish of the whiting-kind, called by authors *afellus niger*, by Artedi and Linnæus reckoned a species of the *GADUS*, and in Cornwall, and some other parts of England, the *rawlin pollack*. It is very common on the coasts of Northumberland, Yorkshire, and other northern counties of England, and is called the *cole-fish*, or coal-fish, from its blackness. It has something of the taste of the cod, but much inferior to it. This fish is salted and dried for sale.

COLE-mouse, in *Ornithology*, the name of a small bird of the tit-mouse kind, distinguished from all the rest by being the smallest of all the tit-mouse kind, and having a white spot on the back part of its head. See PARUS.

COLE-pearch, in *Natural History*, a name given to a small fish, much esteemed about Dantzick and other places, for its delicate flavour. It is very like the common river pearch, but that it does not grow so large, and has a greater variety of colours, and its head is proportionably larger. Phil. Trans. N^o 83.

COLE-seed, the seed of the naphew or napus, propagated in many parts of England to great advantage, for the oil expressed from the seeds. It is much sowed in the moory land in the fen countries; and the land is prepared for it by the method of BURN-baking, or BURNING. The freshest mould is found best for it, or what the farmers call a luffy soil, which is newly broken up, and has been long at rest; but with plenty of manure, and deep frequent plowing, it will grow in any soil. Indeed the land cannot be too mellow, nor too much pulverized for this plant.

It loves rich fat land, and succeeds very well on marsh and fen-lands, and particularly on ground newly recovered from the sea. The ranker the land is for *cole-seed* the better. This seed is principally brought from Holland, though it is very good when taken from our own plants, for growth as well as other uses. The sowing this seed is a very advantageous piece of husbandry. The best seed is that which is largest, fairest, and of the clearest colour. It is very apt to be mouldy, if not kept very dry. It is to be sown in July, the land being previously ploughed

ploughed and harrowed: the quantity of seed is half a peck allowed for an acre.

The plants are afterwards hoed like turneps. The slugs and insects which infest this plant are destroyed by a mixture of slaked lime and wood ashes; ten bushels of lime and fifteen of ashes being allowed to an acre, and this also serves to forward the crop.

Some sow it for the sake of the seed; others by way of a winter food for the cattle in the months of January, February, and March, when other food is wanting. It will do very well in poor lands for this purpose; but the richer grounds only will make it rank enough for seed. If the winter be mild, it will after feeding grow again, and afford a second winter's supply, and after cutting up the stumps, will shoot out young sprouts, very sweet, and in great abundance.

But Mr. Young observes, that turneps will answer the purpose much better; and he discourages the culture of it for food in April and May to succeed turneps, because it produces only a small quantity per acre: as he observes that if it is fed off with sheep or cattle, and afterward reserved for seed, the crop is much damaged by it; and he adds, that the principal profit of the crop is the seed, which amounts to five times the value of food gained by it.

Mr. Miller, however, alleges that one acre of land planted with *cole*, will produce nearly as much food as two acres of turneps; and there is this advantage attending the culture of this plant, that it will bear a severe frost, and yield a constant supply of food, when the ground is so frozen, that the turneps cannot be taken up. But caution should be used in feeding cattle with this plant. In the fen countries they turn their sheep to fatten upon the feed about Michaelmas; and it is observed that sheep will thrive more on this pasture in a month than they will on turneps in two.

In Flanders *cole-feed* is sown and transplanted like cabbages: the land in which it is sown is ploughed twice before winter: it is again ploughed in May, harrowed two or three times and rolled: and these operations are repeated in July; when the seed is scattered over it by the three fingers, the land lightly harrowed and afterwards rolled. Twenty-four pounds of seed will sow three acres, and yield plants sufficient for twelve acres. The land for the plants, when the previous crop is removed, is thrice ploughed; afterwards harrowed, and ploughed again with an open trench at small intervals in September. In the beginning of October the plants are removed and placed in rows across the furrows, at the distance of a foot, and about six inches distant from one another. The ground may be afterwards sown with pulverized pigeon's dung, which is the best manure for these plants; allowing about thirty bushels to an acre. The loose earth in the trenches is then thrown among the plants in the rows: which is again repeated early in the spring. When it turns yellow, or about the beginning of July, it is reaped like corn, and after remaining three or four days stacked in the field, where it heats and yields a greater quantity of oil than it would have otherwise done, in September it is threshed and dressed on a kind of floor in the field.

When it is kept for seed, it is to be reaped in the manner of wheat, as soon as one half of the seed looks brown: it is to be left a fortnight to dry on the ground, never turning it, for fear of shedding the seed; and when this time is over, it is to be gathered up in large sheets, and carried to the barn for immediate threshing; or it may be threshed in the field on a large sheet. Its common produce is five quarters of seed from an acre, and the value of this is about five pounds.

Mr. Donellan, near Dublin, obtained a crop by the horse hoeing culture, of seventy-three tons six hundred weight on an English acre; but Mr. Young, by broadcast sowing, and hand-hoeing, which he reckons the best method of cultivating this plant, obtained only five tons per acre.

The land where this has grown, is very well prepared by it for wheat; though some sow oats upon it, as what succeeds best of all after it. When the oil is pressed out of the seeds, they use the remaining cakes in some places as firing; but in others they give them to their cows and other cattle in winter, when other food is scarce. They will very soon fatten those designed for sale; and the yellowness and rankness of the fat may easily be remedied, by feeding them on dry fodder a fortnight or three weeks before they are killed. In some places, they mix the powder of these cakes in water, and give it to their calves till they are three or four days old, instead of milk, and it does as well for them, till they are able to eat grass or hay. It is a good method to burn the stubble on the *cole-feed* lands, for it is so stumpy that it is of no use to plough it in.

COLEOPTERIA, in *Zoology*, an order of insects, comprehending all those with four wings; the external pair of which are hard, rigid, and opaque, and form a kind of case for the interior pair; add to this, that the mouth consists of two transverse jaws.

These animals are known in English by the general name of beetles; whereof authors have established a great many genera, from the different figures of their antennæ, or horns, and other general distinctions; such are the *scarabæus*, or beetle properly so called, the *dermestis*, *castida*, *coccinella*, *chrysomela*, *dytiscus*, *tenebrio*, &c.

COLEWORTS, in *Gardening* for the botanical characters, see **BRASSICA**. The common *colewort*, or Dorsetshire kale, is now almost lost near London; where the markets are usually supplied with cabbage plants instead of them. Indeed, where farmers sow *coleworts* to feed their milch cattle in the spring, when there is a scarcity of herbage, the common *colewort* is to be preferred, as being so very hardy that no frost will destroy it. The best method to cultivate this plant in the field, is to sow the seeds about the beginning of July, in moist weather, which will bring up the plants in about a fortnight. The quantity of seed for an acre of land is nine pounds. When the plants have got five or six leaves they should be hoed, as is practised for turneps; but they should be kept thicker than turneps, as being in greater danger of being destroyed by the fly; this work should be performed in dry weather, that the weeds may be killed. About six weeks after, the plants should have a second hoeing, which if carefully performed will clean the ground, so that they will require no farther culture. In the spring they may be drawn up and carried out to feed the cattle, or these may be turned in to feed upon them as they stand; but the former method is to be preferred; for when the cattle are turned in among the plants, they will tread down and destroy more than they eat; especially if they are not fenced off by hurdles. Miller.

COLIBERTS, *Coliberti*, in *Law*, were tenants in soccage, and particularly such villains as were manumitted, or made freemen. Domesday.

But they had not an absolute freedom; for though they were better than servants, yet they had superior lords to whom they paid certain duties, and in that respect might be called servants, though they were of middle condition between freemen and servants. Du-Cange.

COLIBRI, in *Ornithology*, the name of a bird very remarkable for its beauty, its form, its manner of living, and its littleness. It sucks its food from flowers, on which it seldom lights, but extracts the honey from their nectaria with its long, fine, delicate tongue. There are species of them which have all the colours of precious stones, and the finest and most beautiful plumage imaginable. They fly with great rapidity, and are heard before they are seen, making a kind of humming noise, from which they are called **HUMMING-birds**.

COLIC, in *Medicine*, a severe gnawing pain, felt in the lower venter; so called, because the ordinary seat of the disorder was anciently supposed to be in the intestine colon.

Physicians usually distinguish four kinds of *colic*, the *bilious*, *inflammatory*, *windy*, and *nephritic*—The *bilious colic* has its rise from certain sharp, bilious, stimulating humours, which being diffused through the intestines, vellicate their fibres, and occasion a sensation of pain: though Willis takes the part here principally affected to be the mesentery.

Dr. Sydenham observes, that the *bilious colic* usually attacks people about the beginning of summer; that it is generally attended with a vomiting of bilious green liquor; that the patient complains of excessive heat, great gripings, faintness, &c. and that if it be not soon remedied, it is apt to turn into the iliac passion.

Baglivi notes, that if the patient sweat much, and be much enfeebled, the disease is apt to degenerate into a palsy. The cure, he says, depends on bleeding, gentle cathartics, and clysters; and if it arise from a crapula, an emetic is to proceed: after which, the cure is to be completed with proper anodynes.

COLIC, *Inflammatory*, is the most dangerous, and rises from an inflammation of the stomach and intestines. See **INFLAMMATION**.

COLIC, *Windy*, is a vague pain, never staying in any fixed place; being produced by windy vapours, which swell and distend the intestines they are inclosed in.

COLIC, *Nephritic*, is that felt particularly in the reins, whence it has its name.

It usually has its rise from some stone, or gravel detached from the kidneys, and fallen into the pelvis. The *pareira brava* is said to be a specific for *nephritic cases*.

Some, particularly Sydenham, mention a *nervous colic*, mostly incident to hysteric and hypochondriac persons; but this appears only a species of the *windy colic*.

Persons

Persons subject to colics. These are diseases that attack both sexes, but in general women are more subject to them than men; and they are the more violent, and usually of longer duration in that sex than in the other. In women they usually appear gentle, and often trifling at first; but they gain strength by time, and often become convulsive. The persons of that sex, peculiarly subject to colics, are those of a sanguine temperament, and such as have had obstructions in the menses. Women in child-bed are also very subject to flatulent colics, when the belly has not been properly bound round after delivery: in this case the colics not only are troublesome during the month of lying-in, but often become habitual, and do not leave them afterwards. In men, the middle-age is more subject to colics, than either the young or old periods of life; and people are most subject to fall into them who have been subject to irregularities in the hæmorrhoidal discharges, and who have nephritic complaints. Men are often thrown into the bilious colic by violent passions of anger, especially if they eat or drink immediately afterwards, or they themselves be of a CHOLERIC temperament.

Prognostics in colics. The oftener any person has been affected with colics, the more subject they are to return on any slight occasion, and the more likely to become habitual. All colics, that attack persons with a chillness first, are more violent than those which do not, and they often are either attended at the very first with an inflammation, or have one come on soon afterwards. In general also, colics attended with costiveness are worse than those in which the patients have some stools. Reachings to vomit are always bad symptoms in colics, and give a suspicion of the case turning to a miserere or iliac passion: but this is to be observed, that when the patient has just before eaten very heartily, and drank much, especially of cold liquors, then such reachings are natural, and are not to be accounted the bad symptoms they are at other times. In women, when the reachings are violent, there is always danger of a vomiting of blood. The more violent the pains of the colic are, the more danger there is of their bringing on convulsions. A colic arising from a stoppage of the menses, and attended with a stagnation of blood about the viscera, when it is of long standing, threatens the coming on of a quartan, a dropsy, or cachexy. And a hæmorrhoidal colic, when arising from a retropulsion of the gout or sciatica, by wrong medicines, is always a case of great danger. This, however, always happily goes off, if there comes on a discharge of blood, or even of a serous matter, from the hæmorrhoidal veins. Sometimes also it goes off at once, but very unhappily, by a sudden regurgitation of the matter upon the viscera, especially upon the liver: the consequences of which are, obstruction of that viscus, ascites, hæmics, or dropsies. Sometimes also this colic goes off by the appearance of scorbutic spots on the body, in different parts.

The bilious colic, if the offending matter be not immediately evacuated, after its acrimony has been obtunded by a proper medicine to fit it for evacuation, too often brings on dangerous inflammatory fevers. In colics which have held the patient a long time, a hiccough coming on is a very bad omen. Finally, a colic, when improperly treated with opiates and anodynes, often brings on a palsy.

Method of cure. In flatulent and mucous colics, carminative and emollient clysters are to be injected, composed of decoctions of chamomile flowers, marshmallows, and a mixture of the elixir proprietatis, or common salt, by way of stimulus; and after this the carminative medicines, such as angelica root, Winter's bark, anise and caraway seeds, and cloves, with the other spices, are to be given, with intermediate doses of laxative medicines; and to these medicines may be added occasionally, the digestive salts, such as vitriolated tartar, with nitre and cinnabar, and the spirit of tartar, and sweet spirit of nitre, with the essence of orange-peel, &c.

In the bilious colic, the attemperating and absorbent medicines are to be given; as nitre, mother of pearl, calcined crystal, oil of almonds, and manna, with the broths of white meats, and the carminative seeds. If these things are thrown up by vomit, recourse must be had to clysters, and to applications of warm things to the abdomen, such as are before described.

In the hæmorrhoidal and nephritic colic, clysters are to be frequently given of oil of olives and linseed, with a little nitre. After this, warm broths, with oil of sweet almonds, are to be drank in frequent draughts, and powders composed of nitre, crab's eyes, and cinnabar, are to be given at frequent intervals; and if the pains are vehement, a small dose of theriac, or of the storax-pill, may be given with the powder, to be taken at night. When the violence of the fit is over, the gentle alexipharmics are to be given, with strengthening medicines,

to restore the due tone of the parts. Externally fomentations may be applied to the rectum, and cataplasms of the leaves of mullein and mellilot, on which the patient may sit while they are warm; and heat may be applied to the abdomen by bladders half filled with water, or milk made of a due warmth, and by bricks heated a little, and by bags containing carminative and nervine ingredients. Liniments may also be rubbed in of the oils of nutmegs and bays, and spirit of wine and camphor, particularly in the part where the pain is most violent.

In the hysterical colic, clysters are frequently to be injected, made of decoctions of the herb veronica in broth, with a little of the oil of dill and common salt. When the patient is averse to clysters, and the case is not violent, warm baths for the feet, and the sitting over the steam of warm water, will sometimes prove sufficient, and gentle purges of decoction of senna, and the like, are to be given, or a gentle dose of the resin of jalap, dissolved with the yolk of an egg in some of the uterine waters; after these, alexipharmics and carminatives are to be given, such as the roots of pimpernel and angelica, with anise, and the other warm seeds. If the case is violent, the attemperating nitrous medicines may be given, and with them gentle anodynes; and finally, such things as will restore the due tone of the parts. The person should be kept in a gentle warmth during the whole time of the disease, and spirit of castor may be occasionally rubbed in on the abdomen.

By way of preservative from the hæmorrhoidal and hysterical colic, it is very proper to bleed in the foot at the spring and autumn seasons, and proper uterine medicines should be taken to keep up the menstrual discharges; and to prevent suppressions of the hæmorrhoidal, leeches should be applied to the parts, and the bowels should be carefully kept gently lax. Juncker's Consp. Med. p. 573. Dr. Percival recommends alum, in doses of ten to twenty grains every four or six hours, as an effectual remedy in various painful disorders of the bowels. CASTOR-oil, administered either in clysters, or by the mouth, is likewise an excellent remedy in all cases of this kind. See Med. Obs. vol. ii. p. 285, &c.

This distemper has sometimes taken its rise from concretions formed on plum-stones lodged in the guts. See Medic. Ess. Edinb. vol. i. art. 32. Abridgm. vol. ii. p. 214.

Colic pains sometimes arise from viscidities in the intestines; and the VITRUM antimonii ceratum has been found successful in such cases.

Baglivi recommends chamomile as an antidote against the colic, from what cause so ever it arise. Where the disease is obstinate, much riding has been found of special service.

COLICA Dammoniorum, or Devonshire COLIC of Huxham, is probably the same disease with the *colica saturnina* of Juncker, the *colica Pictonum*, and *plumbariorum*, of others, and the dry belly-ach of the West Indies; and has been described by different writers under a variety of names, as the *bilious colic*, the *painter's colic*, &c. taken from the peculiar circumstances that have attended it: and as the immediate cause of it is a spasm, it has been frequently called the *spasmodic colic*. The colic of Poitou, and that of Devonshire, have been ascribed by Dr. Baker to the same cause; viz. the poisonous quality of lead. As the former disease prevailed most, where the wines were weak and sour, some writers attributed it to the acid of the wine; whilst others, with greater probability, ascribed it to the litharge which was used to correct the acid, and to improve the taste of the wine: and it is observable, that the most acid wines were drank with impunity, till this fraudulent adulteration was introduced. Dr. Baker has attributed the epidemic colic of Devonshire to the lead, with which the cyder of that county is impregnated: in proof of which charge, he alledges, that this disease is no longer known in the province of Poitou, and other parts of France and Germany, since the pernicious method of adulteration, above recited, has been made punishable with death: and that in the counties of Hereford, Gloucester, and Worcester, where no lead is used in the cyder apparatus, this disease is not known; that it prevails most in those parts of Devonshire where the greatest quantity of cyder is made; and that their machinery for making it has a quantity of lead in it; and that the must, or expressed juice of the apples before fermentation appeared, by experiment, to have had dissolved lead in it. Others have ascribed this disease to the roughness and acidity of the Devonshire cyder, and not to the lead solution. Gentle purges and opiates have been recommended for the cure of this disorder: some have prescribed mercurial salivation: others have applied blisters to the thighs, near the groin, and to the belly; and others again have extolled alum. Med. Transf. vol. i. p. 175, &c. &c. Ibid. vol. ii. p. 68, &c. Huxham de Morbo Colico Dammoniorum apud Observ. de Acre, &c. vol. i.

COLICA Arteria and Vena, in *Anatomy*. See **MESENTERIC**.
COLIC-shell, in *Natural History*, a name given by some to the *porcellana*, or *concha venerea*, from its supposed virtue in curing that disease.

COLIC-stone, in *Natural History*, the name given by some modern authors to a stone found in New Spain, and some other parts of America, and esteemed of great virtues there in the cure of the colic, and in diseases of the womb. It is a species of jasper very nearly approaching to the lapis nephriticus, and called by the natives *tlayotic*, and by the Spaniards, *piedra de hyada*. It is of a considerable weight and hardness, and is of a dusky green colour without any variegations. The Indians cut it into various forms, sometimes of men, sometimes of their idols; sometimes also they figure it into long and even columns, and sometimes into round and flat pieces. All these are nicely polished, and those of the last shape are what are principally used in the cure of the colic. They wet these with their spittle, and then rubbing them, till hot, with their hands, they apply them to the navel in a fit of the colic; and they say, that they immediately carry it off, by determining the humours to pass off, either upwards, or downwards, or both ways. They sometimes cut this stone into flat plates also, with two holes cut at each end, by means of which it may be worn, tied to the wrist by a ribband, and it is supposed thus to be a preservative from all diseases of this kind, and from many others.

COLIN, in *Ornithology*, the name of an American bird, called by most authors a quail, but supposed by Nieremberg to be rather a species of partridge. There are several distinct species of this bird, all very common in the Spanish West Indies, very well tasted, and much valued at table.

COLIPHUM, a name given by Athenæus, and some other authors, to coarse bread made of meal with the bran among it, and such as is eaten by the poorer people in most countries.

The word is derived from *καλον*, a limb, and *ιστις*, strength, and is a very expressive word, as this sort of bread makes people robust and strong, and is greatly preferable to any other kind for people of strong constitutions, who use hard labour or much exercise. It signifies also a kind of food composed of bread, new cheese, and roasted flesh, which Pythagoras taught the athletes to use, who before had been used to live on figs.

COLIR, an officer in China, who inspects what passes in every court or tribunal in the empire; and though himself not in the number, yet is assisting at all assemblies, the proceedings whereof are communicated to him. He is properly what we may call an *inspector*: he gives secret intelligence to the court; and even, on occasion, accuses the mandarins of their faults openly; and that not only of faults in their public offices, but even in private life. To keep him impartial, he is kept independent; by having the post for life. These *colirs* make even the princes of the blood tremble.

COLISEUM, or **COLISÆUM**, in the *Ancient Architecture*, an oval amphitheatre, built at Rome by Vespasian, in the place where stood the basin of Nero's gilded house.

The word is formed from *colosseum*, on account of the colossus of Nero, that stood near it; or, according to Nardini, from the Italian *coliseo*.

In this were placed statues, representing all the provinces of the empire; in the middle whereof stood that of Rome, holding a golden apple in her hand. The same term *coliseum*, is also given to another amphitheatre of the emperor Severus.

In these *colisea* were represented games, and combats of men and wild beasts; but there are now little remaining of either of them; time and war having reduced them to ruins.

COLITES, in *Natural History*, a name given by some writers to a stone supposed to imitate the human *penis*, or *testes*, separately, or both together.

COLLAR, an ornament worn by the knights of several military orders, hanging over their shoulder, on the mantle; and its figure drawn around their armories. The collar ordinarily consists of a chain of gold, enamelled; frequently set with cyphers, or other devices, and having the badge of the order suspended at bottom. The collar of the order of the Garter consists of SS, with roses enamelled red, within a garter enamelled blue, the George at the bottom.

Maximilian is said to have been the first of the emperors who put the collar of an order round his arms, upon his being made chief of that of the Golden Fleece.

COLLAR, in *Roman Antiquity*, a chain fixed round the necks of slaves who had run away, after they were taken, with an inscription denoting that they were deserters, and requiring them to be restored to their proper owners.

COLLARS, in *Antiquity*, were not only worn by way of ornament, but also as **AMULETS**, against incantations, &c.

COLLAR, *Knights of the*, a military order in the republic of Venice, called also the order of St. Mark, or the Medal.

This order is conferred by the doge and the senate: the knights bear no particular habit, only the collar, or chain, which the doge puts round the neck; with a medal, whereon is represented the winged lion of the republic.

COLLAR of Brawn. See **BRAWN**.

COLLAR, in *Building*. See **CINCTURE**.

COLLAR of the plough, a term used in agriculture to express a ring of iron, which is fixed to the middle of the beam, and serves to receive the ends of two chains, the lower one called the tow-chain, and the upper one called the bridle-chain. The lower chain is fixed at its other end to the box, and the upper, or bridle-chain, to the stake which runs parallel with the left hand crow-staff. These chains, by means of this collar, and their other insertions, serve to join the head and tail of the **PLOUGH** together. In some places the bridle-chain is not fixed to the collar, but to the beam-itself, by means of a pin; and this is the better way on many accounts.

COLLAR-beam, among *House-Carpenters*, the beam which is framed across between two principal rafters.

COLLAR, in *Ship-Building*, a rope fastened about her beak-head, into which the dead man's eye is raised that holds the main-stay. There is also a collar, or garland, about the main-mast head, which is a rope wound about there, to save the shrouds from galling.

COLLATERAL, in *Geography*, any thing, place, country, &c. situate by the side of another.

The word is compounded of *con*, with, and *latus*, side.

COLLATERAL Points, in *Cosmography*, the intermediate points; or those between the cardinal points. The *collateral points* are either *primary*, which are those removed by an equal angle on each side from two cardinal points; or *secondary*; which, again, are either those of the first, or second order. The first are those equally distant from a cardinal and first primary; the latter equally distant from some cardinal primary, and the first secondary.

COLLATERAL Winds, are those blowing from *collateral points*. See **WIND**.

Such are the north-east, south-east, north-west, south-west, &c. with their subdivisions.

COLLATERAL Bee-boxes. See **HIVE**.

COLLATERAL, in *Genealogy*, is understood of those relations which proceed from the same stock, but not in the same line of ascendants, or descendants; but being, as it were, aside of each other.

Thus uncles, aunts, nephews, nieces, and cousins, are *collaterals*, or in the *collateral line*. These in a higher degree, and nearer the common root, represent a kind of paternity with regard to those more remote; but there is a kind of equality between *collaterals* in the same degree. *Collateral descent* stands in opposition to *direct descent* to posterity; the former passing to brothers children, but the latter only from father to son. See **DISTRIBUTION**, **INTESTATE**, **KINDRED**.

COLLATERAL Assurance, in *Law*, is a bond, or other security, made over, and beyond the deed itself, for the performance of covenants between man and man; thus called, as being external, and without the nature and essence of the covenant.

Crompton says, that to be subject to the feeding of the king's deer, is *collateral* to the soil within the forest. It may be added, that liberty to pitch booths in a fair, or another man's ground, is *collateral* to the ground.

COLLATERAL Condition. See **CONDITION**.

COLLATERAL Warranty. See **WARRANTY**.

COLLATERALIS Penis, in *Anatomy*, a muscle, otherwise called *erigens*, or **ERECTOR penis**.

COLLATIO Honorum. See **HOTCHPOT**.

COLLATION, in *Canon Law*, the conferring, or bestowing a benefice by a bishop, who has it in his own gift, or patronage, and this he does, *jure pleno*.

Collation differs from *institution*, in that the latter is performed by the bishop, at the motion or presentation of another: and the former on his own motion.

Besides, by *collation*, the church is not full; for the highest patron may at any time remove the collatee, except he hath a right to *collate*, which *plenary* by *collation* may be pleaded: the bishop's *collation*, in this respect, is no more than a temporary provision for celebration of divine service, till the patron presents.

Collation also differs from *presentation*, in that the latter is properly the act of a patron, offering his clerk to the bishop to be instituted into a benefice; whereas the former is the act of the bishop himself. The *collator* can never confer a benefice on himself.

In the Romish church, the pope is the collator of all the benefices, even elective ones, by prevention; setting aside consistorial benefices, and those in the nomination of lay patrons. Prelates and bishops are called *ordinaries*, or ordinary collators.

If the ordinary collator neglect to exercise his right for six months, the superior collator may collate by devolution. Thus, if the bishop neglect, the metropolitan may confer;

then

then the primate; and so on from degree to degree. In France, the king is the collator of all the benefices whereof he is patron, excepting consistorial ones, to which he has only the nomination, and the pope, by virtue of the concordat, is obliged to confer on whomsoever the king nominates. For the rest, he is direct and absolute collator: and may confer them, by virtue of a kind of priesthood annexed to royalty.

Other lay patrons have seldom more than a mere presentation; the *collation* properly belonging to the bishops: yet there are some abbots who have the full right of *collation*. The canonists reckon two kinds of *collation*; the one free and voluntary, the other necessary. The first depending on the mere will of the collator, who may chuse whom he pleases to fill the vacancy. In the latter, the collator is not at his liberty: which is the case where a benefice has been resigned, or changed, and that resignation, or permutation, allowed of by the superior; for here the collator is obliged to grant the provision to the resignatory, or compermutant.

It is a maxim in the new canon law, *collationes sunt in fructibus*; "These who have the fruits of a benefice, have the *collation*." But in that case the word *collation* is used for presentation.

COLLATION, in *Common Law*, is the comparison, or presentation of a copy to its original, to see whether or no it be conformable: or the report, or act of the officer who made the comparison.

A collated act is equivalent to an original, provided all the parties concerned were present at the *collation*.

COLLATION is also used among the Romanists, for the meal or repast made on a fast-day, in lieu of a supper.

Only fruits are allowed in a *collation*: F. Lobineau observes, that anciently there was not allowed even bread in the *collations* in Lent: nor any thing besides a few comfits and dried herbs, and fruits: which custom, he adds, obtained till the year 1513.

Cardinal Humbert observes farther, that in the middle of the eleventh century, there were no *collations* at all allowed in the Latin church in the time of Lent: and that the custom of *collations* was borrowed from the Greeks; who themselves did not take it up till about the eleventh century.

COLLATION, *collatio*, *συμβολή*, in *Rhetoric*, is used for COMPARISON.

But Scaliger distinguishes, alledging that in *collation*, one thing is compared to another that has preceded it: and that the contrary happens in comparison. That to which any thing is compared is called *protasis*; and that which is compared is called *antapodosis*.

COLLATION is also popularly used for a repast between dinner and supper.

The word *collation*, in this sense, Du-Cange derives from *collocutio*, *conference*; and maintains, that originally *collation* was only a conference, or conversation on subjects of piety, held on fast-days in monasteries; but that, by degrees, the custom was introduced of bringing in a few refreshments: and that by the excesses to which those sober repasts were at length carried, the name of the abuse was retained, but that of the thing lost.

COLLATION of seals, denotes one seal set on the same label, on the reverse of the other.

COLLATIONE facta uni post mortem alterius, in *Law*, a writ directed to the justices of the common-pleas, commanding them to issue their writ to the bishop, for the admission of a clerk, in the place of another presented by the king, who died during the suit between the king and the bishop's clerk: for judgment once passed for the king's clerk, and he dying before admittance, the king may bestow his presentation on another.

COLLATIONE heremitagii, in *Law*, a writ whereby the king conferred the keeping of an hermitage upon a clerk.

COLLATIONIS forma. See CONTRA.

COLLATIVE Advowsons. See ADVOWSON.

COLLEAGUE, a companion, partner, or ASSOCIATE in the same office, or magistrature. See ADJUNCT.

The word is particularly used in speaking of the Roman consuls and emperors.

COLLECT, COLLECTION, a voluntary gathering of money for some pious or charitable purpose.

Some say, the name *collect* or *collection* was used, because those gatherings were anciently made on the days of *collects*, and in *collects*, i. e. in assemblies of Christians; but it was more probably, *quia colligebatur pecunia*.

COLLECT is sometimes also used for a tax, or imposition, raised by a prince for any pious design.—Thus, histories say, that in 1166, the king of England, coming into Normandy, appointed a *collect* for the relief of the Holy Land, at the desire, and after the example of the king of France.

COLLECT, in the liturgy of the church of England, and the mass of the Romanists, denotes a prayer accommodated to any particular day, occasion, or the like.

In the general, all the prayers in each office are called *collects*; either because the priest speaks in the name of the whole assembly, whose sentiments and desires he sums up by the word *oremus*, *let us pray*, as is observed by pope Innocent III. or because those prayers are offered when the people are assembled together; which is the opinion of Pamelius on Tertullian.

The congregation itself is by some ancient authors called *collect*.

The popes Gelasius and Gregory are said to have been the first who established *collects*. Despenfe, a doctor of the faculty of Paris, has an express treatise on *collects*, their origin, antiquity, authors, &c.

COLLECTION, *collectio*, in *Logic*, a term used by some for what is commonly called SYLLOGISM, and RATIOCINATION.

COLLECTIVE Idea, in *Logic*, is a COMPLEX idea, which unites many ideas of the same kind under one name, or under one view: as army, dictionary, flock; &c. See COMPOUNDED idea.

COLLECTIVE, in *Grammar*, a term applied to the word that expresses a multitude; though itself be singular.

Thus, troop, company, and army, are nouns, *collective*.

COLLECTOR, a person nominated by the commissioners of any duty, the inhabitants of a parish, or the like, to raise or gather any tax, &c.

COLLECTORS, in *Botany*, such students as have attempted the knowledge of plants, without reducing it to any certain science, being barely employed about observing or getting together the various species. Linnæi Fund. Bot. p. 1.

COLLEGATORY, in the *Civil Law*, a person to whom is left a legacy in common with one or more other persons.

If a thing be bequeathed *in solido*, the portion of a deceased *collegatory* accrues to the rest.

COLLEGE, an assemblage of several bodies, or societies: or even of several persons in one society.

College, *collegium*, among the Romans, was used for an assemblage of several persons employed in the same functions, and as it were bound together to act, or serve in concert. It served indifferently for those employed in the offices of religion, of government, the liberal arts, and even mechanical arts, or trades; so that the word properly signified what we call a *corporation*, or *company*. In the Roman empire, there were not only the *college of augurs*, and the *college of capitolini*; i. e. of those who had the superintendence of the capitoline games; but also *colleges* of artificers, *collegia artificum*; *college* of carpenters, *fabricorum*, or *fabrorum tignariorum*; of potters, *figulorum*; of founders, *ærariorum*; the *college* of locksmiths, *fabrorum ferrariorum*; of engineers of the army, *tignariorum*; of butchers, *laniorum*; of dendrophori, *dendrophororum*; of centonaries, *centonariorum*; of makers of military casques, *sagariorum*; of tent-makers, *tabernaculariorum*; of bakers, *pistorum*; of musicians, *tibicinum*, &c. Plutarch observes, that it was Numa who first divided the people into *colleges*: which he did to the end, that each consulting the interest of their *college*, whereby they were divided from the citizens of the other *colleges*, they might not enter into any general conspiracy against the public repose.

Colleges were distinguished from other societies not formed into *colleges* by public authority, in this, that those who composed a *college*, were qualified to treat of the common interest of their *college*, which was, as it were, a member of the state, and had a common purse, an agent to negotiate their affairs; sent deputies to the magistrates when they wanted to treat with them; might make statutes and by-laws for the administration of their *college*, &c.

There are various *colleges* on foot among the moderns, built on the model of those of the ancients; as the *three colleges of the empire*, viz. the *college of electors*, *college of princes*, and *college of cities*, &c.

COLLEGE of Electors, is the body of electors, or their deputies, assembled in the diet at Ratisbon. See ELECTOR.

Anciently, the king of Bohemia had no deputy in this *college*; at present he has.

COLLEGE of Princes, is the body of princes, or their deputies, at the diet of Ratisbon.

COLLEGE of Cities, is in like manner, the body of deputies which the several imperial cities send to the diet.

COLLEGE of Cardinals, or the *sacred COLLEGE*, is a body composed of the three orders of cardinals, viz. cardinal-bishops, cardinal-priests, and cardinal-deacons.

Each order has its dean or chief. The dean of the cardinal-bishops, is always the bishop of Ostia. See CARDINAL.

COLLEGE is also used for a public place, endowed with certain revenues, where the several parts of learning, both divine and human, are taught, in schools, halls, or classes, appointed for that purpose.

An assemblage of several of these colleges constitutes an university.

The university of Oxford consists of twenty colleges, and five halls; that of Cambridge of twelve colleges, and four halls; and that of Paris of fifty-four colleges, such as they are: in reality there are but eleven where there is full exercise, as it is called; for the rest, the author of a late description of Paris says it is needless to recite their names, since there is no teaching in them.

Among the Greeks, the lyceum and academy were celebrated colleges; the latter of which has given its name to our universities, which in Latin are called *academiæ*. With them, the house or apartment of each philosopher, or rhetor, might be esteemed a kind of college of itself.

The Romans came late into the institution of such colleges: they had, however, several, founded by their emperors; especially in Gaul: the chief whereof were those of Marseilles, Lyons, Besançon, and Bourdeaux.

The Jews, and Egyptians too, have had their colleges; the chief of the first were those of Jerusalem, Tiberias, Nardea, Pompodita, Sura, and Babylon: the last is said to have been instituted by Ezekiel, and to have subsisted in the time of Mahomet.

Colleges of this kind have been generally in the hands of those consecrated to the offices of religion: the Magi in Persia, the Gymnosophists in the Indies, and the Druids in Gaul and Britain, had the care of educating youth in the sciences.

After Christianity became established, there were almost as many colleges as monasteries; Charlemagne, in his Capitulars, injoining the monks to instruct youth in music, grammar, and arithmetic: but this calling the monks from their solitude, and taking up too much of their time, the care of the colleges was at length put into the hands of those who had nothing else to do.

In the canon law, it is said, three persons make a college, *tres collegium faciunt*.—The colleges in London, are,

COLLEGE of Civilians, commonly called *Doctors Commons*; a college founded by Dr. Harvey, dean of the arches, for the professors of the civil law residing in this city; where usually, likewise, resides the judge of the arches court of Canterbury, judge of the Admiralty, of the prerogative court, &c. with other civilians; who all live, as to diet and lodging, in a collegiate manner, commoning together: whence the appellation of *Doctors Commons*.

Their house being consumed in the great fire, they all resided at Exeter-house in the Strand, till 1672; when their former house was rebuilt, at their own expence, in a very splendid manner. To this college belong thirty-four proctors: who make themselves parties for their clients, manage their causes, &c.

COLLEGE, Gresham, or COLLEGE of Philosophy, a college founded by sir Thomas Gresham, and endowed with the revenue of the Royal Exchange: one moiety of this endowment the founder bequeathed to the mayor and aldermen of London, and their successors, in trust, that they should find four able persons to read, within the college, divinity, geometry, astronomy, and music; who are chosen by a committee of the common-council, consisting of the lord-mayor and three aldermen and eight commoners, and allowed each, besides lodging, fifty pounds *per annum*. The other moiety he left to the company of mercers, to find three more able persons, chosen by a committee of that company, consisting of the master and three wardens, during their office, and eight of the court of assistants, to read law, physic, and rhetoric, on the same terms; with this limitation, that the several lectures should be read in term-time every day in the week, except Sundays: in the morning in Latin, in the afternoon the same in English: but that in music to be read only in English.

By 8 Geo. III. cap. 32. the building appropriated to this college was taken down, and the excise-office erected in its room. Each of the professors is allowed fifty pounds *per annum*, in lieu of the apartments, &c. relinquished by them in the college, and is permitted to marry, notwithstanding the restriction of sir Thomas Gresham's will. The lectures are now read in a room over the Royal Exchange; and the city and mercer's company are required to provide a proper place for this purpose.

In this college formerly met the Royal Society, that noble academy, instituted by king Charles II. and celebrated throughout the world, for their improvements in natural knowledge. See their history and policy, under **ROYAL Society**.

COLLEGE of Heralds, or COLLEGE of Arms, a corporation founded by charter of king Richard III. who granted them several privileges; as to be free from subsidies, tolls, offices, &c. See **HERALD**.

They had a second charter from king Edward VI. and a house built near Doctors Commons, by the earl of Derby, in the reign of Henry VII. was given them by the duke of Norfolk, in the reign of queen Mary; which house is now rebuilt.

Of this collegiate society, are three officers styled *kings of arms*, *reges armorum Anglicorum*, see **KING at arms**; *six* **HERALDS**, and four **PURSUIVANTS**.

COLLEGE of Heralds in Scotland, consists of Lyon king at arms, six heralds, and six pursuivants, and a number of messengers.

COLLEGE of Physicians, a corporation of physicians in London; who, by several charters and acts of parliament of Henry VIII. and his successors, have certain privileges, whereby no man, though a graduate in physic, of any university, may, without licence under the said college-seal, practise physic in, or within seven miles of London; with power to administer oaths, fine and imprison offenders in that and several other particulars: to search the apothecaries shops, &c. in and about London, to see if their drugs &c. be wholesome, and their compositions according to the form prescribed by the said college in their dispensatory.

By the said charter they are also freed from all troublesome offices: as to serve on juries, be constable, keep watch, provide arms, &c.

The society had anciently a college in Knight-rider-street, the gift of Dr. Linacre, physician to king Henry VIII. Since that they have had a house built for them by the famous Dr. Harvey, in 1652, at the end of Amen-corner, which he endowed with his whole inheritance in his lifetime; but this being burnt in the great fire in 1666, a new one was erected at the expence of the fellows, in Warwick-lane; with a noble library, given partly by the marquis of Dorchester, and partly by Sir Theodore Mayerne.

Of this college there are at present, a president, four censors, eight electors, a register, and a treasurer, chosen annually in October: the censors have by charter, power to survey, govern, and arrest all physicians, or others practising physic, in, or within seven miles of London; and to fine, amerce, and imprison them at discretion.

The number of fellows was anciently thirty, till king Charles II. increased their number to forty; and king James II. giving them a new charter, allowed the number of fellows to be enlarged, so as not to exceed fourscore; reserving to himself and successors the power of placing and displacing any of them for the future.

The college is not very rigorous in asserting their privileges: there being a great number of physicians, some of very good abilities, who practise in London, &c. without their licence, and are connived at by the college: yet, by law, if any person, not expressly allowed to practise, take upon him the cure of any disease, and the patient die under his hand, it is deemed felony in the practitioner.

In 1696, the college made a subscription, to the number of forty-two of their members, to set on foot a dispensatory for the relief of the sick poor: since that, they have erected two other dispensaries.

COLLEGE, Royal, of Physicians, in Scotland, is a corporation of physicians at Edinburgh, established by patent of Charles II. This college consists of a president, two censors, a secretary, and the ordinary society of fellows. They have similar rights and privileges with those of the English college.

COLLEGE, Sion, or the college of the London clergy; which has been a religious house time out of mind, sometimes under the denomination of a priory, sometimes under that of a spital, or hospital: at its dissolution under 31 Hen. VIII. it was called *Elsyn's Spital*, from the name of its founder, a mercer, in 1329.

At present it is a composition of both, viz. a college for the clergy of London, who were incorporated in 1630, in pursuance of the will of Dr. White, under the name of the *President and Fellows of SION-COLLEGE*; and an hospital for ten poor men, and as many women.

The officers of the corporation are the presidents, two deans, and four assistants; who are annually chosen from among the rectors and vicars of London; and are subject to the visitation of the bishop. They have a good library, built and stocked by Mr. Simpson, and furnished by several other benefactors, chiefly for the clergy of the city, without excluding other students on certain terms; and a hall, with chambers for students, generally occupied by the ministers of the neighbouring parishes.

COLLEGE de Propaganda Fide, was founded at Rome in 1622, by Gregory XV. and enriched with ample revenues. It consists of thirteen cardinals, two priests, one monk, and a secretary; and was designed for the propagation and maintenance of the Romish religion in all parts of the world. The funds of this college have been very considerably augmented by Urban VIII. and many private donations. Missionaries are supplied by this institution, together with a variety of books suited to their several appointments. Seminaries for their instruction are supported by it, and a number of charitable establishments connected with it, and conducive to the main object of its institution.

Another

Another college of the same denomination was established by Urban VIII. in 1627, in consequence of the liberality of John Baptist Viles, a Spanish nobleman. This is set apart for the instruction of those who are designed for the foreign missions. It was at first committed to the care of three canons of the patriarchal churches; but ever since the year 1641 it is under the same government with the former institution.

COLLEGE of justice, in Scotland. See **SESSION**.

COLLEGES of common law. See **INNS of Court**, and **CHANCERY**.

COLLEGES for disabled soldiers, seamen, &c. See **HOSPITALS**.

COLLEGIAL. See **COLLEGIATE**.

COLLEGIANS, COLLEGIANI, COLLEGIANTS, a religious sect formed among the Arminians and Anabaptists in Holland, about the beginning of the seventeenth century; so called, because of their colleges, or meetings, twice every week; where every one, females excepted, has the same liberty of expounding the Scripture, praying, &c.

They are said to be all either Arians, or Socinians: they never communicate in the college, but meet twice a year from all parts of Holland at Rhinsbergh, whence they are also called *Rhinsberghers*, a village two miles from Leyden, where they communicate together; admitting every one that presents himself, professing his faith in the divinity of the holy Scriptures, and resolution to live suitably to their precepts and doctrines, without regard to his sect or opinion. They have no particular ministers, but each officiates as he is disposed. They never baptize without dipping.

COLLEGIATE, or **COLLEGIAL churches**, are those which have no bishop's see, yet have the ancient rentinue of the bishops, the canons and prebendaries.

Such are, among us, Westminster, Rippon, Windsor, &c. governed by **DEANS** and **CHAPTERS**.

Of these collegiate churches, there are two kinds; some of royal foundation, others of ecclesiastical foundation: each of them in matters of divine service, are regulated in the same manner as the cathedrals.

There are even some collegiate churches which have the episcopal rights. Some of these churches were anciently abbeys; which, in time, were secularised.

The church of St. Peter's, Westminster, was anciently a cathedral; but the revenues of the monastery being, by act of parliament, 1 Eliz. vested in the dean and chapter, it commenced a collegiate church. In several causes, the styling it cathedral, instead of collegiate church of Westminster, has occasioned error in the pleadings.

COLLEGIATE auditors. See **AUDITOR**.

COLLEGIATE churches, vergers of. See **VERGER**.

COLLET, in the *Glass Trade*, that part of a glass vessel which, in the manufacture, sticks to the hollow iron by which the metal is first taken out of the melting pot. This is broken off before the vessel is fashioned, and is never seen in the least mark, when finished.

These they throw together, and afterwards grind down, and put into the green glass metal, for the purest green glass, but never into any other, though they be the product of the finest virgin metal.

COLLET, among *Jewellers*, the small horizontal plane, or face, at the bottom of the brilliant.

COLLETICS, COLLETICA, in *Medicine*, such remedies as join and glue together the separated parts, or lips of a wound, or ulcer; and thus re-establish them in their natural union. See **AGGLUTINANT**.

The word comes from *κολλητικός*, something that has the virtue of gluing together; of *κόλλα*, *gluten*.

Colletics are more desiccative than **SARCOTICS**; but less so than **EPULOTICS**. Among *colletics* are ranked litharge, aloes, myrrh, &c.

COLLICIAE, in *Anatomy*, is used by some, as Steno, for the *CARUNCULAE lachrymales*.

COLLIERS, are vessels employed to carry coals from one port to another; and serving as an excellent nursery for seamen.

COLLIERY, see **COAL**.

The most remarkable *colliery*, or coal-work, that we have ever had in this island, was that wrought at Burrowstoneness, under the sea. The veins of coal were found to continue under the bed of the sea in this place; and the colliers had the courage to work the vein near half way over; there being a mote half a mile from the shore, where there was an entry that went down into the coal pit, under the sea. This was made into a kind of round key, or mote, as they call it, built so as to keep out the sea, which flowed there twelve feet. Here the coals were laid, and a ship of that draught of water, could lay her side to the mote, and take in the coal.

This famous *colliery* belonged to the earl of Kinkardin's family. The fresh water which sprung from the bottom

and sides of the coal pit, was always drawn out upon the shore by an engine moved by water, that drew it out forty fathom. This coal pit continued to be wrought many years to the great profit of the owners, and the wonder of all that saw it; but, at last, an unexpected high tide drowned the whole at once, and the labourers had not time to escape, but perished in it. Phil. Trans. N° 93.

COLLIGENDUM bona defuncti, letters ad. See **ADMINISTRATION**.

COLLIMATION, line of, in a telescope, is a line passing through the intersection of those wires, which are fixed in the focus of the object-glass and the centre of the same glass. It is also called the line of sight.

COLLINSONIA, in *Botany*, a genus of the *diandria monogynia* class. The characters are these: the flower is funnel-shaped, of one petal, which is unequal, cut into five parts at the top, the upper part being short and obtuse, and two of them reflexed; the lower lip or beard being longer, and ending in many points. It hath two long bristly stamens, which are erect; and a quadrifid obtuse germen, with a large gland, supporting a bristly style, which afterward becomes a single roundish seed, situated in the bottom of the empalement. We have but one species of this plant, which was brought from Maryland.

COLLINS's Quadrant. See **QUADRANT**.

COLLIQUAMENTUM denotes a very transparent fluid observable in an egg two or three days after incubation, containing the first rudiments of a chick. It is inclosed in its own proper membrane, distinct from the *albumen*. Harvey calls it *oculus*.

COLLIQUATION, from *colliqueo*, to melt, in *Pharmacy*, the action of melting together two, or more solid substances; or rendering them liquid by fusion, or dissolution; as wax, mucilages, &c. by heat; gums, &c. by moisture.

COLLIQUATION is also used to express such a temperament and disposition of the animal fluids, as proceed from a too lax compages; whereby they flow off through the several glands, and particularly through those of the skin, faster than they ought; which occasions fluxes of many kinds, but mostly, profuse, greasy, clammy sweats.

If this *colliquation* continue, it generally terminates in an hectic fever, and is usually a concomitant of one.

The curative intention in this case is the giving a better consistence to the juices by balsamics and agglutinants; and the hardening of the solids by subastringents. Hence,

COLLIQUATIVE fever, is a fever attended with a diarrhoea, or profuse sweats, from too loose a contexture of the fluids.

COLLISEUM. See **COLISEUM**.

COLLISION, the friction, or **PERCUSSION**, of two bodies moving violently, with different directions, and dashing against each other.

COLLOQUIUM, in *Law*, (*a colloquendo*) a talking together, or affirming of a thing, laid in declarations for words in actions of slander, &c.

COLLUCIANISTÆ, in *Church History*, a designation given to the Arians, from the martyr Lucian, a presbyter of Antioch.

COLLURIO, in *Ornithology*, a name by which some authors have called the lanius, or **BUTCHER bird**, a very small species of hawk, not larger than a thrush, but a great destroyer of small birds.

COLLUM, in *Anatomy*. See **NECK**, and **CERVIX**.

COLLI interspinales. See **INTERSPINALES**.

COLLI intertransversales. See **INTERTRANSVERSALES**.

COLLI transversalis. See **TRANSVERSALIS**.

COLLUSION, a secret understanding between two parties, who plead, or proceed, fraudulently against each other, to the prejudice of a third.

In the canon law, *collusion*, in matters of benefices, vacates the benefice, and incapacitates the person from holding any benefice at all.

COLLUTHIANS, a religious sect, who rose about the beginning of the fourth century; on occasion of the indulgence shewn to Arius by Alexander patriarch of Alexandria.

Several people being scandalized at so much condescension; and, among the rest, Colluthus, a priest of the same city; he hence took a pretence for holding separate assemblies, and by degrees proceeded to the ordination of priests, as if he had been a bishop; pretending a necessity for this authority, in order to oppose Arius. To his schism he added heresy; teaching, that God did not create the wicked; that he was not author of the evils that befall men, &c.—He was condemned by a council held at Alexandria by Osius, in the year 330.

COLLUTION, *Collutio*, in *Medical Writers*, is sometimes used for the washing of the mouth, particularly when done to clean or fasten bad or loose teeth; or free the gums, &c. from ulcers.

COLLYBUS, *Κολυβος* in *Antiquity*, the same with what is now called the rate of **EXCHANGE**.

COLLYRÆ, or **COLLYRIDES**, in *Antiquity*, a certain ornament of hair, worn by women on their necks. It was made up in the form of the small, roundish, cakes, called *κολυραὶ*, *collyræ*.

COLLYRIDIAN, in *Church History*, a sect, towards the close of the fourth century, denominated from a little cake, called by the Greeks *κολυριδιαί*, *collyridia*, which they offered to the Virgin Mary.

This sect, it seems, consisted chiefly of Arabian women, who, out of an extravagance of devotion to the Virgin, met on a certain day in the year, to celebrate a solemn feast, and to render divine honours to Mary as to a goddess; eating the cake which they offered in her name. — St. Epiphanius, who relates the history of this superstitious ceremony ridicules it. They sprung up in opposition to the **ANTIDICO-MARIANITES**.

COLLYRIUM, in *Medicine*, an external remedy, appropriated to diseases of the eyes.

The word comes from *κολυριον*; and that, according to Martinius, from *κολλαν τον ρην*; because it glues up, and prevents desfluxions.

There are two kinds of *collyriums*; the one *liquid*, the other *dry*. *Liquid collyriums*, *ὕδρως κολυρία*, are composed of ophthalmic powders in water; as rose-water, plantain-water, that of fennel, eyebright, &c. wherein they dissolve tully, white vitriol, or some other proper powder.

The *dry collyria*, *ξηρως κολυρία*, are troches of rhais, sugar-candy, iris, tully prepared, &c. blown into the eye with a little pipe.

COLLYRIUM is also a name given to unguents used for the same purpose; as unguent of tully, and several others.

COLLYRIUM is also a denomination given, though improperly, to some liquid medicines used against venereal ulcers.

COLLYRIUM Samium. See **SAMIA terra**.

COLMESTRE, in *Ornithology*, the name of a bird of the **LAGOPUS** kind, more usually called **ΟΤΟΜΟ**, and supposed not to differ from the lagopus, otherwise than by its changing its colour, in the summer months.

COLOBIUM, *Κολοβιον*, from *κολωω*, *I mutilate*, among the *Ancients*, an upper garment, without sleeves, longer than the tunic.

COLOBOMA, in *Medical Writers*, is used for the preternatural growing together of the lips, or eyelids, or for the adhesion of the ears to the head.

COLOCOLO, in *Ornithology*, a name given by the people of the Philippine islands to a species of bird, called also there *cassili*, and by some authors, the water-raven, *corvus fluviatilis*. It is very much of the shape of a common raven, but it is truly an amphibious bird, living more of its time under water than in the air; it is black in colour; its neck is remarkably long; and it feeds on fish, which it hunts under water, as they do one another; it feeds likewise on frogs, serpents, and shell-fish. It is common to see it under water in clear rivers, where it seems perfectly at ease, and runs about with great swiftness; at times it comes up to the surface, and dries its wings in the air and sunshine. Phil. Trans. N^o 285. p. 1896.

COLOCYNTHIS, in *Botany*, the name of a genus of plants of the gourd kind, of which there are many species, the **COLOQUINTIDA** of the shops being the pulp of one of them. In the Linnæan distribution, it is a species of the **CUCUMBER**, or *cucumis*. The characters which distinguish this genus from the others of the same class, are, that the leaves are very deeply divided, and the fruit is not eatable, but of an intolerable bitterness.

COLOGNE Earth, a substance used in painting, as a water colour, much approaching to amber in its structure, and of a deep brown. It has generally been esteemed a genuine earth, but has been discovered to contain a great deal of vegetable matter, and, indeed, it is a very singular substance.

It never constitutes an entire stratum in the earth, but is lodged among other strata in large flat detached masses. It is moderately dry, while in the earth, and of a soft crumbly texture. When dried, it is of a deep, dusky brown, of a very close, compact, and fine structure, and very remarkably light; it is of a smooth, even surface, dry, but not harsh to the touch, crumbles easily to pieces between the fingers, and slightly stains the hands; it adheres firmly to the tongue, and is of a very austere and astringent taste, but not at all resembling the astringency of the boles, or any thing else of the mineral kingdom, but plainly resembling the taste of oak bark. It makes no effervescence with acids; if thrown into water, it swims on the surface, till thoroughly wetted; and if brought into contact with burning coals, it takes fire and burns of itself, till reduced to yellowish ashes.

It is easy to discern from this account, that, though this is generally esteemed an earth, and known to the world by no other name, it is no pure native fossil, but contains more vegetable than mineral matter, and owes its origin to the remains of wood which has been long buried in the earth. It is dug in Germany and France: the quantities consumed in painting, in London, are brought from Cologne, where it is found very plentifully; but our own kingdom is not without it, it being found near Birmingham, and on Mendip hills in Somersetshire; but what has been yet found there is not so pure or fine, as that imported from Cologne. Hill's Hist. of Fossils, p. 64. and Da Costa's Hist. of Fossils, p. 121.

COLON, in *Anatomy*, denotes the second of the thick intestines.

Some derive the word from *καλυνειν*, *to retard*, in regard it is in the folds of this intestine that the excrements are stopped and formed. Others fetch it from *κολον*, on account of its capacity: others again from *κολαζεσθαι*, *to be tormented*; in regard of the grievous pain it frequently undergoes.—It is from this part that the colic takes its name. The *colon* is placed between the *ilium* and *rectum*, and is wider than either of them: in length it is eight or nine hands. It begins where the *ilium* ends, viz. in the cavity of the *os ilium*, on the right side; whence, ascending by the kidney on the same side, it passes under the concave side of the liver, to which it is sometimes tied, as likewise to the gall-bladder, which tinges it yellow in that place: then it runs under the bottom of the stomach to the spleen on the left side, to which it is also knit; from thence it turns down to the left kidney; and thence passing in form of an S, it ends in the upper part of the *os sacrum* in the *rectum*.

At the beginning of this gut, there is a valve formed by the production of the inmost coat of the intestines in this place; which hinders the excrements, when once fallen into the *colon*, from returning again to the *ilium*.

It has strong ligaments, which running along its upper side, from the *ilium* to the *rectum*, strengthen it against the weight of the excrements, and draw it together into cells; which, with the *valvulae conniventes*, retard the passages of the excrements, that we may not be continually obliged to be going to stool.

The fleshy fibres of its second coat are greater and stronger than those of the other intestines; because a greater strength is requisite to cause the excrements to ascend.

The chief design of the *colon* surrounding the abdomen, and, with the *rectum*, touching all the parts contained in it, seems to be, that by immediate fomentation with clysters, they might be eased of their maladies.

Meso-COLON. See **MESO-COLON**.

COLON, in *Grammar*, a point, or character, formed thus [:] serving to mark a pause, and to divide the members of a period. See **POINTING**. See also **PERIOD**, **COMMA**, and **SEMICOLON**.

Grammarians generally assign the use of a *colon* to be to mark the middle of a period; or to conclude a sense less perfect than the dot, or period: but a sense less perfect than the period is an expression extremely vague and indeterminate.

Others say, a *colon* is to be used when the sense is perfect, but the sentence not concluded: but neither is this sufficiently clear and express. Add to this, that in practice, our best writers confound the *colon* with the semicolon.

F. Buffier attempts to fix the use of the *colon*; but he does not much distinguish it from the semicolon: he prescribes the use of either, indifferently; and calls them by a common name, *intermediate pointings*; as being mediums between the comma, and full-point, or period. Their use, according to this author, is to distinguish the supernumerary members of a period. By supernumerary members are meant such as the precedent ones do not raise any expectation of; i. e. such parts as have indeed a dependence on what goes before, even though what goes before has a complete sense, independent hereon: v. gr. *The Augustan age was so eminent for good poets, that they have served as models to all others: yet did it not yield any good tragic poets.* Where the supernumerary member, and the use of the *colon*, are obvious. The most obvious and sensible use of the *colon*, he adds, is, when the supernumerary member is distinguished by some conjunction; as, *notwithstanding, however, but, except that, unless, inasmuch as, yet, since, the rather as, provided that, &c.* Some, indeed, use the *colon* in the middle of long periods without any regard to supernumerary members: which custom was probably introduced, to mark that the breath is here to be taken almost as much as in a common period; in the place where the supernumerary period commences. But this, at best, is arbitrary; and the intermediate pointings may always be omitted in a period, if there be no supernumerary member, i. e. if there be no subsequent member

member but what is expected from the precedent. As to the occasions where the *colon* is to be used, rather than the semicolon, there is nothing precise to be said of it; except that the *colon* shews the supernumerary member more detached, and sets it at a greater distance from the rest: and therefore makes a longer pause than the semicolon.

Accordingly it seems preferable to the semicolon before conjunctions adverbative, restrictive, conditional, &c. as, *nevertheless, but, excepting that, however, otherwise, provided that*. Again, where the supernumerary phrases not only suppose the precedent, but depend on them for their regimen, and are, as it were, new parts thereof; there the semicolon seems preferable to the *colon*: v. gr. *You are regardless of the goodness of God, who first chose you; a God who is only jealous of your heart for your own happiness; a God who could be equally glorious in destroying you by his justice, as in saving you by his mercy*. Or this: *The discourse consisted of two parts; in the first was shewn the necessity of fighting; in the second, the advantages that would redound from it*. But this difference, it must be owned, has a dependence on something that influences all the points, and sways the whole doctrine of punctuation; viz. the length, or shortness, of the members and periods: for when the phrases are long, we point higher than when short.

A late author, in an ingenious discourse, *De Ratione Interpungendi*, marks the office of the *colon*, and its difference from the semicolon, &c. more precisely; a *colon*, on his principles, serves to distinguish those conjunct members of a sentence, which are capable of being divided into other members; whereof one, at least, is conjunct.

Thus in the sentence, *As we cannot discern the shadow moving along the dial-plate, so the advances we make in knowledge are only perceived by the distance gone over*; the two members, being both simple, are only separated by a comma: in this, *as we perceive the shadow to have moved, but did not perceive it moving*; so our advances in understanding, in that they consist of such minute steps, are only perceivable by the distance; the sentence being divided into two equal parts, and these conjunct ones, since they include others; we separate the former by a semicolon, and the latter by commas: but in this, *as we perceive the shadow to have moved along the dial, but did not perceive it moving*; and it appears the grass has grown, though nobody ever saw it grow: so the advances we make in knowledge, as they consist of such minute steps, are only perceivable by the distance. The advancement in knowledge is compared to the motion of a shadow, and the growth of grass; which comparison divides the sentence into two principal parts: but since what is said of the movement of the shadow, and likewise of the growth of grass, contains two simple members, they are to be separated by a semicolon; consequently a higher pointing is required to separate them from the other part of a sentence, which they are opposed to; and this is a *colon*.

Bishop Lowth observes, that a *colon* distinguishes a member of a sentence, whether simple or compounded, which of itself would make a complete sentence, and so requires a greater pause than a semicolon, yet is followed by an additional part, making a more full and perfect sense. He adds, that a *colon* may be also used, when a semicolon has preceded, and a greater pause is still necessary, though the sentence be incomplete; and that it is commonly used, when an example, or a speech, is introduced. *Introd. to Eng. Gram. Ed. 1772, p. 207.*

COLONEL, an officer in the army, who has the command in chief of a regiment, either of horse, foot, dragoons or artillery.

Skinner derives the word from *colony*; being of opinion, the chiefs of colonies, called *coloniales*, might give the name to chiefs of forces.

In the French and Spanish armies, *colonel* is confined to the infantry and dragoons; the commanding officer of a regiment of horse they usually call *mestre de camp*.

Formerly, instead of *colonel*, the French used the word *coronel*; and this old spelling comes nearer to our common way of pronouncing the word *colonel*.

COLONEL-Lieutenant, is he who commands a regiment of guards, whereof the king, prince, or other person of the first eminence, is *colonel*.

These *colonels lieutenants* have always a *colonel's* commission, and are usually general officers.

COLONEL, Lieutenant, is the second officer in the regiment: is at the head of the captains, and commands in the absence of the *colonel*.

Lieutenant-colonel of horse, or dragoons, is the first captain of the regiment. See **CAPTAIN**.

COLONNADE, a PERISTYLE of a circular figure; or a series of columns disposed in a circle, and insulated within-side.

Such is that of the Little Park at Versailles, which consisted of thirty-two Ionic columns; all of solid marble, and without incrustation.

A *Polystyle COLONNADE* is that whose number of columns is too great to be taken in by the eye at a single view. Such is the *colonnade* of the palace of St. Peters at Rome; which consists of two hundred and eighty-four columns of the Doric order, each about four feet and an half in diameter; all Tiburtine marble.

COLONUS, a husbandman, or villager, who was bound to pay yearly a certain tribute, or, at certain times of the year, to plow some part of the lord's land; and from hence comes the word *clown*, who is called by the Dutch *boor*.

COLONY, COLONIA, a company of people of all sexes and conditions, transported into a remote province, in order to cultivate and inhabit it.

Originally the word *colony* signified no more than a *farm*; i. e. the habitation of a peasant, *colonus*, with the quantity of land sufficient for the support of his family; *quantum colonus unus arare poterat*.

We may distinguish three kinds of *colonies*: those serving to ease or discharge the inhabitants of a country; where the people are become too numerous, so that they cannot any longer conveniently subsist.

The second are those established by victorious princes and people, in the middle of vanquished nations, to keep them in awe and obedience.

The third may be called *colonies of commerce*; because, in effect, it is trade that is the sole occasion and object thereof.

It was by means of the first kind of *colonies*, that some ages after the deluge, the east first, and successively all the other parts of the earth, became inhabited: and without mentioning any thing of the Phœnician and Grecian *colonies*, so famous in ancient history, it is notorious that it was for the establishment of such *colonies*, that, during the declension of the empire, those torrents of barbarous nations, issuing, for the generality, out of the North, over-ran the Gauls, Italy, and the other southern parts of Europe: and after several bloody battles, divided it with the ancient inhabitants.

As for the second kind of *colonies*, the Romans used them more than any other people; and that to secure the conquests they had made from the West to the East. Every one knows how many cities in Gaul, Germany, Spain, and even in England, value themselves on their having been of the number of Roman *colonies*.

Lastly, the *colonies of commerce*, are those established by the English, French, Spaniards, Portuguese, and other nations, within these two last centuries, and which they continue still to establish in several parts of Asia, Africa, and America; either to keep up a regular commerce with the natives, or to cultivate the ground, by planting sugar-canes, indigo, tobacco, and other commodities. See **CHARTER-Governments**.

The principal of this kind of *colonies* are, or were, in the one and the other America, northern and southern; particularly Peru, Mexico, Canada, Virginia, New England, Carolina, la Louisiane, l'Acadia, Hudson's Bay, the Antilles islands, Jamaica, Domingo, and the other islands.—In Africa, Madagascar, Cape of Good Hope, Cape Verd, and its islands, and all those vast coasts extended thence as far as to the Red Sea.—Lastly, in Asia, the famous Batavia of the Dutch; Goa, Diu, of the Portuguese; and some other less considerable places of the English, French, and Danes.

There were two kinds of *colonies* among the Romans; those sent by the senate: and the military ones, consisting of old soldiers, broken and disabled by the fatigues of war, who were thus provided with lands, as the reward of their services.

The *colonies* sent by the senate were either Roman, or Latin: i. e. they were composed either of Roman citizens, or Latin. The *colonies* of Roman citizens had the right of suffrages: but had no part in the offices or honours of the republic. The inhabitants of Latin *colonies* had no right of suffrages without an express permission.

According to Ulpian, (lib. i. D. de Cens.) there were other *colonies*, which had little more than the name; only enjoying what they called *jus Italicum*, i. e. they were free from the tribute and taxes paid by the provinces.—Such were the *colonies* of Tyre, Berytus, Heliopolis, Palmyra, &c.

Mr. Vaillant has filled a volume in folio with medals struck by the several *colonies*, in honour of the emperors who founded them. The ordinaray symbol they engraved on their medals, was, either an eagle; as when the veteran legions were distributed in the *colonies*: or a labourer holding a plough drawn by a pair of oxen; as when the *colony* consisted of ordinary inhabitants. On all the medals are seen the names of the decemviri, who held

held the same rank, and had the same authority there as the consuls had at Rome.

COLONY of Bees. See HIVE.

COLOPHONY, in *Natural History*, and *Chemistry*, a resinous substance prepared of turpentine, by boiling it in water. When cold, it becomes of a hard consistence, and has the same properties as other resins, and the same principles may be obtained from it by analysis.

The chief use of this drug is in the cure of venereal ailments, feminal weaknesses, the whites in women, &c. The apothecaries make it into pills, which they roll in liquorice powder, or cover with gold-leaf, and call them *turpentine-pills*.

It is also used by musicians, to rub the hairs of the bow; the effect whereof is, that the gum cleaving to the hairs, and communicating to them a tenacious quality, prevents their sliding too easily over the strings; and promotes that trembling which forms the sound.

The common black *colophony*, or black resin, is said to be procured from the turpentine of the mountain pine. The oil being extracted from this by distillation, what remains in the still is the *colophony*.

To be good it must be shining and odoriferous; and when thrown on the fire, render a smoke like that of frankincense.

Pliny says, *colophony* took its name from *Colophon*, a city of Ionia, whence it was first brought. It is now frequently called *Spanish wax*, or *Grecian resin*, as it is brought from the one or the other of those countries. It is found to warm, dry, soften, and agglutinate: and usually enters the composition of plasters and unguents.

COLOQUINTIDA, or COLOCYNTHIS, usually called *bitter apple*; the fruit of a plant of the same name, brought from the Levant; about the bigness of a large orange.

This word comes from *κολοκυνθις*, a name which was given it, because it *κολικον πιει*, *moves the belly*.

Its colour is a sort of golden brown: its inside is full of kernels, which are to be taken out before the *colocynth* be used. The pulp is intolerably bitter.

Coloquintida is of considerable use in medicine, but mostly in officinal compositions; the violence of its operation rendering it unsafe to be given inwardly in extemporaneous prescriptions, except with great caution.

It enters, as an ingredient, in the *confectio hamec*, and most of the purging pills, called *pilula corticæ*; and in such cases as require brisk purging, is attended with great success. But it requires proper management, as it is one of the most violent purgative drugs known; inasmuch that it excoriates the passages to that degree, as sometimes to bring away blood, and induce a superpurgation. Sometimes it is taken in boiled water, or small beer, in obstructions of the menses; which, in strong constitutions, is often attended with success. Some women have made use of it, in the same manner, in the beginning of pregnancy, to procure abortion; which it often effects by the violence of its operation. The powder of *coloquintida*, is sometimes used externally, with aloes, &c. in unguents, emplasters, &c. with remarkable success against worms; and some for the same purpose, recommend decoctions of the pulp, given clysterwise. In the iliac passion, clysters of *coloquintida* have been found of service, after most other medicines have failed.

In the common analysis by chemistry, there appears no principle predominant in this fruit, by which its violent effects may be accounted for. Distilled by the retort, it yields first a phlegm; then a phlegm with an acid salt dissolved in it: after this, a phlegm less acid, and containing a quantity of an urinous alkaline salt, which strongly affects the smell. These three liquors bring over with them a foetid oil, and the fixed salt drawn from the remainder in the retort, was of the nature of the rest of the salts of that kind. Mem. Acad. Par. 1701.

Colocynth, infused in rain water, yields only an insipid phlegm by distillation, but the remainder yields a very fine extract of a tolerably mild purgative virtue: a pound of the pulp of *colocynth* thus yields two ounces and a half of extract, and the remaining mass of the *colocynth* does not appear to contain any resin. It is usual to attribute the violence of all purgative medicines to their abounding in resinous parts. To try whether this was the case in this simple, M Boulduc finished his experiments on it by making an extract from it by means of spirit of wine. Eight ounces of the clean pulp yielded only half an ounce of a resinous extract, and the residuum yielded two ounces of a coarse extract, by means of water; but this was of a bad consistence, and would scarce hang together.

Either of these extracts, given alone, proved troublesome medicines; and all that appeared from this, and from

the whole, was, that in order to have the virtues of this fruit in a gentle, and safe manner, its saline and resinous parts must be left together, and only separated from its terrestrial and mucilaginous ones, by means of a long fermentation with must or water, before its being evaporated into an extract: because all its violent effects are owing to these terrestrial and mucilaginous particles.

Troches made of *colocynth* are called *troches of albandal*: they are prepared by cutting the *coloquintida* very small, and reducing it to a fine powder in a mortar, rubbed with oil of sweet almonds; adding gum tragacanth, and mastic afterwards.

COLOR, in the *Ancient Music*. See COLOURS.

COLOR *Indicus*. See INDICUS color.

COLORATURA, in the *Italian Music*, is used to denote all sorts of variations, TRILLOS, DIMINUTIONS, &c. that can render a song agreeable.

COLOPRASIANS. See COLARBASIANS.

COLORISATION, or COLORATION, in *Pharmacy*, a term applied to the several changes of colour which bodies undergo in the various operations of nature, or art; as by fermentations, lotions, coctions, calcinations, &c.

COLORITES, in *Ecclesiastical History*, a congregation of Augustin monks instituted about 1530, and so called from *Colorito*, a mountain near Morano, in Calabria, where a church was erected to the Virgin Mary.

COLOSSAL column. See COLUMN.

COLOSSUS, a statue of enormous or gigantic size.

The most eminent of this kind was the *Colossus* of Rhodes, one of the wonders of the world, a brazen statue of Apollo, so high, that ships passed with full sails betwixt its legs. It was the workmanship of Chares, a disciple of Lybippus; who spent twelve years in making it: it was at length overthrown by an earthquake, after having stood sixty-six years. Its height was a hundred and five feet: there were few people who could fathom its thumb, &c.

Some critics observe, that the *colossus* of Rhodes gave its own name to the people among whom it stood; and that many, at least among the ancient poets, call the Rhodians, *Colossians*: hence they advance an opinion, that the Colossians in Scripture, to whom St. Paul directs his Epistle, are, in reality, the inhabitants of Rhodes. Of this sentiment are Suidas, Calepine, Munster, &c.

When the Saracens became possessed of the island, A. D. 672, the statue was found prostrate on the ground: they sold it to a Jew, who loaded nine hundred camels with the brass, which amounted to seven hundred and twenty thousand pounds weight.

The basis that supported it was of a triangular figure: its extremities were sustained by sixty pillars of marble. There was a winding stair-case to go up to the top of it; from whence one might discover Syria, and the ships that went to Egypt, in a great looking-glass that was hung about the neck of the statue. Among the antiquities of Rome, there were seven famous *colossuses*: two of Jupiter, as many of Apollo, one of Nero, one of Domitian, and one of the sun.

COLOSTRUM, or COLOSTRA, in *Medicine*, the first milk of any animal after bringing forth young, called in common *beastlings*.

It is remarkable that this milk is generally cathartic, and purges off the meconium; thus serving both as an aliment and medicine.

This name is likewise given to a disease which this thick coagulated milk sometimes occasions.

An emulsion prepared with turpentine, dissolved with the yolk of an egg, is sometimes also called by that name.

COLOUR, Color, in *Philosophy*, a property inherent in light, whereby, according to the different sizes or magnitudes of its parts, it excites different vibrations in the fibres of the optic nerve; which, propagated to the sensorium, affect the mind with different sensations.

Or, *colour* may be defined a sensation of the soul, excited by the application of light to the retina of the eye: and different, as that light differs in the degree of its refrangibility, and the magnitude of its component parts.

In the former view, therefore, light is the subject of *colour*: in the latter it is the agent. See its properties under the article LIGHT.

Various are the opinions of ancient and modern authors, and of the several sects of philosophers with regard to the nature and origin of the phenomenon *colour*: the most popular opinion was long that of the Aristotelians; who maintain *colour* to be a quality residing in the coloured body: and to exist independently of light.

The Cartesians come nearer the matter: they own, that as the coloured body is not immediately applied to the organ, to occasion the sensation; and that as no body can affect the sense but by immediate contact, the coloured body does not excite the sensation of itself, or contribute

bute any thing to it, otherwise than by moving some interposed medium, and by that the organ of sight.

They add, that, as we find that bodies do not affect the sense in the dark, light only occasions the sense of colour, by moving the organ; and that coloured bodies are no farther concerned in this than as they reflect the light with a certain modification; the differences in their colours arising from a difference in the texture of their parts, whereby they are disposed to reflect the light with this or that modification.

B. Porta thought that light was *colourless*, but that it was capable of having colour superinduced upon it from foreign causes, in certain circumstances. Dr. Hook maintained, that the primary colours are only two, viz. blue and red, and that all the rest are composed of them; and that these two colours are occasioned by impressions on the retina from pulses of light, of different strength. M. de la Hire resolves the difference of colours into the degree in which the light agitates or affects the optic nerve; and he observes, that whatever tends to weaken this impression, makes a change in the colour. See Priestley's Hist. of Vision, &c. p. 43. 146, 147.

But it is to Sir Isaac Newton alone we are to refer for a solid and consistent theory of colours; built on sure experiments, and solving all the phenomena thereof: his doctrine is as follows.

It is found by experience, that rays, or beams of light, are composed of particles very heterogeneous, or dissimilar to each other: i. e. some of them, as it is highly probable, are larger, and others less. For a ray of light, as F E (*Tab. Optics, fig. 5.*) being received on a refracting surface, as A D, in a dark place, is not wholly refracted to L; but it is split, as it were, and diffused into several radioli, or little rays, some whereof are refracted to L, and others to the other intermediate points between L and G; i. e. those particles of the light, which are the most minute, are of all others the most easily and most considerably diverted, by the action of the refracting surface, out of their rectilinear course towards L; and with respect to the rest, as each exceeds another in magnitude, so is it with more difficulty, and less considerably, turned out of its right line to the points between L and G. Now, each ray of light, as it differs from another in its degree of refrangibility, so does it differ from it in colour: this is warranted by numerous experiments. Those particles, v. gr. which are most refracted, are found to constitute a ray of a violet colour, i. e. in all probability, the most minute particles of light, thus separately impelled, excite the shortest vibrations in the retina; which are thence propagated by the solid fibres of the optic nerves into the brain, there to excite the sensation of violet colour; as being the most dusky and languid of all colours. Again, those particles which are the least refracted, constitute a radiolus, or ray of red colour; i. e. the largest particles of light excite the longest vibrations in the retina; so as to excite the sensation of red colour, the brightest and most vivid of all others.

The other particles being in like manner separated, according to their respective magnitudes, into little rays, excite the intermediate vibrations, and thus occasion the sensations of the intermediate colours; much in the same manner as the several vibrations of the air, according to their respective magnitudes, excite the sensations of different sounds.

To this it may be added, that not only the more distinct and notable colours of red, yellow, blue, &c. have thus their rise from the different magnitude and refrangibility of the rays; but also the intermediate degrees or shades of the same colour; as of yellow up to green, or red down to yellow, &c.

Farther, the colours of these little rays, not being any adventitious modifications thereof, but connate, primitive, and necessary properties; as consisting, in all probability, in the magnitudes of their parts, must be perpetual and immutable; i. e. they cannot be changed by any future refraction or reflexion, or any modification whatsoever. This is confirmed by abundance of experiments; all endeavours having been used, after separating a coloured ray from those of other kinds, to change it into some other colour, by repeated refractions, but to no effect. Apparent transmutations of colours, indeed, may be effected; viz. where there is an assemblage, or mixture of rays of different kinds, the component colours never appearing in their natural hue in such mixtures, but always allayed and tempered with each other: whence results an intermediate kind of colour, which, by refraction, may be separated into the component ones: and those after separation, being remixed, return to their former colour.

Hence the transmutation of colours, by mixing those of different kinds, are not real, but mere appearances, or deceptions of the sight; for the rays, being again severed, exhibit the same colours as at first. Thus blue and yel-

low powders, well mixed, appear to the naked eye green; yet, without having passed any alteration; for, when viewed through a microscope, the blue and yellow particles still appear distinct.

Mr. Melvill apprehends, that differently coloured rays may be affected with different velocities at their emission from the luminous body, and that the velocity is greater, if the luminous body is placed in a denser medium, and proportional to its refractive power; and this hypothesis he thinks preferable to that of Sir Isaac Newton, which makes them to consist of particles of different sizes and densities. M. Muschenbroeck also infers, from the less degree of refrangibility of red rays, that they move more slowly than the rest, after their separation from those of other colours, though in a state of union with the rest, they have the same velocity; but he does not think that the colour depends upon the velocity, since this changes with the medium through which the rays are transmitted. Their different refrangibility will be the same on this hypothesis, and their different velocities will be nearly as the signs of refraction out of air into glass, beginning from the extreme red, and ending with the extreme violet, viz. as 78000, 77873, 77797, 77663, 77496, 77330, 77220, 77000, the sine of incidence being 120120: therefore, since the time which the extreme violet rays takes to move through any space, is to that which the red takes as 78 to 77, the last violet light reflected from a satellite, before its total immersion into the shadow of Jupiter, in a quadrate aspect with the sun, when his light takes about 41' in coming to the earth, ought to affect the eye 32 seconds after the red light reflected at the same time, is gone; and at the immersion, there would be a contrary succession of colours; and the difference of time between the arrival of the different coloured rays, being more than half a minute, would afford time sufficient to make the observation. The Marquis de Courtivron, in a treatise published in 1752, advanced the same opinion with Mr. Melvill, and proposed the same trial of his hypothesis, viz. by observing the eclipses of Jupiter's satellites: but he states the difference of velocity, by a theorem of M. Clairaut, in the proportion of 45 to 44. Mr. Short made the observation recommended by Mr. Melvill, and could not perceive the least alteration in the colour of the light reflected by the satellite; and therefore the hypothesis still wants that kind of confirmation. By this hypothesis, Mr. Melvill accounts for Newton's fits of reflexion and transmission, as arising from the pulses of the medium through which the differently coloured rays pass; these pulses must overtake rays, moving with different velocities, at different times: and thus the intervals of the fits would be least in the violet, and gradually increasing in the prismatic order, agreeably to observation. This hypothesis, however plausible, is liable to many insuperable objections. The difficulty, which prevented Mr. Muschenbroeck from ascribing the colour of rays to the velocity, viz. that the colour of homogeneous rays is not altered by passing through different mediums, though their velocity is thereby always increased or diminished, is resolved by Mr. Melvill, by supposing that every ray, as it must at last pass through the humours of the eye, in order to vision, falls upon the retina with one given velocity, however it may have been previously refracted: since the velocity of any ray, in any one medium, is to its velocity in any other medium, in a constant and invariable proportion. It has been objected, that if this hypothesis were true, a star must change its place, on account of the aberration $\frac{1}{77}$ th more for the deepest blue rays than the red ones, according to Mr. Melvill, and $\frac{1}{45}$ th more, according to M. de Courtivron; and consequently a star placed in the pole of the ecliptic, whose mean aberration is about 20'', ought to appear in the form of a spectrum, formed by a prism of $\frac{20''}{75}$, or, 17'' nearly in length, by the former hypothesis, and of $\frac{20''}{45}$, or 27'', by the latter. This is a quantity which would be sufficiently visible in telescopes of pretty high magnifying powers; but no such appearance has yet been observed. Besides, the experiments of Mr. Dollond clearly prove, that the different refrangibility of the rays of light results from properties that are independent of their different velocity; since the proportion of it varies according to the nature of the substance from which it falls; (see ABERRATION) and the distances at which differently coloured rays are attracted and repelled are different. M. Clairaut, in the course of his inquiry, concerning Mr. Donaldson's improvement in telescopes, has taken occasion to examine this hypothesis, and found, that the refractions, which would result from it, were very different from those which actually took place in nature. Phil. Trans. vol. xlviii. part i. art. 38. and part ii. art. 92. Hist. Acad. Sc. 1756. p. 194. and Priestley's Hist. of Vision, &c. p. 401, &c.

From the Newtonian theory above explained, there arise two kinds of *colours*, the one *original* and *simple*, produced by homogeneous light; or by rays that have the same degree of refrangibility, and the same magnitude of their parts: such as red, yellow, green, blue, violet, purple, orange, and indigo; with all their intermediate tints and gradations.

The other kind of *colour* is *secondary*, or *heterogeneous*; compounded of the primary ones, or of a mixture of rays, differently refrangible, &c.

There may also be secondary *colours* produced by composition, like the primary ones, or those consisting of homogeneous light, as to the species or appearance of the *colour*; but not as to the permanency, or immutability thereof. Thus, yellow and blue make green; red and yellow orange; orange and yellowish green, yellow: and in the general, if any two colours be mixed, which, in the series of those generated by the prism, are not too far apart, from their mixture there results that *colour*, which in the said series is found in the mid-way between them; but those situated at too great a distance do not produce the same effect.

Indeed, the more any *colour* is compounded, the less perfect and vivid it is; by too much composition they may be diluted and weakened till they cease. By composition there may likewise be produced *colours* not like any of those of homogeneous light.

The most extraordinary composition is that of whiteness; for to this, all the primary *colours* above mentioned are required; and these to be mixed in a certain degree. Hence it is that white is the ordinary *colour* of light; light being nothing else but a confused assemblage of rays of all *colours*.

If the rays of different *colours* do thus begin to be separated by one refraction of one single surface, that separation is much promoted, so as even to become sensible to the eye, by a double refraction. This is observed in the two surfaces of any glass, provided those surfaces be not parallel; but, of all others, it is most sensible in the two faces of a triangular prism; the phenomena whereof, as they are the touchstone of all theories of *colours*, and as they contain the foundation of that here delivered, we shall lay down as follows.

1. The rays of the sun, transmitted through a triangular prism, exhibit an image of various *colours* (the chief whereof are red, yellow, green, blue and violet) on the opposite wall.

The reason is, that the differently coloured rays are separated by refraction: for the blue rays, v. gr. marked with the dotted lines (*Tab. Optics, fig. 6.*) which begin to be separated from the rest by the first refraction in *dd*, of the side *ca* of the prism *abc* (as also in the first surface of the globe of water *abc*, *fig. 7.*) are still farther separated in the other side of the prism *bc* (as also in their egress out of the globe *abc*) by a second refraction in *ce*; in the same direction as in the former: whereas, on the contrary, in the plain glass *abcf*, *fig. 9.* (as also in the prism *glo*, *fig. 8.* now placed in another situation) those blue rays which begin to be separated from the rest in the first surface, in *dd*, by a second refraction, the contrary way, pass out parallel, i. e. remix with all the *colours* of the other rays.

2. This image is not round, but oblong; its length, when the prism forms an angle of 60 or 65 degrees, being five times its breadth. The reason is, that some of the rays are refracted more than others; and by that means, they exhibit several images of the sun, extended lengthwise, instead of one.

3. Those rays which exhibit yellow, are turned farther from the rectilinear course than those which exhibit red; those which exhibit green, farther than those which exhibit yellow; but of all others, those which exhibit violet, the most: accordingly, if the prism through which the light is transmitted be turned about its axis, so that the red, yellow, green, &c. rays be projected in order, through a narrow aperture into another prism, placed at the distance of about twelve feet; the yellow, green, &c. rays, though falling through the same aperture, in the same manner, and on the same point of the second prism, will not be refracted to the same place as the red, but to a point at some distance from it; on that side to which the rotation is made.

This is what sir Isaac Newton calls the *experimentum crucis*: being that which led him out of the difficulties into which the first phenomenon, &c. had thrown him; and plainly shewed a different degree of refrangibility, and a different *colour* corresponding thereto in the rays of light; and that yellow rays, v. gr. are more refracted than red ones, green ones more than yellow ones, and blue and violet ones most of all.

4. The *colours* of coloured rays, well separated by the prism, are not at all changed or destroyed by passing through

an illuminated medium, nor by their mutual decussation, their bordering on a deep shadow, nor their being reflected from any natural body, or refracted through any one in a place howsoever obscure.

The reason is, that *colours* are not modifications arising from refraction or reflexion, but immutable properties; and such as belong to the nature of the rays.

5. An assemblage of all the kinds of coloured rays, collected either by several prisms, by a convex lens, or a concave mirror, or in any other manner, form what we call *whiteness*; yet each of these, after decussation, becoming separated, again exhibits its proper *colour*: for, as the ray was white before its parts were separated by refraction; so, the parts being remixed, it becomes white again; and coloured rays, when they meet together, do not destroy one another, but are only interspersed.

Hence, a red, green, yellow, blue, and violet *colour*, being mixed in a certain proportion, appear whitish, i. e. they are of such a *colour* as arises from white and black mixed together; and if there were not some rays absorbed and lost, they would be plainly white. In like manner, if a paper cut into a circle, be stained with each of those *colours*, separately, and in a certain proportion; then swiftly turned round its centre, so that the species of *colours* be mixed together in the eye, by the briskness of the motion, the several colours will disappear, and the whole paper appear of one continued *colour*; which will be a mean between white and black.

6. If the rays of the sun fall very obliquely in the inner surface of a prism, those that are reflected will be violet; those transmitted, red.

For the rays were coloured before any separation; and by how much they are the more refrangible, by so much they are the more easily reflected; and by that means are separated.

7. If two hollow prisms, the one filled with a blue fluid, the other with a red one, be joined together, they will be opaque; though each, apart, be transparent.

For, the one transmitting none but blue rays, and the other none but red ones, the two together will transmit none at all.

8. All natural bodies, especially white ones, viewed through a prism held to the eye, appear limbated, or bordered, on one side with red and yellow, and on the other with blue and violet. For these *finbriae* are the extremes of entire images, which the rays of any kind, as they are more or less refracted, would exhibit nearer, or at a greater distance from the real place of the object.

9. If two prisms be so placed, as that the red of the one, and the purple of the other, meet together in a paper fit for the purpose, encompassed with darkness, the image will appear pale; and if viewed through a third prism, held to the eye at a proper distance, it will appear double; the one red, and the other purple.

In like manner, if two powders, the one perfectly red, the other blue, be mixed; any little body covered pretty deeply with this mixture, and viewed through a prism held to the eye, will exhibit a double image, the one red, and the other blue: because the red and purple of blue rays are separated by their unequal refraction.

10. If the rays, transmitted through a convex lens, be received in a paper before they meet in a focus, the confines or boundary of light or shadow will appear tinged with a red *colour*: but if they be received beyond the focus, with a blue one.

Because, in the first case, the red rays, being somewhat more refracted, are the higher; but, in the second, after decussation in the focus, the blue ones.

11. If the rays about to pass through either side of the *pupilla*, be intercepted by the interposition of any opaque body near the eye; the extremes of bodies, placed as if viewed through a prism, will appear tinged with *colours*; though they are not very vivid.

For, then, the rays transmitted through the rest of the pupil will be separated by refraction into *colours*; without being diluted with the admixture of the intercepted rays, which would be refracted in a different manner.— And hence it is, that a body viewed through a paper pierced with two holes, appears double, and also tinged with *colours*.

COLOURS of thin laminae, or plates. As rays of different *colours* are separated by the refraction of prisms, and other thick bodies; so are they separated, though in a different manner, in the thin lamellæ, or plates of any pellucid matter, v. gr. in the bubbles raised in water, thickened by soap, &c. For all lamellæ, under a determinate thickness transmit rays of all *colours*, without reflecting any at all: but as they increase in thickness, in arithmetical proportion, they begin to reflect, first blue rays, then, in order, green, yellow, and red, all pure: then, again, blue, green, yellow, red, more and more mixed and diluted; till, at length, arriving at a certain thickness, they

they reflect rays of all colours perfectly intermixed, viz. white.

But, in whatsoever part a slender lamella reflects any one colour, v. gr. blue, or violet, in that part it always transmits the opposite colour, v. gr. red, or yellow.

It is found by experiment, that the difference of colour of a plate does not depend on the medium that encompasses it; but the degree of vividness does: *ceteris paribus*, the colour will be more vivid, if the denser medium be encompassed with the rarer. A plate, *ceteris paribus*, reflects more light as it is thinner; as far as a certain degree of thinness, beyond which it reflects no light at all.

In plates whose thickness increase in the arithmetical proportion of the natural numbers 1, 2, 3, 4, 5, &c. if the first, or thinnest, reflect any homogeneous ray, the second will transmit it; the third again will reflect it: and thus is the same ray alternately reflected and transmitted; i. e. the plates corresponding to the odd numbers 1, 3, 5, 7, &c. will reflect the same rays that those corresponding to the even ones, 2, 4, 6, 8, &c. transmit. Hence, an homogeneous colour in a plate is said to be of the *first order*, if the plate reflects all the rays of that colour. In a plate whose thinness is triple the first, it is said to be of the *second order*: in another, whose thinness is five times that of the first, it is said to be of the *third order*, &c.

A colour of the first order is the most vivid of any; and successively, the vividness of the colour increases, as the quantity of the order increases: the more the thickness of the plate is increased, the more colours it reflects, and those of more different orders. In some plates, the colour will vary as the position of the eye varies; in others it is permanent. See on this subject Priestley's Hist. of Vision, p. 279, &c. p. 311, &c. p. 498. See RINGS of Colours, and REFLECTION.

COLOURS of natural bodies. Bodies only appear of different colours, as their surfaces are disposed to reflect rays of this or that colour alone; or of this or that colour more abundantly than any other: hence bodies appear of that colour which arises from the mixture of reflected rays. See BODY.

All natural bodies consist of very thin transparent lamellæ; which, if they be disposed, with regard to each other, as that there happen no reflections or refractions in their interstices, those bodies become pellucid, or transparent: but if their intervals be so large, and those filled with such matter; or so empty (with regard to the density of the parts themselves) as that there happen a number of reflexions and refractions within the body; the body in that case, becomes opaque.

The rays, which are not reflected from an opaque body, penetrate into it; and there suffering innumerable reflexions and refractions, at length unite themselves to the particles of the body itself.

Hence, an opaque body grows hot the sooner, as it reflects light less copiously: whence we see why a white body, which reflects almost all the rays that strike upon it, is heated much more slowly than a black one, which reflects scarce any.

To determine that constitution of the surface of bodies whereupon their colour depends, it must be observed, that the smallest corpuscles, or first particles whereof surfaces are made up, are most thin and transparent, and separated by a medium of a different density from the particles themselves. In the surface, then, of every coloured body, are innumerable smaller thin plates, corresponding to those of bubbles: wherefore, what has been observed of those, may be understood of these. Hence we gather, that the colour of any body depends on the density and thickness of the parts of the body, between the pores of the surface: that the colour is more vivid and homogeneous, as the parts are thinner: that, *ceteris paribus*, the said parts are the thickest when the body is red; and the thinnest when violet: that the parts of bodies are usually much denser than the medium contained in their interstices; but that in the tails of peacocks, in some silks, and, generally, in all bodies whose colour varies according to the situation of the eye, it is less: and that the colour of a body is less vivid to the eye, as it has a denser medium within its pores.

Now, of the several opaque bodies, those consisting of the thinnest lamellæ are black: those consisting either of the thickest lamellæ, or of lamellæ very different from each other in thickness, and on that account fitted to reflect all colours, as the froth of water, &c. are white: those, again, consisting of lamellæ, most of which are of some intermediate thickness, as blue, green, yellow, or red; inasmuch as they reflect the rays of that particular colour much more copiously than that of any other colour; most of which last they either absorb and extinguish, by intercepting them, or else transmit. Hence it is, that some

liquors, v. gr. an infusion of *lignum nephriticum*, will appear red, or yellow, if viewed by reflected light; and blue by transmitted light; and gold leaves yellow in the former circumstances, but green or blue in the latter.

To this may be added, that some of the powders used by painters have their colour changed by being very finely ground; which must be occasioned by the comminution or breaking of their smaller parts into others still smaller; just as a lamella has its colour altered, by altering its thickness.

In fine, those odd phenomena, arising from the mixture of liquors of different colours, can no way be better accounted for, than from the various actions of the saline, &c. corpuscles of one liquor, with the coloured corpuscles of another; if they unite, the mass will either swell or shrink, and thereby its density will be altered: if they ferment, the size of the particles may be diminished, and thereby coloured liquors may become transparent: if they coagulate, an opaque liquor may be produced out of two transparent ones.

Hence it is easy to see why a coloured liquid in a glass of a conical figure, placed between the eye and the light, appears of a different colour in different parts of the vessel; there being more and more rays intercepted, as they pass through a longer or a shorter section of the vessel; till, at the base, they are all intercepted, and none seen but those reflected.

From the various colours of natural bodies, sir Isaac Newton observes, the bigness of their component parts may be estimated: because the parts of bodies do properly exhibit the same colour with a lamella of equal thickness, provided the density of both be the same.

The Newtonian doctrine concerning the colours of bodies, as depending on the thickness of those lamellæ, or fine plates, which form their surfaces, is more lately confirmed by means of electrical explosions. Dr. Priestley found, that, if these are received on the surface of any metal, they will mark it with a spot, consisting of all the prismatic colours disposed in concentric circles, and formed by scales of the metal separated by the force of the explosion. Besides other curious observations, he informs us, that when a pointed piece of metal is fixed opposite to a plain surface, the nearer it is placed to the surface, so much the sooner the colours appear, the closer do the rings succeed one another, and the less space they occupy, and *vice versa*; and that the more acutely the wire or needle, from which the electric matter issues, or at which it enters, is pointed, so much greater is the number of rings that appears: whilst a blunt point produces larger, but fewer rings. He adds, that it is of no importance, whether the electric matter issue from the pointed body on the plate, or from the plate on the pointed body, and that the points themselves are coloured in concentric rings to a considerable distance, but not very distinctly. Mr. Canton likewise produced all the prismatic colours from all the metals, by extending fine wires of them over the surface of pieces of glass; and when the wires were exploded, he observed that the glass was tinged with all the colours. The experiment has been often repeated, and with peculiar advantage, by the ingenious Mr. Henly. Phil. Trans. vol. lviii. art. 10. Priestley's Hist. of Elect. vol. ii. p. 260, 8vo. ed. 1775. See CIRCULAR Spots, and FAIRY Circles.

COLOURS, accidental. See ACCIDENTAL.

COLOUR of the clouds, is thus accounted for by sir Isaac Newton. Concluding from a series of experiments, that the transparent parts of bodies, according to their several sizes, reflect rays of one colour, and transmit those of another, he hence observes, that when vapours are first raised, they are divided into parts too small to cause any reflection at their surfaces, and therefore do not hinder the transparency of the air; but when they begin to coalesce, in order to compose drops of rain, and constitute globules of all intermediate sizes, these globules are capable of reflecting some colours, and transmitting others, and thus form clouds of various colours, according to their sizes. Mr. Melville controverts this doctrine, in its application to the red colour of the morning and evening clouds. "Why, he says, should the particles of the clouds become at that particular time, and never at any other, of such a magnitude as to separate these colours? And why are they rarely, if ever, seen tinged with blue and green, as well as red, orange, or yellow? Is it not more credible, that the separation of rays is made in passing through the horizontal atmosphere, and that the clouds only reflect and transmit the sun's light, as any half-transparent colourless body would do? For since the atmosphere reflects a greater quantity of blue and violet rays than of the rest, the sun's light transmitted through it ought to incline towards yellow, orange, or red; especially when it passes through a long tract of air: and thus

"it

"it is found that the sun's horizontal light is tinged with a deep orange, and even red; and the colour becomes still deeper after sun-set." And hence he concludes, that the clouds, according to their different altitudes, may assume all the variety of colours at sun-rising and setting, by barely reflecting the sun's incident light as they receive it. Edinb. Ess. vol. ii. p. 75. Priestley's Hist. of Vision, p. 446, &c.

For the distinct properties, &c. of the several COLOURS, see BLACK, WHITE, BLUE, &c. See also RAINBOW, &c.

COLOUR, in *Painting*, is applied both to the drugs, and to the tints produced by those drugs, variously mixed and applied.

The principal colours used by painters, are red and white lead or cerufs; yellow okers; several kinds of earth, as umber, &c. besides orpiment, black lead, cinnabar, gamboge, lake, bice, verditer, indigo, vermillion, verdegis, ivory black, bistre, lamp black, smalt, ultramarine, and carmine; each of which, with the manner of preparing them, their uses, &c. see under their respective heads.

Of these colours, some are used ground in oil, others only in fresco, others in water, and others only for miniature.

COLOURS, *dark and light*. Under these two classes the painters reduce all the colours they use: under *light colours* are comprehended white, and all those which approach nearest it; and under *dark colours*, black, and all those which are obscure and earthy, as umber, bistre, &c.

COLOURS, *simple and mineral*, is another division among the painters: under *simple colours*, they range all those used by limners, illuminers, &c. extracted from vegetables, and which will not bear the fire: as the yellow made of saffron, of French berries, &c. lacca, and other tinctures extracted from flowers. The rest are *mineral*, drawn from metals, &c. and are able to bear the fire: these alone are used in enamelling.

COLOURS, *changeable and permanent*, is another division of colours: by *changeable*, are meant those which depend on the situation of objects with regard to the eye: as that of taffetas, of a pigeon's neck, &c. The last, however, being attentively viewed with a microscope, each fibre of the feathers appears composed of several little squares, alternately red and green; so that they are really fixed colours.

Kircher tells us, that the *changeable colours* observed in the necks of pigeons, peacocks, &c. arise from the feathers being transparent, and of a figure resembling a prism; and consequently the light's being differently refracted from them. On the contrary, the fixed and *permanent colours* are not exhibited by refraction, but reflexion.

M. Mariotte observes, that there are two different gradations, or series of colours, from white to black; the one white, yellow, red, and black; the other white, blue, violet, and black.

COLOURS, *local*. See LOCAL.

COLOURS, *rings of*. See RINGS.

COLOURS, *water*. See WATER.

COLOURS, in *Dying*.—There are five simple, primary, or mother colours, used by the dyers: from the mixture whereof all the other colours are formed: these are blue, red, yellow, brown, and black: each of which see under their proper head, BLUE, RED, &c.

Of these colours, variously mixed and combined, they form the following colours; *panfy, blue, red*: from the mixture of blue and scarlet, are formed *amaranth, violet*, and *panfy*: from the same mixture of blue and crimson-red, are formed the *columbine*, or *dove-colour*, *purple*, *crimson*, *amaranth*, *panfy*, and *crimson-violet*. It may be observed, that they give the name *crimson* to all colours made with cochineal. See CRIMSON, COCHINEAL, &c.

Of blue, and red madder, they likewise make a good *purple*, a *pepper-colour*, *tan-colour*, and *dry-rose*. The same blue, with red half in grain, makes *amaranth*, *tan-colour*, and *dry-rose*. Blue and half-red crimson, compose *amaranth*, *tan-colour*, *dry-rose*, a *brown panfy*, and *surbrun*.

Blue and yellow. These two colours, mixed together, compose a *yellow-green*, *spring-green*, *grafs-green*, *laurel-green*, *brown-green*, *dark-green*; as well as *sea-green*, *parrot-green*, and *cabbage-green*, &c. These three last colours are to be less boiled than the first.

Note, with regard to green, there is no simple ingredient or drug in nature that will dye it: but the stuffs are dyed twice; first in blue, then in yellow.

Blue and brown. These two colours are never mixed alone; but with the addition of red, either of madder or cochineal, they form several colours.

Red and yellow. All the shades composed of these two colours, as *golden-yellow*, *aurora*, *marigold*, *orange*, *nacarat*, *granat-flower*, *flame colour*, &c. are made with yellow, and red of madder; scarlet being less proper, as well as too dear.

Red and brown. Of these two colours are formed *cinna-*

mon-colours, *chestnut*, *musk*, *bears-hair*; and even *purple*, if the red be that of madder.

Yellow and brown. The colours formed from these two are all the shades of *feuille-morts* and *hair-colours*.

It may be observed, that though we say there are no colours, or shades made from such and such mixtures, it is not that none can be made; but only that they are more easily formed from the mixture of other colours. See DYING.

The greatest perfection in the art of colours would be to find the means of preparing the finest colours, without the use either of acid or alkaline salts, which usually subject the colours to change, or else are apt to prey upon the cloth, canvas, &c. as we see in verdigrise, the blue and green crystals of copper, &c. It appears highly probable, that the Indians, for making the fine bright and durable colours, wherewith their chintzes and calicoes are stained, make use of metalline solutions; for some stained calicoes, brought from thence, having been kept forty or fifty years, the bright colours have been observed to eat out the cloth, exactly in the same manner as acid spirits, which dissolve metals, are found to do.

Since these, then, are the inconveniencies attending such colours, we ought to search for menstrua with which to extract colours, which are neither acid nor alkaline; and for such metalline calces, precipitates, or powders, as will not lose their colours, by being well washed to get out their salts; to prepare certain metalline matters by mere calcination, or the bare assistance of fire; and lastly, to look out for native colours, wherein no saline matter abounds.

Mr. Geoffroy has given a very curious process for making two clear, spirituous, inflammable liquors, which differ very little in taste and smell, and being mixt together give a fine carnation colour, without any sensible fermentation.

To make the first of these liquors, put a small handful of dried red roses into a glass bottle; pour on them rectified spirit of wine, till it covers them an inch; let this stand in a cold infusion four or five hours; then pour off the liquor, which will be clear and colourless, as when put on. The second liquor is made by dropping into rectified spirit of wine so much oil of sulphur, by the bell, or spirit of vitriol, as will be borne in it without giving it any very sensible acidity when tasted. When these liquors are thus prepared, let a small quantity of the latter be dropped into some of the former, and the whole will become of a fine carnation colour, though there is no fermentation, nor any other change perceived in it, but barely that of colour. If instead of this last liquor, there be added to the first a few drops of the spirit of sal ammoniac, the whole will become green.

Make a slight infusion of galls in water, so as not to colour the water; make also a weak solution of green vitriol in water, so that it may appear colourless; mix these two colourless liquors together, and an inky blackness is immediately produced; add to this black liquor a little oil of vitriol, and the liquor becomes pellucid and colourless again; then add to this a little salt of tartar, and the whole is black again.

Put a little bruised camphor into rectified clear oil of vitriol; shake the mixture, and it will become black, and the camphor will be dissolved; add to this a little water, and the liquor becomes clear, and the camphor is found separated at top, in its own form, and native whiteness.

Infuse lignum nephriticum in cold water, and pour off the clear liquor. This held up against the light, appears of a fine yellow, but viewed from the light, of a beautiful blue: a little spirit of nitre put to this liquor makes it lose the power of reflecting the blue rays, and a little oil of tartar, afterwards added, recovers that power again.

Logwood, infused in water, gives a red colour. Put to this a little spirit of urine, and it becomes of a fine purple; and drop in afterwards a little spirit of salt, and it becomes of a pale red.

A beautiful blue tincture may be made from filings of copper, by digesting them in spirit of urine, hartshorn, or the like. The addition of oil of vitriol destroys the blue colour; and a little spirit of salt turns it green.

Pellucid oil of vitriol, mixed with pellucid oil of turpentine, produces a thick red balsam. And common oil, mixed with fair water, by means of a little wax, and continued rubbing, turns into a thick white balsam, called cold cream.

Oil of vitriol, distilled from quicksilver, leaves a white powder behind, which, if water be poured on it, becomes yellow.

Dissolve quicksilver in spirit of nitre, and to part of it add spirit of urine, and a white powder is precipitated; to another part of the solution add oil of tartar, and a yellow powder falls to the bottom.

Dip a new pen in spirit of vitriol, and write with it on common blue paper, and the letters will appear red.

A pellucid solution of saccharum saturni being written with on paper, becomes invisible, when dried; but the bare fumes of an infusion of quick lime, and orpiment, in water, will render the invisible writing black and legible.

Volatile salt of sal ammoniac, which is white, mixed with crystals of copper, which are green, produce a fine purple.

The original and simple, as well as the mixt, colours are producible by mixture. Thus, if the sun's rays pass through two pieces of glass, the one blue, and the other yellow, and be afterwards received upon a white paper, the colour there seen is green. The dyers make cloth blue with woad, and then turn it green by the yellow herb called luteola, or dyer's weed. To a yellow solution of gold in aqua regia, add a blue one of copper in spirit of urine, and the mixture becomes green. The painters every day practise this art of producing new colours by mixture.

Metalline and mineral matters are reducible to a considerable degree of subtlety, or smallness of parts, by fire, or dry calcination, so as to leave them durably possessed of their native or adventitious colours. Thus lapis lazuli, by being calcined, becomes the fine rich blue called ultramarine; light ochre, by the same treatment, becomes a light red, or flesh-colour, the most useful flesh-colour in painting. Lead, by calcination, becomes durably red, and iron durably brown; but a proper method seems wanting for the dry calcinations of the nobler metals, gold and silver; though, for the uses of gilding, these are easily prepared by dipping linen rags in their respective solutions, and then drying, and burning them to ashes, whereby a dry and fine metalline powder is procured.

COLOURS from metals. See METAL.

COLOUR, gold. See GOLD.

COLOUR, wine. See WINE.

COLOUR, in Heraldry. The colours generally used in heraldry, are red, blue, black, green, and purple; which by the learned in that science, are called *gules*, *azure*, *sable*, *vert* or *sinople*, and *purpure*. *Tenne*, or *tawny*, and *sanguin*, are not so common. See each colour under its proper article, *GULES*, *AZURE*, *VERT*, *SINOPLE*, &c. As to yellow and white, called *or* and *argent*, they are metals, not colours.

These colours and metals are sometimes also expressed in blazon by the names of precious stones; and sometimes by those of planets, or stars.—Thus, *or* is called *Sol*, and *zopaz*; *argent*, *Luna* and *pearl*; *gules*, *Mars*, and *ruby*; *azure*, *Jupiter*, and *sapphire*; *sable*, *Saturn*, and *diamond*; *vert*, *Venus*, and *emerald*; *purpure*, *Mercury*, and *amethyst*; *tenne*, the *Dragon's-head*, and *hyacinth*; and *sanguin*, the *Dragon's-tail*, and *sardonyx*.

It is a general and fundamental rule in BLAZON, not to place colour upon colour, nor metal upon metal. That is, if the field be of a colour, the bearing must be of a metal: though this rule, on some occasions, and in some circumstances, is dispensed with; as in the diminutions and differences which distinguish the younger from the elder branches of families; and in the extremities of animals tongues, claws, horns, &c. In which cases colour may be on colour, and metal on metal, without false heraldry. Oenomaus is said to have first invented the distinction of colours, to distinguish the quadrillæ of combatants at the Circensian games: the green for those who represented the earth: and the blue for those who represented the sea.

Hence the ancient cavaliers took occasion to distinguish themselves, in their tournaments, by habits, plumes, and ribbands of different colours; which were ordinarily those of their mistresses, and were the symbol of some passion or quality.—Hence also the origin of colours in liveries.

COLOURS, in the Military Art, include the banners, flags, ensigns, &c. of all kinds, borne in an army, a fleet, or the like. See FLAG, and STANDARD.

COLOURS, field. See FIELD.

COLOURS are also used both in the Latin and Greek churches, to distinguish several mysteries and feasts celebrated therein.

In the Latin church are only regularly admitted five colours, viz. *white*, *red*, *green*, *violet*, and *black*: the *white* is for the mysteries of our Saviour, the feasts of the Virgin, those of the angels, saints, and confessors; the *red* for the mysteries and solemnities of the holy sacrament, the feasts of the apostles and martyrs; the *green* for the time between Pentecost and Advent, and from Epiphany to Septuagesima; *violet* in Advent, Christmas, in vigils, rogations, and in votive masses in time of war: lastly, *black* for the dead, and the ceremonies thereto belonging. Cloths of gold and silver, and embroidery, serve indifferently for all solemnities.

In the Greek church the use of colours is almost obliterated, as well as among us: *red*, among them, was the colour for Christmas, and the dead; as black is still for the last among us.

COLOUR, in Law, is a probable, or plausible plea; though in reality false at bottom; and only calculated to draw the trial of the cause from the jury to the judge.

Thus, e. gr. in an action of trespass for taking away the plaintiff's beasts, the defendant urges, that before the plaintiff had any interest in them, he himself was possessed of them, as his proper goods; and delivered them to A. B. to deliver to him again, when, &c. and A. B. gave them to the plaintiff: and the plaintiff, supposing the property to be in A. B. at the time of the gift, took them; and the defendant took them again from the plaintiff; whereupon the plaintiff brings his action.—This is a good colour, and even a good plea. Doct. and Stud.

COLOURS, *Colores*, in the Ancient Music, was used to signify the musical species belonging to a genus.

In this sense the CHROMATIC genus was said to have three colours; and the DIATONIC two. The ENHARMONIC, having no subordinate species, had but one colour. Hence the ancients reckoned three genera, and six colours, in music; that is, so many different divisions of the diatessaron, or fourth.

COLOUR of office, is when some unjust action is done, under countenance of office or authority.

To COLOUR strangers goods, is when a freeman allows a foreigner to enter goods at the custom-house in his name.

COLOURABLE title. See TITLE.

COLOURING, in Painting, the manner of applying, and conducting the colour of a picture; or the mixture of lights and shadows, formed by the various colours employed in a painting.

The colouring is one of the principal branches in painting. M. Felibien divides the painter's art into three parts; the design, the composition, and the colouring. The colouring strikes the most; but among masters it always gives place to exactness of design.

De Piles observes, that the word colouring, in its confined sense, is chiefly applicable to a history-piece; scarce at all to a landscape. He adds, that the term colouring relates more immediately to the carnations than any thing else. The colouring, in its general sense, takes in whatever relates to the nature and union of colours; their agreement or antipathy; as also how to use them to advantage in light and shadow, so as to shew a relievio in the figures; and a sinking of the ground; what relates to the aerial perspective, i. e. the diminution of colours by means of the interposition of air; the various accidents and circumstances of the luminary and the medium; the different lights, both of the bodies illuminating and illuminated; their reflexions, shadows, different views, with regard either to the position of the eye, or the object; what produces strength, boldness, sweetness, &c. in paintings well coloured; the various manners of colouring, both in figures, landscapes, &c.

COLOURING, doctrine of. Colours are considered, either in respect of their use, or their economy and disposition.

1. With regard to their use. They are either in oil, or water: those in oil, again, may either be considered with a view to their preparation, or application.

In the preparation of oil colours, care must be taken that they be ground fine; that in putting them on the pallet, those which will not dry of themselves, be mixed with drying oil, or other driers; and that the tinged colours be mixed in as small quantities as possible.

For their application, it is considered either with regard to the kinds of painting, whether in works of various colours, or in those of one single colour.

For the first: in the large pieces, the colours are either laid in full, so as that they may be impasted, or incorporated together, which makes them hold the more firmly.

Or else they mix those more agreeable ones, which dry too hard, and too hastily; with a little colour, and the clearest of the oil: but, in both cases, the colours are to be laid on strong at first; it being easy to weaken those that are to be thrust back, and to heighten the others: the touches to be bold, by the conduct of a free and steady pencil; that the work may appear the most finished at a proper distance, and the figures animated with life and spirit.

For glazed colours, particular care must be taken that the under-colour be painted strong, and that it be a body-colour, and laid smooth.

In finished works, which are to be viewed near at hand, they proceed, either by applying each colour in its place; preserving their purity, without fretting or tormenting them, but sweetly softening off their extremities; or by filling up all the great parts with one single colour; and laying the other colours, which are to form the little things upon it; which is the more expeditious way, but is more apt to decay.

For the *second*: the kinds of pictures in one colour are two; viz. *camieux*, where the degradations of colours of objects afar off are usually managed by lights, as with crayons; and *basso relievo*, which is an imitation of sculpture, of whatsoever matter and colour: in both these, the colours are wrought dry.

For water colours, they are wrought various ways; viz. in *distemper*, as the painters express it, where the colours are prepared in size; which method is used in all kinds of matter in *fresco*, or painting on fresh mortar; where the colouring must be quick, that the matter dry not; and with much care and neatness, laying each colour in its place, and intermingling them by parcels: in *agouache*, where the colours are mixed with gum, and the pencil dragged: as in paint and washings: in *miniature*, for small and delicate works; where the colours are to be very fine and clean, mixed with gums, and wrought in dots or points.

But in all the kinds of painting, both in oil and distemper, especially the latter, proper care must be taken, that the design be fixed, and all the parts marked out, before any colours be applied.

For the second part of colouring, or the œconomy and dispensing thereof in paintings; regard is either had, first to the qualities of the colours, to appropriate them according to their value or agreement: or, secondly, to their effect, in the union and œconomy of the work.

For the *qualities*, it must be observed, that white represents light, and gives the briskness and heightening: black, on the contrary, like darkness, obscures and effaces the objects: again, black sets off the light parts; and by that they serve each other to loosen the objects. A proper choice is to be made of colours, and the too much charged manner to be avoided; both in carnations, where red colours are not to be affected, as rather resembling the flesh when flayed than the skin; and all bright glowing colours: the skin, how delicate soever, being always of a down colour; in the drapery, where the painter has his whole stock of colours to chuse out of, to procure a good effect; and in the landscape to dispose those colours near one another, which mutually assist and raise each other's force and briskness: as red and green, yellow and blue. He is likewise to manage them so, as that they be accommodated to the effects of the great parts of light and colour: that the strong colours lead to the soft ones, and make them more looked at; bringing them forwards, or keeping them back, according to the situation, and the degree of force required. For the *effects of colours*, they either regard the union, or the œconomy; with respect to the first, care must be taken, that they be laid so, as to be sweetly united, under the brightness of some principal one; that they participate of the prevailing light of the piece; and that they partake of each other by the communication of light, and the help of reflexion.

For the *œconomy in managing their degrees*, regard is to be had to the contrast, or opposition, intervening in the union of the colours, that by a sweet interruption, the briskness, which otherwise fades and palls, may be raised to the harmony, which makes the variety of colours agree; supplying and sustaining the weakness of some by the strength of others; neglecting some places, on purpose to serve as a basis or repose to the sight, and to enhance those which are to prevail through the piece: also, to the degradation, where, the better to proportion the colours that fall behind, some of the same kind are to be preserved in their purity, as a standard for those carried afar off to be compared by, in order to justify the diminution: regard must always be had to the quality of the air, which, when loaded with vapours, weakens the colours more than when clear: to the situation of the colours, where care must be taken, that the purest and the strongest be placed before, or in the front of the piece; and that by their force the compound ones, which are to appear at a distance, be kept back: particularly the glazed colours to be used in the first rank: lastly to the expression of the subject, and the nature of the matters, or stuffs, whether shining or dull, opaque or transparent, polished or rough.

COLOURING and NON-COLOURING drugs. Thus the dyers distinguish their materials: the first are applicative, and communicate their colours to the matter boiled in them, or passed through them; as woad, scarlet, green, cochineal, indigo, madder, turmeric, &c.

The second serve to prepare and dispose the stuffs, and other matters; and to extract the colour out of the colouring ingredients; as alum, salt or crystal of tartar, arsenic, realgal, salt-petre, common salt, sal ammoniac, sal gemme, agaric, spirit of wine, bran, peas-flour, wheat, starch, lime, and ashes.

COLOURING of glass. See GLASS.

COLOURING of earthen ware. See GLAZING.

COLOURING of porcelain. See PORCELAIN.

COLOURING of spirits. See SPIRITS.

COLPISCIS, a name given by some, to the *falx Venetorum*, or fickle-fish, commonly called the marmot-fish by the people of Venice. See FALX.

COLT, in Zoology. See FOAL.

COLT-evil, a disease incident both to horses and geldings. It is an unnatural swelling of the yard and cods, proceeding from wind, or else through the abundance of feed in horses. It happens to geldings for want of natural heat.

COLT's-foot, *Tussilago*, in Botany, a genus of the *syngenesia polygamia superflua* class. Its characters are these; the flower has one common cylindrical empalement, whose scales are linear, spear-shaped, and equal. The flower is made up of hermaphrodite florets, which compose the disk; and female half-florets, which compose the rays or border; the hermaphrodite florets are funnel-shaped, cut at the brim into five segments; these have five short, hair-like stamina, terminated by cylindrical summits, and a short crowned germen, supporting a slender style, crowned by a thick stigma; the germen afterward becomes an oblong compressed seed, crowned with a hairy down; the female half-florets are stretched out on one side with a narrow tongue-shaped segment; these have no stamina, but have a short crowned germen, which turns to a seed like those of the hermaphrodite florets, which ripen in the empalement. Linnæus enumerates ten and Miller three species, the first of which is very common in watery places in most parts of England.

The common *colt's-foot* stands generally recommended as a very great medicine in coughs, and all disorders of the breast and lungs. It is also sometimes used externally in inflammations.

COLT's-foot, *Alpine*, or *foreign*, *Cacalia*, in Botany, a genus of the *syngenesia polygamia æqualis* class. Its characters are these: it hath compound flowers, which are included in one common cylindrical empalement; the flowers are tubulous and funnel-shaped, and have each five short slender stamina; the germen is crowned with down, and afterwards becomes a single oblong seed, crowned with long down. Linnæus mentions fourteen, and Miller eight species.

The root of *cacalia*, macerated in wine, and made into an eclegma, or chewed by itself, is said to cure coughs. Its seeds pulverised and made into a cerate, and used as an ointment, render the skin smooth and free from wrinkles.

COLTIE, among the *Timber Merchants*, a word used to express a tree which has a defect in some one of its annual circles, which renders it unfit for many of the uses it might have been otherwise fit for. In this case some one of the annual circles near the centre is perceived by the eye to be thicker than the rest, and its sap-vessels larger. It has an appearance much different from that of the others, and is so loosely connected both to its investient, and invested circles, that, on sawing a transverse piece of the trunk off, it will slip out from the others, and so leave the heart loose, and the rest hollow, seeming to have been only fitted, not connected to the others. In splitting the wood for other uses, it yet more readily drops out, and the timber of such a tree is therefore much less fit for general use than that of others. It is not easy to say to what accident, in the growth of the tree, this is owing, but it seems probable that it exposes the tree to other accidents; in particular Bobart seems to think, that among the trees which were split by the hard frost, in the year 1683, while other trees of the like sizes and kinds escaped, this *coltiness* might be the occasion of the mischief, as well as their being wind-shaken, or lagged. Phil. Trans. N° 165.

COLUBER, in Zoology, the name of a very numerous genus of SERPENTS, the abdomen of which is covered with *scuta*, and the under part of the tail with *squamæ*, or scales. See VIPER.

COLUBRINUM, *lignum*. See LIGUM *colubrinum*.

COLUM, in Ornithology, is probably a species of the CRANE, and common at Surat in the East Indies. These birds have a remarkable flexion in the *aspera arteria*, taken notice of by Dr. Parsons; and which he conjectures may serve for the retention of inspired air, whilst they plunge deep into the water in pursuit of food, or traverse different climates through various degrees of rarefied and condensed air. Phil. Trans. vol. lvi. art. 24. p. 211.

COLUMBA. See PIGEON.

COLUMBA galeata. See HELMET-pigeon.

COLUMBA Greenlandica, in Ornithology, a name given by authors to a small, well-tasted, water fowl, called, in English, the *sea turtle DOVE*.

COLUMBA Numidica. See MAHOMET pigeon.

COLUMBA ridens. See LAUGHER.

COLUMBA marina, the *sea-dove*, in Ichthyology, the name of an East India fish, and appearing to be a species of the orbis, or moon-fish. It has its name from its head, and prominent

prominent chest, resembling that of the dove; it has no scales, but is variegated with several very oddly placed marks on the back and sides. It is a scarce fish, and not much valued, being but an ill-tasted one.

COLUMBA is also the name of a military order instituted by John I. of Castile, about the year 1379.

COLUMBA Noachi, a small constellation in the southern hemisphere, consisting of ten stars. In Sharp's Catalogue their longitudes, latitudes, &c. are as follow.

Names and situations of the stars.	Signs.	Longitud.			Latitude. S.			Magnitude.
		°	'	"	°	'	"	
First of the brightest	♏	18	21	34	57	23	41	2.3
Second		22	35	46	59	15	31	2.3
First of the stars		41	54	27	58	38	34	4
The Northern		20	56	16	55	42	26	6
The next to the first of the brightest		23	33	23	57	16	6	5
5.								
Next to the second		25	13	59	58	44	31	5
In the head of the Dove		28	14	39	60	41	40	5
First in the branch	♏	2	39	46	58	31	23	5
Second, or α, in CANIS Major		4	34	28	56	44	38	5
Last in the branch		6	45	13	55	47	37	5

COLUMBAC denotes that part of the **AGALLOCHUM**, which is between the heart, and that part next to the bark.

COLUMBINA, a name given by Aëturius, and some other medical writers, to the *verbena*, or common **VERVAIN**.

COLUMBINA Marga. See **MARLE**.

COLUMBINE, *Aquilegia*, in *Botany*, a genus of the *polyandria pentagynia* class. Its characters are these: the flower hath no empalement, but is composed of five equal oval petals, which are plain, and spread open within, and have five equal nectariums, ranged alternately with the petals, each of the horns widening upward. It hath many awl-shaped stamina, and five oval germina, which afterward become five cylindrical vessels, which are filled with oval shining seeds. There are four species.

The manner of propagating these flowers is either by sowing, or parting the old roots; but the old roots being very apt to degenerate, the sowing of them is much the best method.

The seeds must be sown in a nursery-bed in August or September, and in the March following the plants will appear above the ground, at which time they must be carefully cleared of weeds, and watered gently at times, if the dryness of the season requires it. In the beginning of May they will be strong enough to be transplanted, and must then be placed at eight inches distance, in beds of good, fresh, undunged earth, and they must here be also kept cleaned from weeds, and watered as they may require it; at Michaelmas they may be removed into the borders of the flower-garden, and in the May following they will flower. The seeds of *columbine* have been commended, in substance and in emulsion, as an anthelmintic, as an aperient in the jaundice, and for promoting the eruption of the measles and small-pox. But their sensible qualities afford little foundation for virtues of this kind. Those ascribed to a tincture of the flowers as an antiphlogistic, and for strengthening the gums, and detaching scorbutic ulcerations in the mouth, appear to be better founded: the tincture being made with an addition of the vitriolic acid, and differing little from our official tincture of roses.

COLUMBINE, feathered, in *Botany*. See **Meadow RUE**.

COLUMBINE, a kind of *violet-colour*, called also *dove-colour*. See **DYING**.

COLUMBO root derives its name from *Columbo*, a town in the island of Ceylon, whither it was transplanted from Asia. This root is composed of three laminæ, the cortical about one fourth of an inch thick, the ligneous about half an inch, and the medullary, which is about an inch in diameter. It is brought into Europe in circular pieces about three inches thick, covered with a wrinkled bark of a dark brown hue, and internally it is of a light yellow. It hath an aromatic smell, and is bitter, and slightly pungent to the taste. It is reckoned almost a specific in the cholera morbus, nausea, indigestion, bilious fever, diarrhoea, dysentery, and most disorders of the stomach and bowels. It is sedative, corroborant, and antiseptic. It is more effectual than the bark in preserving the bile from putridity, and in some cases a good substitute for it. The common dose is from ten to fifteen grains every three or four hours. A tincture is made by infusing an ounce of this root in a pint of brandy, which may be taken in the quantity of a ta-

ble spoonful, and speedily relieves colicky pains arising from flatulence and indigestion. An extract likewise of this root is prepared by digesting twelve ounces of the powder in three pints of rectified spirit of wine; then filtering the tincture, and boiling the residuum in different water, till it yields little or no taste to the liquor. This decoction is strained and evaporated, until only six pints remain; which after evaporation in a vapour-bath, and having the tincture added to it, may be reduced to the consistence of a pill.

COLUMBUS, *Congregation of St.* is the name of a congregation of regular canons, formerly of great extent; having under it an hundred abbeyes, or monasteries, in the British islands. See **CONGREGATION**, and **CANON**.

COLUMELLA, in *Natural History*, a name given by Mr. Lhuyd to the *mycetizæ*, or *FUNGITÆ*, a sort of sea corals, when found fossil, as they very frequently are, in beds of clay, or lodged in stone.

COLUMELLA, in *Anatomy*. See **UVULA**.

COLUMELLÆ musculus teres, a name given by Morgagni, and some others, to the muscle called by Albinus *azygos uvulæ*.

COLUMN, in *Architecture*, a round pillar, made to support, or adorn, a building.

The *column* is the principal, or reigning part, of an architectural order.

The principal laws and properties of this eminent member of architecture are thus deduced. Every fulcrum, or support, is so much the more perfect, as it is the firmer, or carries the greater appearance of firmness: and hence all *columns*, or pillars, ought to have their base, or foot, broader than themselves. See **BASE**.

Again, as a cylinder and a quadrangular prism are more easily removed out of their place than a truncated cone, or a pyramid on the same base, and of the same altitude; the figure of *columns* ought not to be cylindrical; nor that of a pilaster pyramidal; but both the one and the other, to be contracted, or diminished; i. e. to grow less and less, like a truncated cone, and a truncated pyramid.

For the same reason, the lowest parts of *columns* ought to be cylindrical; that of pilasters, pyramidal: hence, again, as *columns* are more firm, if their diameter bears a greater proportion to their height than if it bore a less, the greater ratio is to be chosen, where a large weight is to be sustained; and less, where a lesser. Farther, as the design of a *column* is to support a weight, it must never be supported without an entablature: though a *column* raised on an eminent place, so as to leave no room to fear its being thrust out of its place, needs no pedestal.

The entire *column*, in each order, is composed of three principal parts; the *base*, the *shaft*, and the *capital*. See the proportion of each, under its respective head, **CAPITAL**, &c. Each of these parts, again, is subdivided into a great number of lesser, called *members*, or *mouldings*: some whereof are essential, and found in all *columns*; others are only accidental, and found in particular orders.

Columns are different, according to the several orders they are used in; and likewise, not only with regard to their order, but also to their matter, construction, form, disposition, and use. With regard to order, we have the

COLUMN, *Tuscan*, the shortest, and most simple, of all the *columns*. Its height, according to Vitruvius, Palladio, and Vignola, is seven diameters, or fourteen modules; according to Scamozzi, it is fourteen modules; to De Lorme, twelve; to Trajan's *column*, sixteen. Its diminution, according to Vitruvius, is one fourth of the diameter; according to Vignola, a fifth; and according to Trajan's *column*, a ninth. Its several parts, mouldings, &c. see under their proper heads; and the entire figure, represented in *Tab. Architect. fig. 24*.

COLUMN, *Doric*, is somewhat more delicate: its shaft is adorned with flutings: its height, according to Vitruvius, is from fourteen to fifteen modules; to Scamozzi, seventeen; to Vignola, sixteen; in the Coliseum, nineteen; in the theatre of Marcellus, fifteen two thirds. Its diminution, according to the theatre of Marcellus, twelve minutes; to the Coliseum, four minutes and a half. See *Tab. Architect. fig. 25*.

COLUMN, *ionic*, is more delicate still; it is distinguished from the rest by the volute in its capital, and by its base. See **VOLUTE**.

Its height, according to Palladio, is seventeen modules one third; according to Vignola, eighteen. Its diminution, in the temple of Concord, ten minutes and a half; of Fortuna Virilis, seven and a half; Coliseum, ten minutes. See *Tab. Architect. fig. 26*.

COLUMN, *Corinthian*, is the richest and most delicate of all the *columns*. Its capital is adorned with two rows of leaves, and with caulicoles; whence spring out little volutes.

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Its height, according to Vitruvius, and many remains of antique porticos, temples, &c. is nineteen modules; according to Serlio, eighteen: to the Coliseum, seventeen and seven tenths; to the three columns in the Campo Vaccino, twenty; the basilica of Antoninus, twenty. Its diminution, according to the temple of Peace, is six minutes and a half; the Pantheon, six one eighth; temples of Sybil and Faustina, eight; Constantine's arch, seven, portico of Septimius, seven and a half. See *Tab. Architect.* fig. 27.

COLUMN, Composite, has two rows of leaves in its capital, like the Corinthian; and angular volutes, like the Ionic. See COMPOSITE.

Its height, according to Vignola, and the arch of Titus,

is twenty modules; to Scamozzi, and the temple of Bacchus, nineteen and a half; the arch of Septimius, nineteen and nine tenths. Its diminution, according to Titus's and Septimius's arches, seven minutes; baths of Dioclesian, eleven minutes one third; temple of Bacchus, six and a half. See *Tab. Architect.* fig. 28.

An ingenious architect has furnished the editor with the following table, accommodated to the measures of the most approved architects for the four first orders; and as the Composite (which many will not allow to be a distinct order) has the best effect when put to the measures of the Corinthian, the measures may be supplied from those of that order.

	TUSCAN.		DORIC.		IONIC.		CORINTHIAN.		
	Altitude.	Projection.	Altitude.	Projection.	Altitude.	Projection.	Altitude.	Projection.	
CORNICE.	Fillet,	3½	66	2¼	76	2½	72	2¼	74
	Cima Recta,	10		6¼		7		6¼	
	Fillet,	2	54½	6¼	68	1	64	6½	66½
	Cima Reverfa,			3¼		3		3	
	Corona,	10	52¼	8	64	8	59½	7½	63
	Ovola,	9	42	6	39½				
	Fillet,	1½	32	1	35½			¾	62
	Cymatium of the Modillions,					3	{ 55 53	2½	{ 61 59
	Modillion,					7½	52	7½	40¼
	Fillet,					1½	37	1	40
	Ovolo,					6	36	4½	39
	Fillet,							1	36
	Dental,							5½	35
	Fillet,					1	31½	1	32
	Ogee,							4½	{ 31 27
ARCHITRAVE.	Cavetto,	7½	23½	5	31	5	27		
	Capital of Triglyphs,			5	30½				
	FRIEZE,	26	22½	45	26	27	34	28½	26
	Fillet,	5	27½	4½	28	2¼	34	2½	34½
	Cima Reverfa,					4¼	{ 33 30	5	{ 30½ 30½
	Astragal or Fusiole,							2	29½
	Third Faccia,					10½	29	10½	28
	Astragal,					2	29	1¼	28
	Second Faccia,	17½	24	14½	27	8½	27½	8¼	27
	Astragal,					1½	27½	1½	27
	First Faccia,	12½	22½	11	26	6½	26½	6¼	26
	Abacus, { Ovolo, Fillet, Cavetto,			1¼ 1¼	38¼	1½	31½	1¼ 5½ 2½	42 39
	Basket Rim,								
	Cima Reverfa,			2½	{ 37½ 36¼	3½	{ 30½ 29		
Abacus,	10	30	6¼	35½					
Volute, { Fillet or Rim, Chaw or Hollow,					1½ 5½				
Ovolo,	10	29	6½	34½	7½	35			
Astragal,			1½	29½					
Fillet,	1½	24½	{ 1½ 1½	28½ 27½					
Colorino,	8½	22½	10	26					
CAPITAL.									
	Astragal,	4	27	3½	30	3¼	30	3½	30
	Fillet,	1½	24½	1½	28	1½	28½	1½	28
	Body of Column,	354½	{ 22½ 30	413½	{ 26 30	482¼	{ 26 30	460¼	{ 26 30
	Fillet,	2½	33½	1¼	33½	1¼	33	1½	33½
	Astragal,					2¼	34½	2½	35½
	Torus,			5½	36½	5½	37	5	37
	Astragal,							1½	35½
	Fillet,			1¼	35	1¼	34½	¾	34
	Scotia,			4½		4½		3¼	
	Fillet,			1¼	36½	1½	37	¾	37
	Astragal,							1¼	38½
	Torus,	12½	40	12½	40	7½	41½	7	42
	Plinth,	15	40	10	40	10	41½	9½	42

It may be here observed, that there seems more of caprice than reason in that diversity found in the heights of columns of the same order, in different authors; each of whom frequently take the liberty of dispensing with his own rules. Vitruvius, for instance, makes the Doric columns of temples shorter than those of porticos behind

theatres: Palladio gives a greater height to columns standing on pedestals, than to those which have none; and Serlio makes his column a third shorter, when insulate or detached, than when contiguous to a wall. But notwithstanding the diversity of height in columns of the same order in different authors, they still bear a like proportion

proportion in the several orders compared with each other; by which they go increasing, as the orders are less massive.

But this augmentation is greater in some ordonnances than in others: for in the antique it is but of five modules, or semidiameters for the five orders; the shortest column, that is, the Tuscan, being fifteen modules; and the longest, the Composite, twenty. In Vitruvius, this increase is also of five modules; but commences from fourteen modules, and ends at nineteen. The moderns usually make it greater: Scamozzi makes it five modules and a half; Palladio and Serlio, six.

From the several proportions of columns assigned by several authors, M. Perrault has drawn a new one; which is a mean between the extremes of the rest. Thus, he makes the Tuscan column fourteen modules two thirds; which is a kind of mean between the Tuscan of Vitruvius, fourteen, and that of Trajan's column, eighteen: the height of the Doric column he makes sixteen modules; which is a mean between the fourteen of Vitruvius, and the nineteen of the Coliseum: the Ionic he makes seventeen modules one third; which is a mean between the sixteen of Serlio, and the nineteen of the Coliseum: the Corinthian column he makes eighteen modules two thirds; as being a medium between the sixteen modules six minutes of the temple of the Sybil, and the twenty modules six minutes of the three columns of the Roman Forum: lastly, the Composite column, by the same rule, he makes twenty modules; that height being a mean between the arch of Titus, and the temple of Bacchus.

Indeed, the rule by which he proceeds seems very reasonable; viz. that the progression of each column in the different orders is to be equal; so that having settled the whole progression, from the Tuscan to the Composite, at five modules ten minutes; this being a mean between the five modules of the antique, and the five and a half of the moderns; he divides this sum, which is one hundred and sixty minutes, into four equal parts, giving forty minutes to the progression of each order: this makes the Tuscan column fourteen modules twenty minutes; the Doric becomes sixteen, the Ionic seventeen ten minutes, the Corinthian eighteen twenty minutes, and the Composite twenty modules.

For the distinguishing characters of each order of columns, see ORDER. For the matter of columns, see STONE, MARBLE, &c. For their use and application, see BUILDING. For the ranging of columns, and the spaces to be observed between each, see INTERCOLUMNIATION.

COLUMNS, different with regard to their matter.

COLUMN, fusible. Under this term are comprehended, not only columns of various metals, and other fusible matters, as glass, &c. but also those of stone, said to have been cast; the secret of which some will have us believe to have been known to the ancients.

COLUMN, hydraulic, is that whose shaft appears to be of crystal; being formed by a number of little threads of water, falling from holes made in a girt of metal, at equal distances, by means of a pipe mounting through the middle thereof; as in the gardens at Versailles.

COLUMN, hydraulic, also denotes a column from whose top proceeds a jet d'eau, to which the capital serves as a basin; whence the water descends by a little pipe, which turns spirally around the shaft. Such are the Ionic columns of the cascade of the Belvidera at Frescati; and those of the vineyard Matthei at Rome.

COLUMN, moulded, is that made by impastation of gravel and flints of divers colours, which are bound together with a cement, which grows perfectly hard, and receives a polish like marble.

The secret of making these, it appears, the ancients were masters of, by the columns lately discovered near Algiers; which are, doubtless, the ruins of the ancient Julia Cæsarea: on all these is found the very same inscription in antique characters; the contours, accents, and even faults, being repeated in every shaft: an incontestable proof of their being moulded.

COLUMN, transparent, any column made of transparent matter: as were those of crystal in the theatre of Scaurus, mentioned by Pliny; and those of transparent alabaster, in the church of St. Mark, at Venice.

COLUMN, water, is a sort whose shaft is formed of a large jet d'eau; which, spouting out water violently from the base, drives it within the tambour of the capital, which is made hollow; whence, falling down again, it has the effect of a liquid crystal column. See FOUNTAIN.

An instance of this we have at Quinta d'Aveiro, near Lisbon.

COLUMN of bands, or tambours, that whose shaft is formed of several courses of stone, or blocks of marble, less high than the diameter of the column: this is what Ulpian means by *columna struclilis* or *adpacta*; which is opposite to the *columna solida*, or *integra*, i. e. of one piece.

COLUMNS, with regard to their construction.

COLUMN of Joinery, is that made of strong timber-boards, joined, glued, and pinned together: it is hollow, turned in the lathe, and usually fluted. Such are the columns in most altar-pieces.

COLUMN of Masonry, is made of rough stone, well laid and covered with plaster; or of bricks moulded triangular-wise, and covered with stucco.

COLUMN in truncheons, or pieces, consists of three, four, or five pieces of stone, or metal; differing from the tambours, as being higher than the diameter of the column.

COLUMN, geminated, that whose shaft is formed by three similar and equal sides, or ribs of stone, fitted within one another; and fastened at bottom with iron pins, and at the top with cramp-irons. This is to be fluted, that the joints may be the less discernible.

COLUMN, incrustated, is made of several ribs, or thin shells of fine marble, or some other rare stone, cemented upon a mould of stone, brick, or the like. This is done with design both to save the precious matter, as oriental jasper, lapis lazuli, agat, &c. or to represent pieces of such stones of an extraordinary size, by the neatness and closeness of the incrustation, which renders the joints imperceptible.

COLUMN, cabled, or rudented, is a column having projectures in form of cables, or canes, in the naked of the shaft; each cable having an effect opposite to that of a fluting; and accompanied with a little list on each side.

COLUMN, corollitic, that adorned with foliages, or leaves and branches turned spirally around the shaft; or in form of crowns, and festoons.

These were used by the ancients for erecting statues on; which hence took the denomination of *corollitic*. They are very suitable in triumphal arches, and decorations of theatres.

COLUMN, colossal, a column of enormous size, too large to enter any ordonnance of architecture; to be placed solitary, in the middle of a square, &c.

Such is the Trajan column; whose proportions are Doric, its profile Tuscan, and its pedestal Corinthian; twelve feet and one eighth in diameter, and one hundred in height, including the base and the capital. Its base consists of twelve stones of an enormous size, and it is raised on a socle or foot of eight steps. The pedestal of this column has eighteen feet, and the crowning sixteen and a half. It supports a bazen statue of St. Peter, thirteen feet high; the whole making one hundred and forty-seven ancient Roman feet. It was built by Apollodorus, in a large square at Rome called the Forum Romanum; and consists of thirty-four tambours, or blocks, or pieces of white marble, taking in the crowning. It is adorned from top to bottom with basso relievos, representing the great actions of that emperor against the Dacæ.

Several learned men have explained the bas reliefs of the Trajan column; and, among others, Ciaconius and Fabretti. The late king of France, Lewis XIV. had models of all the bas reliefs taken off in plaster of Paris. See COLUMN, historical, and hollow.

The Antonine column, which is also of white marble, is inferior to the Trajan in beauty of sculpture, but exceeds it in height; being one hundred and sixty-eight feet to the capital, besides seven feet of the pedestal under ground. See COLUMN, hollow.

Lastly, the London column, or MONUMENT, is of stone, fifteen feet in diameter, and two hundred and two high; taking in the pedestal and crowning.

COLUMN, cylindrical, is that which has neither swelling nor diminution.

COLUMN, diminished, is that which has no swelling, but begins to taper, or diminish, from the base; in imitation of trees.

Such are most of the antique columns of granite; particularly the Corinthian ones in the porch of the Pantheon. To diminish a column. Draw a transverse line (*Plate Architecture, fig. 36.*) at one third of the whole height of that column; then set off the diminution on each end of the line: on the extreme diameter of the column inwards describe a semicircle, and continue the divisions last made to the neck of the column; divide the intermediate space into six equal parts, and make the like number of divisions on that part of the circle which is between the perpendiculars of the necking and the greatest diameter. Lines drawn from these divisions will intersect the several transverse lines, and give the diameter at each of those points: a curve drawn that will touch in those points; will form the outline of the column properly diminished.

COLUMNS denominated from their form.

COLUMN, fluted, called also channelled, and striated column; that whose shaft is adorned with flutes, or channellings; either from top to bottom; or only two thirds of its height.

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COLUMN, *fluted and cabled*, is that whose flutes are filled up with cables, reeds, or staves; beginning from the bottom of the shaft, and reaching one third of its height.

COLUMN, *fluted, enriched*, is that whose flutings are filled up with ornaments of foliages, rinds, ribbons, &c. instead of cables.

COLUMN, *Gothic*, a round pillar, either too short for its bulk, or too slender for its height; as having, sometimes, twenty diameters; and this without either diminution, or swelling: yet its ornaments, and the characters of its work, being as far from those of the antique as its proportions.

COLUMN, *Hermetic*, a kind of pilaster, in manner of a terme; having the head of a man, in lieu of a capital. It had its name from a custom, among the ancients, of placing Mercury's head, whom the Greeks call *Hermes*, at the top of columns.

COLUMNS, *massive*, are those too short for the order whose capital they bear; as the pillars in Gothic churches usually are. See **MASSIVE**.

Under the term *massive* are, likewise, frequently comprehended *rustic* and *Tuscan columns*.

COLUMN, *oval*, that whose shaft has a flatness; its plan being made oval, to reduce the projecture.

COLUMN, *pastoral*, that whose shaft is formed in imitation of the trunk of a tree, with bark and knots.

This kind of *column*, in the Tuscan proportion, may be used in the gates of parks and gardens; and in the decoration of pastoral scenes, &c.

COLUMN, *polygonous*, has several sides, or faces: the most regular of these have eight faces.

This, with the oval and cylindrical columns, Daviler regards as abuses in architecture.

COLUMN, *serpentine*, a column formed of three serpents, twisted together; the heads whereof serve as a capital. An instance of this is at Constantinople, in the square called *Atmeidan*, anciently the Hippodrome. P. Gyllius calls this the *Delphic column*; as imagining it anciently served for the tripod of Apollo, in the temple at Delphos. It is now ordinarily called the *talisman*, or *enchanted column*.

COLUMNS, *swelled*, are those which have a bulging, or swelling, in proportion to the height of the shaft. Authors are much divided on the subject of this *swelling*. Sir H. Wotton treats it as a most ridiculous abuse: yet the practice obtains among the modern architects; who generally make their columns a little bigger at one third of their height, then at the base; i. e. they diminish the column near the base; which makes the upper part appear big, and occasions a swelling at about one third of the height.

This swelling appears to have been unknown to the ancients. M. Le Clerc observes, it ought not to exceed one minute and a half at most. He thinks it ought never to be used, excepting where there is a particular occasion for it; as where columns are to be placed over one another.

COLUMN, *twisted*, is that whose shaft is twisted round, in manner of a screw, with six circumvolutions; being, ordinarily, of the Corinthian order. Vignola first found a method of drawing it by rule.

COLUMN, *twisted fluted*, is that whose flutes follow the contour of the shaft, in a spiral line throughout the whole length; whereof there are some antique ones of porphyry, and hard marble.

COLUMN, *twisted and enriched*, is that, one third of whose shaft is fluted, and the rest adorned with foliages and other enrichments: and which, being all of marble, is enriched with sculpture from bottom to top.

Sometimes, again, the *twisted column* is formed of two or three slender shafts, twisted round, so as to leave a cavity in the middle. Sometimes the flutings are spiral, yet the shaft strait; which succeeds very well in the more delicate orders.

COLUMNS *denominated from their disposition*.

COLUMN *inserted*, or *backed*, is that let into a wall, a third or fourth part of its diameter.

COLUMN *niche*, is that whose shaft enters, with half its diameter, into a wall, which is hollowed for its reception; with its plane parallel to the projecture of the tore. Such is that in the portal of St. Peter at Rome.

COLUMN, *angular*, is an insulated column, placed in the coin, or corner of a portico; or inserted into the corner of a building: or even a column that flanks an angle, either acute or obtuse, of a figure of many sides.

COLUMN, *attic*, according to Pliny, is a pilaster insulated; having four equal faces, or sides; and of the highest proportion, v. g. Corinthian.

COLUMNS, *canted*, are those engaged in the four corners of a square pillar, to support four springs of an arch.

COLUMNS, *coupled*, are those disposed, by two and two,

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so as almost to touch each other at their bases, and capitals.

COLUMN, *doubled*, is an assemblage of two columns, joined in such a manner, as that the two shafts penetrate each other with a third of their diameter. Such are those of the four angles in the court of the Louvre.

COLUMN, *flanked*, according to M. Blondel; is a column engaged with one half, or at least one third of its diameter, between two demi-pilasters.

COLUMNS, *grouped*, are those placed on the same pedestal, or socle; either by three and three, or by four and four.

COLUMN, *insulated*, is that standing free, and detached on all sides, from any other body.

COLUMNS, *median*. Vitruvius gives the name *columnæ medianæ* to the two columns in the middle of the porch, which have their intercolumniation larger than the rest: that if these last for instance, be *pycnostyle*, the medianes are *eustyle*.

The term may also be applied to the middle row of columns, in a frontispiece adorned with three orders.

COLUMN, *Trajan*, a famous historical column, erected in Rome, in honour of the emperor Trajan. See **COLUMN**, *colossal*.

COLUMNS *denominated from their use*.

COLUMN, *astronomical*, is a kind of observatory, in form of a very high tower; built hollow, and with a spiral ascent to an armillary sphere placed at the top, for observing the motions of the heavenly bodies.

Such is that, of the Doric order, erected at the Hotel de Soissons, at Paris, by Catherine De Medicis, for the observations of Orontius Fineus, a celebrated astronomer of that time.

COLUMN, *chronological*, that which bears some historical inscription, digested according to the order of time; as by lustres, olympiads, fasti, epochas, annals, &c. At Athens there were columns of this kind, whereon were inscribed the whole history of Greece digested into olympiads.

COLUMN, *funeral*, is that which bears an urn, where are supposed to be inclosed the ashes of some deceased hero; and whose shaft is sometimes over spread with tears, or flames; which are symbols of grief, and of immortality.

COLUMN, *gnomonic*, is a cylinder, whereon the hour of the day is represented by the shadow of a style.

Of these there are two kinds: in the one, the style is fixed, and the hour-lines are no more than the projection of a vertical dial on a cylindrical surface.

In the other, the style is moveable; and the hour-lines are drawn to the different heights of the sun, in the different seasons of the year. See **DIAL**.

COLUMN, *historical*, is that whose shaft is adorned with a basso relievo, running in a spiral line its whole length, and containing the history of some great personage. Such are the Trajan and Antonine columns at Rome.

Historical columns may likewise be divided by bands, or tambours, into separate basso relievos, containing distinct subjects; by which means, the same columns may likewise be made to answer the end of chronological ones. This manner Vignola prefers to the former; which, he thinks, appears too much confused.

COLUMN, *hollow*, that which has a spiral staircase within side, for the convenience of ascending to the top. As the Trajan column, the staircase whereof consists of one hundred and eighty-five steps, and is illumined by forty-four little windows.—The Antonine column has one hundred and ninety-eight steps, with fifty-six windows; each of these is divided by tambours of white marble. The monument or fire-column at London, has also a staircase; but it does not reach to the top. These kind of columns are called also *columnæ coelides*, or *cochleæ*. See **MONUMENT**.

COLUMN, *indicative*, that which serves to shew the tides, &c. along the sea-coasts. Of this kind, there is one at Grand Cairo, of marble, whereon the overflowings of the Nile are expressed: by this they form a judgment of the succeeding season: when the water, for instance, ascends to twenty-three feet, it is a sign of great fertility in Egypt.

COLUMN, *instruative*, that raised, according to Josephus, lib. i. cap. 3. by the sons of Adam, whereon were engraven the principles of arts and sciences.

Baudolet tells us, that the son of Pisistratus raised another of this kind, of stone; containing the rules and precepts of agriculture.

COLUMN, *itinerary*, a column with several faces, placed in the cross-ways in large roads; serving to shew the different routs, by the inscriptions thereupon.

COLUMN, *lactary*, at Rome, according to Festus, was a column erected in the herb-market, which is now the place Montanara; which had a cavity in its pedestal, wherein

wherein young children, abandoned by their parents out of poverty or inhumanity, were exposed, to be brought up at the public expence.

COLUMN, legal. Among the Lacedæmonians there were *columns* raised in public places, whereon were engraven the fundamental laws of the state.

COLUMN, limitrophous, or boundary, is that which shews the limits of a kingdom, or country conquered. Such was that, which Pliny says Alexander the Great erected at the extremities of the Indies.

As to those of Hercules, ordinarily called his *columns*, or *pillars*; they are two very steep mountains in the streights of Gades, now Gibraltar.

COLUMN, luminous, is a sort of *column* formed on a cylindrical frame, mounted and covered over with oiled paper, or gauze; so that lights being disposed in ranks within, over each other, the whole appears as on fire.

This sort of *column* is likewise made with rows of lamps, or torches running round its shaft; either in horizontal belts, or bands; or in a spirial line, over a continued festoon of flowers.

COLUMN, manubiary, from the Latin *manubiæ*, *spoils of the enemy*; a *column* adorned with trophies, built in imitation of trees, whereon the spoils of enemies were anciently hung.

COLUMN, memorial, that raised on occasion of any remarkable event; as the monument in London, built to perpetuate the memory of the burning of that city, in 1666. It is of the Doric order, fluted, hollow, with a winding staircase; and terminated at top with waving flames. See MONUMENT.

There is also another of the like kind, in form of an obelisk, on the banks of the Rhine in the Palatinate, in memory of the famous passage of that river, by the great Gustavus Adolphus, and his army.

COLUMN, menian, any *column* which supports a balcony, or meniana. The origin of this kind of *column*, Suetonius and Ascanius refer to one Menias; who, having sold his house to Cato and Flaccus, consuls, to be converted into a public edifice, reserved to himself the right of raising a *column* without-side, to bear a balcony; whence he might see the shews.

COLUMN, miliary, was a *column* of marble, raised by order of Augustus, in the middle of the Roman Forum; from whence, as a centre, the distances of the several cities, &c. of the empire were reckoned, by other *miliary columns* disposed at equal distances, on all the grand roads. This *column* was of white marble; the same with that which is now seen on the ballustrade of the petron of the Capitol at Rome. Its proportion is massive; being a short cylinder, supporting a symbol of the globe of the earth.

It was called *milliarium aureum*, as having been gilt, at least the ball, by order of Augustus. It was restored by the emperors Vespasian and Adrian; as appears by the inscriptions.

COLUMN, military, among the Romans, a *column* whereon was engraven a list of the forces in the Roman army, ranged by legions, in their proper order; with design to preserve the memory of the number of soldiers, and of the order preserved in any military expedition.

The Romans had another kind of *military column*, which they called *columna bellica*, standing before the temple of Janus; at the foot whereof the consul declared war, by throwing a javelin towards the enemies countries.

COLUMN, phosporical, a *light-house*; or a hollow *column*, built on a rock or the tip of a mole, or other eminence, to serve as a lantern to a port.

COLUMN, rostral, that adorned with the beaks or prows of ships, and gallies, with anchors and grapples; erected, either in memory of a naval victory; as the Tuscan *column*, in the Capitol: or, in honour of some admiral; as the Doric ones, at the entrance of the castle de Richelieu.

COLUMN, sepulchral, anciently, was a *column*, erected on a tomb or sepulchre; with an inscription on its base. See TOMB, &c.

Those over the tombs of persons of distinction were very large; those for the common people small: these last are called *stelæ* and *cippi*.

COLUMN, statuary, that which supports a statue. Such was that erected by pope Paul V. on a pedestal before the church of St. Maria Major at Rome; to support a statue of the Virgin, which is of gilt brass. See STATUE.

This *column* was dug up in the temple of Peace; its shaft is a single block of white marble, forty-nine feet and a half high, and five feet eight inches diameter; of the Corinthian order, fluted.

The term *statuary column*, may likewise be applied to Caryatides, Persians, Termini, and other human figures;

which do the office of *columns* and which Vitruvius calls *Telamones*, and *Atlantes*.

COLUMN, symbolical, is a *column* representing some particular country, by the attributes proper thereto; as that of the French order, set with fleurs-de-lis, in the frontispiece of the Jesuits church at Rouen: or some memorable action; as the *Corvinian column*, on which was a crow; erected to Valerius Maximus, surnamed Corvinus, in memory of his defeat of a giant in the army of the Gauls, by the assistance of a crow.

Under the title of *symbolic columns*, may also be comprehended those that serve for symbols. Such is that on a medal of Nero, which expresses the stability of the Roman empire. See SYMBOL.

COLUMN, triumphal, a *column* erected among the ancients in honour of an hero; the joints of the stones, or courses whereof, were covered with as many crowns as he had made different military expeditions.

Each crown had its particular name: as *vallaris*, which was beset with spikes, in memory of having forced a palisade: *muralis*, adorned with little turrets, or battlements; for having mounted an assault: *navalis*, of prows and beaks of vessels; for having overcome at sea: *obsidionalis*, or *graminalis*, of grafs; for having raised a siege: *ovans*, of myrtle; which expressed an ovation or little triumph: and *triumphalis*, of laurel; for a grand triumph.

Procopius tells us of a *column* of this kind, erected in the place called Augusteum, before the imperial palace of Constantinople, supporting an equestrian statue of the emperor Justinian.

COLUMN, zootrophic, a kind of statuary *column*, whereon is placed a figure of some animal. Such is one of the two *columns* of the great gate of Venice; whereon is the lion of St. Mark, and the arms of the republic: or that at Sienna, which bears the wolf that suckled Romulus and Remus.

COLUMN, scenography of a. See SCENOGRAPHY.

COLUMN, in War, denotes a deep file, or row of troops; or division of an army, which marches at the same time, and towards the same place, at intervals large enough to avoid confusion.

An army marches in one, two, three, or more *columns*, according as the ground will allow, and the general sees expedient.

The word is sometimes also used in speaking of vessels at sea, following each other in the same line.—It is difficult to form *columns* at sea, unless the wind be in stern.

COLUMN, among Printers, is half a page, when the page is divided into two parts, from top to bottom. See PRINTING.

COLUMNA nasi, is used by some writers of anatomy, for the fleshy end of the NOSE, jutting out over the upper lip.

COLUMNA oris, is sometimes used for the UVULA.

COLUMNÆ carneæ, in Anatomy, called also *lacertuli*, and *columnæ cordis*, are several small muscles in the ventricles of the heart; derived, and, as it were, detached from the parietes of those ventricles, and connected by tendinous extremities to the valves of the heart.

These little *columns*, or pillars, being fastened to the parietes of the heart on one side, and the tricuspid and mitral valves on the other, do, by the contraction in the systole of the heart, draw out the valves; and by that means not only shut the orifices of the veins, but more exactly close the ventricles in their systole.

COLUMNAR marble. See BASALTES.

COLUMNARIS, in Botany, a name given by some to the tall, milky bell-flower; the *campanula latifolia*. Ger. Emac. Ind. 2.

COLUMNARIUM, in Roman Antiquity, a heavy tribute, demanded for every pillar of a house. It was first laid on by Julius Cæsar, in order to put a stop to the extravagant expences laid out on sumptuous buildings.

COLUMNEA, in Botany, a genus of the *didynamia angiospermia* class. Its characters are these: the flower hath one petal, of the ringent or grinning kind, with a swelling tube, divided above into two lips; the upper erect and entire, the lower divided into three parts which spread open: it hath four stamina, two longer than the other; these are inclosed in the upper lip. In the centre is situated a roundish germen, which afterward becomes a globular berry with two cells sitting in the empalement, containing several oblong seeds. We know but one species, which grows naturally in the warmest parts of America.

COLUMNELLA, little *column*, in Botany, denotes the substance that passes through the capsule, and connects the several partitions and seeds.

COLUMNIATED winding stairs. See STAIRS.

COLUMNIFERI, an order of plants in the Fragmenta Methodi Naturalis of Linnæus.

COLURES, in *Geography* and *Astronomy*, are two great circles, imagined to intersect each other at right angles, in the poles of the world.

The word is derived from *κολος*, *mutilus*, or *truncatus*, and *απα*, *tail*; q. d. *appearing with the tail cut off*; because never seen entire above the horizon.

The *colures* pass, one of them through the solstitial, and the other through the equinoctial point of the ecliptic: whence the first is denominated the *solstitial*, and the second *equinoctial colure*.

The equinoctial *colure* determines the equinoxes; and the solstitial, the solstices.

By thus dividing the ecliptic into four equal parts, they also mark the four seasons of the year.

It is disputed over what part of the back of Aries the equinoctial *colure* passed in the time of Hipparchus. Sir Isaac Newton, in his *Chronology*, takes it to have been over the middle of the constellation. Father Souciet insists on its having passed over the dodecatemoron of Aries, or midway between the rump and first of the tail. We have some observations, in the *Philosophical Transactions*, N^o 466. concerning the position of this *colure* in the ancient sphere, from a draught of the constellation Aries, in the *Aratæa* published at Leyden and Amsterdam, 1652, which seem to confirm Sir Isaac's opinion; but the antiquity and authority of the original draught may still remain in question. See *CHRONOLOGY*.

COLUTEA, in *Botany*. See *Bladder SENA*.

COLYBA, or **COLYBUS**, a term in the *Greek Liturgy*, signifying an offering of corn, and boiled pulse, made in honour of the saints, and for the sake of the dead.

Balsamon, P. Goar, Leo Allatius, and others, have written on the subject of *colyba*: the substance of what they have said, is as follows.

The Greeks boil a quantity of wheat, and lay it in little heaps on a plate; adding beaten peas, nuts cut small, and grape-stones, which they divide into several compartments, separated from each other by leaves of parsley. A little heap of wheat, thus seasoned, they call *κορυβα*.

They have a particular formula for the benediction of the *colyba*: wherein, praying that the children of Babylon may be fed with pulse, and that they may be in better condition than other people, they desire God to bless those fruits, and those who eat them, because offered to his glory, to the honour of such a saint, and in memory of the faithful deceased. Balsamon refers the institution of this ceremony to St. Athanasius; but the Greek Synaxary to the time of Julian the Apostate.

Many of the Latin divines having spoken injuriously of this ceremony, Gabriel, archbishop of Philadelphia, has written a discourse in its vindication: wherein he endeavours to shew, that the design of the *colyba* is only to represent the resurrection of the dead, and to confirm the faithful in the belief thereof. The *colyba*, he says, are symbols of a general resurrection; and the several ingredients added to the wheat, signify so many different virtues.

COLYMBIS, in *Ornithology*, a name given by Bellonius to a species of duck, remarkable for a large tuft of feathers behind its head, and thence called by us the tufted duck, and known among authors by its Venetian name *CAPO negro*. See *DUCK*.

COLYMBUS, the *diver*, in the Linnæan system of *Ornithology*, the name of a distinct genus of birds, of the order of the *anseræ*. See *DIVER*.

COLYTEA, in *Botany*, is used by some to denote the *arbor Judæa*, or *SILICUASTRUM*.

COMA, in *Medicine*, a sort of sleepy disease, otherwise called *cataphora*; always bringing on a violent propensity to sleep, whether sleep ensue, or not.

If sleep do ensue, the disease is called *coma somnolentum*, wherein the patient continues in a profound sleep; and when awaked, immediately relapses, without being able to keep open his eyes. If he does not sleep, but is continually awaked with frightful dreams, it is called *coma vigil*: in this case also his eyes are shut, and he appears asleep.

The cause of the *coma somnolentum* may be any thing that prevents the course of the spirits; as a cold humid temperature of the brain; hot putrid vapours ascending into the head, and stopping the canals of the animal spirits; narcotic vapours, &c. The *coma vigil* is supposed to arise from the conflict, or jarring mixture of bile with pituita; the one urging to sleep, the other to waking. Hence the patient sleeps either not at all, or, at most, but for a moment; is uneasy, starts, rises up, and sometimes throws himself on the persons near him; his eyes continuing all the time fast closed.

The remedies for a *coma*, are those which occasion great evacuations, as violent clysters, or vomitives; medicines that purge, and dry the brain; and those which occasion

revulsion of humours, as vesicatories, cauteries, &c. to which may be added volatile spirits, salts, and most cephalics. See *LETHARGY*.

The natural process of death is described by physicians by the following words in the following order; *singultus*, *convulsio*, *coma*, *mors*.

COMA, in *Botany*, a species of fulcra, composed of large bractæ in form of a brush of hair, which terminates the stalk.

COMA AUREA, in *Botany*. See *GOLDY locks*.

COMA BERENICES, *Berenice's Hair*, in *Astronomy*, a modern constellation of the northern hemisphere; composed of unformed stars between the Lion's tail, and Bootes.

This constellation is said to have been formed by Canon, an astronomer, in order to console the queen of Ptolemy Euergetes, for the loss of a lock of her hair, which was stolen out of the temple of Venus, where she had dedicated it on account of a victory obtained by her husband. Ricciol. Alm. lib. vi. cap. 4.

The stars in the constellation *Coma Berenices*, in Tycho's Catalogue, are fourteen; in Hevelius's, twenty-one; and in the Britannic Catalogue, forty-three. The order, names, longitudes, latitudes, magnitudes, &c. whereof are as follow.

Names and situations of the stars.	Bayer's Char.	Signs.	Longitud.	Latitude.	Magnitude.
16.			16 53 24	20 21 46	7
			17 44 9	20 2 11	6
			21 14 30	16 27 0	6
			17 21 15	24 45 23	6
			19 56 6	19 59 7	6
5.			23 16 44	15 13 55	5
First of all in the circle of the hair, to the south.	b		19 18 19	23 28 33	4.5
			20 24 1	22 56 57	7
			17 56 28	27 34 35	6
			17 50 59	27 51 56	6
10.			23 5 51	18 19 53	4.5
Third of the prec. from the cusp, or point.	e		19 45 29	25 47 32	5
Second of the preced.	f		20 2 23	26 11 47	4.5
That preced. in the cusp.	b		19 55 40	27 26 54	4.5
In the cusp towards the north.	c		19 32 24	28 24 2	4.5
15.			20 16 55	27 6 50	4.5
That under this.	a		21 10 29	26 29 11	4.5
That following this.	d		22 9 44	24 54 50	5
First of three contiguous ones behind this.			20 41 3	27 36 36	6
			23 43 26	22 2 38	6
20.			22 18 15	25 29 10	5
Middle of the contiguous ones. Subsequent, and less.	g		23 1 59	25 29 11	7
Another following all these, and more south.	k		24 7 1	24 7 9	4
That preceding several under the hair.			26 7 23	20 17 57	5
			27 6 49	19 19 12	6
25.			25 48 38	23 8 10	5
			29 34 49	19 48 42	5
			1 16 5	17 12 57	6
			1 10 30	17 48 0	5
			24 57 52	29 58 24	6
30.			25 30 24	30 12 24	4.5
Preced. in the hair.			0 38 35	20 49 4	7
			0 40 9	20 51 56	7
More south in the hair.			25 59 58	30 5 31	5
			28 59 44	24 42 42	4.5
35.			2 3 55	21 46 56	5
			25 43 43	33 56 36	5.6
			2 42 23	21 45 14	6
			2 5 7	25 55 56	5
			1 22 51	27 14 39	6
40.			29 2 42	31 49 41	5.4
Former of two in the extremity of the hair.			4 38 35	22 59 12	4.5
Posterior in the extremity of the hair.			0 6 31	32 28 33	5.6

All these stars Ptolemy ranks among the *informes* of Leo; and the cluster of little stars, in form of a nebulous one, between the Lion and Bear, he calls simply *Πλοκαμὸν*; as resembling an ivy leaf; the pointed part whereof is turned towards the north, and the sides bounded by the seventh and twenty-second stars. Bayer, instead of hair, gives a sheaf of corn.

COMARCHIOS, in *Antiquity*, the name of a particular air, or tune designed to be sung at entertainments.

COMARIS

COMARIS, in *Lithology*, a name given by the Greek writers to the SELENITES, or *apbrofelenes*.

They call this stone also *cupholithos*.

COMARUM, *Marsh cinquefoil*, in *Botany*, a genus of the *icosandria polygynia* class. Its characters are these: the flower hath five oblong petals, which are inserted in the empalement, but are much smaller. It hath twenty permanent stamina, which are inserted into the empalement; and a great number of small roundish germina collected into a head. The common receptacle afterward becomes a large fleshy fruit, having many pointed seeds adhering to it. We know but one species of this plant, which grows naturally in bogs.

COMB, an instrument made of horn, ivory, &c. and used for separating and adjusting the hair, &c.

COMB, in *Husbandry*, a measure of corn, consisting of four Winchester bushels: in some places the bushel contains eight gallons and a quart.

COMB, in *Natural History*, the crest, or red fleshy tuft growing on the head of a cock.

COMB, in a ship, a little piece of timber, set under the lower part of the beak-head, near the middle: it has two holes in it, and supplies to the fore-tacks, what the chest-trees do to the main-tacks; that is, to bring the main-tacks aboard.

COMB, in the *Manufacture of Tapestry*. See TAPESTRY.

COMB, *Ladies*, or *Venus's COMB*, the name of a distinct genus of plants, called by Tournefort SCANDIX.

COMB-fish, *pecten*, in *Ichthyology*. See PECTEN.

COMBARONES, in *Antiquity*, the fellow-barons or commonalty of the Cinque-Ports.

COMBAT, in a general sense, denotes an engagement; or a difference decided by means of arms.

Authors sometimes distinguish in an army, between a *combat* and a *battle*; the latter expressing the general action of the whole army; the former only a particular skirmish, or engagement of a single part: so that the *combat* is properly a part of a *BATTLE*.

COMBAT, in *Law*, or *single combat*, denotes a formal trial, between two champions, of some doubtful cause or quarrel, by the sword, or batons.

This form of proceeding was anciently very frequent, particularly among the barbarous nations in their original settlements; and obtained, not only in criminal, but also in civil causes: being built on a presumption, that God would never grant the victory but to him who had the best right. It was originally permitted, in order to determine points respecting the reputation of individuals, but afterwards became much more extensive. See DUEL. The form and ceremony of the *combat* are described in the grand Coutumier of Normandy. The accuser, first, swore to the truth of his accusation; the accused gave him the lye: upon which, each threw down a gage, or pledge of battle; and the parties were committed prisoners to the day of *combat*. See CHAMPION.

Historians tell us, that Alphonfus, king of Castile, in the eleventh century, desiring to abolish the Mosarabic liturgy, and to introduce the Roman office; the people opposing it, it was agreed to terminate the difference by *combat*, and leave the cause to the decision of Heaven.

One of the earliest restrictions of this practice that occurs in the history of Europe, is that of Henry I. of England; which was afterwards followed by an edict of Louis VII. of France to the same effect. Robertson's Hist. of Charles V. vol. i. p. 61, &c. and 350, &c. 8vo.

COMBAT is also used for the solemn games of the ancient Greeks and Romans, performed in honour of their gods; as the Olympic games, Pythian, Isthmian, and Nemean games; the ludi Actiaci, Circenses, &c. which see in their places, OLYMPIC, ISTHMIAN, &c.

The *combats* here celebrated, were *running*, *wrestling*, *boxing*, *cestus*, &c. The combatants, who were called *athletae*, prepared themselves for it from their youth, by constant exercise, and a very rigid regimen: they only eat certain things, and at certain hours; drank no wine; had no commerce with women; and both their labour and their rest were regulated.

COMBATANT, in *Heraldry*, a term for two beasts, as lions or boars, borne in a coat of arms in a fighting posture, erect on their hinder feet, and affrontee, or with their faces toward each other.

COMBER, in *Ichthyology*, a species of fish in Cornwall, of a slender form, with red back-fins, and tail; yellow belly; a smooth, even, stripe from gills to tail, of a silvery colour; and a round tail. Ray, Syn. 163. fig. 5.

COMBINATION, is properly understood of an assemblage of several things by two and two: but is more particularly used in *Mathematics*, to denote the variation, or alternation of any number of quantities, letters, sounds, or the like, in all the different manners possible.

P. Merfenne gives us the *combination* of all the notes and sounds in music, as far as sixty-four; the sum whereof amounts to ninety figures, or places.

The number of possible *combinations* of the twenty-four letters of the alphabet, taken first two by two, then three by three, &c. according to Mr. Prestet's calculation, amounts to 1391724288887252999425128493402200. The words in the following verse may be combined a thousand twenty-two several ways.

Tot tibi sunt dotes, virgo, quot sidera caelo.

F. Truchet, in the Memoirs of the French Academy, shews, that two square pieces, each divided diagonally into two colours, may be arranged and *combined* sixty-four different ways, so as to form so many different kinds of chequer-work, which appears surprising enough, when one considers that two letters, or figures, can only be combined twice.

This note may be of use to masons, paviours, &c. See PAVEMENT, and CHANGES.

COMBINATION, *doctrine of*.—Any number of quantities being given, together with the number in each combination; to find the number of combinations.

One quantity, we observe, admits of no combination; two, *a* and *b*, of one; of three, *a*, *b*, *c*, there are three combinations, viz. *ab*, *ac*, *bc*; of four, six, *ab*, *ac*, *bc*, *ad*, *bd*, *cd*; of five, ten, *ab*, *ac*, *bc*, *ad*, *bd*, *cd*, *ae*, *be*, *ce*, *de*.

Whence it appears, that the number of combinations proceed as 1, 3, 6, 10, &c. i. e. are triangular numbers, whose side differs by unity from the number of given quantities: if that, v. gr. be *q*, the side of the number of combinations will be *q-1*; and therefore the number

of combinations $\frac{q-1 \times q-0}{1 \times 2}$. See TRIANGULAR number.

If three quantities are to be combined, and the number in each combination be three, there will be only one combination, *abc*; if a fourth be added, the combinations will be found *abc*, *abd*, *bcd*, *acd*; if a fifth, ten, *abc*, *abd*, *bcd*, *acd*, *abe*, *bde*, *bce*, *ace*, *ade*, *cde*; if a sixth, twenty, &c. The numbers of combinations, therefore, proceed, as 1, 4, 10, 20; i. e. they are the first pyramidal triangular numbers, whose sides differ by two units from the number of given quantities. See PYRAMIDAL number. Hence, if the number of given quantities be *q*, the side will be *q-2*; and therefore, the number of combinations $\frac{q-2 \times q-1 \times q-0}{1 \times 2 \times 3}$.

Hence is easily deduced a general rule for determining the number of combinations in any case; for, suppose the number of quantities to be combined, *q*, the exponent of the combination *n*, the number of combinations will be $\frac{q-n+1 \times q-n+2 \times q-n+3 \times q-n+4 \times q-n+5}{1 \times 2 \times 3 \times 4 \times 5}$

&c. till the number to be added be equal to *n*. Suppose, v. gr. the number of quantities to be combined = 6; the exponent of the combination 4: the number of combinations will be $\frac{6-4+1 \times 6-4+2 \times 6-4+3 \times 6-4+4 \times 6-4+5 \times 6-4+6 \times 6-4+7 \times 6-4+8 \times 6-4+9 \times 6-4+10 \times 6-4+11 \times 6-4+12 \times 6-4+13 \times 6-4+14 \times 6-4+15 \times 6-4+16 \times 6-4+17 \times 6-4+18 \times 6-4+19 \times 6-4+20 \times 6-4+21 \times 6-4+22 \times 6-4+23 \times 6-4+24 \times 6-4+25 \times 6-4+26 \times 6-4+27 \times 6-4+28 \times 6-4+29 \times 6-4+30 \times 6-4+31 \times 6-4+32 \times 6-4+33 \times 6-4+34 \times 6-4+35 \times 6-4+36 \times 6-4+37 \times 6-4+38 \times 6-4+39 \times 6-4+40 \times 6-4+41 \times 6-4+42 \times 6-4+43 \times 6-4+44 \times 6-4+45 \times 6-4+46 \times 6-4+47 \times 6-4+48 \times 6-4+49 \times 6-4+50 \times 6-4+51 \times 6-4+52 \times 6-4+53 \times 6-4+54 \times 6-4+55 \times 6-4+56 \times 6-4+57 \times 6-4+58 \times 6-4+59 \times 6-4+60 \times 6-4+61 \times 6-4+62 \times 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quantity with itself aa, bb, cc , be added, we shall have the number of changes, $3+3+3=9$.

In like manner, it is evident, if the given quantities were 4, and the exponent 2, the number of changes would be 16; if 5, 25, &c. in general, if n, n^2 .

Suppose the quantities 3, and the exponent of variation 3; the number of changes is found $27=3^3$; viz. $aaa, aab, aba, baa, abb, aac, aca, caa, abc, bac, bca, acb, cab, cba, acc, cac, cca, bba, bab, bbb, bbc, cbb, bcb, bcc, cbc, ccb, ccc$.

After the same manner, it will appear, if the quantities were 4, and the exponent 3; the number of changes would be $64=4^3$; and in general, if the number of quantities be $=n$, and the exponent 3, the number of changes will be n^3 . By thus proceeding, it will be found, that if the number of quantities be n , and the exponent n , the number of changes will be n^n : wherefore if all the antecedents be added, where the exponent is less, the number of possible changes will be found $n^n + n^{n-1} + n^{n-2} + n^{n-3} + n^{n-4} + n^{n-5} + n^{n-6}$, &c. Till at length the number subtracted from n leaves 1; because the beginning is from single quantities taken once.

Since then the number of possible changes is in a geometrical progression, whose first or smallest term is n^1 ,

the greatest n^n , and the ratio n ; it will be $= \frac{n^n + 1 - n}{n - 1}$.

Suppose, v. g. $n=4$, the number of possible changes $\frac{4^5 - 4}{4 - 1} = \frac{1020}{3} = 340$. Suppose, again, $n=24$, the

number of possible changes will be $\frac{24^{25} - 24}{24 - 1} =$

$32009658644406818986777955348272600 \div 23 = 1391724288887252999425128493402200$. In so many various manners, therefore, may the twenty-four letters of the alphabet be varied and combined among themselves.

COMBINATION, in *Chemistry*, denotes the union of two bodies of different natures, from which a new compound body results. An acid united with an alkali furnishes an instance of combination. See **AFFINITY**.

COMBINATIONS, in *Law*. Combinations to do unlawful acts are punishable before the unlawful acts are executed: this is to prevent the consequences of combinations and conspiracies, &c. 9 Rep. 57.

COMBINATORY distillation. See **DISTILLATION**.

COMBINATORY music, *musica combinatoria*, that part of music which teaches the manner of combining sounds variously; that is, of changing their place and figure in different manners. See **MUSIC**.

COMBING of wool, in *Commerce*, the drawing or passing wool across the teeth of a kind of card, called a *comb*, to dispose it for spinning.

COMBRETUM, in *Botany*, a genus of the *oëlandria monogynia* class; the characters of which are, that the calyx is bell-shaped, and separated into four horizontal points; the corolla has four petals inserted in the calyx; the stamina are very long; and the seed is single and quadrangular. There are two species.

COMBS of bees. See **HONEY-COMB**.

COMBURENDO hæretico. See **HÆRETICO**.

COMBUST, in *Astronomy*. When a planet is in conjunction with the sun, or not distant from it above half their disk, it is said to be *combust*, or in **COMBUSTION**.

According to Argol, a planet is *combust* or in *combustion*, when not above eight degrees and thirty minutes distant from the sun, either before or after him.

COMBUS FIO pecuniæ, the ancient way of trying mixed and corrupt money, by melting it down, upon payments into the Exchequer. In the time of king Henry II. a constitution was made, called the trial by *combustion*; the practice of which differed little or nothing from the present method of assaying silver. But whether this examination of money by *combustion* was to reduce an equation of money only of sterling, viz. a due proportion of alloy with copper, or to reduce it pure fine silver, does not appear. On making the constitution of trial it was considered, that though the money did answer *numero et pondere*, it might be deficient in value; because mixed with copper or brass, &c. Vide Lowndes's Essay upon Coin, p. 5.

COMBUSTION, in *Chemistry*, denotes the decomposition of bodies by the action of fire; or the disengagement of the phlogiston of inflammable principle contained in them, from the union of which in larger or less quantities, or in various degrees of combination, they are said to be more or less *combustible*. The more *combustible* bodies are either such as possess a large quantity of phlogiston in an oily state, and burn with a bright flame, accompanied with smoke and foot; as wood, dry vegetables, resins, oils, and fat: or such, in which the in-

flammable principle is not in an oily state, nor intimately combined, whose flame is less luminous, and unattended with smoke and foot; of this kind are spirit of wine, sulphur, phosphorus, charcoal, some metallic substances, and particularly zinc. The less *combustible* bodies are those in which a smaller quantity of phlogiston is strongly combined with incombustible principles, and which burn with difficulty, and without any sensible flame: such are some animal coals, foot, ashes of vegetables, and imperfect metals. *Combustion* requires free access of air; and the process is more rapid and complete as the contact of the burning body with air is more immediate and entire. Macquer.

See **AIR**, **CALCINATION**, **FIRE**, and **PHLOGISTON**.

COME. The small fibres or tails of malt, upon its first shooting forth, is thus called.

COME sopra, in the *Italian Music*, literally signifies as above, and is used when any foregoing part is to be repeated.

COMEDONES, a name given to a species of worm, with which the children of Misnia, and some other countries, are terribly afflicted; and of which Hoffman, in his Treatise of Endemial Diseases, gives this account: children in the country are frequently seized with a sort of tabes, which so destroy their flesh, that they appear merely like shadows. The common people generally suppose these children to be under the influence of witchcraft; but such as have enquired more narrowly into the distemper, have found that it is owing to certain worms, resembling black hairs, or cords, lodged under the skin. When the skin is rubbed with honey, in a bath, or any warm place, they will appear and come out; but when it is contracted by cold, they keep concealed within. See **AFFECTIO bovina**, and **DRACUNCULI**.

COMEDY, in its proper sense, a dramatic piece, representing some agreeable and diverting transaction: or an allegorical representation of something in private life, for the amusement and instruction of the audience.

There are those who derive the word *comedy* from *comus*, and who suppose that *καμωδον* is the same with *como digna canere*. This etymology appears to be the better founded, in that the first farces were exhibited at feasts, which have been since improved to comedies in their present state.

In this sense, *comedy* is opposed to *tragedy*, the subjects whereof are grave, and the persons of higher rank.

Scaliger defines *comedy*, a dramatic poem, very busy, pleasant in the conclusion, and written in a popular style. Aristotle calls it an imitation of the worst, or rather of the lowest class of persons, by way of ridicule. This definition Corneille finds fault with, and maintains, that the actions of kings themselves may enter *comedy*; provided they be such as are not very momentous, nor attended with any considerable danger. He adds, that a poem, wherein the greatest peril is the loss of a mistress, has no right to any higher appellation than that of *comedy*: but then he makes a distinction in comedies, and dignifies those where great personages are introduced, with the epithet of *heroic comedies*, to distinguish them from the ordinary ones. Mr. Congreve seems pretty much of the same sentiment: he understands Aristotle's definition as meant of the worst men; on which foundation it is sufficient to constitute a *comedy*, that the action represented be that of some ill men brought on the stage to be exposed.

Mr. Dacier is of a contrary opinion: he maintains, that *comedy* allows of nothing grave, or serious, unless it be turned to ridicule; and that raillery and ridicule are its only proper and genuine characteristics; in which opinion he is warmly seconded by Mr. Dennis.

Thus different are critics and comic authors in their sentiments on the nature of *comedy*: some distinguish it from tragedy by the lowness of the subject; others by the ridiculous light it is set in.

The accurate F. Bossu fixes the notion of *comedy* much better: according to that critic, *comedy* differs from tragedy in this, that the comic writer invents both the names of his persons and the actions which he presents; whereas the tragic writers only invent the latter, the former they are to take from history. See **ACTION**.

Upon the whole, *comedy* may be defined an image, or representation of the ordinary life of men: it exhibits their common actions and passions; exposes and ridicules their failings, to preserve the spectators from them or to correct them. Cicero defines it the imitation of life, the mirror of custom and the image of truth.

There is a dispute among critics, whether a *comedy* be a poem, or a mere conversation? They who maintain the latter, contend, that a poem is a discourse in verse: F. Bossu insists on the former, and shews that *comedy* has its fable, or allegory, with every thing essential to poetry.

Comedy

Comedy and tragedy were originally one and the same thing: their common origin see under TRAGEDY.—M. Boileau says, *comedy* took its rise at Athens, from the happy issues or conclusions of tragedies. On this principle, the catastrophe should have been the proper criterion, or distinguishing mark between tragedy and *comedy*; and all other differences only accidental.

After the grave and serious became separated from the ridiculous, and tragedy and *comedy* were become two distinct arts, people applied themselves to cultivate the former and neglected the latter; so that *comedy* continued in its infancy, with little improvements, while tragedy grew up to a perfect art: this once arrived at its height, they began to think of cultivating *comedy*.

With regard to the various changes and revolutions *comedy* has undergone, it is commonly distinguished into three kinds; viz. the *ancient*, wherein there was nothing feigned; the *middle*, where the subject was real, but the names fictitious; the *new*, where both names and things are fictitious.

The *ancient* was that first in use, when the supreme power was in the hands of the people; and when, on that account, the poets were at their full liberty to say what they pleased, and of whom they pleased; by name to rail at people in authority, and openly to charge magistrates with crimes; sparing no age, sex, or quality.

This is very observable in the *Frogs*, and the *Clouds* of Aristophanes; where it is to be noted, that though the railing part was occasionally distributed among all the actors, yet the chief of it was laid on the chorus.

When the Athenian liberties became sunk in the tyranny of a few, it was no longer safe for the poets to use their old licence; men of office being now to be screened from reproach. The chorus, hereupon, became useless, and was therefore dropped; and thus commenced what we call *comedia media*, *mean*, or the *middle comedy*. See CHORUS.

Under this, the poets were not allowed to name the persons; and therefore names were to be invented: but then the persons were so well pointed out, that it was no difficult matter to know them.

At length, however, they were obliged to represent even this licence: and this reform gave occasion to the *new comedy*; which only brought upon the stage feigned adventures, and imaginary names.

This last kind alone was received among the Romans; who yet made a new subdivision thereof into *ancient*, *middle*, and *new*; according to the various periods of the commonwealth. Among the *ancient comedies* were ranked those of Livius Andronicus; among the *middle*, those of Pacuvius; and among the *new* ones, those of Terence. *Comedy*, as well as tragedy, has its essential, and its integrant parts. Its essential parts, in the language of the ancients, are the *protasis*, *epitasis*, *catastasis*, and *catastrophe*.

The *protasis* is the beginning, or opening; where the subject is just entered upon, the characters of the persons shewn, and the interest, or part each has in the action, signified.

In the *epitasis*, the intrigues begin; they are carried on, and heightened in the *catastasis*; and unravelled in the *catastrophe*.

These are called parts of quantity, by way of contradiction from those of quality, which are the fable, the manners, the sentiments, and the diction; to which may be added the music and decoration, pertaining only to the representation.

The integrant parts are the five acts into which the *comedy* is divided, agreeable to that precept of Horace:

Neve minor quinto, neu sit productior actu.

The acts are divided into scenes: the number whereof is not fixed, but depends on the business to be done in each act, and the number of persons to be employed. See ACT, SCENE, &c. See also HUMOUR, MANNERS, &c.

Among the ancient Romans, *comedies* were distinguished according to the quality of the persons represented, and the dress they wore, into *togata*, *prætextæ*, *trabeatæ*, and *tabernariæ*; which last were those where the scene lay in colleges, or among people of the lowest rank, agreeing pretty nearly with our farces.

In the representation, *comedy* was distinguished from tragedy by the sock worn in the former, and the buskin in the latter. Among us *comedy* is distinguished from farce, in that the former represents nature as she is: the other distorts or overcharges her, they both paint from life, but with different views: the one to make nature known, the other to make her ridiculous.

COMET, a heavenly body, in the planetary region, appearing suddenly, and again disappearing: and during the time of its appearance moving in a proper, though very eccentric orbit, like a planet.

Comets, popularly called *blazing stars*, have this to distinguish them from the other stars, that they are usually attended with a long train of light, always opposite to the sun, and which is of a fainter lustre, the farther it is from the body. Hence arises a popular division of *comets* into three kinds; viz. *bearded*, *tailed*, and *hairy comets*; though in effect this division rather relates to the several circumstances of the same *comet*, than to the phenomena of several.

Thus, when the *comet* is eastward of the sun, and moves from it, the *comet* is said to be *bearded*, because the light precedes it in manner of a beard.

When the *comet* is westward of the sun, and sets after it, it is said to be *tailed*, because the train follows it, in manner of a tail.

Lastly, when the *comet* and the sun are diametrically opposite, (the earth between them), the train is hid behind the body of the *comet*, excepting a little that appears around it in form of a border of hair, hence called *hairy*.

COMETS, nature of.—As to the nature of *comets*, the unfrequency of their appearing, together with the seeming irregularities of their phenomena, have left philosophers much in the dark. Those who lived before Aristotle, accounted for them by supposing the heavenly spaces full of an infinite number of stars; and many of them too remote, or too small, to have ever come under the notice of astronomers: these invisible stars they farther supposed to move by their own proper motion every way; finishing their courses in very unequal times. Now, a *comet*, according to them, was a vast heap or assemblage of these little stars, meeting together, by reason of the inequality of their motions, and uniting into a visible mass; which must again disappear, as those stars separated, and each proceeding in its course.

But how those stars should thus meet, coalesce, and form a body, which in all positions of the sun should resemble a tail, and again separate, is a mystery.

This opinion, therefore, Aristotle easily overturned; substituting another in its stead. According to Aristotle, *comets* were only a kind of transient fires or meteors, consisting of exhalations raised to the upper region of the air, and there set on fire; far below the moon's course. But neither is this hypothesis more just than the other: for on this principle, the light of the *comet*, being independent of the sun, would be dispersed every way alike, without any appearance of a train, or tail, which is contrary to the phenomena. Moreover, they are observed at the same time in places on the earth very remote from each other. Besides, the modern astronomers who have measured the distance between the *comets* and the earth, find that the *comets* have no sensible diurnal parallax; which could not be, were they not much more remote than the moon, whose parallax is sensible: and yet as they have a sensible annual PARALLAX, they are not so remote as the fixed stars. Tycho Brahe was the first among the moderns, who, after diligently observing the *comet* of 1577, and finding that it had no sensible diurnal parallax, assigned it its true place in the planetary regions. See his book *De Cometa*, anni 1577.

Hevelius, from a great number of observations, proposes it as his opinion, that the *comets*, like the solar maculae or spots, are formed and condensed out of the grosser exhalations of his body. In which notion he agrees nearly with Kepler, who maintains, that *comets* are generated in the æther in vast numbers, like fishes in the ocean; though they do not all become visible; either because of their smallness, or because they lie a long time under the horizon.

But sir Isaac Newton has shewn the fallacy of this hypothesis, by proving that the *comet* of 1680, in its passage through the neighbourhood of the sun, would have been dissipated, had it consisted of exhalations of the sun and planets: for the heat of the sun, it is allowed, is as the density of his rays, i. e. reciprocally as the squares of the distances of places from the sun. Wherefore, since the distance of that *comet* in its perihelion, December the 8th, was observed to be to the distance of the earth from the sun, nearly as 6 to 1000; the sun's heat in the *comet*, at that time, was to his heat with us at midsummer, as 1000000 to 36, or 28000 to 1.

And again, finding by experiment, that the heat of boiling water is little more than three times the heat of our dry earth, when exposed to the midsummer's sun; and assuming the heat of red-hot iron to be about three or four times as great as that of boiling water; he thence concludes, that the heat of the dried earth, or body of the *comet* in its perihelion, must be near 2000 times as great as that of red-hot iron.

Such an immense heat once acquired in its perihelion, the *comet* must be a long time in cooling again. The same author computes, that a globe of red-hot iron, of the dimensions of our earth, would scarce be cool in

50000 years. If then the comet be supposed to cool 100 times as fast as red-hot iron; yet since its heat was 2000 times greater, supposing it of the bigness of the earth, it would not be cool in a million of years.

James Bernouilli, in his *Systema Cometarum*, supposes some primary planet revolving round the sun in the space of four years and one hundred and fifty-seven days; and at the distance, from his body, of 2583 semidiameters of the magnus orbis; this planet, he concludes, either from its vast distance, or smallness, to be invisible to us: but, however, to have, at various distances from him, several satellites moving round him, and sometimes descending as low as the orbit of Saturn; and that these becoming visible to us, when in their perigæum, are what we call comets.

Des Cartes advances another opinion: he conjectures that comets are only stars, formerly fixed, like the rest, in the heavens; but which becoming by degrees, covered with maculæ, or spots, and at length wholly robbed of their light, cannot keep their place, but are carried off by the vortices of the circumjacent stars; and, in proportion to their magnitude and solidity, moved in such manner as to be brought nearer the orb of Saturn; and thus coming within reach of the sun's light, rendered visible.

But the vanity of all these hypotheses abundantly appears from the phenomena of comets; the chief of which we shall enumerate; as being the test by which all theories are to be tried.

First, then, those comets which move according to the order of the signs, do all, a little before they disappear, either advance slower than usual, or else go retrograde, if the earth be between them and the sun; and more swiftly, if the earth be situate in a contrary part. On the other hand, those which proceed contrary to the order of the signs, proceed more swiftly than usual, if the earth be between them and the sun; and more slowly, or go retrograde, when the earth is in a contrary part.

2. So long as their velocity is increased, they move, nearly, in great circles; but towards the end of their course, they deviate from those circles; and as often as the earth proceeds one way, they go the contrary way.

3. They move in ellipses, having one of their foci in the centre of the sun; and by radii drawn to the sun, describe areas proportionable to the times.

4. The light of their bodies, or nuclei, increases in their recess from the earth toward the sun; and on the contrary, decreases in their recess from the sun.

5. Their tails appear the largest and brightest, immediately after their transit through the region of the sun, or after their perihelion.

6. The tails always decline from a just opposition to the sun towards those parts which the bodies, or nuclei, pass over, in their progress through their orbits.

7. This declination, *cæteris paribus*, is the smallest, when the heads, or nuclei, approach nearest the sun: and is less, still, nearer the nucleus of the comet, than towards the extremity of the tail.

8. The tails are somewhat brighter, and more distinctly defined in their convex than in their concave part.

9. The tails always appear broader at their upper extreme, than near the centre of the comet.

10. The tails are always transparent, and the smallest stars appear through them.

These are the chief phenomena of comets; which, it is evident, cannot easily be reconciled with the wild notions of the ancients, and the weak conjectures of many of the moderns. Indeed, there were some, Pliny tells us, among the ancients, who, "had juster notions; who took these stars to be perpetual, and believed they moved in their proper orbs; but were never seen, unless when left by the sun." Apollonius Myndius declared, that he took comets for regular stars; and ventured to foretell, that one day the periods and laws of their motion would be discovered. And more fully Seneca, *Quæst. Nat. lib. vii.* "I am not of the common opinion, nor do I take a comet to be a sudden fire, but esteem it among the eternal works of nature." *Quid autem miramur cometas, tam rarum mundi spectaculum, nondum teneri legibus certis, nec initia illorum finesque innotescere, quorum ex ingentibus nec intervallis recursus est? Veniet tempus quo ista quæ nunc latent, in lucem dies extrahat, & longioris ævi diligentia. Veniet tempus quo posteri nostri tam aperta nos nescisse mirentur. Erit qui demonstret aliquando, in quibus cometæ partibus errent; cur tam se ducti a cæteris errent, quanti qualesque sint.*

This prediction we have seen accomplished in our days, by the great sir Isaac Newton; whose doctrine is as follows.

The comets, he says, are compact, solid, fixed, and durable bodies: in one word, a kind of planets; which

move in very oblique orbits, every way with the greatest freedom; persevering in their motions, even against the course and direction of the planets; and their tail is a very thin, slender vapour, emitted by the head, or nucleus of the comet, ignited or heated by the sun.

This at once solves all the foregoing phenomena: for, 1. "It is evident, that those which proceed according to the order of the signs, a little before they disappear, must move more slowly, or appear retrograde, if the earth be betwixt them and the sun; and swifter if the earth be in a contrary part. On the contrary those proceeding against the order of the signs," &c. For since this course is not among the fixed stars, but among the planets; as the motion of the earth either conspires with them, or goes against them; their appearance, with regard to the earth, must be changed; and, like the planets, they must sometimes appear swifter, sometimes slower, and sometimes retrograde.

2. "When the comets move the swiftest, they must proceed in straight lines; but in the end of their course, decline," &c. Because, in the end of their course, when they recede almost directly from the sun, that part of the apparent motion which arises from the parallax, must bear a greater proportion to the whole apparent motion.

3. "The comets must move in ellipses, having one of their foci in the centre of the sun." Because they do not wander precariously from one fictitious vortex to another; but, making a part of a solar system, return perpetually, and run a constant round.

Hence, their elliptic orbits being very long and eccentric they become invisible, when in that part most remote from the sun.

From considering the curvity of the paths of comets, sir Isaac concludes, that when they disappear, they are much beyond the orb of Jupiter; and that in their perihelion they frequently descend below the orbit of Mars, and the inferior planets.

4. "The light of their nuclei must increase in their recess from the sun, and *vice versa*." Because as they are in the regions of the planets, their access toward the sun bears a considerable proportion to their whole distance.

From observations of the comet of 1680, sir Isaac Newton found that the vapour in the extremity of the tail, January 25th, began to ascend from the head before December 11th; and had therefore spent more than forty-five days in its ascent; but that all the tail which appeared December 10th, ascended in the space of those two days, then just past since its perihelion. The vapour, therefore, at the beginning, when the comet was near the sun, ascended prodigiously swift; and afterwards continued to ascend with a motion retarded by the gravity of its particles; and by that ascent increased the length of the tail; but the tail, notwithstanding its length, consisted almost wholly of vapours, which had ascended from the time of its perihelion; and the vapour which ascended first, and composed the extreme of the tail, did not vanish till it was too far from the sun to be illuminated by him, and from us to be visible. Hence also, the tails of comets that are shorter, do not ascend with a quick and continual motion from the head, and then presently disappear; but are permanent columns of vapours and exhalations, gathered from the head, by a very gentle motion, and a great space of time; which yet, by participating of that motion of their heads they had at the beginning, continue easily to move along with their heads through the celestial regions: whence also the vacuity of those regions is argued. See VACUUM.

5. "Their tails must appear the largest and brightest immediately after their transit through the region of the sun." Because, then, their heads being the most heated, will emit the most vapours.

From the light of the nucleus, or apparent star, we infer their vicinity to the earth, and that they are by no means in the region of the fixed stars, as some have imagined; since, in that case, their heads would be no more illuminated by the sun than the planets are by the fixed stars.

6. "The tails must still decline from a distinct opposition to the sun, towards the parts which the heads pass over, in their progress through their orbits." Because all smoke, or vapour, emitted from a body in motion, tends upwards obliquely, still receding from that part, towards which the smoking body proceeds.

7. "That declination will be still the least near the nucleus of the comet: and when the comet is nearest the sun." Because the vapour ascends more swiftly near the head of the comet than in the higher extremity of its tail; and when the comet is at a less distance from the sun than when at a greater.

8. "The

8. "The tail is brighter, and better defined in its convex part than in its concave. Because the vapour in the convex part, which goes first, being somewhat nearer and denser, reflects the light more copiously.

9. "The tail must appear broader towards the higher extremity of the comet than towards the head." Because the vapour in a free space is perpetually rarefied and dilated.

10. "The tails must be transparent." Because consisting of infinitely thin vapour, &c.

Thus accurately does the hypothesis tally to the phenomena.

COMETS, phases of—The nuclei, which we also occasionally call the heads and bodies of comets, viewed through a telescope, shew a very different face from those of the fixed stars, or planets. They are liable to apparent changes, which sir Isaac Newton ascribes to changes in the atmosphere of comets: and this opinion was confirmed by observations of the comet in 1744. Hist. Acad. Scienc. 1744. Sturmius tells us, that, observing the comet of 1680, with a telescope, it appeared like a coal dimly glowing, or a rude mass of matter illumined with a dusky fumid light, less sensible at the extremes than in the middle; rather than as a star, which appears with a round disk, and a vivid light.

Hevelius observed of the comet of 1661, that its body was of a yellowish colour, very bright, and conspicuous, but without any glittering light: in the middle was a dense ruddy nucleus, almost equal to Jupiter, encompassed with a much fainter, thinner matter. February 5th, its head was somewhat bigger and brighter, of a gold colour; but its light more dusky than the rest of the stars: here, the nucleus appeared divided into several parts. February 6th, the disk was lessened; the nuclei still existed, though less than before: one of them, on the lower part of the disk, on the left, much denser and brighter than the rest; its body round, and representing a very lucid little star: the nuclei still encompassed with another kind of matter. February 10th, the head somewhat more obscure, and the nuclei more confused, but brighter at top than bottom. February 13th, the head diminished much, both in magnitude and brightness. March 2d, its roundness a little impaired, its edges lacerated, &c. March 28th, very pale and exceeding thin; its matter much dispersed; and no distinct nucleus at all appearing.

Weigelius, who saw the comet of 1664, the moon, and a little cloud illumined by the sun at the same time, observed, that the moon, through the telescope, appeared of a continued luminous surface; but the comet very different; being perfectly like a little cloud in the horizon, illumined by the sun. From these observations it was, that Hevelius concluded comets to be like maculae, or spots formed out of the solar exhalations.

COMETS, magnitude of. The estimates that have been given by Tycho, Hevelius, and some others, of the magnitude of comets, are not sufficiently accurate to be depended upon; for it does not appear, that they distinguished between the nucleus and the surrounding atmosphere. Thus Tycho computes that the true diameter of the comet in 1577, was in proportion to the diameter of the earth as 3 is to 14. Hevelius made the diameter of the comet of 1652 to that of the earth, as 52 to 100. The diameter of the atmosphere is often ten or fifteen times as great as that of the nucleus; the former, in the comet of 1682, was measured by Flamsteed, and found to be 2', but the diameter of the nucleus only 11 or 12". Some comets, from the apparent magnitude and distance compared, have been judged to be much larger than the moon, and even equal to some of the primary planets. The diameter of that of 1744, when at the distance of the sun from us, measured about 1', and therefore its diameter must be about three times the diameter of the earth: at another time the diameter of its nucleus was nearly equal to that of Jupiter.

The lengths of the tails of comets are various, and depend on a variety of circumstances. Longomontanus mentions a comet that in 1618, December 10th, had a tail above 100° in length; that of 1680, according to Sturmius, about the 20th of November, was but small; at most, not exceeding 20° in length; in a little time it grew to a length of 60°, after which it dwindled very sensibly. The comet of 1744 had a tail which at one time appeared to extend above 16° from its body; and which, allowing the sun's parallax 10", must have been above twenty-three millions of miles in length.

COMETS, formation of the tails of. Sir Isaac Newton shews, that the atmosphere of comets will furnish vapour sufficient to form their tails: this he argues from that wonderful rarefaction observed in our air, at a distance from the earth: a cubic inch of common air, at the distance of half the earth's diameter, or four thousand miles, would necessarily expand itself so far as to fill a space larger

than the whole region of the stars. Since then the coma or atmosphere of a comet, is ten times higher than the surface of the nucleus, counting from the centre thereof; the tail, ascending much higher, must necessarily be immensely rare: so that it is no wonder the stars should be visible through it.

Now, the ascent of vapours into the tail of the comet, he supposes occasioned by the rarefaction of the matter of the atmosphere at the time of the perihelion. Smoke, it is observed, ascends the chimney by the impulse of the air wherein it floats; and air, rarefied by heat, ascends by diminution of its specific gravity, taking up the smoke along with it: why then should not the tail of a comet be supposed to be raised after the same manner by the sun? for the sun beams do not act on the mediums they pass through any otherwise than by reflexion and rarefaction.

The reflecting particles, then, being warmed by the action, will again warm the æther wherewith they are compounded; and this, rarefied by the heat, will have its specific gravity, whereby it before tended to descend, diminished by the rarefaction, so as to ascend, and carry along with it those reflecting particles, whereof the tail of the comet is composed.

This ascent of the vapours will be promoted by their circular motion round the sun; by means whereof, they will endeavour to recede from the sun, while the sun's atmosphere, and the other matters in the celestial spaces, are either at rest, or nearly so; as having no motion but what they receive from the sun's circumrotation.

Thus are the vapours raised into the tails of comets in the neighbourhood of the sun, where the orbits are most curve; and where the comets, being within the denser atmosphere of the sun, have their tails of the greatest length.

The tails thus produced, by preserving that motion, and at the same time gravitating towards the sun, will move round his body in ellipses, in like manner as their heads; and, by this means, will ever accompany, and freely adhere to their head. In effect, the gravitation of the vapours towards the sun will no more occasion the tails of the comets to forsake their heads, and fall down towards the sun, than the gravitation of their heads will occasion them to fall off from their tails: but by their common gravitation, they will either fall down together to the sun, or be together suspended, or retarded. This gravitation, therefore, does not at all hinder, but that the heads and tails of comets may receive and retain any position towards each other, which either the above mentioned causes, or any other, may occasion. The tails, therefore, thus produced in the perihelion of comets, will go off along with their heads into remote regions; and either return thence, together with the comets, after a long series of years; or, rather, be there lost, and vanish by little and little, and the comets be left bare; till at their return, descending towards the sun, some little short tails are gradually and slowly produced from the heads; which afterwards, in the perihelion, descending down into the sun's atmosphere, will be immensely increased.

The vapours, when they are thus dilated, rarefied and diffused through all the celestial regions, the same author observes, may probably, by little and little, by means of their own gravity, be attracted down to the planets, and become intermingled with their atmospheres.

He adds, that for the conservation of the water, and moisture of the planets, comets seem absolutely requisite; from whose condensed vapours and exhalations, all that moisture which is spent in vegetations and putrefactions, and turned into dry earth, &c. may be resupplied and recruited. For all vegetables grow and increase wholly from fluids; and, again, as to their greatest part, turn, by putrefaction, into earth again; an earthly slime being perpetually precipitated to the bottom of putrefying liquors. Hence, the quantity of dry earth must continually increase, and the moisture of the globe decrease, and at last be quite evaporated, if it has not a continual supply from some part or other of the universe. And I suspect, adds our great author, that the spirit, which makes the finest, subtlest, and the best part of our air, and which is absolutely requisite for the life and being of all things, comes principally from the comets.

On this principle, there seems to be some foundation for the popular opinion of presages from comets; since the tail of a comet thus intermingled with our atmosphere, may produce changes very sensible in animal and vegetable bodies. See MEDIUM, and SPIRIT.

But the transmutation of water into earth is now justly exploded: Woodward, Boerhaave, and others, having observed that water is only an agent in conveying the nutritious matter to vegetable bodies, and not that matter itself.

Another use which he conjectures comets may be designed

to serve, is that of recruiting the sun with fresh fuel, and repairing the consumption of his light by the streams continually sent forth in every direction from that luminary. In support of this conjecture he observes, that comets in their perihelion may suffer a diminution of their projectile force, by the resistance of the solar atmosphere; so that by degrees their gravitation towards the sun may be so far increased, as to precipitate their fall into his body.

There have been various conjectures about the generation of the tails of comets. Apian, Tycho Brahe, and some others, apprehended that they were produced by the sun's rays transmitted through the nucleus of the comet, which they supposed to be transparent, and there refracted as in a lens of glass, so as to form a beam of light behind the comet. Des Cartes accounted for the phenomenon of the tail by the refraction of light from the head of the comet to the eye of the spectator. Mairan supposes that the tails are formed out of the luminous matter that composes the sun's atmosphere; M. De la Lande combines this hypothesis with that of Newton above recited. Mr. Rowning, who is not satisfied with sir Isaac's opinion, accounts for the tails of comets in the following manner. It is well known, says he, that when the light of the sun passes through the atmosphere of any body, as the earth, that which passes on one side, is by the refraction thereof made to converge toward that which passes on the opposite one; and the convergency is not wholly effected either at the entrance of the light into the atmosphere, or at its going out; but beginning at its entrance, it increases in every point of its progress. It is also agreed that the atmospheres of the comets are very large and dense. He therefore supposes that by such time as the light of the sun has passed through a considerable part of the atmosphere of a comet, the rays thereof are so far refracted toward each other, that they then begin sensibly to illuminate it, or rather the vapours floating therein; and so render that part they have yet to pass through, visible to us: and that this portion of the atmosphere of a comet thus illuminated, appears to us in form of a beam of the sun's light, and passes under the denomination of a comet's tail. Rowning's Natural Philosophy, part iv. chap. 11.

We have an inquiry into the cause of the tails of comets, by Mr. Euler, in the Mem. de l'Acad. de Berlin, tom. ii. p. 117, seq. He thinks there is a great affinity between these tails, the zodiacal light, and the Aurora borealis; and that the common cause of them all, is the action of the sun's light on the atmosphere of the comets, of the sun, and of the earth. He supposes that the impulse of the rays of light on the atmosphere of comets, may drive some of the finer particles of that atmosphere far beyond its limits; and that this force of impulse combined with that of gravity towards the comet, would produce a tail, which would always be in opposition to the sun, if the comet did not move. But the motion of the comet in its orbit, and about an axis, must vary the position and figure of the tail, giving it a curvature, and deviation from a line drawn from the centre of the sun to that of the comet; and that this deviation will be greater, as the orbit of the comet has the greater curvature, and that the motion of the comet is more rapid. It may even happen, that the velocity of the comet, in its perihelion, may be so great, that the force of the sun's rays may produce a new tail, before the old one can follow; in which case the comet might have two or more tails. The possibility of this is confirmed by the comet of 1744, which was observed to have several tails while it was in its perihelion. See AURORA borealis, and ZODIACAL light.

Dr. Hamilton urges several objections against the Newtonian hypothesis; and concludes that the tail of a comet is formed of matter which has not the power of refracting or reflecting the rays of light; but that it is a lucid or self-shining substance; and from its similarity to the AURORA borealis, produced by the same cause, and a proper electrical phenomenon. Dr. Halley seemed inclined to this hypothesis, when he said, that the streams of light in an Aurora borealis so much resembled the long tails of comets, that at first sight they might well be taken for such: that this light seems to have a great affinity to that which the effluvia of electric bodies emit in the dark. Phil. Trans. N° 347. Hamilton's Philosophical Essays, p. 91, &c.

M. Fatio has suggested, that some of the comets have their nodes so very near the annual orbit of the earth; that if the earth should happen to be found in that part next the node, at the time of a comet's passing by; as the apparent motion of the comet will be incredibly swift, so its parallax will become very sensible; and the proportion thereof to that of the sun will be given: whence, such transits of comets will afford the best means of determining the distance of the earth and sun.

The comet of 1472, v. gr. had a parallax above twenty times greater than the sun's: and if that of 1618 had come down in the beginning of March to its descending node, it would have been much nearer the earth, and its parallax much more notable. But, hitherto, none has threatened the earth with a nearer appulse than that of 1680: for, by calculation, Dr. Halley finds that November 11th, 1 h. 6 min. P. M. that comet was not above one semidiameter of the earth, to the northward of the way of the earth; at which time, had the earth been in that part of its orbit, the comet would have had a parallax equal to that of the moon: what might have been the consequence of so near an appulse, a contact, or, lastly, a shock of the celestial bodies? Mr. Whiston says, a DELUGE!

COMETS, motion of. If the paths of comets be supposed directly parabolical, as some have imagined, it would follow, that being impelled toward the sun by a centripetal force, they descend as from spaces infinitely distant; and by their falls acquire such a velocity, as that they may again run off into the remotest regions: still moving upwards, with such a perpetual tendency as never to return. But the frequency of their appearance, and their degree of velocity, which does not exceed what they might acquire by their gravity towards the sun, seem to put it past doubt that they move, planet-like, in elliptic orbits, though exceedingly eccentric; and so return again, though after very long periods. See ELLIPTIC.

The apparent velocity of the comet of 1472, as observed by Regiomontanus, was such as to carry it through 40° of a great circle in 24 hours: and that of 1770 was observed to move through more than 45° in the last 25 hours.

Newton, Flamsteed, Halley, and the English astronomers, &c. seem satisfied of the return of comets: Cassini, and others of the French, think it highly probable; but De la Hire, and others, oppose it.

Those on the affirmative side suppose the comets to describe orbits prodigiously eccentric, inasmuch that we can only see them in a very small part of their revolution: out of this, they are lost in the immense spaces; hid not only from our eyes, but our telescopes. That little part of their orbit near us, M. Cassini, &c. have found to pass between the orbits of Venus and Mars.

For the reasons of the return of comets, M. Cassini gives these which follow. 1. In considering the course of the comets, with regard to the fixed stars, they are found to keep a considerable time in the arch of a great circle, i. e. a circle whose plane passes through the centre of the earth: indeed, they deviate a little from it, chiefly towards the end of their appearance; but this deviation is common to them with the planets.

2. Comets as well as planets, appear to move so much the faster as they are nearer the earth; and when they are at equal distances from their perigee, their velocities are nearly the same.

By subtracting from their motion the apparent inequality of velocity occasioned by their different distance from the earth, their equal motion might be found: but we should not be certain this motion were their true one; because they might have considerable inequalities, not distinguishable in that small part of their orbit visible to us. It is, indeed, probable, their real motion, as well as that of the planets, is unequal in itself: and hence we have a reason why the observations made during the appearance of a comet, cannot give the just period of their revolution. See PERIOD.

3. There are no two different planets whose orbits cut the ecliptic in the same angle, whose nodes are in the same points of the ecliptic, and whose apparent velocity in their perigee is the same: consequently, two comets seen at different times, yet agreeing with all those three circumstances, can only be one and the same comet.

And this were the comets of 1577 and 1680 observed to do; and those of 1652 and 1698; not that this exact agreement, in these circumstances, is absolutely necessary to determine them the same comet. M. Cassini finds the moon herself irregular in them all: accordingly, he is of opinion, there are several which disagree herein, and yet may be accounted the same.

The great objection against the return of comets, is, the rarity of their appearance, with regard to the number of revolutions assigned to them.

In 1702, there was a comet, or rather the tail of one, seen at Rome, which M. Cassini takes to be the same with that observed by Aristotle, and that since seen in 1668, which would imply its period to be thirty-four years. Now, it may seem strange, that a star which has so short a revolution, and of consequence such frequent returns, should be so seldom seen.—Again, in April, of the same year, 1702, a comet was observed by Mess. Bianchini, and Maraldi, supposed by the latter to be the same with that

that of 1664, both by reason of its motion, velocity, and direction. M. de la Hire took it to have some relation to another he had observed in 1698, which M. Cassini refers to that of 1652. On this supposition, its period appears to be forty-three months; and the number of revolutions between 1652 and 1698, fourteen: But it is hard to suppose, that in this age, wherein the heavens are so narrowly watched, a star should make fourteen appearances unperceived; especially such a star as this which might appear above a month together; and of consequence be frequently disengaged from the tre-puscula.

For this reason M. Cassini is very reserved in maintaining the hypothesis of the return of comets, and only proposes those for planets, where the motions are easy and simple, and are solved without straining, or allowing many irregularities.

M. De la Hire proposes one general difficulty against the whole system of the return of comets, which would seem to hinder any comet from being a planet: and it is this; that by the disposition necessarily given to their courses, they ought to appear as large at first as at last; and always increase, till they arrive at their greatest proximity to the earth: or, if they should chance not to be observed, as soon as they become visible, for want of attention thereto, at least it is impossible but they must frequently shew themselves before they have arrived at their full magnitude and brightness. But he adds, that none were ever yet observed till they had arrived at it. But the appearance of a comet in the month of October 1723, while at a great distance, so as to be too small and dim to be viewed without a telescope, may serve to remove this obstacle, and set the comets, still, on the same footing with the planets.

Sir Isaac Newton supposes, that as those planets which are nearest the sun, and revolve in the least orbits, are the smallest; so among the comets, such as in their perihelion come nearest the sun, are the smallest, and revolve in lesser orbits.

Dr. Halley has given us a table of the astronomical elements of all the comets that have been yet observed with due care; whereby, whenever a new comet shall appear, it may be determined, by comparing it therewith, whether it be any of those which have yet appeared; and consequently its period, and the axis of its orbit, be determined, and its return foretold. This table contains the astronomical elements of twenty-four comets, on the

supposition that they moved in parabolas; though he thought it extremely probable that they really moved in very eccentric ellipses; and consequently returned after long periods of time. This table commences with the year 1337, and closes with 1698. See his Synopsis of the Astronomy of Comets, annexed to Gregory's Astronomy.

There are many things in the comet of 1532, observed by Peter Apian, which intimate its being the same with that of 1607, observed by Kelper and Longomontanus; and which Dr. Halley himself again observed in 1682. All the elements agree, and there is nothing contradicts the opinion, but that inequality in the periodic revolution; which, however, he thinks is no more than may be accounted for from physical causes: no more in effect than is observed in Saturn; the motion of which planet is so disturbed by the rest, especially Jupiter, that its period is uncertain for several days together: to what errors then may not a comet be liable, which rises to almost four times the height of Saturn; and whose velocity, if but a little increased, would change its elliptic orb into a parabolic one?

What farther confirms the identity, is the appearance of another comet in the summer of 1456, which, though observed by none with accuracy, yet by its period, and the manner of its transit, he concludes to be the same; and thence ventures to foretel its return in the year 1758, or the beginning of the next year: and time has verified the prediction. The comet of 1661 seems to be the same with that of 1532, and to have its period in one hundred and twenty-nine years: and Halley also thought that the comet of 1680 was the same that was observed in 1106, 531, and in the forty-fourth year before Christ, when Julius Cæsar was murdered; and that its period was five hundred and seventy-five years. Mr. Dunthorne, in the Phil. Trans. vol. xlvii. has endeavoured to shew from a MS. in Pembroke-hall library, that the comet of 1106 could not be the same with that of 1680. But M. de la Lande adopts the opinion of Dr. Halley.

Another table has since been computed, from the observations contained in the Philosophical Transactions, De la Caille's Astronomy, and De la Lande's Historie de la Comete de 1759, & Connoissance des Movemens Celestes 1762 & 1764. In this table are seen the elements of twenty-five other comets, from the year 1264 to 1762.

HALLEY'S TABLE OF THE ELEMENTS OF COMETS.

Comets, A. D.	Ascending node.				Inclin. of orbit.			Perihelion.				Perihelion distance from the sun; the distance of the earth being 100000.	Equat. time of perihel.				
	°	'	"		°	'	"	°	'	"	D.		H.	'			
1337	♏	24	21	0	32	11	0	8	7	59	0	40666	June,	2	6	25	retrog.
1472	♏	11	46	20	5	20	0	8	5	33	30	54273	Feb.	28	22	23	retrog.
1531	8	19	25	0	17	56	0	♏	1	39	0	56700	Aug.	24	21	18½	retrog.
1532	♏	20	27	0	32	36	0	♏	21	7	0	50910	Oct.	19	22	12	direct.
1556	♏	25	42	0	32	6	30	♏	8	50	0	66390	Apr.	21	20	3	direct.
1577	♏	25	52	0	74	32	45	♏	9	22	0	18342	Oct.	26	18	45	retrog.
1580	♏	18	57	20	64	40	0	♏	19	5	50	59528	Nov.	28	15	0	direct.
1585	8	7	42	30	6	4	0	♏	8	51	0	109358	Sept.	27	19	20	direct.
1590	♏	15	30	40	29	40	40	♏	6	54	30	57661	Jan.	29	3	45	retrog.
1596	♏	12	12	30	55	12	0	♏	18	16	0	51293	July,	31	19	55	retrog.
1607	8	20	21	0	17	2	0	♏	2	16	0	58680	Oct.	16	3	50	retrog.
1618	♏	16	1	0	37	34	0	♏	2	14	0	37975	Oct.	29	12	23	direct.
1652	♏	28	10	0	79	28	0	♏	28	18	40	84750	Nov.	2	15	40	direct.
1661	♏	22	30	30	32	35	50	♏	25	58	40	44851	Jan.	16	23	41	direct.
1664	♏	21	14	0	21	18	30	♏	10	41	25	102575½	Nov.	24	11	52	retrog.
1665	♏	18	2	0	76	5	0	♏	11	54	30	10649	April,	14	5	15½	retrog.
1672	♏	27	30	30	83	22	10	8	16	59	30	69739	Feb.	20	8	37	direct.
1677	♏	26	49	10	79	3	15	♏	17	37	5	28059	April,	26	0	37½	retrog.
1680	♏	2	2	0	60	56	0	♏	22	39	30	00612½	Dec.	8	0	6	direct.
1682	8	21	16	30	17	56	0	♏	2	52	45	58328	Sept.	4	7	39	retrog.
1683	♏	23	23	0	83	11	0	♏	25	29	30	56020	July,	3	2	50	retrog.
1684	♏	28	15	0	65	48	40	♏	28	52	0	96015	May,	29	10	16	direct.
1686	♏	20	34	40	31	21	40	♏	17	0	30	32500	Sept.	6	14	33	direct.
1698	♏	27	44	15	11	46	0	♏	0	51	15	69129	Oct.	8	16	57	retrog.

A SUPPLEMENT TO HALLEY'S TABLE OF THE ELEMENTS OF COMETS.																	
Equated time of perihelion.					Ascending node.			Inclin. of orbit.			Perihelion.			Perihelion distance from the sun.			
A. D.	D.	H.	'		°	'	"	°	'	"	°	'	"				
1264	July,	6	8	0	♊	19	0	0	36	30	0	♊	21	0	0	44500	direct.
1533	June,	16	19	30	♊	5	44	0	35	49	0	♊	27	16	0	20280	retrog.
1593	July,	8	13	38	♊	14	14	15	87	58	0	♊	26	19	0	8911	direct.
1678	Aug.	16	14	3	♊	11	40	0	3	4	20	♊	27	46	0	123802	direct.
1699	Jan.	3	8	22	♊	21	45	35	69	20	0	♊	2	31	6	74400	retrog.
1702	March,	2	14	12	♊	9	25	15	4	30	0	♊	18	41	3	64590	direct.
1706	Jan.	19	4	56	♊	13	11	23	55	14	5	♊	12	36	25	42686½	direct.
1707	Nov.	30	23	43	♊	22	50	29	88	37	40	♊	19	58	9	85904	direct.
1718	Jan.	4	1	15	♊	7	55	20	31	12	53	♊	1	26	36	102565	retrog.
1723	Sept.	16	16	10	♊	14	16	0	49	59	0	♊	12	52	20	99865	retrog.
1729	June,	12	6	36	♊	10	35	15	77	1	58	♊	22	16	53	406980	direct.
1737	Jan.	19	8	20	♊	16	22	0	18	20	45	♊	25	55	0	22282½	direct.
1739	June,	6	10	0	♊	27	25	14	55	42	44	♊	12	38	40	67358	retrog.
1742	Jan.	28	4	21	♊	5	34	45	67	4	11	♊	7	33	44	76555½	retrog.
1742	Dec.	30	21	15	♊	8	10	48	2	15	50	♊	2	58	4	83811½	direct.
1743	Sept.	9	21	16	♊	5	16	25	45	48	21	♊	6	33	52	52157	retrog.
1744	Feb.	19	8	17	♊	15	45	20	47	8	36	♊	17	12	55	22206	direct.
1747	Feb.	17	11	45	♊	20	58	27	77	56	55	♊	10	5	41	229388	retrog.
1748	April,	17	19	25	♊	22	52	16	85	26	57	♊	5	0	50	84066½	retrog.
1748	June,	7	1	24	♊	4	39	43	56	59	3	♊	6	9	24	65525½	direct.
1757	Oct.	21	7	55	♊	4	12	50	12	50	20	♊	2	58	0	33754	direct.
1759	Mar.	12	13	50	♊	23	45	35	17	40	15	♊	3	8	10	58490½	retrog.
1759	Nov.	27	2	19	♊	19	39	24	78	59	22	♊	23	24	20	79851	direct.
1759	Dec.	16	12	41	♊	18	56	19	4	37	23	♊	19	2	48	96193	retrog.
1762	May,	28	15	18	♊	19	23	0	84	45	0	♊	15	14	0	101240	direct.

By comparing these tables, it will be found that none of these comets, except that of 1759, appears to be the same with any other in either of the tables; unless we admit those of 1264 and 1556, and those 1596 and 1699, to be the same. See the elements of the comet of 1770, and the trajectory of its path, in the Transactions of the American Philosophical Society, vol. i.

See Whiston's Solar System, where the orbits of the several comets are delineated; and the periods of as many of them as are known, expressed.

To determine the place and course of a COMET. Observe the distance of the comet from two fixed stars, whose longitudes and latitudes are known: from the distances thus found, calculate the place of the comet by trigonometry, after the manner delivered under PLANET. By repeating the observations and operations for several days successively, the course of the comet will be had.

To determine the course of a COMET mechanically, and without any apparatus of instruments. The following ingenious method, by a thread, we owe to Longomontanus: Observe four stars round the comet, such, as that the comet may be in the intersection of the right lines that join the two opposite stars; which is easily found by means of a thread placed before the eye, and extended over-against the stars and comet.

Suppose, v. gr. the comet's place in the heavens A (Tab. Astronomy, fig. 23.) between the four stars, B, C, D, E; where the line joining the stars B and D, passes through the body of the comet; and the like does the line passing through C and E.

On a globe, whereon these four stars are found, extend a thread through B and D, and another through C and E; the point of intersection will give the place of the comet. This practice being repeated for several days, the comet's course will be had on the globe; which course will be found to be a great circle: from any two points whereof, it will be easy to find its inclination to the ecliptic, and the place of the nodes; only by observing where a thread stretched through the two points cuts the elliptic.

To determine the parallax of a COMET. See PARALLAX.

COMET, trajectory of a. See TRAJECTORY.

COMETARIUM, a curious machine, exhibiting an idea of the revolution of a comet about the sun. It is contrived in such a manner, as by elliptical wheels to shew the unequal motion of a comet in every part of its orbit. The comet is represented by a small brass ball, carried by a radius vector, or wire, in an elliptic groove about the sun in one of its foci; and the years of its period are shewn by an index moving with an equable motion over a graduated silver circle. See a particular description, with a cut, in Ferguson's Astronomy, 4to. p. 288.

COMETIS, in Botany, a genus of the *tetrandria monogynia* class, of which there is only one known species. The involucre is formed of three leaves and three flowers; the calyx has four leaves; and the capsule contains three berries.

COMETITES, in Natural History, a name given by some writers to a kind of astroites, which have stars much larger than those of the common kind, and therefore called comets.

COMEUS, in Mythology, a surname of Apollo, under which title he was worshipped at Seleucia, whence his statue was carried to Rome, and placed in the temple of Apollo Palatine.

COMFREY, *symphytum*, in Botany, a genus of plants, of the *pentandria monogynia* class; the characters of which are these: the flower has a five-cornered, erect, permanent empalement, cut in five acute parts; it has one petal with a short tube, above which the limb has a swelling belly and thicker tube. The brim is indented in five obtuse parts, which are reflexed; the chaps are armed with five awl-shaped rays, which are connected in a cone; it has five awl-shaped stamina, which are alternate with the rays of the chaps, terminated by erect acute summits; and four germina, supporting a slender style the length of the petal, crowned by a single stigma. The germina afterwards turn to four gibbous, acute, pointed seeds, which ripen in the empalement. There are several species: but only three are to be found in the English gardens; which are cultivated either by seed, or by parting the roots, which latter is the most expeditious way. They are extremely hardy, and will grow on almost any soil, and any situation.

Comfrey-root has been extolled as a famous vulnerary, both externally and internally; and as a noble balsamic and agglutinant; and given with success in diarrhoeas from dysenteries, and spitting of blood. The best way of taking it is in decoction, or syrup; but the decoction must not be too strong. A conserve of them is found of excellent use in hæmorrhages of all kinds. They have been also recommended in the gout and sciatica, as of great virtues in mitigating the pain, and shortening the paroxysms. It is now rarely employed in practice, though it may be deemed superior to the althea roots. The mucilage derived from the root is its only medicinal principle.

Symphytum was a name given among the ancients to several different plants, which had the common virtues of agglutinators. We have appropriated the word to comfrey; but Dioscorides plainly uses it sometimes as the name of elecampane, and sometimes as that of the common horse-tail. Pliny has collected the virtues and characters of the *symphytum* from all the authors he had, in whom

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when the word occurred, and therefore he has given a list of virtues that belong to no one plant.

COMFREY, *spotted*, in *Botany*. See LUNG-wort.

COMIOLA, in *Botany*, a name given by some of the old Roman authors to the plant commonly called luteola, or dyer's weed. See DYER's weed.

COMITATU *commissio*, in *Law*, a writ or commission, by which a sheriff is authorized to take upon him the charge of the county.

COMITATU *et castro commissio*, a writ by which the charge of a county, together with the keeping of a castle is committed to the sheriff.

COMITATUS, in *Law*, a county. Ingulphus tells us, that England was first divided into counties by king Alfred; and the counties into hundreds, and these again into tythings; and Fortescue writes, that *regnum Angliæ per comitatus, ut regnum Franciæ per ballivatus distinguitur*. Sometimes it is taken for a territory or jurisdiction of a particular place; as in Mat. Paris, anno 1234. See COUNTY.

COMITATUS *posse*. See POSSE.

COMITIA, an assembly of the Roman people, either in the Comitium, or Campus Martius, i. e. FIELD of Mars; meeting for the election of magistrates, or for consulting on the important affairs of the republic.

The word comes from the verb *coco*, or *comeo*, to go together.

There were certain days fixed for these assemblies, called *dies comitiales*; marked with a C in the calendar of Julius Cæsar. *Comitial* assemblies, held for the election of consuls, were called *consular comitia*: in like manner, the other *comitia* took names from the officer to be created; whether a tribune, a pontiff, ædile, or the like.

There were three kinds of these *comitia*, viz. *curiata*, *centuriata*, and *tributa*; so distinguished from the manner wherein the people voted, and gave their suffrages, viz. by *curiæ* or parishes, tribes, or centuries.

The power of calling these assemblies pertained to most of the chief magistrates, and sometimes to the sovereign pontiff.

Authors makes the difference between *comitia* and *concilia*, to consist in this; that in the former the whole people were called together, in the latter only a part.

COMITIA *curiata*. Romulus instituted the *comitia curiata*, or the public assemblies of the people, called to vote in their several *curiæ*; and it is agreed by all that the matters subjected to their decision, were the choice of all the magistrates, and the right of making laws, war, and peace: an ample jurisdiction, and the most important articles of government, yet not wholly absolute, according to Dionysius, unless the senate concurred with them. This method of transacting all the greater affairs by the people, assembled in their *curiæ*, after it had subsisted through five successive reigns, was found to be inconvenient.

Servius Tullius, the sixth king of Rome, in order to correct the inconvenience of the *comitia curiata*, instituted a new division of the people into six classes, according to a census, or valuation of their estates; whence proceed the *comitia centuriata*: then he subdivided these classes into one hundred and ninety-three centuries, and contrived to throw a majority of these centuries, that is ninety-eight of them, into the first class of the richest citizens. By which regulation, though every man voted now in his century, as before, in his curia; yet, as all matters were decided by a majority of the centuries, so the balance of power was wholly transferred into the hands of the rich; and the poorer sort deprived of their former weight and influence in the affairs of state: which wise institution was ever after observed, through all succeeding ages, in the elections of the principal magistrates, and the determination of all the principal transactions of the republic.

COMITIAL *days*. Paulus Manutius is of opinion, that there were certain days on which the Roman senate might regularly be assembled; and others on which it could not: and that these last were called *comitial* days, and marked under that name in the calendars, as days wholly destined, and set apart by law, for the assemblies of the people. But Sigonius contends, that the senate might meet on any of those days, unless when the people were actually assembled, and transacting business on them; and consequently that the title of *comitial* denoted such days only, on which the people might be legally assembled, not such on which they were of course to be assembled. Middlet. of Rom. Senat. p. 138, seq.

The truth of the matter seems to be this, that though the days called *comitial* were regularly destined to the assemblies of the people, yet the senate also might not only be convened on the same, after the popular assemblies were dissolved; but had the power likewise, whenever they found it expedient, to supersede and postpone the assem-

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blies of the people to another day; and, by a particular decree, to authorize their own meetings upon them, for the dispatch of some important affair therein specified.

COMITIALIS *morbus*, an ancient term for the EPILEPSY, or falling-sickness; so called, because if any person was seized with it in the Roman *comitia*, the assembly was immediately dissolved; this being esteemed an unlucky omen; or, rather, because those liable to it were chiefly seized in the *comitia*, or great assemblies.

COMITIUM, the place where the *comitia* were ordinarily held, was a large hall in the Roman Forum: it was a long time open at top; on which account, the assemblies were often interrupted by bad weather: it was first covered over in the time of the second Punic war. See FORUM.

Rosinus observes, that the consuls and tribunes were not created in the *Comitium*, but in the Campus Martius.

It was in this place that the rostra were placed. See COMITIA.

COMMA, in *Grammar*, a point, or character, formed thus [,]; serving to mark a short stop, or pause; and to divide the members of a period.

The word is formed of *κομῆω*, *seco*, I cut.

It is very difficult to fix the precise use of the *comma*; different authors define, and use it differently: the ordinary doctrine is, that the *comma* serves to distinguish nouns, verbs, adverbs, and the several parts of a period that are not necessarily joined together. But this conveys no clear, precise idea; for what is it to distinguish the parts of a period not necessarily joined together? F. Buffier has carried the doctrine of the *comma* farther: according to him, the *comma* serves to distinguish those members of a period, in each whereof is a verb, and the nominative case of the verb. Thus, *That so many people are pleased with trifles, is owing to a weakness of mind, which makes them love things easy to be comprehended*.

Besides this, the *comma* is used to distinguish, in the same member of a period, several nouns substantives, or nouns adjectives, or verbs, not united by a conjunction. Thus, *Virtue, wit, knowledge, are the chief advantages of a man*: or, *A man never becomes learned without studying constantly, methodically, with a gust, application, &c.*

If those words be united in the same phrase by a conjunction, the *comma* is omitted: thus, *The imagination and the judgment do not always agree*. The *comma* may also be omitted between the phrases that are very short, especially if they depend upon the same regimen, and are united by a conjunction: thus, *Alexander conquered Asia and established the monarchy of the Greeks*.

The ingenious author of the tract *De Ratione Interpungendi*, printed with Vossius's *Element. Rhetor.* Lond. 1724, lays down the use of a *comma* to be, to distinguish the simple members of a period, or sentence; i. e. such as only consist of one subject, and one definite verb. Thus Cicero, *Venio nunc ad voluptates agricolarum, quibus ego incredibiliter delector, quæ nec ulla impediuntur senectute, & mihi ad sapientis vitam proxime accedere videntur*. See SENTENCE.

But this rule does not go throughout; the same author instancing many particular cases, not included herein, where yet the *comma* is advisable.

Sometimes, e. gr. a proposition includes another, which may be called *partitive*, as being only a part of the entire phrase; in which case, the two are to be divided from each other by *commas*. Thus, *He always says, as he tells us, the finest things in the world*.

The points, or pauses in discourse, it is observed, are in a kind of musical proportion: the *comma* stops the reader's voice while he may privately tell one; the semicolon, two; the colon, three; and the period, or full-stop, four. Others make the stop at the colon, four; and the period, six. Professor Ward observes, that the suspension of the voice should be twice as long for a *comma* as between words separated by no mark of distinction; thrice for the semicolon; and so on in the same proportion. Bishop Lowth assigns to the period a pause in duration double to the colon: to the colon, double of the semicolon; and to the semi-colon, double of the *comma*: so that they are in the same proportion to one another as the semibreve, the minim, the crotchet, and the quaver in music. But, whatever be the duration of the several pauses, the proportion between them would be ever invariable, if the doctrine of punctuation were exact. *Introd. to English Grammar*, ed. 1772. p. 197.

The ancients only made use of two kinds of points, or pauses, in a period; the larger they call *members*, the Greeks *cola*, marked thus [:]; the smaller *incisa*, the Greeks *commata*, thus [,].

The moderns, refining on their predecessors, have subdivided the first into a colon, and semicolon; some say, without any good foundation in nature; though others maintain the usefulness of the division.

As the member, or colon, divides the period into two parts, each containing a sense, though that imperfect: thus, *Antequam de republica, patres conscripti, dicam ea quæ dicenda hoc tempore arbitror*; where the sense does not rest; nor is the period or sentence perfect without the addition of, *exponam vobis breviter & professionis & reverſionis meæ*: the comma subdivides each member into intermediate divisions, which, of themselves, have no precise meaning at all: v. gr. *Nihil est, mihi crede, virtute formosius, nihil pulchrius, nihil amabilius*.

Frequent commas, as on other occasions they promote perspicuity and distinctness, and ease the reader, both in the rehearsal and comprehension of his author; so, in oratory, are of especial use and effect; particularly where an adversary is to be closely and pointedly attacked, upbraided, reprehended, wounded, &c. Witneſs that of Cicero against Verres: *Non enim nos color iste servilis, non pilosæ genæ, non dentes putridi deceperunt: oculi, supercilia, frons, vultus denique totus, qui sermo quidam tacitus mentis est, hic in fraudem, homines impulit: hic eos, quibus erat ignotus, decepit, fefellit, in fraudem induxit: pauci tua ista luteola vitia novimus; pauci tarditatem ingenii, stuporem, debilitatemque linguæ, &c.*

COMMA, in Music, is the smallest of all the sensible intervals of tone. Ptolemy considered it as insensible; but Salinus asserts, that he was capable of distinguishing it. Musical writers have enumerated three kinds of comma. The greater comma, or the interval of two sounds, having the ratio of 81 to 80, which is the difference of the major and minor tones. To this the term is commonly applied. It is seldom in use, except in the theory of music, to shew the justness of the concords; for in the practice, the division is drowned and lost.—The smaller comma is the difference between the greater and lesser semitones; and the proportion expressing it is that of 2048 to 2025.—The comma of Pythagoras is expressed by the ratio of 531441 to 524288: or, it is the difference between six tones major and an octave. The tone, in the distribution ascribed by Boethius and others to Philolaus, contained nine commas. See TONE, &c.

COMMAND, in the Royal Navy, implies the rank or power of an officer who has the management of a ship of war of any kind under twenty guns. He ranks with a major in the army.

COMMANDER, is a name given to a large wooden mallet used in a ship.

COMMANDING Ground, in Fortification, an eminence, or rising ground, which overlooks any post, or strong place.

Of this they reckon three sorts: 1^o, *A front commanding ground*; which is an height opposite to the face of the post, which plays upon its front.

2^o, *A reverse commanding ground*, which is an eminence that can play upon the back of any place or post.

3^o, *An infilade commanding ground, or curtain commanding ground*; which is a high place, that can with its shot scour all the length of a strait line.

COMMANDMENT, in a Legal Sense, has various uses: as, *Commandment of the king*, when, on his own mere motion, and from his own mouth, he casts a man into prison.

Commandment of the justices, is either *absolute* or *ordinary*; *absolute*, as when, on their own authority, and their own discretion, they commit a man to prison for punishment. *Ordinary*, as when they commit him rather for safe custody than punishment.—A man committed to an ordinary commandment, is releivable.

COMMANDMENT is also used for the offence of him who directs or wills another to transgress the law; as by murder, theft, and the like.

He that commandeth any one to do an unlawful act, is accessory to it, and all the consequences, if it be executed in the same manner as commanded: but if the commander revoke the command, or if the execution varies from it, or in the nature of the offence; in such case he will not be accessory. 3 Inst. 51, 57. 2 Inst. 182.

In another sense of this word, magistrates may command others to assist them in the execution of their offices, for the doing of justice; and so may a justice of peace, to suppress riots, apprehend felons; or any officer to keep the king's peace, &c. Bro. 3.

In trespass, &c. the master shall be accountable for the act of the servant done by his command; but servants shall not be excused for committing any crime, when they act by command of their master, who have no authority to enforce such command. The commands of infants and feme covert are void.

COMMANDMENTS, Ten. See DECALOGUE.

COMMANDRY, a kind of benefice or fixed revenue belonging to a military order, and conferred on ancient knights, who had done considerable service to the order.

There are *strict* or regular commandries, obtained in order, and by merit: there are others of *grace* or *favour*, conferred at the pleasure of the grand-master.

There are also commandries for the religious in the orders of St. Bernard and St. Antony.—The kings of France have converted several of the hospitals for lepers into commandries of the order of St. Lazarus.

The commandries of Malta are of different kinds; for as the order consists of knights, chaplains, and brother servants, there are peculiar commandries, or revenues, attached to each.

The knight to whom one of these benefices or commandries is given, is called *commander*: which agrees pretty nearly with the *præpositus* set over the monks in places at a distance from the monastery, whose administration was called *obedientia*: because depending entirely on the abbot who gave him his commission. Thus it is with the simple commanders of Malta, who are rather farmers of the order than beneficiaries; paying a certain tribute, or rent, called *responsio*, to the common treasure of the order.

The commandries belonging to the priory of St. John of Jerusalem in England, consisting of manors, lands, &c. such was that of New Eagle in Lincolnshire, were given to Henry VIII. by stat. 32 Hen. VIII.

COMMELINA, in Botany, a genus of the *triandria monogynia* class; so named by F. Plumier, in compliment to Dr. Commeline, a famous professor of botany at Amsterdam. Its characters are these: it hath a permanent heart-shaped spatha, the flower hath six concave petals, three of which are small and oval, the other large, roundish, and coloured. It hath three nectariums, (which hath been supposed to be stamina) and three awl-shaped stamina, which recline: in the centre is situated a roundish germen, which afterwards becomes a naked globular capsule, with three furrows, having three cells, each containing two angular seeds. There are five species, natives of Africa and America. Miller's Gard. Dict.

No medicinal properties are attributed to this plant.

COMMEMORATION, the remembrance of any one; or something done in honour of a person's memory.

Among the Romanists, it is a practice for dying persons to leave a legacy to the church, for the rehearsing so many masses in commemoration of them.

The eucharist is a commemoration of the sufferings of Jesus Christ.

COMMEMORATION is also the name of two religious feasts, otherwise called ALL-SAINTS, and ALL-SOULS. The occasion of their institution is variously related.

COMMENDAM, in the Canon Law, expresses the charge, trust, and administration of the revenues of a BENEFICE, given to a layman to enjoy, by way of depositum, for the space of six months, in order to its being repaired, &c. or to another bishop, or ecclesiastic, to perform the pastoral offices thereof, till such time as the benefice is provided of a regular incumbent.

Anciently, the administration of vacant bishopricks belonged to the nearest neighbouring bishop; which is still practised between the archbishoprick of Lyons, and the bishoprick of Autun: on this account they were called *commendatory bishops*.

This custom appears to be very ancient: St. Athanasius says of himself according to Nicephorus, that there had been given him in *commendam*, that is in administration, another church besides that of Alexandria, whereof he was stated bishop.

The care of churches, it seems, which had no pastor, was committed to a bishop till they were provided with an ordinary: the register of pope Gregory I. is full of these commissions, or *commendams*, granted during the absence or sickness of a bishop, or the vacancy of a see. Some say, that pope Leo IV. first set the modern *commendams* on foot, in favour of ecclesiastics who had been expelled their benefices by the Saracens; to whom the administration of the vacant churches was committed for a time, in expectation of their being restored: though St. Gregory is said also to have used the same, while the Lombards desolated Italy.

In a little time the practice of *commendams* became exceedingly abused; and the revenues of monasteries were given to laymen for their subsistence. The bishops also procured several benefices, or even bishopricks in *commendam*, which served for a pretext for holding them all without directly violating the canons. Part of the abuse has been retrenched; but the use of *commendams* is still retained, as an expedient to take off the incompatibility of the person, by the nature of the benefice.

When a parson is made bishop, his parsonage becomes vacant; but if the king give him power, he may still hold it in *commendam*; but this must be done before consecration. There are several sorts of *commendams* founded on the stat. 25 Hen. VIII. cap. 21. as a *commendam semisus*, which

which is a provisionary act of the ordinary, and only implies a sequestration of the cure and fruits till the patron presents his clerk: *commendam retinere*, by means of which a bishop retains benefices on his preferment, which has operated for a certain number of years, or even as long as the *commendatory* lived, and continued bishop: a *commendam recipere*, which is to take a benefice *de novo*, in the bishop's own gift, or of some other patron, whose consent is obtained; and for life.

A benefice cannot be *commended* by parts, any more than it may be represented unto by parts; so that one shall have the glebe, another the tithes, &c. Nor can a *commendatory* have a *juris utrum*, or take to him and his successors, sue or be sued, in a writ of annuity, &c. But a *commendam perpetua* may be admitted to do it, 11 Hen. IV. Compl. Incumb. 360. See Nelf. Abr. 454.

COMMENDAM, in popish countries, is a real title of a regular benefice; as an abbey, or priory given by the pope to a secular clerk, or even to a layman, with power to dispose of the fruits thereof during his life.

No benefice that has a cure of souls, i. e. no parsonage, or bishoprick, can be given *in commendam*. This practice being entirely contrary to the canons, none but the pope, who has a power of dispensing with the canons, can confer it.

When the *commendam* becomes vacant by the death of the *commendatory*, it is not esteemed vacant by his death; but as it was before the *commendam* was granted: that making no alteration in the thing: yet the pope gives the same benefice in *commendam* again, by a privilege which he still continues.

By the pope's bulls, a *commendatory* abbot has the full authority of the regular abbot to whom he is substituted. For this reason, the bulls expressly require, that he be a priest; or, that if he have not yet attained the age of priesthood, he shall take orders as soon as he has. But this is a mere formality, or matter of style; the thing is never executed.

Indeed, the spiritual directions of the abbey, while it is *in commendam*, is lodged wholly in the claustral priors. The *commendatory* abbots have not any authority over the religious *in spiritualibus*: they even cannot either appoint or set aside the claustral priors, who are nominated in the bulls the administrators of the spiritualities; in which, however, this restriction is added, viz. till the abbot arrive at the age of twenty-five years, to assume the priesthood.

The pope grants benefices *in commendam*, not only to clerks, by dispensing with their age, and other qualifications required; but they also dispense with the clericate even in children yet in the cradle, till they become of age to take the tonsure: it being sufficient to obtain a bull, that it be represented at Rome, that the child is destined for the ecclesiastical state.

In this case there is an *OECONOMUS*, or steward, appointed to take care of the temporal concerns.

COMMENDATORY Abbot. See **ABBOT** *in commendam*.

COMMENDATORY Letters, are such as are written by one bishop to another in behalf of any of the clergy, or others of his diocese travelling thither; that they may be received among the faithful; or that the clerk may be promoted; or necessities may be administered to others, &c. Several forms of these letters may be seen in our historians; as in Bede, lib. ii. cap. 18.

COMMENDATUS, one that lives under the protection of a great man.

Commendati homines, were persons who by a voluntary homage, put themselves under the protection of any superior lords. For ancient homage was either predial, due for some tenure, or personal, which was by compulsion as a sign of necessary subjection; or voluntary, with a desire of protection. And those who by voluntary homage put themselves under the protection of any men of power, were sometimes called *homines ejus commendati*, sometimes only *commendati*, as often occurs in Domesday. *Commendati dimidii*, were those who depended on two several lords, and paid one half of their homage to each; and *sub-commendati*, were like under tenants, under the command of persons who were dependants themselves on a superior lord. There were also *dimidii sub-commendati*, who bore a double relation to such depending lords. Domesday. This phrase seems to be still in use, in the usual compliment, *commend me to such a friend*, &c. which is to let him know I am his humble servant. Spelm. of Feuds, cap. 20.

COMMENSURABLE quantities, in Geometry, are such as have some common aliquot parts, or which may be measured by some common measure, so as to leave no remainder in either. Thus a foot and a yard are *commensurable*; there being a third quantity which will measure each, viz. an *inch*; which taken 12 times makes a *foot*, and 36 times a *yard*.

Commensurables are to each other, either as units to a rational whole number; or as one rational whole number to another. In *incommensurables* it is otherwise. The ratio of *commensurables* therefore is rational; that of *incommensurables* irrational: hence, also, the exponent of the ratio of *commensurables* is a rational number.

COMMENSURABLE numbers, whether integers or fractions are such as have some other number which will measure or divide them without any remainder. Thus, 6 and 8, $\frac{8}{12}$, and $\frac{3}{4}$, are respectively *commensurable* numbers.

COMMENSURABLE in power. Right lines are said to be *commensurable in power*, when their squares are measured by one and the same space, or superficies.

COMMENSURABLE surds, are such surds as, being reduced to their least terms, become true figurative quantities of their kind; and are therefore as a rational quantity to a rational: such are $3\sqrt{2}$ and $2\sqrt{2}$. See **SURD**.

COMMENTACULA, among the Romans, the rod which the flamens carried in their hands when going to sacrifice.

COMMENTARIENSIS, among the Romans, an officer who had the keeping of the prison, and was to obey the *triumviri capitales*.

COMMENTARY, or **COMMENT**, a gloss, or interpretation, affixed to some ancient obscure, or difficult author, to render him more intelligible, or to supply what he has left undone.

COMMENTARY is also used for a sort of history, written by a person who had a chief hand in the transactions related.

Such are the *commentaries* of Cæsar, of Sleidan, Montluc, &c.

The word is also used for certain books written on some particular subject: Kepler has an excellent book of *commentaries on Mars*, containing observations on the motion of that planet.

COMMERCE, the exchange of commodities; or, the buying, selling, or trafficking of merchandize, money, or even paper, in order to profit by the same.

There is no doubt but *commerce* is nearly as ancient as the world itself; necessity set it on foot; the desire of convenience improved it; and vanity, luxury, and avarice, have brought it to its present pitch. At first it could only consist in the exchange of things necessary for life: the plowman gave his corn and his pulse to the shepherd, and received milk and wool in exchange: which method of *commerce* by exchange subsists still in many places; as about the coasts of Siberia, and the Danish and Muscovite Lapland; among several nations on the coasts of Africa; among some of those of America, and many of Asia. See **EXCHANGE**.

It is not precisely known when the *commerce* by buying and selling first began; nor when coins, and the several species of gold, silver, and copper, had their rise. The first moneys were wood, leather, and iron; and even at this day, it is the custom in some places of both Indies, to give a certain value in sea-shells and coco-nuts, for merchandises, drugs, &c. See **MONEY** and **COIN**.

The first instance of this kind of *commerce* in the sacred writing, is in the time of the patriarch Abraham. As for prophane authors, they usually fix its epocha to the reign of Saturn and Janus in Italy; and the ancient authors, according to Cæsar, attribute its invention to the god Mercury.

The Egyptians, Phœnicians, and Carthaginians, who were a Tyrian colony, were the first, the most daring and expert traders of all antiquity: at least, it is evident they were the first who ran the hazard of long voyages; and who set on foot a traffic by sea between coasts very remote.

Among the ancients, *commerce* did not appear unworthy the application of persons of the first rank: Solomon, we are told, frequently joined his merchant-fleets with those of the king of Tyre, for their voyage to Ophir; and by this means rendered himself, though in a little kingdom, the richest king of his time in the universe.

Under the Asiatic and Grecian empires, ancient history gives us from time to time the traces of a *commerce* cultivated by several nations: but it flourished more considerably under the dominion of the Romans; as appears from that vast number of colleges and companies of merchants in the several cities mentioned in historians, and ancient inscriptions.

The destruction of the Roman empire by the irruptions of the barbarians, brought that of *commerce* along with it; or at least suspended its ordinary operation for some time: by degrees it began to recover itself, and made a new progress; especially in Italy. Hence, the Pisans, Florentines, Genoese, and Venetians, who abounding in shipping, took occasion to spread themselves through all the ports of the Levant and Egypt; bringing thence silk,

ilk, spices, and other merchandises; and furnishing the greatest part of Europe therewith. And thus was the modern *commerce* founded on the ruins of that of the ancient Greeks and Romans to the same places: and thus did those famous republics acquire their lustre and power; which were considerably increased by the commercial effects of the crusades. These republics furnished the crusaders with transports, military stores and provisions, and obtained charters very favourable to the establishment and extension of their *commerce*. When Constantinople was taken under the banner of the holy cross, many valuable branches of trade, which formerly centered in that city, were transferred to Venice, Genoa, or Pisa. Robertson's Hist. vol. i. chap. v. p. 34. &c. 8vo. The Germans, however, had a long time carried on a separate *commerce*; which was not borrowed from the Romans, nor did it fall with theirs. Towards the end of the twelfth century, the German cities situate on the coast of the Baltic, and the rivers that run into it, got into a considerable traffic with the neighbouring states. As their *commerce* was much interrupted by pirates, seventy-two of them united together for their mutual defence; and were thence called *Hanseatic*, or *Hans towns*. See *HANS TOWNS*.

Thus they flourished till the beginning of the sixteenth or the end of the fifteenth century; when a division arising among them, and about the same time a new passage to the Indies, by the Cape of Good Hope, being discovered by the Portuguese; and settlements made on the coast of Africa, Arabia, and the Indies, the ancient Italian and Hanseatic *commerce* sunk; and the chief trade came into the hands of the Portuguese.

The Portuguese had not possessed those different trades above a hundred years, when, about the beginning of the seventeenth century, the Dutch began to share it with them: and in a little time dispossessed them of almost the whole. The English, French, Danes, and Hamburgers, excited by their success, have likewise made settlements in the Indies, and on the coasts of Africa; though much less considerable ones, excepting those of the English.

Lastly, America, discovered by Columbus in 1492, in favour of the Spaniards, soon after the Portuguese had discovered the new way to the Indies, likewise became the object of a new, vast, and most important *commerce* for all the nations of Europe; whereof Cadiz and Seville were made the centre.

It is true, the first conquerors of this new world still possess the greatest and richest part of it; and preserve the *commerce* thereof to themselves with great jealousy: yet, besides that the English, French, Portuguese, and Dutch, have several rich and flourishing colonies, both in the islands and the continent; it is certain, that it is as much for other nations as themselves that the Spaniards every year send their fleets for the treasures of Peru and Mexico.

The trade of Europe was no sufferer by this new one of America; the north and south have still the same mutual occasion for each other as before.

The navigation from the Baltic to the Mediterranean was tedious and difficult: the situation of Flanders, and the manufactures which there flourished from the tenth century, together with the free fairs of that country, engaged the merchants, both of the north and south, to establish their magazines first in Bruges, and then in Antwerp.

The establishment of the republic of Holland, the favourable reception it gave to strangers, and the refuge it afforded to religionaries, drew store of manufacturers to it, as well as manufactures; and soon sunk the *commerce* of Antwerp.

And the same reasons, the convenience and multitude of the ports of England, the goodness of the wools, and the industry of the workmen, have brought hither a considerable part of the *commerce* of Europe.

In France the nobles are allowed to exercise *commerce* without derogating from their nobility: by an ordinance of Louis XIII. merchants are allowed to take on them the quality of nobles; and by another of Louis XIV. they are declared capable of being secretaries of state, without laying aside their *commerce*. It may be added, for the honour of trade, that some of the Italian princes, looking on themselves as the chief merchants of their states, do not disdain to make their own palaces serve as magazines: and there are several kings in Asia, as well as most of those on the coasts of Africa and Guinea, who negotiate with the Europeans by their factors, and frequently in person.

Commerce, on the foot it now stands, is divided into *commerce by land*, and *by sea*; *inland or domestic*, and *foreign*; and by *wholesale* and *retail*.

With respect to domestic *commerce*, we may observe, that the king is the arbiter of it; as it pertains to his prerogative to establish public marts, as markets and fairs, to regulate weights and measures, and to give money, which is the universal medium of *commerce*, authority and currency.

A great part of the foreign *commerce* of England is now carried on by collective companies: some incorporated by the king's charters, with an exclusive privilege, as the East India company; others only private associations, as the Turkey and Hamburgh companies. See *COMPANY*.

COMMERCE, *Chambers of*. See *CHAMBER*.
COMMERCE, *Characters in*. See *CHARACTER*.

COMMUNATORY, a clause inserted in a law, edict, patent, &c. importing a punishment wherewith delinquents are menaced; which, however, is not to be executed in its rigour.

Thus, in France, when an exile is enjoined not to return on pain of death, it is deemed a *communatory* penalty; since, if he do return, it is not strictly executed; but a second injunction is then laid on him, which is more than *communatory*, and from the day of the date thereof, imports death without remedy.

COMMUNITION, the act of grinding, or breaking any matter into smaller particles.—The effect of chewing, or masticating our food, is the *communion* thereof.

COMMISSARY, an officer of the bishop, who exercises ecclesiastical jurisdiction in those parts of the diocese which are so remote from the see, that the chancellor cannot call the subjects thereof to the bishop's principal consistory, without their too great molestation.

This officer, called by the canonists *commissarius*, or *officialis foraneus*, is appointed to supply the bishop's officer in the out-parts of the diocese, and in such parts as are peculiar to the bishop, and exempted from the jurisdiction of the archdeacon: for where the archdeacons have jurisdiction, as in most places they have, either by prescription or composition, the *commissary* is superfluous, and frequently vexatious.

COMMISSARY, in an army.—There are several sorts of *commissaries*.

COMMISSARY of horses, an officer in the artillery, appointed to have the inspection of the artillery-horses, to see them mustered, and to send such orders as he receives from the commanding officer of the artillery, by some of the conductors of horses, of which he has a certain number for his assistants.

COMMISSARY-GENERAL of the musters, or muster-master general, takes an account of the strength of every regiment reviews them, sees that the horse be well mounted, all the men well armed and accoutred.

COMMISSARY of provisions, is he who has the inspection of the bread and provisions of the army.

COMMISSARY of stores, an officer in the artillery who has the charge of all the stores, for which he is accountable to the officer of the ordnance; he is allowed an assistant, clerks, and conductors, under him.

COMMISSION, in *Common Law*, is the same with *delegation* among the civilians; and is taken for the warrant, or patent, which any man exercising jurisdiction, either ordinary or extraordinary, hath to authorise him to hear or determine any cause or action.

The term, however, is sometimes extended farther than to matters of judgment; as in the *commission* of purveyors, which seems to be null by the statute for taking away purveyance, 12 Car. II. and the high *commission court*, which was founded on the statute 1 Eliz. and is also abolished by act of parliament 16 Car. I. The persons charged with a *commission* are hence called *commissioners*; sometimes *committees*.

COMMISSION of anticipation, was anciently a *commission* given under the great-seal, to collect a subsidy before the day. See *ANTICIPATION*.

COMMISSION of association, is a *commission* under the great-seal to associate two, or more learned persons, with the several justices, in the several circuits and counties in Wales.

COMMISSION of bankruptcy, a *commission* under the great seal, directed to five or more commissioners, to enquire into the particulars of a man's circumstances, who hath failed, or broke; and to act according to certain statutes made in that behalf. See *BANKRUPT* and *PETITION of Bankruptcy*.

COMMISSIONS of charitable uses go out of the chancery to the bishop and others, where any lands given to charitable uses are misemployed, or there are any fraud or disputes concerning them, to enquire of and redress the abuse, &c. 43 Eliz. cap. 4.

COMMISSION of Delegates. See *DELEGATES* and *COURT*.

COMMISSION of lunacy, a *commission* out of chancery to enquire whether a person represented to be lunatic, be so or not; that, if lunatic, the king may have the care of his estate, &c. 17 Edw. II. cap. 10.

COMMISSION of peace. See *JUSTICE of peace*.

COM-

COMMISSION of rebellion, or writ of rebellion, is issued out when a man, after proclamation issued out of the chancery, or the exchequer, and made by the sheriff, to present himself, under pain of his allegiance, to the court by a certain day, does not appear. See **REBELLION**.

This *commission* is directed by way of command to certain persons; three, two, or one of them; to apprehend, or cause to be apprehended, the party as a rebel; and to bring them to the court on a day assigned.

This writ or *commission* goes forth after an attachment returned, *non est inventus*, &c.

COMMISSION of sewers, is directed to certain persons to see drains and ditches well kept, and maintained, in the marshy and fenny parts of England, for the better conveyance of water into the sea, and preserving the grass upon the land. Stat. 23 Hen. VIII. c. 5. 13 Eliz. c. 9. The stat. 3 Jac. I. c. 14. ordains, that all ditches, water-courses, &c. within two miles of London, falling into the Thames, shall be subject to the *commission* of sewers; and the lord-mayor, &c. is to appoint persons who have this power. 7 Ann. c. 10.

COMMISSION to examine witnesses, is sometimes appointed by the court of equity in cases that require it, as when the cause arises in a foreign country, and the witnesses are at home, or when the witnesses are abroad, or soon to leave the kingdom; or again, when they are aged and infirm. This *commission* is empowered to exercise the same jurisdiction as would have been exercised if the witnesses had attended. See **SUIT**.

COMMISSION-Officers. See **OFFICER**.

Book of COMMISSIONS. See **BOOK**.

COMMISSION, in Commerce. See **FACTORAGE**.

COMMISSIONER, he who has a **COMMISSION**, e. gr. a patent, or other legal warrant, to execute any public office. See **WARRANT**, &c.

Such are, *commissioners* of hawkers and pedlars, *commissioners* of alienation, *commissioners* of the stamps, &c.

COMMISSIONERS of the Customs. See **CUSTOM-house**.

COMMISSIONERS of the Duck-yards. See **DOCK-yards**.

COMMISSIONERS of Excise. See **EXCISE**.

COMMISSIONERS of the Navy. See **NAVY**.

Lords COMMISSIONERS of the Treasury. See **TREASURY**, and **EXCHEQUER**.

COMMISSIONERS of Trade, &c. See **BOARD**.

COMMISSUM Fidei. See **FIDEI**.

COMMISSURE, COMMISSURA, a term used by some authors, for the junctures, or for the small interstices of bodies; or the little clefts between the particles; especially when those particles are broadish and flat, and lie contiguous to one another, like thin plates, or **LAMELLÆ**. The word literally signifies a *joining*, or connecting of one thing to another.

COMMISSURE, in Architecture, &c. denotes the joint of two stones; or the application of the surface of the one to that of the other.

Among anatomists, *commissure* is sometimes also used for a suture of the cranium, or skull.

COMMITMENT, in Law, the sending of a person to prison by warrant or order, who hath been guilty of any offence not bailable, or for which bail is refused. It may be by the king and counsel, by the judges of the law, justices of peace, and other magistrates, who have authority by the laws and statutes of the realm to do it, which must be exactly pursued. Every *commitment* to prison ought generally to be made by a warrant, under the hand and seal of him who commits the party, and the cause of *commitment* to be expressed in the warrant, &c. And where a man is committed as a criminal, it must be until he is discharged by due course of law: but if it be for contumacy, then it is only, until he comply and perform the thing required. Carthew's Rep. 153. If the words of a statute are not pursued in a *commitment*, the party shall be discharged by *habeas corpus*. Ib. 291. See **BAIL**, **IMPRISONMENT**, **MITTIMUS**, &c.

COMMITTEE, in Law, one or more persons, to whom the consideration of any matter is referred, either by a court, or by consent of the parties concerned.

COMMITTEE of Parliament, is a board consisting of a certain number of members, appointed by the whole house for the examining of a bill, or making report of an inquiry, or process of the house, &c.

Sometimes, the whole house is resolved into a *committee*; on which occasion each person has a right to speak, and reply as much, and as often as he pleases; an expedient they usually have recourse to in extraordinary cases, and where any thing is to be thoroughly canvassed. When the house is not in a *committee*, each gives his opinion regularly, and is only allowed to speak once, unless to explain himself.

The standing *committees*, appointed by every new parliament, are those of *privileges and elections*, of *religion*, of *grievances*; of *courts of justice*, and of *trade*; though only the former act.

COMMITTEE of the king, is used for a widow of one of the

king's tenants: thus called, as being by the ancient law of the realm committed to the king's care and protection. See **WIDOW**.

COMMULATE, COMMUTATUM, in the *Civil Jurisprudence*, the loan, or free concession of any thing moveable or immoveable, for a certain time on condition of restoring again the same individual after a certain term.

The *commutate* is a kind of loan: there is this difference, however, between a loan and a *commutate*, that the latter is gratis, and does not transfer the property: the thing must be returned in essence, and without impairment: so that things which consume by use, or time, cannot be objects of a *commutate*, but of a loan; in regard they may be returned in kind, though not in identity.

COMMODAVIENSIS, an appellation given by some authors to a species of *lapis calaminaris* found in Bohemia. But as it yields no **ZINC**, Mr. Marggraff denies it to be true **CALAMINE**.

COMMODITIES Staple. See **STAPLE**.

COMMODORE, in the British Marine, a general officer, invested with the command of a detachment of ships of war destined on any particular enterprize; during which time he bears the rank of a brigadier-general in the army, and his ship is distinguished by a broad red pendant tapering towards the outer end, and sometimes forked.

COMMODORE is also a name given to a select ship in a fleet of merchantmen, which leads the van in time of war, bearing a light in her top to conduct the rest.

COMMOIGNE, in Law, a word signifying a fellow-monk; that lives in the same convent. 3 Inst. 15.

COMMON, COMMUNIS, something that belongs to all alike; is owned or allowed by all; and is not confined to this more than that.

In which sense, *common* stands opposed to *proper*, *peculiar*, &c. Thus, the earth is said to be our *common* mother; in the first, or golden age, all things were in *common*, as well as the sun and elements; the name animal is common to man and beast; that of substance to body and spirit. Philosophers dispute whether there be any such thing as *common* notions, innate, or impressed on the mind by nature herself; or whether our ideas are all adventitious. See **IDEA**.

COMMON, communia; (i. e. *quod ad omnes pertinet*) signifies that soil, the use whereof is *common* to a particular town or lordship: or it is a profit that a man hath in the land of another person, usually in common with others; or a right which a person hath to put his cattle to pasture into ground that is not his own. And there is not only *common* of **PASTURE**, but also *common* of **PISCARY**, *common* of **ESTOVERS**, *common* of **TURBARY**, &c. And in all cases of *common*, the law doth much respect the custom of the place: for there the rule is, *consuetudo loci est observanda*. 7 Rep. 5. *Common* of pasture is divided into *common* in gross, *common* appendant, *common* appurtenant, and *common per cause de vicinage*.

COMMON in gross, is a liberty to have *common* alone, that is without any land or tenement in another man's land, granted either to a person for life or to him and his heirs. This is commonly passed by deed, or speciality, and claimed by prescriptive right.

COMMON appendant, and **COMMON appurtenant** are usually confounded; both being defined to be a liberty of *common* appertaining to, or depending on, such or such a freehold; which *common* must be taken with beasts *commonable*: as horses, oxen, &c. being accounted fittest for the plowman; and not with goats, geese, and hogs. Others distinguish between the two, thus; *common appurtenant* may be severed from the land whereto it appertains; and is where the owner of land has a right to put in other beasts not *commonable*; as hogs, goats, &c. which neither plough nor manure the land. Whereas *common appendant*, according to lord Coke, had its original in the following manner.

"When a lord enfeoffed another in arable lands to hold of him in socage; the feoffee, to maintain the service of his plough, had at first, by courtesy of his landlord, *common* in his wastes, for necessary beasts to eat and compost his lands; and that for two causes; 1°. Because it was tacitly implied in the feoffment; by reason the feoffee could not till, or compost his pasture: by consequence, therefore, the feoffee had, as a thing necessary, or incident, *common* in the wastes, or lands of the lord. 2°. For the maintenance and advancement of tillage."

COMMON per Cause de vicinage, i. e. by reason of neighbourhood, is the liberty that the tenants of one lord in one town, have to *common* with the tenants of another lord in another town.

But it is to be observed, that those who claim this kind of *common* (which is usually called **INTERCOMMONING**) may not put their cattle into the *common* of the other two, for then they are distrainable; but, turning them into their own fields, if they stray into their neighbours *common*, they must be suffered.

COMMON, in *Geometry*, is applied to an angle, line, or the like, which belongs equally to two figures; or makes a necessary part of both.

COMMON, in *Grammar*, denotes the gender of nouns which is equally applicable to both sexes, male and female. Such as that of *parens*, parent; which is either masculine, or feminine, as it is used to signify either father, or mother.

The Latin grammarians, besides this, which they call the *common of two*, also make a *common of three*; which extends to masculine, feminine, and neuter.

COMMON, *communis*, in *Ancient Music*, was an appellation given to the seven species of the diapason. See **DIAPASON**.

COMMON Bail. See **BAIL**.

COMMON Baretry. See **BARATRY**.

COMMON bench. The COURT of *common pleas* was anciently called *common bench*.

In law books and references, the court of *common pleas* is writ C. B. from *communi banco*; and the justices of that court are styled *justiciarii de banco*.

COMMON Center of Gravity. See **CENTER of Gravity**.

COMMON Chords, in *Music*, are sometimes used to denote the third, fifth, and octave of any note, considered as a bass.

COMMON Clerks. See **TOWN Clerk**.

COMMON Crier. See **CRIER**.

COMMON Council. See **Mayor's COURTS**.

COMMON Day, in plea of land, signifies an ordinary day in court, as *octabis Hilarii, quindena Pasche*, &c. It is mentioned in 13 Rich. II. stat. i. cap. 17. and in the statute 51 Hen. III. concerning general days in bank. Blount and Cowel.

COMMON Duct, in *Anatomy*. See **DUCTUS Communis**.

COMMON Fine in Law, a certain sum of money, which the resiants within the liberty of some leets, pay to the lord thereof; called, in some places, *head-silver*; in others, *cert money*, or *certum letæ*, and *head-pence*.

It was first granted to the lord towards the charge of his purchase of the court-leet; whereby the resiants have now the conveniency of doing their suit-royal near home without being compelled to go to the sheriff's turn.

COMMON Hunt, the chief huntsman belonging to the lord mayor and aldermen of London.

COMMON Intendment, in *Law*, the *common* understanding, meaning or construction of any thing; without straining to any foreign, remote, or particular sense.

Bar to COMMON Intendment, is an ordinary or general **BAR**, which commonly disables the declaration of the plaintiff. See **INTENDMENT**.

COMMON Law, that body of rules generally received, and held as laws in this nation, in contradistinction to the statute, or written law, and to particular customs and usages.

After the decay of the Roman empire, Britain became invaded by three kinds of German people: viz. the Saxons, Angles, and Jutes. From the Jutes descended the men of Kent, and those of the isle of Wight; from the Saxons came the people called the East, South, and West Saxons: and from the Angles came the East Angles, Mercians, and Northumbrians.

Now, as each people had their peculiar customs, so each inclined to different laws; whereof, those of the West Saxons, and Mercians, who inhabited the midland countries, were, upon the dissolution of the heptarchy, and establishment of a monarchy, preferred to the rest, and acquired the common appellation of *Jus Anglorum*. Their particular names were *West Saxon-lage*, and *Merehen-lage*.

The first Saxon laws published in England, were those of king Ethelbert, in the sixth century. Three hundred years after, king Alfred, whom our historians call *magnus juris, Anglicani conditor*, having united the heptarchy, and rendered himself master of the whole nation, made a collection from among the several laws of the several provinces of his domains; and commanded them to be observed throughout his kingdom. This collection was denominated *folk right*, and soon after, the *common law*; as being *common* to the whole nation.

This was written in Alfred's *dome-book*, or *liber judicialis*, which was designed for the general use of the whole kingdom.

By these laws the nation was governed for a considerable time, till, being at length subdued by the Danes, the customs of those people were introduced, and incorporated with the rest; and thus a new form of *common law*, arose, called *Dane-lage*.

The three systems of law above recited, viz. the *Dane-lage*, the *West Saxon-lage*, which was the same with the code compiled by Alfred, and the *Merehen-lage*, were in use about the beginning of the eleventh century, in different counties of the realm. In process of time king Edgar began what his grandson Edward the Confessor,

on this account called *legum Anglicanarum institutor*, completed; viz. to form one digest or body of laws, to be observed throughout the whole kingdom. This seems to have been only a new edition, or fresh promulgation of Alfred's *dome-book*, with such additions and improvements as the experience of a century and a half had suggested.

The Danes being afterwards, in their turn, overcome by the Normans; the Conqueror, on a review of the several laws and customs that then obtained, abrogated some, and abolished others; adding some of his own country laws.

His son, William Rufus, broke through the ancient laws and customs which his father had established; but his next son Henry I. excluded the civil customs which his brother had introduced, and restored the laws of Edward the Confessor, with those amendments made by his father, under the advice of his barons. These were afterwards confirmed in succeeding reigns.

Hence is derived that system of maxims and unwritten customs, now known by the name of the *common law*, which is of Saxon parentage; though the customs and maxims themselves are of higher antiquity than memory or history reach; many of them being as old as the primitive Britons.

The *common law* of England is, properly, the common customs of this kingdom; which, by length of time, have obtained the force of laws.

It is called *lex non scripta*, the *unwritten law*: not but that we have most of it written in the old Norman dialect, and the monuments and evidences of our legal customs are contained in the records of our several courts of justice in books of reports and judicial decisions, and in the treatises of learned sages of the profession, preserved and transmitted from times of the highest antiquity; but because it does not appear to be made by charter, or parliament; for those are always matters of record. Its original institution and authority are not set down in writing, but it receives its binding power and the force of law, by long and immemorial usage, and by universal reception through the kingdom. See **AUTHORITIES and REPORTS**.

Beside the *common law* of England in general, there are in divers parts of the nation particular customs, and common usages, which have the force of *common law* among those people who have regarded them; such as the Borough-English, Gravelkind, &c. Where the *common law* is silent, there the *STATUTE-law* speaks. See **STATUTE**.

All **TRIALS** at *common law* are by a **JURY** of twelve men.

COMMON measure divisor, in *Arithmetic*, a number that exactly measures two other numbers, without a remainder. And the greatest number that can measure any two other numbers, is called their greatest *common measure*; thus 4 is the greatest *common measure* of 8 and 12.

To find the greatest *common measure* of two numbers; divide the greater by the less, and if their be no remainder, the less number is the measure required. If there be a remainder, divide the last divisor by it, and thus proceed, till there be no remainder left, and the last divisor is the greatest *common measure*. For algebraic quantities, the remainders are to be divided by their simple divisors, and the quotients will be the quantities required. And if **FRACTIONS** are divided by their greatest *common measure*, they will thus be reduced to their lowest terms.

COMMON month, motion, and object. See the substantives.

COMMON-PLACE Book, *Adversaria*, among the learned, denotes a register, or orderly collection of things which occur worthy to be noted, and retained in the course of a man's reading, or study; so disposed, as that among a multiplicity of subjects, any one may be easily found.

Common-place books are of great service: they are a kind of promptuaries or storehouses, wherein to reposit the most valuable parts of authors, to be ready at hand when wanted. Several persons have their several methods of ordering them; but that which comes best recommended, is the method of that great master of order Mr. Locke. He has thought fit to publish it in a letter to Mr. Toisnard; determined thereto, by the great conveniency and advantage he had found from it in twenty years experience; as well as by the recommendations and intreaties of many of his friends, who had likewise proved it.

The substance of this method we shall here give the reader: whereby he will easily be enabled to execute it himself.

The first page of the book you intend to take down the *common places* in is to serve as a kind of index to the whole; and to contain references to every place, or matter, therein: in the commodious contrivance of which index, so as it may admit of sufficient copia, or variety of materials, without any confusion, all the secret of the method consists.

COM

In order to this the first page, as already mentioned, or, for more room, the two first pages that front each other, are to be divided by parallel lines, into twenty-five equal parts; whereof every fifth line is to be distinguished, by its colour, or some other circumstance. These lines are to be cut perpendicularly by others, drawn from top to bottom; and in the several spaces thereof the several letters of the alphabet,

A	a	C	a
	e		e
	i		i
	o		o
	u		u
B	a	D	a
	e 2. 3.		e
	i		i
	o		o
	u		u

The index of the *common-place* book being thus formed, matters are ready for the taking down any thing therein. In order to this, consider to what head, the thing you would enter is most naturally referred; in this head, or word, regard is had to the initial letter, and the first vowel that follows it; which are the characteristic letters whereon all the use of the index depends.

Suppose, e. gr. I would enter down a passage that refers to the head *beauty*; B, I consider, is the initial letter, and e the first vowel: then looking upon the index for the partition B, and therein the line e (which is the place for all words whose first letter is B, and first vowel e; as *Beauty, Beneficence, Bread, Bleeding, Blemishes, &c.*), and finding no numbers down already to direct me to any page of the book where words of this characteristic have been entered, I turn forward to the first blank page I find, which in a fresh book, as this is supposed to be, will be page 2, and here I now write what I have occasion for on the head *beauty*; beginning the head in the margin, and indenting all the other subservient lines, that the head may stand out, and shew itself: this done, I enter the page where it is written, viz. 2, in the index, in the space B e, from which time, the class B e becomes wholly in the possession of the 2d and 3d pages, which are assigned to letters of this characteristic.

Had I found any page or number already entered in the space B e, I must have turned to the page, and have written my matter in what room was left therein: so, if after entering the passage on *beauty*, I should have occasion for *benevolence*, or the like, finding the number 2 already possessed of the space of this characteristic, I begin the passage on *benevolence* in the remainder of the page; which not containing the whole, I carry it on to page 3, which is also for B e, and add the number 3 in the index. When the two pages destined for one class are full, look forward for the next backside that is blank; if it be that which immediately follows, write at the bottom of the margin of the page filled, the letter v for *verte*, turn over; and the same at the top of the next page: and continue from this new page as before. If the pages immediately following be already filled with other classes; then write at the bottom of the page last filled the letter v, with the number of the next blank page; and at the top of that page, the number of the page last filled; then entering that head in this new page, proceed as before. By these two numbers of reference, the one at the top, and the other at the bottom of the page, the discontinued matters are again connected. It may not be amiss, every time you put a number at the bottom of a page, to put it likewise in the index. Note, if the head be a monosyllable beginning with a vowel, the vowel is at the same time both the initial letter, and the characteristic vowel: thus the word *art* is to be wrote in A a. Mr. Locke omits three letters of the alphabet in his index, viz. K, Y, and W; which are supplied by C, I, U, equivalent to them: and as for Q, since it is always followed by an u, he puts it in the fifth place of Z; and so has no Z u, which is a characteristic that very rarely occurs. By thus making Q the last in the index, its regularity is preserved, without diminishing its extent. Others chose to retain the class Z u, and assign a place for Q u below the index.

If any imagine, that those hundred classes are not sufficient to comprehend all kinds of subjects without confusion, he may follow the same method, and yet augment the number to five hundred, by taking in one more characteristic to them.

But the inventor assures us, that in all his collections,

both capital and minuscule, are to be duly written. The form of the lines and divisions, both horizontal and perpendicular, with the manner of writing the letters therein, will be conceived from the following specimen; wherein what is to be done in the book for all the letters of the alphabet, is here shewn in the first four, A, B, C, and D.

for a long series of years he never found any deficiency in the index as above laid down.

COMMON Places, in *Rhetoric*. See ARGUMENTS and TOPICS.

COMMON PLEAS. See COURT of Common Pleas.

COMMON Prayer, is the LITURGY in the church of England. Clergymen are obliged to use this liturgy in the service of the church; and refusing to do so, or using any other public prayers, is punishable by 1 Eliz. cap. 2. and every incumbent residing on his living is obliged, once every month at least, to read the *common prayer* in his parish church, in his own person, under a forfeiture of 5*l.* for every failure, by 14. Car II. cap. 4. and by the same stat. every church is to be provided with a book of *common prayer*, under the penalty of 3*l.* a month. Every minister who speaks any thing in derogation of this book is liable to six months imprisonment, and the forfeiture of a year's value of his benefice, and for the second offence to deprivation; and any person, convicted of reviling it, shall forfeit for the first offence an hundred marks; four hundred for the second; and for the third offence all his goods and chattels, and suffer imprisonment for life. Stat. 1 Eliz. cap. 2.

COMMON Ray. See RAY.

Tenants in COMMON. See TENANT.

COMMON Receptacle. See RECEPTACULUM.

COMMON Recovery. See RECOVERY.

COMMON Sense. See SENSE.

COMMON Sensory. See SENSORY.

COMMON Serjeant. See SERJEANT.

COMMON Time. See TIME.

COMMON Year. See YEAR.

COMMONER, is used for a student in some universities, entered in a particular rank.

The word is also applied to a member of the house of commons; in contradistinction to a *peer*.

COMMONS, in parliament; are the lower house, consisting of knights elected by the counties, and of citizens and burgesses by the cities and borough-towns.

In these elections, anciently, all the people had votes; but king Henry VI. to avoid tumults, first appointed, that none should vote for knights but such as were freeholders, did reside in the county, and had forty shillings yearly revenue: the persons elected for counties to be *milites notabiles*, at least esquires, or gentlemen fit for knighthood; native Englishmen, at least naturalized; and twenty-one years of age: no judge, sheriff, or ecclesiastical person, to sit in the house for county, city, or borough.

The house of commons, in Fortescue's time, who wrote during the reign of Henry VI. consisted of upwards of three hundred members: in sir Edward Coke's time their number amounted to four hundred and ninety-three. At the time of the union, there were five hundred and thirteen members for England and Wales, to which forty-five representatives for Scotland were added; so that the whole number of members is at this day five hundred and fifty-eight.

All members of either house, with their menial servants, and necessary goods brought with them, are privileged by the common law from all attachments and imprisonment; except for treason, felony, or breach of peace, all the time of the session, and till they arrive at home, *eundo, morando, ad propria reduendo*.

By 12 and 13 W. cap. 3. and 11 G. II. cap. 24. actions may be brought against members of parliament and their servants immediately after the dissolution or prorogation,

or

or any adjournment for more than fourteen days, till they are reassembled: and in the mean while the courts may give judgment and avoid execution. By 4 G. III. cap. 33. the petitioners, in case of bankruptcy, where the debtor is a trader within the statutes, may sue out a summons or an original bill and summons, and serve a member with a copy of it: and if the debt with costs be not paid within two months, the creditors may proceed as against other bankrupts; arrest during the time of privilege excepted. And by 10 G. III. cap. 50. action may be prosecuted in any court of record, of equity, of admiralty, or such as have cognizances of causes matrimonial and testamentary, against any peer or member of the *house of commons*, any of their servants, or any other person entitled to privilege of parliament, provided that the person of any member of the *commons* is exempted from arrest or imprisonment.

The *commons* sit in their house promiscuously; only the *speaker* has a chair, or seat, fixed towards the upper end; and the clerk, with his assistant, sits near him.

The members have no robes, as the lords ever had; excepting the speaker and clerks; and sometimes the professors of law in term-time, and the members of the city of London.

On the first day of the new parliament, before any affair is meddled with, all the members take the oaths; usually before the lord steward, and in the court of wards. They then proceed to the choice of a speaker. And after the election of a *SPEAKER*, they take the oaths a second time. See *PARLIAMENT*.

Privileges of the COMMONS. All bills for levying money on the subject, begin in the house of *commons*; in regard, it is from them the greatest part of the moneys arise; nor will they allow the lords to make any alteration in a money-bill. They have the privilege to propose laws, and are, in effect, the grand inquest of the realm; present public grievances; impeach public delinquents, even the highest officers of the kingdom; and prosecute them before the house of lords, which is a court of judicature, though the *commons* are not.

The *commons* were formerly allowed their expences during parliament time, *rationabiles expensas*, as the words of the writ are; i. e. such allowance as the king, considering the prices of things, shall think proper to impose on the people they represent. In 17 Edward II. the allowance was ten groats for knights, and five for burgesses, per day; afterwards it was raised to four shillings a day for dubbed knights, and two shillings a day for all the rest: but all allowance is now grown into disuse; and considerable sums are too often expended in order to obtain the honour or advantage accruing from a seat in *PARLIAMENT*. See *BRIBERY*.

COMMONS is also used in opposition to *nobles* or *peers*, viz. for all sorts of persons under the degree of a baron; including the order of knights, esquires, gentlemen, the sons of the nobility, and yeomen. See each under its proper article, *ESQUIRE*, *GENTLEMAN*, *YEOMAN*, &c.

Doctors COMMONS. See *COLLEGE of Civilians*.

Proctor of the COMMONS. See *PROCTOR*.

COMMONS is also used for the stated and ordinary diet, or eating, of a college, inn of court, or other society. See *INN*, &c.

COMMONWEALTH. See *REPUBLIC*.

COMMOTE, an ancient term in Wales, denoting half a cantred, or *HUNDRED*; containing fifty villages.

Wales was anciently divided into three provinces; each of these subdivided into cantreds; and every cantred into two *commotes*, or half-hundreds.

Silvester Girald, however, tells us, in his *Itinerary*, that a *commote*, is but a quarter of a hundred.

COMMOTION, an intestine motion, or luctation in the parts of any thing.

In medicine the term is chiefly used for a blow, or shake of the brain. A convulsion is a *commotion* of the fine medullary fibres of the brain. A fall occasions a *commotion*, whence frequently arises a counterstroke on the opposite part: which occasions sometimes a contraindure, and at other times a rupture of the vessels, and an imposthume, by shaking the whole mass of the brain.

COMMUNAM appropriare. See *APPROPRIARE*.

COMMUNE rectum. See *RECTUM*.

COMMUNEM legem, Writ of entry ad. See *LEGEM*.

COMMUNIBUS locis, a Latin term, in frequent use among philosophical, &c. writers; implying some medium, or mean relation, between several places.

Dr. Keil supposes the ocean to be one quarter of a mile deep, *communibus locis*, q. d. at a medium, or taking one place with another.

COMMUNIBUS annis, has the same import with regard to years, that *communibus locis* has with regard to places.

Mr. Derham observes, that the depth of rain, *communibus annis*, i. e. one year with another, were it to stag-

nate on the earth, would amount to, at Townly in Lancashire, $42\frac{1}{2}$ inches; at Upminster, in Essex, 19 $\frac{1}{2}$; at Zurick, $32\frac{1}{4}$; at Pisa, $43\frac{1}{2}$; and at Paris to 19 inches.

COMMUNICATING, in *Theology*, the act of receiving the sacrament of the *EUCCHARIST*.

Those of the *reformed*, and of the Greek church, *communicate* under both kinds; those of the Romish only under one.

The oriental communicants receive the species of wine by a spoon; and anciently they sucked it through a pipe, as has been observed by Beat. Rheanus on Tertullian.

COMMUNICATION, the act of imparting a thing to another, or making him a sharer with us therein.

The use of speech is for the *communication* of our ideas and sentiments to each other.

COMMUNICATION is also used for the connexion of one thing with another; or the passage of one place to another.

Anciently, it was frequent to have subterraneous *communications* between one place and another.

Bridge of COMMUNICATION. See *BRIDGE*.

Lines of COMMUNICATION, in *War*, called also simply *lines*; are trenches six or seven feet deep, and twelve broad, made between one fort, or work, and another; designed for a safe passage between one quarter and another; especially in sieges. See *Tab. Fortification*, fig. 21, 22, &c.

COMMUNICATION of idioms, in *Theology*, the act of imparting the attributes of one of the natures in Jesus Christ to the other.

The *communication of idioms* is founded on the supposed union of two natures in the person of Christ; by this *communication of idioms* it is, that some divines say, God suffered, died, &c. which is strictly understood of the human nature; and signifies that God suffered in his humanity, that he died as to his human nature, &c.

The Lutherans carry the *communication of idioms* so far, as to say, that Jesus Christ is not only in his divine nature, and by reason of his divine person, but also really and properly in his humanity, immortal, immense, &c.

COMMUNICATION of motion, that act of a moving body, whereby another body at rest is put by it in motion, or a body already in motion is by it accelerated.

F. Malebranche looks on the *communication of motion* as something metaphysical; i. e. as not necessarily arising from any physical principles, or any properties of bodies, but flowing from the immediate agency of God; there being, according to him, no more connection, or dependence, between the motion or rest of one body, and that of another, than between the form, colour, magnitude, &c. of one body, and those of another. The motion of one body, therefore, on his principle, is not any physical cause of that of another. See *CAUSE*.

The *communication of motion* results from, and is an evidence of the impenetrability and inertia of matter as such: unless we admit the hypothesis of penetrable matter, advanced by M. Bosovich and Mr. Michell, and ascribe to the powers of repulsion those effects which have been usually ascribed to its solidity and actual resistance. See *MATTER*.

Laws of the COMMUNICATION of motion. Action, and reaction, sir Isaac Newton demonstrates, are equal and opposite; so that one body striking against another, and thereby occasioning a change in its motion, does itself undergo the very same change in its own motion, the contrary way. See *MOTION*.

Hence, a moving body striking directly against another at rest, the one loses just as much of its motion as it *communicates* to the other; and they will proceed with the same velocity as if united into one mass.

If, therefore, the body in motion be triple that at rest against which it strikes, it will lose a fourth part of its motion; and whereas, before, it would have run over (v. gr.) a line of twenty feet, in a given time, it will now only run over fifteen; i. e. it will lose a fourth part of its velocity.

If the moving body strike on another already in motion, the first will augment the velocity of the latter; but will lose less of its own motion than if the latter had been absolutely at rest. Thus, v. gr. if a body in motion be triple of another at rest, and strike against it with thirty-two degrees of motion; it will *communicate* eight degrees of its motion to the other, and retain twenty-four to itself. If the other body had already four degrees of motion, the first would only *communicate* five, and retain twenty-seven; since those five were sufficient, on account of the inequality of the bodies, to make them proceed with equal velocity.

After the same manner may the other laws of *communication* of motion in bodies perfectly hard and void of all elasticity, be determined. But all hard bodies, that we know of, have an elastic power; and in elastic bodies, the laws are different, and much more intricate. See *ELASTICITY*;

ELASTICITY; and the laws of percussion in elastic bodies, see under PERCUSSION.

If a body, when moved by another, happen to decline out of the way, so as to leave a free passage to the body whereby it was moved; yet, that will only proceed with the velocity which it had after its *communication* to the other, not with that it had before: it being a rule that every thing endeavours to persevere, not in the state wherein it was formerly, but in that wherein it is at that juncture: therefore, a body which has already lost part of its motion, by its meeting with another, may lose still by a second and a third, so as at length to become perfectly quiescent.

Hence, first, if two unequal homogeneous bodies move in a right line with the same velocity, in a resisting medium, the greater must persevere in motion longer than the smaller: for the motions of both bodies are as their masses; but each *communicates* of its motion to the circumjacent bodies which touch its surface; in proportion to the magnitude of its surface; the larger body, therefore, though it has more surface than the smaller, yet having less, in proportion to its mass or quantity of matter than the smaller, will lose a less portion of its motion every moment than a smaller.

Suppose, e. gr. a cube, A, to be two feet every way, and another B, one foot; the surfaces here will be as four to one, but their masses as eight to one. If therefore those bodies move with the same velocity, the cube A will have eight times as much motion as the cube B (the quantity of motion being ever as the quantity of matter.) That each of them, therefore, may become quiescent at the same time, the cube A must lose eight times as much motion every moment as the cube B, but that is impossible, because as their surfaces are to each other as four to one; the bodies against which they strike will only be as four to one: therefore, when the cube B is become perfectly quiescent, A will have half its motion.

Hence, secondly, we see the reason why any long body, as a dart, thrown lengthwise, continues its motion longer than any thrown transversely: it meeting fewer bodies in the way to *communicate* its motion to in the one case than in the other.

Hence also, thirdly, if a body be moved almost wholly within itself, so as to *communicate* little of its motion to the ambient bodies, it must continue its motion a long time. Thus, a smooth brass ball of half a foot diameter, supported on a slender smooth axis, with a very weak impulse, is found to revolve for the space of three or four hours.

COMMUNICATION, *communicatio*, in *Rhetoric*. See ANACONOSIS.

COMMUNION, in *Theology*, an uniform belief in several persons; whereby they are united under one head, in one CHURCH. See UNITY, UNIFORMITY, &c.

In this sense, the Lutherans, Calvinists, &c. are said to have been cut off from the Romish *communion*.

This is the primitive use of the word *communion*, as appears from the canons of the council of Elvira.

Though the term has been more extensively applied to denote a general agreement in matters of doctrine, discipline, and worship. And unless the term be understood in this large sense, so various are the opinions of men, there could be no *communion* among the members of any one church on earth.

COMMUNION is also used for the act of *communicating* in, or participating of, the sacrament of the EUCHARIST. The fourth council of Lateran decrees, that every believer shall receive the *communion*, at least, at Easter; which seems to import a tacit desire, that they should do it oftener; as, in effect they did it much oftener in the primitive days. Gratian, and the master of the sentences, prescribe it as rule for the laity, to *communicate* three times a year, at Easter, Whitsuntide, and Christmas. But in the thirteenth century, the practice was got on foot, never to approach the eucharist except at Easter; and the council thought fit to enjoin it then by a law, lest their coldness and remissness should go farther still.

And the council of Trent renewed the same injunction, and recommended frequent *communion* without enforcing it by an express decree.

In the ninth century, the *communion* was still received by the laity in both kinds; or, rather the species of bread was dipped in the wine, as is owned by the Romanists themselves. A. G. SS. Benedict Sæc. III. M. de Marca observes, that they received it at first in their hands, Hist. de Bern. and believes the *communion* under one kind alone to have had its rise in the West under pope Urban II. in 1096, at the time of the conquest of the Holy Land. And it was more solemnly enjoined by the council of Constance in 1414. The twenty-

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eight canon of the council of Clermont enjoins the *communion* to be received under both kinds, distinctly; adding, however, two exceptions; the one of necessity, the other of caution, *nisi per necessitatem, & cautelam*; the first in favour of the sick, the second of the abstemious, or those who had an aversion for wine.

It was formerly a kind of canonical punishment, for clerks guilty of any crime, to be reduced to *lay communion*, i. e. only to receive as the laity did, viz. under one kind.

They had another punishment of the same nature, though under a different name, called *foreign communion*; to which the canons frequently condemned their bishops, and other clerks. This punishment was not any excommunication, or deposition; but a kind of suspension from the function of the order; and a degradation from the rank they held in the church.

It had its name because the *communion* was only granted to the criminal on the foot of a foreign clerk, i. e. being reduced to the lowest of his order, he took place after all those of his rank, as all clerks, &c. did in the churches to which they did not belong. The second council of Agda orders every clerk that absents himself from the church to be reduced to *foreign communion*.

Infant COMMUNION. Some instances occur in the early ages of the church, of the practice of administering the eucharist to infants; and some few have imitated this practice in more modern times. Mr. Pierce pleads the use of it even to this day among the Greeks, and in the Bohemian churches till near the time of the Reformation; and he refers to the usage of the ancient churches, recorded by Photius, Augustin, and Cyprian. He urges from Scripture the right which children have to all the privileges of which they are capable, as well as the Jewish children under the law, who were allowed to eat of the passover, and other sacrifices. To which it has been answered, that the sacrifices, of which they were allowed to partake, were chiefly peace offerings, which became the common food of the family, and were not considered as acts of devotion in such a degree as our eucharist. He replies to the objection founded on the incapacity of infants to examine themselves and discern the Lord's body, by observing that the precept extends only to those who were capable of understanding and complying with it; on the same ground that faith is required previous to baptism. Bishop Bedell suggests the following enquiry relative to this subject; what necessity of baptizing infants, if their baptism produces no effect till they come to years of discretion? To which he replies, though the most principal effect be not attained presently, the less principal are not to be refused: so children were circumcised, who could not understand the reason of it, and the same also did eat the passover: and so did children baptized, in the primitive church, communicate in the Lord's supper: which I know not why it should not be so still; *de quo alias*. It has been alleged, that the foundation of this practice was a mistaken apprehension of the absolute necessity of this ordinance in order to salvation, resulting from an erroneous interpretation of John vi. 53. See Bishop Bedell's Letter to Dr. Ward, in p. 442 of Archbishop Usher's Life by Parr. Pierce's Essay on the Eucharist. Wall's Hist. of Infant Baptism, part ii. chap. 9. § 15 and 16. Waterland's Review of the Doctrine of the Eucharist, and preface to his two volumes of Posthumous Sermons; p. 32, &c. and Inquiry concerning Infant Communion, vol. ii. p. 75, &c.

COMMUNION service, denotes that part of the LITURGY of the church of England which relates to the administration of the sacrament.

COMMUNION-table. See ALTAR.

COMMUNIS capsule. See CAPSULA.

COMMUNIS ductus choledochus. See DUCTUS.

COMMUNIS digitorum manus extensor. See EXTENSOR.

COMMUNIS labiorum depressor. See DEPRESSOR.

COMMUNIS labiorum elevator. See ELEVATOR.

COMMUNIS misericordia. See MISERICORDIA.

COMMUNITY, a society or body of men united together under certain common laws, agreed on among themselves, or imposed by a superior.

The Romans, who seem to have given the first hint of *communities* to the several nations into which their empire was divided, doubtless borrowed it from some rules of their neighbours: they call them *colleges*; which term, among them, had nearly the same signification with *community* among us.

Communities now are of two kinds, *ecclesiastic*, and *laic*; the first are either *secular*, as chapters of cathedral and collegiate churches; or *regular*, as convents, monasteries, &c.

Lay communities are of various kinds; some contracted by a fixed abode of a year and a day in the same place;

others formed by the discharge of the same office, the profession of the same art, or attending the same place of worship; as those of parishes, fraternities, &c.

Accordingly, the word is commonly understood of pious foundations for the support of several persons, either in a secular or regular life; as *colleges, abbeys, convents, priories, seminaries, hospitals, inns, &c.*

Community is more particularly used in the French law, for the joint property in goods between the husband and the wife: the result of which is, that during marriage they are equally entitled to all effects, and liable to all debts, contracted either before or under marriage.

Community is a species of succession, and the acceptance of *community* resembles an *additio hereditatis*.

Community was set on foot in favour of the wives, to enter them as sharers in their husbands effects.

In countries where the civil law obtains, this *community* has no place; nor even in several customary countries as being reputed a burden on the man.

Anciently, the woman's share in the *community* was only one third: and this appears still the sense of the law among us; the widow, at the decease of her husband, being only intitled to one third part of the moveables.

COMMUNITY continued, in the *French Law*, is that which subsists between the survivor of two persons joined in marriage, and the minor children of that marriage; when the survivor has not made an inventory of the effects in possession during marriage. The widow may either renounce *community* with her children, or continue it.

COMMUNITY tacit, is a *community* contracted between a man and woman, by the mere mingling of their effects; provided they have lived together the space of a year and a day: this *community*, being odious, is now abolished.

COMMUTATION, in *Astronomy*. *Angle of COMMUTATION*, is the distance between the sun's true place seen from the earth, and the place of a planet reduced to the ecliptic. See *PLACE*.

Thus the angle *ESR* (*Tab. Astronomy, fig. 26.*) subtended between the sun's place *E*, viewed from the earth at *S*, and that of a planet reduced to the ecliptic, *R*, is the *angle of commutation*.

The *Angle of commutation*, therefore, is found by subtracting the sun's longitude from the heliocentric longitude of the planet *R*; or contrarily.

COMMUTATION, in *Law*, a change of a penalty, or punishment, viz. of a greater for a less, &c. as when death is commuted for, by banishment or perpetual imprisonment, &c.

Some doubt whether the word be properly applied to any change but that of punishment: others will have it indifferently serve for the exchanging, or trucking of any thing.

COMORTH, in our *Statutes*, is used for a contribution or subsidy. It is said to be derived from the British *cymorth, subsidium*.

The stat. 4 Hen. IV. cap. 27. and Hen. VIII. cap. 6. prohibit the levying any such in Wales, or the Marches. It is said this *comorth* was gathered at marriages, and when young priests said their first masses, and sometimes for redemption of murders or felonies.

COMOSANDALOS, in *Antiquity*, a crown of flowers worn in the festival *CHTHONIA*.

COMPACT, in *Physics*, is a relative term, denoting a body to be close, dense, and heavy; having few pores, and those small ones.

The heaviest metals, as gold and silver, are the most *compact*. See *GRAVITY*.

COMPACT, in a *Legal Sense*, signifies an agreement, or a contract, stipulated between several parties. See *CONTRACT*.

COMPACT is also the name of a celebrated bull, confirmed by pope Paul IV. relating to the cardinals.

In virtue of the bull of *compactis*, cardinals can only confer benefices in their natural state; i. e. regular benefices, on regulars.

COMPAGES *circularis montium*, a term devised by Kircher to express what he in other places calls the annularity, or annular disposition of *MOUNTAINS*, which he says run in continued chains, forming belts or ridges in the manner of spines, all round the globe of the earth, from north to south, and so on from that point to north again, and in the same manner from east to west, and from west to east again.

COMPAGUS, in *Antiquity*, a kind of summer-shoe worn by the Roman senators, consisting only of a sole at the bottom; it was fastened with leathern straps, crossing one another many times about the leg.

Rubenius makes the *compagi* to have been a sort of caligæ worn by the Roman generals as well as senators. Under the later emperors, in the middle age, we read of the same worn by popes, bishops, and abbots.

COMPANY, a collective term, understood of several persons assembled together in the same place, or with the same design. See *SOCIETY*.

The word is formed of the French *compagnie*, and that of *companion*, or *companions*, which, Chifflet observes, are found in the Salic law, tit. 66. and are properly military words, understood of soldiers, who, according to the modern phrase, are comrades, or mess-mates, i. e. lodge together, eat together, &c. of the Latin *cum*, *with*, and *panis*, *bread*. It may be added, that in some Greek authors under the Western empire, the word *συμπανια* occurs in the sense of *society*.

COMPANY, in *Commerce*, is an association of several merchants, or others, who unite in one common interest, and contribute by their stock, their counsel, and study, to the setting on foot, or supporting, of some lucrative establishment.

Though *company* and *society*, or fellowship, be, in effect, the same thing, yet custom has made a difference between them; *society* or partnership, being understood of two or three dealers, or not many more; and *company* usually of a greater number. See *SOCIETY*.

A second difference between *companies* and *societies* is, that the first, especially when they have exclusive privileges, cannot be established without the concession of the prince; and need letters patent, charters, &c.

Whereas, for the latter, the consent of the members, fixed and certified by acts and contracts; and authorized by bye-laws, is sufficient.

The several professions and trades exercised in the city of London, being incorporated into distinct fraternities, governed by their particular laws, a tabular view of them may not be unacceptable.

The abstract of their incorporations, and particular privileges, is taken from the records of the Tower, &c. and from the *Firma-Burgi* of Madox, the king's historiographer; an account of their charities from those eminent historians Stowe and Strype, and the number of the liverymen, with their fines on admission, is taken from the returns of the clerk to the parliament, and the scrutiny books made after the several polls for the magistrates and representatives of the city.

The *companies* are here placed according to their precedence, beginning with the twelve principal ones, of one or other of which the lord mayors have generally made themselves free at their election, if they were not so before; for they are not only the oldest, but the richest, many of them having had the honour of kings and princes to be their members, and the apartments of their halls being fit to entertain a monarch.

Companies.	Halls.	Incorporated A. D. by	Livery men.	Livery fines.	Charitable Gifts, paid yearly, and Privileges, &c.
				l. s. d. l.	
1 Mercers	Cheapside	Richard II.	1393	232	2 13 4 3000 Exclusive of 20 per cent. paid yearly to the widows of subscribing clergymen during life, pursuant to a proposal accepted in 1698, when they settled a fund of 14,000l. a year for that purpose.
2 Grocers	Poultry, Groc. alley	Edward III.	1345	127	20 0 0 700
3 Drapers	Throgmorton str.	Henry VI.	1439	140	25 0 0 4000
4 Fishmongers	Thames-street	Henry VIII.	1536	140	13 6 8 800
5 Goldsmiths	Foster-lane	Richard II.	1393	198	20 0 0 1000 They had a privilege from Edw. IV. to inspect, try, and regulate all gold and silver wares throughout the kingdom, and to punish all workers in either that was adulterated.
6 Skinners	Dowgate hill	Edward III.	1327	137	15 0 0 700
7 Merchant Taylors	Threadneedle-str.	Edward IV.	1466	394	20 0 0 2000 They were once styled taylors and linen-armourers.
8 Haberdashers	Maiden-lane	Henry VI.	1407	342	25 0 0 3500 Were anciently styled Milaners, because they dealt in most goods that came from Milan.
9 Salters	Swithin-lane	Q. Elizabeth	1558	190	20 0 0 500

Companies.	Halls.	Incorporated by	A. D.	Livery men.	Livery fines. l. s. d.	Charitable Gifts, paid yearly and Privileges, &c.
10 Ironmongers	Fenchurch-street	Edward IV.	1464	100	31 10 0	1800 In 1724, Mr. Betton a Turkey merchant, left 26,000l. in trust; one moiety of the profits of it to be always applied to the ransom of British captives from Moorish slavery; the other for the poor of the company, and to the charity schools in the city and its liberty.
11 Vintners	Thames-street	Henry VI.	1437	194	31 13 4	600
12 Clothworkers	Mincing-lane	Edward IV.	1482	154	31 10 0	1400
13 Dyers	Elbow-lane	Edward IV.	1472	147	15 0 0	
14 Brewers	Addle-street	Henry VI.	1438	108	6 13 4	
15 Leatherfellers*	Little St. Helens	Henry VI.	1442	156	20 0 0	* Hen. VII. made their wardens inspectors of sheep, lamb, and calves leather, throughout the kingdom.
16 Pewterers ‡	Lime street	Edward IV.	1474	78	20 0 0	‡ By act of Parl. 25 Hen. VIII. their wardens had the inspection of pewter throughout England.
17 Barber-surgeons †	Monkwell-street	Edward IV.	1461	322	10 0 0	† In the reign of Hen. VIII. the surgeons were incorporated separately by 18 Geo. II. cap. 15. and the company of surgeons have an elegant hall in the Old Bailey, with a theatre for the dissection of human bodies.
18 Cutlers	Cloak-lane	Henry V.	1417	110	10 0 0	
19 Bakers	Harp-lane	Edward II.	1307	195	10 0 0	
20 Wax-chandlers	Maiden-lane	Richard III.	1483	113	5 0 0	
21 Tallow-chandlers	Dowgate-hill	Edward IV.	1463	170	15 0 0	
22 Armourers §	Colman-street	Henry VI.	1423	80	15 0 0	§ The Brasiers are united to this company.
23 Girdlers	Basinghall-street	Henry VI.	1449	77	5 0 0	Queen Eliz. incorporated the pinners and wire-drawers with them.
24 Butchers †	Pudding-lane	James I.	1615	214	11 11 0	† This is an ancient fraternity; of which we have an account of the reign of Henry II. A. D. 1180.
25 Sadlers	Cheapside	Edward I.		170	10 0 0	
26 Carpenters	London-wall	Edward III.	1344	100	8 0 0	
27 Cordwainers	Distaff lane	Henry IV.	1410	174	10 0 0	
28 Painter-stainers	Little Trinity-lane	Q. Elizabeth	1582	124	14 0 0	
29 Curriers	Near Cripplegate	James I.	1605	103	9 13 4	
30 Masons	Basinghall-street	Charles II.	1677	70	5 0 0	
31 Plumbers	Near Dowgate-hill	James I.	1611	57	10 0 0	
32 Innholders	Elbow-lane	Henry VIII.	1515	139	10 0 0	
33 Founders**	Lothbury	James I.	1614	132	8 0 0	** All brass weights made in London, or three miles from it, must be sized with the company's standard, and have their mark; the avoirdupois to be sealed at Guildhall, and the troy at goldsmith's hall. And the company are empowered by charter to view and search all brass weights, and brass and copper wares made within the said district.
34 Poulterers	No hall	Henry VII.	1504	106	10 0 0	
35 Cooks	Hall burnt	Edward IV.	1480	78	10 0 0	
36 Coopers	Basinghall-street	Henry VII.	1501	244	15 0 0	
37 Tylers and Bricklayers	Leadenhall-street	Q. Elizabeth	1568	103	12 0 0	
38 Bowyers	No hall	James I.	1620	30	8 0 0	
39 Fletchers ¶	St. Mary Axe	No charter		25	10 0 0	¶ It is only a company by prescription.
40 Blacksmiths	Lambeth-hill	Q. Elizabeth	1577	220	8 0 0	
41 Joiners and Cielers	Thames-street	Q. Elizabeth	1569	323	8 0 0	
42 Weavers	Basinghall-street	Henry II.		279	6 0 0	
43 Woolmen	No hall	No charter				No livery; but they have a master, 2 wardens, and 11 assistants. They are only a company by prescription, yet supposed to have commenced with the wool trade.
44 Scriveners	No hall	James I.	1616	53	5 0 0	
45 Fruiterers	No hall	James I.	1605	63	5 0 0	
46 Plaisterers	Addle-street	Henry VII.	1501	77	8 0 0	
47 Stationers ††	Ludgate street	Phil. & Mary	1557	309	20 0 0	†† This company, which also includes booksellers, letter-founders, printers, and bookbinders, have a stock which is employed in printing almanacks, primers, psalters, school-books, &c. of which they have the sole privilege, by virtue of a grant from the crown. This stock consists of shares, which are distributed in different proportions among those who have fined for, or served the office of renter-wardens: whose shares, if they die married, devolve to their widows. They pay above 200l. a year in pensions and other charities. They are likewise trustees for the disposal of the considerable legacies of Mr. William Bowyer, a learned printer, (who died Nov. 18, 1778) consisting of 30l. a year to the most learned journeyman that can be met with; and 180l. a year in annuities to necessitous printers of sixty-three years of age or upwards.
48 Broderers	Gutter-lane	Q. Elizabeth	1591	115	5 0 0	
49 Upholders	No hall	Charles I.	1627	131	4 10 0	
50 Musicians	No hall	James I.	1604	308	10 0 0	
51 Turners	College-hill	James I.	1604	144	8 0 0	
52 Basket-makers	No hall	No charter				No livery; yet a company by prescription, governed by 2 wardens and 4 assistants, with this motto to its arms, Let us love one another.
53 Glasiers	No hall	Charles I.	1637	91	3 0 0	The glass painters are incorporated with them.
54 Horners	No Hall	Charles I.	1638			No livery; yet they have a master, 2 wardens, and 9 assistants, with a warehouse in Spital-fields; where they divide in lots, among themselves, such horns as are bought up by their members in Leadenhall and other markets: And in 1465, they obtained an act of parliament that none should be exported, but such as they refused.
55 Farriers	No hall	Charles II.	1675	76	5 0 0	
56 Paviers	No hall	No charter				No livery; yet is a fellowship by prescription, with 3 wardens, and 25 assistants.
57 Loriners	London wall	Q. Anne	1712	69	10 0 0	
58 Apothecaries	Blackfriars	James I.	1617	144	16 0 0	They are exempt from ward and parish-offices, and have a spacious physic garden at Chelsea; which, in 1721, was granted to the company for ever by Sir Hans Sloane, Bart. the lord of the manor, on condition of their paying a quit-rent of 5l. and continuing it always as a physic-garden, and of presenting every year to the Royal Society fifty samples of different sorts of plants, there grown, till they amount to two thousand.—The latter of these conditions hath been long since more than completed.
59 Shipwrights	No hall	James I.	1605	No livery; yet they have a master, 2 wardens, and 16 assistants.		
60 Spectacle-makers	No hall	Charles I.		No livery; yet have a master, 2 wardens, and 15 assistants.		
61 Clock-makers	No hall	Charles I.	1632	50	10 0 0	
62 Glovers	No hall	Charles I.	1638	130	5 17 4	
63 Comb-makers	No hall	Charles I.	1636	No livery; yet have a master, 2 wardens, and 13 assistants.		
64 Felt-makers	No hall	James I.	1604	60	5 0 0	
65 Framework-knitters	Red cross-street	Charles II.	1663	58	10 0 0	
66 Silk-throwers	No hall	Charles I.	1630	No livery; yet have a master, 2 wardens, and 20 assistants.		
67 Silkmen	No hall	Charles I.	1631	No livery; yet have a governor, and 20 assistants.		
68 Carmen, have no hall, nor charter, nor livery; but are a fellowship by act of common council, with the title of Free Carmen of the city of London, and have a master, 2 wardens, and 41 assistants, under the direction of the lord mayor and aldermen. The carts that belong to this fellowship, which are between 4 and 500, are, by an act of common council, subjected to the rule of the president and governors of Christ's Hospital; to whom the owners of every cart pay 17s. 4d. a year for a licence to work it, and every cart is brought to the hospital to have a number in brass put upon it.						
69 Pin-makers	No hall	Charles I.	1636	No livery; yet have a master, 2 wardens, and 18 assistants.		
70 Needle-makers	No hall	O. Cromwell	1656	110	5 5 0	

Companies	Halls	Incorporated A. D.	Livery men.	Livery fines.	Charitable Gifts paid yearly, and Privileges, &c.
71 Gardeners	No hall	James I. 1616	No livery; yet have a master, 2 wardens, and 18 assistants.		
72 Soap-makers	No hall	Charles I. 1630	No livery; yet have a master, 2 wardens, and 18 assistants.		
73 Tin-plate-workers	No hall	Charles II. 1670	60 10 0 0		
74 Wheelwrights	No hall	Charles II. 1670	100 15 15 0		
75 Distillers	No hall	Charles I. 1638	122 13 6 8		
76 Hatband-makers	No hall	Charles I. 1368	Incorporated with the company of Needle-makers.		
77 Patten-makers	No hall	Charles II. 1670	46 6 0 0		
78 Glass-fellers and looking-glass-makers	No hall	Charles II. 1664	44 5 0 0		
79 Tobacco-pipe-makers	No hall	Charles II. 1663	No livery; yet have a master, 2 wardens, and 18 assistants.		
80 Coach and harness makers	Noble-street	Charles II. 1677	104 10 0 0		
81 Gunsmiths	No hall	Charles I. 1638	100 10 0 0		
82 Gold and silver wire-drawers	No hall	James I. 1623	No livery; yet have a master, 2 wardens, and 18 assistants.		
83 Long-bow-string-makers	No hall	No charter	No livery; yet a company by prescription, and have 2 wardens, and 19 assistants.		
84 Card-makers	No hall	Charles I. 1629	No livery; yet have a master, 2 wardens, and 18 assistants.		
85 Fan-makers	No hall	Q. Anne 1709	No livery; yet have a master, 2 wardens, and 20 assistants.		
86 Woodmongers were a company incorporated with the carmen by an act of common council in 1694, they obtained a privilege of keeping 120 carts, exclusive of the number kept by the carmen, <i>extinct</i> .		K. James I. 1605, but surrendered their charter in 1648;			
87 Starch-makers, <i>extinct</i>	No hall	James I. 1622			
88 Fishermen, <i>extinct</i>	No hall	James II. 1687			
89 Parish-clerks	Wood-street	Henry III. 1233	By a decree of the Star chamber court in 1625, they obtained a privilege to keep a press in their hall, for printing the weekly bills of mortality, by a person appointed by the archbishop of Canterbury. They are, by their charter, to make a report of all the weekly christenings and burials in their several parishes every Tuesday, and they have a master, 2 wardens, and 17 assistants.		
90 Porters, are another fellowship, without hall, or livery; consisting of tackle and ticket-porters. They were constituted a fraternity by act of common council in 1646, with a power of annually chusing among themselves twelve rulers, being six of each denomination. However, the court of lord mayor and aldermen have reserved to themselves a power of appointing one of their own body, as the chief judge in all controversy. One very laudable custom of the master tackle-porters is, that such of their brethren as happen to be disabled from working, receive their share of all profits, as if actually in business, during life.					
91 The watermen, wherry-men, and lightermen of this city and neighbouring places, where by act of K. William III. constituted a society, or company, under the direction of the lord mayor and aldermen. They are to furnish 1000 men for the navy, upon demand by the admiralty. They have a hall at Coal Harbour, near the Thames; and pay to their poor about 800l. a year: chiefly raised by ferries over the Thames on Sunday.					
N. B. The company of Surgeons, Parish-clerks, Porters, and Watermen, have not the privilege of making their members freemen of the city of London.					

From the foregoing list, it appears on the whole, that there are ninety-one *compaines*, forty-eight halls, and that the number of liverymen, according to the most exact account that could be procured, in 1779, is 8954. The sums of money yearly distributed in charity by only twenty-three of the *companies*, amounts to 23,655l. and if but forty pounds each be annually given by the remaining sixty-eight *companies*, the whole will be no less than 26,375l. *per annum*.

COMPANY, New-River. This corporation consists of a governor, deputy-governor, treasurer, and twenty-six directors, who hold a weekly board for appointing officers, granting leases, and redressing grievances. The projector of this CANAL for bringing water to London, with the assistance of king James I. and the corporation of London, is supposed to have expended 50,000l. upon it; the profits which are divided into seventy-two shares, for the first thirty years admitted of little more than five pounds to each share: but their value is much increased, and now estimated at four or five thousand pounds each. This *company* supplies more than thirty thousand houses with water.

COMPANY seems more peculiarly appropriated to those grand associations, set on foot for the commerce of the remote parts of the world; as the English and Dutch East India *company*, South Sea *company*, Mississippi *company*, &c. The rise and establishment whereof, we shall here set before the reader.

However injurious *companies* with joint-stock, and incorporated with exclusive privileges, may, at this time, be reckoned to the nation in general; it is yet certain that they were the general parent of all our foreign commerce: private traders being discouraged from hazarding their fortunes in foreign commerce, until the method of traffic had been first settled by joint-stock *companies*. From this principle it is, that we find several nations that are now endeavouring to improve their trade, and to establish or increase marine power, by the means of joint-stock *companies*.

But since the trade of this kingdom, and the number of traders have increased, and the methods of assurance of shipping and merchandise, and the navigation to all parts of the known world have become familiar to us; these *companies*, in the opinions of most men, have been looked upon in the light of monopolies: their privileges have therefore been lessened from time to time, in order to favour a free and general trade; and experience has shewn, that the trade of the nation has advanced, in proportion as monopolies have been discouraged.

COMPANIES, English. East India COMPANY was formed towards the latter end of the reign of queen Elizabeth; Their charter being dated in 1600, and renewed by James I. in 1610.

Their first fleet, sent out in 1600, brought back so rich a cargo, that in a few years they numbered twenty ships.

King James I. to shew how much he had its interest at heart, sent several embassies to the great Mogul, the kings of Persia, Japan, and other princes, to make treaties of commerce in his name, and that of the *company*; some of which subsist still: the king of Persia, in particular, granted the *company* several extraordinary favours, in recompence for the service the English had done him, in assisting him to expel the Portuguese from Ormus; who, by means of their lodgment there, usurped the whole commerce of the Persian gulf.

But its chief favours the *company* received at the hands of king Charles II. who, by a charter in 1668, granted them the port and island of Bombay, with all the rights thereof as surrendered to him by the Portuguese: only reserving to himself the sovereignty and homage thereof, with a yearly acknowledgment of ten pounds *per ann.* in gold. Another charter, confirming preceding ones, was granted in 1676. In 1673, he also granted them in like manner, the Island of St. Helena, belonging to him by right of conquest from the Dutch, who had before taken it from the English. By a fifth charter, purposely designed against interlopers, in 1683, he granted them a power to erect a court of judicature, composed of a lawyer, and two merchants, in all their places, settlements, factories, &c. to judge of seizures, and all marine disputes; as also about bargains, exchanges, &c. and even of all crimes committed on the high seas, or in the countries and territories of the *company*, in Asia, Africa, and America: the whole, however, agreeable to the usages and custom of merchants, and the laws of England. In 1671, the same prince granted the *company* a charter, which contained a confirmation of the ancient ones of king James I. and queen Elizabeth; or rather, a new charter, granting them abundance of privileges, which they had not before enjoyed: this charter is properly the basis of the *company*, and that whereon are founded all the rights, and the policy of the *new company*, afterwards established in 1698.

All these five charters of king Charles II. were confirmed by king James II. in 1686, especially the last, which was enforced with new sanctions; particularly, the article of exclusion; which, in the time of king Charles, had been but little regarded, but was now enforced with such rigorous prohibitions, that all interlopers seemed for ever excluded.

No person may trade thither, until sufficient security be given to the commissioners of the customs, that all the goods caused by them to be there laden, shall be brought, without breaking bulk, to some port in England, which security the English East India *company* are to give under their common seal, after the rate of 2500l. for every hundred tons they are let at, for every ship by them sent out, according to the form prescribed, 9 and 10 W. III. cap. 44. sect. 68. 6 Anne, cap. 3. sect. 1.

the shares or subscriptions of the *company* were originally only of 50*l.* sterling: but the directors having a considerable dividend to make in 1676, it was agreed to join the profit to the original, instead of withdrawing it; and thus the shares were doubled, and became of 100*l.* sterling.

The first capital was only 369,891*l.* sterling, and 5*s.* which being thus doubled, amounted to 739,782*l.* sterling, and 10*s.* to which, if the profits of the *company* to the year 1685, viz. 963,639*l.* sterling be added, the whole stock will be 1,703,422*l.* sterling.

The *company* had, from time to time, undergone great losses; first, in 1682, by the loss of Bantam, out of which they were driven, and had their magazines plundered by the Dutch; under pretence of assisting sultan Agui against sultan Agom, his father. Secondly, about the same time, when the great numbers of interlopers, to whom king Charles II. too easily granted permissions, lowered their shares *cent. per cent.* Thirdly, by the war, which the *company* maintained in the Indies, against the great Mogul; wherein it was obliged to abandon the factory of Surat, and to retire to Bombay; on which occasion king James II. granted them a new charter in 1686, being their sixth since the restoration. But still she repaired her stock, and supported the reputation of her commerce, till the Revolution which hapened soon after: when the war, and the incredible losses the *company* sustained by the French privateers, &c. put it into so desperate a condition, that appearing scarce possible to be supported, a new one was erected.

The charter of the new East-India *company* was of the year 1698. Its stock was so considerable, and the subscriptions so very ready, that, in two years time, the *company* had forty vessels equipped in its service; which was double of what the old one ever had; and sent to the Indies (*communibus annis*) at least a million sterling in silver; whereas the former had never sent above 500,000*l.* After the two *companies* had subsisted a few years in a separate state, means were contrived to unite them, which was effected by an indenture tripartite between the queen and the two *companies*, in 1702, and they were perfectly consolidated in 1708, when a new charter of union was granted them, under the name of the *United Company of Merchants of England trading to the East-Indies*; their whole capital consisting of 3,200,000*l.* which being since expired, another charter, with new powers, was granted them in 1726, and their exclusive privileges prolonged for thirty-three years, in 1730, viz. to 1769; and it was continued, in the 17th year of Geo. II. to the year 1780, in which year another million was advanced by this *company* to the public.

The cargo which the *company* sends to the East-Indies, is chiefly silver, bullion, and pieces of eight; with cloth, either scarlet or blue; they also send some iron, and lead. The returns from the Indies are chiefly silks, both raw and manufactured, cottons, calicoes, mullins, drugs, tea, coffee, china-ware, rice, sago, red-wood, salt-petre, pepper, Carmania wool, indigo, &c.

For the œconomy and policy of the *United Company*, all persons, without exception, are admitted members of it, natives and foreigners, men and women; with this circumstance, that 1000*l.* in the stock of the *company* gives the owner a vote in the general courts; and 2000*l.* qualifies him to be chosen a director.

The directors are twenty-four in number, including the chairman and deputy-chairman, but may be re-elected for four years successively. They have a salary of 150*l.* *per ann.* and the chairman and deputy chairman of 200*l.* The meetings, or courts of directors, are to be held, at least, once a week, but are commonly oftener; and they are summoned as occasions require.

Out of the body of directors are chosen divers committees, who have the peculiar inspection of certain particular branches of the *company's* business; as, the committee of correspondence, committee of buying, committee of treasury, committee of warehouses, committee of shipping, committee of accounts, committee of private trade, committee of house, committee of law suits, committee of military fund, and committee to prevent the growth of private trade.

No persons are allowed to have any private trade, except the *company's* officers, and seamen sent to India on board their ships; who are regularly licenced to carry out, and bring back commodities to a certain value, greater or less according to their rank. But at their return, their cargoes are to be consigned to the *company*, and sold by them at their next sale. The Jews also, and other dealing in diamonds, are allowed to trade for themselves by the *company's* ships, on allowing so much *per cent.* to the *company* for freight.

The *company* has three principal settlements, viz. Fort William in Bengal; Fort St. George, on the coast of Coromandel; and the island of Bombay; each of which has several subordinate factories.

The factories dependent on Fort William; are Cassimbuzar, Patna, Dacca, Ballasore, and Jugdea.—Those on Fort St. George, are Fort Marlborough, Fort St. David, Vizagapatam, Ingeram, and Madipollam.—Those on the island of Bombay, are Gombroom, Surat, Anjingo, and Tellicherry.

COMPANY, Royal African, established for the commerce of the coasts of Guinea, is governed much like that of the East-Indies. Its privilege is exclusive: it sends out yearly, ten or a dozen ships, of about 150 tons, loaden with old and new draperies, and with iron-works, scissars, knives, musquets, cottons, and other less considerable merchandizes.

The returns are in gold-dust, elephants teeth, wax, and leathers: but the best article of its commerce is NEGROES, which it sends to Jamaica, Barbadoes, and other English isles in America; frequently, even to the ports of New Spain. See ASSIENTO, &c.

Though England began to trade to Africa as early as the year 1536, and several voyages were made to Guinea in 1588, and some following years, for the importation of gold and elephants teeth, nothing like a *company* was formed till the year 1588, when queen Elizabeth granted a patent of exclusive privilege to certain persons for ten years. In 1618, king James I. established a *company* by charter, which was soon dissolved. Another *company* was erected by charter of Charles I. in 1631, which meet with little success; but the demand for negroes in the English American plantations increasing, a third *company* was established by a charter granted 1662, in favour of the duke of York; securing to him the commerce of all the country, coasts, islands, &c. belonging to the crown of England, or not possessed by any other Christian prince; from Cape Blanco in 20° N. lat. to the Cape of Good Hope in 34° 30' S. lat. The charter was soon after returned into the king's hands by the duke, and revoked, by consent of the parties associated with him in the enterprise; in consequence of which, the fourth and last exclusive *company* was established and incorporated by letters patent in 1672. A capital was soon raised of 111,000*l.* and this new *company* improved their trade and increased their forts; but after the Revolution in 1689, this trade was laid open. In 1698, all private traders to Africa were obliged by stat. 9 and 10 Will. to pay ten *per cent.* in order to assist the *company* in maintaining their forts and factories. However, this assistance proving ineffectual, an annual sum of 10,000*l.* was granted by the British parliament in 1730, for this purpose. In 1758, parliament established an African *company* under new regulations; and in 1752, absolutely, the old *company*, having given them a pecuniary satisfaction for their charter, lands, forts, slaves, &c. and vested their forts and factories, &c. in the new *company*, which is empowered to arm and train military forces at their forts, and to punish offences, so as not to extend to life or limbs, and to erect courts of judicature for mercantile and maritime bargains, &c.

The direction of the affairs of this *company* is referred to a committee of nine persons, chosen annually by the freemen at London, Bristol, and Liverpool, who purchase their freedom, and right of election, by the payment of 40*s.* and accountable to the board of trade and plantations.

For the incorporation of this *company*, and the regulations concerning it, see 23 Geo. II. cap. 31.—25 Geo. II. cap. 40.

COMPANY, Hamburgh, is the oldest trading establishment in the kingdom; though not always known by that name, nor restrained to those narrow bounds under which it is now confined. It was first called, the *Company of Merchants trading to Calais, Holland, Zealand, Brabant, and Flanders*: then it acquired the general title of *Merchant-adventurers of England*; as being composed of all the English merchants who traded to the Low Countries, the Baltic, and the German ocean. Lastly, it was called the *Company of Merchant-adventurers of England trading to Hamburgh*.

This *company*, as well as some others in England, built on its model, is very different from those above mentioned; and differs widely from the ordinary plan and system of such societies. In effect, this is not a society of dealers, each furnishing a part of the sum to constitute the capital stock of the *company*; but a mere association, or body of merchants, who have nothing in common, but the grant and privilege of trading to Hamburgh, and some other cities of Germany; each managing his own commerce, and trading on his own foundation: only observing a certain discipline, and some regulations, which none but the *company* can establish, or change.

This *company* was first incorporated by Edward I. in 1296; and established again, by charter, in 1406, under the reign of king Henry IV. It was afterwards confirmed, and augmented with divers privileges, by many of his successors;

successors; among the rest, by Henry V. in 1413; Henry VI. in 1422; Henry VII. in 1493, 1505, and 1506; Henry VIII. in 1509, 1517, and 1536; Edward VI. in 1547; queen Mary, in 1553; Elizabeth, in 1564, and 1586; James I. in 1605; and Charles II. in 1661. But of all these charters, there are, properly, none but those of Henry IV. Henry VII. Elizabeth, James, and Charles, that are of any importance, or that give the *company* any thing new; the rest being only confirmations. Before the charter of Henry IV. all the English merchants, who trafficked out of the realm, were left to their own discretion, and managed their affairs with foreigners as might be most for their respective interests; without any regard to the general commerce of the nation.

Henry observing this disorder, endeavoured to remedy it, by uniting all the merchants in his dominions into one body; wherein, without losing the liberty of trading each for himself, they might be governed by a *company* still subsisting; and be subject to regulations, which should secure the general interest of the national commerce, without prejudice to the interest of particulars. With this view, he granted all the merchants of his states, particularly those of Calais, then in his hands, a power of associating themselves into a body politic, with directors and governors, both in England and abroad; to hold assemblies, both for the direction of business, and the deciding of controversies among merchants; make laws; punish delinquents; and impose moderate duties and taxes on merchandizes, and merchants, to be employed in the service of the corporation.

These few articles of the charter of Henry IV. were afterwards much augmented by Henry VII. who first gave them the title of *Merchant-adventurers to Calais, Holland, &c.* gave them a power of proclaiming and continuing free fairs at Calais; and ordered, that to be reputed a member of the society, each person pay twenty marks sterling; and that the several members should attend the general meetings, or courts, appointed by the directors, whether at London, Calais, or elsewhere.

The inexecution of this last article and contempt of some of the rest, occasioning great inconveniences to the *company's* affairs, another charter was procured; whereby the pain of imprisonment was menaced, for those who should absent themselves from the meetings without lawful cause, or should disobey the laws. A petition being made to queen Elizabeth, in 1564, for an explanation of certain articles in the charter of Henry VII. and a confirmation of the rest granted by other kings; that princess, by a charter of the same year, declares, that to end all disputes, they should be incorporated anew, under the title of the *Company of Merchant-adventurers of England*; that all who are members of the former *company* should, if they desire it, be admitted members of this; that they should have a common seal; that they should admit into their society what other persons, and on what terms, they pleased; and expel them again on misbehaviour; that the city of Hamburg, and neighbouring cities, should be reputed within their grant, together with those of the Low Countries, &c. in that of the former *company*; that no member should marry out of the kingdom, nor purchase lands, &c. in any city beyond sea; and that those who do, shall be, *ipso facto*, excluded for ever.

Twenty-two years after this first charter, queen Elizabeth granted them a second; confirming the former, and further granting them a privilege of exclusion; with a power of erecting in each city within their grant, a standing council.

The woollen manufacture being the principal object of their application, they met with great opposition; first, from the Hanse, who forced them frequently to change their mart, or staple; and afterwards under king James I. who having erected a corporation in 1616, in favour of some private persons, who offered to set up a manufacture for dying and pressing cloths, &c. under pretence thereof, the company of merchant-adventurers were prohibited dealing therein. But that project not succeeding, and the charter being revoked two years afterwards, the merchant-adventurers, whose *company* had been dissolved two years before, were restored in 1617, to their ancient privileges, and a new charter was given them, confirming their exclusive rights: and allowing them to have officers in the several custom-houses, to have an eye that they were not prejudiced in their woollens, under pretence of the like merchandizes, which others were allowed to send to other parts. This charter of king James, is the last of those confirmed by Charles II. in the grand charter of 1661.

The revolutions which had happened in the Low Countries towards the end of the sixteenth-century, and which laid the foundation of the republic of Holland, having hindered the *company* from continuing their commerce

with their ancient freedom; it was obliged to turn it almost wholly to the side of Hamburg, and the cities on the German ocean: from which change some people took occasion to change its name to that of the *Hamburg Company*; though the ancient title of *Merchant-adventurers* is still retained in all their writings.

This society was greatly reduced, when its trade was laid open by William III.

COMPANY of Merchants of the Staple was incorporated by Edward III. Their factory was at Middleburgh, in Zealand; but the staple being removed, in 1389, to Calais, it was soon after, viz. in 1390, removed from thence to England.

COMPANY, Russia. This was first projected towards the end of the reign of king Edward VI. executed in the first and second years of Philip and Mary; but had not its perfection, till its charter was confirmed by act of parliament, under queen Elizabeth, in 1566. It had its rise from certain adventurers, who were sent in three vessels on the discovery of new countries; and to find out a north-east passage to China: these, falling into the White Sea, and making up to the port of Archangel, were exceedingly well received by the Muscovites; and at their return, solicited letters patent to secure to themselves the commerce of Russia, for which they had formed an association.

The charter was promised them by Edward VI. but he dying, was first dispatched by queen Mary, in 1555. By this charter, the association was declared a body politic, under the name of the *Company of Merchant-adventurers of England, for the discovery of lands, territories, islands, &c. unknown, or unfrequented.* Their privileges were, to have a governor, four consuls, and twenty four assistants, for their commerce; for their policy, to make laws, inflict penalties, send out ships to make discoveries, take possession of them in the king's name, set up the banner royal of England, plant them; and lastly, the exclusive privilege of trading to Archangel, and other ports of Muscovy, not yet frequented by the English.

This charter, not being sufficiently guarded, was confirmed by parliament in the eighth year of queen Elizabeth; wherein it was enacted, that in regard the former name was too long, they should now be called *Company of English Merchants for discovering new trades*; under which name, they should be capable of acquiring and holding all kinds of lands, manors, rents, &c. not exceeding a hundred marks *per ann.* and not held of her majesty; that no part of the continent, island, harbour, &c. not known or frequented before the first enterprise of the merchants of their *company*, situate to the north, or north-west, or north-east of London; nor any part of the continents, islands, &c. under the obedience of the emperor of Russia, or in the countries of Armenia, Media, Hyrcania, Persia, or the Caspian sea, should be visited by any subjects of England, to exercise any commerce without the consent of the said *company*, on pain of confiscation. The said *company* shall use no ships in her new commerce, but those of the nation; nor transport any cloths, ferges, or other woollen stuffs, till they have been dyed and pressed. That in case the *company* discontinue of itself to unload commodities in the road of the abbey of S. Nicolas, in Russia, or some other port, on the north coasts of Russia, for the space of three years, the other subjects of England shall be allowed to traffic to Narva, while the said *company* discontinues its commerce into Russia, only using English vessels.

This *company* subsisted with reputation almost a whole century, till the time of the civil wars. It is said, the czar then reigning hearing of the murder of King Charles I. ordered all the English in his states to be expelled; which the Dutch taking the advantage of, settled in their room. After the Restoration, the remains of the *company* re-established part of their commerce at Archangel, but never with the same success as before: the Russians being now well accustomed to the Dutch merchants, and merchandize.

This *company* subsists still, nearly on the foot of that of Hamburg, and the northern and Turkey *companies*; i. e. each member thereof trafficks for himself, and on his own foundation; only paying an acknowledgement of 12 or 13l. sterling, besides some other dues imposed, from time to time, for the occasions of the *company*, and the commerce in general. It is under the direction of a governor, four consuls, and assistants.

COMPANY, North Sea, or as some, more agreeably to its charter, call it *Eastland Company*, is established on similar ground with that of Hamburg; from whence it appears to have been dismembered.

Its charter is dated in the year 1579. By the first article the *company* is erected into a body politic, under the title of the *Company of Merchants of the East*; to consist of Englishmen, all real merchants, who have exercised the business

business thereof, and trafficked through the Sound, before the year 1568, into Norway, Sweden, Poland, Livonia, Prussia, Pomerania, &c. as also Revel, Coningsberg, Dantzick, Copenhagen, &c. excepting Narva, Muscovy, and its dependencies. Most of the following articles grant them the usual prerogatives of such *companies*; as a seal, governor, courts, laws, &c.

The privileges peculiar to this *company* are, that none shall be admitted a member, who is already a member of any other *company*; nor any retail dealer at all. That no merchant qualified, be admitted without paying six pounds thirteen shillings and six pence. That a member of another *company*, desiring to renounce the privileges thereof, and to be received into that of the East, shall be admitted *gratis*; provided he procures the same favour for a merchant of the East, willing to fill his place. That the merchant-adventurers who never dealt in the East, in the places expressed in the charter, may be received as members of the *company* on paying forty marks; that, notwithstanding this union of the *Adventurers of England* with the *Company of the East*, each shall retain its rights and privileges. That they shall export no cloths but what are died and pressed, except a hundred pieces *per annum*, which are allowed them *gratis*.

This charter was confirmed by Charles I. in 1629, with this addition; that no person, of what quality soever, living in London, should be admitted a member, unless he were free of the city.

This *company* was complained of as a monopoly, and first curtailed by legal authority in 1672; and since the declaration of rights in 1689, exists only in name; but still continue to elect their annual officers, who are a governor, deputy, and twenty-four assistants.

COMPANY, Turkey, or Levant COMPANY. This *company* is established on similar ground with that of the *Hamburgh Company*, i. e. there is no common fund, wherein the adventurers deposit their stock to make one single commerce; but the commerce thither is free, each member trafficking for himself; but observing the rules and orders of the *company*; and all contributing, occasionally, towards the common expences.

This flourishing body had its rise under queen Elizabeth, in 1581. James I. confirmed its charter in 1605, adding new privileges. During the civil wars, there happened some innovations in the government of the *company*; many persons having been admitted members, not qualified by the charters of queen Elizabeth and king James, or that did not conform to the regulations prescribed. Charles II. upon his restoration, endeavoured to set it upon its ancient basis; to which end, he gave them a charter, containing not only a confirmation of their old one, but also several new articles of reformation.

By this the *company* is erected into a body politic, capable of making laws, &c. under the title of the *Company of Merchants of England trading to the seas of the Levant*. The number of members is not limited, but is ordinarily about three hundred. The principal qualifications required is, that the candidate be a freeman of London, and a wholesale merchant, either by family or by serving an apprenticeship of seven years. Those under twenty-five years of age pay 25*l.* sterling at their admission; those above, twice as much. This fine was reduced by act of parliament, in 1753, to 20*l.* and the privilege of admission extended to every British subject. Each makes oath, at his entrance, not to send any merchandizes to the Levant, but on his own account; and not to consign them to any but the *company's* agents, or factors. This restriction is likewise enlarged by the above mentioned statute.

The *company* has a court, or board, at London, which is composed of a governor, deputy-governor, and fifteen directors, or assistants; who are all actually to live in London, or the suburbs. They have also a deputy governor in every city, and port where there are any members of the *company*. The assembly at London sends out the vessels, regulates the tariff for the price at which the European merchandizes sent to the Levant are to be sold; and for the quality of those returned. It raises taxes on merchandizes, to defray impositions, and the common expences of the *company*; presents the ambassadors which the king is to keep at the Porte, elects two consuls for Smyrna and Constantinople, &c.

One of the best regulations of the *company* is, not to leave the consuls, or even ambassador, to fix the imposition on vessels for defraying the common expences (a thing fatal to the *companies* of most other nations); but to allow a pension to the ambassador, and consuls, and even to the chief officers; as secretary, chaplain, interpreters, and janissaries; that there may not be any pretence for their raising any sum at all on the merchants, or merchandizes.

In extraordinary cases, the consuls, and even the ambassador, have recourse to two deputies of the *company*, residing in the Levant: or, if the affair be very important, they assemble the whole body. Here are regulated the presents to be given, the voyages to be made, and every thing to be re-deliberated; and on the resolutions here taken, the deputies appoint the treasurer to furnish the moneys, &c. required.

It is true, the ambassador and consul may act alone on these occasions; but the pensions being allowed them on condition of declining them, they choose rather to sit still.

The ordinary commerce of this *company* employs from twenty to twenty-five vessels, carrying from twenty-five to thirty pieces of cannon.

The merchandizes exported thither are, cloths of all kinds and colours, pewter, lead, pepper, cochineal, and a great deal of silver, which they take up at Cadiz: the returns are in raw silk, galls, camblets, wools, cottons, Morocco leather, ashes for making glass and soap, and several gums and medicinal drugs.

The commerce of this *company* to Smyrna, Constantinople, and Scanderoon, is not esteemed much less considerable than that of the East-India *company*; but is doubtless more advantageous to England; because it takes off much more of the English manufactures than the other, which is chiefly carried on in money.

The places reserved for the commerce of this *company* are, all the states of Venice, in the gulf of Venice; and the state of Ragusa; all the states of the grand seignor, and the ports of the Levant and Mediterranean; excepting Carthage, Alicant, Barcelona, Valencia, Marseilles, Toulon, Genoa, Leghorn, Civita Vecchia, Palermo, Messina, Malta, Majorca, Minorca, and Corsica; and other places on the coasts of France, Spain, and Italy.

COMPANY, South Sea. Many take this *company*, established by stat. 9 Anne, 1711, to have been originally intended rather as a political contrivance for raising a fund of money, to serve in the pressing occasions of the state, than as a real establishment for the sake of commerce. For the nation being exhausted of money by the long wars with France, it is no wonder the phantom of a new *company* should be raised, to bring in the subscriptions of the monied men; as the only expedient to be supplied with money without dissatisfying the people, already worn out with subsidies, &c.

The total capital of this *company* was at first 9,177,957*l.* 14*s.* 4*d.* but in 1715 it was enlarged to ten millions, at an interest of 6 *per cent.* reduced in 1717 to 5 *per cent.* The capital was again increased in 1719 to 11,746,844*l.* 8*s.* 10*d.* And if the plan of 1720 had perfectly succeeded, the amount of the capital would have been 43,411,399*l.* 6*s.* 11*d.* $\frac{1}{2}$. See FUND.

Be this as it will, it is certain, the ministry never thought seriously, during the whole course of the war, about making any settlement on the coasts of South America; which was the thing wherewith the people were first flattered: besides, that the fund having been apparently perverted to defray the expences of the war, its value was so lowered, that it must, in all probability, have sunk outright, but for the unexpected help it met with in 1713.

By the treaty of Utrecht, the business of the French *Assiento company*, which was to furnish the Spanish West-Indies with negroes, was resigned to the English, in favour of the *South Sea Company*; which, by this turn, relieved itself from its languishing situation, and became in a condition to vie with the most flourishing *companies* of commerce in England. See ASSIENTO.

The *South Sea Company*, who, without changing their name, took on them the *Assiento*, or farm of negroes, preserved the same establishment, until the peace of Aix-la-Chapelle, in 1748; and their vessels disembarked their negroes, which they had purchased through all the coasts of Africa within their grant, at Buenos Ayres.

The *company*, it is certain, set out with good success; and there was room to hope still better; since, besides that the value of their stock, the first five years, rose faster, in proportion, than that of any other *company*; his majesty, after purchasing 10,000*l.* sterling therein, was pleased to condescend to be their governor, or first director. This *company* is under the management of a sub-governor, deputy-governor, and twenty-one directors, chosen every three years; for which a qualification of 2000*l.* stock is sufficient, and for an elector 500*l.* For what remains of the history of this *company*, with that fatal train of romantic *companies* it drew after it; see BUBBLE.

COMPANY, Greenland. See GREENLAND.

COMPANIES, West India, or those of the English colonies in North America, are of a lower class than those above mentioned; and too numerous to be here described.

Their names are, the *Virginia Company*, *New England*, *New*

New York, Pennsylvania, New Scotland, Massachusetts, Connecticut, Bermudas, Tobago, and Carolina Companies. To these may be added the *Hudson's Bay Company*, incorporated by charter in 1670. This company, by a joint-stock carries on a considerable trade to the factories established in Hudson's Bay and Straits, whither the natives repair with their fine beavers, furs, &c. It is under the direction of a governor, deputy-governor, and seven assistants.

COMPANY, Scotch Darien. This was established with good prospect at Edinburgh, in 1695, for the commerce of South America. In 1698, they sent an armament and a colony, which they endeavoured to establish in the isthmus of Darien, which parts North and South America; but the English ministry not thinking proper to avow and support the first successes of the company, which had alarmed Spain, ever jealous of this part of her territories, the Scotch colony was dispersed by the Spaniards in 1699, and thus vanished the best project that ever was formed for disputing with that nation the possession of those countries, from which she pretends to exclude all other nations.

COMPANY, Dutch East-India, had its rise in the midst of the struggle which that people had for their liberty; for the Spaniards having forbid all commerce with them, and shut up all their ports; necessity inspired some Zealanders to seek a new north-east passage to China.

This enterprize proving unsuccessful to three several armaments in 1594, 1595, and 1596, a second company was formed, under the name of the *Company of remote Parts*; which, in 1595, took the ordinary route of the Portuguese to the Indies, and returned in two years and a half's time, with little gain, but good hopes.

This company, and a new one just established at Amsterdam, being united, equipped other fleets: and these occasioned other companies at Amsterdam, Rotterdam, in Zealand, &c. insomuch that the states soon began to apprehend they might be prejudicial to each other. Under this concern, they called all the directors of the several companies together, who all consented to the union, the treaty whereof was confirmed by the states in 1602, a very remarkable epocha, as being that of the most solid and celebrated establishment of commerce that ever was in the world.

Its first capital was six millions six hundred thousand guilders. It had sixty directors, divided into several chambers; twenty in that of Amsterdam, twelve in that of Zealand, fourteen in that of Delft and Rotterdam, and a like number in those at Sluys and Horn. As each grant expires, the company is obliged to procure a new one, which it has already done four times since the first; viz. one in 1623, for forty-one years, like the first; another for twenty-one years, commencing in 1643; and a third in 1665, for forty years; a fourth in advance, commencing in 1698, to end in 1740. Each grant costs the company a considerable sum: that of 1647, cost 1,600,000 guilders, and the two following ones more: that of 1698, was confirmed by a placard of the states-general, granting them an exclusive privilege, which was prolonged in 1761 for thirty years more.

Their factories, residences; &c. in the East-Indies, are very numerous; reaching from the Persian gulf to the coast of China: the principal is that of Batavia, the centre of their commerce: here resides their general, with the state and splendor of a sovereign prince; making war and peace with the eastern kings and emperors at pleasure.

The other more considerable factories are, Taiouam on the coast of China, Nangisac in Japan, Malacca, Surat, Amboyna, Banda, Siam, Moluccos, &c. several on the coast of Coromandel, and at Ispahan, Cape of Good Hope, &c. in all, they number forty factories, and twenty-five fortresses. They have the whole trade of the spicery in their own hands.

COMPANY, Dutch West-India, established in 1621, with an exclusive privilege to trade twenty-four years along the coasts of Africa, between the tropic of Cancer and Cape of Good Hope; and in America, from the south point of Newfoundland, through the straits of Magellan, that of Le Maire, or others, to the straits of Anian, both in the North and South Sea.

The directors are divided into five chambers (as in the East-India company), out of which, nineteen are chosen for the general direction of affairs. In 1647, the company renewed its grant for twenty-five years; but it was scarce able to hold out the term, on account of its great losses and expences in taking the bay of Todos los Santos, Fernambuc, and the greatest part of Brasil, from the Portuguese. The weakness of this company, which had several times in vain attempted to be joined to that of the East-Indies, occasioned its dissolution at the expiration of its grant.

In 1674, a new company, composed of the ancient pro-

prietors and their creditors, was settled in the same rights and establishment with the former; and still subsists, though considerably decayed. Their first capital was about six millions of florins. Its principal establishments are, one at Cape Verd, another on the Gold Coast of Africa, at Tabago, Curassao, &c. in America.

COMPANY, Dutch North, has no exclusive privilege; the advantage of its patent being of another kind, and very considerable.

There are also, in Holland, companies for the Baltic sea, the fishery of Nova Zembla, Davis's straits, and Greenland: yet none of their fisheries are interdicted to private traders; all the difference between these and the companies consisting in this, that the former may not go ashore to cut their fish in pieces, and melt their lard: but must bring their luggage to Holland.

COMPANY, Dutch Levant. In strictness, there is no Levant company in Holland: but the commerce of the private traders is so considerable, that the state has taken the regulation thereof on itself.

To this end, they have established a chamber of direction at Amsterdam, composed of six deputies, and a register; who, under the burgomasters, take care of every thing relating to the commerce of the Mediterranean; especially that of Smyrna and Constantinople.

This company names the consuls, appoints the number and strength of convoys, terminates differences among the traders, and has also a right, on occasion, to add new regulations to the old ones; though those be of no force, till confirmed by the states-general.

COMPANY, French East-India, was established in 1664, with an exclusive privilege to trade for fifty years in all the seas of the East-Indies and South Sea; no adventurer to be admitted without a thousand livres in stock; and foreigners, who have twenty thousand livres in stock, to be reputed regnicoles.

The patent grants them the island of Madagascar; and the king to be at one fifth of the expence of the three first armaments, without interest; the principal to be refunded in ten years; or, if the company find it loses on the whole, the loss to fall on the king's side.

The capital fund of the company, which was mostly furnished by the king, was seven or eight millions of livres, but was to have been fifteen millions.

In effect, though no means were wanting to support the company, yet it still drooped, and still struggled; till, having subsisted ten years without any change in its form, and being no longer able to discharge its engagements, there were new regulations concerted, but to little purpose. At length, things not being disposed for a new East-India company, nor much good to be expected from the old one, in 1708, the ministry allowed the directors to treat with the rich traders of St. Malo, and resign to them their privilege under certain conditions. In the hands of these last, the company began to flourish.

Its chief factory is at Pondicherry, on the coast of Coromandel: this is the residence of the director-general; the other factories are inconsiderable. The merchandizes which the company brings into France are, silks, cottons, spices, coffee, rice, salt-petre; several kinds of gums and drugs, wood, wax, printed calicoes, muslins, &c.

COMPANY, French West-India, was established in 1664. Their charter gave them the property and seigniority of Canada, Acadia, the Antilles islands, isle of Cayenne, and the Terra Firma of America, from the river of the Amazons to that of Oroonoko; with an exclusive privilege for the commerce of those places, as also of Senegal, and the coasts of Guinea, for forty years, only paying half the duties.

The stock of the company was so considerable, that, in less than six months, forty-five vessels were equipped: wherewith they took possession of all the places in their grant, and settled a commerce: yet this only subsisted nine years. In 1674, the grant was revoked, and the countries above reunited to the king's dominions, as before; the king reimbursing the actions of the adventurers. This revocation was owing partly to the poverty of the company, occasioned by its losses in the wars with England; which had necessitated it to borrow above a million; and even to alienate its exclusive privilege for the coasts of Guinea: but also to its having in good measure answered its end, which was to recover the commerce of the West-Indies from the Dutch, who had torn it from them: for the French merchants, being now accustomed to traffic to the Antilles, by permission of the company, were so attached to it, that it was not doubted they would support the commerce after the dissolution of the company.

COMPANY, French Mississippi, was first established in 1684, in favour of the chevalier de la Salle; who having projected it in 1660, and being appointed governor of the fort of Frontiguac, at the mouth of that river, travelled

Over the country in the year 1683, and returned to France to solicit the establishment. This obtained, he set sail for his new colony, with four vessels loaded with inhabitants, &c. but entering the gulf of Mexico, he did not, it seems, know the river that had cost him so much fatigue; but settled on another river, unknown; where his colony perished by degrees; so that, in 1685, there were not a hundred persons remaining. Making several expeditions to find the Mississippi, he was killed in one of them by a party who mutinied against him; whereupon the colony was dispersed and lost. M. Hiberville afterwards succeeded better: he found the Mississippi, built a fort, and settled a French colony there; but he being poisoned, it is said, by the intrigues of the Spaniards, who feared such a neighbour, in 1712, M. Crozat had the whole property of trading to the French territories, called Louisiana, granted him for fifteen years.

COMPANY of the West. In 1717, the sieur Crozat surrendered his grant; and in the same year a new company, was erected, under the title of *Company of the West*: to which besides every thing granted to the former company, was added the commerce of beaver, enjoyed by the Canada company from the year 1706, but expiring in 1717. In this establishment an equal view was had to the finances and the commerce of the nation; and, accordingly, part of the conditions of its establishment regarded the settling a colony, a trade, &c. the other the vending part of the bills, called *bills of state*; which could no longer subsist on their present footing. The former are no more than are usual in such establishments: for the latter, the actions are fixed at five hundred livres; each payable in bills of state; the actions to be esteemed as merchandize, and in that quality to be bought, sold, and trafficked. The bills of state, which make the fund of the actions, to be converted into yearly revenue. To put the finishing hand to the company, in 1717, its fund was fixed at an hundred millions of livres; which being filled, the cash was shut up.

COMPANY, India. The junction of the former company with that of Canada, was immediately followed by its union with that of Senegal; both in the year 1718, by an arret or council, which at the same time granted the new company the commerce of beavers, and made it mistress of the negro, or Guinea trade, to the French colonies in America.

Nothing was now wanting to its perfection, but an union with the East India company, and with those of China and St. Domingo, which was effected; with the two first in 1719, and with the third in 1720. This union of the East India and China company with the company of the West, occasioned an alteration of the name; and it was henceforth called the *India company*.

The reasons of the union were the inability of the two former to carry on their commerce, the immense debts they had contracted in the Indies, especially the *East Company*; complaints whereof had been sent to court by the Indians, which discredited the company so that they durst not appear any longer at Surat: lastly, the little care they took to discharge their engagements; and their having transferred their privilege to the private traders of St. Malo, in consideration of a tenth in the profits of the returns of their ships.

The ancient actions of the company of the West, which were not at par when this engagement was projected, before it was completed, were risen to 300 per cent. which unexpected success gave occasion to conclude the new actions of the united companies would not bear less credit. The concurrence of subscribers was so great, that in a month's time there were above fifty millions subscribed for: the first twenty-five million actions which were granted to the India company, beyond the hundred millions of stock allowed the company of the West, being filled as soon as the books were open: to satisfy the earnestness of the subscribers, the stock was increased by several arrears to three hundred millions. Credit still increasing, the new actions rose to 1200 per cent. and those of the ancient company of the West to 1900 per cent. an exorbitant price, to which no other company ever rose. Its condition was now so flourishing, that in 1719 it offered the king to take a lease of all his farms for nine years, at the rate of three millions five hundred thousand livres per ann. more than had been given before; and also to lend his majesty twelve hundred millions of livres to pay the debts of the state. These offers were accepted; and the king, in consideration hereof, granted them all the privileges of the several grants of the companies united to that company, to the year 1770, on condition, however, of discharging all the debts of the old East India company, without any deduction at all. The loan of twelve hundred millions not being sufficient for the occasions of the state, was augmented, three months afterwards, with three hundred millions more; which, with the former

loan, and another of one hundred millions before, made sixteen hundred millions; for which the king was to pay interest at the rate of three per cent.

The duke of Orleans, in February 1720, did the company the honour to preside in their assembly, where he made several proposals to them on the part of the king: the principal of these was, that they should take on them the charge and administration of the royal bank. This was accepted of; and Mr. Law, comptroller-general of the finances, was named by the king *Inspector-General of the India Company and Bank united*.

This union, which, it was proposed, should have been a mutual help to both those famous establishments, proved the fatal point from whence the fall of both commenced: from this time, both the bank-bills and the actions of the company began to fall: in effect, the first perished absolutely, and the other had been drawn along with it, but for the prudent precautions taken for its support.

The first precaution was the revoking the office of inspector-general, and the obliging Mr. Law to quit the kingdom: the ancient directors were discarded, and new ones substituted; and, to find the bottom of the company's affairs, it was ordered, they should give an account of what they had received, and disbursed, both on the account of the company, and of the bank, which they had had the management of near a year. Another precaution to come at the state of the company, was by endeavouring to distinguish the lawful actionaries from the Mississippi extortioners; whose immense riches, as well as their criminal address in realizing their actions, either into specie or merchandize, were become so fatal to the state; in order, if possible, to secure the honest adventurers in their stock. To this end, an inquisition was made into their books, &c. by persons appointed by the king; and the new directors, or, as they were called, *regisseurs*, began seriously to look about for their commerce abroad. The French have had several other companies; some whereof have fallen of themselves, the rest upon the expiration of their grants: as, the

Bastion COMPANY of France, which was, at first, only a simple association of two merchants of Marseilles in the fifteenth century, for fishing of coral in the gulf of Stora-Courcours on the coast of Barbary, on the frontiers of Algiers and Tunis. Having obtained leave of the sultan Solyman II. to make an establishment, and having likewise treated with the Moorish princes of the country; in 1561 they built a little fort, called the *Bastion of France*, whence the company took its name.

The first undertakers not being successful, a new grant was obtained of Mahomet III. in 1604, to new undertakers: in 1628, it began to flourish, and the colony consisted of eight hundred people: but the death of their governor in 1633, gave them a blow they never recovered.

Several of the companies have since endeavoured to set the fishing of coral on its ancient footing, but hitherto in vain.

COMPANY, Guinea, was established in 1685. Its grant expired in 1705; but it continued its trade of negroes, by the king's permission, under the name of *Assiento company*, to the year 1713; when, by the treaty of Utrecht, that trade was surrendered to the English South Sea company; which see.

COMPANY, Assiento. See *Guinea COMPANY*, and *ASSIENTO*.

COMPANY, Cape Verd, the same with that of Senegal, under another name: it was established in 1664, before the company of the West; but the coasts of Africa being included in the grant of this last, we hear no more of the Cape Verd company till the year 1675, when it rose afresh under the title of *Company of Senegal*. It was farther confirmed in 1681; but, being unable to pay its debts, was dissolved in 1696.

COMPANY, French South Sea, is the same with the *Assiento company*. See *ASSIENTO*.

COMPANY, Canada, established in 1628, for the commerce of castor-skins, &c. Its grant expiring in 1717, it was united to the company of the West; which see.

COMPANY, Acadia, established in 1683. Its grant expiring in 1703, and the war, &c. preventing a new one, the colony was neglected; and was taken by the English in 1710, and confirmed to them by the treaty of Utrecht.

COMPANY, French Levant, established in 1670; but its privilege revoked in 1684.

COMPANY, French North, established in 1669, and expiring with its grant in 1690.

COMPANY, St. Domingo, established in 1698, for fifty years, carried on with honour to the year 1720, and then united to the India company.

COMPANY, Danish North, was established at Copenhagen in 1647. Its establishments are very considerable in Norway; besides which, it sends vessels to Waranger, whence they

they convey their merchandizes by land into the Danish Lapland; and by sledges drawn by rein-deer, into the Muscovite Lapland. It also sends others for Borandai and Siberia; where its agent takes them up, and conveys them, in like manner, on sledges, to Panigorod, the capital of this part of the Muscovite empire.

The commodities it sends thither are rixdollars, tobacco, and linens; it returns nothing but furs and skins.

COMPANY, *Danish Iceland*, established in the same year with the North Company: its chief factory is at Kirkebar, a large town in that island.

COMPANY, *Danish East India*, established about the year 1617; their chief factory is at Tranquebar, whither they send two or three vessels every year.

COMPANY, *Levant, of the Genoese*, established in 1664, and confirmed by the Porte; notwithstanding the opposition of the French.

Its chief commerce was to be in pieces of five sols, which the Genoese had before furnished the Turks withal, though in the French name, and under their banner: they were now to do it under their own banner; and accordingly, while the humour of these pieces lasted, as they served not only for money, but were likewise used by the Greek and Turkish women of the islands, as ornaments in their head-dress, at the bottom of their vests or petticoats, which were covered with them, the company succeeded well enough: but that money being afterwards decried in 1670, the company has languished ever since; and can now scarce support a miserable commerce.

For a more particular account of the rise and progress of most of the above mentioned companies, see Anderson's Hist. of Commerce.

COMPANY, in *Sea Language*, denotes the whole crew of a ship, including her officers.

COMPANY of ships, is used for a fleet of merchant-vessels, who make a kind of charter-party among themselves; whereby, under several clauses and conditions tending to their common safety, they engage not to quit one another, but to defend each other reciprocally, during their voyage.

These associates, in the Mediterranean, are called *conserves*. The chief conditions of the charter-party are, that such and such shall be owned admiral, vice-admiral, and rear-admiral; and those that bear no guns, shall pay so much *per cent.* of their cargo, for the expences of the admiral; that such and such signals shall be observed; that if they be attacked, the damages shall be reimbursed by the company in general, &c.

COMPANY, *Rule of, or Fellowship*, in *Arithmetic*, is a rule whereby we discover, or ascertain, the share of the profits, or losses, belonging to the several partners, or associates, in any enterprize, in proportion to the stock each contributed thereto, and the time that stock was in bank. See FELLOWSHIP.

COMPANY, in *War*, denotes a little body of infantry, commanded by a captain.

The French use the word indifferently for the horse, or foot; but the English appropriate the term troop to a company of horse. See TROOP.

Companies of foot of the British establishment commonly used to consist of one captain, one lieutenant, one ensign, three serjeants, three corporals, two drums, and forty-nine private centinels; in all sixty. But, of late years, companies have been increased, by the addition of twenty centinels, to eighty men. Ten, and sometimes twelve companies, make a regiment.

A company in the guards is eighty private men. See REGIMENT and GUARDS.

In the French guards the company is a hundred and twenty; in the Swiss guards two hundred.

Companies not embodied into regiments are called *independent companies*. The French also have their *free companies*, who never enter the body of any regiment; and *companies of ordnance*, who in like manner never enter the body of a regiment, but consist of the gendarmes and light horse. They were instituted by Charles VII. who chose out fifteen captains, under each of whom were to be a hundred lances, or men at arms, each man at arms to receive pay for six persons, himself among the number; the rest to be three archers on horseback, a cutler, and a servant.

COMPANY, *artillery*. See ARTILLERY.

COMPARATES, COMPARATA, in *Logic*, the terms or subjects of a COMPARISON; or the two things compared to each other.

COMPARATIONE—*Punctum ex* COMPARATIONE. See PUNCTUM.

COMPARATIONIS *Homogeneum*. See HOMOGENEUM.

COMPARATIVE *Anatomy*. See ANATOMY.

COMPARITIVE *Degree*, in *Grammar*, is an inflexion between positive and superlative degrees; whose effect is, to set a thing above or beneath the level of another.

The Latins expressed their *comparative degree* by particular termination of their adjectives, and particles; wherein they are followed by the English, though by few others of the modern languages.

The French form most of their *comparatives* by adding the particles *plus*, *moins*, and *aussi*; the Italians, by *piu*, *meno*, &c. as the thing is to be raised, lowered, or equalled to another.

COMPARISON, the relation of two persons or things, considered as opposed, or set against each other, in order to find wherein they agree or differ; or wherein one has the advantage of the other.

COMPARISON of Ideas, an act of the mind, whereby it compares its IDEAS one with another, in respect of extent, degree, time, place, or any other circumstances.

This operation of the mind is the ground of RELATIONS.

Brutes seem not to have this faculty in any great degree: they have, probably, several ideas distinct enough; but cannot compare them farther than as to some sensible circumstances annexed to the objects themselves: the power of comparing general ideas, which we observe in men, they have not, as we may probably conjecture.

COMPARISON, in *Rhetoric*, is a FIGURE, or rather PLACE, in speech, whereby two things are considered with regard to some third, which is common to them both.

Thus, Cicer. Topic. *Cato licuit sequi bellum civile, igitur & Cicero licet.* It was allowed Cato to engage in the civil wars, therefore it may be allowed Cicero: where, to engage in the civil wars, is common to both.

There are three kinds of comparison; the first *a majori*, i. e. from the major to the minor, as that of Cicero against Anthony, *Quid feceris domi tue, cum aliena tam sis insolens?* Or that of Terence, *Quem feret, si parentem non fert suum?* From the same place, Ovid endeavours to appease Cæsar.

*Cur ego posse negem leniri Cæsaris iram
Cum videam mites hostibus esse Deos?*

The second, *a minori*, i. e. from the minor to the major: thus Cicero, *Majoris nostri sepe mercatoribus, ac navicatoribus injuriosius tractatis, bella gesserunt; vos tot civium Romanorum millibus uno nuntio atque uno tempore necotis, quorandem animo esse debetis?*

The third *a pari*; as when we contend, that what obtains in one thing, ought to obtain in another of the same kind: *It was a law, that he who killed his father should be sewed up in a sack, and thrown into a river; therefore he who killed his mother deserves the same punishment.*

*Capto tuam, pudet heu, sed capto, Maxime, canam:
Tu capis alterius; jam sumus ergo pares.
Mune salutatum venio, tu diceris esse,
Ante salutatum: jam sumus ergo pares, &c.*

Mart. lib. ii.

COMPARTIMENT, or COMPARTMENT, a design composed of several different figures, disposed with symmetry; to adorn a parterre, a ceiling, pannel of joinery, or the like.

COMPARTMENTS, in *Gardening*, are beds, plats, borders, and walks, laid out according to the form of the ground, and depend more on a good fancy, than on any set of rules, for their construction. They are also sometimes merely diversities or knots of flower-gardens or parterres, of which there is an infinite variety, according to the fancy of the designer. Plain compartments are pieces of ground divided into equal squares and flower-beds, marked out by lines, and made of regularly equal length and breadth. Some allow to these squares borders of two feet broad, if the plot of ground be small, and, if larger of three feet, and edge the borders with box, or with upright hardy thyme: the alleys up between are to be laid with sand or gravel, and kept clean weeded.

A COMPARTMENT of tiles, is an arrangement of white and red tiles varnished, for the decoration of the covering of a roof.

The term of *compartment* is also used in painting. The Turkish and Moorish paintings are only compartments: the fine bindings of books are in compartments, &c.

COMPARTIMENT, *alley of*. See ALLEY.

COMPARTIMENT, in *Heraldry*. See QUARTERING.

COMPARTITION, in *Architecture*, the useful and graceful distribution of the whole ground-plot of an edifice, into rooms of office, and of reception, or entertainment. *Compartition* makes one of the great divisions of the art of BUILDING.

COMPASS. The mariners, or nautical compass, is an instrument used by pilots, to direct the course of their ships.

It consists of a box which includes a magnetical needle, that always turns to the north; allowing for a little declination, which is various in various places, and even at various times, in the same place. See VARIATION.

In the middle of the box is fixed a perpendicular pivot, which bears a card, or pasteboard, on whose upper surface are described several concentric circles; the outmost of which is divided into 360 degrees; the other into 32 points, answering to the 32 winds; each point being $11^{\circ} 15'$: the four principal, viz. N. S. E. and W. are called cardinal points, and the names of the others are compounded of these.

In the centre of this card is fitted a brass cone, or cap, a little concave, which plays at liberty on the pivot; and along, in the thickness of the card, is fitted the needle, which is covered over with a glass, that its motions may be observed: the whole is inclosed in another box, where it is sustained by brass hoops, to keep the needle horizontal. See DIP. See it represented, *Tab. Navigation*, fig. 1.

The needle is made of a thin plate of steel, in form of a lozenge: the middle being cut out, so as to leave nothing but the extremities and an axis in the middle, to which the cap is fitted. See NEEDLE.

The compass has been sometimes observed to be disturbed by the electricity of its glass cover, and this from so slight an application of the finger as was barely necessary to wipe off a little dust. The same glass, rubbed a little more with the finger, a bit of muslin, or of paper, would attract either end of the needle, so as to hold it to the glass for several minutes, far out of the due direction, according to that part of the glass which was most excited. And when the needle, after adhering to the glass, has dropt loose, and made vibrations, those would not be affected, as usual, by that point where the needle should rest but either be made all on one side, or be very unequally divided, by means of some remains of electrical virtue in that part of the glass which had attracted the needle, until at length, after fifteen minutes or more, all the electricity being discharged, the magnetical power took place. Phil. Trans. N^o 480. p. 243.

The remedy for this inconvenience, is to moisten the surface of the glass; a wet finger will do it immediately and effectually. Phil. Trans. N^o 480. p. 244.

There is reason to believe, that glass does at times become in some degree attractive, without any friction at all, and may possibly be excited by great concussions in the air; such as thunder, or the discharge of great ordnance, and so may disturb the compass.

The effect of ELECTRICITY and LIGHTNING in giving polarity to magnetic NEEDLES, and likewise in reversing them, has been long since, and frequently observed by Dr. Franklin. S. Beccaria, and others. See AURORA BOREALIS, MAGNETS, &c.

The mariner's compass, with a chart, is much less dangerously moved than the common compass with a bare needle. And the deeper or farther distant the needle hangs below the glass, the less disturbance it is likely to receive.

The minute, irregular, reciprocating variations, which have been observed in the directions of dipping and horizontal needles, and mentioned in the Philosophical Transactions, may probably have been caused by the glasses which covered the instruments made use of. Phil. Trans. N^o 425. N^o 480. p. 245.

The invention of the compass is usually ascribed to Flavio de Meli, or Flavio Gioia, a Neapolitan, about the year 1302; and hence it is, that the territory of Principato, which makes a part of the kingdom of Naples, where he was born, bears a compass for its arms.

Others say, that Marcus Paulus, a Venetian, making a journey to China, brought back the invention with him in 1260. What confirms this conjecture is, that at first they used the compass in the same manner as the Chinese still do; i. e. they let it float on a little piece of cork instead of suspending it on a pivot. It is added, that their emperor Chiningus, a celebrated astrologer, had a knowledge of it 1120 years before Christ. The Chinese only divide their compass into twenty-four points.

Fauchet relates some verses of Guyot de Provence, who lived in France about the year 1200, which seem to make mention of the compass under the name of *marinette*, or *mariner's stone*; which shews it to have been used in France near a hundred years before either the Melphite or Venetian. The French even lay claim to the invention, from the fleur de lys, wherewith all nations still distinguish the north point of the card.

With as much reason Dr. Wallis ascribes it to the English, from its name *compass*, whereby most nations call it; and which he observes is used in many parts of England to signify a circle.

Though the mariner's compass has been long in use, the best construction of it was attended with many inconveniences, till the late improvement which it has received from the invention and experiments of Dr. Gowin Knight, and the farther emendation of Mr. Smeaton.

This chiefly consists in the shape and temper of the NEEDLE; in the discovery of proper means for restoring the loss of magnetism in a voyage, and of contrivances to hinder the card from being greatly affected by the various motions of the ship. However, these contrivances have been found too delicate to encounter the shocks of a tempestuous sea. See *Tab. Navigation*, fig. 2.

A B represents the outer wooden box; C and D are two milled nuts, by means of which the axis of the inner box G H, and ring E F, by which it is supported, are lifted from their edges on which they move; in order to increase the friction; and prevent the too great vibrations occasioned by the motion of the ship in a high sea; I is one of the axes of the inner box, by which it is suspended on the ring E F; K L is the magnet, or needle, of a regular parallelepiped shape, and M a small beam of ivory, best seen in fig. 3. that confines the cap to its place. The cap is ivory, so turned, as to be capable of receiving a small bit of agate, which is ground concave, and polished on that side, where it forms the apex of the hollow cone in the cap: the under part of it is represented by C, fig. 4. The card, fig. 3. is a single varnished paper, reaching as far as the outer circle of figures, which is made of thin brass, with its edge turned down at right angles, as in A and B, fig. 4. to the plane of the card, to make it more stiff; F and G are two brass screws that fix the brass edge, &c. to the needle. This brass ring is designed to support the card, and to throw the weight of it as near the circumference as possible, for preventing the effect of the friction at the centre; and is divided into degrees and half-degrees; which divisions are determined by means of a cat-gut line O, fig. 2. stretched perpendicularly about the inside of the box, and as near the brass edge as possible. The brass ring, by being placed below the card, and the needle above it, seems to bring the centre of gravity low enough to admit of the cap being put under the needle, so that a hole in the needle is unnecessary; and the needle, being above the card, is more easily touched with a pair of bars. Underneath the card are two small weights, D and E, fig. 4. which represents the back side of the card, sliding on two wires, placed at right angles to each other; which by being moved nearer to, or farther from the centre, counterbalance the dipping of the card in different latitudes, and serve to restore the equilibrium of it, when by any other means it happens to be got too much out of level. The pedestal, that supports the card, is represented in fig. 5. It contains a sewing needle fixed in two small grooves to receive it, by means of the collet C; and at D the stem of the pedestal is filed into an octagon, that it may be the more easily unscrewed. P Q R S, fig. 2. represents an index, which may be occasionally added at the top of the inner box, and will serve for all altitudes of the object. It consists of a bar, equal in length to the diameter of the inner box, and at each end is furnished with a perpendicular style, having a slit parallel to its sides. One slit, to which the eye is applied, is narrow, and the other is wider, with a small cat-gut stretched up the middle of it, and continued horizontally from the top of one style to that of the other; and there is also a line drawn along the upper surface of the bar. This line, the narrow slit, the horizontal cat-gut, and the perpendicular one, are in the same plane, perpendicular to the horizon, when the inner box is at rest, and hangs freely. The index does not move round; but is always placed on so as to answer the same side of the box. When the index is not wanted for use, it may be taken off, and placed in two pieces, T and V, properly notched to receive it. W represents the handle of the box. The instrument thus constructed serves the purposes of an azimuth and amplitude compass. If the sun's azimuth is desired, turn the wooden box, till the shadow of the horizontal thread, or that of the perpendicular thread in one style; or the light through the slit in the other, falls upon the line on the index bar, or vibrates to an equal distance on each side of it; then observe the degree for the azimuth, marked on the brass edge by the cat-gut line; reckoned on the outward circle of figures: and the situation of the index bar; with regard to the card and needle, will shew on what quarter of the compass the object is placed. If the rays of the sun are strong enough to cast a shadow, place the eye behind the narrow slit in one of the styles; and turn the box till some part of the horizontal or perpendicular thread appears either to intersect the centre of the sun or to vibrate to an equal distance on each side of it, and let the degree cut by the nonius be observed. If the sun's amplitude were to be observed; the general process is the same; excepting that the degrees are to be numbered on the inner circle of figures on the card, which are the complements of the outer, to 90. Phil. Trans. vol. xlvi. art. 18 and 19. p. 505—517.

Knight's compasses are now generally used in the royal navy; and it may be reasonably expected that they should be provided for merchant ships as well as others.

The use of the sea-Compass is obvious. For, the course a ship is to sail in, being known by the chart; and the compass so placed, as that the two parallel sides of the square box be disposed according to the length of the ship, i. e. parallel to a line drawn from the head to the stern; the rudder is to be directed accordingly; v. gr. if the course be found on the chart between the south-west and south-south-west, i. e. south-west $\frac{1}{4}$ to the south; turn the stern so as that a line from the south-west, $\frac{1}{4}$ south, exactly answer the mark on the middle of the side of the box. This is all that is required.

The azimuth COMPASS differs from the common sea compass in this; that there is fastened, on the round box wherein the card is, a broad circle AB (*Tab. Navigation, fig. 6*) one half whereof is divided into 90 degrees, and those subdivided diagonally into minutes: *bc* is an index moveable on *b*, having a sight, *ba*, erected thereon, and moving on a hinge. From the upper part of the sight, to the middle of the index, is fastened a fine hypothenusal lute string *ae*, to give a shadow on the line in the middle of the index. The circle AB is crossed at right angles with two threads, from the extremities whereof are drawn four lines on the inside of the round box: there are also four lines drawn at right angles to each other on the card. The round box fitted with its card, graduated circle, and index, is hung in the brass hoops BB, and these hoops fastened to the square box CC.

Captain Middleton mentions an *azimuth compass* of his own contrivance, by which the variation may be determined with greater ease and exactness than by any others in use before the year 1738. He has given no particular description of it, but only shews the manner of using it. It carries a telescope with a vertical hair in it, and may be conveniently used for taking the sun's altitude by reflection. *Phil. Trans. abr. vol. viii. p. 374.*

The use of the azimuth COMPASS is for finding the sun's magnetical azimuth, or amplitude, and thence the variation of the compass. If the observation be for an amplitude at sun-rising, or for an azimuth before noon, apply the centre of the index *bc* to the west point of the card, within the box; so that the four lines of the edge of the card, and those on the inside of the box, may meet. If the observation be for the sun's amplitude setting, or an azimuth in the afternoon, turn the centre of the index right against the east point of the card, and make the lines within the box concur with those on the card; the instrument thus fitted for observation, turn the index *bc* towards the sun, till the shadow of the thread *ae* fall directly on the slit of the sight, and on the line that is along the middle of the index: then will the inner edge of the index cut the degree and minute of the sun's magnetical azimuth from the north or south. But note, that if, when the compass is thus placed, the azimuth is less than 45° from the south, and the index *bc* turned towards the sun, it will pass off the divisions of the limb: the instrument, therefore, in this case, must be turned just a quarter of the compass, i. e. the centre of the index must be placed on the north or south point of the card, according as the sun is from you; and then the edge will cut the degree of the magnetic azimuth, or the sun's azimuth from the north, as before. See *AMPLITUDE*, and the article *COMPASS*, above.

The sun's magnetical amplitude thus found, the variation of the needle is thus determined.

Being out at sea the fifteenth of May, 1717, in 45° north latitude, the tables give me the sun's latitude 19° north, and his east amplitude $27^\circ 25'$ north: by the *azimuth compass*, I find the sun's magnetical amplitude at his rising and setting: and find he rises, v. gr. between the 62d and 63d degree, reckoning from the north towards the east point of the compass, i. e. between the 27th and 28th degree, reckoning from the east.

The magnetical amplitude, therefore, being here equal to the true one, the needle has no variation; but if the sun at his rising should have appeared between the 52d and 53d degree from the north towards the east; his magnetical amplitude would then have been between 37 and 38 degrees, i. e. about ten degrees greater than the true amplitude: therefore, the needle would vary about 10 degrees north-easterly.

If the magnetical east amplitude found by the instrument should be less than the true amplitude, their difference would shew the variation of the needle easterly.

If the true east amplitude be southward, as also the magnetical amplitude, and this last be the greater; the variation of the needle will be north-west; and *vice versa*. What has been said of north-east amplitudes, holds also of south-west amplitudes. And that of south-east amplitudes, holds of north-west amplitudes.

Lastly, if amplitudes be found of different denomina-

tions, v. gr. if the true amplitude be six degrees north, and the magnetical amplitude five degrees south; the variation, which in this case is north-west, will be equal to the sum of the magnetical and true amplitudes: understand the same for west amplitudes.

The variation may likewise be found from the azimuth; but in that case, the sun's declination, latitude of the place, and his altitude, must be given, that his true azimuth may be found.

This instrument is also useful in settling the ship's wake, in order to find the *LEE way*; and also to find the bearings of head-lands, and other objects.

COMPASS is also an instrument of considerable use in *SURVEYING* land, *DIALLING*, &c.

Its structure, in the main, is the same with that of the *mariner's compass*: consisting like that, of a box and needle: the principal difference consists in this, that instead of the needle's being fitted into the card, and playing with it on a pivot, it here plays alone; the card being drawn on the bottom of the box, and a circle divided in 360 degrees on the limb. See *Tab. Surveying, fig. 5*. This instrument is of obvious use to travellers, to direct them in their road: and to miners, to shew them what way to dig, with other considerable uses.

1. *To take the declination of a wall by the COMPASS.* Apply that side of the compass whereon the north is marked along the side of the wall; the number of degrees over which the north end of the needle fixes, will be the declination of the wall, and on that side: v. gr. if the north point of the needle tends towards the north, that wall may be shone on by the sun at noon; if it fix over fifty degrees, counting from the north towards the east, the declination is so many degrees from north towards east.

But since the needle itself declines from the north towards the west, with us, 13° ; it must be noted, that to retrieve the irregularity, 13° are always to be added to the degrees shewn by the needle, when the declination of the wall is towards the east; on the contrary, when the declination is towards the west, the declination of the needle is to be subtracted.

2. *To take an angle with the COMPASS.* Suppose the angle required be DAE. (*Tab. Surveying, fig. 4.*) apply that side of the compass whereon the north is marked to one of the lines, AD; when the needle rests, observe the degrees at which its north point stands, which suppose 80° : so many degrees does the line decline from the meridian. In the same manner take the declination of the line AE, which suppose 215° ; subtract 80° from 215, the remainder is 135: which subtracted from 180, there will remain 45° ; the quantity of the angle required.

But if the difference between the declination of the two lines exceed 180° ; in that case, 180° must be subtracted from that difference; the remainder then is the angle required.

For the method of laying this down on paper, see *PLOTTING*.

Note, in measuring angles by the compass, there needs not any regard be had to the variation; that being supposed the same in all the lines of the angles.

3. *To take a plot of a field by the COMPASS.* Suppose the field, A, B, C, D, E, (*Tab. II. Surveying, fig. 19.*) for the greater accuracy let there be two sights fitted to the meridian line of the compass, place it horizontal, and through the sights look along the side AB, or a parallel line to it; applying the eye to the sight at the south point of the compass. Draw a rough sketch of the field by the eye, and on the corresponding line enter down the degree to which the needle points, which suppose 90° ; measure the length of the side, and enter that too, which suppose 10 chains. In this manner proceed with all the rest of the sides and angles of the field; the sides, which suppose 70, 65, 70, 50, 94 fathom; and the angles, which suppose 30, 100, 130, 240, 300 degrees. To protract the field, set down the several angles observed, one after another, and subtract the lesser from the next greater: thus you will have the quantity of the several angles, and the length of the lines that include them. For the rest, see *PLOTTING*, and *PROTRACTING*.

Note, all the angles of the figure taken together, must make twice as many right angles; abating two, if no mistake have been committed.

COMPASS of proportion. See *SECTOR* and *PROPORTION*.

COMPASS dials, are small dials, fitted in boxes, for the pocket, to shew the hour of the day by direction of the needle; which indicates how to place them right by turning the dial about, till the cock or style stand directly over the needle, and point to the northward: but these can never be very exact, because of the variation of the needle itself. See *DIAL*.

COMPASS saw. See *SAW*.

COMPASSES, or pair of COMPASSES, a mathematical instrument used for the describing of circles, measuring lines, &c. The common compasses consist of two branches

or legs, or iron, brass, or other metal, pointed at bottom; and joined by a rivet, whereon they move, as on a centre. Those are reckoned the best, part of whose joint is steel, and where the pin on which the point turns is a steel screw. The points should also be made of hardened and polished steel. In some the points are fixed; in others they may be taken off, and a drawing-pen, pencil, or dotting wheel, substituted in their room.

The invention of *compasses* is ascribed to Talaus, nephew of Dædalus by his sister, whom the poets say Dædalus killed out of envy. We have *compasses* now of various kinds and contrivances, accommodated to the various uses they are intended for: as,

COMPASSES of three legs. Their structure is like that of the common *compasses*, setting aside the excess of a leg, which has a motion every way: their use is to take three points at once, and so to form triangles: to lay down three positions of a map to be copied at once, &c.

COMPASSES, Beam, consist of a long branch, or beam, carrying two brass cursors; the one fixed at one end, the other sliding along the beam, with a screw to fasten it, on occasion. To the cursors may be screwed points of any kind; whether steel, for pencils, or the like. It is used to draw large circles, to take great extents, &c.

Bow-COMPASSES, or Bows, are a small sort of *compasses* that shut up in a hoop, which serves for a handle. Their use is to describe arcs, or circumferences of circles of very small radius.

COMPASSES, Caliber. See CALIBER.

COMPASSES, Clock-makers, are very substantial, serving to cut pasteboard, brass, &c. jointed like the common *compasses* with a quadrant, or bow, as the *spring compasses*, only its use different; as serving here to keep the instrument firm at any opening.

COMPASSES, cylindrical and spherical, used in taking the diameter, thickness, or caliber of round, or cylindric bodies; such as cannons, pipes, &c. They consist of four branches joined in a centre; two of them circular, and two flat, a little bent at the ends.

To use them, one of the flat points is put within the cannon, the other without: the two opposites points shew the thickness. See CALIBER *Compasses*.

There are also *spherical compasses*, differing in nothing from the common ones, but that their legs are arched; serving to take the diameters of round bodies, &c.

COMPASSES, Elliptic. Their use is to draw ellipses, or ovals of any kind: they consist of a beam AB (*Tab. Geometry, fig. 2.*) about a foot long, bearing three cursors; to one of which may be screwed points of any kind: to the bottom of the other two are rivetted two sliding dove-tails, adjusted in grooves made in the cross branches of the beam. The dove-tails having a motion every way, by turning about the long branch, go backwards and forwards along the cross: so that when the beam has gone half-way about, one of these will have moved the whole length of one of the branches; and when the beam has got quite round, the same dove-tail has got back the whole length of the branch. Understand the same of the other dove-tail.

Note, the distance between the two sliding dove-tails is the distance between the two foci of the ellipse; so that by changing that distance, the ellipse will be rounder or slenderer. Under the ends of the branches of the cross are placed four steel points to keep it fast.

The use of this *compass* is easy; by turning round the long branch, the ink, pencil, or other point, will draw the ellipses required. Its figure shews both its use and construction.

COMPASSES, German, whose legs are a little bent outwards towards the top; so that, when shut, only the points meet.

COMPASSES Hair, so contrived within side, as to take an extent to a hair's breadth.

COMPASSES, Lapidary's a piece of wood in form of the shaft of a plane, cleft a-top, as far as half its length; wherewith they measure the angles, &c. of the precious stones, as they cut them. In the cleft is a little brass rule, fastened there, at one end, by a pin; but so that it may be moved in a manner of the bevel; with this kind of square they take the angles of the stones, laying them on the shaft as they cut them.

COMPASSES, Proportional, are those whose joint lies between the points terminating each leg: they are either *simple* or *compound*. In the former sort the centre is fixed, so that one pair of these serves only for one proportion. *Compound proportional compasses* consist of two branches (*Tab. Geometry, fig. 3.*) each pointed at either end with steel: the length of the branches is cut through, for a cursor to slide up and down; in the middle of which cursor is a screw, serving to join the branches, and to fix them at any point required.

On the one leg are divisions, serving to divide lines into

any number of equal parts, for reducing of figures, &c. On the other are numbers, for inscribing any regular polygon in a circle proposed.

The use of the first is easy: Suppose v. gr. a right line required to be divided into three equal parts; push the cursor till the screw be just on the figure 3; where fixing it, take the length of the given line between the longest parts of the legs: the distance between the two shortest will be one third of the given line. In the same manner may the line be divided into any other number of parts.

For the use of the line of polygons: Suppose, v. gr. a pentagon required to be inscribed in a circle: push the cursor till the middle of the screw be against 5, the number of sides in a pentagon; between the shortest parts of the legs take the semidiameter of the circle: the legs thus opened, the distance between the points of the longest parts will be the side of the pentagon to be inscribed in the circle. And thus for a figure of any other number of sides.

Proportional COMPASSES with the sector lines. The structure of these is so like that of the common *proportional compasses*, only a little nicer, that it needs no particular description. See *Tab. Geometry, fig. 4.*

The lines on the first face are the line of lines, marked *lines*: it is divided into 100 equal parts, every tenth numbered: and the line of chords, which goes to 60° , is marked *chords*.

On the other face are a line of sines to 90° , and a line of tangents to 45° . On the other side are the tangents from 45° to $71^\circ 34'$; on the other, secants from 0° to $70^\circ 30'$.

For the use of these compasses: 1. To divide a line into any number of equal parts, less than 100: divide 100 by the number of parts required: slip the cursor till the line on the sliding dove-tail be against the quotient on the line of lines: then, the whole line being taken between the points of the *compasses* most remote from the centre; the aperture of the other will shew the division required. 2. A right line given, supposed to be divided into 100 parts, to take any number of those parts: slip the line on the sliding dove-tail to the number of parts required: the whole line being taken between the points farthest from the centre, the aperture of the other two will include the number of divisions required. 3. The radius being given, to find the chord of any arch under 60° : slip the line on the sliding dove-tail to the degrees required on the line of chords: the radius being taken between the points farthest from the centre of the cursor; the aperture of the other line will be the chord required, provided the number of degrees be greater than 29° : if it be less, the aperture taken from the radius will leave the chord required. 4. If the chord of an arch under 60° be given, and the radius required: slip the line on the dove-tail to the degrees given on the line of chords: the given chord being taken between the two points next the cursor, the aperture of the other will be the radius required. 5. The radius being given, to find the sine of any number of degrees. Slip the line on the dove-tail to the degree on the line of sines whose sine is required: the radius taken between the points farthest from the cursor, the aperture of the other will give the sine of the angle required. But if the sine sought be less than 30° , the difference of the apertures of the opposite points will be the sine required. 6. The radius being given, to find the tangent of any number of degrees under 71° : if the tangent required be under $26^\circ 30'$, then slip the line on the dove-tail to the degree proposed on the tangent line; the radius taken between the points farthest from the cursor, the aperture of the others will be the tangent or the degrees required: if the tangent required be above $29^\circ 30'$, but under 45° ; the line on the cursor must be slipped to the degrees given on the tangent line: then the radius being taken between the points farthest from the cursor; the aperture of the others will be the tangent. If the tangent required be greater than 45° , but less than $56^\circ 20'$, slip the notch on the tangent side of the turned cheek to the degree 0 in the tangent line on the side of the *compass*: the radius taken between the points farthest from the cursor; the difference between the aperture of the other, and these, added together, will be the tangent required. Thus, for the tangents of other degrees under 71° .—After the like manner may the secant of any number of degrees under 71° be found.

Mr. Heath, a mathematical instrument-maker in London, constructed a pair of *proportional compasses*, in 1746, with a curious and useful contrivance for preventing the shorter legs from changing their position, when these *compasses* were used. It consisted of a small beam soldered to a screw, and running parallel to the leg of the *compasses*, nearly of the length of the groove; in this

beam a slit was made, which admitted of a sliding-nut, the other end of which fell into a hole in the bottom of the screw, belonging to the great nut of the *compasses*. The screw-pin of the beam passed through an adjustor by means of which the mark on the slider might be brought exactly to any division. But the *proportional compasses* have been much out of use since the invention of the *SECTOR*.

COMPASSES, Spring, or Dividers, are made of hardened steel, the head arched: which, by its spring, opens the *compasses*; the opening being directed by a circular screw, fastened to one leg, and let through the other, worked with a nut.

COMPASSES, Triangular. See **COMPASSES of three legs**, and **TRIANGULAR**.

COMPASSES, Trisecting, the invention of M. Tarragoni, for the trisection of angles, geometrically.

The instrument consists of two central rules, and an arch of a circle of 120 degrees, immovable; with its radius: the radius is fastened with one of the central rules, like the two legs of a sector, that the central rule may be carried through all the points of the circumference of the arch. The radius and rule must be as thin as possible, and the rule fastened to the radius hammered cold, to acquire an elasticity: the breadth of the other central rule must be triple the breadth of the radius. In this rule there is a groove, with a dove-tail, to be fastened on it, for its motion: in the centre of each rule must likewise be a hole. See the *Journ. des Sçavans*, Sept. 1688.

COMPASSES, Turn-up, a late contrivance to save the trouble of changing the points: the body is like the common *compasses*; towards the bottom of the legs, without-side, are added two other points, beside the usual ones; the one carrying a drawing pen-point, the other a port-crayon, both adjusted so as to turn round, and so be in the way of use, or out of it, as occasion requires.

The points of small *compasses* are tempered by a lamp and blow-pipe, heating them red-hot; when cold, they are hard: the larger are tempered by a charcoal-fire and a blow-pipe, heating them to a cherry-colour, then plunging them in water.

See M. Bion's *Construction and Uses of Mathematical Instruments*, by Stone; and Robertson's *Treatise on the same subject*.

COMPASSING, in *Naval Architecture*, a term used to denote such pieces of timber as are incurvated into the figure of an arch.

COMPASSING the king's death, in *Law*. See **TREASON**.

COMPASSION, COMMISSERATION, in *Ethics*, a mixed passion, compounded of love and sorrow, and excited by the sight or recital of distress. Hobbes makes this a merely selfish passion, and defines it, as being fear for ourselves; Hutcheson resolves it into **INSTINCT**; but Dr. Butler much more properly considers *compassion* as an original, distinct, particular affection in human nature. Hobbes of Human Nature, chap. ix. sect. 10. Hutcheson's *Enquiry into Moral Good and Evil*. Butler's *Sermons*, Serm. v. and vi.

COMPATIBLE, something that may suit, or consist with another. See **INCOMPATIBLE**.

COMPENDIUM, an abstract, **EPITOME**, or reduction of a large matter into a little compass.

COMPENSATION, an action whereby any thing is admitted as an equivalent to another.

COMPENSATION, in the *Civil Law*, is a kind of right, whereby a debtor pursued by his creditor, for the payment of a debt, demands that the debt may be compensated with what is owing him by the creditor.—*Compensation* is equivalent to payment, and answers to that which is called **SET-OFF**, in common law.

COMPERTORIUM, in the *Civil Law*, denotes a judicial inquest made by delegates, or commissioners to find out, and relate the truth of a cause.

COMPEIENCE, or COMPETENCY, in *Law*, the authority, or right, of a judge, for taking cognizance of any matter. See **JURISDICTION**.

COMPETENT witnesses. See **WITNESS**.

COMPETENTES, in *Church History*, an appellation given to the *catechumens*, when, being sufficiently instructed in the Christian religion, they required **BAPTISM**.

COMPITA, in *Zoology*, a name by which some have called the *colymbus major*, or **FISANELLE**, the great Venetian diver.

COMPITALIA, or COMPITALITIA, feasts held among the ancients in honour of the *lares*.

The word comes from *compitum*, a *cross-way*; because the feast was held in the meeting of several roads.

The *compitalia* are more ancient than the building of Rome. Dionysius Halicarnassensis, and Pliny, indeed say, that they were instituted by Servius Tullius; but this only signifies, that they were then introduced into Rome.

Notwithstanding what Dion relates, that the *compitalia*

were celebrated a little after the Saturnalia, and that the Roman calendar fixes them on the twelfth of January, it appears that they had not fixed any day; at least, not in the time of Varro, as is observed by Casaubon.

The feast being thus moveable, the day whereon it was to be observed, was proclaimed every year. It was ordinarily held on the fourth of the nones of February, i. e. on the second of that month. Macrobius observes, that they were held not only in honour of the *lares*, but also of *mania*, *madness*. The priests who officiated at them were slaves and liberti; and the sacrifice was a sow. They were re-established, after a long neglect, by Tarquin the Proud, on occasion of an answer of the oracle, *That they should sacrifice heads for heads*, i. e. that for the health and prosperity of each family, children were to be sacrificed: but Brutus, after expelling the kings, in lieu of those barbarous victims, substituted the heads of garlick and poppy; thus satisfying the oracle, which had enjoined *capita*, *heads*, at an easier rate.

During the celebration of this feast, each family placed at the door of their house, the statue of the goddess *Mania*: they also hung up at their doors figures of wool, representing men and women: accompanying them with supplications that the *Lares* and *Mania* would be contented with those figures, and spare the people of the house.

As for slaves, in lieu of the figures of men, they offered balls or fleeces of wool. Servius Tullius ordered, that the slaves who assisted at the *compitalia*, should be free during the whole time of the feast. Augustus ordered the slaves of the *Lares*, placed in the cross ways, to be adorned with flowers twice a year.

COMPLAINANT, in *Law*, a **PLAINTIFF**, or one who prefers a *complaint* against another, to be relieved by justice or equity.

COMPLEMENT, Arithmetical. See **ARITHMETICAL**.

COMPLEMENT, in *Astronomy*, is used for the distance of a star from the zenith; or the arch comprehended between the place of the star above the horizon, and the zenith.

COMPLEMENT of the course, in *Navigation*, is the number of points the course wants of 90 degrees, or eight points; viz. of a quarter of the compass.

COMPLEMENT of the curtain, in *Fortification*, that part of the anterior side of the **CURTIN**, which makes the **DEMI-GORGE**.

COMPLEMENT of the line of defence, is the remainder of the line of **DEFENCE**, after you have taken away the **ANGLE** of the flank.

COMPLEMENT, in *Geometry*, is what remains of a quadrant of a circle, or of ninety degrees, after any certain arch has been retrenched from it.

Thus, if an arch or angle be 30 degrees, we say its *complement* is 60 degrees, since $60 + 30 = 90$.

The arch and its *complement* are relatives; and are only used with regard to each other.

The sine of the *complement* of an arch is called the *co-sine*; of a tangent, the *co-tangent*, &c.

We sometimes also say the *complement of an angle*; meaning so much as it wants of a right angle, or of 90 degrees.

COMPLEMENTS of a parallelogram, are the two lesser parallelograms, made by drawing two right lines parallel to each side of a parallelogram, through a given point in the diagonal.

Such are the parallelograms C and M (*Tab. Geometry, fig. 1.*)—It is demonstrated, that in every parallelogram, the *complements* C and M are equal: for $Z + C + o = R + M + x$; as making up on each side the great triangles, made equal by the diagonal; of which, $Z = R$, and $o = x$ (because the diagonal makes them so); wherefore the remaining **PARALLELOGRAM** $C = M$.

COMPLEMENT of life, in the *Doctrine of Life Annuities*, is the number of years which a given life wants of 86. Thus 56 is the *complement* of 30, 36 of 50, &c. Mr. De Moivre supposes an equal decrement of life through all its stages till the age of 86, which he considered as the utmost probable extent of life. Thus, if there be 56 persons alive at 30 years of age, it is supposed that one will die every year, till, in 56 years, they will be all dead. The same will happen to 46 at 40, in 46 years, and thus for all ages. This hypothesis is so conformable to Dr. Halley's table, formed from his observations at Breslaw, that the value of lives deduced either from the hypothesis, or the table need not be distinguished; and it very much eases the labour of calculating them. De Moivre's *Treatise on Annuities*, annexed to his *Doctrine of Chances*, p. 265. Price's *Observations on Reversionary Payments* p. 2. See **LIFE-ANNUITIES**.

COMPLEMENT of an interval, in *Music*, is the quantity which it wants of an **OCTAVE**. See **INTERVAL**.

COMPLEX, a term ordinarily used as synonymous with *compound*; though, strictly speaking, there is some difference between them.

Complex is properly applied where a thing contains divers others: or consists of divers parts, not really distinct from

from one another; but only imaginarily, or in our conception.

In *Logic*, *Complex* is opposed to simple, and compound to single.

COMPLEX object. See **OBJECT**.

COMPLEX opposition. See **OPPOSITION**.

COMPLEX term, or *idea*, is a **TERM** or **IDEA** compounded of several simple or incomplex ones.

Thus, in the proposition, *A just God cannot leave crimes unpunished*; the subject of this proposition, viz. *a just God*, is a *complex term*, or stands for a *complex idea*, composed of two simple, or *incomplex* ones, viz. *God* and *just*. Mr. Locke observes, that though the mind be perfectly passive in the formation of simple ideas; yet it exerts several actions of its own about them, when once formed: and that by this means it is, that they become the materials and foundation out of which all our knowledge is framed.

These acts are chiefly three, viz. 1. The combining of several simple ideas into one compound one: and thus it is that all *complex* ideas are made.

2. The bringing two ideas, whether simple or *complex*, together; setting them by each other, and so viewing them, without uniting them into one; by which it gets its ideas of **RELATION**.

3. The separating several ideas from all other ideas that accompany them in their real existence: and thus all its general ideas are formed.

As simple ideas are observed to exist in several combinations united together; so the mind may consider them as united, not only as they are really united in external objects, but as itself has joined them: ideas thus made up of several simple ones put together, we call *complex*; as man, beauty, army, gratitude, &c.

Complex ideas, however compounded and decomposed, though their number be infinite, and their variety endless, may be all reduced under these three heads, viz. *modes*, *substances*, and *relations*; which see under their proper heads, **MODE**, **SUBSTANCE**, and **RELATION**. *Complex ideas* are often considered as single and distinct beings, though made up of several simple ideas; as body, spirit, &c.

COMPLEX proposition, in *Logic*, is that in which the subject, or predicate, or both, are made up of *complex terms*: and if the term added to the subject be essential or necessary to it, then it is called *explicative*; otherwise it is *determinative*, the adjoined term limiting the subject to a particular part of its extension. Some logical writers ascribe the *complexion* of a proposition, in some cases, to the copula, as in modal propositions; but this rather pertains to the predicate. See **Compound** and **Modal PROPOSITION**.

COMPLEX syllogism, is that in which the middle term is not connected with the whole subject, or the whole predicate in two distinct propositions, but is intermingled and compared with them by parts: e. g. The sun is a senseless being, the Persians worshipped the sun, therefore the Persians worshipped a senseless being.

COMPLEXI pars, in *Anatomy*, a name given by Riolanus, and others, to a muscle called by Albinus *biventer cervicis*, and by some the *complexus*.

COMPLEXIO, **COMPLEXION**, in *Metaphysics*, the union, or coalition of several things different from each other; either really, or only in our conception. See **COMPLEX**.

COMPLEXIO, in *Logics*, is sometimes applied to the second operation of the mind, viz. the judgment; considered as it affirms or denies any thing; such affirmation, &c. necessarily importing a combination of several things.

Complexio is sometimes also used by logicians in the sense of dilemma.

COMPLEXIO, in *Rhetoric*, &c. is a figure including a repetition, and a conversation at the same time; the sentence both beginning, and ending, with the same word.

Thus Tully: *Quis legem tulit? Nullus. Quis majorem partem populi suffragiis privavit? Nullus. Quis comitiis praefuit? Nullus.*

COMPLEXION, in *Physic*, is used for the temperature, habitude, or natural disposition of the body.

Some philosophers distinguish four general and principal *complexions* in man, viz. the *sanguine complexion*, which according to them, answers to the air; having the qualities thereof, as being hot, and moist. It takes its name from *sanguis*; because the blood is there supposed to be predominant.

The *phlegmatic complexion* takes its name from the pituita, or phlegm, in which it abounds; and corresponds to water; being cold and moist.

The *bilious*, or *choleric complexion*, takes its name from the bile, or choler: it is supposed of the nature of fire, hot and dry.

Lastly, the *melancholic complexion* partakes of the nature of earth, being cold and dry, But this sort of reasoning is now not much regarded.

COMPLEXUS, or *Par COMPLEXUM*, in *Anatomy*, is a pair of muscles, arising with six thin small tendons from the transverse processes of the vertebrae of the neck and thorax, growing fleshy in its ascent; again becoming tendinous about the middle; and again fleshy, where it is inserted laterally into the posterior part of the upper transverse line of the *os occipitis*, and the hind part of the *processus mastoideus*. See *Tab. Anat. (Myol.) fig. 7. n. 5*.

The former is called *complexus major*, and the latter *complexus minor*, or *mastoideus lateralis*. Winslow.

This last is often mistaken for a portion of the *longissimus dorsi*. Some anatomists have reckoned four of these muscles instead of two.

When they act together, they pull the head directly backwards; but either of them acting alone, it draws it obliquely back.

COMPLICATION of diseases, a mixture, or combination of several diseases; especially where they have any affinity to one another; as the dropsy, asthma, and jaundice, happening together.

What much perplexes the physicians is, when with a fever there is a *complication* of some other disorder.

COMPLINE, in *Ecclesiastical Antiquity*, denotes that evening, which completed the whole service of the day in religious houses, and began at nine of the clock at night.

COMPLUTENSIA Bible. See **Greek BIBLES**.

COMPONE, or **COMPONED**, or *Gobony*, in *Heraldry*.—A *bordure compone*, is that formed or composed of a row of angular parts, or chequers of two colours. See *Tab. Heraldry, fig. 19*.

COMPONED, or **COMPOSED**, is also used in general for a *bordure*, a *pale*, or a *fess*, composed of two different colours, or metals, disposed alternately, separated and divided by fillets, excepting at the corners; where the junctures are made in form of a goat's foot.

COMPOS Mentis. See **NON-COMPOS**.

COMPOSED Bastion. See **BASTION**.

COMPOSITE Numbers, those that can be measured by some number, besides itself, above unity; as 12, by 2, 3, 4, and 6.

Composite numbers between themselves, are the same with **COMMENSURABLE numbers**.

COMPOSITE Order, in *Architecture*, the last of the five orders of columns; so called, because its capital is *composed* out of those of the other orders. See *Tab. Architecture, fig. 28*.

It borrows a quarter-round from the Tuscan and Doric; a double row of leaves from the Corinthian; and volutes from the Ionic: its cornice has single modillions, or dentils.

The *Composite* is also called the Roman and the Italic order, as having been invented by the Romans; conformably to the rest, which are denominated from the people among whom they had their rise.

Most authors rank this after the Corinthian; either as being the richest, or as the last that was invented: Scamozzi alone places it between the **IONIC** and **CORINTHIAN**; out of a view to its delicacy and richness, which he esteems inferior to that of the Corinthian; and therefore makes no scruple to use it under the Corinthian; wherein he is followed by M. le Clerc.

The proportions of this order are not fixed by Vitruvius; he only marks its general character, by observing that its **CAPITAL** is composed of several parts taken from the Doric, Ionic, and Corinthian: he does not seem to regard it as a particular order; nor does he vary it at all from the Corinthian, except in its capital. In effect, it was Serlio who first added the *composite* order to the four of Vitruvius, forming it from the remains of the temple of Bacchus, the arches of Titus, Septimius, and the goldsmiths; till then, this order was esteemed a species of the Corinthian, only differing in its capital.

The order being thus left undetermined by the ancients, the moderns have a kind of right to differ about its proportions, &c. Accordingly Scamozzi, and after him M. le Clerc, makes its column nineteen modules and a half; which is less by half a module than that of the Corinthian: as, in effect, the order is less delicate than the Corinthian. Vignola makes it twenty; which is the same with that of his Corinthian: but Serlio, who first formed it into an order, by giving it a proper **ENTABLATURE** and **BASE**, and after him M. Perrault, raise it still higher than the Corinthian.

This last does not think different ornaments and characters sufficient to constitute a different order, unless it have a different height too: agreeably, therefore, to his rule of augmenting the heights of the several columns by a series of two modules in each; he makes the *Composite* twenty modules, and the Corinthian eighteen; which, it seems, is a medium between the arches of Titus and the temple of Bacchus.

For the parts of the order, see **COLUMN**, **FREEZE**, **PEDESTAL**, &c.

M. Perrault, in his *Vitruvius*, distinguishes between *Composite* and *composed* order. The latter, he says, denotes any composition whose parts and ornaments are extraordinary and unusual; but have, withal, somewhat of beauty; both on account of their novelty, and in respect of the matter, or genius of the architect: so that a *composed* order is an arbitrary, humorous composition, whether regular or irregular.

The same author adds, that the Corinthian order is the first *composite* order, as being composed of the Doric and Ionic; which is the observation of Vitruvius himself, lib. iv. cap. i.

COMPOSITE stalk. See STALK.

COMPOSITIO *mensurarum*, the title of an ancient ordinance for measures, not printed; it is mentioned in the statute of 23 Hen. VIII. cap. 4.

COMPOSITION, in a general sense, is the uniting or joining of several differing things, so as to form one whole, called a *compound*.

The schoolmen distinguish two kinds of *composition*; the one *entitative*, which is between things of the same nature, e. gr. two or more drops of water: the other *essential*, when things of different kinds are joined, and thus constitute new things, or essences, different from any of the parts: and thus, say they, from the matter and the form of wood, arises wood; whose essence is very different from either of those ingredients taken separately.

COMPOSITION of bodies, in Chemistry. See COMBINATION and AFFINITY.

COMPOSITION, in Commerce, a contract between an insolvent debtor and his creditors; whereby the latter agree to accept of a part of the debt, in compensation for the whole, and give a general acquittance accordingly.

COMPOSITION, in Grammar, denotes the joining of two words together; or prefixing a particle to another word, to augment, diminish, or change its signification. See WORD, &c.

COMPOSITION of ideas, is an operation of the mind, whereby it combines several of its SIMPLE ideas into COMPLEX ones.

Under the same operation may likewise be reckoned that of enlarging; whereby we put several ideas together of the same kind, as several units to make a dozen.

In this, as in others, brutes come far short of men; for though they take in and retain several combinations of simple ideas; as possibly, a dog does the shape, smell, and voice of his master; yet these are rather so many distinct marks whereby he knows him, than one complex idea, made out of those simple ones.

COMPOSITION, in Law. See MODUS.

Compositions were anciently allowed for crimes and offences, even for murder. By this expedient it was proposed to restrain the violence of private revenge. The custom may be traced back to the ancient Germans, and prevailed in other uncivilized nations. Tavernier relates, that in Persia a murderer is still delivered to the relations of the person whom he has slain, who put him to death with their own hands; and if they refuse a sum of money as a compensation, the sovereign cannot pardon the murderer. Robertson's Hist. vol. i. chap. v. p. 363.

COMPOSITION, in Logic, is a method of reasoning, wherein we proceed from some general self-evident truth, to other particular and singular ones.

The method of *composition*, called also *synthesis*, is just the reverse of that of *resolution*, or *analysis*.

Resolution is the method whereby we ordinarily search after truth; *composition*, that whereby a truth found, is discovered and demonstrated to others: resolution is the method of investigation; *composition*, of demonstration.

The method of *composition* is that used by Euclid, and other geometers; resolution, that used by algebraists and philosophers. The two methods differ, just as the methods of searching a genealogy; which are either by descending from the ancestors to the posterity, or by ascending from the posterity to their ancestors: each have this in common, that their progression is from a thing known, to another unknown.

The method of *composition* is best observed by the mathematicians; the rules hereof are, 1. To offer nothing but what is couched in clear express terms; and to that end to begin with definition. 2. To build only on evident and clear principles; to that end, to proceed from axioms or maxims. 3. To prove demonstratively all the conclusions that are drawn hence; and to this purpose, to make use of no arguments or proofs, but definitions already laid down, axioms already granted, and propositions already proved; which serve as principles to things that follow.

COMPOSITION, in Music, is the art of disposing musical sounds into airs, songs, &c. either into one, or more parts; to be sung with the voice, or played on instruments.

Zarlini defines *composition* to be the art of joining and combining CONCORDS together, which are the matter of music: but this definition is too scanty; because, DISCORDS are always used with concords in the *composition* of parts.

Under *composition* are comprehended the rules, 1. Of melody, or the art of making a single part; i. e. of contriving and disposing the simple sounds, so as that their succession and progress may be agreeable. 2. Of harmony or the art of disposing and concerting several single parts so together, that they make one agreeable whole.

It may be here observed, that melody being chiefly the business of the imagination, the rules of *composition* serve only to prescribe certain limits to it; beyond which, the imagination, in searching out the variety and beauty of airs, ought not to go: but harmony being the work of judgment, its rules are more certain, extensive, and more difficult in practice.

In the variety and elegance of the melody, the invention labours a great deal more than the judgment; so that method has but little place: but in harmony it is otherwise; the invention, here, has nothing to do; and the *composition* is conducted from a nice observation of the rules of harmony, without any assistance from the imagination at all.

COMPOSITION of motion, is an assemblage of several directions of motion, resulting from powers acting in different, though not opposite lines.

If a point move or flow according to one and the same direction; whether that motion be equable or not, yet it will still keep the same right line; the celerity alone being changed, i. e. increased, or diminished, according to the forces with which it is impelled. If the directions be opposite, as one, e. gr. directly downward, the other upward, &c. yet still the line of motion will be the same.

But if the compounding motions be not according to the same line of direction, the compound motion will not be according to the line of direction of any of them, but in a different one from them all; and this either straight or crooked, according as the direction or celerities shall require.

If two compounding motions be each of them equable, the line of the compound motion will still be a straight line; and this, though the motions be neither at right angles one to another, nor equally swift, nor (each to itself) equable; provided that they be but similar; that is, both accelerated and retarded alike.

Thus, if the point *a* (Tab. Mechanics, fig. 4.) be impelled equally with two forces; viz. upwards, towards *b*, and forwards, towards *d*; it is plain, that when it is gone forwards as far as *a c*, it must of necessity be gone upwards as far as *c e*; so that were the motions both equable, it would always go on in the diagonal, *a e c*.

Nay, suppose the motions unequal as to celerity, so, v. gr. as that the body move twice as fast upwards as forwards, &c. yet it still must go on in the diagonal *a c*; because the triangles *a e c*, *a e c*, &c. and *a c d* will still be similar, being as the motions are; and it will have described the diagonal in the same time which it would have required to describe either of the sides singly.

But, if the motions be dissimilar, then the compound motion must be a curve.

And, if a body, as *b* (fig. 5.) be impelled or drawn by three different forces, in the three different directions *b a*, *b c*, and *b d*, so that it yields to none of them, but continues in *æquilibrio*; then will those three powers or forces be to one to another, as three right lines drawn parallel to those lines, expressing the three different directions, and terminated by their mutual concourses.

Let *b e* represent the force by which the body *b* is impelled from *b* to *a*; then will the same right line *b e* represent also the contrary equal force, by which it is impelled from *b* to *e*; but by what hath been said before, the force *b e* is resolvable into the two forces acting according to the two directions *b d* and *b c*, to which the other impelling from *b* to *e*, is as *b e* to *b d*, and *b c* or *d e*, respectively.

So likewise two forces, acting without the directions *b d*, *b c*, and being equipollent to the force acting without the direction *b e*, from *b* to *e*; will be to the force acting according to the direction *b e*, from *b* to *e*, as *b d*, *b c*, to *b e*; and therefore, the forces acting in the directions *b d*, *b c*, and equipollent to the force acting in the direction *b e*, are to the force acting in the direction *b e*, as *b d*, *b c*, or *d e*, to *b e*: that is, if a body be urged by three different equipollent powers in the directions *b a*, *b d*, and *b c*; these three forces shall be to one another as *b e*, *b d*, and *d e*, respectively.

This theorem, with its corollaries, D. Keill observes, is the foundation of all the new mechanics of M. Varignon: by help hereof, may the force of the muscles be computed, and most of the mechanic theorems in Bo-

relli,

relli, *De Motu Animalium*, be immediately deduced.
See MOTION.

COMPOSITION of numbers and quantities. See COMBINATION.

COMPOSITION, in *Oratory*, the order and coherence of the parts of a discourse.

As a part of general ELOCUTION, it regards the turn and harmony of the periods: and therefore to *composition* belong, both the artful joining of the words, whereof the style is formed, and whereby it is rendered soft and smooth, gentle and flowing, full and sonorous; or the contrary: and the order, which requires things first in nature and dignity, to be put before those of inferior consideration.

Composition consists of four parts; which rhetoricians call PERIOD, ORDER, JUNCTURE, and NUMBER. Ward's *Oratory*, vol. i. p. 340.

COMPOSITION, in *Painting*, includes the invention as well as disposition of the figures, the choice of attitudes, &c.

Composition, therefore, consists of two parts; one of which finds out, by means of history, proper objects for a picture; and the other disposes them to advantage.

COMPOSITION, in *Pharmacy*, the art, or act, of mixing divers ingredients together into a medicine; so that they may assist each other's virtues, supply each other's defects, or correct any ill qualities thereof.

COMPOSITION, in *Printing*, ordinarily, called *composing*, is the arranging of several types or letters in the composing-stick, in order to form a line; and of several lines ranged in order in the galley, to make a page; and of several of those to make a form.

The *composing-stick* is made of iron generally, sometimes brass, or wood; of greater or less length or depth, according to the page to be composed, or the compositor's fancy: it hath two sliding pieces, to be fastened by means of a nut and screw, which are slipped forwards or backwards, at the pleasure of the compositor, and according to the space which the lines, notes, &c. are to take up. See *Tab. Miscellany*, fig. 5.

The *composing-stick* ordinarily contains seven or eight lines of a middle-sized letter; these, when set, are taken out, by help of a thin slip of brass, termed a rule, and disposed in the galley; and others composed, till a page be formed. The page being composed, is tied up, and set by; and the rest of the pages of the sheet prepared in the same manner: when done, they are carried to the imposing or correcting-stone; there ranged in order, and disposed in a chase, or iron-frame, fitted with wooden furniture; then, the quoins being struck in, it is carried to the press to be printed.

COMPOSITION of proportion.—If there be two ratios, wherein the antecedent of the first is to its consequent, as the antecedent of the other is to its consequent; then, by *composition* of proportion; as the sum of the antecedent and consequent of the first ratio, are to the antecedent, or the consequent, of the first; so is the sum of the antecedent and consequent of the second ratio, to the antecedent, or the consequent, of the second.

E. gr. If $A:B::C:D$; then by *composition*, $A+B:A$ or $(B)::C+D:C$ or (D) .

COMPOSITION of ratios, in *Arithmetic* and *Algebra*, is performed by multiplying the quantities or exponents of two or more ratios together; the produce is then said to be compounded of the ratios whose components were multiplied. Thus if the quantities or exponents of the ratios a to b , c to d , e to f , be multiplied, we shall have

$$\frac{a}{b} \times \frac{c}{d} \times \frac{e}{f} = \frac{ace}{bdf}$$

And the ratio ace to bdf , is then said to be compounded of the several ratios a to b , c to d , e to f , &c. Thus also the ratio of 10 to 12, is compounded of the ratio 2 to 3, and of 5 to 4; for $\frac{2}{3} \times \frac{5}{4} = \frac{10}{12}$.

This operation is by some called *addition* of ratios.

COMPOSSIBLES, COMPOSSIBILIA, in *Logic*, such things as are COMPATIBLE, or capable of subsisting together.

COMPOST, in *Agriculture* and *Gardening*, a compound, or mixture of earths, dungs, &c. applied, by way of MANURE, for the meliorating and improving of soils, and assisting the natural earth in the work of vegetation.

The gardeners have magazines, or, laystalls of *composts*, adapted to the different sorts of soil. Light loose land requires a *compost* of a heavy nature; such as the scouring of ditches, ponds, &c. mixed with earth, dung, &c. A heavy, clayey, or cloddy land, requires a *compost* of a more sprightly and active kind, to insinuate into the heavy, lumpy clods; as dungs, sand, ashes, and natural mould.

Mr. Bradley prescribes several different sorts of *composts*, to forward the growth of trees; viz. a quantity of stiff soil, broken and mixed with sharp sand, and ashes of burnt furzes, weeds, &c. or stiff soil with sand and burnt grass-turf, and rotten-wood; or stiff soil with sand

and rape-feed, after the oil is pressed out, with burnt turf; or stiff soil with sand and malt-grains; or sheeps dung, with wood-ashes and loam, or mother-earth.

The same author recommends a mixture or preparation of soils answering to loam, or mother-earth, as greatly preferable for planting or sowing forest-trees in, to any of these richer *composts*; which, though they hasten the growth of the tree, will not make the timber near so firm and durable.

COMPOUND, the result or effect of a composition of different things; or that which arises from them.

Strictly speaking, every new *composition* does not produce a new *compound*; but only that from which a new essence arises. Thus, when one drop of water is added to another, there does not arise a new physical *compound*; the essence being the same now, as before the union.

COMPOUND differs from COMPLEX, and stands opposed to SIMPLE.

We say, the ingredients of a *compound*; apothecaries are great dealers in *compounds*.

COMPOUND Flower. See FLOWER.

COMPOUND Force, Forms, Fossils, Fractions, Fracture, Gland, Harmony. See the substantives.

COMPOUND interest, called also *interest upon interest*, is that which is reckoned not only upon the principal, but upon the INTEREST itself forborn; which hereby becomes a sort of secondary principal.

COMPOUND Machine, Masonry. See the substantives.

COMPOUND motion, that motion which is effected by several conspiring powers.

Powers are said to conspire, if the direction of the one be not directly opposite to that of the other; as when the radius of a circle is conceived to revolve about a centre; and at the same time a point to move strait along it.

All curvilinear motion is *compound*.

It is a popular theorem, in *Mechanics*, that in an uniform *compound* motion, the velocity produced by the conspiring powers, is to that of either of the powers separately, as the diagonal of a parallelogram, according to the direction of whose sides they act separately, to either of the sides.

COMPOUND numbers. See COMPOSITE.

COMPOUND pendulum, in *Mechanics*, that which consists of several weights constantly keeping the same distance, both from each other, and from the center about which they oscillate. See PENDULUM.

COMPOUND proposition. See PROPOSITION.

COMPOUND quantities, in *Algebra*, are such as are connected together by the signs + and −: thus, $a + b - c$, and $bb - b$ are *compound* quantities.

COMPOUND ratio is that which the product of the antecedents of two or more ratios has to the product of their consequents.

Thus 6 to 72 is a ratio *compounded* of 2 to 6, and 3 to 12. See PROPORTION, and COMPOSITION of ratios.

COMPOUND Sounds, Surd, Taste, Ulcer, Words. See the substantives.

COMPOUNDED idea, in *Logic*, unites several ideas of a different kind, which are usually considered as distinct single beings, whether those united ideas be SIMPLE or COMPLEX. See COLLECTIVE idea.

COMPOUNDING felony, in *Law*. See THEFT-BOTE.

COMPREHENSION, in *English Church-History*, denotes a scheme proposed by sir Orlando Bridgman in 1667-8, for relaxing the terms of conformity in behalf of protestant dissenters, and admitting them into the communion of the church. A bill for this purpose was drawn up by lord chief baron Hale, but disallowed. The attempt was renewed by Tillotson and Stillingfleet in 1674, and the terms were settled to the satisfaction of the non-conformists, but the bishops refused their assent. This scheme was likewise revived again immediately after the Revolution; the king and queen expressed their desire of an union: however the design failed after two attempts; and the act of TOLERATION was obtained. Birch's *Life of Tillotson*, p. 42. 167, &c.

COMPREHENSION, in *Metaphysics*, is that act of the mind, whereby it apprehends, or knows, any object presented to it, on all the sides, whereon it is capable of being apprehended, or known.

To *comprehend* a thing, is defined by the schoolmen, *rem aliquam totam & totaliter cognoscere*. See APPREHENSION.

COMPREHENSION, in *Rhetoric*, a trope, or figure, whereby the name of a whole is put for a part; or that of a part for a whole: or definite number of any thing for an indefinite.

COMPRESS, in *Surgery*, a bolster of linen cloth, folded in several doubles, and laid under the bandage, to prevent a wound from bleeding or swelling; or to retain the medicines applied thereto.

The word comes from *comprimere*, to press hard.

Scultetus, in his *Arsenal of Chirurgery*, observes that the

ancients composed their *compresses* of carded flax, or of feathers, sewed between two linens; and called them pillows, or plumages, *pulvini*, or *pulvilli*, &c.

It is frequently the custom among surgeons, after the plaster and other dressings are applied, to cover all with a *compress*, which is made of the softest old linen, four, six, or eight times doubled. These are of service, not only by preserving the parts from the injuries of the external air, but also for securing and fixing the plasters, and other dressings.

Compresses are also frequently applied where no plaster is made use of, and that sometimes dry, sometimes wetted with certain liquors, which are supposed to be strengthening, emollient, resolving, lenient, cooling, &c. They are frequently dipped in the decoctions of certain herbs, into wine, spirit of wine, vinegar, or oxycrate, and sometimes into lime-water, and are administered either cold or hot, as the nature of the case requires.

Compresses are of various forms, suited to different occasions.

Compresses of all kinds are intended for these purposes: 1.

To preserve and cherish the natural heat of the body. 2.

To secure the dressings that are laid under them. 3.

To convey liquid remedies to parts wounded, or otherwise

disordered, and to prolong the use of them. 4.

To fill up any cavities or depressions of the parts, that the dressings (especially in fractures) may be applied with greater

security: and lastly to prevent bandages from bringing

on a troublesome itching, or other pain or uneasiness on

the skin. Heister.

COMPRESSION, the act of pressing, or squeezing something, so as to set its parts nearer to each other, and make it possess less space.

Compression properly differs from *condensation*, in that the latter is performed by the action of cold, the former by some external violence: or, more strictly speaking, *compression* is the action of any force on a body, without regarding its effect: whereas *condensation* denotes the state of a body that is actually reduced into a less bulk.

Pumps, which the ancients imagined to act by suction, do, in reality, act by compression; the *embolus*, or sucker, in going and returning in the narrow pipe, *compresses* the air inclosed, so as to enable it by the force of its elasticity to raise the valve, and make its escape: upon which, the balance being destroyed, the pressure of the atmosphere on the stagnant surface, drives up the water in the pipe thus evacuated of its air. See PUMP.

Water was thought incapable of *compression*: and it was believed till lately, that after the air had been purged out of it, no art or violence is able to bring its parts closer, or to make it take up less compass. In an experiment made by the academy del Cimento, water, when violently squeezed, made its way through the infinitely fine pores of a ball of gold, rather than undergo any *compression*.

The ingenious Mr. Canton, F. R. S. attentively considering this experiment, found that it was not sufficiently accurate to justify the conclusion, which had been universally drawn from it; since the Florentine philosophers had no method of determining that the alteration of figure in their globe of gold, occasioned such a diminution of its internal space, as was exactly equal to the quantity of water forced into its pores. In order to bring this matter to a more accurate and decisive trial, he procured a small glass tube of about two feet in length, with a ball at one end of an inch and a quarter in diameter. Having filled the ball and part of the tube with mercury, and brought it exactly to the heat of 50° by Fahrenheit's thermometer, he marked the place where the mercury stood in the tube, which was about six inches and a half above the ball; and then raised the mercury by heat to the top of the tube, and sealed the tube hermetically; and when the mercury was brought to the same degree of heat as before, it stood in the tube $\frac{3}{4}$ of an inch higher than the mark. The same experiment was repeated with water exhausted of air, instead of mercury, and the water stood in the tube $\frac{1}{8}$ of an inch above the mark. Since the weight of the atmosphere on the outside of the ball, without any counterbalance from within, will compress the ball, and equally raise both the mercury and water, it appears that the water expands $\frac{1}{8}$ of an inch more than the mercury, by removing the weight of the atmosphere. Having thus determined that water is really *compressible*, he proceeded to estimate the degree of *compression* corresponding to any given weight. For this purpose he prepared another ball, with a tube joined to it; and finding that the mercury in $\frac{1}{4}$ of an inch of the tube was the hundred-thousandth part of that contained in the ball, he divided the tube accordingly. He then filled the ball and part of the tube with water exhausted of air; and leaving the tube open, placed this apparatus under the receiver of an air pump, and observed the degree of expansion of the water answering

to any degree of rarefaction of the air: and again by putting it into the glass receiver of a condensing engine, he noted the degree of *compression* of the water corresponding to any degree of condensation of the air. He thus found, by repeated trials, that, in a temperature of 50°, and when the mercury has been at its mean height in the barometer, the water expands one part in 21740, and is as much *compressed* by the weight of an additional atmosphere, or the *compression* of water by twice the weight of the atmosphere, is one part in 10870 of its whole bulk. Should it be objected, that the *compressibility* of the water was owing to any air which it might be supposed to contain, he answers, that more air would make it more *compressible*; he therefore let into the ball a bubble of air, and found that the water was not more *compressed* by the same weight than before.

In some farther experiments of the same kind, Mr. Canton found that water is more *compressible* in winter than in summer; and he observed the contrary in spirit of wine, and oil of olives.

The following table was formed, when the barometer was at twenty-nine inches and a half, and the thermometer at fifty degrees.

	Millionth parts.	Spec. grav.
<i>Compression</i> of spirit of wine	- 66	- 846
Oil of olives	- 48	- 918
Rain water	- 46	- 1000
Sea-water	- 40	- 1028
Mercury	- 3	- 13595

He infers that these fluids are not only *compressible*, but elastic; and that the *compressions* of them, by the same weight, are not in the inverse ratio of their densities, or specific gravities, as might be supposed. Phil. Trans. vol. lii. 1762. art. 103. and vol. liv. 1764. art. 47.

The *compression* of the air, by its own weight, is surprisingly great: but the air may be still farther *compressed* by art. See *Elasticity of Air*.

This immense *compression* and dilatation, sir Isaac Newton observes, cannot be accounted for in any other way, but by a repelling force, wherewith the particles of air are endued; by virtue whereof, when at liberty, they mutually fly each other.

This repelling power, he adds, is stronger and more sensible in air, than in other bodies; because air is generated out of very fixed bodies, but not without great difficulty, and the help of fermentation: now those particles always recede from each other with the greatest violence, and are *compressed* with the greatest difficulty, which, when contiguous, cohere the most strongly. See AIR, ATTRACTION, COHESION, DILATATION, and REPULSION.

COMPRESSOR *naris*, in *Anatomy*, a name given by Albinus, and some others, to one of the muscles of the face, called by Winslow the *transversalis nasi*, and *inferior nasi*; and by Cowper, the *ELEVATOR alae nasi*.

COMPRISE *nient*. See *NIENT*.

COMPROMISE, a treaty, or contract, whereby two contending parties establish one or more arbitrators, to judge of and terminate their differences in an amicable way.

The regular way of appointing a *compromise* is by a writing, expressing the names of the arbitrators, the power of choosing an umpire, or super-arbitrator, in case of need, and the time limited for the arbitrage, and a penalty on the party who does not abide by the decision.

By the civil law, a slave cannot make a *compromise* without the leave of his master, nor can a pupil without the authority of his guardian, or a wife without that of her husband. So a slave, a deaf or dumb man, a minor, and the person who is a party in the cause, are incapable of being chosen arbitrators in a *compromise*.

The occasions on which a *compromise* is not allowed of, are restitutions, marriage-causes, criminal affairs, questions of state; and, generally, any thing wherein the public interest is more concerned than that of private persons. In our law, a *compromise* is not of so much extent. West defines it the faculty, or power of pronouncing sentence between persons at controversy, given to arbitrators by the parties mutual private consent, without public authority.

COMPROMISE is also used in beneficiary matters; where it signifies an act, whereby those who have the right of election, transfer it to one or more persons, to elect a person capable of the office or dignity.

We have seen members of parliament elected by *compromise*; when the electors, not being able to agree among themselves, give the power of electing, at least of nominating, to two persons; obliging them by oath, or otherwise, to choose such as they think the most capable, and best disposed.

COMPTING, or **COUNTING-HOUSE**, an office in the king's household, under the direction of the lord steward; so called, because the accounts for all expences of the king's household

household are there taken daily by the lord steward, comptroller, cofferer, master of the household, the clerks of the green-cloth, and the clerks comptrollers. They also there make provision for the household, and make payments, and orders, for the good government thereof.

In the *compting-house* is the board of GREEN-CLOTH.

COMPTROL, or **CONTROLE**, is properly, a double REGISTER, kept of acts, issues, &c. of the officers or commissioners in the revenue, army, &c. in order to perceive the true state thereof, and to certify the truth, and the due keeping of the acts subject to that enregistrement.

COMPTROLLER, an officer established to *comptrol*, or over-see public accounts, and to certify, on occasion, whether things have been *comptrolled* and examined, or not. Thus, we have a *comptroller of the king's household*, or of the accounts of the board of green-cloth. *Comptroller-general* of the customs; *comptroller* of the navy; *comptroller* of the mint; *comptroller* of the excise; *comptrollers* of the accounts of the army; of the CHAMBER, &c.

COMPTROLLER of the artillery, is an officer whose duty it is to inspect the musters of the artillery, to make the pay-list, and take the accounts and remains of stores. He is accountable to the office of ordnance.

COMPTROLLER of the hanaper, is an officer in chancery, attending the lord chancellor daily in term and seal time. This officer is to take all things sealed from the clerk of the hanaper, inclosed in bags of leather, and to note the just number and effect thereof; to enter them in a book, with all the duties belonging to the king and other officers for the same, and so charge the clerk of the HANAPER with them.

COMPTROLLERS of the pells, are officers of the EXCHEQUER, whereof there are two, viz. two chamberlains clerks, who keep a *comptrol* of the pell of receipts, and goings-out: originally they took notes of other officers accounts, in order to discover if they did amiss.

COMPTROLLER of the pipe, an officer of the EXCHEQUER, who writes out summons twice a year, to levy the farms and debts of the PIPE.

He was anciently called *duplex ingrossator*.

COMPULSOR, an officer under the Roman emperors, dispatched from court into the provinces, to compel the payment of taxes, &c. not paid within the time prescribed.

The word is formed of the verb *compellere*, to oblige, constrain.

These were charged with so many exactions, under colour of their office, that Honorius cashiered them by a law in 412.

The laws of the Visigoths mention military *compulsors*; which were officers among the Goths, whose business was to oblige the tardy soldiers to go into the fight, or to run to an attack, &c.

Cassian mentions a kind of monastic *compulsors*, whose business was to declare the hours of canonical office, and to take care the monks went to church at those hours.

COMPUNCTION, in *Theology*, an inward grief in the mind for having offended God.

The word comes from *compungere*, of *pungere*, to prick.

The Romanists own their confession insignificant, unless attended with *compunction*, or pricking of heart. See **CONFESSION**.

Among spiritualists, *compunction* bears a more extensive signification; and implies not only a grief for having offended God, but also a pious sensation of grief, sorrow, and displeasure, on other motives. Thus, the miseries of life, the danger of being lost in the world, the blindness of the wicked, &c. are to pious people motives of *compunction*.

COMPURGATOR, in *Law*, one that by oath justifies, or clears, another's innocence. They were introduced in the jurisprudence of the middle ages, and their number varied according to the importance of the subject in dispute, or the nature of the crime with which a person was charged. See **OATH** and **WAGER of Law**.

COMPUTATION, the manner of accounting and estimating time, weights, measures, and money.

The word is sometimes also used among mathematicians in the like sense as **CALCULATION**.

COMPUTATION of a planet's motion. See **PLANET**.

COMPUTATION is particularly used in law in respect of the true account, or construction of time, so understood, as that neither party do wrong to the other, nor the determination of time be left at large, or be taken otherwise than according to the judgment and intention of law.

If indentures of demise be ingrossed, bearing date May 11, 1769, to have and to hold the land in S. for three years from henceforth; and the indentures be delivered the 4th of June following: in this case, *from henceforth* shall be computed from the day of the delivery, and not from

the date. And if the indentures be delivered at four of the clock in the afternoon, the said fourth of June, the lease shall end the third day of June in the third year: the law, in such *computation*, rejecting all fractions or divisions of the day, on account of that uncertainty which is the mother of contention. In writings, ordered by the stat. 27 Hen. VIII. to be inrolled within six months; if such writings have date, the six months shall be accounted from the date, and not from the delivery: if they want date, it shall be accounted from the delivery. Coke, lib. 5.

If a deed be shewn to a court at Westminster, it shall remain in court (by judgment of law) all the term in which it is shewn: for all the term is but as one day in law. Coke, *ibid.*—If a church be void, and the patron does not present within six months, the bishop of the diocese may collate his chaplain: but these six months shall be computed according to twenty-eight days of the month; and not according to the calendar.

COMPUTO, a writ thus called from its effect, which is to compel a bailiff, chamberlain, or receiver, to yield his accounts. See **ACCOUNT**.

The same lies for executors of executors; and against the guardian in socage, for waste made in the minority of the heir.

COMPUTO vicecomitis habendo respectu. See **RESPECTU**.

COMUS, in *Mythology*, the god of jollity or festivity. There is great reason to believe he was the Chamos of the Moabites; Beel-Phegor, Baal-Peor, Priapus, and Bacchus. He is represented under the appearance of a young man, with an inflamed red countenance, his head inclined, and crowned with flowers; his air drowsy; leaning on a huntsman's spear in his left hand, and holding an inverted torch in his right. His statue was placed at the chamber doors of new married persons; his pedestal crowned with flowers.

CONARION, or **CONOIDES**, a name for the *pinical gland*; a small gland, about the bigness of a pea, placed in the upper part of that hole in the third ventricle of the brain called the *anus*; and tied by some fibres to the nates.

It is composed of the same substance as the rest of the brain; and has this peculiar to it, that it is single; whereas all the other parts are double. Hence, Des Cartes takes occasion to suppose it the immediate place, or seat of the soul.

CONATUS, *endeavour*, a term frequently used by philosophical and mathematical writers; nearly equivalent to *nifus*.

Conatus seems to be the same, with respect to motion, that a point is with respect to a line; at least, the two have this in common, that as the point is inceptive of the line, or the term from which it commences; so is the beginning of all motion called the *conatus*. Add, that as in mathematical demonstrations, the extension of the point is conceived as if it were nothing at all; so, in the *conatus* of motion, there is no regard to the time wherein, or the length which, it advances. See *Laws of NATURE*.

Hence, some define *conatus* to be a quantity of motion not capable of being expressed by any time or length. Accordingly, all motion tends precisely the same way wherein the moveable is acted on, or determined by the moving power. See **MOTION**.

CONCAMERATED, among *Builders*, an appellation given to such roofs as are arched in the vaults.

CONCAMERATIO was an arched room in our ancient churches, between the east end of the church, and the high altar; so formed, that in processions they might surround it.

CONCATENATION, in *Philosophy*, a connexion of things, in manner of a chain.

The concatenation of second causes is an effect of PROVIDENCE. See **CAUSE**.

CONCAVE is applied to the inner surface of a hollow body; particularly if it be circular.

CONCAVE is particularly understood of mirrors and lenses: *concave lenses* are either *concave* on both sides, called *concavo-concave*; or *concave* on one side, and plane on the other, called *plano-concave*; or *concave* on one side, and convex on the other, called *concavo-convex*, or *convexo-concave*, as the one or the other surface is a portion of a less sphere.

The property of all *concave* lenses is, that the rays of light, in passing through them, are deflected, or made to recede from one another; as in convex lenses they are inflected towards each other; and that the more, as the concavity and convexity pertain to less circles.

Hence, parallel rays, as those from the sun, by passing through a *concave* lens, become diverging; diverging rays are made to diverge the more, and converging rays are either made to converge less, or become parallel, or go out diverging.

Hence,

Hence, objects viewed through *concave* lenses appear diminished; and the more so, as they are portions of less spheres; and this in oblique, as well as in direct rays.

Concave mirrors have the contrary effect to lenses: they reflect the rays which fall on them, so as to make them approach more to, or recede from, each other than before, according to the situation of the object; and that the more as the concavity is greater, or the spheres whereof they are segments, less. See *MIRROUR*.

Hence, *concave* mirrors magnify objects presented to them; and that in a greater proportion, as they are portions of greater spheres.

Hence also, *concave* mirrors have the effect of burning objects, when placed in their focus. See *BURNING-GLASS*.

CONCAVITY. An arch of a curve has its *concavity* turned one way, when the right lines that join any two of its points are all on the same side of the arch.

Archimedes, intending to include such lines as have rectilinear parts, in his definition, says, a line has its *concavity* turned one way, when the right lines that join any two of its points are either all upon one side of it, or while some fall upon the line itself, none fall upon the opposite side. Archim. de Sphær. and Cyl. Def. 2. Mac Laurin's Fluxions, art. 180.

When two lines, having their *concavity* turned the same way, have the same terms, and the one includes the other, or has its *concavity* towards it, the perimeter of that which includes, is greater than the perimeter of that which is included. Archim. ib. ax. 2.

CONCEALERS, in *Law*, such as find out concealed lands, i. e. lands kept privily from the king, by common persons, having nothing to shew for their title, or estate therein.

They are thus called *per antiphrasin*, a *concelando*; as *mons* is a *movendo*, &c. Lord Coke calls them *turbidum hominum genus*. See *MISPRISION*.

CONCENTRATED *parting*, in *Chemistry*. See *CÆMENTATION*.

CONCENTRATION, in general, denotes the retiring, or withdrawing of a thing inwards, towards the centre, or middle.

External cold is said to *concentrate* the heat within bodies: after meals, the natural warmth retires, and as it were *concentrates*, to promote the digestion.

CONCENTRATION is also used by Dr. Grew for the highest degree of mixture, viz. that wherein two or more atoms or particles touch, by a reception, and intrusion of the one within the other. See *MIXTION*.

This he takes to be the case of all fixed bodies without taste or smell; their constitution being so firm, that till the particles be detached from each other by some extraordinary means, they cannot affect those senses.

CONCENTRATION, in *Chemistry*, consists in approximating the proper and integrant parts of a body, by taking away some substance interposed between these parts, and which is extraneous and superabundant to the body to be *concentrated*. Thus, a solution of any saline substance in water may be concentrated by expelling part of the water of the solution.

But custom has applied the word *concentration* to the *DEPHLEGMATON* of acids, and particularly of vitriolic acid, by *DISTILLATION*, and of vinegar by *CONGELATION*.

CONCENTRATION, or *redification*, of vitriolic acid by *distillation*, is performed, in order to purify it from the water, by which it is weakened, or from the inflammable matter, which renders it black and sulphureous. When the quantity of water with which it is diluted is very considerable, a great part of it may be discharged in stone or glass bottles, without distillation. The water will exhale, and the acid be to a great degree *concentrated*. But as the quantity of remaining water is diminished, it adheres so much the more strongly to the acid, and the heat must be increased to such a degree as would raise the acid with the water, and dissipate it in open vessels. And besides, the acid, when it is become very strong; attracts the moisture of the air, and combines with it, thus imbibing as much water from the air as it loses by evaporation. The *concentration*, therefore, must be completed by distillation. For this purpose, a retort of good glass, capable of resisting acids, must be half filled with the acid, and set in a sand-bath entirely covered with sand. When a receiver has been adapted to it, heat must be applied, and very gradually augmented, till drops are distilled. The heat must be increased in proportion to the degree of *concentration*, but not so as to make the acid boil, which might be attended with pernicious consequences. The duration of this process depends on the quality and strength of the acid. The vitriolic acid formerly kept by druggists required, that one half of it should be distilled, in order to make the remaining part

twice as heavy as water. At present, it is much stronger and cheaper. That which is usually manufactured for sale is more or less combined with inflammable matter, which may be discharged from it by a distillation similar to that above described. When the phlogisticated vitriolic acid acquires a strong heat, and becomes considerably *concentrated*, it acts upon the inflammable matter, dissipating or burning it: in consequence of which the liquor becomes perfectly white and transparent, which is a sign that the operation is finished. The retort must be left in the sand-bath till it is cold, and then the acid is to be poured into a clean, dry, crystal-glass bottle, closed by a glass stopper, and covered with leather. The phlegmatic, or sulphureous liquor, which passed over into the receiver, is called *spirit of VITRIOL*. See *ACID vitriolic*, and *VITRIOL*.

CONCENTRATION of vinegar by congelation. This method was first employed by Stahl. M. Geoffroy has since made many experiments on the subject, an account of which is given in the Memoirs of the Academy at Paris for 1739. Acids resist congelation much more than water; but if vinegar be exposed to a cold marked by 8 or 10 below 0 in Reaumur's *THERMOMETER*, a considerable quantity of ice will be formed. This ice consists chiefly of pure water, and the remaining unfrozen liquor is a much stronger vinegar. If this vinegar be again exposed to a stronger degree of cold, a kind of snowy ice, containing a quantity of unfrozen acid, will be produced, and the remaining acid will hereby acquire a considerable degree of additional strength, which may be again increased by repeating the congelation with greater cold. Wines may be well *concentrated* in the same way; and they thus acquire a thick consistence, and are preserved from injury in the vicissitude of climates and seasons. Cold may be likewise successfully employed in northern countries to *concentrate* sea-water, and to approximate the particles of salt, by separating the ice, which is little else than pure water, as soon as it is formed. The mineral acids might probably be *concentrated* by congelation, though in a very low degree. Other methods, besides that above described, have been used for *concentrating* vinegar: such as simple distillation; and the combination of this acid with fixed alkalies and metals, and afterwards distilling the salts resulting from such combinations, whence a very strong acid of vinegar is obtained, called *radical vinegar*. See Macquer's Dict. Chem. art. *CONCENTRATION*. See *VINEGAR*.

CONCENTRATION, in *Distillery*. Dr. Shaw, in his Essay on the Distillery, is for introducing a method of concentrating the fermentable parts of vegetables, from which their spirits are to be drawn by distillation; which, if it can be brought to be practised in the large way, will prove of very great use to the British distillery, as it will greatly shorten the distiller's business, which at present, including the brewing, fermenting, &c. is much too long. He proposes only to evaporate carefully the wort, or other tinctures or decoctions of vegetables made for the distilling of their spirits, to the consistence of treacle: in this form they might be sold to the distiller, who might keep them by him as long as he pleased, and occasionally use them, by the easy method of reducing them into wort, by mixing warm water with them.

CONCENTRATION, in *Medicine*, when by an addition of earthy, dry, and absorbent substances, the acid of any liquor is attracted and imbibed, whilst the aqueous parts are left, and the acid as it were conveyed into another body, this is called *concentration*. The use of this species of *concentration* is obvious, in cases where acidities are to be subdued or corrected: hence absorbents are called *concentrating* medicines. To this belongs that species of *concentration*, in which by an acid any body is corroded, and remains combined with it. Thus vinegar first combined with, and then distilled from, verdegriſe, is much stronger than it was before, and for that reason is called *concentrated*. There is another species of *concentration*, which is, when alkaline salts are saturated with acid spirits, which are so retained in them, that both in conjunction constitute neither an acid nor an alkaline, but a neutral salt. The use of this species of *concentration* is obvious, that is, to procure neutral salts. Lastly, *concentration*, in an extensive sense, denotes an union or combination of a spirit, a salt, or a sulphur, with any body: thus, in sublimate mercury, which is formed of quicksilver, and the acid of sea-salt united together, the spirit of salt is said to be *concentrated*.

CONCENTRIC, in *Geometry* and *Astronomy*, something that has the same common centre with another.

The word is principally used in speaking of round bodies and figures, viz. circular, elliptical ones, &c. but may be likewise used for polygons, drawn parallel to each other, upon the same centre.

Concentric stands opposite to *EXCENTRIC*.

Nonius's method of graduating instruments, consists in describing with the same quadrant 45 concentric arches, dividing the outermost into 90 equal parts, the next into 80, &c.

CONCEPTACULUM, among *Botanists*, a kind of PERICARPIUM, composed of soft and less rigid valves, and containing one cavity.

CONCEPTION, in *Logic*, the simple apprehension, or perception, which we have of any thing, without proceeding to affirm, or deny, any thing about it.

Some writers distinguish between *conception* and perception; making the latter to denote the consciousness of an object when present, or to include the reality of its object; whereas *conception* expresses the forming an idea of an object whether present or absent, or without any conviction of its reality. See Lord Kaimes's *El. Criticism*, vol. ii. p. 508.

The schoolmen usually make two kinds of *conception*; the one *formal*, the other *objective*.

The *first* is defined to be the immediate and actual representation of any thing proposed to the mind: on which footing, it should be the same thing to the understanding; that a word or voice is to the ear; whence some also call it *verbum mentis*.

The *second* is the thing itself represented by a formal *conception*. But others explode the notion of an *objective conception*, as being, in reality, no *conception* at all; excepting where the mind contemplates its own acts, &c.

Formal or *proper conceptions*, are subdivided into *univocal*, where several things are distinctly represented as under some common ratio, or in the same degree of perfection; *analogous*, where several things are represented as under some proportional likeness; and *equivocal*, where they are represented immediately as such, without regard to any common ratio or likeness.

CONCEPTION, in *Medicine*, denotes the first formation of the embryo, or foetus, in the womb.

Conception is no other than such a concurrence of mixture of the prolific seed of the male with that of the female, in the cavity of the uterus, as immediately produces an EMBRYO.

The symptoms of *conception*, or PREGNANCY are, when in a few days after the conjugal act, a small pain is perceived about the navel, and is attended with some gentle commotions in the bottom of the abdomen; and within one, two, three, or even four months, the menses cease to flow, or prove in less quantity than usual. Upon the first failure of this kind, the woman begins to count the series of her weeks, without taking any notice of the time before elapsed; after this, or between the second or third months, but generally about the third, the motions of the embryo become perceivable to the mother; who hereupon becomes troubled with a nausea, vomiting, loathing, longing, &c. About this time the breasts begin to swell, grow hard and painful, and contain a little milk; the nipples also become larger, firmer, and darker coloured, a livid circle appearing round them: the eyes seem sunk and hollow. During the two first months of pregnancy, the woman grows thinner, and slenderer; the abdomen being also depressed; though it afterwards distends, and grows gradually larger.

The manner wherein *conception* is effected, is thus laid down by the modern writers: in the superficies of the ovaries of women, there are found little pellucid spherules, consisting of two concentric membranes, filled with a lymphatic humour, and connected to the surface of the ovaria, underneath the tegument, by a thick calix, contiguous to the extremities of the minute ramifications of the Fallopian tubes.

These spherules, by the use of venery, grow, swell, raise, and dilate the membrane of the ovary into the form of papillæ; till, the head propending from the stalk, it is at length separated from it; leaving behind it a hollow cicatrix, in the broken membrane of the ovary; which, however, soon grows up again.

Now, in these spherules, while still adhering to the ovary, foetuses have been frequently found: whence it appears, that these are a kind of ova, or eggs, deriving their structure from the vessels of the ovary, and their liquor from the humours prepared therein.

Hence, also, it appears, that the Fallopian tubes being swelled, and stiffened by the act of venery, with their muscular fibrillæ, like fingers, may embrace the ovaries, compress them, and by that compression expand their own mouths: and thus the eggs, now mature, and detached as before, may be forced into their cavities; and thence conveyed into the cavity of the uterus; where they may either be cherished and retained, as when they meet with the male seed; or, if they want that, again expelled.

Hence the phenomena of false *conceptions*, abortions, foetuses found in the cavity of the abdomen, the Fallopian

tubes, &c. For, in coition, the male seed, abounding with living animalcules, agitated with a great force, a brisk heat, and, probably, with a great quantity of animal spirits, is violently impelled through the mouth of the uterus, which on this occasion is opener; and through the valves of the neck of the uterus, which on this occasion are laxer than ordinary, into the uterus itself; which now, in like manner, becomes more active, turgid, hot, inflamed, and moistened with the flux of its lymph and spirits, by means of the titillation excited in the nervous papillæ by the attrition against the rugæ of the vagina.

The semen thus disposed in the uterus, is retained, heated, and agitated, by the convulsive constriction of the uterus itself; till meeting with the ova, the finest and most animated part enters through the dilated pores of the membranula of the ovum, now become glandulous; is there retained, nourished, dilated, grows to its umbilicus, or navel; stifles the other less lively animalcules; and thus is *conception* effected.

Hence it appears, that *conception* may happen in any part where the semen meets with an ovum: thus, whether it be carried through the Fallopian tube to the ovary, and there cast upon the ovum; or whether it meet with it in some recess of the tube itself; or, lastly, whether it join it in the cavity of the uterus, it may still have the same effect, as it appears from observation actually to have. But it is probable, that *conception* is then most perfect, when the two, viz. the semen and ovum, are carried at the same time into the uterus, and there mixed, &c.

Other anatomists choose to suppose the male seed taken up, before it arrives in the uterus, by the veins which open into the vagina, &c. and thus mixed with the blood; by which, in the course of circulation, it is carried, duly prepared, into the ovary, to impregnate the eggs. See GENERATION.

It has been advanced by several writers, that women may possibly *conceive* in their sleep, and be with child, without any knowledge of the occasion of it.

As ridiculous and absurd as this doctrine may appear to the generality of the world, no less an author than Genfili has thought it worthy a particular dissertation. *Act. Erud. ann. 1715. p. 122.* See PREGNANCY.

CONCEPTION, *immaculate*, of the Holy Virgin, is a feast established in honour of the Holy Virgin; particularly with regard to her having been conceived and born *immaculate*: i. e. without original sin; held in the Romish church on the eighth of December.

Allatus, in his *Prolegomena* on Damascenus, endeavours to prove this feast to have been celebrated by several churches in the East, as early as the eighth century. It was first established in France about the year 1140; but it had been observed in England, in consequence of the zeal of archbishop Anselm, before this period.

The *immaculate conception* is the great subject of controversy between the Scotists and Thomists; the former maintaining, and the latter impugning it.

The Dominicans espoused the party of St. Thomas, and held out a long time in defence of the Virgin's being conceived in original sin; they were condemned by pope Clement VII. in 1308, at the prosecution of the university of Paris, and were obliged to retract. The council of Trent, sess. v. in the decree of *original sin*, declares it not to be the intention of the council to include the Virgin under it; her *conception* it calls *immaculate*; and appoints the constitutions of Sixtus IV. to be observed with regard to it.

This controversy between the Dominicans and Franciscans was revived in the seventeenth century; and a festival was appointed by Clement XI. in 1708, to be celebrated throughout the Romish church: however, the Dominicans persist in denying the obligation of this law, and in maintaining their ancient doctrines.

In the three Spanish military orders of St. James of the Sword, Calatrava, and Alcantara, the knights take a vow, at their admission, to defend the *immaculate conception*. This resolution was first taken in 1652.

Peter d'Alva and Astorga have published forty-eight huge volumes in folio, on the mysteries of the *conception*.

CONCEPTION, *religious of the order of*. See THEATINES.

CONCERT, or CONCERTO, a number, or company of musicians, playing, or singing the same song, or piece of music, together.

The designation of a full *concert* for violins is two principal, and two second violins, a tenor violin, and a violoncello, with a thorough bass for the harpsichord.

The word *concert* may be applied where the music is only melody, i. e. where the performers are all either in unison, or only at the interval of an octave; but it is more properly, as well as more usually, understood of harmony, or where the music consists of divers parts, as bass, tenor, &c.

CONCERTANTE, in *Italian Music*, is used for the reciting parts of a piece in music, to distinguish them from those which sing only in the grand chorus. Grassineau makes *concertante* signify those parts that sing or play throughout the whole piece. *Broff. Dict. Mus. in voc. Mus. Dict. p. 35.*

CONCERTATO, in *Italian Music*, is used for a piece composed in such a manner, as that all the parts may have their recitals, be it for two, three, four, or more voices, or instruments: thus they say *messe concertate, salmi concertati*, a 2, a 3, a 4, *voci*, &c. *Broff. Dict. Mus. in voc.*

CONCERTO grosso, in *Italian Music*, is used to denote the grand chorus of a concert, or those places where all the several parts perform or play together. *Broff. Dict. Mus. in voc.*

CONCESSI, a term much used in conveyances, &c. Its effect is to create a **COVENANT**, as *dedi* does a warranty.

CONCESSION, in *Rhetoric*, a figure whereby something is granted, or allowed to the adversary, either to prevent being detained by unnecessary incidents, or to make some advantage of. *I will not contest with you the reality of the contract; what I plead for, is relief against the injustice of it. True, she is fair; but ought she not to shew her acknowledgements to heaven for the favour, by making a virtuous use of her beauty?*

CONCESSIT, *fur*, in *Law*, a species of **FINE**.

CONCHA, in *Natural History*, a genus of bivalve shells, the animal inhabiting which is called *tethys*. This is a very comprehensive genus, comprising the **OYSTER**, **CHAMA**, **MUSCLE**, **HEART-shell**, **PECTEN**, **SOLEN**, &c.

CONCHA, in *Anatomy*, a name given the second, or inward cavity of the auricle, or external **EAR**; reaching to the entrance of the auditory duct.

The word has its origin from a resemblance this cavity bears to a *sea-shell*, called in Latin *concha*.

Some also give the same name to the first cavity of the inward ear, which others call the *drum*; and others to the vestibulum of the labyrinth, which is the second cavity of the internal ear.

CONCHA, *Χόχνη*, in *Antiquity*, a liquid measure among the Athenians, which contained two *mystra*, or half an ounce. As much oil as it was capable of holding, weighed five drams one scruple and twenty grains, according to *Gor. Defin. Pitisci Lex. & Eischenom*. Others think that the *concha* contained three spoonfuls, ninety-six of which filled a pint vessel (*sextarius*); a *sextarius* was therefore equivalent to thirty-two *conchæ*, and six *sextarii* made one *congius*, a measure equivalent to our three quarts, according to *Salmas. Exerc. Plinian. and Bodæus*, in *Theophrast*. According to *Fernelius*, the *concha* was equivalent to two *mystra*, or five spoonfuls; which, according to *Jacobus Sylvius*, are equivalent to six drams. According to *Galen*, in his work *De Ponderibus & Mensuris*, cap. xi. the *concha magna* contained the same quantity with the *acetabulum*, which in liquid measure was an ounce and a half, and in weight fifteen drams. The *concha minor* was in liquid measure half an ounce, and in weight five drams.

CONCHA anatifera, in the history of shell-fish. See **ANATIFERA concha**.

CONCHÆ anomia, in *Natural History*, the name of a fossil shell-fish, found in great abundance, and in a great variety of species, but not known in any of them living, on the shores or in the seas of our own or other countries. In Gloucestershire, and some other of our counties, these are found as common as pebbles on the ploughed lands in other places. They are a sort of bivalve shell, the valves of which are of unequal extent, both of them convex, and the head or beak of the longer valve crooked, and falling over the head of the other. See *Tab. of Foss. Class 9.*

The great general distinction of this numerous class of bodies, is into those which are of a smooth surface, and those which are of a striated or rough one.

Others also of the same class, or of one very nearly allied to it, are found in many of our inland counties, some very long from the *cardo*, or hinge, to the margin; and others very short, and very long the contrary way. They are found indifferently in all sorts of strata, in earth, in stone, in sand, and among gravel.

CONCHA fortificata, in *Natural History*, the name given by some authors to the genus of shells, called by others the **MUREX**.

CONCHA globosa, in *Natural History*, the name of a large genus of shells, called by authors the **DOLIUM**, and in French the *tonne*.

CONCHÆ latitans musculus, a name given by *Riolanus*, and others, to one of the muscles of the **EAR**, called by *Cowper* *internus auris*, and by *Albinus*, very properly, the *tensor tympani*.

CONCHÆ margaritifera, a name sometimes used for those *mytuli* which produce pearls. See **MUSCLE**.

CONCHÆ narium inferiores, in *Anatomy*, or inferior shells of the nostrils, are two in number, situated in the nasal fossa, under the openings of the maxillary sinus, and immediately above the lower orifices of the lachrymal ducts. They cover these orifices much in the same manner as the superior *conchæ* of the ethmoidal bone cover the maxillary openings. They are connected with the *ossa maxillaria, palati*, and *unguis*, and sometimes with the *os ethmoides*. They complete the bony structure of the nose, augment its surface, and render it proportionable to the extent of the organ of smell, and of the pituitary membrane. *Winflow.*

CONCHÆ proprius musculus novus, a name given by *Santorini* to a muscle of the **EAR**, called by *Albinus*, and the French writers, *aurus alæ anterior*.

CONCHA spectrorum, the *spectre shell*, a name given by authors to a species of *voluta*, from some odd figures described on its surface, representing rough draughts of terrible phantoms. It is an elegant shell, of a middle size, and is of a white ground, and the figures are reddish; these form three large and broad bands, surrounding the shell at top and bottom, and in the middle; and between these there are several series of small spots. It is a scarce shell, and usually sells at a large price.

CONCHA Veneris, in *Natural History*, the name by which several species of **CHAMA** are called. The shell is univalve, wreathed, and has a small longitudinal and denticulated chink, or aperture, in it. It is also called *concha porcellana*, from its aperture in some measure resembling the mouth of a hog; and *concha Erythraea*, from its being found in the Red Sea, called *Erythraum*. It is also called *concha Cytheriaca*, from *Venus*, who received the epithet *Cytheræa*, from *Cythera*, a Grecian island. That this fish was used by the ancients as an aliment, we read in *Seneca*, Ep. 95. *Mundius* asserts that they prove a stimulus to venery, and provoke urine. *Rondeletius* informs us, that these shells are an ingredient in the *pilulæ de bdellia*, for removing fluxes, and curing ulcers in the uterus. But instead of the *concha venerea*, the apothecaries generally use cockles. Excellent dentifrices are prepared from this shell, which is also used for curing ulcers in the canthus of the eye, and the *fistula lachrymalis*. It is remarkably drying, without exciting any heat.

The powder of these shells must be owned to possess an absorbent drying quality; but that on account of their beauty, or any other circumstance, their powder is preferable to that of other shells, is by no means probable.

CONCHITES marmor, a name given by the ancients to a species of marble dug near *Megara*, and remarkable for containing a great number of sea-shells, and other marine bodies immersed in it.

CONCHOID, or **CONCHILIS**, in *Geometry*, a curve line which always approaches nearer a straight line to which it is inclined, but never meets it.

It is inscribed thus: draw a right line *BD* (*Tab. Analysis, fig. 1.*) and another *AC*, perpendicular to it in *E*; draw any number of right lines, as *CM*, *CM*, cutting *BD* in *Q*; make $QM = QN = AE = EF$; the curve wherein the points *MM* are found, is the *conchilis*, or *conchois prima*; so called by its inventor *Nicomedes*. The other, wherein the points *NN* are found, is the *conchois secunda*; the right line *BD* the rule, the point *C* the pole. The inventor also contrived an instrument, whereby the first *conchois* may be described mechanically: thus, in the rule *AD* (*Tab. Analysis, fig. 2.*) is a channel or groove cut, so that a smooth nail, firmly fixed in the moveable rule *CB*, in the point *F*, may slide freely within it: into the rule *EG* is fixed another nail in *K*, for the moveable rule *CB* to slide upon.

If then the rule *BC* be so moved, as that the nail *F* passes along the canal *AD*; the style, or point in *C*, will describe the first *conchoid*.

Now let $AP = x$ (*fig. 1.*); $AE = a$; $PE = MR = a - x$; wherefore, as x increases, $a - x$, or *MR* will decrease; and therefore the curve continually approaches nearer to the rule *BD*.

In the same manner it appears, that the right line *NO* must continually decrease; and therefore that the second *conchoid*, also, must continually approach nearer the rule. But inasmuch as between each *conchoid* and the right line *BD*, there will be the right line *QM* or *QN*, equal to *AE*; neither of the *conchoids* can concur with the right line *BD*: consequently, *B* is an asymptote of each *conchoid*. See **ASYMPTOTE**.

There will be other kinds of *conchoids* produced, if CE : CQ : : QM : AE ; or indefinitely, if CE^m : CQ^m : : QM^m : AE^m : wherefore, if $CE = b$, $EA = a$, $CQ = x$, $QM = y$; then $ab = xy$; and for infinite *conchoids*, a^m : $b^m = x^m$: y^m .

CONCHYLIA. See SHELL-fish.

CONCIATOR, in the *Glass Art*, is for the crystal glass what the founder is at the green glass-houses. He is the person that weighs and proportions the salt on ashes and sand, and works them with a strong fire, till they run into lumps, and become white; and if the metal be too hard, and consequently brittle, he adds salt, or ashes; and if too soft, sand; still mixing them to a fit temper, which is only known by the working.

CONCILIO—*Querela eorum rege* & CONCILIO. See QUE-RELA.

CONCINNOUS intervals, in *Musick*. See INTERVALS.

CONCLAMATIO, in *Antiquity*, a shout raised by those present at burning the dead, before they set fire to the funeral pile. See SHOUT. The word was also applied to the signal given to the Roman soldiers to decamp, whence the expression *conclamare vasa*; and *conclamari arma*, was a signal for battle. It was likewise used for a practice of calling to a person deceased three times by his name, and when no reply was returned, they thus expressed his decease, *conclamaturn est*. Whence the same term was afterwards applied to the cessation of the Roman empire.

CONCLAVE, an assembly, or meeting of all the cardinals that are at Rome, shut up for the ELECTION of a POPE.

The *conclave* had its rise in the year 1270, and on this occasion: Clement IV. being dead at Viterbo, in 1268, the cardinals were two years without being able to agree on the election of a successor: in effect, things were carried to such pass, that they were upon the point of breaking up, without coming to any conclusion at all.

The inhabitants of Viterbo, then, being apprised of their design, by the advice of St. Bonaventure, then at Viterbo, shut the gates of their city, and locked up the cardinals in the pontifical palace adjoining to the cathedral, till they were brought to a better understanding.

Hence arose the custom which has since prevailed, of shutting up the cardinals in a single palace, till they have elected the pope.

Such was the origin of the *conclave*, as related by Onuph. Panvinus, Ciaconius, and Papebroch.

CONCLAVE is also used for the place wherein the election of the pope is performed; which is, now, at St. Peter's in the Vatican; though Gregory X. and Clement V. appointed it should always be held in the place where the last pope should die.

While the affair is in hand, if it be in winter, the walls and windows are all mured up, excepting only a single pane, to give a little light; in summer the windows are not closed; but the great door of the hall is secured with four locks, and four bolts; an aperture being, however, left, through which to supply the imprisoned prelates with victuals.

In the hall, which is very ample, there are cells or stalls erected for as many cardinals as are to be present at the election; the cells being only separated by deal boards.

The cells are marked with letters of the alphabet, and are distributed to the cardinals by lot: each cardinal puts his arms on the cell that falls to his share.

After the assembly has continued three days, they are only allowed one dish for a meal; and after fifteen days more, only bread and water: though this rule is not very strictly regarded.

Each cardinal is allowed two *conclavists*, or servants to attend him, and to be shut up with him.

The election is begun ten days after the pope's decease, and decided by a majority of two parts in three of the cardinals present.

These regulations were principally established by Gregory X. in 1274, and Clement VI. in 1351.

Matthew Paris says, the word *conclave* anciently signified the pope's wardrobe.

It is a popular proverb in Italy, *chi entra papa, esce cardinale*; he who enters pope, comes out cardinal; q. d. he who according to common report will be elected pope, ordinarily is not.

CONCLUSION, in *Law*, is where a man by his own act upon record hath charged himself with a duty or other thing, or confessed any matter whereby he shall be concluded: as if a sheriff returns that he hath taken the body upon a *capias*, and hath not the body in court, at the day of the return of the writ; by the return, the sheriff is concluded from plea of escape, &c. *Terms de Ley*, 153, &c. In another sense the word *conclusion* signifies the end of any plea, replication, &c. and a plea to the writ, is to conclude to the writ; a plea in bar, to conclude to the action, &c. *Conclusion* of plea in bar shall be, *et hoc paratus est verificare*:—of other pleas *et de hoc ponit se super patriam*. *Kitch.* 219, 220.

CONCLUSION, in *Logic*, the last part of an argument; or

the consequence drawn from something either assumed or proved before.

The *conclusion* of an argument contains two parts: the *consequent*, which is the matter of it: and the *consequence*, which is its form, and which, of a simple absolute proposition, renders the *conclusion* relative to the premises whence it is drawn.

The question, and *conclusion*, say the schoolmen, are the same ideas, only considered in different views, or relations: in the question they are considered as doubtful; in the *conclusion* as void of doubt.

CONCLUSION, in oratory, consists of two parts; the RECAPITULATION, or ENUMERATION, and the PASSIONS.

CONCLUSIVE *Conjunctions*. See CONJUNCTION.

CONCOCTION, in *Medicine*, the change which the food undergoes in the stomach, &c. to become chyle.

This change consists in destroying the texture and cohesion of the parts of the food; preparing part of it for some particular service of the animal frame, and the rest to be carried off as excrements, by proper excretories.

The ancients gave the term COCTION, or *concoction*, to what we now ordinarily call *digestion*; from a notion of the food's being, as it were, boiled in the stomach; and its nutritious juice expressed by the heat of the adjacent parts.

They assigned two *concoctions*, viz. one in the stomach, and a second in the small intestines, &c. which latter they attributed to the admixture of the bile and pancreatic juice.

The *concoction* of the aliments in the stomach, is their DIGESTION, or reduction to a sort of emulsion or chyle. By the *concoction* of the humours, the writers of institutes mean, the reduction of the chyle to blood, which is called the second *concoction*; and also the separation of any fluid from the blood, by means of glands destined for this use, which is called the third *concoction*.

It is commonly said that the faults arising from any defect in the first *concoction*, are not mended in the second, nor those from the second by the third; that is when the aliment is not sufficiently comminuted in the organs of digestion, the particles of the chyle are not small enough to circulate regularly through the minute vessels of the lungs, and be converted into good blood: it not being possible for the organs of sanguification to dissolve farther the particles they receive from the stomach. Hence these particles being too large to circulate through the capillary arteries, obstructions and all their consequences proceed. And the third *concoction*, that is in the glands, is not better adapted to the farther dissolution of these particles than the second. *James's Medical Dict. art. Coction.*

The several *concoctions* in the body, with regard to the propagation of the species, and the preservation of the individual, have been since reduced to five: those are CHYLOSIS for chyle, CHYMOSIS for chyme, HÆMATOSIS for blood, PNEUMATOSIS for spirits, and SPERMATOSIS for seed.

CONCOMITANT, in *Theology*, something that accompanies, or goes along with, another.

Concomitant grace, is that which God affords us during the course of our actions to enable us to perform them; and as the Roman schoolmen say, to render them meritorious.

CONCOMITANT *Necessity*. See NECESSITY.

CONCORD, *Form of*, in *Ecclesiastical History*, a standard-book among the Lutherans, composed at Torgaw, in 1576, and thence called the Book of Torgaw, and reviewed at Berg, by six Lutheran doctors of Germany, the principal of whom was James Andreae. This book contains in two parts, a system of doctrine, the subscription of which was a condition of communion, and a formal and very severe condemnation of all who differed from the compilers of it, particularly with respect to the majesty and omnipresence of Christ's body, and the real manducation of his flesh and blood in the eucharist. It was first imposed on the Saxons by Augustus, and occasioned great opposition and disturbance, both among the Lutherans and reformed. The dispute about it was revived in Switzerland in 1718, when the magistrates of Bern published an order for adopting it as the rule of faith; the consequence of which was a contest, that reduced its credit and authority. *Mosheim's Eccl. Hist.* by Dr. Maclaine, vol. iv. p. 53, &c. and vol. v. p. 98.

CONCORD, in *Grammar*, that part of syntax, or construction, whereby the words of a sentence agree among themselves, i. e. whereby nouns are put in the same case, number, gender, &c. and verbs in the same number and person, with nouns and pronouns.

The rules of *concord* are generally the same in all languages, as being of the nature of what is in use almost every-where, for the better distinguishing of discourse.

Thus, the distinction of the two numbers singular and plural,

plural, obliges us to make the adjective agree with the substantive in number; that is, to put the one either in this or that number, according as the other is: for the substantive being the thing confusedly, though directly, marked by the adjective; if the substantive word mark several, there are several subjects of the form marked by the adjective, and of consequence this should be in the plural; as *homines docti*, &c.

Again, the distinction of masculine, and feminine, renders it necessary to put the substantive and adjective in the same degree.

And verbs should have *concord* or agreement with nouns and pronouns in number and person.

If any thing occur apparently contrary to those rules, it is by a figure, i. e. something is implied, or the ideas are considered more than the words themselves.

CONCORD, in *Law*, is the agreement between two parties who intend the levying a fine of lands to one another, how and in what manner it shall pass.

CONCORD is also an agreement made upon any trespass committed (betwixt two, or more); and is divided into *concord executory*, and *concord executed*.

Plowden observes, that the first binds not, being imperfect; but the latter is perfect, and binds the party.

Others are of opinion, that *concords* executory are perfect, and bind no less than those executed.

CONCORD, in *Music*, denotes the relation of two sounds which are always agreeable to the ear, whether applied in succession or consonance.

If two single sounds be in such a relation, or have such a difference of tune, as that, being sounded together, they make a mixture, or compound sound, which affects the ear with pleasure; that relation is called *concord*: and whatever two sounds make an agreeable compound in consonance, those same will always be pleasing in succession, or will follow each other agreeably.

The reverse of **CONCORD**, is what we call a **DISCORD**; which is a denomination of all the relations or differences of tune that have a displeasing effect.

Concord and harmony are, in effect, the same thing; though custom has applied them differently. As *concord* expresses the agreeable effect of two sounds in consonance: so harmony expresses the same sort of agreement in a great number of sounds in consonance; add, that harmony always implies consonance; but *concord* is sometimes applied to succession: though never but when the terms will make an agreeable consonance: whence it is that Dr. Holder, and some other writers, use the word *consonance* for what we call *concord*.

Unisonance, then, being the relation of equality between the tunes of two sounds, all the unisons are *concords*, and in the first degree: but an interval being a difference of tune, or a relation of inequality between two sounds, becomes a *concord* or discord, according to the circumstances of that particular relation. Indeed, some restrain *concord* to intervals, and make a difference of tune essential thereto; but that is precarious: and Mr. Malcolm thinks, that as the word implies *agreement*, it is applicable to unison in the first degree.

It is not easy to affirm the reason or foundation of *concordance*: the difference of tune, we have elsewhere observed, take their rise from the different proportions of the vibrations of the sonorous body, i. e. of the velocity of those vibrations in their recourses; the more frequent those recourses are, the more acute will be the tune, and *vice versa*.

But the essential difference between *concord* and discord lies deeper: there does not appear any natural aptitude in the two sounds of a *concord*, to determine it to give us a pleasing sensation, more than in the two sounds of a discord: these different effects are merely arbitrary, and must be resolved into the divine pleasure.

We know by experience what proportions and relations of tune afford pleasure, and what do not; and we know also how to express the difference of tune by the proportion of numbers; we know what it is pleases us, though we do not know why; we know, v. gr. that the ratio of 1:2 constitutes *concord*, and 6:7 discord; but on what original grounds agreeable or disagreeable ideas are connected with those relations, and the proper influence of the one on the other, is above our reach.

By experience we know, that the following ratios of the lengths of chords are all *concord*: viz. 2:1, 3:2, 4:3, 5:4, 6:5, 5:3, 8:5; that is, take any chord for a fundamental, which shall be represented by the number 1, and the following divisions thereof will be

all *concord* with the whole; viz. $\frac{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 3 \cdot 5}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 5 \cdot 8}$

So that the distinguishing character between *concords* and discords must be looked for in these numbers, expressed in the intervals of sound, not abstractedly, and in

themselves, but as expressing the number of vibrations. Now, unisons are in the first degree of *concord*, or they have the most perfect likeness or agreement in tune; and therefore have something in them accessory to that agreement which is found, less or more, in every *concord*: but it is not true, that the nearer two sounds come to an equality of tune, the more agreement they have; therefore, it is not in the equality or inequality of the numbers that this agreement lies.

Farther, if we consider the number of vibrations made in any given time by two chords of equal tune; on the principle laid down, they are equal: and therefore the vibrations of the two chords coincide, or commence together as frequently as possible, i. e. they coincide at every vibration; in the frequency of which coincidence, or united mixture of the motions of the two chords, and of the undulations of the air occasioned thereby, it is, that the difference of *concord* and discord must be sought. Now, the nearer the vibrations of two strings approach to a coincidence as frequent as possible, the nearer they should approach that condition, and consequently the agreement, of unisons; which is confirmed by experience.

For if we take the natural series 1, 2, 3, 4, 5, 6, and compare each number to the next, as expressing the number of vibrations in the same time of two chords, whose lengths are reciprocally as those numbers; the rule will be found exact, for 1:2 is best, then 2:3; after 6 the consonance is unsufferable; the coincidences being too rare: though there are other ratios that are agreeable, besides those found in that continued order, viz. 3:5, and 5:8, which, with the preceding five, are all the *concording* intervals within, or less than an octave, or 1:2; that is, whose acutest term is greater than half the fundamental.

On this principle, 3:5 will be preferable to 4:5; because those being equal in the number of vibrations of the acuter term, there is an advantage on the side of the fundamental in the ratio 3:5, where the coincidence is made at every third vibration of the fundamental, and every fifth of the acute term: so also the ratio 5:8 is less perfect than 5:6; because, though the vibrations of each fundamental that go to one coincidence are equal; yet in the ratio 5:6, the coincidence is at every sixth of the acute term, and only at every eighth in the the other case.

Thus, we have a rule for judging of the preference of *concords*, from the coincidence of their vibrations: agreeable to which rule, they are disposed into the order of the following table; to which the names of the *concords* in practice, the ratio of their vibrations, the lengths of the chords, and the number of coincidences in the same, are expressed.

Ratios, or vibrations.		Grave Acute		Coincid.
		Term.	Term.	
Unison	—	1	1	
Octave, 8ve	—	2	1	60
Fifth, 5th	—	3	2	30
Fourth, 4th	—	4	3	20
Sixth, gr.	—	5	3	20
Third, gr.	—	5	4	15
Third, lesser	—	6	5	12
Sixth, lesser	—	8	5	12

Grave Acute
Lengths.

Though this order be settled by reason, yet it is confirmed by the ear. On this foundation, *concords* must still be the more perfect, as they have the greatest number of coincidences with regard to the number of vibrations in both the chords; and where the coincidences are equal, the preference will fall on that interval, whose acutest term has fewest vibrations to each coincidence: which rule, however, is in some cases contrary to experience; and yet it is the only rule hitherto discovered.

F. Merfenne, indeed, after Kircher, gives us another standard for settling the comparative perfection of intervals with regard to the agreement of their extremes in tune: and it is this.

The perception of *concordance*, say they, is nothing but the comparing two or more different motions which in the same time affect the auditory nerve: now we cannot make a certain judgment of any consonance, till the air be as oft struck in the same time by two chords, as there are units in each member expressing the ratio of that *concord*; v. gr. we cannot perceive a fifth, till two vibrations of the one chord, and three of the other, are accomplished together; which chords are in length as 3 to 2: the rule then is, that those *concords* are the most simple and agreeable, which are generated in the least time;

time; and those on the contrary, the most compound and harsh, which are generated in the longest time. For instance, let 1, 2, 3, be the length of 3 chords, 1 : 2 is an octave; 2 : 3 a fifth; and 1 : 3 an octave and fifth compounded, or a twelfth. The vibrations of chords being reciprocally as their lengths, the chord 2 will necessarily vibrate once, while the chord 1 vibrates twice, and then exists an octave; but the twelfth does not yet exist, because the chord 3 has not vibrated once, nor the chord 1 thrice, which is necessary to form a twelfth.

Again, for generating a fifth, the chord 2 must vibrate thrice, and the chord 3 twice; in which time, the chord 1 will have vibrated 6 times; and thus the octave will be thrice produced, while the twelfth is only produced twice; the chord 2 uniting its vibrations sooner with the chord 1, than with the chord 3; and they being sooner consonant than the chord 1 or 2 with that 3. Whence that author observes, many of the mysteries of harmony, relating to the performance of harmonious intervals, and their succession are easily deduced.

But this rule, upon examining it by other instances, Mr. Malcolm has shewn defective, as it does not answer in all positions of the intervals with respect to each other: but a certain order, wherein they are to be taken, being required: and there being no rule, with respect to the order, that will make this standard answer to experience in every case: so that at last we are left to determine the degrees of *concord* by experience and the ear.

Not but that the degrees of *concord* depend much on the more or less frequent uniting the vibrations, and the ear's being more or less uniformly moved, as above; for that this mixture or union in motion is the true principle, or, at least, the chief ingredient in *concord*, is very evident: but because there seems to be something farther in the proportion of the two motions, necessary to be known, in order to fix a catholic rule for determining all the degrees of *concord*, agreeable to sense and experience.

The result of the whole doctrine is summed up in this definition.—*Concord* is the result of a frequent union, or coincidence of the vibrations of two sonorous bodies, and, by consequence of the undulating motions of the air, which, being caused by these vibrations, are like and proportionable to them; which coincidence, the more frequent it is, with regard to the number of vibrations of both bodies, performed in the same time, *ceteris paribus*, the more perfect is that *concord*: till the rarity of the coincidence, in respect of one or both the motions, produces discord. See some of the remarkable phenomena of sounds accounted for from this theory, under the word UNISON; see also INTERVAL, &c.

Mr. Carre, in the Memoirs of the Royal Academy of Sciences, lays down a new general proposition, to determine the proportion which cylinders are to have, in order to form the *concords* or consonances of music. And it is this—that the solid cylinders, whose sounds yield those *concords*, are in a triplicate and inverse ratio of that of the numbers which express the same *concords*.

Suppose, e. gr. two cylinders, the diameters of whose bases and lengths are as 3 to 2: it is evident their solidities will be in the ratio of 27 to 8, which is the triplicate ratio of 3 to 2: we say then, that the sounds of those two cylinders will produce a fifth, which is expressed by those numbers; and that the biggest and longest will yield the grave sound, and the smallest the acute one.—And the like of others.

Concords are divided into *simple*, or original, and *compound*.

A *simple*, or *original concord*, is that whose extremes are at a distance less than the sum of any two other *concords*.

On the contrary, a *compound concord* is equal to two or more *concords*.

Other musical writers state the division thus: an octave 1 : 2, and all the inferior *concords* above expressed, are all *simple* and *original concords*: and all greater than an octave, are called *compound concords*; as being composed of, and equal to the sum of one or more octaves, and some single *concord* less than an octave; and are usually, in practice, denominated from that *simple concord*.

As to the composition and relations of the original *concords*, by applying to them the rules of the addition and subtraction of intervals, they will be divided into *simple* and *compound*, according to the first and more general notion; as in the following table.

Simple Concords.	Compound Concords.	
5 : 6 a 3d less.	4th. { 3dg. and 3dl.	8ve. com- posed of {
4 : 5 a 3d g.	6th l. { 4th. 3dl.	
3 : 4 a 4th.	5th g. { 4th. 3g.	

The octave is not only the first *concord* in point of perfection, the agreement of whose extremes is greatest, and the nearest to unison; insomuch that, when found-

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ed together, it is impossible to perceive two different sounds; but it is also the greatest interval of the seven original *concords*; and, as such, it contains all the lesser, which derive their sweetness from it, as they arise more or less directly out of it; and which decrease gradually, from the octave to the lesser sixth, which has but a small degree of *concord*.

What is very remarkable, is the manner wherein these lesser *concords* are found in the octave, which shews their mutual dependencies.

For, by taking both an harmonical and arithmetical mean, between the extremes of the octave, and then both an harmonical and arithmetical mean betwixt each extreme, and the most distant of the two means last found; viz. between the lesser extreme and the first arithmetical mean, and betwixt the greater extreme and the first harmonical mean; we have all the lesser *concords*.

Thus, if betwixt 360 and 180, the extremes of octave, we take an arithmetical mean, it is 270; and an harmonical mean is 240: then, betwixt 360 the greatest extreme, and 240 the harmonical mean, take an arithmetical mean, it is 300; and an harmonical mean is 288. Again, betwixt 180 the lesser extreme of the octave, and 270 the first arithmetical mean, it is 225, and an harmonical one 216.

Thus we have a series of all the *concords*, both ascending towards acuteness from a common fundamental 360; and descending towards gravity from a common acute term 180: which series has this property, that taking the two extremes, and any other two at equal distances, the four will be in geometrical proportion.

The octave, by immediate division, resolves itself into a fourth and fifth; the fifth, again, by immediate division, produces the two thirds; the two thirds are therefore found by division; though not by immediate division; and the same is true of the two sixths. Thus do all the original *concords* arise out of the division of the octave; the fifths and fourths immediately and directly, the thirds and sixths mediately.

From the perfection of the octave arises this remarkable property, that it may be doubled, tripled, &c. and yet still will preserve a *concord*, i. e. the sum of two or more octaves are *concord*; though the more compound will be gradually less agreeable: but it is not so with any other *concord* less than octave; the doubles, &c. whereof are all discords.

Again, whatever sound is *concord* to one extreme of the octave, is *concord* to the other also; and if we add any other simple *concord* to an octave, it agrees to both its extremes; to the nearest extreme it is a simple *concord*, and to the farthest a compound one.

Another thing observable in this system of *concord*, is, that the greatest number of vibrations of the fundamental cannot exceed five; or that there is no *concord* where the fundamental makes more than five vibrations to one coincidence with the acute term. It may be added, that this progress of the *concords* may be carried on to greater degrees of composition, even in *infinitum*; but still the more compound the less agreeable.

So a single octave is better than a double one, and that than a triple one; and so of fifths and other *concords*. Three or four octaves is the greatest length we go in ordinary practice; the old scales went but to two; no voice or instrument will well go above four. See THIRD, FOURTH, and FIFTH.

CONCORDANCE, a dictionary or index to the Bible, wherein all the leading words, used in the course of the inspired writings, are ranged alphabetically; and the various places where they occur referred to; to assist in finding out passages, and comparing the several significations of the same word.

Cardinal Hugo de St. Charo is said to have employed five hundred monks at the same time in compiling a Latin *concordance*: besides which, we have several other *concordances* in the same language; one, in particular, called the *concordance* of England, compiled by J. Darlington, of the order of Prædicants; another more accurate one, by the Jesuit de Zamora.

R. Mordecai Nathan has furnished us with a Hebrew *concordance*, first printed at Venice in 1523, containing all the Hebrew roots branched into their various significations, and under each signification, all the places in scripture wherein it occurs: but the best and most useful Hebrew *concordance* is that of Buxtorf, printed at Basil in 1632.

Dr. Taylor published in 1754, a Hebrew *concordance* in two volumes folio, adapted to the English Bible, and disposed after the manner of Buxtorf. See the preface of this work.

The Greek *concordances* are only for the New Testament: indeed we have one of Contr. Kircher's on the Old; but this is rather a concordantial dictionary than a *concord-*

ance; containing all the Hebrew words in an alphabetical order; and underneath, all the interpretations or senses the LXX. give them; and in each interpretation, all the places where they occur in that version.

In 1718, Trommius published his Greek concordance for the Septuagint, at Amsterdam, in two volumes folio; and Schmidius improving on a similar work of H. Stephen, has given an excellent Greek concordance for the New Testament, the best edition of which is that of Leipzig, an. 1717.

Calafius, an Italian Cordelier, has given us concordances of the Hebrew, Latin, and Greek, in two columns: the first, which is Hebrew, is that of R. Mordecai Nathan, word for word, and according to the order of the books and chapters; in the other column is a Latin interpretation of each passage of Scripture, quoted by R. Mordecai; this interpretation is Calafius's own; but in the margin he adds that of the LXX. and the Vulgate, when different from his. The work is in four volumes folio, printed at Rome in 1621.

We have several very copious concordances in English; as Neumann's, &c. but the last and best esteemed, is that in 4to by Alex. Cruden.

CONCORDANT *Verbes*, such as have several words in common; but which, by the addition of other words, convey an opposite, at least a different meaning. Such are those.

Et { *Canis* } in silva { *venatur* } & omnia { *servat*.
 { *Lupus* } { *nutritur* } { *vastat*.

CONCORDAT, in the Canon Law, denotes a covenant, or agreement concerning some beneficiary matter, as a resignation, permutation, promotion, or the like.

The council of Trent, sess. vi. de reform. cap. 4. speaking of concordats made without the authority and approbation of the pope, calls them *concordias quæ tantum suos obligant auctores, non successores*. And the congregation of cardinals, who have explained this decree, declares also that a concordat cannot be valid so as to bind successors, unless confirmed by the pope.

CONCORDAT is also used, absolutely, among the French, for an agreement concluded at Bologna, in 1516, between pope Leo X. and Francis I. of France, for regulating the manner of nominating to benefices.

The concordat serves in lieu of the PRAGMATIC sanction, which has been abrogated; or, rather, it is the pragmatic sanction softened and reformed.

The concordat between the pope and the republic of Venice resembles the former.

There is also a German concordat, made between the emperor Frederic III. and the princes of Germany, in 1448, relating to beneficiary matters, confirmed by pope Nicholas V.

CONCOU, in Botany, a name given by the people of Guinea to an herb which is in great esteem with them for killing that troublesome sort of worm called the Guinea worm, which breeds in their flesh. They bruise the leaves, and, mixing them with oil, apply them in form of a cataplasm. The leaves of this shrub somewhat resemble those of the caggow, but they are thicker and stiffer, and are not so full of veins. They are broadest within one third of the base, and from whence they go tapering to each end. They are placed on long foot-stalks of a fine green throughout. Phil. Trans. N° 232.

CONCOURSE, or CONCURRENCE, the reciprocal action of divers persons or things, co-operating toward the same effect or end.

The schoolmen distinguish two kinds of concurrence, viz. *mediate*, which consists in giving a power or faculty to act; and *immediate*, which is a contemporary influence of one cause along with another, to produce an effect. — Thus the grandfather concurs *mediately* to the production of a grandson, as he originally gives the power of generating to the father; but the father concurs *immediately* with the mother to the production of the same child. With respect to the agency of God, some divines maintain both these kinds of concurrence; others deny the latter. See CAUSE.

CONCOURSE, *Point of*. See FOCUS.

CONCRETE, in the School Philosophy, an assemblage, or COMPOUND.

CONCRETE, *Physical*, or a CONCRETE body, may denote any mixed body, or body composed of different principles; and consequently, all sensible bodies whatever, as all bodies arise from a coalition of divers elements, or at least of divers principles, matter, and form.

But, in strictness, concrete is only used for those compounds wherein the ingredients still retain their distinct natures, nor are wholly converted into a new common nature.

Authors distinguish natural concretes, and artificial ones: antimony is a natural concrete, and soap a factitious concrete.

CONCRETE Juices. See JUICES.

CONCRETE, *Logical*, or a CONCRETE word, called also *paronymum*, is that which has a compound signification, as denoting both the subject, and some quality or accident of the subject, which gives its denomination.

Such, e. gr. are *man, learned, white*; for *man* signifies as much as *having human nature*; *learned*, as much as *having learning*, &c. Hence the word concrete is chiefly used to express the union of qualities or quantities with the bodies or subjects, without any separation, even in idea.

The opposite term whereby things are separated in thought, is *abstract*.

Concrete properly signifies a subject accompanied with its form or quality; as *pious, hard, white*: *abstract*, on the contrary, expresses the form and quality without the subject, as *piety, hardness, whiteness*.

CONCRETE Numbers are those which are applied to express or denote any particular subject: as two men, three pounds, two thirds of a shilling, &c.

Whereas, if nothing be connected with a number, it is taken abstractedly or universally: thus, three signifies only an aggregate of three units; let those units be men, pounds, or what you please.

CONCRETION, the act whereby soft bodies are rendered hard; or, an insensible motion of the particles of a fluid or soft body, whereby they come to a consistence.

The word is used indifferently for *induration, condensation, congelation, and coagulation*.

CONCRETION is also used for a coalition of several little particles into a sensible mass, called a CONCRETE; by virtue of which union, the body acquires this or that figure, and these or those properties.

CONCUBINAGE sometimes expresses a criminal, or prohibited commerce between the two sexes; in which sense it comprehends *adultery, incest, and simple fornication*.

In its more restrained sense, concubinage is used for a man's and a woman's cohabiting together in a way of MARRIAGE; without having passed the ceremony thereof.

Concubinage was anciently tolerated: the Roman law calls it an allowed custom, *licita consuetudo*. When this expression occurs in the constitution of the Christian emperors, it signifies what we now call a marriage in conscience.

The concubinage tolerated among the Romans in the time of the republic, and of the heathen emperors, was that between persons not capable of contracting marriage together: nor did they even refuse to let inheritances descend to children which sprung from such a tolerated cohabitation.

Concubinage between such persons they looked on as a kind of marriage, and even allowed it several privileges: but then this concubinage was confined to a single person, and was of perpetual obligation, as much as marriage itself.

Hottoman observes, that the Roman laws had allowed of concubinage long before Julius Cæsar made that law whereby every one was allowed to marry as many wives as he pleased. The emperor Valentinian, Socrates tells us, allowed every man two.

CONCUBINAGE is also used for a marriage performed with less solemnity than the formal marriage; or a marriage with a woman of inferior condition, and to whom the husband does not convey his rank or quality.

Cujas, observes, that the ancient laws allowed a man to espouse, under the title of *concubine*, certain persons, such as were esteemed unequal to him, on account of the want of some qualities requisite to sustain the full honour of marriage. He adds, that though concubinage was beneath marriage, both as to dignity and civil effects; yet was *concubine* a reputable title, very different from that of *mistress* among us.

The commerce was esteemed so lawful, that the concubine might be accused of adultery in the same manner as a wife.

This kind of concubinage is still in use in some countries, particularly in Germany, under the title of a *half-marriage, morgengabic marriage, or marriage with the left-hand*; alluding to the manner of its being contracted, viz. by the man's giving the woman his left hand instead of the right.

This is a real MARRIAGE, though without solemnity; the parties are both bound for ever; though the woman be thus excluded from the common rights of a wife, for want of quality or fortune.

The children of concubines were not reputed either legitimate or bastards, but natural children, and were capable only of donations.

They were deemed to retain the low rank of the mother; and were on this ground unqualified for inheriting the effects of the father.

CONCUBINAGE, in a Legal Sense, is used as an exception against her that sueth for dower, alledging thereby, that she was not a wife lawfully married to the party, in whose

whose lands she seeks to be endowed, but his *concubine*.

CONCUBINE, a woman whom a person takes to cohabit with him, in the manner and under the character, of a wife, without being authorised thereto by a legal marriage.

CONCUBINE is also used for a real, legitimate, and only wife, distinguished by no other circumstances but a disparity of birth and condition between her and the husband. Du-Cange observes, that one may gather from several passages in the epistles of the popes, that they anciently allowed of such *concubines*. The seventeenth canon of the first council of Toledo declares, that he, who with a faithful wife keeps a *concubine*, is excommunicated; but that if the *concubine* served him as a wife, so that he had only one woman, under the title of *concubine*, he should not be rejected from communion: which shews that there were legitimate wives under the title of *concubines*.

In effect, the Roman laws did not allow a man to espouse whom he pleased; there was required a kind of parity, or proportion, between the conditions of the contracting parties; but a woman of inferior condition, who could not be espoused as a wife, might be kept as a *concubine*; and the laws allowed of it, provided the man had no other wife.

It is certain the patriarchs had a great number of wives, and that these did not all hold the same rank; some being subaltern to the principal wife: which were what we call *concubines*, or half-wives. The Romans prohibited a plurality of *concubines*, and only had regard to the children issuing from a single *concubine*, because she might become a legitimate wife. Solomon had 700 wives, and 300 *concubines*: the emperor of China has sometimes two or three thousand *concubines* in his palace. Q. Curtius observes that Darius was followed in his army by 365 *concubines*, all in the equipage of queens.

CONCUPISCENCE, among divines, an irregular desire, appetite, or lust after carnal things, inherent in human nature.

The dominion or prevalence of *concupiscence*, according to F. Malebranche, is what we call *original sin*.

The origin of *concupiscence* he ascribes to those impressions made on the brain of our first parents at their fall; which are still transmitted and continued on those of their children: for as animals produce their like, and with like traces in the brain (whence the same sympathies and antipathies in the same kind; and whence the same conduct on the same occasions); so our first parents, after their fall, received such deep traces in the brain, by the impression of sensible objects, that they might well be supposed to communicate them to their children.

The schoolmen use the term *concupiscible appetite* for the desire we have of enjoying any good; in opposition to *irascible appetite*, whereby we eschew what is evil.

CONCURRENCE. See **CONCOURSE**.

CONCURRING, or **CONGRUENT** *Figures*, in *Geometry*, such as, being laid upon one another, do exactly correspond to, and cover one another, and consequently must be equal among themselves. Thus, triangles having two sides and the contained angle equal each to each, appear to be equal to one another in all respects. See **CONGRUITY**.

CONCUSSION, *crimen repetundarum*, in *Jurisprudence*, is the abuse of power by some person entrusted with a public commission or employment; by extorting money from those under his power or command. This crime is taken notice of in the heads of the Digest, or Code — *ad legem Juliam repetundarum*; and it is to be observed, that he who gave a bribe contrary to the oath he had taken, might be prosecuted as well as the receiver: and that the judge who was corrupted was deemed guilty of *concuSSION*, as much as he who purchased property which was in a course of litigation. The magistrates were even forbidden to acquire any thing by way of purchase, donation, or otherwise, in the provinces wherein they resided, under pain of being guilty of *concuSSION*.

The crime of *concuSSION* was not ranked in the number of public offences, except when committed by a magistrate; when committed by a person of inferior station, it was only a private crime; but it is not the quality of the person which renders the crime public or private, but the nature of the crime itself.

CONDALUS, in *Antiquity*, a kind of ring usually worn by slaves.

COND, **CON**, or **CONN**, in *Sea Language*, signifies to guide or conduct a ship in her right course.

He that *conds* her stands aloft with a compass before him, and gives the word of direction to the man at the helm how he is to steer. See **STEERING**.

If the ship go before the wind, or, as they call it, betwixt the sheets, the word is either *starboard*, or *port the helm*; according as the *conder* would have the helm put

to the right or left side of the ship, upon which the ship always goes the contrary way.

If he says *helm a mid-ship*, he would have the ship to go right before the wind, or directly between her two sheets.

If the ship sail by a wind or on a quarter wind, the word is, *aloof, keep your luff, fall not off, veer no more, keep her to, touch the wind, have a care of the lee-latch*: all which expressions are of the same import, and imply that the steersman should keep the ship near the wind.

On the contrary, if he would have her sail more large; or more before the wind, the word is, *ease the helm, no near, bear up*.

If he cries *steady*, it means, keep her from going in and out, or making yaws (as they call it), howsoever the sails, whether large, or before a wind: and when he would have her go just as she does, he cries, *keep her thus, thus, &c.*

CONDEMNATION, the act of passing, or pronouncing SENTENCE, or given judgment against a man; whereby he is subjected to some penalty or PUNISHMENT; either in respect of fortune, reputation, or life.

CONDEMNATION to the galleys. See **GALLEYS**.

CONDEMNATION of prizes taken from the enemy. See **PRIZE**.

CONDENSATION, the act whereby a body is rendered more dense, compact, and heavy.

Condensation consists in bringing the parts closer to each other, and increasing their contact: in opposition to *rarefaction*; which renders the body lighter and looser, by setting the parts farther asunder, and diminishing their contact, and of consequence their cohesion.

Wolffius, and some of the more accurate writers, restrain the use of the word *condensation*, to the action of cold: what is done by external application, they call *compression*.

Air easily *condenses*, either by cold, or by art: water congeals, but never has been supposed to *condense*, i. e. to be brought into a less space; because it has even penetrated the most solid body, even gold, rather than lose of its bulk. See **COMPRESSION**. A syrup *condenses*, in ebullition.

It was found, in the observatory at France, during the great cold of the year 1670, that the hardest bodies even metals, glass, and marble itself, were sensibly *condensed* by the cold, and became much harder, and more brittle, than before; till their former state was retrieved by the ensuing thaw.

Water alone seems to expand by cold; inasmuch as when congealed, the ice takes up more space than the water did before. But this must be rather owing to the intermixture of some foreign matter, as the nitrous particles of the ambient air, than to any proper rarefaction of the water by the cold.

The Cartesians, indeed, taking it for granted that there is no vacuum, deny that there can be any such thing as proper *condensation*, or *RAREFACTION*. According to them, when a body takes up more space than it did before, its parts are distended by the detraction of a subtle matter through its pores: and when its bulk, again, is reduced into less space, this is owing to the extrusion or egress of that matter through the same pores; by virtue whereof, the parts of the body, though not the parts of matter, come nearer each other.

For as extension and matter, according to them are the same thing; a body can never take up more or less place, any otherwise than by the accession or diminution of matter: and thus they conclude there is no **VACUUM**.

Now, that, in the rarefactions of gross bodies, their parts are distended by the accession of air, is frequently manifest; but this does not follow from the plenitude of the world, but from the fluid and elastic nature of air; or from its gravity and pressure. That there is such a thing as *condensation*, without the loss of any matter, is evident from Galileo's experiment: a cock, being with a female screw fitted to a hollow brass ball, or cylinder, so as that a syringe, by means of a male screw, may be applied to it; by working the syringe, the air will be forced into the ball, and turning the cock, it will be retained: inasmuch that, upon examining the vessel by balance, its weight will be found increased. If the cock be returned, the air will burst out with violence, and the ball will sink to its former weight.

From the experiment it follows, 1^o. That air may be crowded into a less volume and bulk than it ordinarily takes up, and is therefore compressible. — For the quantity of its **COMPRESSION**, see **AIR**.

2^o. That from the recovery of its weight, just so much air is expelled as was injected; and that, therefore, compressed air returns to its primitive expansion, if the compressing force be removed; and it has therefore an elastic force.

3^o. That it is a certain sign of compression, if, upon opening

opening the orifice of a vessel, any portion of air be observed to fly out.

4. That since the weight of the vessel is increased by injecting air; the aerial mass must have a nifus downwards, in lines perpendicular to the horizon; and is therefore heavy, and presses subject bodies in lines perpendicular to the horizon, according to the conditions of gravity.

Condensed air has effects just opposite to those of rarefied air; birds, &c. appear brisker and more lively therein than in the common air, &c.

CONDENSER, a pneumatic engine, made of glass, in a cylindric or globular figure, or consisting of two very strong brass cups, whose brims covered with wet leather, are pressed together, and kept down by an iron cross-bar with pillars and screws, by which, with an *injecting* SYRINGE, an unusual quantity of AIR may be crowded into a given space. The orifice of the *condenser* is fitted with a female screw to receive the male screw at the end of the syringe: it is also furnished with a GAGE. See *Tab. II. Pneumatics*, fig. 22, 23, 24.

They can by this throw in 2, 3, 4, 5, or 10 atmospheres into the *condenser*, i. e. twice, thrice, four, &c. times as much air as there would be in the same compass without the engine. See CONDENSATION.

CONDENSING of wines. See WINES.

CONDERS, in the Customs. See BALKERS.

CONDIGNITY, merit of. See MERIT.

CONDITION, in the *Civil Law*, an article of a treaty, or contract: or a clause, charge, or obligation, stipulated in a contract, or added in a donation, legacy, testament, &c.

The donee does not lose his donative, if it be charged with any dishonest or impossible conditions. Lawyers distinguish three kinds of conditions, under which a legacy or donation may be made: these are the *casual*, which depends merely on chance; the *protestative*, which is absolutely in our power; and the *mixed condition*, which is both casual and protestative together.

CONDITION, in *Common Law*, is a manner, quality, or restriction, annexed to an act: qualifying or suspending the same; and making it precarious and uncertain, whether or no it shall take effect.

In a lease there may be two sorts of conditions; *condition collateral*, and *condition annexed to the rent*.

CONDITION, *collateral*, is that annexed to a collateral or foreign act; as v. gr. that the lessee shall not go to Paris. *Condition* is also divided into *condition in deed*, and *condition implied*.

CONDITION in deed, or *expressed*, is annexed by express words to the feoffment, lease, or grant, either in writing, or without. As, if I infeoff a man in land, reserving a rent to be paid at such a feast; *upon condition*, if the feoffee fail of payment, it shall be lawful for me to re-enter.

CONDITION implied, called also *condition in law*, is when a man grants to another the office of a steward, bailiff, keeper of a park, &c. for life: though there be no condition expressed in the grant, yet the law makes one covertly; which is, that if the grantee do not justly execute all things belonging to the office, it shall be lawful for the granter to discharge him.

CONDITION precedent, is when a lease or estate is granted to a person for life, upon condition of the payment of a certain sum by the lessee to the lessor at a certain day, when he shall have a fee-simple: in this case the condition precedes the estate in fee, and on performance gains the fee-simple.

CONDITION subsequent, is when a man grants to another his manor in fee, upon condition that the grantee shall pay to him a certain sum on such a day, or that his estate shall cease: so that here the condition follows the estate, and the performance preserves it.

CONDITION without which, *sine qua non*, used in *Philosophy*, in speaking of some accident or circumstance, which is not essential to the thing, but is yet necessary to its production. Thus, light is a condition without which a man cannot see objects, though he have good eyes; and thus fire, though considered in itself, may burn without wood; yet is its presence a condition without which the wood cannot be burnt.

CONDITIONAL, something not absolute, but subject to limitation. See CONDITION.

Conditional legacies are not due till the conditions are accomplished.

The Armenian divines maintain, that all the decrees of God, relating to the salvation and damnation of man, are truly conditional; and the Calvinists, that they are all absolute. See ARMENIAN, &c.

CONDITIONAL conjunctions, in *Grammar*, are those which serve to make propositions conditional. As, *if*, *unless*, *provided that*, *in case of*, &c.

CONDITIONAL propositions, in *Logic*, are such as consist of two parts, connected together by a conditional particle. Of these, the first, wherein the condition lies, is called the *antecedent*, and the other the *consequent*.

Thus, if the soul be spiritual, it is immortal; is a conditional proposition, wherein, *if the soul*, &c. is the antecedent, and *is immortal* the consequent.

The truth of these propositions depends on the truth of the connection of them, and they may be properly denied or contradicted when the negation affects their conjunctive particles.

CONDITIONAL syllogism, is that whose major or minor, or both, are conditional propositions: e. gr. if there be a God, the world is governed by Providence; but there is a God, therefore the world is governed by providence.

CONDITIONAL estate, and *resignation*. See the substantives.

CONDITIONALS, science of, i. e. of conditional truths, imports that knowledge which God has of things, considered, not according to their essence, their nature, or their real existence; but under a certain supposition, which imports a condition never to be accomplished.

Some of the schoolmen deny, that God has the knowledge of conditionals: the Thomists maintain, that God's knowledge of conditionals depends on a predeterminating decree; others deny it.

F. Daniel observes, that the truths which compose the knowledge of conditionals, being very different from those which compose the knowledge of intuition, and that of understanding; a third class must be added, and the knowledge of God be divided into *intuitive*, *intellective*, and *conditional*. See KNOWLEDGE.

CONDOR, in *Ornithology*, the name of the largest of all birds in South America; and perhaps by the description of it, in the world. It is frequently met with on the Andes. It is of the carnivorous kind, and so very strong, fierce, and voracious, that it often seizes lambs from the flock; and Don Ulloa informs us, that he actually saw one of them rising with a lamb in its talons. The Indians have various ways of catching them; besides traps and snares laid for them near any carrion, they kill a cow or other animal, and moisten its flesh with the juice of some strong intoxicating herbs, and then bury the body till it putrefies. In this state they take it up, and lay it on the ground; and when the condors come near to devour it, they are intoxicated and rendered motionless, when the Indians fall upon and kill them.

CONDORMIENTES, religious sectaries, whereof there have been two kinds. The first arose in Germany, in the thirteenth century; their leader was a native of Toledo. They held their meetings near Cologne; where they are said to have worshipped an image of Lucifer, and to have received answers and oracles from him: the legend adds, that an ecclesiastic having brought the eucharist to it, the idol broke into a thousand pieces; which put an end to the worship. They had their name from their *lying all together*, men and women, young and old.

The other species of *Condormientes* were a branch of Anabaptists in the sixteenth century; so called, because they lay, several of both sexes, in the same chamber; on pretence of evangelical charity.

CONDUCT, safe. See SAFE-conduct.

CONDUCTOR, the name of a surgeon's instrument, used when a sinus is laid open, and being put up into the bladder, serves to guide or conduct the knife, in the operation of cutting for the stone. See LITHOTOMY.

CONDUCTOR, in *Surgery*, likewise denotes an instrument, not long since contrived by Mr. Wathen, for securing a fractured limb in the conveyance of the patient from the place where the accident occurred, to the place where the cure is to be completed. It consists of two tin CANULÆ, with grooves and sliders: these canulæ with their sliders enclosed are, like SPLINTS of the same length, to be placed one on each side of the fractured leg, and secured on the knee and ankle joints by a tin band, which is jointed and cushioned. The slide may be drawn out at pleasure, and the degree of extension thus procured is continued by a key-check, which fastens on the teeth of the slider. The conductor may be shortened by pressing the key, and letting the slider return into the canula.

CONDUCTORS, in *Electricity*, a term first introduced into this science by Dr. Desaguliers. and used to denote those substances which are capable of receiving and transmitting the electric virtue, in opposition to ELECTRICS in which the same virtue may be excited and accumulated. The former are also called *non-electrics*, and the latter *non-conductors*. All bodies are ranked under one or other of these two classes: though none of them are perfect electrics, or perfect conductors, so as wholly to retain, or freely and without resistance to transmit the electric fluid.

fluid. Electricians, in the infancy of this science, apprehended, that some substances contained the electric matter, and that others were wholly destitute of it; and they were hence led to call the former *electrics per se*, and the latter *non-electrics*: but subsequent experiments proved, that the electric fluid was really drawn from those bodies, which at first were thought to have none in them; and that it was diffused through *all the matter* of the terraqueous globe; and, therefore, the terms *conductor* and *non-conductor* were adopted, as less exceptionable, and more agreeable to phenomena. Metals and semi-metals, ores, and all fluids (excepting air and oils), together with the substances containing them, the effluvia of flaming bodies, ice, unless froze very hard, and snow, most saline and stony substances, charcoals, of which the best are those that have been exposed to the greatest heat, smoke, and the vapour of hot water, belong to the class of *conductors*. We may observe here, that the electric fluid passes through the substance, and not merely over the surfaces of metallic *conductors*: because if a wire of any kind of metal be covered with some electric substance, as resin, sealing wax, &c. and a jar be discharged through it, the charge will be conducted as well with as without the electric coating.

It has likewise been alledged, that electricity will pervade a vacuum, and will be transmitted through it almost as freely as through the substance of the best *conductor*: but Mr. Wall found, that the electric spark or shock would no more pass through a perfect vacuum, made by the assistance of M. De Luc, than through a stick of solid glass. In other instances, when the vacuum hath been made with all possible care, the experiment has not succeeded. We may also observe, that many of the fore-mentioned substances are capable of being electrified, and that their *conducting* power may be destroyed and recovered by different processes: e. g. green wood is a *conductor*; but baked, it becomes a *non-conductor*: its *conducting* power is restored by charring it; and again destroyed by reducing it to ashes. And again, many electric substances, as glass, resin, air, &c. become *conductors*, by being made very hot: air heated by glass must be excepted. The difference between these two kinds of substances, in consequence of which some retain, and others convey the electric matter, has been among the *desiderata* in this science. Dr. Franklin, in a letter dated 1751, observes, that the perfect *conductors* of electric matter, are only metals and water, and that other bodies *conduct* only as they contain a mixture of these; without more or less of which they will not *conduct* at all. But this ingenious philosopher found reason afterwards to retract this opinion; since several substances have been discovered to act as good *conductors*, as particularly, hot air and charcoal, which contain no water or metal, at least in such a quantity as to induce a change in their nature; and S. Beccaria has proved, that water itself is an imperfect *conductor*.

Dr. Priestley has lately advanced another hypothesis, no less probable than ingenious. He considers the characteristic distinction between *conducting* and *non-conducting* substances to consist in this, that the former contain PHLOGISTON intimately united with some base; and that the latter, if they contain it all (glass being supposed to contain none), retain it more loosely. He was led to this discovery by his experiments on the *conducting* power of CHARCOAL, which he found exactly to agree with metals in this particular, that while they have the phlogiston, they *conduct*, and, when deprived of it, they will not *conduct*. Dr. Priestley was afterwards confirmed in his hypothesis, upon observing the affinity between phlogiston and water, which gave him occasion to conclude, that water, in its natural state, contains some portion of phlogiston; in proof of which conclusion he has since found, that long agitation in the purest water injures air, so that a candle will not burn in it, which is precisely the effect of all phlogistic processes. Is not (says S. Beccaria) the inflammability of resins, sulphurs, and other oiled substances, the cause why such bodies are disposed to be electrified by deficiency, since in consequence of such inflammability they receive, when rubbed, a greater degree of heat? And may not the great quantity of phlogiston with which metallic substances abound, as well as the great ease with which common fire moves within them, be the reason why metallic substances quickly contract by friction a considerable degree of heat, and are thus disposed to give (or part with) their electric fire in the highest degree? We may observe, that when metallic bodies are melted by lightning, the bodies contiguous to them are very liable to be burnt by the phlogiston which is then set free from them. We may add to the above conjectures, that glass, when unpolished, also contracts heat more easily on account of the separation between the parts which compose its surface, and of their smallness; in the same manner

as inflammable bodies are the more easily kindled, as their surface has a greater ratio to their mass. Mr. Henly, in a very long course of experiments, observed, that those bodies that were most replete with phlogiston, became the most easily, and the most powerfully electrified *negatively* by friction: he also observes that a thick scum from the surface of some linseed oil, perfectly dried, became a very strong negative electric. See on this subject Priestley's History of Electricity, vol. i. Observations on Air, vol. i. p. 283, &c. vol. ii. p. 254. Cavallo's Complete Treat. of Elect. chap. ii. Franklin's Letters, &c. p. 95, & 262. ed. 1769. Henly's Exp. and Obs. in Elect. Phil. Transf. vol. lxxvii. part i. p. 122, &c.

CONDUCTOR, *prime*, in Electricity, is an insulated *conductor* so connected with the ELECTRICAL machine, as to receive the electricity immediately from the excited electric. The first metallic *conductors*, that were applied to this purpose, were those of Mr. Grey in 1734: he suspended several pieces of metal on silken lines, and charged them with electricity. Mr. Du Fay fastened to the end of an iron bar, which he used as his *prime conductor*, a bundle of linen threads, to which he applied the excited tube; but these were afterwards changed for small wires suspended from the common gun-barrel, or other metalline rod. In the present advanced state of the science, this part of the electrical apparatus has been considerably improved. The *prime conductor* is made of hollow brass, and generally of a cylindric form (see Tab. Electricity, fig. 4.); and care should be taken that it is perfectly smooth and round, without points and sharp edges; if holes are made in it for the purposes of different experiments, the same caution should be observed. The ends of the *conductor* are spherical; and it is necessary, that the part most remote from the electric should be made much larger and rounder than the rest, in order to resist the effort of the electric matter to escape, which is always the greatest at the greatest distance from the electric: and the other end should be furnished with several pointed wires or needles, either suspended from, or fixed to an open metallic ring, and pointing to the globe, or cylinder, in order to collect the fire. The *prime conductor*, instead of hanging on silken strings, which are liable to continual motion, should be supported by pillars of solid glass covered with sealing-wax or good varnish. The electrician should be provided with several metallic *conductors* of different sizes, which may be used as occasion requires. *Prime conductors* of a larger size are usually made of pasteboard, covered with tin-foil or gilt paper: and these are useful for throwing off a longer and denser spark than those of a smaller size: they should terminate in a smaller knob or obtuse edge, at which the sparks should be solicited. Mr. Nairne prepared a *conductor* six feet in length, and twelve inches in diameter, from which he drew electrical sparks at the distance of sixteen, seventeen, or eighteen inches. But there is a *maximum*, which the size of the *prime conductor* should not exceed; for it may be so large, that the dissipation of the electricity from its surface may be greater than that which the electric is capable of supplying.

Dr. Priestley recommends a *prime conductor* of polished copper, in the form of a pear (see fig. 6. k.), supported by a pillar and a firm basis of baked wood: this receives its fire by a long arched wire of soft brass (l), which may be easily bent, and raised and lowered to the globe; it is terminated by an open ring (m), in which are hung some sharp-pointed wires. In the body of this *conductor* are holes for the insertion of metalline rods. This, he says, collects the fire perfectly well, and retains it equally every where. Phil. Transf. vol. lxxiv. part i. art. 7. Hist. Elect. vol. ii. § 2.

Mr. Henly has contrived a new kind of *prime conductor*, which, from its use, is denominated the *luminous conductor*, (see fig. 8.) It consists of a glass tube, EF, eighteen inches long, and about two inches in diameter. The tube is furnished at both ends with brass caps and ferules about two inches long, as FD and EB, cemented and made air-tight, and terminated by brass balls D and B. In one of these caps, as F, a small hole is drilled, which is covered by a strong valve, and which serves for exhausting the tube of its air; and the ball D is made to screw on the cap F. Within the tube at each end there is a knobbed wire, projecting to the distances of two inches and a half from the brass caps, and terminating as represented at H and I. To the ball D is annexed a fine pointed wire for receiving and collecting the electricity, and at the other end B there is a wire with a knob or ball for discharging it. The *conductor*, thus prepared, is supported on pillars of sealing-wax, or glass. Besides the common purposes of a *prime conductor* to an electrical machine, this apparatus serves to exhibit and ascertain the direction of the electric matter in its passage through it: for, when the point C is brought

near the excited globe or cylinder of a machine, it will appear illuminated with a star, and a weak light will occupy the inner part of the tube; a lucid pencil will issue from the ball H, and the opposite ball I will be illuminated with a star. But if the point C be connected with the insulated rubber of a machine, the appearances will be reversed; the star will appear at H, and the pencil at I; for in the former case H discharged, and in this case it receives the electric fire, as in *fig. 9*. If the knob of an uncharged bottle be nearly in contact with the brass ball B, or a chain be suspended from it to the table, and the experiment be repeated as above described, the ball I, when C is presented to the excited glass, will be enveloped with a dense white atmosphere of electricity; and when C is presented to the insulated rubber, the atmosphere will appear upon the ball H; and the same will happen on the application, first, of a bottle positively charged, and then of a bottle negatively charged, as in *fig. 10* and *11*. From an experiment similar to this, S. Beccaria inferred, that electricity consists of one uniform homogeneous fluid, and not of two, viz. the vitreous and resinous, as some have supposed: for, if this were the case, both balls should have been encompassed with their proper atmospheres at the same time. If instead of balls, the wires in the tube terminate in points, appearance will be the same. Phil. Transf. vol. lxiv. part ii. p. 403.

CONDUCTORS, *pointed metallic*, were proposed by Dr. Franklin for preserving buildings, &c. soon after the identity of electricity and lightning was ascertained; and they exhibit a very important and useful application of modern discoveries in this science. This ingenious philosopher, having found that pointed bodies are better fitted for receiving and throwing off the electric fire than those that were terminated by blunt ends or flat surfaces, and that metals were the readiest and best conductors, soon discovered that lightning and electricity resembled one another in this and other distinguishing properties: he accordingly recommended a pointed metallic rod to be raised some feet above the highest part of a building, and to be continued down into the ground or the nearest water. The lightning, should it ever come within a certain distance of this rod or wire, would be attracted by it, and pass through it preferably to any other part of the building, and be conveyed into the earth or water, and there dissipated, without doing any damage to the building. Many facts have occurred to evince the utility of this simple and seemingly trifling apparatus. However, some electricians, of whom Mr. Wilson is the principal, have objected to the pointed termination of this conductor; preferring rather a blunt end; because, they say, a point invites the electricity from the clouds, and attracts it at a greater distance than a blunt conductor. Phil. Transf. vol. liv. p. 234. vol. lxiii. part ii. p. 49. This subject has been very accurately examined and discussed; and pointed conductors are almost universally, and for the most sufficient reasons, recommended as the most eligible and proper. A sharp pointed conductor, as it attracts the electric fire of a cloud at a greater distance than the other, draws it off by degrees; and by conveying it away gently and in a continued stream prevents a stroke; whereas a conductor with a blunt termination receives the whole discharge of a cloud at once, and is much more likely to be exploded, whenever a cloud comes within the striking distance. To which we may add, that buildings guarded by either natural or artificial conductors terminating in a point, have seldom or ever been struck by lightning; but others, having flat or blunt terminations, have been often struck and damaged by it. For a farther account of the nature and efficacy of points in electricity, see POINTS.

The best conductor for this purpose is a rod of iron, or rather of copper, as being a better conductor of electricity, and not so liable to rust, about three quarters of an inch thick, which is either to be fastened to the walls of a building by wooden cramps, or supported by wooden posts at the distance of one or two feet from the wall: the upper end of it should terminate in a pyramidal form with a sharp point and edges; and if it is made of iron, be gilt or painted near the top; and be elevated above the highest part of the building, e. g. the stack of chimnies to which it may be fastened, at least five or six feet. The lower end should be driven five or six feet into the ground, and directed away from the foundations of the building, or continued till it communicates with the nearest water. If this part be made of lead, it will be more secure from decay. When the conductor is formed of different pieces of metal, care should be taken that they are well joined: and Mr. Henley advises, that a communication be made from the conductor by plates of lead, eight or ten inches broad, with the lead on the ridges and gutters, and with the pipes that carry down

the rain water, which should be continued to the bottom of the building, and made to communicate either with moist earth or water, or with the main pipe which serves the house with water. Phil. Transf. vol. lxiv. part ii. p. 403. If the building be large, two, three, or more conductors should be applied to different parts of it, in proportion to its extent.

Chains have been used for the preservation of ships; but as the electric matter does not pass readily through the links of it, copper wires, a little thicker than a goose-quill, have been preferred, and are now generally used. They should reach two or three feet above the highest mast, and be continued down in any convenient direction, so as always to touch the sea-water. These were first recommended to lord Anson by Dr. Watson in 1762. Phil. Transf. vol. lii. part i. p. 633. See Franklin's Letters, &c. ed. 1769. p. 65, 124, 479, &c. and Cavallo's Elect. chap. ix.

The conductor or machine for drawing electricity from the clouds is thus constructed: A pole, *a*, of a manageable length is erected on the top of a building (the higher the better), having on the upper end a solid piece of glass or baked wood, a foot long, (see *fig. 12*). This is covered with a tin or copper vessel, *b*, in the shape of a funnel, in order to prevent its being wetted. Above this there rises a long slender rod, *c*, terminating in a pointed wire, having a small wire twisted round it, to conduct the electricity the better to the funnel. From the funnel a wire, as *d*, descends along the building, and is conveyed through the window into the room, where the experiments are made. This wire is connected with an insulated conductor, which will be electrified whenever there is a considerable quantity of electricity in the air; and notice will be given, when it is properly charged, either by Mr. Canton's balls (see ELECTROMETER), or by a set of BELLS, described under that article. For the safety of these experiments, the electrified wire should be brought within a few inches of a conducting rod which serves to guard the house, that the redundant electricity may pass off in that way, without striking any person who may happen to stand near it.

Experiments on the electricity of the atmosphere may be made with greater exactness, by raising a kite, by means of a string in which a small wire is twisted. The best string for this purpose may be formed by twisting a copper thread, such as is used for trimmings, &c. or, if expence be disregarded, a silver or gold thread, with two very small threads of wire. Mr. Nairne uses a string soaked in a strong solution of salt, which becomes a good conductor, by imbibing the moisture of the air. The extremity of this line must be silk, and the wire must terminate in a metallic conductor of any convenient form. But the following apparatus will serve for still greater security in a thunder-storm. Let the string of the kite (*Tab. Electricity, fig. 13*.) be wound upon a reel, *b*, and pass through a slit in a flat board, fastened at the top of it, by which more or less of the string may be let out at pleasure. Let the reel be fixed to the top of such a funnel, *c*, as was above described; and from the funnel let a metallic rod, *d*, with a large knob be projected, to serve for a conductor. The funnel and reel must be supported by a staff, *e*, the upper end of which, at least, should be well baked; and the lower end may be made sharp to thrust into the ground, when the kite is well raised. The safety of this apparatus depends upon the chain, *f*, fastened to the staff, by a hook a little below the funnel, and dragging on the ground: for the redundant lightning will strike from the funnel to the chain, and thus be conducted as far as any one chuses, without touching the person who holds the staff. Sparks may be taken from the conductor belonging to this apparatus with all safety, by means of small rod of baked wood, *a*, furnished with a small funnel, *b*, and a brass rod, *c*, and a chain connected with it; for the lightning, which strikes the rod, will pass by the funnel and chain, without touching the person who holds the rod. Hist. of Elect. vol. ii. p. 103, &c. 8vo. ed. 1775.

CONDUCTORS, in the *Military Art*, are assistants given to the commissary of the stores, to receive or deliver out stores to the army; to attend at the magazines by turns, when in garrison; and to look after the ammunition-waggons in the field. They bring their account every night to the commissary, and are immediately under his command.

CONDUCTOS *ad proficiendum*. See CAPIAS.

CONDUIT, a canal, or PIPE, for the conveyance of water, or other fluid matter.

In the earth are several subterraneous conduits, through which the waters pass that form some SPRINGS; and through which also pass the vapours, which form METALS and MINERALS.

Artificial conduits for water are made of lead, stone, cast iron, potters earth, &c. See PLUMBERY.

In the province of New Mexico, there is said to be a subterraneous conduit, in form of a grotto, extending six hundred miles in length. See DUCT, TUBE, &c.

CONDYLOMA, in *Anatomy*. See **CONDYLUS**.

CONDYLOMA, in *Medicine*, is a soft painless tumor, of the oedomatous kind, arising on the internal coat of the anus, and the muscles of that part, or in the neck of the matrix.

The word comes from *κονδυλῶς*; because the *condyloma* has usually *rugæ*, or wrinkles, like the joints of the body.

The *condyloma*, by long continuance, grows fleshy, and, shooting out, as from a stalk, takes the denomination **FICUS**.

Condylomata are frequently the effect of venereal ailments, and, if neglected, sometimes prove cancerous; their cure depends on mercurial unctions, and proper escharotics to consume them; though extirpation, either by ligature or incision, if the nature of the part will admit, is the most expeditious. A salivation is often necessary, in order to facilitate and complete the cure.

CONDYLUS, *Κονδύλῶς*, a name which *Anatomists* give to a little round eminence, or protuberance, at the extremity of a bone. See *Tab. Anatomy (Osteol.) fig. 2. lit. n.*

Such is that of the lower jaw, received within the cavity of the *os petrosum*.

When this eminence is large, it is called the head of the bone.

CONE, in *Geometry*, a solid body, having a circle for its basis, and terminated at the top in a point, or vertex. See *Tab. Conics, fig. 2.*

The cone is generated by the motion of a right line, *KM*, round an immoveable point *K*, called its *vertex*, along the circumference of a plane, called its *base*, *MN*: or it may be conceived as generated by the revolution of the triangle *KLM*, about the right line *KL*, which is called the *axis* of the cone, and *KM* its *latus*, or side. If the axis be perpendicular to the base, it is said to be a *right cone*: and if inclined, or oblique, a *scalenois cone*. *Scalenois cones* are again divided into *obtuse-angled*, and *acute-angled*.

Euclid defines a cone a solid figure, whose base is a circle, as *CD* (*fig. 3.*) and is produced by the entire revolution of the plane of a right-angled triangle *CAB*, about the perpendicular leg *AB*.

If this leg, or axis, be greater than *CB*, half the base; the solid produced is an *acute-angled cone*; if less, it is an *obtuse-angled cone*; and, if equal, a *right-angled cone*.

But Euclid's definition only extends to a *right cone*: that is, to a cone whose axis is at right angles to the base; and not to oblique ones, whose axis is not at right angles to the base.

For a more general and comprehensive description of a cone, which may take in both right and oblique ones, suppose an immoveable point *A* (*fig. 4.*) without the plane of the circle *BDEC*; and suppose a right line *AE*, drawn through that point, and produced infinitely both ways, to be moved quite about the circumference of the circle; the two superficies that will arise from this motion, are each called *conic superficies*; but, taken conjunctly, they are called *superficies vertically opposite*, or only *opposite superficies*. The immoveable point *A*, common to both the superficies, is called the *vertex*; the circle *BDEC*, the *base*; the right line *AC*, drawn through the vertex *A* and *C*, the *centre of the base*; and if infinitely produced, the *axis*; and the solid comprehended under the conical superficies and the base is a cone.

Properties of the CONE.—1. The area or surface of every right cone, exclusive of its base, is equal to a triangle whose base is the periphery, and its height the side of the cone.

Or, the curve superficies of a right cone is, to the area of its circular base, as *AC* (*fig. 3.*), the length of the hypotenuse of the right-angled triangle describing it, is to *CB*, the base of the same triangle: that is, as the slant height of the cone, to the semidiameter of the base.

Hence, the surface of a right cone is equal to a sector of a circle described on the side of the cone, as a radius, whose arch is equal to the periphery of the cone, and has therefore the same proportion to its periphery, which the diameter of the base has to twice the side of the cone.

Hence we have a method of describing a rete or cage that shall just cover a cone.—Thus, with the diameter of the base *AB* (*Tab. Conics, fig. 6.*) describe a circle, and produce the diameter to *C*, till *AC* be equal to the side of the cone. To 2 *AC* and *AB*, determined in numbers, and 360° , find a fourth proportional; and with the radius *CA*, on the centre *C*, describe an arch *DE* equal to the number of degrees found: the sector *CDE* with the circle *AB* will be a rete for the right cone.

If, then, the side of a truncated cone be set off from *A* to *F*, and an arch *GH* be described with the radius *CF*; by finding a fourth proportional to 360° , to the number of

degrees of the arch *GH*, and to *FC*; and thence determining the diameter of the circle *IF*, we shall have a net or cover of the truncated cone.

For *CDBAE* is a net for the entire cone; *CGFIH* for the cone cut off; therefore, *DBEHI* for the truncated cone.

2. *Cones and pyramids, having the same bases and altitudes, are equal to each other.*

Now, it is shewn, that every triangular prism may be divided into three equal pyramids; and therefore, that a triangular pyramid is one third of a prism, standing on the same base, and having the same altitude.

Hence, since every multangular body may be resolved into triangular ones, and every pyramid is a third part of a prism having the same base and altitude; since a cone may be esteemed an infinite-angular pyramid, and a cylinder an infinite-angular prism; a cone is a third part of a cylinder, which has the same base and altitude.

Hence we have a method of measuring the surface and solidity of a cone.—Thus, for the solidity: find the solidity of a prism, or cylinder, having the same base with the cone, or pyramid. Which found, divide by 3: the quotient will be the solidity of a cone, or a pyramid. Thus, v. gr. if the solidity of a cylinder be 605592960, the solidity of the cone will be found 201864320.

For the surface; that of a right cone is had by multiplying the semi-periphery of the base into the side, and adding the product to the base.

Suppose e. gr. the diameter of the cone *NM* (*fig. 2.*) 56; the periphery will be 175,9296, and the base 2463,0144. Suppose the altitude or axis *KL*, 246; since $LM = \frac{1}{2} NM = 28$, and $KM^2 = KL^2 + LM^2 = 60516 + 784 = 61300$, $KM = 247,5$, &c. Consequently the superficies of the cone, exclusive of the base is, 21771,288; and the whole together 24234,3024.

The solidity of an oblique cone is obtained in the same manner with that of the right cone: but it is much more difficult to find its surface, since it cannot be reduced to the measure of a sector of a circle, because all the lines drawn from the vertex to the base are not equal. See a Memoir on on this subject by M. Euler, in the *Nouv. Mem. de Petersburg*, tom. i. Dr. Barrow has demonstrated, in his *Lectiones Geometricæ*, that the solidity of a cone, with an elliptic base, forming part of a right cone, is equal to the product of its surface by a third of one of the perpendiculars drawn from the point in which the axis of the right cone intersects the ellipse; and that it is also equal to one third of the height of the cone multiplied by the elliptic base: and therefore that the perpendicular is to the height of the cone, as the elliptic base to the surface.

As to the measure of the surface, and solidity of a truncated cone, *ABCD* (*fig. 7.*). Its altitude *CH*, and the diameters of its bases *AB* and *CD*, being given, find their circumferences: to the square of the altitude *CH*, add the square of the semi-difference of the radii *AH*, and from the aggregate extract the square root, which will give the side *AC*: the semi-sum of the peripheries, multiplied by that side, gives the superficies of the truncated cone.

To find the solidity: as the difference of the semidiameters *AH* is to the altitude of the truncated cone *CH*, so is the greater semidiameter *AF* to the altitude of the entire cone *FE*. This being found, subtract the altitude of the truncated cone *GF*, which will leave that of the cone taken off, *EG*.

Find the solidity of the cone *CED* and *AEB*; subtract the other from this; the remainder will be the solidity of the truncated cone *ACDB*.

For the sections of the CONE, see **CONIC** section.—For the ratio of CONES and Cylinders, see **CYLINDER**.—For the centres of gravity and of oscillation of a CONE, see **CENTRE**.

CONES of the higher kinds, are those whose bases are circles of the higher kinds; and are generated by supposing a right line fixed in a point, on high, though conceived capable of being extended more or less, on occasion; and moved or carried round a circle.

CONE of rays, in *Optics*, includes all the several RAYS which fall from any point of a radiant, on the surface of a glass.

CONE, double or spindle, in *Mechanics*, is a solid formed of two equal cones joined at their bases. If this be laid on the lower part of two rulers making an angle with one another, and elevated above the horizontal plane, it will move towards the raised ends, and seem to ascend, though it really descends. Let *ABD* (*Tab. Mechanics, fig. 11.*) be the common base of the two cones, its centre *C* will be the centre of gravity of the whole solid; therefore if *DF* represents one of the rulers elevated to an angle *FDG*, whose sine *FG* is less than the semidiameter of the cone *CD*, it is plain that the centre of gravity *C* at the position of the cone in *D*, is more distant from the centre of the earth, to which all heavy bodies tend, than in

in its position between the legs of the ruler at F: and therefore it will descend, as on an inclined plane CFE, from C to F, where it will stop, being supported on the raised ends of the rulers.

CONE, in *assaying*. See MELTING-conc.

CONE, in *Botany*, a hard dry seed-vessel of a conical figure, consisting of several woody parts; and is, for the most part, scaly, adhering closely together, and separating when ripe.

CONE-stone, in *Natural History*, the name given by many to a species of *TUBULUS marinus*, not known to us in its recent state, but frequently found fossil in the Swedish stones used in pavements.

CONE and key. Bracton, lib. ii. cap. 37. num. 3. says, *Fœmina in tali ætate (i. e. 14 et 15 annorum) potest disponere domui suæ, et habere cone et key.*

The words come from the Saxon *conne*, i. e. *calculus*, and *key*, *clavis*; so that a woman was then held to be of competent years, when she was able to keep the accounts and keys of the house: and Glan. lib. vii. cap. 9. has somewhat to the same purpose.

CONEPATL, in *Zoology*, the name of an American animal, very much like the raccoon in shape, but variegated with two long streaks of white, one on each side of the ridge of the back, which run even into the tail. It is a tame and harmless animal, but of a stinking smell; and when pursued, or provoked, will discharge its excrements at the person who offends it, to six or eight feet distance; these have a very bad smell, and spoil people's cloaths, by leaving indelible yellow spots on them. Ray. See YZQUIEPATL.

CONESSI, or CONESTI, in the *Materia Medica*, a bark brought from the East Indies. It is frequent in Ceylon, and Malabar, where the natives give it in diarrhoeas, lenteries, and dysenteries. We use it in powder for the same purposes, the dose being from half a dram to a dram. It is proper to give a dose of ipecacuanha before taking it.

This tree grows also on the Coromandel coast, in the East Indies, and is not unlike the *cadagopala* of the *Hortus Malabaricus*. The bark should be fresh powdered, and the electary prepared with syrup of oranges every day, or every other day. Med. Ess. vol iii. art. 4.

CONFARREATION, a ceremony among the ancient Romans, used in the marriage of persons whose children were destined for the honour of priesthood.

Confarreation was the most sacred of the three modes of contracting marriage among that people; and consisted, according to Servius, in this, that the *pontifex maximus* and *flamen dialis* joined and contracted the man and woman, by making them eat of the same cake of salted bread: whence the term *far* signifying *meal* or *flour*.

Ulpian says, it consisted in the offering up of some pure wheaten bread; rehearsing, withal, a certain formula, in presence of ten witnesses. Dionysius Halicarnassensis adds, that the husband and wife did eat of the same wheaten bread, and threw some on the victims.

CONFECTION, in *Pharmacy*, a kind of compound remedy, of the consistence of a soft electary.

There are several electaries which bear the name of *confections*; some of which, in the medical language are *corroborative*, and others *purgative*.

Of the number of the *corroborative confections* are those of *alkermes*, of *hyacinth*, and the *anacardine*: a purgative one is the *confection Hamech*. The *confection of alkermes* has its name from the principal ingredient therein; which is the *kermes*, or *alkermes*, or scarlet-grain. The other ingredients are, pearls, musk, cinnamon, ambergris, leaf-gold, juice of pippins, and rose-water. It is ranked among the best cardiacs, and is frequently used for the palpitation of the heart, or syncope; and sometimes in the small-pox and measles.

The *confection of hyacinth* has nearly the same virtues with that of *alkermes*; but, besides, it is frequently used as an astringent. It consists of near triple the number of drugs; whereof the precious stone, called the *hyacinth*, is esteemed the principal; the chief of the rest are red coral, bole armeniac, terra sigillata, myrrh, the fantals, burnt hartshorn, camphor, sapphire, emerald, topaz, and most of the ingredients of the *confection* of *alkermes*.

The *anacardine confection*, now disused in England, is composed chiefly of *ANACARDIUMS*; whence the name. The other drugs are, long-pepper, black-pepper, most kinds of myrobalans, castoreum, &c. It is used to purge the blood, and is proper in cold diseases.

The *confection Hamech* takes its name from that of its inventor, an Arabian physician. Its ingredients are, polypody, myrobalans, agaric, fenna, tamarinds, red roses, manna, colycinth, &c. It is applied as a drastic for the purging of the grosser humours and viscidities: it is also of some reputation in vertiges and cancers.

CONFECTIO cardiaca, a name given in the late London dispensatory to the so much esteemed medicine, com-

monly known by the name of the *confectio Raleighiana*. The composition is also altered as well as the name, and is ordered now to be made in the following manner: take fresh tops of rosemary, and juniper berries of each a pound; the lesser cardamom seeds, freed from their hulks, zedoary, and saffron, of each half a pound. Draw a tincture from these, with a gallon and a half of proof spirit; reduce this tincture, when filtered, to the weight of about two pounds and a half, by a gentle evaporation; then finish the electary by adding the following species, finely powdered; viz. of compound powder of crabs claws, sixteen ounces; cinnamon and nutmeg, of each two ounces; cloves, an ounce; double refined sugar, two pounds. Pemberton's London Dispensatory, p. 338.

CONFECTIO Damocratis. See MITHRIDATE.

CONFECTIO Fracastorii. See DIASCORDIUM.

CONFECTIO Japonica, is prepared of Japan earth, three ounces; tormentil root, nutmeg, and olibanum, of each two ounces; opium, dissolved in Lisbon wine, a dram and a half, simple syrup and conserve of roses, of each fourteen ounces. An electary of these ingredients supplies the place of *diascordium*; and the dose is from a scruple to a dram.

CONFECTIO Paulina, a name given in the late London Dispensatory to the composition which used to be called *confectio archigenis*. It is now ordered to be made in the following manner: take costus or zedoary, cinnamon, long-pepper, black-pepper, strained storax, galbanum, opium, and Russia castor, of each two ounces; of simple syrup, boiled to the consistence of honey, an equal weight to thrice the species. Pemberton's London Pharm. p. 339.

CONFECTOR, among the *Ancient Romans*, a sort of GLADIATOR, hired to fight in the amphitheatre against beasts; thence also denominated *bestiarius*.

The *confectores* were thus called à *conficiendis bestiis*, from their dispatching and killing beasts.

The Greeks called them *παπαβόροι*, q. d. *daring, rash, desperate*; whence the Latins borrowed the appellations *PARABOLANI*, and *parabolarii*. The Christians were sometimes condemned to this sort of combat.

CONFECTS, or CONFITS, a denomination given to fruits, flowers, herbs, roots, and juices, when boiled and prepared with sugar, or honey, to dispose them to keep, or render them more agreeable to the taste.

The ancients only *confitted* with honey; at present, sugar is more frequently used. *Confects half-sugared*, are those only covered with a little sugar, to leave more of the natural taste of the fruit.

Confects are reduced to eight kinds; viz. *liquid confections*, *marmalades*, *jellies*, *pastes*, *dry confections*, *conservees*, *candies*, and *dragees*, or *sugar-plums*.

Liquid confections are those whose fruits, either whole, in pieces, in seeds, or in clusters, are *confitted* in a fluid transparent syrup, which takes its colour from that of the fruits boiled in it. There is a good deal of art in preparing these well; if they be too little sugared, they turn; and if too much, they candy. The most esteemed of the liquid *confections* are plums, especially those called *mirables*, barberries, quinces, apricots, cherries, orange flowers, little green citrons from Madeira, green cassia from the Levant, myrobalans, ginger, cloves, &c.

Marmalades are a kind of pastes almost liquid, made of the pulp of fruits, or flowers, that have some consistence; such as apricots, apples, pears, plums, quinces, oranges, and ginger. Marmalade of ginger is brought from the Indies by way of Holland: it is esteemed good to revive the natural heat in old men. See MARMALADE.

Jellies are juices of several fruits, wherein sugar has been dissolved, and the whole, by boiling, reduced into a pretty thick consistence; so as, upon cooling, to resemble a kind of thin transparent glue, or size. *Jellies* are made of various kinds of fruits, especially gooseberries, currants, apples, and quinces: there are other jellies made of flesh, fish, hartshorn, &c. but they are not to be kept, being very subject to corrupt.

Pastes are a kind of marmalades, thickened to that degree by a proper boiling, as to assume any form, when put into little moulds, and dried in the oven. The most in use are those of gooseberries, quinces, apples, apricots, and orange flowers: those of pistachoes are much esteemed; those of ginger are brought from the Indies.

Dry confections are those whose fruits, after having been boiled in the syrup, are taken out again, drained, and put to dry in an oven. These are made of so many kind of fruits, that it would be hard to explain them all: the most considerable are citron and orange-peel, plums, pears, cherries, apricots, &c.

Conservees are a kind of dry *confections*, made with sugar, and pastes of flowers or fruits, &c. The most usual among these are those of roses, mallows, rosemary; of heps,

of orange flowers, violets, jessamin, pistachoes, citrons, and flocs.

Note. The apothecaries, under the title of *conserve*s, comprehend all kinds of *confects*, both dry and liquid; whether of flowers, fruits, seeds, roots, barks, or leaves, prepared with sugar or honey, to preserve, &c.

Candies are ordinarily entire fruits, candied over with sugar, after having been boiled in the syrup; which renders them like little rocks crystallised; of various figures and colours, according to the fruits enclosed within them. The best candies are brought from Italy. See **CANDY**.

Sugar-plums are a kind of little dry *confects*, made of small fruits or seeds, little pieces of bark, or odoriferous and aromatic roots, &c. incrustated and covered over with a very hard sugar, ordinarily very white. Of these there are various kinds, distinguished by various names: some made of raspberries, others of barberries, melon-seeds, pistachoes, filberds, almonds, cinnamon, orange-peel, corianders, aniseed, caraways, &c.

CONFEDERACY, an alliance or league between divers princes and states.

CONFEDERACY, in *Law*, is when two or more persons combine to do any damage to another, or to commit any unlawful act.

Confederacy is punishable, though nothing be put in execution: but then it must have these four incidents; 1. That it be declared by some matter of prosecution; as by making of bonds or promises to one another: 2. That it be malicious; as for unjust revenge: 3. That it be false; i. e. against the innocent: and, lastly, That it be out of court, voluntarily.

CONFERTA *folia*, among *Botanists*. See **LEAF**.

CONFERTA, in *Botany*. See **HAIR-weed**.

We find many of our pools and rivers in the summer months thick covered with the green *confervæ*; they are also frequently driven by the winds against the shores of our rivers, and cover the whole surface with a green mantle. This, with us, has never been found to be of any ill consequence to animals; but there is a peculiar species of it in some parts of the world, that is undistinguishable from ours in appearance, but is poisonous. *Phil. Trans.* N^o 13.

CONFESS and *avoid*, in *Law*, a species of **REPLICATION**, in which the plaintiff introduces some new matter or distinction, consistent with his former declaration; as in an action of trespass upon lands of which the plaintiff is seized; if the defendant shews a title to the land by descent, the plaintiff may either deny the fact, or *confess and avoid* it, by replying, that such descent happened, but that the defendant hath since demised the lands to the plaintiff for the term of life. *Blackst. Com.* vol. iii. p. 310.

CONFESSION, *confessio*, in *Rhetoric*, the same with what is otherwise called **PARHOMOLOGY**.

CONFESSION, in a *Civil Sense*, a declaration or acknowledgement of some truth, though it be against the interest of the party who makes it; whether it be in a court of justice, or out of it. It is a maxim, that in civil matters, the *confession* is never to be divided, but always taken entire; and that a criminal is never condemned on his simple *confession*, without other collateral proofs; nor is a voluntary extra-judicial *confession* admitted as any proof. A person is not admitted to accuse himself, according to that rule in law, *non auditer perire volens*.

CONFESSION of action, in *Law*, is a species of plea to the **ACTION**, in which the merits of the complaint are answered, by confessing either wholly, or, which is most common, in part.

CONFESSION of indictment, is a prisoner's acknowledgement of the offence, when he is brought to the bar to be arraigned: upon a simple and plain confession, which the court is backward in receiving and recording, nothing remains but to award judgment. This *confession* is made before the judge; in consequence of which, the prisoner submits to the legal penalty annexed to his crime; or the prisoner, by *confession*, becomes an **APPROVER**, or accuser of others.

CONFESSION, in *Theology*, denotes the verbal acknowledgement which a penitent makes of his sins to God: in a more partial and restricted sense, it is a declaration of a person's sins, made to a priest, in order to obtain absolution for the same. The Romish church makes *confession* a part of the sacrament of penance.

Confession was anciently public and general, in the face of the church; though the Romanists have since altered it, and made it private and auricular.

Confessions are to be buried in eternal silence, under pain of the greatest punishment to the priest who reveals them. Bellarmin, Valentia, and some other Romish controversial writers, endeavour to trace up **AURICULAR confession** to the earliest ages; and thus contend for a point

given up by the rest. M. Fleury owns, that the first instance of auricular *confession* he can meet with, is that of St. Eloi, who being grown old, made a *confession* to a priest of all his sins from his youth upwards.

The Indians, according to Tavernier, have a kind of *confession*; and the same may be said of the Jews: these last have formulas for those who are not capable of making a detail of all their sins: the ordinary form is in alphabetical order, each letter containing a capital sin. This they usually rehearse on Mondays and Thursdays, and on fast-days, and other occasions: some every night and morning. When any of them find themselves near death, they send for ten persons, more or less, one of them a rabbin; and in their presence recite the *confession*. See Leo de Modena.

CONFESSION of faith, denotes a list, or enumeration and declaration of the several **ARTICLES** of belief, in a church.

The *Augsburg*, or **AUGUSTAN confession**, is that of the Lutherans; it was presented to Charles V. in 1530.

In the council of Rimini, the catholic bishops found fault with dates in a *confession of faith*, and observed that the church never used to date them.

CONFESSIONAL, or **CONFESSIONARY**, in *Church History*, a place in churches, usually under the main altar, wherein were deposited the bodies of deceased saints, martyrs, and confessors.

CONFESSIONAL is also used in the Romish church for a little box, or desk in the church, where the confessor takes the confessions of the penitent.

CONFESSO. *Pro-CONFESSO*. See **PRO-CONFESSO**.

CONFESSOR, a Christian, who has made a solemn, and resolute profession of the faith, and has endured torments in its defence. A mere saint is called a *confessor*, to distinguish him from the roll of dignified saints; such as *apostles*, *martyrs*, &c.

In ecclesiastical history, we frequently find the word *confessors* used for martyrs; in after-times, it was confined to those, who after having been tormented by the tyrants, were permitted to live and die in peace. And at last it was also used for those, who after having lived a good life, died under an opinion of sanctity. According to St. Cyprian, he who presented himself to torture, or even to martyrdom, without being called to it, was not called a *confessor*, but a *professor*: and if any out of a want of courage abandoned his country, and became a voluntary exile for the sake of the faith, he was called *exterris*.

CONFESSOR is also a priest, in the Romish church, who has a power to hear sinners in the sacrament of penance, and to give them absolution.

The church calls him in Latin *confessarius*, to distinguish him from *confessor*, which is a name consecrated to saints. The *confessors* of the kings of France, from the time of Henry IV. have been constantly Jesuits: before him the Dominicans and Cordeliers shared the office between them. The *confessors* of the house of Austria have also, ordinarily, been Dominicans and Cordeliers; but the latter emperors have all taken Jesuits.

CONFESSOR to his Majesty. See **CLERK of the closet**.

CONFIGURATION, the exterior surface, that bounds bodies, and gives them their particular figure.

That which makes the specific difference between bodies, is the different *configuration*, and the different situation of their parts. A short, or a long sight, depend on the different *configuration* of the crystalline.

CONFIGURATION of the planets, in *Astrology*, is a certain distance or situation of the planets in the zodiac, whereby they are supposed to aid, or oppose each other. See **ASPECT**.

CONFIGURATIONS of salts, a term used by some to express the combinations of the particles of the salts of plants, and other substances, into certain figures, on evaporating the water in which they had been dissolved, so hastily as not to admit of their shooting into their own regular crystals.

CONFIRMATION, the act of ratifying or rendering a title, claim, pretension, report, or the like, more sure and indisputable.

CONFIRMATION, in *Law*, denotes the conveyance of an estate, or right *in esse* from one man to another, whereby a voidable estate is made sure and unavoidable, or a particular estate is increased, or possession made perfect: and it is particularly used for the strengthening or homologating an estate of one already in possession of it by a voidable title.

Thus, if a bishop grant his chancellorship by patent, for term of the patentee's life; this is no void grant: yet it is avoidable by the bishop's death, except it be strengthened also by the dean and chapter's *confirmation*.

CONFIRMATION, in *Rhetoric*, is the third part of an oration, wherein the orator undertakes to prove, by laws,

reasons, authorities, and other arguments, the truth of the propositions advanced in his narration. Cicero, *De Invent.* lib. i. cap. 24.

Confirmation is either *direct*, or *indirect*: the first confirms what the orator has to urge for strengthening his own cause: the second, properly called *CONFUTATION*, refels the opposite arguing of the adversaries. The two parts together are sometimes placed under the head or title of *CONTENTION*.

The *confirmation* is, as it were, the life and soul of the oration: in this the main stress of the argumentation lies. Whence Aristotle, properly enough calls it, *πίστις, fides*.

CONFIRMATION, in *Theology*, the ceremony of laying on of hands, for the conveyance of the Holy Ghost.

Among the ancients it was conferred immediately after baptism; and was esteemed, in some measure, to be a part thereof: whence the fathers call it the *accomplishment* of baptism. The ground of the practice was an opinion of the imperfection of baptism, which in their apprehension only prepared persons for the reception of the graces of the Holy Spirit, which were actually conferred in *confirmation*. Tertull. *de Bapt.* p. 599, &c. and Lord King's *Hist. of the Prim. Church*, chap. v. p. 80, &c.

Among the Greeks, and throughout the East, it still accompanies baptism; but the Romanists make it a distinct independent sacrament.

It appears that *confirmation* has all along been ordinarily conferred by the bishop: St. Cyprian, and most of the fathers, speak of it in such terms as to imply it to have been confined to the bishop alone; and Fleury and most of the moderns, from them, lay it down as a distinguishing character between the offices of a priest or deacon, and that of a bishop, that the former might baptize, but the latter alone might anoint and *confirm*; by virtue of their succession to the apostles, to whom it originally belonged. But from some passages in St. Gregory, &c. others gather, that the priests, on occasion, had likewise the power of *confirming*.

It has been alleged, that, as *confirmation* always succeeded baptism, and made a necessary part of it, and several of the primitive Christians esteemed both necessary to salvation, it must have been performed by presbyters as well as by bishops; because the bishop of a church might be absent for a very considerable time, as was the case with Cyprian, or the see might be vacant: and as presbyters baptized, it is reasonable to conclude that they also *confirmed*. Lord King has shewn that *confirmation* and absolution were the same thing; and that presbyters, sometimes with the bishop, and sometimes without the bishop, did absolve by imposition of hands: and he has cited several ancient authorities in order to prove, that *confirmation* was frequently repeated with respect to the same persons. *Hist. Prim. Church*, p. 91, &c.

It is certain, among the Greeks, the priest who baptizes, also *confirms*: which practice, Lucas Holstenius shews, is of so old a standing among them, that it is now generally looked on as belonging properly, and of right, to the priest: though some will have it to have been borrowed by them from the bishops. Hence, some of the Latin divines acknowledge, that though the bishop be the ordinary minister of *confirmation*, yet, that the priest, in his absence, may also confer it, in quality of minister extraordinary.

The council of Rouen, held in 1072, decrees, that *confirmation* must be conferred fasting, both on the side of the giver, and that of the receiver.

It has been urged, however, that this ceremony, with respect to the real importance and utility of it, was peculiar to the days of the apostles: though it is retained among Protestants, it is doubted whether it be a necessary instrument of grace. The order of *confirmation* in the church of England, does not determine the precise age of the person to be *confirmed*.

CONFISCATE, in *Law*, is applied to goods forfeited to the exchequer, or public treasury.

The word is derived from *fiscus*, a hamper, panier, or basket, wherein the emperor's money used to be kept.

The title to goods which are not claimed by any other, is given by law to the king. If a man, indicted for stealing the goods of another, in which case they become, in effect, the proper goods of him indicted, be asked about them in court, and disclaim them; he thereby loses the goods, though he be afterwards acquitted of the theft, and the king shall have them as *confiscate*: but otherwise, had he not disclaimed them.

CONFISCATION, a legal adjudication of goods or effects to the fisc, or treasury.

Thus, the bodies and effects of criminals, traitors, &c. and merchandizes that are contraband, prohibited, or brought aboard or ashore without paying the duties, when seized, are *confiscated*.

It is an axiom in law, that he who *confiscates* the body,

confiscates also the effects, to the profit of the king, or the lord of the fee; i. e. he who is condemned to lose his life, must also lose his goods: yet the widows of criminals do not lose their dowries, nor their share in the goods of the community, by the forfeiture of their husbands.

CONFLAGRATION, a general burning of a city, or other considerable place. In which sense, Nero is said to have procured the Christians to be accused of the *conflagration* of Rome, which was done by his own order.

But the word is more ordinarily restrained to that grand period, or catastrophe, of our world, wherein the face of nature is expected to be changed by a deluge of fire, as it was anciently by that of water. The ancient Pythagoreans, Platonists, Epicureans, and Stoics, appear to have had a notion of the *conflagration*; though whence they should derive it, unless from the sacred books, is difficult to conceive; except, perhaps, from the Phœnicians, who themselves had it from the Jews.

Seneca says expressly, *Tempus advenerit quo sidera sideribus incurrent, & omni flagrante materia uno igne, quicquid nunc ex deposito lucet, ardebit*. This general dissolution the Stoics call *εμπύρωσις, ecpyrosis*. Mention of the *conflagration* is also several times made in the books of the Sybils, Sophocles, Hytaspes, Ovid, Lucan, &c.

Dr. Burnet, after F. Tachard, and others, relates, that the Siamese believe, that the earth will at last be parched up with heat; the mountains melted down; and the earth's whole surface reduced to a level; and then consumed with fire. And the Bramins of Siam do not only hold, that the world shall be destroyed by fire; but, also, that a new earth shall be made out of the cinders of the old. Various are the sentiments of authors on the subject of the *conflagration*; the cause whence it is to arise, and the effects it is to produce. Divines ordinarily account for it metaphysically; and will have it take its rise from a miracle, as a fire from heaven. Philosophers contend for its being produced from natural causes; and will have it effected according to the laws of mechanics: some think an eruption of a central fire sufficient for the purpose; and add, that this may be occasioned several ways; viz. either by having its intention increased; which, again, may be effected either by being driven into less space by the encroachments of the superficial cold, or by an increase of the inflammability of the fuel whereon it is fed: or by having the resistance of imprisoning earth weakened; which may happen, either from the diminution of its matter, by the consumption of its central parts; or by weakening the cohesion of the constituent parts of the mass, by the excess or the defect of moisture.

Others look for the cause of the *conflagration* in the atmosphere; and suppose, that some of the meteors there engendered in unusual quantities, and exploded with unusual vehemence, from the concurrency of various circumstances, may be made to effect it, without seeking any further.

The astrologers account for it from a conjunction of all the planets in the sign Cancer; as the deluge, say they, was occasioned by their conjunction in Capricorn.

Lastly; Others have recourse to a still more effectual and flaming machine; and conclude the world is to undergo its *conflagration* from the near approach of a COMET, in its return from the sun. Those wandering bodies do indeed seem to menace us a little; being able, both by their transverse motion across the earth's way, by the hugeness of their size, and the intense fire wherewith they glow in their recess from the perihelion, to produce the most signal changes and revolutions in the system of things.

Mr. Whiston has shewn, that they are extremely well fitted to produce the phenomena of the deluge; and has gone a good way towards proving, that the comet of 1680, was the very body to which that event was owing; as being then in its approach toward the sun, and its atmosphere crouded with the watery vapours it had gathered in those inconceivably cold regions, into which it had fled off in its aphelion.

This same comet, Sir Isaac Newton has calculated, when in its perihelion, December the 8th, was heated, by the vicinity of the sun, to a degree two thousand times more hot than red-hot iron: he shews, likewise, that it would scarce be cool again in fifty thousand years.

This same comet, Dr. Halley observed November the 11th, was not above a semidiameter of the earth from the earth's way: so that had the earth, at that time, been in that part of its orbit, something very extraordinary might have been apprehended; but whether in the way of fire, or water, may, perhaps, to some, leave room to doubt. But it is scarcely conceivable, that the comet should bring any vehement degree of heat, out of those regions it comes from, whatever heat it might carry thither.

CONFLUENCE, CONFLUX, the place where two RIVERS join, and mix their waters.

CONFLUENT, in *Medicine*, an epithet given to that species of *small-POX* wherein the pustules run into one another.

CONFORMATION, the particular texture and consistence of the parts of any body, and their disposition to make a whole.

We say, light of different colours is reflected from bodies according to their different *conformation*; in opposition to the Cartesians, who pretend, that reflected light becomes of different colours, according to the different *conformation* of the bodies that reflect it. The *conformation* of the members of an embryo is not perfect enough to allow of dissection.

CONFORMATION, in *Medicine*, is used to express that make and construction of the human body, which is peculiar to every individual.

Hence, a *mala conformatio* signifies some fault in the first rudiments; whereby a person comes into the world crooked, or with some of the *viscera*, or cavities, unduly framed, or proportioned. Many are subject to incurable asthma, from a too small capacity of the *thorax*, and the like original vicious *conformations*.

CONFORMITY, in the *Schools*, is the CONGRUENCY, or relation of agreement between one thing and another: as between the measure, and the thing measured; the object, and the understanding; the thing, and the conception; the thing, and the division thereof, &c.

CONFORMITY, *occasional*. See OCCASIONAL conformity.

CONFRERES, from *con*, and *frere*, brother; denote brethren in a religious house, or the fellows of one and the same society. 32 Hen. VIII. c. 24.

CONFRONTATION, the act of bringing two persons, in presence of each other, to discover the truth of some fact, which they relate differently.

The word is chiefly used in criminal matters; where the witnesses are *confronted* with the accused; the accused with one another, or the witnesses with one another.

CONFUSED notion. See NOTION.

CONFUSED vision. See VISION.

CONFUSION, in a general sense, is opposed to ORDER; in a perturbation whereof, *confusion* consists: e. gr. when things prior in nature do not precede; or posterior do not follow, &c.

In a logical sense, *confusion* is opposed to *distinctness*, or *perspicuity*; and may happen, either in words, as when misconstrued or misapplied; or in ideas, as when the idea of any thing presents something along with it, which does not properly belong to that thing.

In a physical sense, *confusion* is a sort of UNION, or MIXTURE by mere contiguity. Such is that between fluids of contrary natures; as oil and vinegar, &c.

CONFUSION, *property by*, in *Law*, denotes the intermixture of the goods of two persons in such a manner, that their respective portions cannot be ascertained. If this be by consent, they have a common interest in proportion to their shares; but the law allows no remedy to the person who mixes his property with that of another, without his knowledge and approbation. Blackstone's Comm. vol. ii. p. 405.

CONFUSION of tongues, in the *History of the World*, is a memorable event, which happened in the one hundred and first year, according to the Hebrew chronology, and the four hundred and first year by the Samaritan, after the flood, at the overthrow of Babel; and which was providentially brought about, in order to facilitate the dispersion of mankind, and the population of the earth. Until this period there had been one common language, which formed a bond of union, that prevented the separation of mankind into distinct nations; and some have supposed, that the tower of Babel was erected as a kind of fortress, by which the people intended to defend themselves against that separation, which Noah had projected. Usher ad A. M. 1757.

There has been a considerable difference of opinion, as to the nature of this *confusion*, and the manner in which it was effected. Some learned men, prepossessed with the notion that all the different idioms now in the world did at first arise from one original language, to which they may be reduced, and that the variety among them is no more than must naturally have happened in a long course of time by the mere separation of the builders of Babel, have maintained, that there were no new languages formed at the *confusion*; but that this event was accomplished by creating a misunderstanding and variance among the builders, without any immediate influence on their language. But this opinion, advanced by Le Clerc, &c. seems to be directly contrary to the obvious meaning of the word שפּח, *shapha*, lip, used by the sacred historian. Others have imagined, that this was brought about by a temporary *confusion* of their speech, or rather

of their apprehensions, causing them whilst they continued together and spoke the same language, to understand the words differently: Scaliger is of this opinion. Others again account for this event, by the privation of all language, and by supposing that mankind were under a necessity of associating together, and of imposing new names on things by common consent. Another opinion ascribes the *confusion* to such an indistinct remembrance of the original language which they spoke before, as made them speak it very differently; so that by the various inflections, terminations, and pronunciations of divers dialects, they could no more understand one another, than they who understand Latin can understand those who speak French, Italian, or Spanish, though all these languages arise out of it. This opinion is adopted by Caufabon, and by bishop Patrick in his Commentary in loc. and is certainly much more probable than either of the former: and Mr. Shuckford maintains, that the *confusion* arose from small beginnings, by the invention of new words in either of the three families of Shem, Ham, and Japhet, which might contribute to separate them from one another; and that in each family new differences of speech might gradually arise, so that each of these families went on to divide and subdivide among themselves. Others again, as Mr. Jos. Mede and Dr. Wotton, &c. not satisfied with either of the foregoing methods of accounting for the diversity of languages among mankind, have recourse to an extraordinary interposition of divine power, by which new languages were framed and communicated to different families by a supernatural infusion or inspiration; which languages have been the roots and originals from which the several dialects that are, or have been, or will be spoken, as long as this earth shall last, have arisen, and to which they may with ease be reduced. As to the number of languages thus introduced, many opinions have been adopted. If there were no more than there were nations or heads of nations, then the number would be seven for Japhet, four for Ham, and five for Shem; but if there were as many as there were families, which is the more probable opinion, their number cannot be certainly assigned. However, the Hebrews fancy they were seventy, because the descendants from the sons of Noah, enumerated Genesis x. were just so many. Allowing then the languages of the chief families to have been fundamentally different from each other, the sub-languages and dialects within each branch would probably have had a mutual affinity, greater or less, as they settled nearer or farther from each other. But whichever of these hypotheses is adopted, the primary object of the *confusion* at Babel was the separation and DISPERSION of mankind. Cleric. Com. in Gen. x. i. Scaliger Exerc. in Cardan. § i. Casaubon. Diatrib. de Ling. Heb. Mede's Works, vol. i. p. 276. Wotton's Disc. and Brett's Ess. on the Confusion of Languages. Univers. Hist. vol. i. part i. chap. 2. § 5. Shuckf. Conn. vol. i. p. 146.

The ingenious and learned Dr. Bryant has lately in the third volume of his Analysis of Ancient Mythology, advanced a new and singular hypothesis, both with respect to the *confusion* of tongues and the dispersion. He supposes that the *confusion* of language was local and partial, and limited to Babel only. By כַּל-הָאָרֶץ, Gen. xi. 1. and 8. which our translators render *the whole earth*, he understands *every region*: and by the same words in ver. 9. *the whole region* or province. This *confusion* was occasioned, as he supposes, by a labial failure; so that the people could not articulate. Thus their speech was confounded, but not altered; for as soon as they separated, they recovered their true tenor of pronunciation, and the language of the earth continued for some ages nearly the same. The interviews between the Hebrews and other nations, recorded in Scripture, were conducted without an interpreter; and he farther observes, that the various languages which subsist at this day retain sufficient relation to shew, that they were once dialects from the same matrix, and that their variety was the effect of time. See DISPERSION.

CONFUTATION, in *Rhetoric*, &c. a part of an oration, wherein the orator seconds his own arguments, and strengthens his cause, by refelling and destroying the opposite arguments of the antagonist. This is done by denying what is apparently false, by detecting some flaw in the reasoning of the adverse party, by granting their argument, and shewing its invalidity, or retorting it upon the adversary.

Confutation makes a branch of what we call CONFIRMATION. The confirmation and *confutation* are sometimes called CONTENTION.

CONGE, in the *French Law*, a licence, or permission, granted by a superior to an inferior, which gives him a dispensation from some duty to which he was before obliged.

The

The word is French: Menage derives it from the Latin *commiatus*, used for *commicatus*, and *commicare*, often seen among ancient writers: the Italians say, *congedo*. A monk cannot go out of his convent, without the *conge* of his superiors.

CONGE d'accorder, i. e. *leave to accord*, or *agree*, is used in the statute of fines, anno 18 Edw. I. to the following purpose. *When the original is delivered, in presence of the parties before justice, a pleader shall say this: Sir, justice, conge d'accorder; and the justice shall say to him, What saith Sir R, and shall name one of the parties, &c.*

CONGE d'elire, is the king's permission royal to a dean and chapter, in time of a vacancy, to choose a bishop. See **CANON**, and **COLLATION**.

Gwyn observes, that the king of England, as sovereign patron of all bishopricks and other benefices, had anciently the free appointment of all ecclesiastical dignities; investing, first, *per baculum & annulum*; and afterwards by letters patent: but that, in process of time, he made the election over to others, under certain forms and conditions; as, that they should at every vacancy, before they chose, demand of the king *congé d'elire*, i. e. leave to proceed to election; and after election to crave his royal assent, &c. He adds, that king John was the first who granted this; which was afterwards confirmed by stat. Westm. 3 Edw. I. cap. 1. and again in the Articuli Cleri, 25 Edw. III. cap. 1.

CONGE, in *Architecture*, denotes a moulding either in form of a quarter-round, or of a cavetto; which serves to separate two members from one another. See *Tab. Archit. fig. 6.*

Such is that which joins the shaft of the column to the cincture, called also *apophyge*; which, in Greek, signifies *escape*; the column seeming to spring hence: by the Latins it is called *scapus*, the shaft of the column.

The *conge*, originally, was a ring or ferril, fixed on the extremities of wooden pillars, to keep them from splitting; this, afterwards, came to be imitated in stonework.

CONGEABLE, from the French *congé* (i. e. *leave, licence, or permission*), signifies as much as lawful, or lawfully done, or done with leave and permission; as, *then entry of the disseisee is congeable*.

CONGELATION, **FREEZING**; the act of fixing the fluidity of any liquid, by **COLD**, or the application of cold bodies: in which it differs from *coagulation*, which is produced by other causes. See **CONCENTRATION**.

Salt-petre *congeals* water in summer. See **ICE**. Metals and minerals are said to be *juices congealed*, in the veins of the earth, by their mixing with one another, or with other heterogeneous bodies; or by the consumption and evaporation of their finest parts.

Rock **CRYSTAL** was by the ancients held to be nothing but water *congealed* in the mountains.

CONGELATIONS by artificial cold. See **Artificial FREEZING**.

CONGELATION of wines. See **WINES**.

CONGENERES musculi, in *Anatomy*, are such muscles in an animal body, as serve together to produce the same motion: and they are so called because they assist one another in their action.

CONGER, in *Zoology*, a species of the **MURENA**; the name of the *sea-eel*, a very voracious and extremely large fish of the eel kind.

The name is derived from γόγγος, which is formed of a duplication of the adjective γῆγος, or γῆγος, voracious, from γῆγος, I devour.

It grows to an enormous size, four or five cubits being a common length with it, and its thickness that of a man's thigh. It is of a pale grey on the back, and a fine milk white on the belly, and has on each side a strait white line, somewhat broad, made as it were of a double, sometimes single row of dots, and running from the head to the tail; the top of its back fin is black all the way; and in the end of its upper jaw, just at the nose, it has two short tubular horns, out of which a mucous liquor may be squeezed. Their flesh is very agreeable, but is not easy of digestion. Willughby.

These fishes form a considerable article of commerce in Cornwall; whence they are exported to Spain and Portugal, particularly to Barcelona. They are sometimes caught by a single hook and line; but chiefly by **BULTERS**. They are afterwards cured, by flitting and hanging them on a frame to dry, that the fat may exude. The dried *congers* are ground into a powder, and used by the Portuguese and Spaniards to thicken and give a relish to their soups. Pennant's *Zoology*, vol. iii. p. 149.

CONGERIES, a Latin word, sometimes used in our language for a collection or heap of several particles, or bodies, united into one mass, or aggregate.

CONGERIES, in *Rhetoric*. See **SYNATHROISMUS**.

CONGESTION, in *Medicine*, a mass, or collection of humours, crowded together, and hardened, in any

part of the body; and there forming a preternatural tumour.

Congestion is effected by little and little: in which it differs from *defluxion*, which is more sudden.

CONGESTIONES, in *Medicine*. See **STUFFINGS**.

CONGIARIUM. **CONGIARY**, among *Medalists*, a gift, or donative, represented on a medal.

The word comes from the Latin **CONGIUS**; because the first presents made to the people of Rome consisted in wine and oil, which were measured out to them in *congiis*. The *congiary* was properly a present made by the emperors to the people of Rome. Those made to the soldiers were not called *congiaries*, but *donatives*.

The legend on medals representing *congiaries* is, *congiarium*, or *liberalitas*.

Tiberius gave a *congiary* of three hundred pieces of money to each citizen: Caligula twice gave three hundred **SESTERCES** a head: Nero, whose *congiaries* are the first that we find represented on medals, gave four hundred.

CONGITELLA, in *Antiquity*, half a **CONGIUS**.

CONGIUS, an ancient Roman measure for things liquid; containing six sextaries, or ten Roman pounds; equal to seven pints English wine measure.

From the original standard of Vespasian extant at Rome, Greaves deduced the value of the Roman pound to be 5256 Troy grains. See **DENARIUS**. But Mr. Raper, in an excellent paper on this subject, has suggested several objections against the accuracy of this conclusion. Phil. Trans. vol. lxi. part ii. p. 496.

The *congius* has also been used in England, as appears by a charter of king Edmund in 946.

CONGLOBATE glands, in *Anatomy*, those glands whose substance is not divided, but firm, entire, and continued; and their surface smooth and uniform.

They are thus called, in opposition to *conglomerate* glands. *Conglobate* glands have each of them an artery which brings them blood, a vein which carries it back again, after the proper juice has been filtrated, and several excretory ducts.

Some of them have a cavity in the middle, with **LYMPHATIC** vessels, which discharge themselves into a common reservoir, or canal.

CONGLOBATE flowers, are those with globular heads.

CONGLOMERATE glands, are those which are composed of several little ones; or they are several glandulous bodies joined together under the same common membrane. See **GLAND**.

Such are the salival glands, lachrymal glands, the pancreas, &c. which see under their proper articles.

The *conglomerate* glands, besides their arteries, veins, and nerves, are also furnished with an excretory vessel, ramified throughout their own substance; by means whereof they discharge the liquors they have filtrated into reservoirs.

CONGLOMERATE flowers, are those which are irregularly crowded together.

CONGLUTINATION, the act of glueing, or fastening two bodies together, by the intervention of some third, whose parts are unctuous and tenacious, in the nature of a glue, *gluten*; from whence the word is formed.

In the animal oeconomy, the parts of the body are said to be *conglutinated* by means of their natural moisture; by the help of bandages, as in several cases of surgery; or by the supply of viscid particles. In which last acceptation, *conglutination* differs little from *accretion*, or *nutrition*.

CONGO money, or **Guinea money**, a name given to a peculiar species of *concha veneris*, or porcelain-shell, which passes by way of money among the natives of those places. It is distinguished from the other porcelains by having a dentated mouth, and six gibbous protuberances on its surface.

CONGREGATION, an assembly of several ecclesiastics, united so as to constitute a body.

The term is principally used for assemblies of **CARDINALS**, appointed by the pope, and distributed into several chambers, for the discharge of certain functions and jurisdictions, after the manner of our offices and courts.

The first is the *congregation* of the holy office, or the **INQUISITION**: the second, that of jurisdiction over bishops and regulars: the third, that of councils; this has power to interpret the council of Trent: the fourth, that of customs, ceremonies, precedences, canonizations, called the *congregation of rites*: the fifth, that of St. Peter's fabric, which takes cognizance of all causes relating to piety and charity, part whereof is due to the church of St. Peter: the sixth, that of waters, rivers, roads: the seventh, of fountains and streets: the eighth, that of the **INDEX**, which examines the books to be printed, or corrected: the ninth, that of the council of state, for the management of the territories belonging to the pope and

and church; see CAMERLINGO: the tenth, *de bono regimine*; of which two last, the cardinal-nephew is chief: the eleventh, that of money: the twelfth, that of bishops; wherein those who are to be promoted to bishopricks in Italy are examined; this is held before the pope: the thirteenth that of consistorial matters; the chief whereof is the cardinal dean: the fourteenth, a congregation for propagating the faith; see COLLEGE: and the fifteenth, that of ecclesiastical immunity, for settling suits against churchmen. There is also a congregation of alms, which takes care of every thing that relates to the subsistence of Rome, and the state of the church.

CONGREGATION is also used for a company or society of religious cantoned out of this or that order; and making, as it were, an inferior order, or a subdivision of the order itself.

Such are the congregations of the Oratory, and those of CLUNY, &c. among the BENEDICTINES.

The word is also used for assemblies of pious persons, in manner of fraternities; frequent among the Jesuits, in honour of the Virgin, &c.

CONGREGATION of AIDS, of IMMACULATE Conception, of the LATERAN, of MISSION, of PENITENCE, of Holy SACRAMENT, of Holy TRINITY; see AIDS, IMMACULATE, &c.

CONGREGATION, in *Physics*, is used by Dr. Grew for the least and lowest degree of mixtion; or that wherein the parts of the mixt do not consist with, or adhere to, each other, but only touch in one point.

That author declares himself of opinion, that the particles of all FLUIDS only touch in this manner; or that their cohesion only amounts to a congregation.

CONGREGATIONALISTS. See INDEPENDENTS.

CONGRESS, CONGRESSUS, is used for an assembly of commissioners, deputies, envoys, &c. from several courts or provinces, meeting to concert measures for their common good.

The congress at the Hague, which held during the course of the war, terminated in 1697, by the treaty of Ryswick, was composed of the envoys of all the princes in the confederacy against France.

CONGRESS is also used for an essay, or trial, made by appointment of a lay, or spiritual judge, in the presence of surgeons and matrons, to prove, whether or no a man be or be not impotent; in order to the dissolution of a marriage. See IMPOTENCE.

Neither the civil nor canon law make any mention of this trial of virility by congress: it had its origin in France, from the boldness of a young fellow, who, in open court, being hard pressed by his wife, demanded the congress. The judge, surprised with the novelty of the demand, found it could not be denied; as being the surest evidence the case could admit of.

In time it became a branch in the French jurisprudence, and was authorized by decrees and arrets: it obtained for about the space of one hundred and twenty years, and was annulled by an arret of parliament in 1677, as being found precarious; some having failed under the experiment out of mere modesty and shame, which is found to have the same effect with actual impotency.

CONGRUITY, or CONGRUENCY, in the *Schools*, a suitability or relation of agreement between things; whereby we come at the knowledge of what may be expected from them.

The system of congruity in matters of grace consists in this; that God, who knows perfectly the nature of grace, and the dispositions of the will in all the circumstances that shall befall a man, gives graces, wherewith, by virtue of their congruity with the will of a man, considered in those circumstances, man will always infallibly, but not necessarily, do, what God would have him do; because the will, in the language of the congruists, does always infallibly, though voluntarily, choose what appears best.

CONGRUITY, merit of. See MERIT.

CONGRUITY, in *Geometry*, is applied to figures, lines, &c. which exactly correspond when laid over one another; as having the same terms, or bounds.

Those things between which there is a congruity, are equal and similar.

Euclid, and, by his example, most other geometricians, demonstrate all their elements from the sole principle of congruity: M. Leibnitz, and after him Wolfius, substitute the notion of SIMILITUDE in lieu of that of congruity.

CONGRUITY, in a lax sense, is used to express an aptitude, in some bodies, to unite, or incorporate; by reason of some similitude or fitness of their figures: as incongruity denotes an unfitness of their surfaces for joining together. Thus, quicksilver will unite with gold, and many other metals, but will roll off from wood, stone, glass, &c. and water, which will wet salt, and dissolve it, will slip off from tallow without adhering to it; as also from a dusty surface, and from the feathers of water-fowl.

Two drops of water or of mercury, will, on contact, immediately join and coalesce; but oil of tartar, poured upon quicksilver, and spirit of wine and oil of turpentine on that, and air over all, will remain in the same vessel without any manner of union, or mixture with each other. And the cause hereof is, that the figures of some bodies will not admit other bodies near enough to be within their spheres of ATTRACTION, whence they cannot join, and cohere; but where their fitness of figure will let them approach near enough to feel each other's attractive power, then they close, and hold together. See COHESION.

CONIC Section, a curve line arising from the section of a cone by a plane.

The conic sections are three, viz. the ellipse, hyperbola, and parabola; beside the circle and the triangle, which, though they arise from the section of a cone, are not usually considered in that capacity.

That the triangle is a conic section, as well as the other four, is shewn by Apollon. in Con. lib. i. p. 3. As to the circle; it arises either from the section of a cone by a plane parallel to the basis, or from the subcontrary section of the scalene cone. Vide Apoll. Con. lib. i. prop. 5. Though the equations, genesis, and many of the properties, with the ratios, dimensions, &c. of each of the conic sections, be separately given under their respective articles in this work, ELLIPSIS, HYPERBOLA, and PARABOLA; yet, to make the doctrine of conics, which is so considerable a part of the higher geometry, and of such frequent use in the new astronomy, the motion of projectiles, &c. more complete, we shall here put the whole in a new light, and bring it together into one contracted view.

The common intersection, then, of any plane, with a conic superficies, we observe, is called a conic section: and this section varies, and acquires a different name, according to the different inclinations of the cutting plane. For,

1. If a cone be any way cut by a plane, through the vertex; and again by another plane parallel to the former plane; then the section made in the superficies thereof, is called a hyperbola; the plane of which, being produced to meet the opposite superficies, will make another section, which is likewise called an hyperbola: and both of these, conjunctly, are called opposite sections.

2. If through the vertex of a cone a plane passes without the superficies thereof, that is, neither cutting nor touching it; and the cone be again cut by another plane parallel to the former; the section made in the superficies thereof, is called an ellipse.

3. If a plane touch the superficies of a cone, and the cone be cut by a plane parallel to it, the section is a parabola.

The more ancient mathematicians, before the time of Apollonius Pergæus, admitted only the right cone into their geometry, and they supposed the section of it to be made by a plane perpendicular to one of its sides; and as the vertical angle of a right cone may be right, acute, or obtuse, the same method of cutting these several cones, viz. by a plane perpendicular to one side, produced the conic sections. The parabola was called the section of a right-angled cone; the ellipse, the section of the acute-angled cone; and the hyperbola, the section of the obtuse-angled cone. But Apollonius, who, on account of his writings on this subject, obtained the appellation of Magnus Geometra, observed, that these three sections might be obtained in every cone, both scalene and right, and that they depended on the different inclination of the plane of the section to the cone itself. Apollon. Con. Ed. Hall. lib. i. p. 9.

But, instead of considering these curves as arising by section of the cone itself, their description, nature, and properties, are found more easy of conception, when considered as drawn on a plane: for which reason, after Des Cartes, and most of the later writers, we shall rather choose to lay them down in this second manner.

Genesis, or construction of the ellipse.—To conceive the production and nature of an ellipse, let H and I (Tab. Conics, fig. 13.) be two points, nails, or little pegs, about which put a thread BHI; then putting your finger to the thread, and keeping the same always in an equal tension, move the finger round from the point B, till you return to the same point B again.

By this revolution of the point B, will be described the curve line called the ellipse; which differs from the delineation of a circle only in this, that a circle hath only one centre, but the ellipse two: though if the points H and I should come together into one, the elliptic curve would become perfectly circular.

But by how much greater the distance is betwixt those points, the same length of the thread still remaining; by so much the farther is this figure removed from the circular: so that, according to the different proportion of the

Distance HI to the sum of the parts BH , BI of the thread, or to the line DK , which is equal to that sum, diverse species of ellipses will be described.

But then, if the length of the thread be increased or diminished, in the same proportion as the distance of the points H and I is increased or diminished, there will indeed be described divers ellipses, but all of the same species: whence it appears, that ellipses are not only innumerable in magnitude, but in species also; and reach from a circle to a right line: for, as when the points H and I meet together, the ellipse becomes a circle; so, when they are removed from each other half the length of the thread, it becomes a right line, both sides meeting together.

Whence also it appears that every species of ellipses is no less different from any other than the extremes of them are different on this side from a circle, and on that from a right line. It also appears from this delineation, that if from a point taken at pleasure in the elliptic periphery, as the point B , you draw two lines to the two central points; these two lines BH and BI , taken together, will be equal to the greatest diameter DK , and consequently that the sum of them is always given.

In the ellipse $DFKR$ (fig. 14.) the point C is called the centre; the points H and I , the foci; DK , the greater axis, or transverse axis, or the principal diameter, or *latus transversum*; and FR , the lesser axis: all the right lines passing through the centre C , are diameters; and all right lines terminated at the periphery, and divided into two equal parts by any diameter, are called ordinates. That part of every diameter intercepted betwixt the vertex thereof, and the ordinate, as $M\mu$, is called the *absciss* thereof. A line drawn from the vertex of the diameter, parallel to the ordinates thereof, as $n\theta$, is a tangent to the ellipse in that vertex. A diameter parallel to the ordinates of another diameter, is termed a conjugate diameter; and the ordinate to the greater axis, which passes through either of the foci, as MA (fig. 13.) is termed the principal *latus rectum*, or the parameter of the greater axis. See AXIS, CENTRE, DIAMETER, FOCUS, ORDINATE, PARAMETER, &c.

Properties of the ellipse.—1. The ordinates of every diameter are demonstrated to be parallel to each other.

2. The ordinates of the principal diameters or axes are perpendicular to the axes themselves; but the ordinates of the rest of the diameters are oblique to their diameters; and, in ellipses of divers species, are so much the more oblique, at equal distance from the axis, by how much the proportion of the greater axis to the lesser is the greater; but in the same ellipse, so much the more oblique, by how much the more remote the diameters are from the axis.

3. There are only two conjugate diameters, which are equal to each other; viz. those whose vertices are at equal distances from the vertices of the axis; thus, the diameter VT (fig. 14.) is conjugate, and equal to that other GM ; where VF is equal to MF , and VD equal to MK .

4. The obtuse angle VCN of these two diameters, which are conjugate and equal, is greater, and the acute angle VCG is less, than every other angle contained under the rest of the diameters that are conjugate to each other.

5. If the lines μP and νB be semiordinates to any diameter, as MG , the square of the semiordinate μP is to the square of the semiordinate νB , as is the rectangle $M\mu \times \mu G$, to the rectangle $M\nu \times \nu G$; that is, μP^2 is to the rectangle comprehended under the two parts, into which the diameter is divided by the ordinate KP , as νB^2 is to the rectangle under the parts of the diameter made by the ordinate AB .

6. The parameter, or *latus rectum* of any diameter, is a third proportional to that diameter, and its conjugate: that is (in fig. 13.), if the diameter DK is to its conjugate diameter EF , as EF is to Y ; then Y is the parameter or *latus rectum* of the diameter DK : whence AM , an ordinate to the axis through the focus, is, as above, equal to the principal parameter, and is a third proportional to the greater and lesser axis.

7. The square of every semiordinate, as MI , is always less than the rectangle made by any absciss whatever, as IK drawn into the *latus rectum* of its own diameter, or than $IK \times Y$. And in fig. 14. $P\mu q$ is less than the rectangle made of the absciss $M\mu$ and the *latus rectum* of MG : from which defect, or *excessus*, this section hath its name.

8. If from any point, as B , in fig. 13. you draw the right lines BH and BI to the foci, the sum of them will be equal to the greater axis, as was shewn above: and if the angle IBH , comprehended by those lines, be bisected by the right line ba , the line ba is perpendicular to the tangent VB in the point B ; that is to the curve in the point of contact.

9. The distance of a body turned round in an ellipse; about the focus H , from the same focus, is the greatest of all in the point K ; least of all in the point D ; and mean in the points E and F ; and that mean distance HF is equal to the greater half-axis DC or CK ; as is manifest from the production of the ellipse.

10. The vanishing subtense of the angle of contact, parallel to the distance from the focus, at an equal perpendicular interval from that distance, always remains given and unvaried in the same ellipse, yea, and in the same parabola and hyperbola too. Thus, if dZ be always given, gd also will always remain given in a distance infinitely small.

11. The area of the ellipse is to the area of the circle circumscribed, as the lesser axis is to the greater; and so are all corresponding parts whatsoever among themselves, as MIK , mIK : and the ordinates to the greater axis, as MI , are divided by the elliptic periphery always in the same proportion; so that MI is to mI always in the same proportion; to wit, that of the lesser axis to the greater. And we are to reason in the same manner concerning a circle inscribed in an ellipse. See QUADRATURE.

12. All parallelograms described about the conjugate diameters of the ellipse, and comprehending the ellipse, are equal. Thus, the parallelogram $\alpha\beta\phi\delta$, fig. 14. is equal to the other parallelogram $\epsilon\zeta\eta\theta$: and thus it is every where.

13. If a right line always passing through one of the foci be so moved, that the elliptic area, described by the same, is proportional to the time; the angular motion of a right line drawn from the other focus to the former line, will be almost equable: thus, in fig. 13. if the angular motion of the line HB be so tempered, that the same, being according to the reciprocal proportion of the distance accelerated or retarded, describes the area DHB , proportional to the time; the angular motion KIB about the other focus I , will be almost proportional to the time, and consequently without any notable acceleration or retardation, and nearly equable; that is to say, where the ellipse does not differ much from a circle.

Genesis of the parabola.—Let DI be an infinite right line, and IL another perpendicular to it (fig. 15.); then, taking in the line DI , any point, F , let the line FI be bisected in the point T ; and let there be taken two threads joined together in the point T , one TI , the other TF ; and let a pin fixed to the threads in the point T be moved to the right and left, in such a manner, that when the pin is in any other position, as in P , the thread TI , which here becomes PL , be always perpendicular to IL ; or, which is the same thing, parallel to DI , but equal to the thread TF ; which in this case becomes PF , ever passing through the point F : the curve thus generated by the pin, infinitely produced both ways is a parabola: in which $gPiTsRo$, is called the periphery; ID , the axis, or principal diameter; IL , the directrix; F , the focus; the point T , the principal vertex.

An ordinate to the axis through the focus is equal to the principal *latus rectum*: all right lines, as ni , &c. parallel to the axis, are diameters, as dividing the lines kT , &c. which are parallel to their tangents at their vertices, into two equal parts; and they are called diameters belonging to the vertices in which they terminate, as i and R .

Properties of the parabola.—1. Every diameter, or right line parallel to the axis, bisects all the lines within the figure, which are parallel to the tangent of the vertical point: and these bisected lines are called ordinates.

2. The ordinates of the axis are perpendicular to it; but the ordinates of the rest of the diameters are oblique to their diameters; and so much the more oblique, by how much the vertex of their diameter is farther removed from the principal vertex of the parabola.

3. The *latus rectum*, or parameter to every diameter, is a third geometrical proportional to any absciss, and its semiordinate; that is, if the *latus rectum* of the diameter in , or that of the vertex i , be y ; then as the absciss iq is to the semiordinate qk , so is that semiordinate qk to y .

4. The principal *latus rectum*, or that belonging to the axis, is equal to the ordinate hi passing through the focus; and quadruple of FT , the least distance of the focus from the principal vertex. See FOCUS.

5. The *latus rectum*, belonging to any vertex or diameter, is also a quadruple of the distance of that vertex from the focus: thus, the *latus rectum* of the vertex s is quadruple Fs , and so it is every where: and therefore the parameter of the axis is the least of all parameters.

6. The distance of any vertex or point in the parabola whatever, from the focus, is equal to the least distance of the same from the line LI , which is perpendicular to

to the axis; and is distant from the principal vertex, by a quarter of the principal *latus rectum*.

7. the square of every semiordinate, as qk , is equal to a rectangle made of the *latus rectum*, of the same vertex as y and iq the absciss of the diameter of the vertex. And from the equality of the $\pi\alpha\rho\alpha\sigma\omicron\lambda\eta$, or comparison in the figure, betwixt the rectangle and the square of the semiordinate, without any excess or defect, the name of the section is derived.

8. Since therefore the *latus rectum* in any diameter is given, the absciss will be as the squares, or in the duplicate ratio of the semiordinates. Thus, TF is to TG as iFq is to gGq ; and so likewise is iq to ir , as the square of qT is to the square of rl : and thus every where. From whence, also, when the absciss of the axis is equal to the principal *latus rectum*, or fourfold of the distance from the vertex, it will be equal to its semiordinate.

9. The angle comprehended by any tangent whatever, and a line from the focus, is equal to an angle comprehended by the same tangent, and any diameter, or the axis. Thus, the angles iF , and pin , are equal: whence, by the way, all the rays of light which fall on the concave part of the surface, produced by the convolution of the parabola about the axis, which fall, we say, on the same, parallel to the axis, will be reflected from a concave paraboloid figure to the focus F , and there beget a most vehement burning; from which property, the point F has the name *focus*, and has communicated the same to the like points in the hyperbola and ellipsis.

10. A parabola, like an hyperbola, does not inclose a space, but stretches out in infinitum.

11. A parabolic curve always tends more and more in infinitum to a parallelism with its diameters; but can never arrive thereat.

12. If two parabolas be described, with the same axis and vertex; the ordinates to the common axis will be cut off by the parabola in a given proportion; and the areas comprehended by the same axis and ordinate, and the respective curves, will be in the same given proportion to one another.

13. Every parabolic space, comprehended betwixt the curve and the ordinate, is to the parallelogram made of the same base and altitude, in a subsequalateral proportion, that is, as 2 is to 3; and to the external space in a double proportion, or as 2 is to 1: so qiT is to qil , as 2 is to 3; and to iIT as 2 is to 1. From whence it becomes easy to square the parabola. See QUADRATURE.

14. The distance between the vertex of the axis and the point where any tangent intersects it, as I , is equal to the absciss of the axis which belongs to the ordinate applied from the point of contact: TI is equal to TF ; and thus it is every where.

15. All parabolas are like, or of the same species; as are also all circles.

16. If a diameter be continued through the point of concurrence of two tangents; this diameter will bisect the line that joins the contacts: which property of the parabola may likewise be understood of the ellipsis, and hyperbola.

Genesis of the hyperbola.—Suppose a staff or rule of a sufficient length, as IB (*fig. 16.*): let I and H be two central points, answering to the foci of an ellipsis, in which let nails be fastened; then, there being tied to one end of the stick, a rope or thread, as long again as the stick, let the other end thereof be bored through, and so fixed upon the nail I ; and fix the other end of the rope, by a knot, upon the other nail H ; which done, laying your finger on the point B , where the rope and staff are tied together, let your finger descend so long, till you have thereby applied, and joined the whole rope to the staff or rule; the staff having been in the mean while, as it needs must, wheeled about the centre I . Thus, with the point B , the vertex of the angle HBI , you will have described a curve line XBD , which is part of an hyperbola; the whole consisting of that curve which will result from the curve XBD , which hath added to it the curve YD , the produce of the rule and work, as turned to the other side.

Farther transferring the hole, or knot of the rope to the nail I , and fastening the end of the staff on the nail II , you will describe another hyperbola, vertically opposite to the former, which will be altogether like an equal thereto. But if, without changing any thing in the rule and nails, you only apply a longer rope; you will have an hyperbola of a different species from the former: and if you still lengthen the rope, you will have still other sorts of hyperbolas; till at length, making the rope double the length of the rule, you will have the hyperbola changed into a right line.

But if you alter the distance of the nails, in the very same proportion in which you change the difference betwixt

the length of the rope, and that of the stick: in this case you will have hyperbolas marked out, which are altogether of the same species, but have their similar parts differing in magnitude.

Lastly, if the length of the rope and rule be equally increased, their difference in the mean while, and the intervals of the nails, remaining the same; not a different hyperbola, either as to species or magnitude, will be described, nor any other than a greater part of the same hyperbola.

It must be owned, however, that many properties of an hyperbola are better known from another manner of generating the figure, which is as follows; let LL and MM (*fig. 17.*) be infinite right lines intersecting each other at any angle whatever, in the point C : from any point whatever, as D or e , let Dc , Dd be drawn parallel to the first lines; or ec , ed ; which, with the lines first drawn, make the parallelograms, as $DcCD$, or $ecCd$. Now, conceive two sides of the parallelogram, as Dc , Dd , or ec , ed , to be so moved, this way and that way, that they always keep the same parallelism; and that at the same time the areas always remain equal; that is to say, that Dc and ec always remain parallel to MM ; and Dd or ed always parallel to LL ; and that the area of every parallelogram be equal to every other, one side being increased in the same proportion wherein the other is diminished: by this means the point D or e will describe a curve line within the angle comprehended by the first lines; which is altogether the same as that described above. So also in the angle vertically opposite will be described a like and equal hyperbola; if the parallelogram $CcKd$, equal to the former, be supposed to be moved, in the same manner as before: which hyperbolas are, as was said before, called *opposite sections*, or *opposite hyperbolas*.

In each figure, DK is the *transverse axis*, or *transverse diameter of the hyperbola*, or the *opposite sections*; the point C , the *centre*; H and I , the *foci*. In the latter figure, all the lines passing through the centre C , as ih , are *diameters*: but if hyperbolas be described in the following angles, as LCM , MCL , those sections will be called *following sections*: and if the distance of the primary vertex of those hyperbolas from the common centre C , as $C\beta$, or $C\gamma$, be equal to the semitangent Ku or Kw , at the primary vertex of these, those sections are called *conjugate sections*: and all the figures together form the *hyperbolic system*.

Farther, ih the ordinate to the axis through the focus, is equal to the principal *latus rectum*, or the parameter of the axis: and an indeterminate diameter, which is parallel to the ordinates of any determinate diameter, is called the *conjugate diameter* of the same.

Properties of the hyperbola.—1. Any diameter, or right line passing through the centre, bisects all its ordinates; that is all the right lines which are terminated on both sides by the hyperbolical periphery.

2. The ordinates of the axis are perpendicular to the same; but the ordinates of the rest of the diameters are oblique to their diameters: and so much the more in divers species, at equal distances from the axis, by how much the difference of the angles including the hyperbolas is the greater: and in the same hyperbola, so much the more oblique, by how much the diameters are farther removed from the axis.

3. If any lines, as Hb and Qs , be semiordinates to any diameter whatever, as KD ; the square of the semiordinate Hb is to the square of the semiordinate Qs , as the rectangle $KH \times DH$ is to the rectangle $KQ \times DQ$: and so bn^2 is to dK^2 , as the rectangle $ib \times hb$ is to the rectangle $id \times hd$: and thus every where.

4. The *latus rectum*, or parameter of every diameter, is a third geometrical proportional to the diameter, and the conjugate thereof (or its tangent, which is equal to it): that is, if the *latus rectum* of any diameter, as DK , be y ; then, as the diameter DK is to its conjugate $\beta\gamma$, or its equal wu ; so is that conjugate $\beta\gamma$, or that tangent wu to y . And as the ordinate to the axis through the focus in the principal *latus rectum*, so it is more than double of the least distance of the focus from the vertex.

5. The square of any semiordinate, as Qs , is greater than a rectangle made of the absciss DQ , drawn into the *latus rectum* of its own diameter, as y : and in like manner, the square of the semiordinate bn is greater than the rectangle of the absciss ib , into the *latus rectum* of the diameter hi . From which $\upsilon\pi\epsilon\rho\sigma\omicron\lambda\eta$, or *excess*, this section hath its name.

6. If from any point of the hyperbola, as B (*fig. 16.*), there be drawn right lines to both the foci, as BH , BI , the difference of these lines will always be equal to the axis DK ; as will easily appear from the delineation itself.

7. If the angle HBI , comprehended by lines drawn to the

the foci, be bisected by the right line EB, that right line will be a tangent to the hyperbola in the point B.

8. The right lines LL and MM (fig. 17.), which inclose the hyperbolas, are asymptotes of the hyperbolas; that is, they are such to which, on both sides, the curve approaches nearer and nearer, but is never able to touch or coincide therewith.

9. The species of hyperbolas are various, according to the different magnitude of the angle LCM, comprehended by the asymptotes; but that angle remaining the same, the species of the hyperbola remains unchanged; yet, according to the different magnitudes of the parallelograms, by which hyperbolas are described, hyperbolas of divers magnitudes do arise, if the angle contained by the asymptotes be a right angle, the hyperbola is called *equilateral*, or *rectangle*; and the *latus rectum* of all the diameters will (as in a circle) be equal to the diameters.

Lastly, If hyperbolas be described about the same axis in divers angles of the asymptotes, the right lines perpendicular to the axis will be cut off in a given proportion by them all; and the spaces likewise inclosed by the right lines, or ordinates, the produced axis, and the curves, will be in the same given proportion.

10. If the distances from the centre of the hyperbola, be taken in a geometrical proportion in one of the asymptotes, so that CI, CII, CIII, CIV, CV, CVI, be in continued geometrical proportion: and if from those points there be drawn parallel to the other asymptote the lines I 1, II 2, III 3, IV 4, V 5, VI 6; the spaces I 2, II 3, III 4, IV 5, V 6; will be equal among themselves. And consequently, if that asymptote CM be supposed to be divided, according to the proportion of numbers exceeding one another in a natural series, those spaces will be proportional to the logarithms of all those numbers.

Common properties of all the CONIC sections.—From the whole it may be gathered, 1. That the *conic sections* are in themselves a system of regular curves, naturally allied to each other; and that one is changed into another perpetually, when it is either increased or diminished, in *infinitum*.

Thus, the circle, the curvature thereof being ever so little increased or diminished, passes into an ellipsis; and the ellipsis, its centre going away infinitely, and the curvature being by that means diminished, is turned into a parabola; and when the curvature of the parabola is ever so little changed, there ariseth the first of the hyperbolas; the species whereof, which are innumerable, will all of them arise orderly by a gradual diminution of the curvature; till the curvature vanishing away, the last hyperbola ends in a right line perpendicular to the axis. From whence it is manifest, that every regular curvature, like to that of a circle, from the circle itself to a right line, is a conical curvature, and is distinguished with its peculiar name, according to the divers degrees of that curvature.

2. That the *latus rectum* of a circle is double to the distance from the vertex: that all the *latera recta* of ellipses are in all proportions to that distance betwixt the double and quadruple, according to their different species: that the *latus rectum* of the parabola is just quadruple of that distance: and, lastly, that the *latera recta* of hyperbolas are in all proportions beyond the quadruple, according to their various kinds.

3. That all diameters in a circle and ellipsis intersect one another in the centre of the figure within the section: that in the parabola they are all parallel amongst themselves, and to the axis: but that in the hyperbola they intersect one another, but this without the section, in the common centre of the opposite sections.

4. That the curvature, with respect to the focus, in all these figures, is increased or diminished proportionably, the doctrine of the *conic sections* is of great use in physical and geometrical astronomy, and the physico-mathematical sciences. This doctrine has been much cultivated by geometers ancient and modern; and we have many good treatises on the subject; but that published by Mr. Simpson, professor of mathematics at Glasgow, deserves to be particularly mentioned, not only for its elegance, but for its geometrical accuracy, which, as he justly remarks in his preface, has not always been so well observed in treatises of this kind, as it ought to be. See also Gregorii a St. Vincenti Opus de Quadratura Circuli, & Sectionum Coni; Mydorgius de Sectionibus Conicis: De la Hire de Sectionibus Conicis; Trevigar Elem. Section. Con.; Hamilton's Tract. Geom. de Section. Con.; De l'Hopital's Anal. Treat. of Conic Sections; Muller's Treatise, &c.; and Halley's edition of Apollonius, &c. Oxon. 1710. fol.

To the properties of the *conic sections* mentioned above, it may be proper to add the properties of their osculatory circles, or circles of curvature. See CURVATURE.

CONIC sections, similar. See SIMILAR.

CONICS, that part of the higher GEOMETRY, or geometry of CURVES, which considers the cone, and the several curve lines arising from the sections thereof.

CONICHTHYODONTES, or *Platironia*, in *Natural History*, one of the three names by which the fossil teeth of fish are known; so called, from their supposed resemblance to the spur of a fighting-cock.

Though authors assure us that these are the teeth of a fish, the jaws having been found with these bodies in them; yet they do not pretend to know to what fish they belong. They are generally of an oblong conic figure, broad at the base, and narrow at the point, where they are usually a little crooked: they are hollowed at the root, and are from the tenth of an inch to two inches long, commonly of a chestnut colour, and are found in the strata of clay, but most usually in those of stone; and are seen more frequently in England than in any other part of the world. Hill's Fossils, p. 645.

CONIFERA *salicis facie*, in *Botany*. See Silver PINE-tree.

CONIFERA *alpyi folia*, in *Botany*. See Spurge-leaved PINE.

CONIFEROUS, a term applied to such trees, shrubs, or herbs, as bear a squamous or scaly fruit, of a woody substance, and a figure approaching to that of a cone; in which there are usually many seeds; and, when they are ripe, the several cells or partitions in the cone gape or open, and the seeds drop out. Of this kind are the fir, the pine, beech, and the like.

CONJOINT, or CONJUNCT, is applied in *Ancient Music*, in the same sense as *consonant*, to two or more sounds heard at the same time. See CONSONANCE.

CONJOINT degrees, two notes which immediately follow each other in the order of the scale; as *ut* and *re*.

CONJOINT tetrachords, are two tetrachords, where the same CHORD is the highest of the one, and the lowest of the other.

CONIRA, in *Botany*, a name used by some authors for the *myrrhis*. Ger. Emac. Ind. 2.

CONISALUS, in *Mythology*, a god of the Athenians mentioned by Strabo, and supposed to be the same with PRIAPUS.

CONISOR. See COGNISOR.

CONISSALÆ, in *Natural History*, the name of a class of fossil bodies; the word is derived from *κονισσαλος*, powder; all the species of bodies of this class being found like common sand, in form of powder, have been usually confounded together, under the common name of SANDS. The *conissala* are defined to be stones of a differently debased, crystalline, or sparry matter, but always found in form of small and disunited particles, great numbers of which being amassed together, form a kind of powder.

Of this class of bodies there are two distinct and large genera. 1. The SANDS properly so called, which are composed of particles all appearing to have a tendency to the same regular figures, transparent, vitrifiable by a strong fire, and not soluble in, or effervescing with acids.

2. The SABURRÆ, or GRIT of stone found loose; these are found in form of powder, the particles of which, in general, have no tendency to any particular figure, but appear to be rudely broken fragments of larger masses. Hill's Hist. of Foss. p. 543.

CONISTERIUM, in *Antiquity*, that part of the *gymnasium* where the dust was kept, with which those who had been anointed were sprinkled. It was also called *conistra*. Potter. Arch.

CONJUGATE diameter, or AXIS, in *Conics*, is a right line, bisecting the transverse DIAMETER. See CONIC section.

CONJUGATE axis, of an *ellipsis*, is the shorter diameter, or axis, bisecting the longer, or transverse axis. Such is EF, Tab. Conics, fig. 31.

It is demonstrated, 1. That in an ellipsis, the conjugate axis is a mean proportional between the transverse axis and the parameter. 2. The square of the conjugate axis is to that of the transverse, as the square of the semiordinate is to the rectangle of the segments of the axis. 3. That a right line drawn from the focus to the extremity of the semi-conjugate axis, is equal to the transverse semi-axis.

Hence, the conjugate axis being given, the FOCUS is easily determined; and the ellipsis thence easily described.

CONJUGATE axis, in an *hyperbola*, is a mean proportional between the transverse axis and the parameter.

It is thus called, because the conjugate axis of an ellipsis has the same ratio. In an hyperbola, the square of the conjugate axis is to the square of the transverse, as the parameter to the transverse axis.

CONJUGATE point, in *Geometry*. See POINT.

CONJUGATE hyperbola. See HYPERBOLA.

CONJUGATES, in *Rhetoric*, denote words deduced from the same origin with that of the subject: e. g. *He who does justly, is just*.

CONJU.

C O N I C S

LATUS Transversum.

C O N E

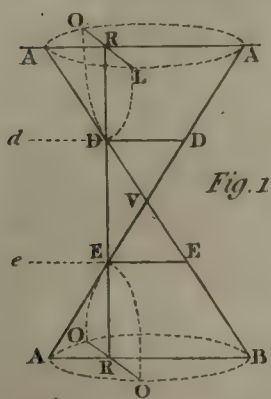


Fig. 1.

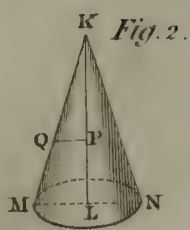


Fig. 2.

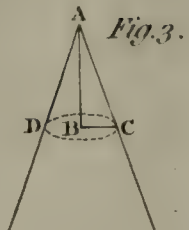


Fig. 3.

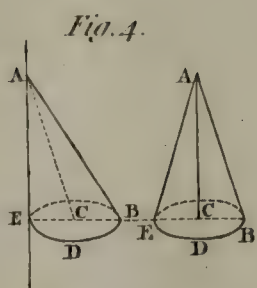


Fig. 4.

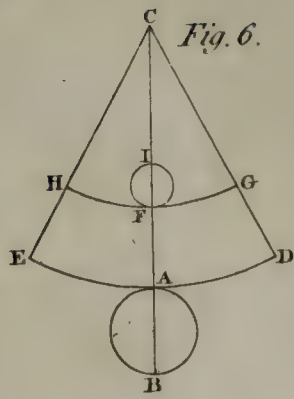


Fig. 6.

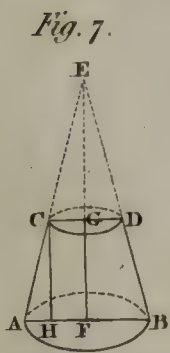


Fig. 7.

SECTIONS following. Fig. 5

CURVE & DIAMETER of a Curve. Fig. 5 N^o 2.

DIAMETER of a Curve. Fig. 6 N^o 2.

P A R A B O L A

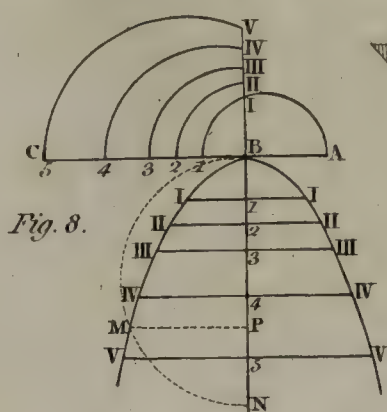
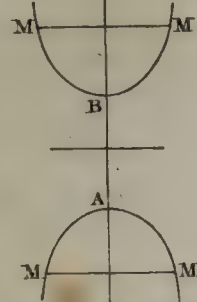
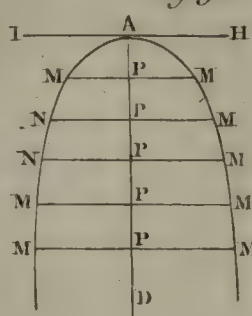
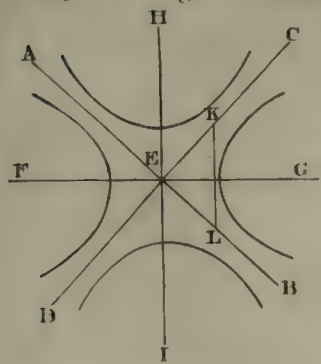


Fig. 8.

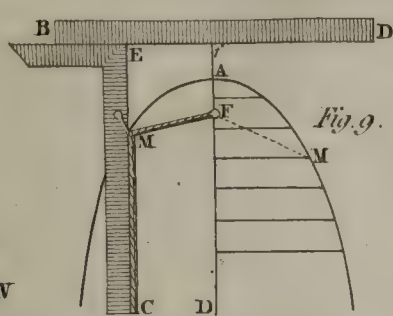


Fig. 9.

PARABOLIC cuneus

HELICOID parabola

ASYMPTOTE

C O N I C Section

Fig. 10

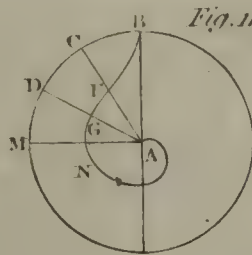
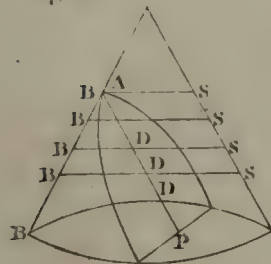


Fig. 11

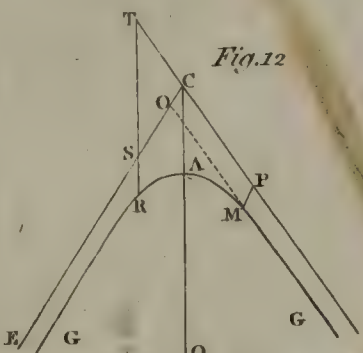


Fig. 12

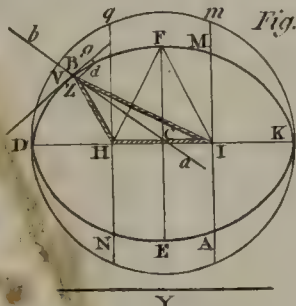


Fig. 13

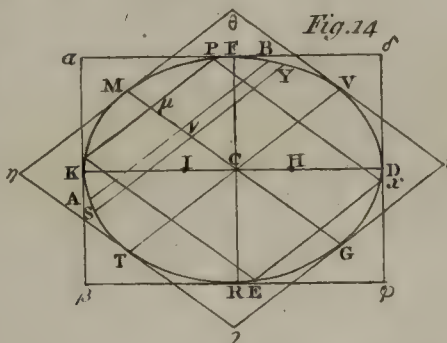


Fig. 14

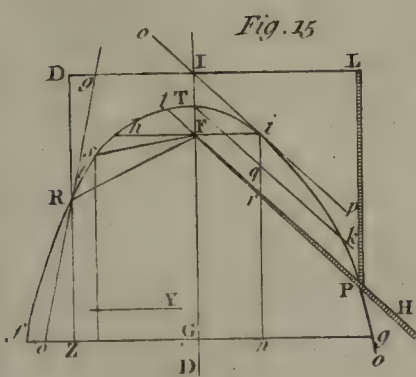


Fig. 15

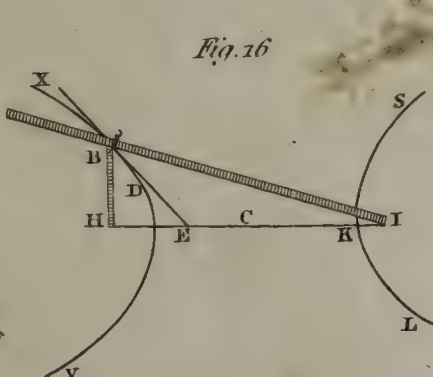


Fig. 16

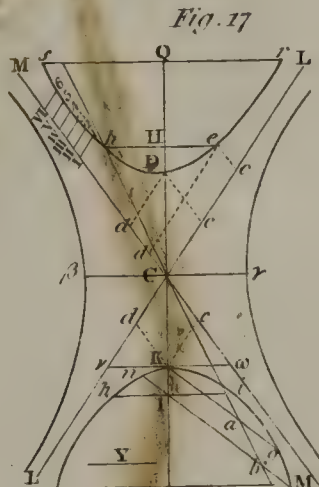
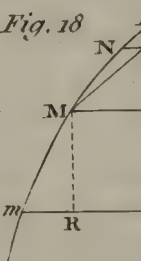


Fig. 17

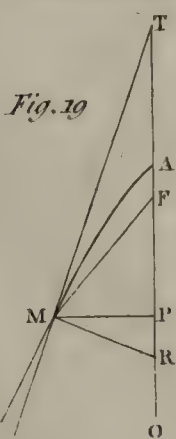
FOCUS

Fig. 18



SUBNORMAL

Fig. 19



EQUILATERAL HYPERBOLA ASYMPTOTE & POWER of HYPERBOLA

E L L I P S I S F O C U S S E C T O R

Fig. 20

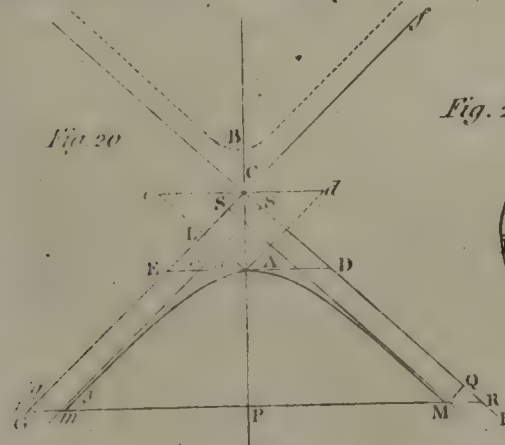


Fig. 21

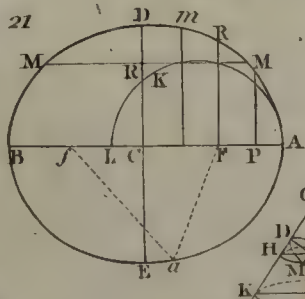


Fig. 22

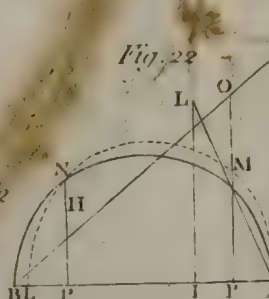


Fig. 24

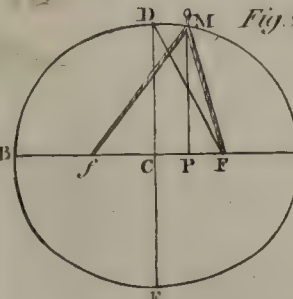
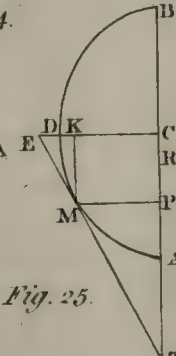


Fig. 25



ORDINATE Fig. 26

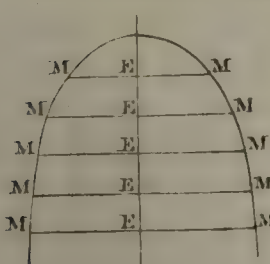


Fig. 27

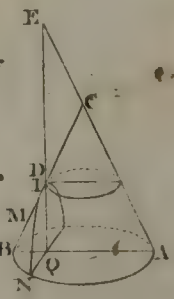
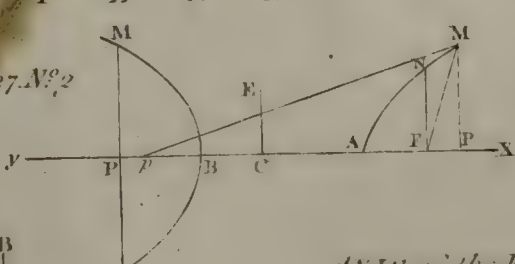


Fig. 27 N^o 2



AXIS of the Ellipse and of the HYPERBOLA

Fig. 31

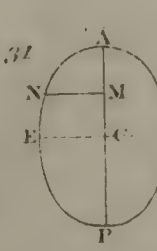
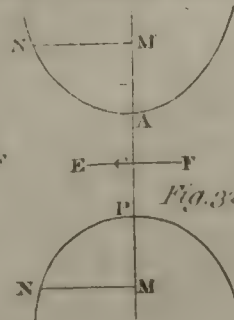
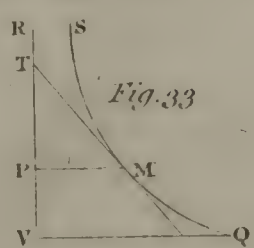


Fig. 32



ASYMPTOTE

Fig. 33





CONJUGATION, in *Grammar*, an orderly distribution of the several parts or inflexions of verbs, in their different MOODS and TENSES, to distinguish them from each other.

The Latins have four *conjugations* distinguished by the terminations of the infinitive, *are, ere, ire*; and most of the French grammarians reduce the *conjugations* of their language to the same number, ending in *er, re, ir*, and *oir*. Some have added a fifth Latin *conjugation* called, the *mixt*, because it is composed of the third and fourth as *accipere, accipio*.

The Greeks have three kinds of verbs; the first called *barytons*, because the last syllable is pronounced with a grave accent; see BARYTONUM: such are *τενω, tendo*, and *τυπω, verbero*: the second are circumflex verbs, which admit a contraction in their termination, and are then marked with a circumflex accent; such is *αγαπω, amo*: the third kind comprehends the verbs in *μι*, as *ειμι, sum*. Of the first sort there are six *conjugations*; of the second, three; and of the third, four. But Messrs. de Port Royal reduce these thirteen *conjugations* to two: viz. one in *ω*, comprehending the barytons and circumflex verbs; and the other, those in *μι*.

In the Hebrew language there are four *conjugations*; viz. *kal* with its passive *niphal*, *piel* with its passive *pyhal*, to which also may be referred *pohel, hipbil* with its passive *bophal*, and *hithpabel*. The third person singular masculine of the first *conjugation* is the præterite of the theme; the second *conjugation* has a *dagesh forte* in the second radical; the third has the prefix letter *ה*; and the fourth, the syllable *תל*.

In English, where the verbs have scarce any natural inflexions, but drive all their variations from additional particles, pronouns, &c. we have hardly any such thing as strict *conjugations*.

Some grammarians, however, distribute English verbs into three *conjugations*, or classes, distinguish from one another by a peculiar formation in some principal part belonging to each: and they observe that the three different terminations of the participles, *d, t, n*, may be considered as the characteristics of the *conjugations*. Lowth's *Introductio* to English Grammar, p. 104. 1772. Others again distinguish them by the different inflection of the first tense in each root, and thus make four *conjugations* in the active voice: the first has three radicals alike; as *I do read, I read*, i. e. yesterday; *I have read*, i. e. just now. The second has the first and third radical alike; as *I run, I ran, I have run*. The third *conjugation* has the second and third radical alike; as *I esteem, I esteemed, I have esteemed*. The fourth has the three radicals different; as *I write, I wrote, I have written or writ*. The passive voice, being made up of the third radical and the auxiliary verb *am*, admits of no difference of *conjugations*. Ward's *Essays on the English Language*, p. 87.

CONJUGATION, in *Anatomy*, is understood of a pair of nerves; or two nerves arising together, and serving for the same operation, sensation, or motion; there being scarce any NERVE in the body without its fellow.

The ancient physicians only knew of seven pairs, or *conjugations* of nerves; the moderns have discovered thirty new ones.

CONIUM. See HEMLOCK.

CONJUNCT. See CONJOINT PAIR.

CONJUNCT of an arch. See SUPPLEMENT.

CONJUNCT sentence. See SENTENCE.

CONJUNCTION, in *Astronomy*, the meeting of two stars, or planets, in the same optical point of the heavens, i. e. in the same degree of the zodiac; and is either *true* or *apparent*.

If the two bodies meet both in the same degree of longitude and latitude, a right line drawn from the center of the earth through the centre of one of them, passes through that of the other; and the *conjunction* is said to be *true* and *central*; and if the lower hides the upper, the *conjunction* is said to be *corporal*.

If the line pass wide of the centre of the earth, the *conjunction* is said to be *partile*.

If the bodies do not meet precisely in the same degree, but are joined with some latitude, the *conjunction* is said to be *apparent*. Thus, when a right line, supposed to be drawn through the centres of two planets, does not pass through the center of the earth, but through the eye of the spectator; it is said to be an *apparent conjunction*.

Conjunctions are also divided into *great* and *greatest*: *great conjunctions* are those which only happen at considerable distances of time from each other; as that of Saturn and Jupiter, which happens every twenty years.

Greatest conjunctions are those which happen in times very remote; as the *conjunction* of the three superior planets, Mars, Jupiter, and Saturn, which only return once in

five hundred years. But this division has little place in astronomy; being founded on the notion of the particular influences, &c. of the heavenly bodies in such and such aspects.

Astrologers maintain, that the deluge was owing to a *conjunction* of all the planets in Capricorn; and that the conflagration will be occasioned by their *conjunction* in Cancer: whence they pretend to foretel the end of the world.

The *conjunction* is the first, or the principal, of all the aspects; and that whence the other aspects commence; as opposition is the last, where they terminate. See CHARACTER.

The MOON is in *conjunction* with the sun every MONTH. Her *conjunctions* and oppositions are called by a general name, *syzygies*.

Eclipses of the sun never happen, but when there is a *conjunction* of the sun and moon in or near the nodes of the ecliptic.

CONJUNCTION, in *Grammar*, a particle which expresses a relation or dependence between words, and phrases; thus called, because serving to join or connect the parts or members of a discourse: or, as Mr. Harris defines it, a *conjunction* is a part of speech, void of signification itself, but so formed as to help signification, by making two or more significant sentences to be one significant sentence: and he distributes them into such as connect sentences and their meaning, and such as conjoin the sentences whilst they disjoin the sense. The former are *conjunctive*, and are either COPULATIVE or CONTINUATIVE; and the latter *disjunctive*, some of which are simple, as, *either* it is day *or* it is night, and ADVERSATIVE, as, it is not day *but* it is night. Hermes, p. 240, &c.

The *conjunction* is the sixth of the eight vulgar parts of speech.

Conjunctions render the discourse more smooth and fluent; and serve very good purposes in the argumentative, and narrative style; but they must ever be omitted where a person speaks with emotion, as only serving to weaken and enervate it. Boileau observes, that nothing gives more warmth and life to a discourse than to drop the *conjunctions* or copulatives; a passion, adds he, embarrassed with *conjunctions*, and useless particles, loses all the fire and vehemence it would require in its progress.

Conjunctions are of various kinds.

CONJUNCTIONS *copulative*, or *conjunctive*, are those which express a relation of union or comparison between things; as, *and, only, as much as, in the same manner as, neither more nor less, inasmuch as, not only, but also*.

CONJUNCTION *adversative*, those which express a restriction, or contrariety; as, *but, nevertheless, although, far from*.

CONJUNCTIONS *causal*, those which shew, that the reason of something is brought; as, *for, because, seeing, the rather since, inasmuch as*.

CONJUNCTIONS *conclusive*, those which denote a consequence drawn: as, *for which reason, but then, of consequence, so that, &c.*

CONJUNCTIONS *conditional*, are those which import a condition: as, *if, if not, on condition that, provided that, in case of*.

CONJUNCTIONS *continuative*, those which express a succession, or continuation of the discourse: as, *in effect, even, whatever it be*.

CONJUNCTIONS *disjunctive*, those which express a relation of separation or division: as, *neither, whether, or*.

CONJUNCTIONS *dubitative*, those which express some doubt, or suspension of opinion: as, *if, that is to say, &c.*

CONJUNCTIONS *exceptive*, are, *if it be not, unless that, &c.*

CONJUNCTIVA, *tunica, adnata*, or *albuginea*, in *Anatomy*, See ADNATA.

CONJURATI fratres. See FRATRES.

CONJURATION, signifies a plot or confederacy, made by persons combining together by oath or promise, to do some public harm.

But it was more particularly used, formerly, for having a personal conference with the devil, or some evil spirit, to know any secret, or to effect any purpose. Anno 5 Eliz. c. 16.

It is said in some of our law books, that the difference between *conjuraton* and *witchcraft* is, that the former endeavours by prayers and invocation of God's powerful name, to compel the devil to say or to do what the offender commands him; the latter deals rather by friendly and voluntary conference or agreement with the devil or familiar, to have the offender's desires served, in lieu of blood, or other gift offered to the devil, especially of the offender's soul. And both these differ from *incantment* or *forceries*; because those are personal conferences with the devil, and these are but medicines and ceremonious

forms of words (commonly called *charms*) without apparition. Cowel.

The statute of king James I. against *conjuraton* and witchcraft, is repealed; and no prosecution shall be commenced on the same: but where persons pretend to exercise any kind of witchcraft or *conjuraton*, &c. or undertake to tell fortunes, or, from their skill in any crafty science, to discover where goods stolen or lost may be found; upon conviction they shall be imprisoned a year, and stand in the pillory once in every quarter, in some market-town, and may be ordered to give security for their good behaviour, by stat. 9 Geo. II. c. 5.

CONN, in *Sea-Language*. See COND.

CONNA, in *Botany*, a name used by some authors for the tree which produces the *cassia fistula* used in medicine. Hort. Manut. vol. i. p. 37.

CONNARUS, in the *Materia Medica*, a name given by some authors to a large species of jujube. Ger. Emac. Ind. 2.

CONNATA folia, among *Botanists*. See LEAF.

CONNECTING oil. See OIL.

CONNECTION, or CONNEXION, a relation whereby one thing adheres to, or depends on another.

Euclid's propositions have such a *connection* among themselves, that the latter cannot subsist without the former.

CONNECTION, or continuity, in the *Drama*, consists in the joining of the several scenes together.

When the scenes of an act succeed one another immediately, and are so joined as that the stage is never left empty, the *connection* is said to be observed.

CONNECTIVES, in *Grammar*, one of the four species under which, according to Mr. Harris, all words may be included. They are of two kinds, and as they connect sentences or words, are called by the different names of CONJUNCTIONS and PREPOSITIONS. Hermes, p. 31. and 237.

CONNER. ALE-CORNER. See ALE-CONNER.

CONNIVENTES *valvulae*, in *Anatomy*, wrinkles, or corrugations, in the inner coat, or membrane, of the two large intestines, the *jejunum* and *ileum*.

They are formed as the *rugae* of the stomach, viz. by the inner coat's being larger than the outer.

These folds, or corrugations, some anatomists imagine in some measure to do the office of valves; by straightening the passages, and consequently impeding the motion of their contents: by which means, the LACTEALS have the more time to imbibe the CHYLE. See DIGESTION.

CONNOISSEUR, a French term, of late used in English: it literally denotes a person well versed in any thing; being formed of the verb *connoitre*, to know, understand. Hence it comes to be used in our language for a critic, or person who is a thorough judge, or master in any way; particularly in matters of painting and sculpture.

CONNAUGHT worm. See WORM.

CONOCARPODENDRON. See PINE-tree.

CONOCARPUS, in *Botany*. See BUTTON-tree.

CONOID, CONOIDES, in *Geometry*, a solid body, resembling a cone, except in this, that, instead of a perfect circle for its base, it has an ellipsis, or some other curve approaching thereto.

The *conoid* is produced by the entire circumvolution of a conic section around its axis; and according to the denomination of the section from whence it is generated, it is differently denominated: if, v. gr. the solid be produced by the motion of a parabola, it is called a *parabolic conoid*; if by that of an hyperbola, an *hyperbolic conoid*; and an *elliptic conoid*, or a *spheroid*, when produced by the rotation of an ellipsis round one of its axes.

The famous solid of the least resistance, sir Isaac Newton, M. Fatio, and the Marquis De l'Hôpital, have demonstrated to be a *conoid*.

CONOIDES, or CONARIUM, is a name given by *Anatomists* to a gland found in the third ventricle of the brain, resembling a pine-apple; whence M. Des Cartes called it *pinealis*; and has fixed there the seat of the rational soul. See PINEAL gland.

CONONITES, in *Ecclesiastical History*, the followers of Conon of Alexandria in the sixth century, resembling in their opinions the SEVERIANS, THEODOSIANS, and TRITHEISTS.

CONOPEUM, in *Antiquity*, a sort of net-work, made to keep away flies; it comes from *κονωψ*, a fly.

CONQUASSATION, in *Pharmacy*, a species of comminution, or a particular operation, by which moist concreted substances, such as recent vegetables, their fruits, lactescent seeds, and the softer parts of animals, are contused and agitated in a mortar, until partly by their proper succulence, or the affusion of some liquor, they are reduced to a soft pulp. Metalline instruments are not to be used for this purpose; because not only the

manifest, but also the latent salts of the substances, subjected to this operation, acting on the instruments, may derive an adventitious virulent quality from them, which will not only render such substances unfit for the intended purposes, but also nauseous and hurtful when exhibited as medicines. James.

CONQUEST, in *Civil Jurisprudence*, is the acquisition of property in common by a number of persons.

In some countries they confound acquisition with *conquest*; but, according to the most general acceptation, acquisition is the gaining of unappropriated goods before the establishment of a community: whereas by the term *conquest*, is ordinarily intended whatever is acquired by a number of persons in community; or by some one for all the others.

As it is more especially in the union of persons by marriage, that a community of property takes place; it is in reference to them that we frequently used the word *conquest*. There are nevertheless *conquests* also among other persons who are in a tacit community or society; such as obtain by particular local customs. Encycl.

According to this sense of the word, it has been contended by several, that William I. claimed this kingdom; that is, not by right of arms, but by right of *conquest* or *acquest*; under promise of succession made by Edward the Confessor, and a contract entered into by Harold to support his pretensions to that succession; and by old writers, *conquestus*, *atquisitio*, and *perquisitio*, are frequently used as synonymous terms. Blackst. Comm. vol. i. p. 199. and vol. ii. p. 243.

CONQUEST, in the *Law of Nations*, is the acquisition of sovereignty by force of arms, by some foreign prince; who reduces the vanquished under his empire. The right of *conquest* is derived from the laws of war; and when a people is subjected, the conduct of the conqueror is regulated by four kinds of law. First, the law of nature, which dictates whatever tends to self-preservation; secondly, our reason, which teaches us to use others, as we would be treated ourselves; thirdly, the laws of political society, to which nature has not assigned any precise boundary; lastly, the law which is derived from the particular circumstances attending the *conquest*.

Thus, a state conquered by another will be treated in one of the four methods following. Either the conqueror will continue it under its own laws, and will only claim the exercise of civil and ecclesiastical sovereignty; or he will impose a new form of government; or he will destroy the frame of their society, and incorporate the inhabitants with others; or he will exterminate them. Encycl.

CONSANGUINITY, the relation of kinship, between persons of the same blood, or sprung from the same root. It is either *lineal*, when it subsists between persons, of whom one is descended in a direct line from the other; or *collateral*, when relations descend from the same ancestor, but do not descend from each other. It is easy to compute, by the rules of progression, how many lineal ancestors any man has within a certain number of degrees. Thus, it would appear that a person, at the 20th degree, or the distance of 20 generations, hath above a millions of ancestors: and if a similar calculation be made of collateral kindred at the distance of 20 degrees forward, on the supposition that each couple of ancestors leave, one with another, two children, the number will be 274877906944: as in the following tables.

Lineal Degrees. Number of Ancestors.

1	2
2	4
3	8
4	16
5	32
6	64
7	128
8	256
9	512
10	1024
11	2048
12	4096
13	8192
14	16384
15	32768
16	65536
17	131072
18	262144
19	524288
20	1048576

Collateral

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Collateral Degrees. Number of Kindred.

1	1
2	4
3	16
4	64
5	256
6	1024
7	4096
8	16384
9	65536
10	262144
11	1048576
12	4194304
13	16777216
14	67108864
15	268435456
16	1073741824
17	4294967296
18	17179869184
19	274877906944

Blackstone's Commentaries, vol. ii. p. 204, 206.

Marriage is prohibited by the church to the fourth DEGREE of *consanguinity*, inclusive; but, by the law of nature, *consanguinity* is no obstacle to marriage, except it be in the direct line.

Consanguinity terminates in the sixth and seventh degree, excepting in the succession to the crown; in which case, *consanguinity* is continued to infinity.

The civilians call *fratres consanguinei*, those born of the same father; in opposition to *fratres uterini*, who are only born of the same mother.

According to the common opinion, those were not allowed to complain of an inofficious testament, i. e. of being disinherited without cause; excepting from the turpitude of the person appointed heir in their place. But Van Water endeavours to shew the contrary; and urges, that the *consanguinei* might plead inofficiosity, even where the testament was not made in favour of a person incapable. See KINDRED.

CONSCIENCE, CONSCIOUSNESS, in *Ethics*, a secret testimony or judgment of the soul, whereby it gives its approbation to things it does that are naturally good; and reproaches itself for those that are evil.

Or, *conscience* is a dictate of the understanding power, concerning moral actions; considered as it has the knowledge of laws; and consequently as conscious of what is to be done, or not done, with regard to the legislator.

In the more popular sense of the word, *conscience* is a judgment, either true or false, whereby we pronounce a thing good or evil. This makes what we call the inner forum, or tribunal.

Some divines maintain, that *conscience* is infallible; and hold it to be that immutable law whereby God will judge men: they deny that the understanding can be the source of errors, and lay them all at the door of the will. A man, say they, may secure himself from error, by forbearing to judge of things till he have a clear and distinct perception of them.

Some of the schoolmen distinguish between the *conscience* antecedent to an action, and that consequent to it: the first, called *antecedent conscience*, determines what is good, and what evil; and consequently prescribes what is to be done, and what avoided.

Consequent conscience is a kind of secondary or reflex judgment, with regard to the goodness, &c. of things already done or committed.

The rule of *conscience* is the will of God, so far as it is made known to us, either by the light of nature, or by that of revelation.

With respect to the knowledge of this rule, *conscience* is said to be *rightly informed*, or *mistaken*; *firm*, or *wavering*, or *scrupulous*, &c. With respect to the conformity of our actions to this rule when known, *conscience* is said to be *good*, or *evil*, &c.

Philosophers in lieu of the word *conscience*, which seems appropriated to theological matters, ordinarily use that of *consciousness*; whereby they mean an inner sentiment of a thing, whereof one may have a clear and distinct notion. In this sense, they say, that we do not know our own soul, nor are assured of the existence of our own thoughts, otherwise than by *self-consciousness*.

CONSCIENCE, court of. See COURT.

CONSCRIPT, CONSCRIPTUS, a popular term in the *Roman History*, used in speaking of senators, who were called *conscript fathers*, *paires conscripti*; because their names were written in the register, or catalogue of the senate.

Livy, lib. i. cap. 1. tells us, that when Brutus filled up the places of the senators cut off by Tarquin, with others chosen out of the equestrian order, those new senators only had the appellation given them of *paires conscripti*.

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But it is certain, that, in after-times, all the senators were called *paires conscripti* without any distinction.

CONSECRATION, the act of converting, or setting apart, any profane, or common thing, to a pious purpose; with certain ceremonies, prayers, benedictions, &c. appropriate thereto.

Consecration is the reverse of sacrilege and profanation, which consist in perverting a thing set apart for a pious purpose, to a profane and popular one.

The bishop *consecrates* a church, or a chalice; the pope *consecrates* medals, agnus dei's, &c. and grants indulgences to those who bear them about them with devotion.

The *consecration* or dedication of a church is an episcopal ceremony, consisting in a great number of benedictions, with aspersions and unctions of chrism, &c. on the walls, both within and without. The form for *consecrating* churches, chapels, and church-yards, or places of burials in England, may be seen in Wilkins's *Concilia Magnæ Britannæ*, &c. vol. iv. p. 668. It directs that the bishop and clergy, of whom there are to be at least two, shall enter the church or chapel in their several habits, and, as they walk up from the west to the east end, repeat alternately the 24th Psalm; the bishop beginning, "The earth is the Lord's," &c. with the "Gloria patri." When they are come to the Lord's table, the bishop sitting in his chair shall have the instrument of dedication, donation, and endowment of the church or chapel, church-yard, or burial-place, presented to him by the founder, or some proper person, which he shall cause to be read by his register, or other officer; and then the instrument shall be laid on the table, and he shall stand on the north side of it, and turning to the congregation, deliver an address to them, which is followed by suitable prayers. One of the priests then reads the service of the day, introducing proper psalms and lessons: after which, the bishop proceeds to the communion service, and instead of the collect of the day, uses one proper to the occasion. When the Epistle and Gospel are read, they are succeeded by the Nicene creed and the sermon; and then the bishop is to proceed with the service of the communion. When the service in the church is finished, the bishop and clergy with the people shall go into the church-yard, and make use of a prayer for the occasion. See *ubi supra*.

The custom of *consecrating* persons, temples, altars, vestments, utensils, &c. is very ancient; and all the ceremonies thereof are prescribed under the old law. When those *consecrations* relate to men, they are properly called *ordinations*; excepting those performed to BISHOPS and KINGS, which still retain the name of *consecration*. Those which only consist in a ceremony instituted by the church, are more properly called *benedictions*. When they regard churches, altars, vessels, &c. they are properly called *dedications*.

CONSECRATION is particularly used for the benediction of the elements in the eucharist.

The Romanists define it, the conversion of the bread and wine into the real body and blood of Jesus Christ: and that this is the sentiment of their church, is evident from the priest's elevating the host immediately after *consecration*, for the people to adore it. See ELEVATION, &c. There is a great controversy between the Latin and Greek churches, touching the words of *consecration*; the common opinion among the Romanists, agreeable to St. Thomas and the schoolmen, is, that the *consecration* of the bread and wine consists in these words, *This is my body; this is my blood*. The Greeks, on the contrary, attribute the change of the elements to a certain prayer, which they call the *invocation of the Holy Ghost*, rehearsed after the words *This is my body; this is my blood*; which the Greeks maintain are only necessary in the process of the *consecration*, as they contain the history of the institution; not as they contribute any thing to the change.

CONSECRATION, among *Medalists*, is the ceremony of the APOTHEOSIS of an emperor; or his translation into heaven, and reception among the gods.

On medals, the *consecration* is thus represented: on one side is the emperor's head, crowned with laurel, sometimes veiled; and the inscription gives him the title of *divus*: on the reverse is a temple, a bustum, an altar, or an eagle taking its flight towards heaven, either from off the altar, or from a cippus: at other times the emperor is seen in the air, borne up by the eagle; the inscription always, CONSECratio.

These are the usual symbols: yet on the reverse of that of Antoninus, is the Antonine column. In the apotheosis of empresses, instead of an eagle there is a peacock. As to the honours rendered these princes after death, they were explained by the words *consecratio*, *pater*, *divus*, and *deus*. Sometimes around the temple or altar are put, *memoria felix*, or *memoria æterna*: for princesses, æternitas,

eternitas, and *fideribus recepta*; on the side of the head, *dea*, or *Θεα*.

CONSECTARY, a proposition that follows, or is deduced, from some preceding definition, lemmata, axioms, conclusions, or the like. Some rather choose to call it a *consequence*; and others a *corollary*, &c.

CONSECUTIVELY, **CONSECUTIVE**, in the *School Philosophy*, is sometimes used in opposition to *antecedently*, and sometimes to *effectively*, or *causally*.

Thus, say the schoolmen, the corruption of one thing is the generation of another, not *effectively*, but *consecutively*: that is, since matter cannot be without form, it is necessary, that the generation of one thing follow upon the corruption of another.

CONSENT of parts, in the *Animal Oeconomy*, a certain agreement, or sympathy, by means whereof, when one part is immediately affected, another, at a distance, becomes affected in like manner.

This mutual accord, or *consent*, is doubtless effected by the commerce of the nerves, and their artful distribution and ramification throughout the body.

The effect is so sensible, as even to come under the physician's cognizance: thus, the stone in the bladder, by vellicating the fibres there, will pain and draw them so much into spasms, as to affect the coats of the bowels in the same manner, by the intermediation of nervous threads, and make a colic there; and also extend their twitches sometimes as far as the stomach, and occasion grievous vomitings: the remedy, therefore, in such cases, is to regard the part originally affected, how remote and grievous soever may be the consequences and symptoms in other places.

The fifth conjugation of nerves branched to the parts of the eye, the ear, those of the mouth, cheeks, præcordia, and parts adjacent, &c. is supposed by naturalists to be the instrument of that particular and extraordinary *consent* between those parts. Hence it is, that a savoury thing seen or smelt excites the appetite, and affects the glands and parts of the mouth; that a shameful thing seen or heard affects the cheeks with blushes; on the contrary, if it please, it affects the præcordia, and excites the muscles of the mouth and face to laughter; if it grieve, it affects the glands of the eyes, so as to occasion tears, and the muscles of the face, putting them into an aspect of crying.

Dr. Willis, quoted by Mr. Derham, imputes the pleasure of kissing, and its effects, to this pair of nerves; which being branched both to the lips and the genital parts, when the former are effected, an irritation is occasioned in the latter. See **SYMPATHY**.

CONSENTES, in *Mythology*, derived from the old Latin *conso*, to counsel, denotes twelve superior deities among the Romans, who were apprehended to belong to the council of Jupiter. These were Jupiter, Neptune, Mars, Apollo, Mercury, Vulcan; and Juno, Vesta, Minerva, Diana, Ceres, and Venus. Varro mentions twelve other deities under the same denomination, who superintended agriculture. Lib. i. De Re Rustica.

These *consentes* had a temple at Pisa in Italy.

CONSENTIA were feasts instituted in honour of these deities.

CONSEQUENCE, in *Logic*, the conclusion of a reasoning, or argument.

The two premises of a syllogism being granted, the *consequence* must also be granted.

In a more restrained signification, *consequence* is used for the relation or connexion between two propositions, whereof one follows, or is inferred, from the other.—Thus: *It is an animal, and therefore feels*.

CONSEQUENT, the last proposition of an argument; being something deduced or gathered from a preceding argumentation. An enthymeme only contains two propositions the *antecedent* and *consequent*: if the *antecedent* be absurd, the *consequent* must be so too.

CONSEQUENT, in a more precise sense, is used for the proposition which contains the conclusion, considered in itself, and without any regard to the *antecedent*: in which sense, the *consequent* may be true, though the *consequence* be false.

CONSEQUENT of a ratio, in *Arithmetic*, the latter of the two terms of **RATIO**; or that to which the antecedent is referred. See **PROPORTION**.

Thus, in $a:b$, or a to b , b is the *consequent*, a the antecedent.

CONSEQUENTS, in *Rethoric*, are also used to signify such things, as being allowed, necessarily, or very probably, infer their antecedents. Thus with respect to a substance, it is corruptible, and therefore material.

CONSEQUENTE, **CONSEQUENZA**, or in **CONSEQUENZA**, in the *Italian Music*. A part of a fugue, or canon, is said to be in *consequenza*, when it follows the first part called the *guide*, imitating its motions, notes, and figures. *Broff. Dict. Mus. in voc.*

CONSEQUENTIA, in *Astronomy*, is opposed to **ANTECEDENTIA**; and a motion in *consequentia* is a motion in the order of the signs of the zodiac.

CONSERVATIVE future. See **SUTURE**.

CONSERVATOR, an officer established for the security and preservation of the privileges granted some cities and communities; or, a person who has a commission to judge of, and decide, the differences arising among them. In most catholic universities, there are two *conservators*; the *conservators* of royal privileges, or those granted by kings; and the *conservator* of apostolical privileges, or those granted by the pope.

The first takes cognizance of personal and mixed causes between the regents, students, &c. and the later of spiritual matters between ecclesiastics.

Anciently there were appointed *conservators* of treaties of peace between princes; which *conservators* became judges of the infractions made on a treaty, and were charged with procuring satisfaction to be made. These were usually the feudatories of the several powers.

In lieu of *conservators*, princes now have recourse to other indifferent princes to guarantee their treaties. See **GUARANTEE**.

CONSERVATOR of the peace, in our *Ancient Customs*, was a person who had an especial charge, by virtue of his office, to see the king's peace kept.

Till the erection of **JUSTICES** of the peace, by king Edward III. there were several persons who by common law were interested in keeping the same; some having that charge as incident to other offices; and others simply, or of itself, called *custodes*, or *conservators of the peace*.

The chamberlain of Chester is still a *conservator* in that county; and petty constables are, by the common law, *conservators*, &c. in the first sense, within their own jurisdiction: so are also the coroner and the sheriff within their own county. The king is the principal *conservator* of the peace within all his dominions: the lord chancellor, lord treasurer, lord high steward, lord marshal, lord high constable, all the justices of the court of king's bench, by their office, and the master of the rolls, by prescription, are general *conservators* of the peace through the whole kingdom, and may commit breakers of the peace, and bind them in recognisances to keep it.

CONSERVATOR of the truce, and safe conducts; *conservator induciarum, & salutorum regis conductuum*, was an officer appointed in every sea-port, under the king's letters patent. His charge was to enquire of all offences committed against the king's truce, and safe conducts upon the main sea, out of the franchises of the cinque-ports, as the admirals were wont to do, and such other things as are declared anno 3 Hen. V. cap. 6. See also stat. 4 Hen. V. cap. 7.

CONSERVATORIOS are musical schools established for the instruction of children in the profession of music. There are four of these at Venice, designed for the education of girls, and three at Naples, for the education of boys. It has been suggested that the operation of castration was performed in the *conservatorios*; but the practice is absolutely prohibited; and the young castrati are brought from Lucia in Puglia: but before the operation is performed, their voices are tried in a *conservatorio*. The scholars of the Venetian *conservatorios* have been chiefly celebrated for taste, and neatness of execution; and those of Naples have had the reputation of being the first *contrapuntists*, or composers, in Europe.

CONSERVATORY is sometimes used for a place to preserve snow and ice. See *Phil. Trans.* N° 8. p. 140. See **ICE-HOUSE**.

CONSERVE, in *Pharmacy*, a dry confect, or form of medicine, or food, contrived to preserve the flowers, leaves, roots, peels, or fruits of several simples, as near as possible to what they were when fresh-gathered; and to give them an agreeable taste.

Physicians, under the name of *conserve*s, commonly comprehend all kinds of confects of flowers, fruits, roots, seeds, barks, &c. both liquid and dry.

*Conserve*s are made by beating up the thing to be preserved with sugar; viz. a triple quantity thereof to those which are most moist and corruptible, and a double quantity to such as are least so.

Thus, e. gr. to make *conserve* of roses, rosemary-flowers, sage-flowers, or the like; they pound them in a stone mortar, and when pounded, put to them fine sugar, and beat the whole well together. For fruits, as currants, &c. they set them on the fire to make them yield their juice, then drain and strain them, and thicken what comes from them over the fire, and add to it the sugar. This last sort of *conserve* is particularly called a jelly.

CONSIDERATIO curia, in *Law*, denotes the judgment of the court.

CONSIDERATION, in *Law*, the material cause, or *quid pro quo* of any contract, and without which no contract is obligatory or binding.

This *consideration* is either *expressed*; as if a man bargain to give ten guineas for a horse: or *implied*, when the law itself enforces a *consideration*; as if a man coming into an inn, take meat, drink, and lodging for himself and horse, the law presumes he intends to pay for them, though there be no express contract between him and his host; and if he discharge not the house, the host may stop his horse.

There is also a *consideration* of nature and blood; and valuable *consideration* in deeds and conveyances.

Considerations of natural love, affection, marriage, &c. are good to raise uses to a man's family; if the uses are limited to a stranger, then it must be for valuable *consideration*, not for love, affection, &c. 1 Inst. 271. 1 Rep. 176.

CONSIGNMENT, or **CONSIGNATION**, the depositing any sum of money, bills, papers, or commodities, in sure hands; either by order of a court of justice, in order to their being delivered to the persons to whom they are adjudged; or voluntarily, in order to their being remitted to the persons they belong to, or sent to the places they are destined for.

CONSIGNMENT of goods, is the delivering, or making them over to another.—Thus, goods are said to be *consigned* to a **FACTOR**, when they are sent to him to be sold, &c. or when a factor sends back goods to his principal, they are said to be *consigned* to him.

CONSILIIUM, *dies consilii*, in Law, was a time allowed for one accused to make his defence, and to answer the charge of the accuser. It is now used for a speedy day appointed to argue a demurrer; which the court grants after a demurrer joined on reading the record of the cause. See **EMPARLANCE**.

CONSIMILI Casu. See **CASU**.

CONSISTENCE, a state of rest, wherein things capable of growth, or decrease, continue for some time at a stand, without either.

This term is particularly used with regard to trees, for the time, or age, beyond which they do not grow, and yet at which they do not decline.

Thus we distinguish three states or stages of a tree; its growth, *consistence*, and return: and these are common to all trees, even fruit trees.

The *consistence* of an oak is from fifty to a hundred and sixty years: some, however, hold, that their *consistence* only commences from a hundred years; asserting that they grow till that time, and that they continue in that state of perfection to two hundred years of age.

CONSISTENCE, in *Physics*, is that state of a body wherein its component particles are so connected, or entangled among themselves, as not to separate or recede from each other.

Consistence only differs from *continuity* in this; that *consistence* implies a regard to motion or rest, which continuity does not; it being sufficient to denominate a thing *continuous* that its parts are contiguous to each other.

When used relative to a disease, it imports the *crisis* or *acme* thereof: when applied to the humours, excrements, or excretions, it imports their state as to thickness or thinness.

CONSISTENCE is particularly used with regard to bodies considered as they are more soft, or more hard, more liquid, or more dry.

Forms of medicines, as electaries, lambatives, boluses, syrups, unguents, &c. differ chiefly in *consistence*.

Not only the gratefulness, but also the operation of medicines, depend in some measure on their *consistence*; for medicines of a thick *consistence* are taken into the stomach, and penetrate into the body with greater difficulty than such as are thin and liquid; and it requires more trouble to swallow a thick than a thin medicine: for this reason thick medicines are generally nauseous and ungrateful; and this is the reason why cathartic boluses are often dissolved in some agreeable liquor, since in this form they are more grateful than in any other: for this reason also apozems are generally clarified by whites of eggs, or a strainer.

On the contrary, a thick *consistence* is on some occasions more to be desired; in ulcers of the aspera arteria, and œsophagus, for instance, where we must give medicines made up with gum tragacanth, or other substances of a like nature, which by their viscosity fix the medicines, as it were, longer to the part affected.

CONSISTENT Bodies, is a term much used by Mr. Boyle for such as we ordinarily call *firm*, or *fixed bodies*; in opposition to *fluid* ones.

That author has a particular essay of the *atmosphere of consistent bodies*; wherein he shews, that all, even solid, hard, ponderous, and fixed bodies, do exhale or emit effluvia to a certain space all around them.

CONSISTENTES, in *Church History*, a kind of penitents who were allowed to assist at prayers, but could not be admitted to receive the sacrament.

CONSISTORIAL Advocate. See **ADVOCATE**.

CONSISTORY, or *Roman Consistory*, denotes the college of **CARDINALS**; or the pope's senate, and council, before whom judiciary causes are pleaded.

Du-Cange derives the word from *consistorium*; i. e. *locus ubi consistitur*; used chiefly for a vestibule, gallery, or antechamber, where the courtiers wait for admission; and called a *consistente multitude*.

The *consistory* is the first court, or tribunal of Rome: it never meets but when the pope pleases to convoke it: the pope presides in it in person, mounted on a magnificent throne, and habited in his *pontificalia*; on the right are the cardinal-bishops and priests, and on the left the cardinal deacons.

The place where it is held, is a large hall in the apostolical palace, where princes and ambassadors of kings are received. The other prelates, prothonotaries, auditors of the rota, and other officers, are seated on the steps of the throne; the courtiers sit on the ground; ambassadors on the right, and *consistorial* and fiscal advocates behind the cardinals.

Besides the public *consistory*, there is also a private one, held in a retired chamber, called the chamber of *papegay*; the pope's throne here being only raised two steps high.

Nobody is here admitted but the cardinals, whose opinions are collected, and called *sentences*. Here are first proposed and passed all bulls for bishopricks, abbeys, &c. Hence bishopricks, and abbeys, are said to be *consistorial benefices*; in regard, they must be proposed in the *consistory*, the annates be paid to the pope, and his bulls taken.

Anciently they were elective; but by the concordat, which abolishes elections, they are appointed to be collated by the pope alone, on the nomination of the prince.

CONSISTORY was also the name of a COURT under Constantine, where he sat in person, and heard causes: the members of this court were called *comites*.

CONSISTORY is also used among the reformed, for a council or assembly of ministers and elders, to regulate their affairs, discipline, &c.

CONSISTORY, or *Court Christian*, in the *English Laws*, is a council of ecclesiastical persons, or the place of justice in an ecclesiastical or spiritual court.

Every archbishop and bishop has a *consistory-court*, held before his chancellor or commissary, either in his cathedral, in some chapel, aisle, or portico, belonging thereto; or in some other convenient place of his diocese, for ecclesiastical causes. The spiritual court was anciently, in the time of the Saxons, joined with the county or hundred court; and the original of the *consistory* court, as divided from those courts, is found in a law of the Conqueror, quoted by lord Coke.

From this court there lies an appeal to the archbishop of each province respectively.

CONSOLATION, one of the places in *Rhetoric*, wherein the orator endeavours to abate and moderate the grief or concern of another.

In *consolation*, a principal regard is to be had to the circumstances and relations of the parties. Scaliger considers this exceeding well, De Arte Poetica. "The *consolator*, says he, is either a superior, an inferior, or an equal; with regard, either to preferment, honour, wealth, wisdom, or age. Livia is therefore to comfort Ovid, in a manner very different from that wherein Ovid comforts Livia. Thus, as to authority, a father and son, Cicero and Pompey, are to conduct their *consolations* very differently: so in wealth; as if a client should undertake to comfort Crassus: in wisdom; as when Seneca comforts Polybius and his mother: as to age, there need no examples.

"A superior may interpose his authority, and may even chide; a wise man may even dispute; sentences will become him. An inferior is to shew respect and affection, and own he had this from some wise or learned person: an equal to appeal to their common friendship."

CONSOLE, in *Architecture*, a part or member projecting in manner of a bracket, or shoulder-piece; serving to support a cornice, bust, base, beam, little vault, or the like. See *Tab. Architecture*, fig. 32.

The word is derived from the French *consolider*, to reunite, join, &c. agreeable to the office of this member.

Consoles are also, upon occasion, called *mutules*, *modillions*, &c. according to their form.

Some of them are striated or fluted; others in form of cartouches; others have drops, in the manner of triglyphs.

Vitruvius calls all those of gates *prothyrides*; of *thyra*, gate. See **PROTHYRIS**.—Those made of the end of a plank of wood, cut triangular-wise, are called *ancones*. See **ANCON**. *Consoles* are frequently used as keys of arches, projecting out, to support a vase, or other ornament.

CONSOLIDA, in *Botany*. See **BUGLE**.

CONSOLIDA major. See **COMFRY**.

CONSOLIDATION, in *Law*, the combining and uniting two benefices into one. Stat. 37 Hen. VIII. cap. 21. which union is to be by the assent of the ordinary, patron, incumbent, &c. and to be of small churches lying near together.

The term is borrowed from the civil law; where it properly signifies an union of the possession, or occupation, with the property. Thus, if a man hath by legacy *usufructum fundi*, and afterwards buys the property, or fee-simple, of the heir; this is called a *consolidation*.

CONSOLIDATION, in *Medicine*, expresses the action of uniting broken bones, or the lips of wounds, by means of *consolidating remedies*, as they are called; which, cleansing with a moderate heat and force, taking corruption out of the wounds, and preserving the temperature of the parts, cause the nourishment to be fitly applied to the part affected. See **WOUND**, and **FRACTURE**.

CONSONANCE, in *Music*, is ordinarily used in the same sense with *concord*, viz. for the union or agreement of two sounds produced at the same time, the one grave, the other acute; which, mingling in the air, in a certain proportion, occasion an accord agreeable to the ear.

CONSONANCE is sometimes used to signify a sound arising from several others sounding together, whether agreeable, or disagreeable to the ear.

In this sense *consonance* may be divided into **CONCORD** and **DISCORD**.

Dr. Holder, on this principle, defines *consonancy*, "A passage of several tunable sounds through the medium, frequently mixing and uniting in their undulated motions, caused by the well-proportioned commensurate vibrations of the sonorous bodies, and consequently arriving smooth and sweet, and pleasant to the ear; as, on the contrary, *dissonancy* he maintains to arise from disproportionate motions of sounds, not mixing, but jarring and clashing as they pass, and arriving in the ear grating and offensive."

Which notion of a *consonance* exactly quadrates with that we have already laid down for a *concord*. Accordingly, most authors confound the two together; though some of the more accurate distinguish them; making *consonance* to be what the word implies, a mere *sounding of two or more notes together, or in the same time*; in contradistinction to the motion of those sounds in *succession*, or one after the other.

In effect, the two notions coincide; for two notes, thus played in *consonance*, constitute a concord; and two notes that please the ear in *consonance*, will likewise please it in *succession*. Notes in *consonance* constitute harmony, as notes in *succession* constitute melody.

In the popular sense, *consonances* are either *simple* or *compound*, &c. The most perfect *consonance* is unison; though many, both among the ancients and moderns, discard it from the number of *consonances*; as conceiving *consonance* an agreeable mixture of different sounds, grave and acute; not a repetition of the same sound.

The second *consonance* is the octave; then the fifth, the fourth, the thirds, and the sixths: the rest are multiples, or repetitions of these.

CONSONANCE, in *Grammar*, denotes a like cadence, or close of words, periods, &c.

Consonances are ordinarily faults in discourse, especially in English prose: though the ancients make a figure of them which they call *ομοιοτελευτον*. Too great a *consonancy* in the rhymes has always an ill effect.

CONSONANT, a letter which produces no sound alone, or without some other letter, either vowel or *consonant*, joined along with it.

And hence the name *con-sonant*, q. d. *quæ sonant cum alia*. A *consonant*, considering it philosophically, is nothing else but the modification of a sound, produced by means of the organs of the voice, not a production of sound itself: thus, v. gr. the sounds signified by the characters *a*, *e*, *i*, *o*, *u*, &c. are differently modified when we say *ab*, than when we say *ac* or *ca*, *ad* or *da*; and those modifications are called *consonants*.

The letters of the alphabet are divided into *vowels* and *consonants*. *Consonants*, again, are divided into *single*, as *b*, *h*, *m*, *q*, &c. and *double*, as *x* in *axillary*, corresponding to the *ξ* of the Greeks.

Consonants, again, are divided into *liquid*, as *l*, *r*, *m*, *n*; and *mute*, as *b*, *d*, and the rest.

But the most natural division of *consonants* is that of the Hebrew grammarians; who have been imitated therein by the grammarians of other oriental languages: these divide the *consonants* into five classes, with regard to the five principal orders of the voice; which all contribute, it is true, but one more notably than the rest, to certain modifications, which make five general kinds of *consonants*. Each kind, or class, comprehends several *con-*

nants, which result from the different degrees of the same modification, or from the different motions of the same organs.

These organs are the *throat*, *palate*, *tongue*, *teeth*, and *lips*; whence the five classes of *consonants* are denominated *guttural*, *palatal*, *lingual*, *dental*, and *labial*.

We account sixteen *consonants* in the English alphabet, viz. *b*, *c*, *d*, *f*, *g*, *k*, *l*, *m*, *n*, *p*, *q*, *r*, *s*, *t*, *x*, *z*; to which there are three others to be added, viz. the *h*, and *j* *consonants*, and *v* *consonant*, which makes the whole number of *consonants* nineteen: one whereof is guttural, viz. the aspirate *b*; five palatal, viz. *c*, as when pronounced before *a*, *o*, and *u*, as in *cavern*, *corn*, *curiosity*; *g*, as in *Geneva*; *j* *consonant* in *julep*; *k* in *kernel*; and *q* in *query*.

The four lingual *consonants* are *d*, *l*, *n*, *t*; the four dental, are, *r*, *s*, *x*, *z*, the three last whereof are hispers: and five labial, *b*, *f*, *m*, *p*, and *v* *consonant*.

With regard to which division, it may be observed, that though the *g* be modified in three different manners, as it comes before an *a*, an *o*, or an *u*; yet it is still a *consonant* of the palate; that the *j* *consonant* differs in nothing but its figure from the *g* before *e* or *i*; that *k* has the same pronunciation with the *c*; that *x* comprehends the sound of two letters in its sound, viz. *c* or *k*, and *s* or another *c*, as in *Alexander*, and *Alexis*, which we pronounce as if wrote *Alecjander*, and *Alecis*, or *Alecjs*; and that the *c* before an *e* or *i*, is no *consonant* of the palate, because in that case it loses its proper sound, and assumes the hissing sound of the *s*.

The abbot Dangeau thinks the nature of the division of the Hebrew grammarians to be very reasonable; but he does not acquiesce in the distribution they have made of them: to find a natural and just division of the *consonants*, he observes, no regard must be had to the characters that represent them; nor any thing be considered but their sound, or the modification they give the sound.

On this principle, the same author finds in the French five labial *consonants*, *b*, *p*, *v*, *f*, and *m*; five palatal ones, *d*, *f*, *g*, *k*, *n*; four hispers, *s*, *z*, *j*, *ch*; two liquids; *l* and *r*; two that run into and mix with each other, as *ll*, and *gn*; which last, however, is peculiar to the French language; and the *b* aspirate.

He adds, 1. That *m* and *n* are properly two nasal *consonants*; the *m*, a *b* passed through the nose; and the *n* a *d*, in like manner pronounced through the nose; and in effect, people in a cold pronounce *barket* for *market*, *deed* for *need*, &c.

2. That among the *consonants*, some are weak, others strong; their difference consisting in this, that the former are preceded with a small emission of the voice, which softens them; which the latter have not. The weak are *b*, *c*, *d*, *g*, *z*, *j*; the strong, *p*, *f*, *t*, *k*, *s*, *ch*.

It may be here observed, that when we speak of a person's talking *through the nose*, it must be understood in a sense quite different from what the word seems naturally to import: since the nose in this case concurs less to the pronunciation than when we do not speak through the nose; in regard the air, not being able to make its way through the nose, is returned into the mouth, where it forms a dull obtuse sound, called *nasal*.

From the whole we may conclude, that the excess of *consonants* in one language above another only consists in this, that there are more modifications of sound received and established in the one than in the other: for all men, having the same organs, may form the same modifications; so that it is entirely owing to custom, nothing to nature, that the English have not the *θ* of the Greeks, the *ain* and *beth* of the Hebrews, the *ch* of the Germans, the *gn* of the French, the *gl* of the Italians, the *ll* of the Welsh, &c.

Also, that the Chinese have no *r*, the Iroquois no labial *consonants*, the Hurons have abundance of aspirates, and the Arabs and Georgians abundance of double *consonants*: which last is owing to this, that they make several organs concur strongly and equally to the modification of a sound; whereas, in the rest, only one organ is moved very strongly and sensibly, and the rest weakly.

It is hence also visible, that in all languages the **ASPIRATES**, or guttural letters, are real *consonants*; since the throat modifies the sound as much as the palate, tongue, or lips.

Lastly to find all the *consonants* that may be formed in any language, there needs nothing but to observe all the modifications that the sounds of speech will admit of, by which we shall have all the *consonants* practicable.

CONSONANTE, in the *Italian Music*, is used to signify *concord*s, or those intervals which afford pleasure, be they either perfect, as the fifth and eighth, or imperfect, as the third, sixth, &c. See **OCTAVE**, &c.

CONSORT. See **QUEEN**.

CONSOUND, a name given to several different plants; thus *symphytum* is called the great *consound*, *bugula* the middle

dle *confound*, *bellis* the least *confound*, and *solidago* the *Saracens confound*.

CONSPIRACY, in *Law*, is taken for a combination or **CONFEDERACY** to do something evil, or illegal: though in the original sense of the word, and in its use in other languages, it signifies merely an agreement, whether for good, bad, or matters indifferent.

In our statutes and law-books, *conspiracy*, in a general sense, is frequently confounded with *maintenance*, and *champarty*.

CONSPIRACY, in its special signification, is used for a confederacy of two, at least, falsely to indict one, or procure one to be indicted of felony.

The punishment of this *conspiracy*, at the king's suit, anciently was, that the party attainted lose his frank-law; to the end that he may not be impanelled on juries, and the like; that his lands, goods, and chattels, be estreated; his trees rased, and his body committed to prison.

Even *conspiracies*, or combinations in cases of less moment, as those of victuallers, touching selling of victual, shall be grievously punished. 37 Hen. VIII.

CONSPIRATIONE, in *Law*, a writ that lies against *conspirators*.

CONSPIRATORS, according to the statute, are those that do confederate, or bind themselves by oath, covenant, or other alliance, that every of them shall aid, and bear the other, falsely and maliciously, to indite, or cause to indite, or falsely to move, or maintain pleas; and all such as cause children, within age, to appeal men of felony, whereby they are imprisoned, and sore grieved: and such as retain men in the country, with liveries or fees, to maintain their malicious enterprizes: and this extendeth as well to the takers, as the givers: and stewards, and bailiffs, of great lords, which, by their seignior, office, or power, undertake to bear, or maintain quarrels, pleas, or debates, that concern other parties than such as touch the estate of their lords, or themselves. Anno 33 Edw. I. stat. 2. 2 Inst. fol. 384. and 562.

CONSPIRING powers, in *Mechanics*, are all such as act in directions not opposite to one another. See **POWER**, and **MOTION**.

CONSTABLE. *Lord High CONSTABLE*, is an ancient officer of the crown, now disused in England, except on solemn occasions, as the king's coronation, and the like; and also suppressed in France by Louis XIII. in 1627; though the office has been exercised in the command of the **MARSHALS**, by the first officer in the army.

Some derive the word from the Saxon, and make it originally signify the *slay*, or *hold*, of the *konig*, or *king*: others, with more probability, derive it from *comes stabuli*, the master of the stables, or perhaps of the horse; and suppose that the dignity, which at first was civil, in time became military, and the master of the stables was made general of the army.

The function of the *constable* of England consisted in the care of the common peace of the land, in deeds of arms, and matters of war. To the court of the *constable*, and that of the *marshals*, belonged the cognizance of contracts, deeds of arms without the realm, and combats, blazonry of arms, &c. within it.

The first *constable* of England was created by the Conqueror: the office continued hereditary till the thirteenth of Hen. VIII. when it was laid aside, as being so powerful as to become troublesome to the king. Since that time, the constable is only created occasionally.

From those mighty magistrates, the *constables* of England, are derived those inferior ones, since called the *constables of hundreds and franchises*: these were first ordained in the thirteenth year of Edward I. by the statute of Winchester; which, for the conservation of the peace, and view of armour, appointed that two *constables* should be chosen in every hundred and franchise. They are generally chosen and sworn by the justices of peace in their sessions.

These are what we now call *constabularii capitales*, or *high constables*; because continuance of time, and increase of people, &c. have occasioned others of like nature, but inferior authority, in every town, called *petty-constables*, or *sub-constabularii*, first instituted about the reign of Edward III. But they are now usually chosen by the jury at the court-leet; and if no court-leet be held, appointed by two justices of the peace; though they are usually chosen by the parishioners, and sworn by a justice of peace. If the person elected refuses to serve, a writ of *mandamus* may be had to compel him to do it; or they may be bound over to the sessions, indicted, fined, and imprisoned. Physicians, apothecaries, surgeons, &c. attorneys, officers of the courts at Westminster, barristers at law, &c. qualified dissenting teachers, and prosecutors of a felon to conviction, are excused from serving this office. Dissenters, scrupling the oaths, may execute the office by deputy. 1 W. and M. cap. 18. These

are under the direction of the high *constable*, and their charge is very extensive.

Besides these, we have *constables* denominated from particular places, as *constable* of the Tower, of Dover-castle, of Windsor-castle, of the castle of Caernarvon, and many other of the castles of Wales; whose office is the same with that of the *castellani*, or governors of castles.

CONSTABLES of London. The city of London is divided into twenty-six wards, and the wards into precincts, in each whereof is a *constable*. They are nominated by the inhabitants of each precinct on St. Thomas's day, and confirmed, or otherwise, at the court of wardmote. After confirmation, they are sworn into their offices at a court of aldermen, on the next Monday after Twelfth day.

Such as are chosen into the office, are obliged to place the king's arms, and the arms of the city, over their doors; and if they reside in alleys, at the ends of such alleys toward the streets, to signify that a *constable* lives there, and that they may be the more easily found when wanted.

CONSTABLE, *provost of the*. See **PROVOST**.

CONSTANT winds. See **WIND**.

CONSTANT quantity, in *Geometry*, that which remains the same, while others increase or decrease. Thus the semi-diameter of a circle is a *constant quantity*; for while the absciss and semi-ordinates increase, it remains the same.

CONSTAT, in *Law*, the name of a certificate, which the clerk of the pipe, and auditors of the exchequer, make at the request of any person, who intends to plead or move in that court for the discharge of any thing; and the effect of it is, the certifying what does *constare* upon record, touching the matter in question. 3 and 4 Edw. VI. cap. 4. and 13 Eliz. cap. 6.

A *constat* is held to be superior to a *certificate*; because this may err or fail in its contents, that cannot, as certifying nothing but what is evident upon record. Also the exemplification under the great seal of the enrolment of any letters patent, is called a *constat*. Coke on Littl. fol. 225. b. The difference between a *constat*, *inspeximus*, and *vidimus*, is treated of at large in Page's case, Coke's fifth report.

CONSTELLATION, in *Astronomy*, an assemblage or system of several stars, expressed and represented under the name and figure of some animal, or other thing: this assemblage is by some called also an *asterism*.

The ancients portioned out the firmament into several parts, or *constellations*; reducing a certain number of stars under the representation of certain images, in order to aid the imagination, and the memory, to conceive and retain their number, disposition, and even to distinguish the virtues, which they attributed to them: in which sense a man is said to be born *under a happy constellation*, i. e. under a happy configuration of the heavenly bodies. The division of the heavens into *constellations* is very ancient; and, probably, as old as astronomy itself; at least, it was known to the most ancient authors extant, whether sacred or profane. In the book of Job, mention is made of the names of some of them; witness that sublime expostulation, *Canst thou restrain the sweet influence of the Pleiades, or loosen the bands of Orion?* And the same may be observed of the oldest among the heathen writers, Homer and Hesiod.

The division of the ancients only took in the visible firmament, or so much as came under their notice: this they distributed into forty-eight *constellations*; twelve whereof took up the zodiac: the names they gave them are, *Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricornus, Aquarius, Pisces*: from whence the signs of the ecliptic and zodiac take their names; though now no longer contiguous to the *constellations* which denominate them. See **SIGN**.

The other stars, on the northern side of the zodiac, were disposed into twenty-one *constellations*; viz. *Ursa major* and *minor, Draco, Cepheus, Bootes, Corona Septentrionalis, Hercules, Lyra, Cygnus, Cassiopeia, Perseus, Andromeda, Triangulum, Auriga, Pegasus, Equuleus, Delphinus, Sagitta, Aquila, Ophiuchus* or *Serpentarius*, and *Serpens*: to which have been since added *Antinous*, and *Coma Berenicens*.

The stars on the southern side of the zodiac were distributed into fifteen constellations: their names are, *Cetus, Eridanus fluvius, Lepus, Orion, Canis major* and *minor, Argo, Hydra, Crater, Corvus, Centaurus, Lupus, Ara, Corona Meridionalis*, and *Piscis australis*: to which have been since added fourteen others, viz. *Phoenix, Grus, Indus, Pavo, Apus* or *Avis Indica, Apis Musca, Chamæleon, Triangulum australe, Piscis volans, Toucan, Hydrus, Xiphiæ* or *Dorado, Columba Noachi*, and *Robur Carolinum*. See each *constellation*, and the stars contained in it, under its proper head, **ARIES, TAURUS**, &c.

Of these *constellations* the eighteen last, with the greatest

part of *Argo navis*, *Centaurus*, and *Lupus*, are not visible in our horizon.

The other stars, not comprehended under these *constellations*, yet visible to the naked eye, the ancients called *informes*, or *sporades*, some whereof the modern astronomers have since reduced into new figures, or *constellations*. See *INFORMES*, and *SPORADES*.

Thus, Hevelius, v. gr. between *Leo* and *Ursa major*, makes *Leo minor*; and between *Ursa minor*, and *Auriga*, over *Gemini*, makes *Lynx*, under the tail of *Ursa major*, *Canes venatici*, *Cerberus*, *Vulpecula*, and *Anser*, *Scutum Sobieski*, *Lacerta*, *Camelopardalus*, *Monoceros*, and *Sextans*. In these *constellations*, the stars are ordinarily distinguished by that part of the image wherein they are found. Bayer distinguishes them farther by the letters of the Greek alphabet: and many of them, again, have their peculiar names, as *Arcturus*, between the knees of *Bootes*; *Gemina* or *Lucida*, in the *Corona Septentrionalis*; *Palilium*, or *Aldebaran*, in the Bull's eye; *Pleiades* in the neck, and *Hyades* in the forehead of the Bull; *Castor* and *Pollux* in the heads of *Gemini*; *Capella*, with the *Hædi*, in the shoulder of *Auriga*; *Regulus* or *Cor Leonis*; *Spica Virginis* in the hand, and *Vindemiatrix* in the shoulder of *Virgo*; *Antares*, or *Cor Scorpionis*; *Fomahaut*, in the mouth of *Piscis australis*; *Regel*, in the foot of *Orion*; *Sirius*, in the mouth of *Canis major*; *Procyon*, in the back of *Canis minor*; and the *Pole-star*, the last in the tail of *Ursa minor*.

The Greek and Roman poets, from the ancient theology, give us wild and romantick fables about the origin of the *constellations*, probably derived from the hieroglyphics of the Egyptians, and transmitted, with some alterations, from them to the Greeks; which may be seen in Hyginus's *Poeticon Astron.* and Ricciolus's *Almagest*. lib. vi. cap. 3, 4, 5; and Sherburne's *Notes upon Manilius*. Hence, some out of a vain zeal, rather than any love for the science, have been moved to alter either the figures of the *constellations*, or at least their names.

Thus, venerable Bede, instead of the profane names and figures of the twelve *constellations* of the zodiac, substituted those of the twelve apostles; whose example being followed by Julius Schillerius, in 1627, he completed the reformation, and gave scripture names to all the *constellations* in the heavens.

Thus, *Aries*, or the Ram, became converted into St. Peter; *Taurus*, or the Bull, into St. Andrew; *Andromeda*, into the Sepulchre of Christ; *Lyra* into the Manger of Christ; *Hercules* into the Magi coming from the East; *Canis major* into David, &c. Weigelius, professor of mathematics in the university of Jena, made a new order of *constellations*; converting the firmament into a *cælum heraldicum*; and introducing the arms of all the princes in Europe, by way of *constellations*.

Thus, *Ursa major*, he transformed into the elephant of the kingdom of Denmark; the *Swan* into the Ruta with swords of the house of Saxony; *Ophiuchus* into the cross of Cologne; the *Triangle* into the compasses, which he calls the *symbol of artificers*; and the *Pleiades* into the *Abacus Pythagoricus*, which he calls that of merchants, &c.

But the more knowing among astronomers never approved of innovations; as serving no purpose but to introduce confusion into astronomy. The old *constellations*, therefore are still retained; both because better could not be substituted, and likewise to keep up the greater correspondence and uniformity between the old astronomy and the new. See *CATALOGUE*.

CONSTERNATION is defined by ethical writers to be an excess of *HORROR*, owing to the ill government of our admiration and fear: or such an immoderate degree of fear as confounds the faculties, and incapacitates a person for consultation and execution.

CONSTIPATION, in *Medicine*, a hardness of the *alvus*, or belly, with a difficulty of discharging the same; otherwise called *costiveness*.

Riding post, eating of medlars, or quinces, several preparations of milk, hard-roasted eggs, &c. *constipate* the belly.

A *constipation* of the belly, if it continue long, sometimes degenerates into the iliac passion, or twisting of the guts. Most persons of a hot and dry constitution are afflicted with a costiveness, or *constipation*; but this is seldom attended with any ill consequences.

The proper remedy for a *constipation* is a clyster; if this fail, lenient cathartics: and when they also fail, others must be exhibited of a more drastic or powerful nature. A *constipation*, or obstinate costiveness, is thought by Dr. Stevenson to be first or last owing to, or attended with a kind of palsy of the intestines, and may sometimes be cured by fomenting the belly with wine, in which aromatics have been boiled, and drinking a little of the same when the pulse is slow, and the body cool. This disorder, though of long continuance, and come to a dangerous height, has been cured by a cold *pediluvium*,

and by placing the patient with his bare soles on a cold floor, and dashing his feet, legs, and thighs, with cold water. See *Medic. Ess. Edinb. abr.* vol. i. p. 249, seq.

CONSTITUENT parts, in *Chemistry*. The *constituent parts* of bodies are their dissimilar parts, or principles, into which they may be resolved, by the rules of that art. They are thus called in distinction from the *INTEGRANT* parts of bodies, which are parts of the same nature and properties with the bodies themselves. Thus quicksilver, dissolved by aqua fortis, may be separated from the diluted menstruum, by means of a copper plate, in its own form; this therefore was only divided into its integrant parts; but cinnabar resolved by chemistry into sulphur and mercury, is divided into its *constituent* parts, neither of these, nor any particle of them, being cinnabar, or having its properties. Shaw's *Lectures*, p. 15.

CONSTITUTION, an establishment, ordinance, decision, regulation, or law, made by authority of a prince, or other superior, ecclesiastical or civil.

The *constitutions* of the Roman emperors make a part of the civil LAW. The *constitutions* of the church make a part of the CANON law. Some of the papal *constitutions* are in form of bulls, others of briefs.

CONSTITUTIONS, *Legatine*, were ecclesiastical laws enacted in national synods, held under the cardinals Otho and Othobon, legates from pope Gregory IX. and pope Clement IV. in the reign of Henry III. about the years 1220, and 1268.

CONSTITUTIONS, *Provincial*, are principally the decrees of provincial synods, held under several archbishops of Canterbury, from Stephen Langton, in the reign of Henry III. to Henry Chicheley, in the reign of Henry V. and adopted also by the province of York in 1463, under Henry VI.

CONSTITUTIONS of 1603. See *CANON Law*.

CONSTITUTIONS, *Apostolical*, denote a collection of regulations attributed to the apostles, and supposed to have been collected by St. Clement, whose name they likewise bear.

These are divided into eight books; consisting of a great number of rules and precepts, relating to the duties of Christians, and particularly to the ceremonies and discipline of the church.

Authors are divided about their genuineness: the generality hold them spurious, and endeavour to prove them posterior to the apostolic age; maintaining they were unknown till the fourth century: which, if so, shews St. Clement had no hand in them. It is certain, that no such book is quoted as Scripture by any Christian writer of the three first centuries. The first who cites it is Epiphanius, and yet he speaks of it as of doubtful authority; and some modern writers are of opinion, that the *Constitutions* quoted by Epiphanius were different from the present *Constitutions*; and that the eight books, as we have them, were not composed and finished till after his time, towards the middle, or before the end of the fifth century. They evidently bear many internal characters of spuriousness. See Lardner's *Cred.* vol. x. p. 320, &c.

Mr. Whiston has ventured to oppose the general opinion; and with some reason, much learning, and more warmth, asserted the *Apostolical Constitutions* to be one of the sacred writings, dictated by the apostles in their meetings, written down from their mouths by St. Clement, and intended as a supplement to the New Testament; or, rather, as a scheme and system of Christian faith and polity. See his *Essay on the Apostolical Constitutions*, and his historical preface; wherein the several steps he made in his fancied discovery are traced.

What makes the *Constitutions* more suspected by the orthodox, is, that they seem to favour of Arianism.

CONSTITUTIONS of Clarendon. See *CLARENDON*.

CONSTITUTION is also used, in a physical sense, for the temperament of the body, or for that disposition of the whole which arises from the quality and proportion of its parts.

Physicians consider the *constitution* as depending chiefly on the humours or juices of the body; and hence, as this or that humour is supposed to predominate, the bile, e. g. or the blood, phlegm, choler, or spirit; the person used to be denominated of a *bilious*, *sanguine*, *phlegmatic*, *choleric*, or *mercurial constitution*.

CONSTRICION, the act of binding, or drawing the parts of a thing close together.

The word is compounded of *con*, together, and *stringere*, to tie or close up.

CONSTRUCTOR, in *Anatomy*, a name given by Spigelius, and some others, to a muscle now very well known by the name of the *sphincter ani*.

CONSTRUCTOR cunni, in *Anatomy*, the name given by Albinus to a muscle called by others the *SPHINCTER vaginae*; by some the *orbicularis pudendi*, and the *inferior clitoridis musculus*.

CONSTRUCTOR labiorum, or *orbicularis*, a muscle proper to the

the LIPS. See *Tab. Anat. (Myol.) fig. 1. n. 8.* Its fibres make a kind of (*orbis*) ring about the mouth (whence it is also called *orbicularis*); and serve to constrict and draw up the lips, as in kissing, &c. whence some call it *basinator*, and *osculatorius*.

This Verheyen will not have to be one muscle, but a pair, whose fibres meet and join at both corners of the mouth; each acting on one lip only, though concurrently.

Other authors are unanimous in calling it one muscle: and will have it of the sphincter kind; though Dr. Drake thinks improperly; in regard, it is not like the other sphincters in constant action, but at the command of the will; the distinguishing mark between a SPHINCTER and another muscle.

CONSTRICtor palpebrarum. See ORBICULARIS.

CONSTRICtores nasi, a pair of muscles common to the alæ of the nose, and the upper lip.

They arise fleshy from the forepart of the fourth bone of the upper jaw; and after a straight ascent, are inserted into the roots of the alæ nasi, and superior parts of the upper lip.

Their use is to draw the alæ downwards, nearer each other; and at the same time draw the upper lip also downwards; an action which we use in taking of snuff, or in smelling at any thing.

CONSTRUCTION, in Geometry, the art or manner of drawing, or describing a figure, scheme, the lines of a problem, or the like. The equality of the lines of such a triangle, &c. is demonstrated from their construction.

CONSTRUCTION of equations, is the method of reducing a known EQUATION into lines and figures; whereby the truth of the rule, canon, or equation, may be demonstrated geometrically.

The method of constructing equations is different, according to the diversity of equations.

To construct a simple equation. The whole mystery consists in this, that the fractions, to which the unknown quantity is equal, be resolved into proportional terms: the method of which will be better shewn by examples than it can be taught by many rules.

1. Suppose $x = \frac{ab}{c}$; then will $c : a :: b : x$, to be determined by the method of finding a fourth proportional.

2. Suppose $x = \frac{abc}{de}$; let $d : a :: b : \frac{ab}{d}$. This fourth proportional found, being called g ; $x = \frac{gc}{e}$, which is therefore found as in the former case.

3. Suppose $x = \frac{aa-bb}{c}$. Since $aa-bb = (a+b) \times (a-b)$; $c : a+b :: a-b : x$.

4. Suppose $x = \frac{a^2b-bcc}{ad}$. By the first case we find $g = \frac{ab}{d} = \frac{a^2b}{ad}$, and $h = \frac{bc}{d}$. Again, by case 1. $i = \frac{bc}{a}$, and $x = g-i$, the difference of the lines g and i .

5. Suppose $x = \frac{ab}{c} + \frac{adc}{bc}$. Find, as in the preceding case, $g = \frac{ab}{c}$, and $f = \frac{adc}{bc}$. Then will $x = g+f$ be the sum of the lines g and f .

6. Suppose $x = \frac{a^2b+bcd}{af+cg}$. Seek $\frac{cg}{a}$, and let $f + \frac{cg}{a} = b$; then will $af+cg=ab$; consequently, $x = \frac{a^2b+bcd}{ab}$.

Thus is the present case brought to the preceding one.

7. Suppose $x = \frac{a^2b-bad}{af+bc}$. Find $\frac{af}{b}$, and make $\frac{af}{b} + c = b$; then will $af+bc=bb$. Hence, $x = \frac{a^2b-bad}{bb} = \frac{a^2-ad}{b}$.

Consequently, $b : a :: a-d : x$.

8. Suppose $x = \frac{a^2+b^2}{c}$. Construct the triangle ABC (*Tab. Algebra, fig. 1.*) whose side $AB=a$, $BC=b$; then will $AC = \sqrt{a^2+b^2}$. Let $AC=m$; then will $a^2+b^2=m^2$. And therefore $x = \frac{m^2}{c}$; consequently, $c : m :: m : x$.

9. Suppose $x = \frac{a^2-b^2}{c}$. On AB (*fig. 2.*) = a , describe a semicircle, and therein set off $AC=b$. Since the triangle ACB is rectangular; $CB = \sqrt{a^2-b^2}$. Let $CB=m$; then will $x = \frac{m^2}{c}$; consequently, $c : m :: m : x$.

10. Suppose $x = \frac{a^2b+bcd}{af+bc}$. Say, $b : a :: f : \frac{fa}{b}$; and let

$\frac{fa}{b} + c = b$; then will $bc+af=bb$. Hence, $x = \frac{a^2b+bcd}{bb} = \frac{a^2+cd}{b}$. Find betwixt $AC=c$ (*fig. 3.*) and $CB=d$,

a mean proportional $CD = \sqrt{cd}$. Let $CE=a$; then will $DE = \sqrt{a^2+cd}$. Call this m ; then will $x = \frac{m^2}{b}$;

consequently, $b : m :: m : x$.

To construct a quadratic equation geometrically. Since quadratic equations may be reduced to simple ones, those may likewise be constructed from the methods already laid down: for if the equation be pure, $x^2=ab$; then will $a : x :: x : b$; wherefore we shall find $x = \sqrt{ab}$; if between $AC=a$, and $BC=b$, we find a mean proportional DC . If the equation be affected, $x^2+ax=b^2$; then will $x = \frac{1}{2}a \sqrt{\frac{1}{4}a^2+b^2}$; that is, either $x = \frac{1}{2}a + \sqrt{\frac{1}{4}a^2+b^2}$; or, $x = \sqrt{\frac{1}{4}a^2+b^2} - \frac{1}{2}a$, or, $x = \frac{1}{2}a + \sqrt{\frac{1}{4}a^2-b^2}$, or, $x = \frac{1}{2}a - \sqrt{\frac{1}{4}a^2-b^2}$.

The whole mystery, therefore, of constructing quadratics comes to this: that the value of $\sqrt{\frac{1}{4}a^2+b^2}$, and also the value of $\sqrt{\frac{1}{4}a^2-b^2}$, be found; both of which are shewn in the preceding article. For, if in the rectangular triangle (*fig. 1.*) $AB = \frac{1}{2}a$, and $BC=b$; then will $AC = \sqrt{\frac{1}{4}a^2+b^2}$. But if on $AB = \frac{1}{2}a$ (*fig. 2.*) be described a semicircle; and therein applied $AC=b$; $CB = \sqrt{\frac{1}{4}a^2-b^2}$, as was shewn in the article preceding. See CURVE. See Maclaurin's Algebra, part iii. chap. 2. and Simpson's Alg. p. 269.

To construct cubic and biquadratic equations. The roots of any equation may be determined by the intersections of a straight line with a curve of the same dimensions as the equation; or by the intersections of any two curves whose indices multiplied by each other, give a product equal to the index of the proposed equation.

Thus, the roots of a biquadratic equation may be determined by the intersections of two conic sections; for the equation by which the ordinates from the four points in which these conic sections may cut one another can be determined, will arise to four dimensions; and the conic sections may be assumed in such a manner, as to make this equation coincide with any proposed biquadratic: so that the ordinates from these four intersections will be equal to the roots of the proposed biquadratic.

If one of the intersections of the conic section falls upon the axis, then one of the ordinates vanishes, and the equation by which these ordinates are determined, will then be of three dimensions only, or a cubic; to which any proposed cubic equation may be accommodated. So that the three remaining ordinates will be the three roots of that proposed cubic. The conic sections for this purpose should be such as are most easily described. The circle may be one, and the parabola is usually assumed for the other.

Let APE (*Tab. II. Analysis, fig. 40.*) be the common Apollonian parabola. Take on its axis the line $AB =$ half of its parameter. Let C be any point in the plane of the parabola, and from it as a centre describe, with any radius CP, a circle meeting the parabola in P. Let PM, CD, be perpendiculars on the axis in M and D, and let CN, parallel to the axis, meet PM in N.

Then will always $CPq = CNq + NPq$ (47 E. 1.) Put $CP=a$, the parameter of the parabola $=b$, $AD=c$, $DC=d$, $AM=x$, $PM=y$.

Then $CNq = x^2 + c^2$, $NPq = y^2 + d^2$; and $x^2 + c^2 + y^2 + d^2 = a^2$. (x and c is the difference of x and c indefinitely, which ever of the two is greatest.) That is, $x^2 \pm 2cx + c^2 + y^2 \pm 2dy + d^2 = a^2$. But from the nature of the parabola, $y^2=bx$, and $x^2 = \frac{y^4}{b^2}$; substituting

therefore these values for x^2 and x , it will be $\frac{y^4}{b^2} \pm \frac{2cy^2}{b} + y^2 \pm 2dy + c^2 + d^2 - a^2 = 0$. Or, multiplying by b^2 ,

$y^4 \pm 2bcy^2 + b^2 \times y^2 \pm 2db^2 \times y + c^2 + d^2 - a^2 \times b^2 = 0$.

Which may represent any biquadratic equation that wants the second term; since such values may be found for a , b , c , and d , by comparing this with any proposed biquadratic, as to make them coincide. And then the ordinates from the points P, P, P, P, on the axis will be equal to the roots of that proposed biquadratic. And this may be done, though the parameter of the parabola (*viz. b*) be given: that is, if you have a parabola already made or given, by it alone you may resolve all biquadratic equations, and you will only need to vary the centre of your circle and its radius.

If the circle described from the centre C pass through the vertex A, (*fig. 41.*) then $CPq = CAq = CDq + ADq$, that is, $a^2 = d^2 + c^2$; and the last term of the biquadratic ($c^2 + a^2 - a^2$) will vanish; therefore, dividing the rest

by y ; there arises the cubic, $y^3 \pm 2bc + b^2 \times y \pm 2db^2 = 0$. Let the cubic equation proposed to be resolved be $y^3 \pm py \pm r = 0$. Compare the terms of these two equations, and you will have $\pm 2bc + b^2 = \pm p$, and $\pm 2db^2 = \pm r$, or, $\mp c = \frac{b}{2} \mp \frac{p}{2b}$, and $d = \pm \frac{r}{2b^2}$. From

which you have this construction of the cubic $y^3 \pm py \pm r = 0$, by means of any given parabola A P E.

From the point B take in the axis (forward if the equation has $-p$, but backward, if p is positive) the line BD = $\frac{p}{2b}$; then raise the perpendicular DC = $\frac{r}{2b^2}$, and from C, describe a circle passing through the vertex A, meeting the parabola in P, so shall the ordinate PM be one of the roots of the cubic $y^3 \pm py \pm r = 0$.

The ordinates that stand on the same side of the axis with the centre C are negative or affirmative, according as the last term r is negative or affirmative; and those ordinates have always contrary signs that stand on different sides of the axis. The roots are found of the same value, only they have contrary signs, when r is positive as when it is negative; the second term of the equation being wanting.

For a farther account of the construction of such equations, see Maclaurin's Algebra, part iii. chap. 3. De la Hire's Constructions des Equations Analytiques, Marquis de l'Hopital Sect. Con. lib. ix. However, the intent of these geometrical Constructions is more readily answered by the method of extracting roots by APPROXIMATION.

CONSTRUCTION, in Grammar, syntax; or the arranging and connecting the words of a sentence, according to the rules of the language.

The construction is generally more simple, easy, and direct in the modern tongues than in the ancient: we have very few of those inversions which occasion so much embarrassment and obscurity in the Latin; our thoughts are usually delivered in the same order wherein the imagination conceives them; the nominative case, for instance, always precedes the verb, and the verb goes before the oblique cases it governs.

The Greeks and Latins, M. St. Evremont observes, usually end their periods, where, in good sense and reason, they should have begun them; and the elegance of their language consists, in some measure, in this capricious arrangement, or rather in this transposal and disorder of the words.

Construction is either simple or figurative.—Simple, is that wherein all the terms, or parts of the discourse, are placed in their natural order.

Figurative construction, is that wherein we recede from this simplicity, and use certain expressions, shorter, and more elegant than nature affords.

The SYNTAX, or construction of words, is distinguished into two parts, CONCORD, and GOVERNMENT or REGIMEN.

CONSTRUCTIVE treason, was defined by 25 Edw. III. cap. 2. See TREASON.

CONSUALES ludi, among the Romans, the same with CIRCENSES ludi. See also CIRCUS.

CONSUALIA, in Antiquity, feasts which were held among the ancients, in honour of the god Consus, i. e. Neptune; different from those other feasts of the same deity called Neptunalia.

They were introduced with a magnificent cavalcade, or procession on horseback; because Neptune was reputed to have first taught men the use of horses; whence his surname of ἵππιος, Equestris.

Evander is said to have first instituted this feast; it was re-established by Romulus, under the name of Consus; because it was some god under the denomination of Consus, that suggested to him the rape of the Sabines.

It is said, that it was with a view to this rape that he made that establishment. This, however, is certain, that it was to this feast all his neighbours were invited; when, taking advantage of the solemnities and sacrifices, he seized the women. To draw the greater concourse of people, he gave out, that he had found an altar hid under ground, which he intended to consecrate, with sacrifices to the god to whom it had been originally erected.

Those who take upon them to explain the mysteries of the heathen theology, say, that the altar hid under ground, is a symbol of the secret design of Romulus to seize his neighbours wives.

The consualia were of the number of feasts called sacred; as being consecrated to divinity.—Originally they were not distinguished from those of the Circus: whence it is, that Valerius Maximus says, that the rape of the Sabines was effected at the games of the Circus.

Plutarch observes, that during the days of this solemnity, horses and asses were left at rest, and were dressed up

with crowns, &c. on account of its being the feast of Neptunus Equestris.—Festus says, the cavalcade was performed with mules; it being an opinion, that this was the first animal used to draw the car.

Servius gives us to understand, that the consualia fell on the thirteenth of August; Plutarch, in the life of Romulus, places them on the eighteenth, and the old Roman calendar on the twenty-first of that month.

CONSUBSTANTIAL, in Theology, a term of like import with co-essential; denoting something of the same substance with another.

The orthodox believe the Son of God to be consubstantial with the Father.

The term οὐσιωσις, consubstantial, was first adopted by the fathers of the councils of Antioch and Nice, to express the orthodox doctrine the more precisely, and to serve as a barrier and precaution against the errors and subtleties of the Arians; who owned every thing excepting the consubstantiality.

The Arians declared, that the Word was God, as having been made God; but they denied that he was the same God, and of the same substance, with the Father: accordingly, they exerted themselves to the utmost to abolish the use of the Word. The emperor Constantine used all his authority with the bishops to have it expunged out of the symbols; but it still maintained itself, and is at this day as it was then, the distinguishing criterion between an Athanasian and an Arian.

Sandius will have it, that the word consubstantial was unknown till the time of the council of Nice; but it is certain that it had before been proposed to the council of Antioch, wherein Paulus Samosatenus had been condemned; though it had there the fortune to be rejected. Curcellenus, on the other hand, maintains, that it was an innovation in doctrine in the council of Nice, to admit an expression, the use whereof had been abolished by the council of Antioch.

According to St. Athanasius, the word consubstantial was only condemned in the council of Antioch, inasmuch as it implied the idea of a pre-existent matter, prior to the things formed thereof: now, in this sense, it is certain, the Father and the Son are not consubstantial, there having been no pre-existent matter.

CONSUBSTANTIATION, a tenet of the Lutheran church with regard to the manner of the change made in the bread and wine in the eucharist; though the term consubstantiation was substituted in the room of transubstantiation, at the close of the thirteenth century, by John, furnished Pungens Asinus, a doctor of the university of Paris.

The divines of that profession maintain, that, after consecration, the body and blood of our Saviour are substantially present, together with the substance of the bread and wine: which is called consubstantiation, or IMPANATION. See also TRANSUBSTANTIATION, and LUTHERANISM.

CONSUETUDINIBUS, & servitiis, in Law, a writ of right, which lies against the tenant that deforceth his lord of the rent, or service, due to him.

CONSUL, the chief magistrate of the Roman commonwealth.

After the Romans had expelled their kings, they were governed by two consuls, established in the year of Rome 245, having their name à consulendo. Brutus and Collatinus were the first, elected by an assembly of the people: their office was to hold a year; and if either of them died in the course of the year of their consulate, a new one was to be elected.

The consuls were the head of the senate; they commanded the armies of the republic, and were supreme judges of the differences between the citizens. In regard, however, that they had made some abuse of this power, it was allowed, by the Valerian law, for the party aggrieved to appeal from the tribunal to the people; especially in cases where the life of a Roman citizen was concerned.

In progress of time, the consuls being too much taken up with the grand affairs of state, or at the heads of armies, there were other magistrates created for the distribution of justice to the people, in lieu of the consuls.

The right of convoking the senate in ancient Rome, on all occasions, belonged of course to the consuls, as the supreme magistrates of the city, which, in their absence, devolved regularly to the next magistrates in dignity, the prætors, and the TRIBUNES.

To be elected consul, it was regularly required, that the candidate should be at least forty-three years old; though we meet with some few exceptions from this rule. The election was held in the month of January, in the Campus Martius; and afterwards in the Capitol.

Consuls were even continued under the emperors, after the republic was destroyed; but consul was here little more

more than an honourable title; which, however, the people were fond of keeping up; as esteeming it some remains of their ancient liberty. It dwindled for a long time; and at last, became absolutely extinct in the time of Justinian: after whom, no emperor either created any *consul*, or assumed the dignity himself.

Basil is the last in the consular list, for the year 541. By this time, the dignity was depreciated to that degree, that it was conferred on the meanest persons: indeed, Justinian endeavoured to retrieve it twenty-five years after, and created himself *consul*, but without effect.

From the establishment of the republic, and the *consulate* under L. Jun. Brutus, and L. Tarq. Collatinus, to the *consulate* of Basil, i. e. from the year of Rome 244. or 245, 509 years before Jesus Christ, to the year of Rome 1294, the space of 1049 years, the years were accounted by the *consuls*; but from the time of Basil, in the year of Christ 541, we find no mention made of *consuls*, or *consulates*; but the times was then computed by the years of the emperors reigns, and the indictions.

Indeed, for some time after the *consulate* of Basil, the years are marked thus; *post consulatum Basilii*, 1, 2, 3, &c. See the *Fasti Consulares* of M. D'Almeveen. That author reckons 1060 pairs of *consuls*, beside the substitute *consuls*, *suffecti*, elected to supply vacancies by death; and yet there were but 1049 years, and consequently only 10 many *consulates*.

The perpetual *consulates* of the eastern emperors, which compose the *fasti Byzantini*, commenced in the year of Christ 567, and ended in 668, in the last year of Constantine.

Constantine Pogonatus would have the *consulate* inseparable from the empire; which it continued to be till the time of Constantine Porphyrogenetus.

In this form of government the empire and *consulate* were so closely united, that the empress Irene would needs assume the *consulate* when she was only regent of the empire.

But the French kings, those of Italy, and the Saracen princes who commanded in Spain, taking on them the title of *consuls*, as well as emperors of Constantinople; these last despised it, and laid it aside; so that the name was only continued to the magistrates of some cities, and certain other officers, as is shewn by F. Pagi.

Under the emperors there were *ordinary consuls*, *honorary consuls*, and *suffecti*; which last were also on foot in the time of the republic.

In the middle age, we find the word *consul* used for *comes*, *count*, and *preconsul*, for *viscount*; as is observed by Spelman, and De Marca.

And thus *consul*, in our *Law-books*, signifies an *earl*. Bract. lib. i. cap. 8: tells us, that as *comes* is derived from *comitatu*, so *consul* is derived from *consulendo*: and in the laws of Edward the Confessor, mention is made of *vicecomites*, and *viceconsules*.

CONSUL, at present, is used for an officer established by virtue of a commission from the king, and other princes, in the ports and factories of the Levant, on the coasts of Africa, Barbary, Spain, and other foreign countries of any considerable trade; to facilitate and dispatch business, and protect the merchants of the nation.

These commissions are never granted to persons, as *consuls* of the French nation, under the age of thirty years.

When the *consulate* is vacant, the most ancient of the deputies of the nation are to discharge the function thereof, till the vacancy be filled up by the king.

The *consuls* are to keep up a correspondence with the ministers of England residing in the courts whereon their *consulates* depend. Their business is, to support the commerce and interest of the nation; to dispose of the sums given, and the presents made, to the lords and principals of places: to obtain their protection, and prevent the insults of the natives on the merchants of the nation. There are also *consuls* of other nations established in the Levant, especially French and Dutch.

CONSULS also denote judges elected among merchants and dealers, in ports and trading towns, chiefly in France; to terminate, *gratis*, and on the spot, without any process, such differences and demands as may arise relating to their merchandizes, bills of exchange, and other articles of commerce.

The first jurisdiction of *consuls* established in France, is that of Thoulouse; the edict of whose establishment bears date 1549, under the reign of king Henry II. that of Paris followed fourteen years afterwards. By degrees, they were established in most of the considerable trading towns in that kingdom.

CONSULAR comitia, and *medals*. See the substantives.

CONSULTATION, in *Law*, a writ whereby a cause, formerly removed by prohibition from the ecclesiastical court to the king's court, is returned thither again.

If the judges of the king's court, upon comparing the

libel with the suggestion of the party, find the suggestion false, or not proved; and therefore the cause to be wrongfully called from the court-christian; then, upon such deliberation, or *consultation*, they decree it to be returned again, and the writ obtained hereon is called a *consultation*.

CONSUMMATION, the end, period, or completion, of any work. — Thus, we say, the *consummation* of all things: meaning the end of the world. By the incarnation, all the prophecies are to be *consummated*.

Consummation of marriage denotes the last act of marriage, which makes its accomplishment.

CONSUMPTION, *Tubercles*, in *Medicine*, a disease arising from a defect of nourishment; or a preternatural decay of the body, by a gradual waste of muscular flesh. See **ATROPHY**.

It is frequently attended with a hectic fever; and is divided by physicians into several kinds, according to the variety of its causes: as *universal* or *scorbutic consumption*, where it arises from a cacochymia, or scorbutic habit; and *pulmonic consumption*, or *consumption of the lungs*, where it arises from some cause in the lungs, properly called a **PHTHISIS**.

A *consumption* may either be *accidental*, *natural*, or *hereditary*. — *Accidental consumptions* may arise, 1. From ulcers, chalky stones, or polypuses in the lungs, caused by something that obstructs the circulation in the pulmonary vessels, or renders the blood viscid, as a suppression of any natural evacuation. 2. From intemperance, occasioning either a cacochymia, or plethora. 3. From peripneumonies, pleuritis, asthmas, coughs, catarrhs, diarrhoeas, venereal disorders, and excess of venery. 4. From grief, hard study, &c.

Natural consumptions may arise from the straitness of the thorax, or an ill conformation of the parts.

An *hereditary consumption* may be communicated from the parents, without any other visible cause.

A *consumption* usually begins with flying pains and stitches; a troublesome pain at the pit of the stomach, or in the diaphragm; frequent spitting, loss of appetite, a quick pulse, a sweetness or saltiness in the saliva, heat and flushings in the face and palms of the hands after meals, an hectic fever towards the evening, heaviness, faintness, night-sweats; and, where the lungs are first disordered, a cough, catarrh, or asthma, usually precede it. When these symptoms are violent, it is confirmed; and then comes on an expectoration of purulent or bloody matter, and the vomica pulmonum; at length, the feet swell, the expectoration stops, a diarrhoea comes on; and then the facies Hippocratica, and death. The cure of an *universal*, or *muscular consumption*, depends principally upon removal into a proper air, exercise, and the using of a regular nourishing diet, particularly vegetables and milk; the appetite is to be excited by proper bitters, and other stomachics.

In a *pulmonary consumption*, or *phthisis*, balsamics and oleaginous medicines, are usually added.

Dr. Wainwright, indeed, takes the particles of oily medicines to be too gross and viscid to enter the small orifices of the lacteals; and thinks, that their operation or effect being confined to the first passages, they are not only of no service in the cure, but are apt to pall the appetite, occasion obstructions in the mouths of the lacteals, and diarrhoeas.

But this seems contrary to common experience: that their particles are small enough to enter the lacteals, is evident from the sudden relief nephritic persons find in violent paroxysms of the stone by the passages being relaxed soon after their exhibition. That diarrhoeas, and blunting the appetite in some constitutions, will be the consequence of their continuance, or exhibition in too great quantities, must be allowed; but then this is either accidental to some kinds of constitutions, or arises from some error in using them.

As to the lacteals being obstructed by their use, it seems a mere notion, and as much unsupported by experience as that other hypothesis, which a late author, Dr. Quincy, has been fond of asserting: viz. that the use of butter is apt to foul the glands.

A *consumption* is frequently the consequence of a neglected **COLD**.

Besides repeated small bleedings, which is the best of all remedies for diminishing the hectic fits, the saline draughts and a cool diet are to be used. Colligative sweats may be checked by drinking about a pint of lime-water, softened with a little new milk.

In the advanced state of a *consumption*, we may distinguish two kinds of coughs, one caused by the ulcers of the lungs, and the other by a thin rheum falling upon the *fauces* and *trachea*. For the first of these, about ten drops of balsam of Peru or Copaiba may be given twice a day in a bolus of conserve of roses; and for the latter, *incrassants*,

incrassants, as conserve of roses and opium; which last ought to be given with caution, as being apt to heat the body. See BALSAMS.

CONSUMPTION, in *Farriery*, is also a disease incident to horses, consisting of a waste of muscular flesh, attended with a slow fever. In this disorder bleeding in small quantities is recommended: mercurial purges and a powder of native cinnabar, gum guaiacum and nitre, of each one pound, in the quantity of an ounce twice a day; spring grass, and salt marshes, are also of great service, when there is any prospect of recovery.

CONSUS. See CONSUALIA.

CONTACT, the relative state of two things that touch each other, or whose surfaces join to each other without any interstice. The *contact* of two spherical bodies is only in one point; and the same holds of a tangent and the circumference of a circle. — Hence, because very few surfaces are capable of touching in all points, and the cohesion of bodies is in proportion to their *contacts*; those bodies will stick faster together, which are capable of the greatest *contact*.

CONTACT, *angle of*, is the angle H L M (*Tab. Geometry, fig. 10.*) formed by the arch of a circle M L, with the tangent H L, at the place of the *contact*.

Euclid demonstrates, that the right line H L, standing perpendicular to the radius C L, touches the circle only in one point: nor can there be any other right line drawn between the TANGENT and the circle.

Hence, the angle of *contact* is less than any rectilinear one; and the angle of the semicircle between the radius C L, and the arch M L, is greater than any rectilinear acute angle.

This paradox of Euclid has exercised the wits of mathematicians: it was the subject of a long controversy between Peletarius and Clavius; the first of whom maintained the angle of *contact* heterogeneous to a rectilinear one; as a line is heterogeneous to a surface: the latter maintained the contrary.

Dr. Wallis has a formal treatise on the *angle of contact*, and of the semicircle; where, with other great mathematicians, he approves of the opinion of Peletarius.

CONTAGION, *infection*, or the communicating, or transferring, a disease from one body to another.

Contagion, in some diseases, is only affected by an immediate contact, or touch: as the madness of a dog, which is communicated by biting; and the poison of the pox, which is transmitted from the infected person in the act of copulation. In others it is conveyed by infected cloaths; as the itch. In others the *contagion* is transmitted through the air to a great distance, by means of steams or effluvia, exhaling from the sick; as in the PLAGUE, and other pestilential distempers: in which case, the air is even said to be *contagious*, i. e. full of *contagious* particles.

In times of pestilential *contagion*, the physician, and others who attend upon the sick, are in the most imminent danger of falling into the same condition: nor have any of the so much boasted preservatives against this been found of any consequence; on the contrary, the very remedies, many of them at least, which have been contrived on this occasion, are very dangerous when lodged in imprudent hands, as well as useless and improper in all. The best methods of safety are first never to visit a patient in any infectious disorder when one is fasting, but some generous wine ought always to be drank first. Some are of opinion that it is proper to eat first a piece of bread and butter, soaked in vinegar, either simple, or with rue first stamped in it. When one is in the patient's apartment, great care is to be taken never to eat or drink there, nor to swallow one's spittle; and it is no idle custom in those who are continually in the infected room to chew zedoary, myrrh, angelica, cinnamon, or the like warm and aromatic drugs; for all these things promote a plentiful discharge of saliva from the mouth, which it is certain when swallowed, cannot but often carry pestilential particles down with it into the stomach, whence they will easily find their way into the blood. It may be added as a good rule, that we never stay too long in an infected room; for a constitution that could have resisted the *contagion* for a small time, may easily be overpowered by too long a continuance in the way of it.

After one is returned home from a visit of this kind, it is always proper to wash one's hands and mouth with vinegar and water; to change cloaths, hanging the former in the air, and then to drink some warm liquor, as tea of scordium, sage, or other herbs of that kind, or, in their place, coffee; for this opens the pores; and if any small quantity of the pestilential virus should have mixed itself with the blood, expels it by a gentle perspiration. It may be also of great assistance to all about the sick, for preventing them from being infected, to hold frequently sponges dipt in vinegar to their noses, and frequently to

sprinkle vinegar on a red-hot iron, in the room to correct and mend the air, and to smook tobacco. Heister's Surgery, p. 201. See EPIDEMICAL.

CONTARA, in *Botany*, a name given by some authors to the plant, which produces the *fabas sancti Ignatii*, or St. Ignatius's bean.

CONTARII, in *Antiquity*, a kind of horsemen, whose chief armour was the *contus*, a kind of long spear.

CONTEMPLATION, an act of the mind, whereby it applies itself to consider, reflect on, and admire, the wonderful works of God, nature, &c.

Contemplation is the height of perfection of the mystic divines. See MYSTIC.

CONTEMPORARY, or COTEMPORARY, a person, or thing, of the same time, or that existed in the same age with another. Socrates, Plato, and Aristophanes, were *contemporaries*: the best histories are those of *contemporary* authors.

CONTEMPT, in *Law*, is disobedience to the rules and orders of a court, which hath power to punish such offence; and a man may be imprisoned for a *contempt* done in court, and not for a *contempt* out of court, or for private abuse. Cro. Eliz. 689.

Attachment also lies for contempt to the court, to bring in the offender to answer to interrogatories, &c. and if he cannot acquit himself, he shall be fined. 1 Lill. 305. As the degrees of this crime vary, the punishment is less or greater; sometimes a mere fine, and sometimes imprisonment.

CONTENEMENT, a word, in our *Ancient LAW-books*, about whose signification authors are not rightly agreed. According to some, it should signify the countenance, credit, or reputation, a person has, from and by reason of his freehold. In which sense it is used in the Stat. 1 Edw. III. &c. where it stands as synonymous with *countenance*.

Others will have it signify what is necessary for the support and maintenance of men, according to their several qualities, conditions, or states of life. Thus, Spelman, *Contentementum est estimatio, & conditionis forma, qua quis in republica subsistit*. And in this sense it occurs in Magna Charta, cap. 14.

CONTENT, in *Mathematics*, a term frequently used for the capacity of a vessel, or the area of space; or the quantity of any matter, or space, included in certain bounds. The *content* of a tun of round TIMBER is 43 solid feet. A load of hewn timber contains 50 cubic feet; in a foot of timber are contained 1728 cubic or square inches, and as often as 1728 inches are contained in a piece of timber, be it round, or square; so many feet of timber are contained in the piece.

In gauging, the gallon for beer and ale is allowed to contain 282 cubic inches, and the wine gallons 231; the gallon of dry measure 272.

Hence, as oft as 282 cubic inches are contained in any vessel, round or square; so many gallons of ale or beer it holds; and the like may be observed of the other measures.

Multiply, therefore, one side of a square, or oblong, into the other; and divide by one of those numbers, according to the quality of the liquor; the quotient gives the area in gallons, upon an inch deep.

Though the work may be considerably shortened by only multiplying the sides of squares, or the diameters of rounds, into themselves; the product is the number of gallons, and parts, the vessel contains, upon an inch in depth: and when that receives an augmentation, by being two, three, or four inches deep it then commences a solid body, and contains as many gallons and parts, as it is inches and parts deep.

A cubic foot contains six gallons and almost a pint of ale and beer; and seven gallons two quarts, of wine. A cubic foot of dry measure contains six gallons and a half, and something more. A bushel of salt contains 56 pounds avoirdupoise. See GAUGING.

CONTENTIOUS *jurisdiction*, in *Law*, denotes a court, or assembly, which has a power to judge and determine differences between contending parties.

The lords chief justices, judges, &c. have a *contentious jurisdiction*; but the lords of the treasury, the commissioners of customs, &c. have none; being merely judges of accounts and transactions.

CONTESTATIO *Litis*, among *Civilians*, denotes a general assertion that the plaintiff hath no ground of action, which assertion is afterwards extended and maintained in his plea.

CONTEXT, among *Divines* and *Critics*, that part of scripture, or other writing, which lies about the TEXT, before or after it, or both.

To take the full and genuine sense of the *text*, the *context* should be regarded.

CONTEXTURE, a word frequently used in speaking both of

of the works of nature and art; and denoting the disposition and union of the constituent parts with respect to one another.

CONTIGNATION, in *Architecture*, the art or act of **FLOORING**, by laying *tigna*, **RAFTERS**, together.

CONTIGUITY, the relation of bodies touching one another. See **CONTINUITY**.

CONTIGUOUS, a relative term, understood of things disposed so near each other, that they join their surfaces, or touch.

The houses in ancient Rome were not *contiguous* as ours are, but all insulated.

CONTIGUOUS angles, in *Geometry*, are such as have one leg common to each angle; otherwise called *adjoining angles*, in contradistinction to those produced by continuing their legs through the point of contact, which are called *opposite* or *vertical* **ANGLES**.

CONTINENCE, in *Ethics*, a moral virtue, by which we resist concupiscence. It should seem that there is this distinction between *chastity* and *continence*, in that it requires no effort to be chaste, which results from constitution; whereas *continence* appears to be the consequence of victory gained over ourselves. The verb *continere*, in the Latin, signifies *to restrain*.

CONTINENT, in *Geography*, a terra firma, main land, or a large extent of country, not interrupted by seas: so called, in opposition to *island*, *peninsula*, &c. See **EARTH**, **OCEAN**, &c.

Sicily is said to have been anciently torn from the *continent* of Italy; and it is an old tradition, which some of our antiquaries have still a regard to, that Britain was formerly a part of the *continent* of France.

The world is ordinarily divided into two grand *continents*; the old and the new; the old comprehends Europe, Asia, and Africa; the new the two Americans, north and south.

CONTINENT cause of a distemper is that whereon the disease depends so immediately, that it continues so long as that remains and no longer.

Thus a stone in the bladder may be the *continent cause* of a suppression of urine.

CONTINENT fevers, a term used by medical writers to express such fevers as continue through their whole course exactly in the same tenor in which they begun, without the least visible intermission. They are thus called in opposition to the *continuous* fevers, which, though they never regularly go off so as to have *intermissions*, yet have frequent *remissions*. Of the number of *continent fevers* are the *ephemera*, whether it be strictly diary, or continues more days; also the *synocha*, which is called the *continent fever*, by way of eminence. Junker's *Consp. Med.* p. 252. See **FEVER**.

CONTINGENCY of blood, in the writers of the laws of Scotland, is used for proximity of blood. Bayne, *Crim. Law.* p. 48.

CONTINGENT, something casual, uncertain, or dependent upon **CHANCE**.

CONTINGENT, future, in *Logic*, denotes a conditional event which may, or may not, happen, according as circumstances fall out.

CONTINGENT is also a term of relation for the quota that falls to any person upon a division.

Each prince of Germany, in time of war, is to furnish so many men, so much money and munition, for his *contingent*. By the new treaty of Hanover it is stipulated, that in case of a rupture with the emperor, the kings of Great Britain and Prussia may furnish their *contingents*, as fiefs of the empire, at the same time they are at war therewith.

CONTINGENT use, in *Law*, is an use limited in a conveyance of land, which may, or may not, happen, to vest, according to the *contingency* expressed in the limitation of such use.

CONTINGENT legacy, is a legacy depending on the life of the legatee; if it be left to any person, *when* or *if* he attains the age of twenty-one, and if he dies before that time, it is a lapsed legacy; but if it is left *to be paid* when he attains that age, it is a vested legacy; and if the legatee dies his representatives shall receive it out of the testator's estate at the time when it would have become payable, had the legatee lived. Blackst. *Com.* vol. ii. p. 513.

CONTINGENT remainder, in *Law*, is where an estate is limited to take place *in futuro*, upon an uncertain event; as where a particular estate, which doth support a remainder, may or may not determine before the remainder may commence. 10 Rep. 85. See **REMAINDER**.

CONTINGENT line, or *Line of CONTINGENCY*, in *Dialling*, is a line that crosses the **SUBSTILE** at right angles.

CONTINGENTS are sometimes also used by mathematicians in the same sense as **TANGENTS**.

CONTINUAL claim. See **CLAIM continual**.

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CONTINUAL proportionals. When in a series of quantities the first is to the second as the second to the third, and the third to the fourth, and the fourth to the fifth, &c. they are called *continual proportionals*.

CONTINUANCE, in *Law*, is much the same as *prorogation* among the civilians. See **DISCONTINUANCE**.

CONTINUANCE of a writ, or *action*, is its holding in force from one term to another, in a case where the sheriff has not returned, or executed, a former writ issued out in the same action.

CONTINUANCE of assise. If a record in the treasury be alleged by one party, and denied by the other, certiorari shall be sued to the treasury and chamberlain of the exchequer; who, if they certify not that the said record is there, or likely to be in the Tower; the king shall then send to the justices, repeating the certificate, and will them to *continue the assise*.

CONTINUANDA assisa. See **ASSISA**.

CONTINUANDO, in *Law*, a term used where a plaintiff would recover damages for several trespasses in the same action.

To avoid multiplicity of suits, a man may in one action of trespass recover damages for forty, or more, trespasses; laying the first to be done with a *continuance* to the whole time wherein the rest of the trespasses were done; which is done in this form: *continuando transgressionem prædictam, &c. à prædicto die, &c. usque, &c.*

CONTINUANDO processum. See **PROCESSUM**.

CONTINUANS punctum. See **PUNCTUM**.

CONTINUATION of motion. See **MOTION**, and **PROJECTILE**.

CONTINUATIVE conjunctions. See **CONJUNCTION**.

CONTINUATO, in the *Italian Music*, is used to direct a finger, or player, to continue or hold on a sound, in equal strength or manner; or to continue a movement in an equal degree of time all the way.

CONTINUED, or **CONTINUAL fever**, is such a **FEVER** as sometimes remits, but never intermits, or goes entirely off, till its period. They are thus called to distinguish them from the **CONTINENT** fevers.

A *continual* fever may be defined to be the continuance of an increased velocity in the **CIRCULATION** of the **BLOOD** beyond what is natural to the constitution.

If this velocity often decreases and rises again to the same height, it is called a *continual periodical fever*.

And if it entirely cease in the space of a day, or two, it is called an *ephemeris*.

A *continual* fever, then, may remit, or abate, and increase again, alternately; but not intermit, which would constitute it an intermitting fever, or ague.

CONTINUED Quantity. See **CONTINUUM**, **CONTINUITY**, **CONTINUED Body**, &c. } and **QUANTITY**.

CONTINUED, or *thorough bass*, in *Music*, is that which continues to play constantly, both during the recitatives, and to sustain the choir, or chorus.

CONTINUED proportion, in *Arithmetic*, is that wherein the consequent of the first ratio is the same with the antecedent of the second—as, 3:6::6:12. See **PROPORTION**.

On the contrary, if the consequent of the first ratio be different from the antecedent of the second, the proportion is said to be *discrete*: as, 3:6::4:8. See **DISCRETE**.

CONTINUED socle, or *socle*, in *Architecture*. See **SOCLE**.

CONTINUED Attic, *Community*, *Pedestal*. See the substantives.

CONTINUI solutio. See **SOLUTIO**.

CONTINUITY is usually defined among *Schoolmen*, the immediate cohesion of parts in the same *quantum*. Others define it, a mode of body, whereby its extremes become one: and others, a state of body resulting from the mutual implication of its parts.

Continuation relates to *duration*, and *continuity* to *extension*. We say, the *continuation* of a work, or an action; and the *continuity* of space or size; *continuation* of the same conduct; and *continuity* of the same building.

There are two kinds of *continuity*, *mathematical* and *physical*. The first is merely imaginary and fictitious; since it supposes real or physical parts where there are none.

Physical continuity is strictly, that state of two or more parts, or particles, wherein they appear to adhere, or constitute one uninterrupted quantity, or *continuum*; or between which we perceive no intermediate space.

The schoolmen distinguish two other sorts of *continuity*; viz. *homogenous*, and *heterogenous*. The first, where our senses do not perceive the bounds, or extremes, of the parts; and this agrees even to air, water, &c. The second, where our senses indeed perceive the extremes of certain parts, yet at the same time observe the same parts closely linked to each other; either in virtue of their situation or figure, &c. and this is chiefly attributed to the bodies of animals and plants.

The *continuity* of bodies is a state merely relative to our sight and touch: e. gr. if the distance of two separate objects be such, as that the visual angle they subtend is insensible to the eye, which it will be if less than sixteen seconds, the two separate bodies will then appear *contiguous*. Now, the result of several *contiguous* objects is a *continuity*: so that any number of visible objects, being placed so as that the distances subtend angles of less than sixteen seconds, they will appear to form one *continuum*.

And hence, as we can determine the distance at which any given magnitude becomes invisible, it is easy to find at what distance any two bodies, however remote from each other, will appear as contiguous; and several, as forming one *continuum*. For the physical cause of *continuity*, see COHESION.

Leibnitz, an eminent mathematician, has supposed what he calls a law of *continuity* to obtain in the universe, by which law every thing that is executed or done in nature, is done by infinitely small degrees. He urges, that good sense dictates this truth, *natura non operatur per saltum*, or that nothing can pass from one extreme to another, without passing through all the intermediate degrees. Bernouilli Opera, tom. iii. p. 9, seq.

This law seems subject to difficulties; rigorously taken, it supposes actual, and yet infinitely small changes, which some philosophers cannot allow; and if we suppose changes only imperceptible to our senses, but finite, the law of *continuity* is no less violated than if the universe was suddenly to be destroyed, as M. Maupertuis justly observes. Mem. de l'Acad. de Berlin. tom. ii. p. 284.

This law of *continuity* led Mr. Bernouilli to reject all *HARD* bodies as chimeras, and naturally impossible.

CONTINUO, in the *Italian Music*, is sometimes applied to *basso*, to signify the thorough bass. Thus *basso continuo* is the continual, or thorough bass. It is sometimes marked in music books by the letters B. C.

CONTINUO is also used for a species of harmony mentioned by Julius Pollux, and which, says Zarlino, answers to the perpetual burden of our bag-pipes, which now and then must be harmonious.

CONTINUOUS fevers. See CONTINUED fevers.

CONTINUUM, or CONTINUED quantity, in *Physics*, denotes a quantity, or co-extension, whose parts are not divided, but joined and connected together; so as to leave no room to determine where one begins, and another ends.

It is controverted, among philosophers, whether a *continuum* be infinitely divisible, i. e. divisible into infinite proportionable parts?

The ancients attributed the rise of water, in pumps, to the love of CONTINUITY, and the abhorrence of a VACUUM; because the weight and pressure of the air were not then known.

Mathematicians divide QUANTITY into *continued*, and *discrete*.

Continued quantity is that expressed by lines, and makes the subject of *geometry*.

Discrete quantities are those expressed by numbers which make the subject of *arithmetic*.

In medicine and surgery, wounds, ulcers, fractures, &c. are expressed by the phrase SOLUTIO *continui*, or *solution of continuity*.

In a critical sense, we say, there ought to be a *continuity*, i. e. a connection between the parts of a discourse.

In the epic poem particularly, the action should have a *continuity* in the narration, though the events, or incidents, be not continued. As soon as ever the poet has opened his subject, and brought his persons on the stage, the action is to be *continued* to the end; every character must be at work, and no such thing as an idle person to be seen.

F. Bossu observes, that, by retrenching dull languishing incidents, and intervals void of action, which break the *continuity*, the poem acquires a *continued force*, which makes it run equally throughout.

CONTOBABDITES, a sect in the sixth century. Their first leader was Severus of Antioch, who was succeeded by John the grammarian, surnamed Philoponus, and one Theodosius; whose followers were also called Theodofians.

Part of them, who were willing to receive a book composed by Theodosius on the Trinity, made a separate body, and were called *Contobabdites*, from I know not what place, which Nicephorus does not mention, but which must apparently have been the place where they held their assemblies.

The *Contobabdites* allowed of no bishops; which is the only circumstance given us concerning them.

CONTOPECTÆ, of *κοντος*, pole, and *παικτος*, compact, in *Antiquity*, a sort of artists who supported a pole on their foreheads so firmly, that boys could play, dance, and wrestle together on it.

CONTOR, or CUNTOR, a bird of Peru, said to be the largest in the world. With its wings expanded, it measures sixteen feet from the tip of the one to the other; a single feather of it is four feet two inches long: its beak is strong enough to tear off the hide, and rip up the bowels of an ox. Two of them will destroy a bull. Phil. Trans. N^o 208. p. 61. See CONDORE.

CONTORSION, the action of twisting, or wresting, a member of the body out of its natural situation.

Rope-dancers accustom themselves to *contorsions* of their limbs from their youth, to render the fibres of their articulations lax and supple, for all kinds of postures.

CONTORSION, in *Medicine*, has many significations. First, the *iliac passion* is thus called; secondly, an *incomplete dislocation* is thus named, when a bone is partly forced from its articulation; thirdly, a dislocation of the vertebrae of the back sideways, or crookedness of these vertebrae, are called *contorsions* of them: fourthly, a disorder of the head is thus called, in which it is drawn towards one side, either by a spasmodic contraction of the muscles on the same side, or a palsy of their antagonist muscles on the other. James's Med. Dict.

The *contorsion* of the neck is usually occasioned, according to Nucke, by a relaxation or *paralysis*, of one of the mastoid muscles: for hence it happens, that its antagonist, whose power is now no longer balanced, contracting with its proper force, draws the head towards that side.

He adds, that this disorder cannot be remedied too speedily; and prescribes, from the beginning, liniments capable of relaxing and softening the fibres, to be used, not only to the muscle in contraction, but also, and principally, to the paralytic muscle, which is the seat of the disorder.

CONTOUR, *outline*, that which terminates and defines a figure.

A great part of the skill of the painter consists in managing the *contours*.

The *contour* of a figure makes what we call the *draught*, or *design*. The *contour* of a face, the Italian painters ordinarily call the *lineaments* of it.

CONTOURNE, in *Heraldry*, is used when beasts are represented standing, or running, with their faces to the sinister-side of the escutcheon; they being always supposed to look to the dexter-side, unless it be otherwise expressed.

CONTOURNIATED, a term applied among *Antiquaries*, to a kind of medallions which have a broad rising rim on each side; and figures that have scarce any relieve, in comparison with the true medallions.

They have their name from their edges: which appear as if turned in the lathe. All we have remaining of these *contourniated* medals, seem to have been struck about the same time. F. Hardouin conjectures them not to be earlier than the thirteenth century; other antiquaries go back as far as the fifth; and others find instances of them as ancient as the time of Nero.

This sort of work seems to have had its origin in Greece, and to have been appropriated to honour the memories of great men; principally, those who had borne away the prize at the solemn games; such are those remaining of Homer, Solon, Euclid, Pythagoras, Socrates, Apollonius Tyaneus, and several athletes, whose victories are expressed on them by palms and chariots, either bigæ, or quadrigæ.

CONTRA, or COUNTER, in *Composition*. See COUNTER.

CONTRA *apertura*, in *Surgery*, a counter opening. This is sometimes very necessary in wounds made by puncture or a bullet, in order to discharge whatever is contained in the wound, and prevent its growing fistulous. James's Med. Dict.

CONTRA *formam collationis*, is a writ that lies where a man has given lands, in perpetual alms, to a religious house, hospital, school, or the like, and the governor, or managers, have alienated the lands, contrary to the intention of the donor.

This was founded on the statute of Westm. 2. cap. 41.

CONTRA *formam fiefamenti*, is a writ for a tenant, who is infeoffed by the lord's charter, to make certain suit and service to his court; and is afterwards distrained for more than is contained therein. Reg. of Writs, fol. 176. Old Nat. B. ii. fol. 162.

CONTRA *formam statuti*, is the usual conclusion of every indictment, &c. laid on an offence created by statute.

CONTRABAND, in *Commerce*, a prohibited commodity; or, a merchandize bought or sold, imported or exported, in prejudice, and contrary to the laws and ordinances of a state, or the public prohibitions of the sovereign.

The word comes from the Italian *contrabando*, of *contra* and *band* q. d. contrary to edict, or publication of prohibition.

Contraband goods are not only liable to confiscations themselves,

elves, but do also subject all other allowed merchandizes found with them in the same box, parcel, or bale, together with the horses, waggons, &c. which conduct them to the same.

There are *contraband* goods, which, besides confiscation, are prohibited on pain of death; as, v. gr. in France, India and China stuffs, linens, &c.

In England there are two principal *contrabands* for exportation, wools and live sheep, which all strangers are prohibited from carrying out, on pain of having the right hand cut off; the other, that of sheep-skins and calf-skins, which all foreigners are in like manner prohibited from exporting, on pain also of having the right hand cut off; yet the subjects of England are allowed to transport the same from France to England.

Other *contrabands* for exportation are raw horns, white-ashes, stocking-loom, or any part thereof, fullers earth, and all raw hides, or skins.

Of goods *contraband* as to the import, there are above fifty in the lists made in 1662, and there are twenty-five of them which now stand in the tariff; the non-execution of the acts of parliament, whereby they were imposed, seeming to have restored them to the freedom of importation.

The chief of those still *contrabanded*, and not tariffed, are woollen caps, woollen cloths, saddles and harness, dice, billiards, all sorts of tanned, or dressed hides, dressed furs, all sorts of shoemaker's ware, locks, and divers sorts of cutlers ware; all painted goods, except paper; wires, buckles, gold and silver leaf, and horns for lanterns.

Since the year 1662, several other commodities have been made *contraband*; particularly silk and galloons, laces, embroidery, fringes, buttons, and other silk and thread manufactures; black taffeties, called *alamodes*, or lutestring. In 1719 and 1720, an attempt was made in parliament to pass a bill for putting gold and silver, whether in coined species, or otherwise, among the number of *contraband* goods for exportation; but in vain, by reason of the strong opposition made by those who enrich themselves by the export of these metals; which by the laws of the kingdom, are allowed to be sent away, upon entering them, paying the duty of the export, and making oath of their being foreign, i. e. of their not being the coin or plate of the kingdom, melted down.

CONTRACT, a mutual consent of two or more parties, who promise and oblige themselves voluntarily, to do something, pay a certain sum, or the like.

SALES, EXCHANGES, DONATIONS, LEASES, &c. are so many different species of *contracts*.

CONTRACT is particularly used in *Common Law*, for an agreement or covenant between two, with a lawful consideration or cause.

As, if I sell my horse for money; or covenant in consideration of 20*l.* to make you a lease of a farm; these are good *contracts*, because there is *quid pro quo*. See **SIMPLE** and **SPECIALTY**.

CONTRACT *Nude*, and *Quasi*. See the adjectives.

CONTRACT, *usurious*, is a *contract* to pay more interest for money than the laws allow.

It is a devastavit in executors to pay a debt upon an *usurious contract*.

CONTRACT. In marriage, the Romanists distinguish the civil *contract*, which is the consent of the parties, from the *sacrament*, which is the benediction of the priest.

Those *contracts* are said to be *null*, which the law prohibits: such are all *contracts* between persons incapable of *contracting*, as minors, religious, lunatics, wives without consent of their husbands, &c.

CONTRACT is also used for the instrument in writing, which serves as a proof of the consent granted, and the obligation passed between the parties.

Among the ancient Romans, *contracts*, and all voluntary acts, were written, either by the parties themselves, or by one of the witnesses, or by a domestic secretary of one of the parties, whom they call a *notary*; but who was no public person, as among us.

The *contract*, when finished, was carried to a magistrate, who gave it a public authority by receiving it *inter acta*, into the number of the **ACTS** under his jurisdiction; giving each of the parties a copy thereof, and sealed with his seal. Which practice passed into France, where it obtained a long time.

CONTRACTILE *force*, that property, or power, inherent in certain bodies, whereby, when extended, they are enabled to draw themselves up again to their former dimensions.

For the cause of this property, which is of the utmost consequence to a right understanding of the animal economy, see **FIBRE**.

CONTRACTION, in *Logic*, a species of reduction; wherein the thing that reduces does also abridge, or bring the thing reduced into a lesser compass.

The design of *contraction* is to bring things, which before were too lax and diffusive, nearer together; that so their mutual relation may appear the more clearly, and they may better strengthen and support each other.

To this head are referred the arguments, as they are called, of poems and orations; the titles and summaries of chapters, &c.

CONTRACTION, in *Physics*, denotes a diminishing of the extent, or dimensions, of a body; or a bringing of its parts closer to each other; upon which it becomes heavier, harder, &c. See **CONDENSATION**.

Contraction, in this sense, stands opposite to *dilatation*.

All bodies *contract* by **COLD**, and dilate, or rarefy, by **HEAT**. See **RAREFACTION**.

CONTRACTION is frequently used, by anatomical writers, to express the shrinking up of a fibre, or an assemblage of fibres when extended.

Convulsions and spasms proceed from a preternatural *contraction* of the fibres of the muscles of the part convulsed.

On the contrary, paralytic disorders generally proceed from a too great laxness of the fibres of the parts affected; or from the want of that degree of *contraction* necessary to perform the natural motion or action of the part.

In the first, therefore, the animal spirits are supposed to flow either in too great a quantity, or irregularly; and, in the last, the animal spirits are either denied a free passage into the part affected, or the tension of the fibrillæ is supposed insufficient to promote the circulation.

Contraction evidently appears to be the true natural state of all muscles; for, if a muscle be at any time freed from the power of its antagonist, it is immediately found to *contract*; and is not, by any action of the will, or the spirits, to be reduced to a state of dilatation.

CONTRACTION of the heart, arteries, lungs, &c. See **SYSTOLE**, **HEART**, **ARTERY**, **PULSE**, &c.

CONTRACTION, in *Grammar*, the reduction of two vowels, or syllables, into one; as, *may'nt*, for *may not*; *shouldst*, for *shouldest*, &c.

The Greeks abound with *contractions*, both in their verbs, and their nouns.

CONTRADICENTE. See **NEMINE** *contradicente*.

CONTRADICTION, a species of direct opposition, wherein one thing is found diametrically opposite to another.

The schoolmen usually define it, *oppositio inter ens & non-ens, medio carens*: where, by *ens*, and *non-ens*, are understood any two extremes, whereof one affirms, and the other denies; and it is said to be *medio carens*, to distinguish it from the other species of composition; the extremes, here, neither agreeing in subject, as is the case in **PRIVATION**; nor in essence and kind, as in **CONTRARIETY**.

CONTRADICTION, *freedom of*. See **FREEDOM**.

CONTRADICTION, *imply a*. See **IMPLY**.

CONTRADICTOR, in a legal sense, a person who has a right or title to contradict or gainsay.

An inventory of the effects of a minor ought to be made in presence of his guardian, or trustee, who is the legal *contradictor*: a decree against a farmer has no effect on the landlord, the first not being the legitimate *contradictor*.

CONTRADICTIONARY *propositions*, are opposites, one of which imports a mere, and naked denial of the other.

Of these, therefore, one must be positive, and the other negative; as *sitting*, and *not sitting*: *white*, and *not white*. *Contradictory* propositions mutually destroy each other.

To have two propositions truly *contradictory*, they must be opposite, both in quantity and quality, i. e. one must be universal, and the other particular, which make the opposition of quantity; and the one affirmative, and the other negative, which makes the opposition in quality. Thus, v. gr. *All use of wine and silver is evil*; false: *Some use of wine and silver is not evil*; true. To this it is necessary, that the one deny and the other affirm, the same thing, of the same subject, considered in the same circumstances: unless the question be about an essential attribute, in which case, no regard is had to circumstances; every thing having always its own essence. This the logicians express by *affirmare & negare idem, de eodem, secundum idem*.

There may likewise be *contradictory* propositions on a particular subject; e. gr. an individual. These are called *single contradictory propositions*; as *Peter is innocent*, *Peter is not innocent*, or *is a criminal*. Now to have these propositions *contradictory*, Peter must be considered at the same time, without which they may be both true: since there may be a time wherein Peter was innocent, and another wherein he was a criminal.

CONTRA-FISSURE, in *Medicine*, a term applied to that species of fractures, or fissure, in the skull, where

the side, opposite to that where the blow was received, it cracked.

This species of fracture is taken notice of by Celsus, lib. viii, cap. 4. yet Ægineta denies the possibility of it; and is herein followed by Gorræus, and many of the moderns. Their chief argument is, that the skull is not one uniform continuous bone, but is divided by several sutures, which prevent the effects of a stroke from being communicated to the opposite part, and confine the mischief to the part struck. Here, say they, if a skull be found cracked on the opposite side, or any where but in the place where the blow is immediately received, this must proceed from a second or third blow, which, perhaps, the patient, being stunned, does not remember. But there are so many cogent instances on the other side of the question, that the reality of *contra-fissures* is now generally allowed.

The usual symptoms attending a *contra-fissure*, are a delirium, sometimes a bleeding at the nose and mouth, stupidity, and involuntary passing of the urine and excrements, and convulsions. If these happen, and after search made in the part where the injury was received, no fracture or depression of the skull be found, there is a suspicion of a *contra-fissure*; especially if the patient be apt to point to that part.

If the symptoms be by intervals, and not to a great degree, or there be reason to believe the fissure to have reached only through one of the tables, it is sufficient to bare the bone, and use a raspatory; then to fill the rima, or crack, with proper powders, as of iiris, gum, myrrh, powder of diapente, &c. and above all apply a pledget, dipped in the tincture of euphorbium, or of equal parts of spirit of wine, and honey of roses. If these fail, the trepan must be had recourse to.

CONTRA-HARMONICAL proportion, that relation of three terms, wherein the difference of the first and second is to the difference of the second and third, as the third is to the first.

Thus, e. gr. 3, 5, and 6, are numbers *contra-harmonically* proportional; for $2 : 1 :: 6 : 3$.

To find a mean *contra-harmonically* proportional to two given quantities: the rule is, divide the sum of the two squared numbers by the sum of the roots: the quotient is a *contra harmonically* mean proportional between the roots.

CONTRA-INDICATION, is an INDICATION which forbids that to be done which the main scope of a disease points out.

Suppose, e. gr. in the cure of a disease a vomit were judged proper; if the patient be subject to a vomiting of blood, it is a sufficient *contra-indication* as to its exhibition.

CONTRALTO, in Music. See COUNTER-Tenor.

CONTRAMANDATIO *Placiti*, in Law-Books, signifies a respiting, or giving the defendant farther time to answer; or an imparlance, or countermanding of what was formerly ordered. See COUNTERMAND.

CONTRAMANDATUM, a lawful excuse which the defendant, by his attorney, alledgeth for himself to shew that the plaintiff has no cause to complain, *si dies placiti sit contramandatus*. 11 Hen. I. See the article COUNTERMAND.

CONTRAMURE, in Fortification, an outwall, built about the main WALL of a city. See RAMPART.

CONTRAMURE, in Civil Architecture. See COUNTERMURE.

CONTRA-Points, in Music. See the article COUNTER-point.

CONTRAPOSITION, in Logic. See the article CONVERSION.

CONTRARIENTIUM *Rotulus*. See the article ROTULUS.

CONTRARIETY, that which denotes two things *contrary* to each other.

Contrariety consists in this, that one of the terms imports a negation of the other, either mediately or immediately; so that *contrariety* may be said to be the contrast, or opposition of two things, one of which implies the absence of the other.

CONTRARIETY, freedom of. See FREEDOM.

CONTRARIES, are positive OPPOSITES; which being of the same kind, or same common nature, and subsisting by turns in the same subject, are as remote from each other as possible, and mutually expel each other. Such are whiteness and blackness, cold and heat, &c.

Hence, properly speaking, only qualities can be *contraries*: *contrariety*, in effect, only agrees to qualities *per se*; to other things it agrees *per accidens*, or *in ordine ad qualitatem*.

CONTRARY, however, is often used in a more extensive signification, viz. for any inconsistency or difference between the nature and qualities of things. It is a popular maxim in Philosophy, that *contraria juxta se posita*

magis elucescunt: *contraries* set off one another. In this sense is the word *contrary* used in the schools; and hence an argument *e contrario*.

This method of proving things *e contrario*, is much used, and with good success, by F. Bourdaloue, in his Sermons.

CONTRARY, in Rhetoric. F. de Colonia lays down three kinds of *contraries* in rhetoric; viz. *adversatives*, *privatives*, and *contradictories*.

Adversatives are those that differ much in the same things, as virtue and vice, war and peace: thus Tully, *Si stultitiam fugimus, sapientiam sequamur; et bonitatem, si malitiam*. And Quintillian, *malorum causa bellum est, erit emendatio pax*. Drances argues thus in Virgil.

Nulla salus bello: pacem te poscimus omnes.

Privatives are habits and their privations. *Contradictories*, are those, one whereof affirms, and the other denies, the same thing, of the same subject.

CONTRARY propositions, in Logic, universal propositions, one of which affirms, and the other denies, the same predicate of the same subject: as *every square is a parallelogram*, and *no square is a parallelogram*. These propositions differ in quality, but not in quantity, and therefore are distinguished from CONTRADICTIONARY propositions, which differ in quantity and quality.

Contrary propositions cannot be both true, but may both be false, whereas, in *contradictory* propositions one is necessarily true, and the other false.

CONTRARY point of flexure. See POINT.

CONTRAST, in Painting and Sculpture, expresses an opposition or difference of position, attitude, &c. of two or more figures; contrived to make a variety in a painting, &c.

The word comes from the Italian *contrastare*, to oppose, or thwart; and that, according to M. Huet, from the Latin *contra statio*.

Thus, when in a group of three figures, one appears in front, another shews his hind-parts, and the third is placed sideways, there is said to be a *contrast*.

M. de Piles defines *contrast* an opposition between the lines which form the objects; by means whereof they tend to set off one another.

A *contrast*, well managed, is one of the greatest beauties of a painting. The *contrast* is not only to be observed in the position of several figures, but also in that of the several members of the same figure: thus, if the right arm advance the farthest, the right leg is to be hindmost: if the right eye be directed one way, the right arm is to go the contrary way, &c. The *contrast* must be pursued, even into the drapery.

To CONTRAST, in Architecture, is to avoid the repetition of the same thing, in order to please by variety: as is done in the great gallery of the Louvre, where the pediments are, alternately, arched and angular.

CONTRAST-wheel, in Clock-work. See WHEEL, CLOCK, and WATCH.

CONTRAVALLATION, line of, in Fortification, is a trench, guarded with a parapet; made by the besiegers, betwixt them and the place besieged, to secure themselves on that side, and stop the sallies of the garrison.

It is without musket shot of the town, and sometimes goes quite round it, sometimes not, according as the general finds occasion. The army, forming a siege, lies between the line of CIRCUMVALLATION and *contravallation*. It is now seldom used.

CONTRAVENTION, a man's failure of performing or discharging his word, obligation or duty, or the laws and customs of the place. The penalties imposed in cases of *contravention*, only pass for comminatory.

In a more limited sense, *contravention* implies the non-execution of an ordinance, or edict.

Contravention is supposed to be a degree below PREVARICATION; and to be only the effect of negligence or ignorance.

CONTRAYERVA, *Dorstenia*, in Botany, a genus of the *tetrandria monogynia* class. Its characters are these: it hath one common involucre, situated vertically, upon which sit so many small flowers, which have no petals, but four short stamina; in the centre is situated a roundish germen, which afterwards becomes a single seed inclosed in the common fleshy receptacle. There are three species, which are natives of Spanish America.

These plants are at present very rare in Europe; nor was it known what the plant was whose roots were imported, and had long been used in medicine in England, until the late Dr. Houston informed us: for although F. Plumier had discovered one species of this plant, and had given the name of *Dorstenia* to the genus, yet he seems not to have known that the *contrayerva* was the root of that plant. Miller's Gard. Dict.

The *contrayerva* root was first brought into Europe by sir Francis

Francis Drake, about the year 1581, and from him called *Drakena*. It is esteemed a very great alexiterial, and a sovereign antidote against poison.

Its juice is a violent poison, said to be used by the Peruvians to poison their arrows. *Contrayerva* signifies *counter-poison*, because the root of it is said to be an antidote against the poison of its juice.

The root is smaller than that of the iris; reddish without, and white within, knotty and fibrous. To be good, it must be new, heavy, and of a dusky red colour. In smell it resembles fig-leaves; its taste is aromatic, accompanied with somewhat of acrimony. It is diaphoretic and antiseptic, and is used in low nervous fevers, and in those of the malignant kind.

There is an officinal composition, which takes its name from this root, prepared with it, mixed with the testaceous powders, called *lapis contrayerva*. The London college directs it to be made of the compound powder of crab's claws one pound and a half, and of *contrayerva* root five ounces, mixed and powdered. Both the root and lapis are of great efficacy in the small-pox, measles, fevers, and in all cases where either a diaphoresis or perspiration is required; its success being much more to be depended on than the Galcoign's powder; which, among the more knowing, is now very much despised. It is agreed on by the generality of writers, that the *contrayerva* root is one of the best anti-epidemics yet known. Dr. Hodges, in his treatise of the last London PLAGUE, has a recipe, which he says was attended with great success, and of which this root was one of the chief ingredients.

There is another kind of *contrayerva* brought from Virginia, more ordinarily called *SERPENTARIA*: this is very aromatic; it is but seldom prescribed singly, though said to have the same success against poisons and venoms with the *contrayerva* of Peru. This is an excellent substitute for the *contrayerva*. See Lewis's Mat. Med. and Neuman's Chem. Works.

CONTRE-BEND, in *Heraldry*. The bar is called a *contre-bend*, or *counter-band*, because it cuts the shield contrary, and opposite ways.

They also say, *contre-chevron*, *contre-pal*, &c. when there are two ordinaries of the same nature opposite to each other; so as colour be opposed to metal, and metal to colour. And the coat is said to be *contre* or *counter-paled*, *counter-bended*, *counter-fessed*, *counter-componed*, or *counter-barred*, when so divided.

Counter-quartered, is when one of the quarters is quartered again; hence also *counter-flowered*, *counter-coloured*, &c.—Animals are said to be *counter-passant*, when one passes on one side, and another on another. See COUNTER-COMPOSED, COUNTER-CHANGED, COUNTER-CHEVRONED, ERMINE, COUNTER-QUARTERED, &c.

COUNTER-Queue d'Hironde, in *Fortification*. See QUEUE, &c.

CONTRIBUTION, the payment of each person's quota, or the part he is to bear in some imposition, or common expence.

Contributions are either *involuntary*, as those of taxes and imposts; or *voluntary*, as those of expences for carrying on some undertaking for the interest of the community.

CONTRIBUTIONS, in a military sense, are impositions paid by frontier countries to secure themselves from being plundered, and ruined by the enemy's army.

The peasants till their ground under the faith of *contributions*, as securely as in time of profound peace.

CONTRIBUTIOE facienda, a writ which lies where several persons are jointly bound to the same thing, and one or more of them refuse to contribute their share.

If tenants in common, or joint, hold a mill *pro indiviso*, and equally share the profits thereof; the mill falling to decay, and one or more of them refusing to contribute to its reparation, the rest shall have the writ *de contributione facienda* to compel them. And if there be three coparceners of land that owe suit to the lord's court, and the eldest performs the whole; then may she have this writ to compel the refusers to a contribution.

CONTRITION, in *Theology*, expresses a real sorrow, resulting from the thought of having offended God; from the sole consideration of his goodness; without any regard to the punishment the sin is entitled to.

Some of the Romish doctors avow, notwithstanding the practice of their church, that *contrition* is valid, and carries with it every thing necessary to obtain pardon, without the ceremony, or, as they call it the *sacrament* of confession and absolution.

And in this they make the difference between *contrition* and *attrition* to consist. This doctrine was maintained by F. Seguenot upon St. Augustine: but it was censured by the faculty of Paris.

CONTROL. See COMPTROL.

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CONTROLLER. See COMPTROLLER.

CONTRIVER, in *Law*, he who of his own head devises or invents false or feigned news.

CONTROVERSIAL divinity. See POLEMICAL divinity.

CONTUMACY, in *Law*, a refusal to appear in court when legally summoned; a disobedience to the rules and orders of a court having power to punish such offence.

The word is used in civil as well as in criminal matters; but more rarely in the first, wherein the words *default*, and *contempt*, ordinarily supply its place: the refunding of the charges of contempt, judged at the hearing, is also the penalty of *contumacy*. In a criminal sense, the *contumacious* is condemned, not because the crime is proved on him, but because he is absent.

By the Roman laws, there was no process in case of *contumacy*, during the first year of absence: they only took an inventory of the goods of the fugitive, and, if he died in the year, he died *integri status*; but, after the year was expired, he was deemed culpable.

In England, *contumacy* is to be prosecuted to outlawry.—

In France, all *contumacies* are annulled, if the accused make his appearance in five years: if he die in that time, his relations are allowed to purge his memory.

CONTUS, *not* *de*, in *Antiquity*, a long spear, chiefly used by the horse.

CONFUSION, *bruise*, in *Medicine*, a solution of continuity, either in flesh or bone, occasioned by a fall, a blow, or a violent pressure, whereby the flesh is damaged, but without any external rupture, or any manifest loss of substance; and effusion of blood ensues, from several little broken vessels, so as to discolour the skin, though it doth not make its way through the pores.

Or, *confusions* may be defined a particular sort of tumors, attended with a stagnation of the blood in the part affected, and generally with an inflammation, discolouration, and pain.

Confusions, are either *internal* or *external*. When from any external injury, there proceeds an internal disorder, e. gr. an asthma, spitting of blood, or the like, the *confusion* is said to be *internal*. If only external symptoms appear, as a tumor, blackness, &c. it is termed *external*.

When the small vessels and fibres have been broken by a *confusion*, the fluids that were contained in them will be forced out, and hence will proceed obstructions, corruptions, inflammation, and ulcers, or even a gangrene, in proportion to the violence of the cause, and the nature of the affected part. When a bony part is the subject of a *confusion*, the same mischiefs will ensue from the injury inflicted on the periosteum, as happen to the pericranium in wounds of the head; and when the medullary juice of the bones is affected, very violent disorders are to be expected, though the bone is not fractured. When *confusions* happen on the joints, they usually bring on violent pains and inflammations, convulsions, gangrenes, sphacelus, rigidity of the limbs, and caries; and the same mischiefs will indeed sometimes happen from *confusions* of the muscular parts. When the internal parts are *confused* great mischiefs usually ensue; but these entirely depend upon the nature of the injured part; these are sometimes inflammations, ruptures of the vessels, varices, aneurisms, hæmorrhages, stagnation of the fluids, corruptions, gangrene, and suppuration, and very often death is the necessary attendant on these symptoms. When the head receives a considerable *confusion*, the senses are taken away, the limbs become either convulsed, or rigid, and death presently follows. In *confusions* of the thorax, a difficulty of breathing follows, with spitting of blood, fainting fits, inflammation, and ulcers of the lungs and death. After *confusions* of the abdomen we may expect vomitings of blood, inflammations, suppurations, or gangrenes of the viscera, and at length death; but if any large internal vessel is burst by the blow, it is no wonder if the patient dies upon the spot, even though there be no mark of violence left upon the external parts. Lastly, if the eye is *confused*, tumor and inflammation will succeed, and frequently loss of sight.

These are the effects of violent *confusions* on the different parts. In the cure of slight *confusions* the principal care is to divide the inspissated fluids, and prevent the parts from suppurating, or being affected by the gangrenes: this may be done by hot wine, spirit of wine, spirit of wine with camphor, or Hungary water; or by applying cold water, or vinegar mixed with salt, to the part; or by clapping a broad piece of money, or a plate of lead, upon the tumor, and fastening it on with a very tight bandage: or linen rags dipped in fresh warm urine should be applied to the part. These different methods succeed very well in tumors of the foreheads of children from falls, or any other slight *confusion* in persons of a tender make. Larger *confusions* are to be fomented with decoctions of the warm herbs, as scordium, favin, southernwood, and such like, either alone, or mixed with wine, or with salt water;

water; great benefit also arises from applying to the parts a sponge dipped in a decoction of Venice soap made in fresh urine, or warm applications of lime-water, spirit of wine camphorated, vinegar with litharge, and vinegar with carraway seeds boiled in it. But when the *contusion* is so violent, that it is apparently impossible to divide the stagnating fluids, and return them into circulation, and the parts are tending towards a gangrene, they must be scarified without delay, and by this means the stagnating fluids will be let out, and all danger of suppuration and gangrene prevented. After scarification warm fomentations are to be used, and the tumor should be well rubbed with warm cloths before it is fomented, which will steep the blood in its fluid state; or, if it is already concremented, will divide it, and make it fit, to return to the vessels, or, at least, to escape through the pores of the skin. Into all these fomentations it is very proper to put wine, or spirit of wine, or else some other spirituous liquor; but if these are not to be had, salt water is to be used, which, if you are not near the sea, may be had by adding a handful of salt to a quart of water; attenuating decoctions must also be taken inwardly; and bleeding, especially in plethoric habits, is extremely necessary.

It sometimes happens, when the *contused* parts lie very deep, or when the surgeon does not use the proper means, or the patient refuses to submit to proper treatment, that the stagnating fluids will corrupt and suppurate. When a suppuration on these occasions is once begun, it must be carried on and forwarded by emollient cataplasms made of mallow, marshmallow, and white lily roots, linseed, fenugreek seed, pellitory, mercury, and other herbs of that kind, with crumbs of bread, and the emollient oils of lilies, chamomile, &c. These must be laid on the part as hot as they can be borne; and sometimes it is necessary to add the warm herbs, such as onions, &c. and the gums, as galbanum, ammoniacum, and the others of that kind. Sometimes, in small *contusions*, a plaster of diachylon with the gums, without any other application, will answer the purpose.

When the whiteness and softness of the tumor evidently shew that the matter is formed, and fit to be discharged, the part is to be laid open with a knife, and, after the discharge of the matter, must be healed in the common way. Large *contusions* are frequently attended with violent inflammations and gangrenes: in this case numerous and deep incisions must be made on the part, and the wounds dressed with Venice treacle, softened with spirit of wine with camphor, applying at the same time externally the warm fomentations. And when the parts are, from very large and desperate *contusions*, absolutely sphacelated, the limb must be taken off in time.

In case of inward *contusions*, bleeding the patient is always necessary, and balsamics must be given internally: such are spermaceti, powder of rhubarb, Irish slate, oleaginous, and pectoral medicines, &c. Externals proper for *contusions*, are liniments, or ointments of marshmallows, oil of sweet almonds, spirit of wine, with camphor; proper fomentations, and strengthening emplasters, as that of oxycroceum, &c. according as the nature of the *contusion*, and part *contused*, requires.

CONTUSIONS of the cranium. When the cranium is violently *contused*, it will be discovered by the tumor and softness of the part, by the separation of the integuments from the cranium, and by the collection of stagnating blood which appears to be confined under the skin. In this case you are to endeavour to divide the confined fluids, by attenuating medicines externally applied, or to discharge them by making an opening with a knife; or, lastly, to bring them to a suppuration. When the extravasation of fluids is very considerable, it is best to discharge the greatest part of them instantly by incisions, and what remains will then easily be dispersed, by applying fomentations, and medicated bags of the warm herbs, rue, wormwood, savin, scordium, &c. quilted into bags, and boiled in wine, or in water, with a mixture of spirit of wine, or malt or melasses spirit. But where it is found impracticable to divide and attenuate the stagnating fluids, the suppuration of them must be attempted; and if the *contusion* hath been but small, after the suppuration is formed, and the matter discharged, the wound will easily heal, by the application of a vulnerary balsam.

In violent *contusions*, when there is no opening, but a very small one, the wound must be enlarged with the knife, to prevent the neighbouring parts from being corroded; and by this means the wound will be easily cleansed, and the cure performed by the method before laid down. When the pericranium is wounded, but not in so great a degree as to lay the cranium bare, the wound is to be dressed with warm balsamic medicines. But where the cranium is exposed and laid bare, its external

lamella being robbed of its nourishment, by the destruction of the vessels by which it was constantly supplied, it will lose its natural colour, and become yellow, livid, black, and, by degrees, separate from the neighbouring parts, and exfoliate, which will greatly protract the cure of the wound. To hasten this exfoliation, the surgeon ought to bore several holes through the denudated part as deep as the diploe, with an awl, or such like instrument. This operation not only forwards the exfoliation of the part, but makes way also for the sprouting up of new vessels. The dressing, which ought to be repeated each time with great expedition, is to be applied in the following manner: when the wound is well cleaned, pledgits thoroughly saturated with the mild balsamics, with the addition of a small quantity of honey of roses, are to be laid upon the injured part of the cranium; over these a sticking plaster is to be applied; and over that the proper bolster and bandage. These applications should be continued till the cranium appears sound, and the wound in a condition to heal. Heister's Surg. p. 84.

CONTUSIONS of the eye. See EYE.

CONVALESCENCE, in *Medicine*, the insensible recovery of health; or that state in which after the cure of a disorder, the body, which has been reduced, has not yet regained its vigour, but begins to resume its powers. Proper aliments conduce to the re-establishment of the languid faculties; but as the tone of the bowels is weakened, the digestive faculty is not equal to its office, which is shewn by light sweats over the whole body; and the smallest excess in this respect, is oftentimes the occasion of dangerous relapses. A person in this state is like a taper relumined, which the least degree of wind is sufficient to extinguish. Encycl.

CONVALLARIA, in *Botany*. See LILY of the Valley.

CONVENT, a MONASTERY of religious, of either sex. The word comes from the Latin *conventus*, meeting, of *convenire*, to come together.

CONVENTA pacta. See PACTA.

CONVENTICLE, a diminutive of *convent*; denoting properly, a cabal, or secret assembly, of a part of the monks of a *convent*, to make a brigue or party in the election of an abbot.

From the ill use of these assemblies, the word is come into disrepute; and now stands for any mischievous, seditious, or irregular assembly. F. Doucine observes, the occidentals always esteemed the fifth general COUNCIL an unlawful *conventicle*. The term *conventicle* is said, by some, to have been first applied in England to the schools of Wickliff, and has been used since to signify the religious assemblies of all in this country who do not conform to the established doctrines and worship of the church of England.

By 22 Car. II. cap. 1. it is enacted, that if any persons of the age of sixteen years, subjects of this kingdom, shall be present at any *conventicle*, where there are five or more assembled, they shall be fined 5s. for the first offence, and 10s. for the second; and persons preaching incur a penalty of 20l. Also suffering a meeting to be held in a house, &c. is liable to 20l. penalty. Justices of peace have power to enter such houses, and seize persons assembled, &c. And if they neglect their duty, they shall forfeit 100l. And if any constable, &c. know of such meetings, and do not inform a justice of peace, or chief magistrate, &c. he shall forfeit 5l. But the 1st W. and M. cap. 18. ordains, that protestant dissenters shall be exempted from penalties; though if they meet in a house with the doors locked, barred, or bolted, such dissenters shall have no benefit from 1W. and M. Officers of the government, &c. present at any *conventicle*, at which there shall be ten persons, if the royal family be not prayed for in express words, shall forfeit 40l. and be disabled. Stat. 10 Anne, cap. 2.

CONVENTION, in our *Law-Books*, is used when a parliament is called, which sits and is dissolved without any act passed, or judgment given. It is then said not to be a *session* of parliament, but a *convention*.

CONVENTION of Rouen, the same with BURSE of Rouen.

CONVENTION, a treaty, CONTRACT, or agreement, between two or more parties.

Every *convention* between men, provided it be not contrary to honesty, and good manners, produces a natural obligation, and makes the performance a point of conscience. Every *convention* has either a name, and a cause or CONSIDERATION, or it has none: in the first case, it obliges civilly and naturally; in the latter only naturally.

CONVENTION is much used both in ancient and modern pleadings for an agreement, or covenant.

In the book of rolls of the manor of Hatfield in Yorkshire, we have a record of a pleasant *convention*, anno 11 Edw. III. between Robert de Roderham and John de Ithen; the latter of whom sold the devil in a string for three-pence halfpenny to the former, to be delivered on

the

the fourth day after the *convention*: when, the purchaser making his demand, the seller refused to give him livery; to the great loss (as the record represents it), of forty shillings to the purchaser, &c. But it appearing to the court, that such a plea does not lie among Christians, the parties were adjourned to hell for judgment.

CONVENTION is also the name given to an extraordinary assembly of parliament, or of the states of the realm, held without the king's writ. Of this kind was the *convention* parliament which restored Charles II. This parliament met above a month before his return, and sat full seven months after his restoration, and enacted several laws still in force, which were confirmed by stat. 13 Car. II. c. 7. and c. 14.

The *conventions* of estates, in 1688, after the retreat of king James II. upon mature deliberation, came to a conclusion, that king James, by his practices here, and his flight hence, had abdicated the kingdom; and that the throne was vacant; and therefore devolved to king William and queen Mary. Upon this their assembly expired as a *convention*, and was converted into a parliament. It is declared by stat. 1 W. and M. c. 1. that this *convention* formed the two houses of parliament, notwithstanding the want of writs and other defects of form. See **ABDICATION**.

There was a *convention* of the like kind in Scotland, and with the like effect.

CONVENTIONAL *subrogation*. See **SUBROGATION**.

CONVENTIONE *facienda*, in *Law*, is a writ which lies for the breach of any covenant in writing. Fitzherbert calls it a writ of *covenant*.

CONVENTUAL, something belonging to a **CONVENT**. See **COENOBITE**.

CONVENTUAL is particularly used, since the year 1250, for a religious who actually resides in a convent; in contradistinction to those who are only guests, or are entertained there, or are in possession of benefices depending on the house.

CONVENTUAL likewise denotes a class of the order of Franciscans, who adopted the relaxation introduced into that order by pope Innocent IV. which allowed of property and possessions in their community. They were so called in opposition to the *Brethren of the Observance*. This division took place in the year 1368.

CONVENTUAL *prior*, differs from a *claustral prior*, in that the former has the full right and authority of an abbot; the only difference between them being in the name: whereas the claustral prior is a dependent of the abbot, and derives all his authority from him.

The *conventual* prior is obliged to take priests orders in a year, or at most in two years, from the day of his admission: in default whereof, the benefice becomes vacant. Some priories are actually *conventual*, i. e. they are stocked with religious; others are only *conventual in habitu*, v. gr. where there have been no religious during the space of forty years: the continuance of one single religious, keeps the priory *conventual actu*; for, in default of one, the priory becomes simple. See **PRIOR**. By a declaration of the king of France, in 1680, it is decided, that a *conventuality* never degenerates, or ceases, while there are regular places subsisting in it for twelve religious, with revenues for their support.

CONVENTUAL *auditors*. See **AUDITOR**.

CONVERGING *curves*. See **CURVE**.

CONVERGING, or **CONVERGENT** *lines*, in *Geometry*, are those which continually approximate, or whose distance becomes continually less and less: in opposition to *divergent* lines, whose distance becomes continually greater. Lines that *converge* one way, *diverge* the other.

CONVERGING *rays*, in *Dioptrics*, are those rays which in their passage out of one **MEDIUM** into another, of a different density, are refracted towards one another; so that, if far enough continued, they will meet in a point, or focus.

All convex lenses make the rays *converge*, and concave ones *diverge*, i. e. the one inflects them towards a centre, and the other deflects them from it; and the more, as such lenses are portions of smaller spheres. On which properties, all the effects of lenses, microscopes, telescopes, &c. depend.

Rays coming *converging* out of a denser medium into a rarer, become more *convergent*, and concur sooner than if they were to continue their motion through the first. Rays coming *converging* out of a rarer into a denser medium, *converge* less, and concur later, than if they had continued their motion through the first medium.

Parallel rays, passing from a denser into a rarer medium, v. gr. from glass into air, the surface of the glass being towards the air, will become *convergent*, and concur in a focus.

Diverging rays, or rays coming from a point, under the same circumstances, become *converging*, and meet in a

focus; and as the radiant point comes nearer, the focus recedes farther off: if the radiant be near, the focus will be infinitely distant; i. e. the rays will be **PARALLEL**: and if the point be brought nearer still, the rays will diverge.

CONVERGING *series*, in *Mathematics*. See **SERIES**.

CONVERSATION, **DISCOURSE**; these two words denote an interlocution between two, or among more persons: with this distinction, that the *conversation* is used for any general intercourse of sentiments whatever; whereas a *discourse* means a *conversation* limited to some particular subject. Thus we say, a *conversable* man; meaning a man able to *converse* on a variety of subjects, or a man of general knowledge; but we do not say, a *discursable* man. The word *discourse* is generally used when we mention a superior talking to an inferior.

CONVERSE, in *Geometry*, &c. A proposition is said to be the converse of another, when, after drawing a conclusion from something first supposed, we proceed to suppose what had been before concluded, and to draw from it what had been supposed. Thus, it is demonstrated in geometry, that if the two sides of a triangle be equal, the two angles opposite to those sides are equal also: the *converse* of the proposition is, that if the two angles of a triangle be equal, the two sides opposite to those angles are equal also.

CONVERSE *direction*, in *Astrology*, is used in opposition to *direct* direction, i. e. by the latter, the promoter is carried to the significator, according to the order of the signs: but the former it is carried from east to west, contrary to the order of the signs.

CONVERSION, in a *Moral Sense*, a return from evil to good; resulting from a sense, either of the natural deformity of the one, and amiableness of the other: or of the advantages and disadvantages that spring from the one and the other, respectively.

Or, it is the change of the heart, with regard to the morals, passions, desires, and pursuits; and of the mind, with regard to the sentiments, &c. See **REGENERATION**.

CONVERSION, in *Law*, is where a person having the goods of another in his possession, converts them to his own use, without consent of the owner; for which the proprietor may maintain an action of **TROVER** and *conversion* against him.

CONVERSION, *Conversio*, in *Logic*, a circumstance or affection of propositions, wherein the order of the terms or extremes, is changed; so that the subject comes into the place of the predicate, and the predicate into that of the subject; without any alteration in the quality of either.

As, *No virtue is vice*; *No vice is virtue*: in which we see the subject of the former, made the predicate of the latter, and the predicate the subject; yet both true.

Conversion is usually defined a due change of the order of the extremes, i. e. under such a habitude and coherence with respect to each other, that the one is rightly inferred from the other.

Hence, in every legitimate *conversion*, two things are required: 1. A communication, or reciprocation of terms; not in respect of words, but of order. 2. The inference of one proposition to the other.

Aristotle makes two kinds of *conversion*; the one *simple*, by others called *universal*; wherein nothing is changed beside the order of extremes, i. e. the terms are transposed, without altering either the quality or quantity thereof: as, *No mind is body*; *No body is mind*.

The second, *per accidens*, called also *particular*; wherein, beside changing the places of the terms, there is a change of an universal sign into a particular one; as, *Every good man studies the welfare of his country*; *Some man that studies the welfare of his country is good*.

To these, some of Aristotle's followers add a third kind of *conversion*, called by *contraposition*: as, *Every man is an animal*; *Every no-animal is no-man*.

CONVERSION, in *Rhetoric*, &c. is understood of arguments which are returned, retorted, and shewn on opposites sides, by changing the subject into the attribute, and the attribute into the subject.

There are *conversions* of arguments, from one figure to another, and also from general propositions to particular ones. Thus Cicero against Antony: *Doletis tres exercitus P. R. interfectos? Interfecit Antonius. Desiderates clarissimos cives? Eosque vobis eripuit Antonius. Auctoritas hujus ordinis afflicta est? Affixit Antonius*.

CONVERSION, in *War*, is when the soldiers are ordered to present their arms to the enemy who attack them in flank, whereas before they were supposed to be in front: the evolution necessary thereto is called *conversion*, or **QUARTER-WHEELING**.

CONVERSION of *equations*, in *Algebra*, is when the quantity sought, or any part thereof, being in fractions, the whole

whole is reduced to one common denomination; and then, omitting the denominators, the equation is continued in the numerators only.

Thus, suppose $a - b = \frac{aa + cc}{d} + b + b$; multiply all by d ,

and it will stand thus, $da - db = aa + cc + db + db$.

In *Arithmetic*, we use the term *proportion by conversion of ratio*, for a comparison of the antecedent, and consequent, in two equal ratios.

Thus, as there is the same ratio between two and three, as between eight and twelve; it is concluded there is the same ratio between two and one, as between eight and four.

CONVERSION, *centre of*, in *Mechanics*. See CENTER.

CONVERSOS. See CONVERT.

CONVERT, a person who has undergone a CONVERSION. CONVERT is chiefly used in respect of changes from one religion, or religious sect, to another.

Converts with relation to the religion turned to, are denominated *apostates* with regard to that they have relinquished.

The Jews, formerly converted to Christianity in England, were called *conversos*. Henry III. built them a house in London, and allowed them a competent subsistence for their lives; which house was called *domus conversorum*. But the number afterwards increasing, they grew a burthen to the crown; upon which they were distributed among the monasteries; and after the expulsion of the Jews under Edward III. the *domus conversorum* was given for keeping the rolls.

CONVERTS, in a *Monastic Sense*, are lay-friars, or brothers, admitted for the service of the house; without orders, and not allowed to sing in the choir.

Till the eleventh century, the word was used for persons who embraced the monkish life at the age of discretion; by which they were distinguished from those devoted in their childhood by their parents, called *oblats*.

But in the eleventh century, when they began to receive into monasteries illiterate persons, incapable of being clerks, and only destined for bodily labour; the signification of the word was necessarily changed. F. Mabillon observes, that it was John first abbot of Vallombrosa, who first introduced these *brother converts*, distinguished by their state from the monks of the choir, who were then either clerks, or capable of becoming so.

CONVERTIBILITY of *Spirits* into one another. See SPIRITS.

CONVERTIBILITY of *elements* into one another. See ELEMENTS.

CONVEX, bending down on every side, as the outside of a globular body.

CONVEX *freeze, lens, mirror, superficies*. See the substantives.

CONVEXITY, the exterior surface of a *convex*, i. e. gibbous and globular thing; in opposition to *concavity*, or the inner surface, when hollow or depressed.

The word is of particular import in *catoptrics*, and *dioptrics*; where it is applied to mirrors and lenses.

A *convex MIRROR* represents its images smaller than the objects; as a *concave* one represents them larger: a *convex* mirror reflects the rays from it, diverging; and therefore disperses and weakens their effect: as a *concave* one reflects them converging; so as they concur in a point, and have their effect increased; and by how much the mirror is a portion of a smaller sphere, by so much does it diminish the objects and disperse the rays, the more.

A *convex LENS* is either *convex* on both sides, called a *convexo-convex*; or it is plain on one side, and *convex* on the other, called a *plano-convex*: or *concave* on one side, and *convex* on the other, called a *convexo-concave*, or *concavo-convex*, as the one or the other surface prevails; i. e. as this or that is a portion of a smaller sphere. See REFRACTION.

CONVEYANCE, in *Law*, a DEED, or instrument, by which lands, &c. are conveyed, or transferred by the proprietor, or owner thereof, to some other person.

A conveyance cannot be fraudulent in part, and good as to the rest; for if it be fraudulent and void in part, it is void in all; and it cannot be divided. 1 Lill. Abr. 311. Fraudulent conveyances to deceive creditors, defraud purchasers, &c. are void, by stat. 50 Edw. III. c. 6. 13 Eliz. c. 5. 27 Eliz. c. 4.

Conveyances are such either at common law, or by virtue of the statute of uses. Of the former sort some are original or primary, which are those by means whereof the benefit or estate is created or first arises: others are secondary, or DERIVATIVE. Original conveyances, are those by *feoffment, grant, lease, exchange, and partition*.

CONVICT, in *Common Law*, one who is found guilty of an offence by the verdict of a jury.

According to Crompton, a person is always a *convict*, or

said to be *convicted*, when, after having been outlawed, he appears and confesses. *Conviction* and *ATTAINED* are frequently confounded.

Persons *convicted* of felony by verdict, &c. are not to be admitted to bail, unless there be some special motive for granting it: as where a man is not the same person, &c. for bail ought to be before trial, when it stands indifferent whether the party be guilty or not. 2 Hawk. 99. 114. *Conviction* of felony, and other crimes, disables a man to be a juror, witness, &c.

CONVICT *recusant*, he who has been legally presented, indicted, and *convicted*, for refusing to come to church to hear the common-prayer, according to the statute 35 Eliz. and 3 Jac. I.

This is commonly understood to be a popish recusant; though any others who refuse coming to church on the same account are as properly denominated *RECUSANTS*.

CONVICTION, in *Theology*, expresses the first degree of repentance; wherein the sinner becomes sensible of his guilt, of the evil nature of sin, and of the danger of his own ways.

CONVICTION, in *Law*. See CONVICT.

CONVICTION, *summary*, is such as is directed by several acts of parliament for inflicting certain penalties created by those acts, without the intervention of a jury: the party accused being acquitted or condemned by the suffrage of such person only as the statute has appointed to be his judge. Of this kind are all trials of offences contrary to the laws of excise, and other branches of the revenue, proceedings before justices of the peace, and the method used by superior courts of justice for punishing contempt by *ATTACHMENT*.

CONVIVIVUM, *banquet*, in our *Ancient Customs*, and *Law Books*, signifies the same thing among the laity as *PROCURATION* among the clergy; viz. when the tenant was obliged, in virtue of his tenure, to provide meat and drink for his lord once, or oftener, in the year.

CONULUS, in *Natural History*, the name of a genus of the *echinodermata*, of the general class of the *fibulae*.

These are raised from a circular base into a taller and more pointed, or a shorter and more obtuse cone. The *echinitæ* of this genus have been called by authors, *scolopendritæ*, *pileæ*, and by some *bufonitæ*; and are generally known in English by the name of cap-stones. Of these there are four species: 1. The *albogalerus*, or white-hat stone, found fossil in our chalk-pits. 2. The *globulus*. 3. The *nodus*, the series of the lines of which are flexuous, and make the superficies somewhat gibbous. 4. The *bulia*, the orders of lines in which are straight, and resemble a button. Klein's Echinod.

CONVOCAION, a general assembly of the clergy of a province, summoned by the king's writ to consult of the more weighty affairs of the church, as oft as a parliament is convoked to consult of those of the state.

The king's writ is directed to the archbishop of each province, requiring him to summon all bishops, deans, archdeacons, cathedral and collegiate churches, &c.

Upon which the archbishop directs his mandate to his dean provincial, first citing him peremptorily; then willing him in like manner, to cite all the bishops, deans, &c. and all the clergy of his province; but directing, withal, that one proctor sent for each cathedral and collegiate church; and two for the body of the inferior clergy of each diocese, may suffice: which the dean accordingly does.

The place where the *convocation* of the province of Canterbury has been usually held, is St. Paul's church; whence, of late, they have been prorogued to St. Peter's in Westminster, in the chapel of Henry VII. or the Jerusalem Chamber, where there is an upper and lower house. Chamberlayne.

The upper-house, in the province of Canterbury, consists of twenty-two bishops, whereof the archbishop is always president. All, at the opening of a *convocation*, are in their scarlet robes and hoods.

The lower house consists of twenty-two deans, twenty-four prebendaries, fifty-four archdeacons, and forty-four clerks, representing the diocesan clergy.

Each house hath a prolocutor chosen from among themselves; and that of the lower house is presented to the bishops. Things are first usually proposed in the upper house; then communicated to the lower. All the members of both houses have the same privileges for themselves, and menial servants, as the members of parliament have.

The *convocation* exercises jurisdiction in making canons with the king's assent; and appeal lies from their proceedings to the king in chancery, or to his delegates.

The archbishop of York, at the same time, holds a *convocation* of the clergy of his province, after the like manner, at York; and, by constant correspondence, debates and concludes of the same matters as are debated by that of

of Canterbury. Not that the northern provinces is obliged to follow what the southern one does.

The English clergy, anciently, had their representatives in the lower house of parliament; as appears by the record much prized by lord Coke.

CONVOLVULUS, *bindweed*, in *Botany*; a genus of the *pentandria monogynia* class. Its characters are these: the flower hath one large bell-shaped petal, which spreads open. It hath five short stamina, and a roundish germen. The empalement afterwards becomes a roundish capsule, with one, two, or three valves, containing several seeds, which are convex on their outsides, but on their insides angular. There are thirty-two species, natives of various parts of the world. Miller. See *Tab. III. of Botany, Class 1.*

To this genus belong scammony, mechoacan, jalap, and turbit.

As to the bindweeds properly so called, they are cathartic, and said to be good in preventing abortion; a decoction of them is recommended as a mild evacuant of bile.

CONVOLVULUS, *scarlet, quamoclit, or ipomœa*; in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flower hath a small permanent empalement, cut into five parts at top; the petal is funnel-shaped, having a long cylindrical tube, whose brim is five-pointed, spreading open flat; it hath five awl-shaped stamina; in the bottom of the tube is situated a round germen, which afterward becomes a roundish capsule with three cells, inclosing three oblong seeds. There are eight species. Miller.

CONVOLUTION, a winding or turning motion, proper to the trunks of some plants; as the *convolvula*, or bindweeds, and the clasps of vines, and briony.

Dr. Grew thinks, that all those plants whose roots are twisted, have such a *convolution*: and he assigns two great efficient causes of this winding motion, the sun and the moon. It is very easy to try whether there be any such *convolution* or not in the trunks of plants; which may be done, as he hints, by tying a little bit of paper to any of the branches which are exactly north, south, &c. and then seeing whether it will change its position, or not in respect of the point of the compass.

CONVOY, from the French *convoyer, to conduct, escort*; a sea term, signifying one or more vessels of war, entrusted with the conducting of a fleet of merchants; serving as a watch, and a shelter from the insults of the enemies of the state, or of pirates.

CONVOY is also used in speaking of military affairs by land; where it signifies a body of forces sent to guard a supply of provisions, arms, or ammunition, going to a camp, or the like.

CONUSANCE. See **COGNISANCE**.

CONUSOR. See **COGNISOR**.

CONVULSION, from *convello, to draw together; spasmus*, in *Medicine*, a continued involuntary contraction of some parts of the body, otherwise accustomed to move according to the direction of the will.

It owes its origin to a contraction of the muscles of the part, occasioned by a too copious and violent influx of the nervous juice: of which there may be infinite causes in the blood, arteries, meninges, brain, nerves, muscles, cranium, &c.

If the *convulsion* be universal, attended with violent motions, foaming at the mouth, and periodical; it is usually called an **EPILEPSY**.

The usual evacuations and medicines proper for the cure of *convulsions*, are phlebotomy, emetics, cathartics, epispastics, and proper cephalics; as *sal volat. oleos.* spirit of lavender, spirit of hartshorn, tincture of castor, cinna-bar of antimony, cassumamar root, valerian root, volatile salt of amber, &c. given in different forms. In periodical universal *convulsions*, a salivation sometimes answers, after other courses have failed. Women and children are peculiarly liable to *convulsions*: women after delivery; as upon a stoppage of the *lochia*, or a violent extraction of the *placenta*. See **INFANTS**, and **SPASM**.

CONVULSIVE, in *Medicine*, is applied to those motions, which, naturally, should depend on the will; but which, by some external cause, become involuntary.

A *convulsive* motion is a contraction made by fits and intervals; wherein it differs from a *convulsion*, which is a continued contraction.

Convulsive motions arise from a disorder in the origin of the nerves. A *convulsive* tension of the solids is one of the principal causes which destroy the equilibrium that should obtain between the solids and the fluids.

CONVULSIVE is also used for any thing that occasions a *convulsion*, or *convulsive motion*.

Wounds of nerves are said to be *convulsive*; white hellebore is *convulsive*. Children are very liable to *convulsive* disorders from various causes, as repletion, curdling of the blood in the stomach or intestines, worms, denti-

tion, &c. The **CRAMP** is a *convulsive* contraction of some muscular part of the body.

CONVULSIVE asthma. See **ASTHMA**.

CONYZA, in *Botany*. See **FLEABANE**.

COOK, in *Ichthyology*, a species of fish, which is sometimes taken in great plenty on the coast of Cornwall. It is a scaly fish, and does not grow to any great size: the back is purple, the belly yellow, and the tail rounded.

COOK-ROOM, in a *Ship*, is where the cook and his mate dress and deliver out the meat, &c. See *Tab. Shipping, fig. 2. n. 32.*

COOLER, among *Brewers, Distillers, &c.* a large vessel, usually of small depth and large surface, in which liquors are cooled, after having been boiled.

COOLERS, in *Medicine*, remedies so called: which may be considered under these two divisions: 1. Those which produce an immediate sense of cold; which are such as have their parts in less motion than those of the organs of feeling. 2. Such as by a particular viscosity, or grossness of parts, give a greater consistency to the animal fluids than they had before; whereby they are disabled from moving so fast, and will therefore have less of that intestine force on which their heat depends.

Of the former kinds are fruits, and all acid liquors. To the latter belong cucumbers, and all substances producing viscosity.

COOLNESS, in *Painting*, is a quality of colours relating only to their tint or hue: it is usually applied to yellow and blue, and denotes a tendency to green, in either colour, by a slight admixture of the other. See **WARMTH**.

COOM, a term for foot that gathers over an oven's mouth: also for that black greasy substance which works out of the wheels of carriages.

Coom, or foot, is sometimes used in medicine, infused in wine with other ingredients, as an anti-hysterical, and against palpitations of the heart, &c. The spirit of foot is also used for the same intentions, and in cephalic cases.

COOMB, or **COMB of corn**. See **COMB**.

COOMINGS, in *Naval Architecture*. See **COAMINGS**.

COOP, in *Husbandry*, a tumbrel or cart enclosed with boards, and used to carry dung, grains, &c.

COOP is also the name of a pen, or enclosed place, where lambs, poultry, &c. are shut up in order to be fed.

COOPER, on board a *Ship*, the person that looks to the casks and all other vessels, for beer, water, or any other liquor. He has a mate under him.

CO-OPERATOR, derived from *con*, and *opera, labour*, denotes any cause, natural or supernatural, which concurs with another to the production of an effect. Thus, nature and medicine *co-operate* in the cure of disorders: and the will of man concurs with the grace of God in the performance of good works.

CO-OPERIRE pallio. See **PALLIO**.

CO-OPTATION, derived from *co-opto, I choose*, signifies the admission of members into any college or society. Thus it was anciently applied to the choice of the **AUGURS** and **PONTIFFS**; and in modern times, to an extraordinary nomination and election of persons of distinguished merit into a learned society.

CO-ORDINATE, something of equal **ORDER**, rank, or degree, with another.

CO-ORDINATION, in respect of causes, denotes an order of causes, wherein several of the same kind, order, and tendency, concur to the production of the same effect.

COOT, *fulica*, in *Ornithology*, the name of a distinct genus of birds of the order of the *grallæ*, the distinguishing character of which is, that the beak is convex, the thighs are half naked, the nostrils oblong, and the forehead wholly naked.

The *fulica* is a water-fowl distinguished from the moorhen kind, by having its toes widened by a membrane, though not joined together by it, or webbed like the ducks. Of this there are several species; those most known with us are, the common *coot*, and a larger kind called *macroule*, or *diable de mer*, the sea-devil.

The common *coot* is a considerably large bird, weighing usually a pound and a half; its beak is of a bluish white, and is a finger's breadth and a half long, somewhat flattened and sharp at the point; its legs are of a yellowish green, and above the knee there is a yellow spot; it has semi-circular membranes at the joints of its toes: but what is its most obvious distinction is, that it has from the beak to the crown of the head, a fleshy excrescence, which is roundish, soft, and smooth, and is always naked or destitute of feathers; and hence the bird is commonly called with us, the *bald coot*. It is all over black above, but of a deeper black about the head than in any other part, and its breast and belly are of a sort of lead-colour; its wing-feathers have a brownness, mixed among the black, and some of them are tipped with white.

The other species, or *macroule*, called by Bellonius, the *fulica major*, is larger and of a finer black than this, and has a larger white excrescence on its head.

The common *coot* is so plentiful about Peterborough in Northamptonshire, that in the season of its laying, whole hampers full of its eggs are there brought to market, and sold at an inconsiderable price; the people boil them, and the shell is so thin, that they often eat them without taking it off. Ray.

COPAIBA, **COPAIFERA**, in *Botany*, the balsam of capivittree, a genus of the *decandria monogynia* class. Its characters are these: it hath a flower consisting of five leaves, which expands in form of a rose, and has five short stamina; the germen is fixed in the centre of the flower, which afterwards becomes a pod containing one or two seeds, which are surrounded with a pulp of a yellow colour. We know but one sort of this tree; which grows near a village called Ayapel, in the province of Antiochi, in the Spanish West Indies, about ten days journey from Carthagena. There are great numbers of these trees in the woods about this village, which grow to the height of fifty or sixty feet. Some of these trees do not yield any of the balsam; those which do, are distinguished by a ridge which runs along their trunks. These trees are wounded in their centre, and they place calabash shells, or some other vessels to the wounded part to receive the balsam, which will all flow out in a short time. One of these trees will yield five or six gallons of balsam: but though they will thrive well after being tapped, yet they never afford any more balsam. Miller.

COPAL, in *Natural History*, a shining, transparent, citron-coloured substance, of an agreeable smell, resembling that of frankincense. It is brought from New Spain, where it oozes out from incisions made in the bark of a large tree; much after the manner in which the vine yields its sap, when cut in the spring.

Copal is accounted a cephalic, and good for the palsy, and other weaknesses of the nerves; but is not much used. What we in England call *gum copal*, is called *gum anime* in foreign parts; and on the contrary, what is there called *gum anime*, we call *copal*.

The Indians use it to burn on their altars: among the Europeans, it is used against disorders of the breast, having a warming, resolving, and humectating power. It is very rare; when good, it is of a fine transparent yellow; and melts easily, either in the mouth, or on the fire.

In defect of this is brought another kind from the Antilles, which is almost the only one known among the druggists; and its chief consumption is in the making of varnish. By digestion in linseed oil, with a heat very little less than sufficient to boil or decompose the oil, it may be dissolved; and this solution, diluted with spirit of turpentine, forms a beautiful transparent VARNISH, which, when well applied and slowly dried, becomes very hard and durable. This varnish is used for snuff-boxes, tea-boards, and other utensils. It preserves and gives lustre to paintings, and restores the decayed colours of old pictures, by filling up the cracks, and rendering the surfaces capable of reflecting light more uniformly. It is improperly called *gum copal*, being a hard concrete juice of an American tree, which has neither the solubility in water common to GUMS nor the solubility of spirit of wine common to RESINS, at least in any considerable degree; by its properties it resembles AMBER.

COPARCENARY, the share, or quota of a **COPARCENER**.

COPARCENERS, from *con*, and *particens*, partner; or **PARCENERS**; such as have equal portions in the inheritance of their ancestor.

Coparceners are so either by law or custom. *Coparceners by law*, are the issue female; which, in default of a male heir, come equally to the lands of their ancestor.

Coparceners by custom, are those who, by some peculiar custom of the country, challenge equal parts in such lands; as in Kent, by the custom of gavelkind. The crown of England is not subject to *coparcenary*.

COPE, an ecclesiastical ornament, usually worn by chantors and sub-chantors, when they officiate in the church-solemnity. It is also worn by the Romish bishops, and other ordinaries: it reaches from the shoulders to the feet. The ancients called it *pluviale*.

COPE, *St. Martin's*, was a relic formerly in great esteem among the French kings; and was often carried with them to war as their standard.

COPE, among *Miners*, is a duty of six pence for every load of ore, nine dishes making one load.

COPEC, a Muscovite coin. See **COIN**.

COPERNICAN sphere. See **SPHERE**.

COPERNICAN system, is that system of the world, wherein the sun is supposed at rest in the centre; and the planets with the earth, to move in ellipses round him.

The heavens and stars are here supposed at rest; and that diurnal motion which they appear to have from east to west, is imputed to the earth's motion from west to east.

This system was asserted by many of the ancients; and particularly Eopantus, Seleucus, Aristarchus, Philolacus, Cleanthes Samius, Nicetas, Heraclides Ponticus, Plato, and Pythagoras, from the last of whom it was anciently denominated the *Pythagoric system*.

It was also held by Archimedes, in his book *De Granorum Arenæ Numero*; but after him it became neglected, and even forgotten, for many ages; till about three hundred years ago, when Copernicus revived it; from whom it took the new name of the *Copernican system*. Nic. Copernicus, now a name so popular, was born at Thorn in Polish Prussia, in the year 1472, according to Juncellus, or 1473, according to Mœstinus. After the usual domestic education, he was sent to the university of Cracow; where he applied himself to philosophy and physic, and at length commenced doctor in medicine. In the mean time, having a strong propensity to mathematics, he diligently attended the lectures of Albert Brudzevius, and even learnt of him at home. After he had here attained to the use of the astrolabe, and was entering upon astronomy, he took Regiomontanus for his guide: though he ran through all the mathematics of the age, yet he seemed most taken with perspective; on occasion whereof he learned painting, in which he is said to have excelled. When twenty three years of age, being at Bologna, he became acquainted with that eminent mathematician Dom. Maria Ferrariensis; and was admitted to share with him in making astronomical observations. Here, in the year 1497, Copernicus first observed an occultation of Palilium by the moon. Going on to Rome, he taught publicly, and made some considerable observations; and at his return to Cracow, he was made canon of the church of Wermelant, or Ermeland, and at length vicar-general.

The course he took in prosecuting astronomy, which has rendered his name immortal, was as follows. Observing how the astronomers of those times were perplexed to make the planets move equably in circular orbits, viz. to suppose them to move, not about their own centre, but that of the equant; and that they could no way make out a tolerably regular system, out of all their hypotheses; he resolved to try what he could do. With this view he perused the writings of all the philosophers and astronomers extant; and selected out of each what appeared probable and elegant. In this review he was chiefly taken with two almost similar opinions (the one attributed to Martianus Capella, the other to Apollonius Pergæus): which gave a very good account of the motions of Venus and Mercury; and explain the cause of their directions, stations, and retrogradations, very happily: the latter answering the same purpose with respect to the three superior planets. But then, in both these hypotheses, the earth is supposed the centre: Copernicus chose rather to adopt the opinion of the Pythagoreans; to remove the earth out of the centre of the world; and to give it not only a diurnal motion round its own axis, but also an annual one round the sun.

On this footing he began to observe, calculate, compare, &c. and at length, after a long, solicitous disquisition, found himself in a condition to account for the phenomena and motions of all the planets; and to make an orderly arrangement, or disposition of the whole heavens; wherein nothing could be altered, or displaced, without bringing the utmost confusion into the whole.

These things he began to write down about the year 1507. He then proceeded to furnish himself with some new apparatus; particularly a parallactic instrument, and some Ptolemaic rulers, wherewith to observe the altitude of the stars, and determine the periods of the sun and moon: and without other means composed his six books *De Orbium Cœlestium Revolutionibus*; containing the whole of astronomy, delivered after the example of Ptolemy, in a geometrical method. We have already observed, that he began it in 1507; he finished it in 1530. Five years after, he polished and improved it. He died of a dysentery, and a palsy on his right side, in the year 1543; having just lived to see a copy of his book, which was just printed, a few hours before his death. See the order and disposition of the heavenly bodies, as laid down by him, compared with those in the other systems, under the head **SYSTEM**.

This system has been established by new arguments advanced, by Kepler, Galileo, and Newton, in every succeeding age; and notwithstanding the opposition it met with, from the prejudices of sense against the earth's motion, the authority of Aristotle in the schools, the threats of ignorant bigots, and the terror of the inquisition, it has generally prevailed. Galileo, after having demon-

demonstrated the motion of the earth, was obliged, by the rancour of the Jesuits, to go to Rome, and there solemnly renounce it. Besides which cruel treatment, he was condemned to a year's imprisonment in the inquisition, and the penance of repeating daily some penitential psalms. As a specimen of the authority of the Romish church in opposition to this system, we shall only transcribe the declaration of the excellent commentators, Le Seur and Jacquier, on the Principia prefixed to the third volume. *Newtonus in hoc tertio libro telluris motæ hypothesim assumit. Autoris propositiones aliter explicari non poterant, nisi eadem quoque factâ hypothesi. Hinc alienam coacti sumus gerere personam. Cæterum latius a summis pontificibus contra telluris motum decretes nos obsequi profitemur.*

COPERNICUS, is the name of an astronomical instrument, contrived, by Mr. Whiston, for the calculation and exhibition of eclipses, and of the motions of the planets, both the primary and secondary ones, &c.

It was so called by the inventor, as being built on the Copernican system; or as representing the heavenly bodies agreeable thereto. It consists of several concentric circles of wood; upon which are inscribed numbers, transferred hither from the astronomical tables: by the various dispositions of these circles, which are made so as to slide within each other, questions are solved; and thus long calculations are saved, and the work of many hours brought into a few minutes.

For the exhibition of eclipses, there is a peculiar apparatus, consisting of a terrestrial globe, so disposed, as that, being turned round its axis, the light of the sun, or a candle, is projected through a glass plane, marked out into concentric circles, expressing digits of the eclipse: and thus is the path of the eclipse, with its degree or quantity in any part of its path, agreeably and accurately represented.

The instrument not being very common, a particular description would be superfluous. The author of it has written a book to explain it.

COPHOSIS, in *Medical Writers*, is used for deafness, whether beginning, or perfect, or from what cause soever.

The word is derived from *κοφω*, *I am deaf*.

COPHTI, **COPHTS**, or **COPTI**, a name given to the Christians of Egypt; who were of the sect of Jacobites.

The critics are extremely divided about the origin and orthography of the word: some write it *Gophti*, others *Cophites*, *Cophitæ*, *Copts*, &c. Scaliger derives the name from *Coptos*, an anciently celebrated town of Egypt, the metropolis of the Thebaid. Kircher refutes this opinion, and maintains, that the word originally signifies *cut*, and *circumscribed*; and was given these people by the Mahometans, by way of reproach, because of their practice of circumcising; but P. Sollier, another Jesuit, refutes this opinion. Scaliger afterwards changed his opinion, and derived the word from *Αιγυπτος*, the ancient name of Egypt, by retrenching the first syllable: but this opinion, too, P. Sollier disputes. John de Leo and others say, that the Egyptians anciently called their country *Elchibth*, or *Cibth*, from Cibth their first king, whence *Cophite*, &c. others say from Coptim second king of Egypt. Vansleb derives the word *Copht* from Copt son of Misraim, grandson of Noah. All these etymologies P. Sollier rejects, on this principle, that were they true, the Egyptians ought all equally to be called *Cophti*; whereas in effect, none but the Christians, and among those none but the Jacobites, bear the name; the Melchites not being comprehended under it. Hence he chooses to derive the word from the name *Jacobite*, by retrenching the first syllable; whence *Cobite*, *Cobea*, *Copta*, and *Cophta*.

The *Cophts* have a patriarch, who resides at Cairo, but he takes his title from Alexandria: he has no archbishop under him, but eleven or twelve bishops. The rest of the clergy, whether secular, or regular, is composed of the order of St. Antony, St. Paul, and St. Macarius, who have each their monasteries.

Besides the orders of priests, deacons, and subdeacons, the *Cophts* have likewise archimandrites, the dignity whereof they confer with all the prayers and ceremonies of a strict ordination. This makes a considerable difference among the priests; and besides the rank and authority it gives them with regard to the religious, it comprehends the degree and functions of archpriests. By a custom of six hundred years standing, if a priest elected bishop be not already archimandrite, that dignity must be conferred on him before episcopal ordination.

The second person among the clergy, after the patriarch, is the titular patriarch of Jerusalem, who also resides at Cairo, because of the few *Cophts* at Jerusalem; he is, in effect, little more than the bishop of Cairo: only he goes to Jerusalem every Easter, and visits some other places in Palestine near Egypt, which own his jurisdiction.

To him belongs the government of the *Cophtic* church, during the vacancy of the patriarchal see.

To be elected patriarch, it is necessary the person have lived all his life in continence: it is he confers the bishopricks. To be elected bishop, the person must be in the celibate; or, if he have been married, it must not be above once.

The priests and inferior ministers are allowed to be married before ordination; but are not obliged to it, as Ludolphus erroneously observes. They have a great number of deacons, and even confer the dignity frequently on children. None but the lowest rank among the people commence ecclesiastics; whence arises that excessive ignorance found among them: yet the respect of the laity towards the clergy is very extraordinary. Their office is longer than the Roman office, and never changes in any thing: they have three liturgies, which they vary occasionally.

The monastic life is in great esteem among the *Cophts*: to be admitted into it, there is always required the consent of the bishop. The religious *Cophts* make a vow of perpetual chastity; renounce the world, and live with great austerity in deserts: they are obliged to sleep in their cloaths and their girdle, on a mat stretched on the ground; and to prostrate themselves every evening a hundred and fifty times, with their face and breast on the ground. They are all, both men and women, of the lowest class of the people; and live on alms. The nunneries are properly hospitals; and few enter but widows reduced to beggary.

F. Roderic reduces the errors and opinions of the *Cophts* to the following heads: 1. That they put away their wives, and espouse others while the first are living. 2. That they have seven sacraments; viz. baptism, the eucharist, confirmation, ordination, faith, fasting, and prayer. 3. That they deny the Holy Spirit to proceed from the Son. 4. That they only allow of three oecumenical councils; that of Nice, Constantinople, and Ephesus. 5. That they only allow of one nature, will, and operation, in Jesus Christ, after the union of the humanity with the divinity. For their errors in discipline they may be reduced, 1. To the practice of circumcising their children before baptism, which has obtained among them from the twelfth century. 2. To their ordaining deacons at five years of age. 3. To their allowing of marriage in the second degree. 4. To their forbearing to eat blood: to which some add their belief of a baptism by fire, which they confer by applying a hot iron to their forehead or cheeks.

Others palliate these errors, and shew that many of them are rather abuses of particular persons than doctrines of the sect. This seems to be the case with regard to their polygamy, eating of blood, marrying in the second degree, and the baptism of fire: for circumcision, it is not practised as a ceremony of religion; nor as of any divine appointment, but merely as a custom which they derive from the Ishmaelites; and which, perhaps, may have had its origin from a view to health and decency in those hot countries.

The *Cophts*, at different times, have made several reunions with the Latins; but always in appearance only, and under some necessity of their affairs. In the time of pope Paul IV. a Syrian was dispatched to Rome from the patriarch of Alexandria, with letters to that pope; wherein he acknowledged his authority, and promised obedience; desiring a person might be dispatched to Alexandria, to treat about a re-union of his church to that of Rome: pursuant to which, Pius IV. successor to Paul, chose F. Roderic, a Jesuit, whom he dispatched in 1561, in quality of apostolical nuncio.

But the Jesuit, upon a conference with two *Cophts* deputed for that purpose by the patriarch, was made to know, that the titles of *father of fathers*, *pastor of pastors*, and *master of all churches*, which the patriarch had bestowed on the pope in his letters, were no more than mere matters of civility and compliment; and that it was in this manner the patriarch used to write to his friends: they added, that since the council of Chalcedon, and the establishment of several patriarchs independent of one another, each was chief and master of his own church. This was the answer the patriarch gave the pope, after he had received a sum of money remitted to him from Rome, by the hands of the Venetian consul.

COPHTIC, or **COPTIC**, the language of the *Cophts*, the ancient language of the Egyptians, mixed with a great deal of Greek; the characters it is written in being all Greek. It has a form and construction peculiar to itself: it has no inflections of the nouns or verbs; but expresses number, case, gender, person, mood, tense, and possessive pronouns, by letters and particles prefixed.

F. Kircher is the first who published a grammar, and vocabulary of the *Cophtic*. There is not known any book extant

extant in the *Coptic*, except translations of the Holy Scriptures or of ecclesiastical offices; or others that have relation thereto, as dictionaries, &c.

The ancient *Coptic* is now no longer found but in books; the language now used throughout the country is Arabic.

The old *Coptic*, which Kircher maintains to be a mother-tongue, and independent of all others, had been much altered by the Greek: for besides that it has borrowed all its characters from the Greek, with a very little variation, a great number of the words are pure Greek.

Vossius, indeed, asserts that there was no *Coptic* language till after Egypt became subject to the Arabs. The language according to him, is a mixture of Greek and Arabic: the very name thereof not being in the world till after the Arabs were masters of the country. But this, M. Simon observes, proves nothing; except that what was anciently called *Egyptian*, has since by the Arabs being called *Coptic*, by a corruption of speech. There are, it is true, Arabic words in the *Coptic*; yet this by no means proves but that there was a language before that time, either *Coptic* or *Egyptian*. Pietro de la Valle observes, that the Cophts have entirely lost their ancient tongue; that it is now no longer understood among them; that they have nothing extant therein but some sacred books; and that they still say mass in it.

All their other books have been translated into Arabic, which is their vulgar tongue; and this has occasioned the originals to be lost: it is added, that they rehearse the Epistles and Gospels in the mass, twice; once in Arabic, and once in *Coptic*.

Indeed, if we believe F. Vansleb, the Cophts say the mass in Arabic, all but the Epistles and Gospels, which they rehearse both in that and *Coptic*.

COPHTIC Bible. See BIBLE.

COPHTIC Liturgies are three; one attributed to Basil, another to St. Gregory, and the third to Cyril: they are translated into Arabic for the use of the priests and people.

COPIA libelli deliberanda, a writ which lies in case where a man cannot get the copy of a libel at the hands of the ecclesiastical judge.

COPIA, Cornu. See CORNUCOPIA.

COPIATA, under the *Western Empire*, a grave-digger. In the first ages of the church, there were clerks destined for this employment. In the year 357, Constantine made a law in favour of the priests *copiata*, i. e. of those who had the care of interments; whereby he exempts them from the lustral contribution which all other traders paid.

It was under him also that they first began to be called *copiata*, q. d. clerks destined for bodily labour, from *κοπος*, of *κοπω*, *scindo*, *cædo*, *ferio*, *I cut*, *beat*, &c. Before that time they were called *decani* and *leſſacarii*; perhaps, because they were divided by decads or tens, each whereof had a bier or litter for the carriage of the dead bodies. Their place among the clerks was the next in order before the chantors.

COPING of a wall, the top or cover of a wall, made sloping to carry off the water.

COPING over, in *Carpentry*, a sort of hanging over, not square to its upright, but bevelling on its under side till it end in an edge.

COPIST, in *DIPLOMATIC Science*, signifies a transcriber or copier of deeds, books, &c.

COPOS, from *κοπος*, labour, in *Medical Writers*, is used for a weariness of the body, when the muscles, or their fibres rather, are loaded and obstructed with viscous humours, so as to render them unfit for motion.

COPPA, in *Law*, a cop or cock of grafs, hay, or corn, divided into titheable portions; as the tenth cock, &c. This word in strickness denotes the gathering or laying up the corn in copes or heaps, as the method is for barley or oats, &c. not bound up, that it may be the more fairly and justly tithed: and in Kent they still retain the word, a *cop* or *cap* of hay, straw, &c.

COPPEL, **COPEL**, or **CUPPEL**, a vessel used by *Chemists*, *Refiners*, and *Affayers*, to try and purify their metals See *Tab. Chemical Furnaces*, &c. fig. 24.

The *coppel of assay*, is a little flat vessel, made of vegetable ashes, and bones of sheep's feet, calcined and lixiviated, to separate the salts, which would otherwise make it crack, and the inflammable principle, which might revivify the scorified metals, and occasion an ebullition. At the bottom of the vessel is a little cavity filled with a kind of white varnish, composed of hartshorn, or pike bones, calcined and diluted in water, the use of this liquor is, that the gold or silver to be assayed may be more conveniently lodged, and that the button of the assay may be separated the more easily.

The hollow of the *coppels*, which is to contain the metal, must be a spherical segment, and not very deep: first,

that the surface of the melted mass, be it ever so small, be distinctly visible to the artificer's eye; and, secondly, that the metal left in that cavity, may melt together into one globule. But the outides of the *coppel* must be only a small matter convergent towards the basis, like a truncated cone, that it may stand firmly on its base: and that this figure may be regularly given to these vessels, it is convenient to have copper or brass moulds for the making them.

The *coppel* is usually formed in a brass ring from three quarters of an inch or two inches in diameter, and not quite so deep, placed on some smooth support. When the ring is filled with the moistened powder, a round-faced pestle, called the *monk*, is struck down into it, with a few blows of a mallet, by which the mass is made to cohere, and rendered sufficiently compact, and a shallow cavity formed in the middle: this cavity is made the smoother, by sprinkling a little of the same kind of ashes, levigated into an impalpable powder, through a small fine sieve, and the monk is again struck down upon it.

Though metals may be tried otherwise than by *coppelling*; and though the touchstone, graver, &c. are of some service to the goldsmiths in judging of their purity; yet, without the *coppel*, it is difficult, not to say impossible, to know their precise degree of purity.

The *refiner's coppel*, is a large freestone vessel, lined within with a kind of plaster made of ashes well lixiviated, cleansed, dried, beaten, and sifted.

In this kind of *coppel* it is that they purify their gold and silver, by adding lead to it, and exposing the whole to a violent fire.

There is scarcely any other substance, which so strongly resists vehement fire, which so readily imbibes metallic scoræ, and which is so little disposed to be vitrified by them, as the ashes of animal bones. The calcination of these bones is to be made in an open fire, for a few hours, according to their size; and such should be chosen as have least fat about them. The calcination is known to be perfect, when there is not a black spot remaining, either on the outside of the bone, or within it, when broken. When the bones are perfectly calcined, they must be reduced to a very fine powder, either by grinding on a porphyry, or sifting through a fine sieve, after beating. This powder must be also carefully washed in warm water; for during the calcination, the bones become almost always impregnated with the salt of the ashes of the fæcul.

This powder is called by some *clar*, and is an excellent substance for *coppels*. The bones of fishes, when small, are yet more easily calcined than those of other animals: this may be done with ease in an open earthen vessel, and the powder of these is preferable even to the former. Parget, or plaister of Paris, made of various kinds of spar, though all kinds will not do for this purpose, is also excellent: but as there are some sort of spar which will not afford a proper plaister, it is proper to try in a small quantity first. The calcination is to be made in an earthen vessel, covered with a tile, in an open fire. The spar crackles a little with the heat; and when this noise is over, the calcination is perfect.

As the preparation of bone ashes for this use, however, is tedious, and the proper sort of spar is not always or every where to be had, the want of them may be supplied with the ashes of vegetables, properly prepared. When a proper powder is obtained, it is moistened with just so much water as is sufficient to make it hold together, when strongly pressed between the fingers. Some give a greater tenacity to the powder by mixing it with glutinous liquids, as whites of eggs, or gum water, or with fine washed clay; but these should be used very sparingly, and with great caution. The calcined spar must be prepared with a solution of vitriol.

Coppels had better be too compact than too loose in their texture, since the latter is always a mischievous accident, whereas the former, by absorbing the glass more slowly, is of no other hurt than the retarding the operation a little.

Coppels made of bone ashes, or of calcined spar, are more valuable than those of wood ashes, as they require not so much caution and regularity in the management of the fire; but if wood ashes enter the composition, the *coppel* must be made pretty hot before the metal is put into it, otherwise the aqueous vapours, forcing their way out, will cause the metal to be thrown out in drops; for *coppels* of this kind can never be perfectly dried by the air alone, there being always something of an alkaline salt yet remaining in wood ashes, which makes them attract the water out of the air, as the dark colour of these ashes, and the solution of *sal ammoniac* poured on them, also shew: for this reason, these ashes are also more disposed to vitrification than those of bones, the latter approaching

approaching much nearer to the nature of the incombustible stones.

COPPELLING, in *Affaying and Chemistry*. Silver may be precipitated out of its ore by *coppelling* alone, in the following manner: roast a centner of the silver ore in the common way; when roasted, powder and sift it very fine, and if it melts with difficulty, mix with it one centner of litharge: when it is an ore that melts easily this may be omitted. Divide the powder into five or six parts and wrap up every one of them separately in pieces of paper. Put a large coppel under a MUFFLE in the furnace; heat it thoroughly; then put into it sixteen centners of lead. When the lead begins to smoke and boil, put upon it one of the small parcels of powdered ore, in its paper; then diminish the fire a little. The paper will be immediately consumed, and the ore cast to the inside of the coppel, in form of scorix. When this is done, increase the fire again, and add a second parcel of the ore; and continue this method till all the ore is put in; after which, scorify the lead in a stronger fire. The silver contained in the ore, with that contained in the lead, will now be found in form of a bead in the coppel; and subtracting the known quantity yielded by the lead, the remainder of the weight gives the quantity of silver in that centner of ore.

Silver is not the only ore that can be thus worked: many others may be assayed in the same manner, by *coppelling* alone: those are indeed to be excepted from this process, which split, or which corrode the coppels. Cramer. See also Lewis's Com. Phil. Tech. p. 129, &c.

COPPER, a hard, heavy, ductile, imperfect metal; found in mines, in several parts of Europe, but most abundantly in Sweden.

Copper is of all metals the most ductile and malleable after gold and silver; and it abounds very much in vitriol and sulphur. It may be drawn into wire as fine as hair, or beaten into leaves as thin as those of silver. Its tenacity is very considerable, as a wire of it one tenth of an inch in diameter, is capable of supporting a weight of 299½ pounds without breaking. It has a very singular disagreeable taste and smell. In a great fire, with free access of air, it smokes, loses part of its weight, and gives beautiful green and blue colours to flame.

The chemists call it *Venus*; as supposing it to have some more immediate relation to that planet. By an analysis it appears composed of a sulphur ill digested, a yellowish mercury, and a red salt.

Copper is found in gleans or stones of various forms and colours; which are first beaten small and washed, to separate them from the earthy, &c. parts wherewith they are mixed.

After washing they are smelted, and the melted matter run into a kind of moulds, to form large blocks, by some called *salmons*, and by others *cakes of copper*. This is the ordinary *copper*.

To render it more pure and beautiful, they melt it again once or twice; some of its coarse earthy parts being left behind at each fusion, and a quantity of tin and antimony added in each. In this state it is called *rose copper*, in Latin *æ's pelosum*.

Copper is sometimes also found native and pure in the mines, either in form of threads, or in flakes, plates, grains, or other masses and lumps. This is called *virgin copper*.

The method of procuring the metal from the ore is this: mix one or two centners of the ore for an assay, beaten to a very fine powder, with six centners of the black flux; put the powder into a crucible, and cover it half an inch high with common salt; press the whole down with the finger, but let the capacity of the vessel be such that it may be only half full; shut the vessel close with a lute, and put it into the furnace. Increase the fire slowly till the common salt crackles; then increase it so far, that the vessel may presently be made red-hot and after about a quarter of an hour's standing in this heat, the metal will be separated: then take out the vessel, and setting it on the floor, strike with a few blows of a hammer near where it stands, to make the metal get together at the bottom. Break the vessel, when grown cold, in two, from top to bottom, as nearly as you can, and you will find a solid and malleable regulus at the bottom. Cramer's Art of Assaying, p. 301.

Copper, when hid, as it frequently is, in an ore full of the matter of the pyrites, may be discovered by a solution and liquid precipitation, in the following manner: make a solution of vitriol out of the ore, by a slight roasting in an open fire, and by exposing it afterwards to an air somewhat moist, and pouring warm water upon it. Put into this solution small iron plates, perfectly clean, and free from grease; if there is any small quantity of *copper* in the pyrites, it will now stick to the iron plates, in form of a suble powder, of a deep yellow colour, and

all of it will be thus fetched out of the solution, if there be time enough, and a moderate warmth.

This property which iron has of separating *copper* from acids, serves also to extract the *copper* from the blue vitriol with which water in mines of this metal is impregnated. A considerable quantity of *copper* is obtained by means of iron bars laid in the streams issuing from the *copper* springs of Wicklow in Ireland. These bars are laid in oblong pits, into which the impregnated water passes; and the *copper*, attracted and fixed by the iron, subsides to the bottom of the pit. When the iron is dissolved, the stream is turned from the pits, the reddish mud collected, and laid in a heap to dry; and the reddish dust melted into *copper*. One ton of iron in bars produces a ton and nineteen hundred and a half of the *copper* mud or dust; and each ton of the mud yields, when smelted, sixteen hundred weight of the purest *copper*. Phil. Transf. vol. xlvii. p. 502. vol. xlviii. p. 94. and 101, &c.

When silver is contained in *copper*, it may be separated in the following manner: reduce the *copper* into filings; put one centner of this by for the operation; then put the double and sextuple quantity of granulated lead into a large well-baked coppel; make the fire strong, and continue it so till the lead begins to smoke and boil; then add the *copper* wrapped up in a paper, so that it may be immersed together into the middle of the boiling lead. When all the *copper* is dissolved, suppress the fire till there is a smoke seen wandering over the surface, and the mass is not raised up very high in the middle, and the coppel looks brown as fir as it has been penetrated by the litharge: take care, however that the boiling of the lead does not entirely cease. When the greatest part of the metal is consumed, increase the fire gradually, and make it very strong toward the end. When the operation is finished, the silver will be found pure in the center of the coppel, surrounded with yellow scorix in form of crystals. Cramer.

Copper put into the fire with iron promotes its fusion, but it becomes more rigid and more pale by the mixture. It is often necessary, to render this fusion the easier, to add as much tartar and common glass as will cover the surface of the whole mass.

As to the other metals, *copper* is well known to mix readily with silver and gold, and to give them a rigidity which renders them much more fit for the uses of life than they would be in their natural soft state.

Copper melted with GOLD promotes the fusion of the gold; it produces a gold colour with tin; stones are stained by solutions of it; it is always incompact after melting; gold is precipitated by it; it is dissolved by vitriol of iron; glass coloured with it, on being baked with white earth, gave a red tinge to the earth; it is hardened and made less disposed to tarnish, by being melted with platina in different proportions. See Lewis's Com. Phil. Tech.

Copper resists the fire more than any other imperfect METAL before it undergoes any great alteration; but being an imperfect metal, it may be burnt, destroyed, and calcined by the united action of fire and air: so that its quantity is always diminished by melting it without covering its surface. The surface of clean polished *copper*, when gradually heated, is covered with all the colours of the rainbow, produced by a more or less perfect CALCINATION of the surface of the metal exposed to the fire.

The SPECIFIC GRAVITY of European *copper* is to that of water as 8843, and of Japanese *copper* as 9000 to 1000. *Copper* is easily soluble by all ACIDS, and its solutions are green, or blue; it is also acted upon by almost all saline and metallic substances, and dissolved by fixed and volatile alkalies. Macquer.

Copper, because of its great ductility, and shining colour is greatly employed in domestic uses; but it is never used inwardly as a medicine, unless in tincture; because this metal, and especially its rust, are reckoned poisons: and any kind of food, or even water, that has stood long in *copper* vessels, is pernicious. The symptoms produced by this poison, are pains in the stomach and intestines, excessive vomitings, irritations to stool, ulcers in the intestines, sometimes difficulty of breathing, and spasmodic contractions of the limbs, and lastly death itself; if the quantity of the poison be great. See a letter of Mr. Travis, endeavouring to shew that the use of *copper* vessels in the navy is one principal cause of the sea scurvy. Med. Observ. &c. vol. ii. p. 1. See also a letter on the same subject of *copper* vessels. Ibidem, p. 146.

The remedies proper in such cases are, first to take a great quantity of milk, oil, or melted fresh butter, then to drink warm water until the patient vomits plentifully. Clysters made with oil, butter, or fat broths, are likewise proper; lastly strengthening cordials and a milk diet. James.

The water issuing from the *copper* springs discovered in Pennsylvania, Dr. Rutty observes, though poisonous in its native strength, is frequently used, when lowered with common water, for purging and vomiting the country people; and is useful in curing ulcers, and cutaneous disorders, and particularly for sore eyes. Phil. Transf. vol. xlix. p. 651.

The preparations of *copper* are, 1. *Flos æris*, or flowers of *copper*. 2. *Ærugo æris*, or verdigrise. 3. *Æs ustum*, or burnt *copper*. 4. *Squamma æris*, or the flake of *copper*. 5. The *ens Veneris* of Mr. Boyle. 6. *Aqua sapphirina*, a famous eye-water, of a blue colour. See GRENAILLE, &c.

Of a mixture of *copper* and LAPIS CALAMINARIS is formed BRASS, which the French call *cuiure jaune*, yellow *copper*, in contradistinction to natural *copper*, which they call *cuiure rouge*, red *copper*.

Copper melted together with twenty-two or twenty-three pounds of fine tin per quintal makes BELL-metal.

Copper and brass melted in equal quantities, make what the French call BRONZE, used for figures, statues, &c.

Copper turns white by an unction of spirit of wine and orpiment. Pliny says there is a *copper* naturally white, found underneath the silver mines.

Chemists give the denomination *saffron of copper*, or *crocus Veneris*, to a preparation of *copper* plates stratified with decrepitated salt, in a crucible; after having extinguished them in water, and scraped them with iron instruments. It is very red, and is used in emplaisters to cleanse wounds and ulcers.

Some chemists have pretended, that the spirit of *copper* is real ALKAHEST, capable of dissolving wholly pearls, corals, crabs eyes, &c. without any diminution of its force; but experience has shewn the contrary.

Æs ustum, i. e. burnt *copper*, sometimes also called *saffron of Venus*, is nothing but *copper* calcined in a violent fire, and reduced to scales no longer possessed of brilliancy, ductility, or other metallic properties. If these scales are mixed with some matter capable of restoring phlogiston to them, and exposed to a great fire, a quantity of malleable *copper* is obtained nearly equal to that of the scales. Macquer. See *Æs*.

VERDIGREASE is a rust of *copper*. Becher observes, that the drinking of acid liquors, even out of common silver plate, is very unwholesome because of the mixture of *copper* therein; much more is it so out of vessels of *copper*.

COPPER, *white*, a kind of metal white as silver, frequently brought from China, and supposed by many to be natural. But is only an alloy of *copper*, zinc, and arsenic, in certain proportions. It is made with difficulty, because of the volatility of the two semi-metals; and, as its quality is noxious, it is not much used.

COPPER, *affinity of*. See AFFINITY.

COPPER, *engraving in*. See ENGRAVING.

COPPER, *granulation of*. See GRANULATION.

COPPER, *refining*. See REFINING.

COPPER-plates, for engraving, should be chosen of the best red *copper*, as being generally the toughest and the most ductile; and therefore most capable of being extended with the hammer, or rolled out to the nicest and smallest pieces. They should be free from any veins, specks, or dissimilar parts, and throughout of an uniform texture. Their thickness may be in the proportion of a line to a foot by nine inches in breadth. They should be well forged and planished whilst cold, because the substance of the *copper* will thus be rendered less porous. The polishing of these plates is performed by laying them obliquely on a board, and rubbing them first with a piece of grind-stone, dipped in water, lengthways and breadthways, till the flaws and inequalities in the surface are removed; and then with a piece of good pumice-stone to take away the marks and scratches made by the grind-stone: when this is done, let them be washed clean, and rubbed with a piece of oil-stone, to remove the scorings of the pumice-stone, and again washed till they are perfectly clean. For the last operation, three or four large coals of fallow wood, sound and without clefts, should be placed in a fire on a hearth, and covered with other burning coals and a quantity of red-hot ashes; and left in this state for about an hour and a half; but the time should be proportioned to the size of the coals, that the fire may penetrate into their inmost substance; and expel all the smoke that can be driven out: the coals should then be thrown into a vessel of water, and there left to cool. With one of these coals, let the plate be rubbed, and the operation be continued till all the flaws left by the oil-stone are removed; and if the coal itself be too hard, and leave traces, a softer one must be used to remedy the effects of the former, so that the surface of the plate may be perfectly clear and even. This is the method recommended by Le Boëse: but the end may be more expeditiously obtained, by rubbing out the

marks of the planishing hammer with emery finely ground, and after washing the plate clean, brushing it over with the refiner's *aqua fortis*: let this lie on till the ebullition produced by it begins to decrease, and then washed off by immersing the plate in water. The plate must be finished by hard rubbing with a steel BURNISHER, so that every part of it may appear as bright as looking-glass.

Those plates that are designed for etching, should, after these operations, be well washed with clean water, dried by the fire, wiped with a linen cloth, and rubbed over with crumbs of very stale bread; and then rubbed well with the scrapings of very soft chalk. The perfection of the polish may be tried by rubbing the plate with printing ink, and pulling of a proof as if it had been engraved; if no impression is made on the paper, the polishing is complete; but if any lines appear to be printed, the plate is faulty, and it must be repolished. Encyclopedie, art. *Gravure*; and Handmaid to the Arts, vol. ii. p. 48, &c. See ENGRAVING, and ETCHING.

COPPER-plate Printing. See Rolling-press PRINTING.

COPPERAS, a name given to green VITRIOL, particularly to vitriol of iron. See CABBUSI.

Copperas is purified and prepared in the same manner as alum and saltpetre, by passing through several lixiviums, till it be wholly reduced to crystal.

Some make *copperas* to be the *chalcitis* of the ancients. But the more common opinion is, that their *chalcitis* was a stone, not a pure salt.

There is *copperas* of England, of Pisa, Germany, Cyprus, Hungary, and Italy, which differ from each other in colour, richness, and perfection.

White copperas, is a vitriol of iron, with a mixture of some other mineral, brought from Germany in cakes of forty or fifty pounds each; such are those brought from Goslar in Saxony.

The English *copperas* is of a fine green; that of Cyprus and Hungary is of a sky blue, and has copper for its basis. It is in pieces cut like the point of a diamond. That of Pisa and Italy is likewise green; and the last as transparent as glass.

The English green *copperas* is of considerable use in many preparations, but especially in dying. The hatters also use it in their dye; and this and galls are ingredients in writing ink.

The ordinary English *copperas* is made of a kind of stones found on the sea-shore in Essex, Hampshire, and so westward, ordinarily called *gold stones*, from their colour, or *pyrites*: they abound much in iron.

To prepare the *copperas* from them, they are exposed to the weather in beds above-ground, and receive the rains and dews, which in time break and dissolve the stones: the liquor that runs off is pumped into boilers, in which is first put old iron, which in boiling dissolves. When the boiling is finished the liquor is drawn off into coolers, where it shoots into crystals. See VITRIOL.

The works at Deptford for making it are known to most people. Many chemists dissolve this, and shoot it again, to sell it for the common salt of steel.

The alum workers in Yorkshire have an opinion that if their liquor stands beyond the usual time in the pans, it will turn to *copperas*. The masters of the works have inculcated this story to make them diligent, and it is as firmly believed among them as if it were a real truth.

COPPERAS stone. See PYRITES.

COPPICE, or COPSE, a little wood, consisting of underwoods; and such as may be raised either by sowing, or planting. See WOOD.

COPROCRITICA, from *κoproσ*, excrement, and *κρινω*, separate; medicines which purge away the excrements in the guts.

COPROPHAGOS, from *κoproσ*, and *φαγω*, I eat; the dung-fly, in *Natural History*, the name given by many authors to the common yellowish fly found on human excrements. There are several other species found on the excrements of various animals, and thence called *merdivora*.

COPULA, in *Logic*, a verb that connects any two terms in a proposition, either negative or affirmative: as, *A rose is sweet*, where *is* is the *copula*.

COPULATION. See COITION, CONGRESS, and CONSUMMATION.

COPULATIVE Propositions, are those which include several subjects, or several attributes joined together by an affirmative or negative conjunction.

Thus, v. gr. *Power and riches do not make a man happy*. Where *and* is the conjunction that couples *power* and *riches*.

COPULATIVE Conjunction. See CONJUNCTION.

COPY, in *Law*, a transcript of a writing or instrument, made for the use and satisfaction of some of the parties concerned; or in order to preserve the memory thereof. See COPIA.

The copy of an inrolled deed is admitted in evidence; but not

not the *copy* of a will of lands nor the probates, nor of a common deed where the original may be procured. Few ancient documents do now subsist otherwise than in *copies*.

COPY is also used for an imitation of any original work; particularly a painting, draught, figure, &c.

COPY, among *Printers*, denotes the manuscript, or original of a book given to print from.

To *cast off a copy*, is to make a computation of the number of sheets a manuscript will make in print.

In the bookseller's style, a *good copy* is that which produces a saleable book.

Tenant by COPY of court-rule. See **TENANT**.

COPY-HOLD, is a **TENURE** for which the tenant has nothing to shew but the *copy* of the roll made by the steward of the lord's court.

The steward of the court is, among other things, to in-roll and keep a register of all such tenants as are admitted to any parcel of land, or tenement, belonging to the manor; and the transcript is called the *copy of the court-roll*, which the tenant keeps as his own evidence.

This tenure is called a *base tenure*, because the tenant holds, in some sort, at the will of the lord. Fitzherbert says, it was formerly called *tenure in villenage*; and that *copy-hold* is but a modern name.

This is the land which the Saxons called *folk-land*, as being held *sine scripto*, in contradistinction to a *bock-land*, or **CHARTER-land**, *terra ex scripto*, and now *free-land*, or **FREE-HOLD**.

However, it is not simply at the lord's will, but according to the custom of the manor; so that if the *copy-holder* doth not break that custom, and forfeit his tenure, he seems not to stand at the lord's courtesy. These customs are infinite; varying in one point or other almost in every manor.

Copy-holders, upon admittance, pay a fine to the lord; which fines are in some manors certain, in others not; but yet, if the lord exceeds two years value, the court of chancery, king's bench, &c. have, in their several jurisdictions, power to reduce the **FINE**. See also **HERIOT** and **RELIEF**.

In many places, the *copy-holds* are a kind of inheritance, and termed *customary*, because the tenant dying, and the hold becoming void, the next of blood paying the customary fine, as two shillings an acre, or the like, may not be denied his admission. Some *copy-holders* have by custom the wood growing upon their own land; some, again, hold by the verge in ancient demesne, so that though they hold by *copy*, they are yet accounted a kind of freeholders: lastly, some others hold by common tenure, called *mere copy-hold*; whose land, upon felony committed, escheats to the lord of the manor.

Copy-hold land cannot be made at this day; for the foundation of a *copy-hold* is, that it hath been demised time out of mind, by copy of court-roll; and that the tenements are parcel of, or within the manor. 1 Inst. 58. 4 Rep. 24. They are demisable only by copy; and within the acts against bankruptcy and the statutes of limitation.

Copy-holders are not allowed to vote for knights of the shire. 31 Geo. II. c. 14.

COPY-HOLDER, is defined by West, a person admitted tenant of any lands, or tenements, within a manor, which, time out of mind, by the use and custom thereof, have been devisable to such as will take the same by copy of court-roll, according to the custom of the said manor.

COQ. *ad med. consumpt.* an abbreviature among *Physicians*, signifying that the thing is to be boiled till half of it be consumed.—*Coq. in S. Q. Aq.* implies it to be boiled in a sufficient quantity of common water.

COR, in *Anatomy*. See **HEART**.

COR Caroli, in *Astronomy*, an extra-constellated star of the second magnitude in the northern hemisphere, situated between the Coma Berenices and Ursa Major; so called by sir Charles Scarborough, in honour of king Charles I.

COR Hydra, in *Astronomy, a star of the second magnitude, in the heart of the constellation **HYDRA**.*

COR Leonis, or *Regulus*, a fixed star of the first magnitude, in the constellation **LEO**.

COR Scorpii. See **ANTARES**.

COR Marinum, in *Natural History*, the name of one of the classes of the *echini marini*, the characters of which are, that the anus is placed in the side of that point of the shell which appears as if cut off; and the mouth has two lips, and is placed in the third region of the axis of the base. Klein's *Echin.* p. 34.

COR Veneris, *Venus's heart*, a name given by authors who treat of shells, to a very elegant kind of the *cordiformis*, or **HEART-shell**, which has more of the shape of a real heart than the *bucardium*, or any other shell of this genus. There are only three known species of the *cor*

Veneris. 1. A denticulated one, with very elegant, rose-coloured spots. 2. The white boat-shell, furrowed on the inside. And, 3. The little, rose-coloured kind. These are all very elegant shells.

CORAAGE, *coraagium*, in our *Old Customs*, a kind of imposition extraordinary, growing upon some unusual occasion; and it seems to be of certain measures of corn: for *corus tritici* is a measure of wheat. Bracton, lib. ii. cap. 116. num. 6. who in the same chapter, num. 8. has these words: *Sunt etiam quedam communes prestationes, quæ servitia non dicuntur, nec de consuetudine veniunt, nisi cum necessitas, intervenerit, vel cum rex venerit; sicut sunt bidagia, coraagia, & carvagia, et alia plura de necessitate et ex consensu communi totius regni introducta; &c.*

CORACIAS, in *Natural History*, a name given by many writers to the **BELEMNITES**, called by others *lapis Lincurius*, and *dactylus Idæus*.

CORACIAS, in *Ornithology*, a name given by Linnæus for the *pica* or *pye*. This bird makes, in that author's system, a distinct genus; the characters of which are, that the inner tail-feathers grow gradually one longer than another. See *Tab. of Birds*, N° 8.

This bird is called by some the *pyrrhocorax*, and in English the *Cornish chough*. It is of the shape of a jackdaw, but of the size of the common crow. Its beak is red, long, and somewhat hooked at the end. It frequents rocks, and ruined buildings about the sea-shores, and is found about the high cliffs, all along the western shore of England. Its voice is much like that of the jackdaw, but is more hoarse and rough. Ray's *Ornithol.* p. 86.

CORACINUS, in *Ichthyology*, the name of a sea-fish caught in the Mediterranean, and called by some authors *skiana*, and by Aldrovand and Salvian *umbra*. It is of the colour of the common tench, but in figure more approaches to the perch: its scales are small; its mouth not very large, but well-furnished with teeth; and its tail is not forked, but, when extended, seems of a roundish figure; the ends of the rays or nerves of the tail-fin are black, and the other fins are all black, and seem as if died with ink.

CORACOBACHIALIS, a muscle which arises from the *processus coracoides* of the *scapula*, by a tendinous beginning; and passing over the articulation of the *humerus*, is inserted into the middle and internal part of that bone, and with the *deltoides* and *supra-spinatus*, lifts the arm upwards; and alone, obliquely outwards. See *Tab. Anat. (Myol.) fig. 1. n. 23.*

It is fixed above to the point of the *coracoides* apophysis, between the insertions of the *biceps*, and the *pectoralis minor*, by a tendon, which as it descends, adheres a good way to the tendons of these two muscles; afterwards it becomes fleshy, and is inserted by a broad thin extremity, with a small mixture of tendinous fibres in the middle part of the *os humeri*, close by the ligamentary *frænum* of the *latissimus dorsi*, and *teres major*. Its insertion is continued down below the *frænum*, near the internal inter-muscular ligament, to which it likewise adheres a little. This muscle passes behind the tendon of the *pectoralis major*; and as it is perforated in the middle to give passage to a nerve, it has by some been termed *perforatus Casserii*, that author being the first who gave a particular figure of it. Its other name is taken from its insertions. Winflow's *Anatomy*, p. 184.

CORACOHYOIDEUS, in *Anatomy*, a muscle which has its origin from the *processus coracoides* of the *omoplate*; or rather, according to Keil, from the upper edge of the *scapula*, near its neck; whence ascending obliquely under the *masloideus*, it is inserted into the *os HYOIDES*; which it serves to pull obliquely downwards. See *Tab. Anat. (Myol.) fig. 2. lit. o. fig. 1. n. 17.*

The word is formed from *coracoides* and *hyoides*, the two parts.

It is also called *digostrius*, as having two bellies at its two extremities, and a tendon in the middle to give room for the passage of the carotid and inner jugular artery.

CORACOIDES, in *Anatomy*, a small, sharp **PROCESS** of the **SCAPULA**; so called from its resembling a crow's bill. See *Tab. Anat. (Osteol.) fig. 3. n. 5.*

The word comes from *κοραξ*, *corvus*, and *ειδος*, *imago*.

The *coracoides* is placed in the upper part of the neck, and projects over the head of the bone of the arm. It serves to strengthen the articulation of the shoulder; and gives origin to one of the muscles of the arm.

CORACOMANTES, from *κοραξ*, *crow*, and *μαντεια*, *divination*; in *Antiquity*, a kind of diviners, who made their predictions by observing the crows.

CORACORADIALIS, in *Anatomy*, a name given by some authors to a muscle generally known by the name of the **BICEPS**; the *pescetto* of the Italian authors; and the *primus flectentium cubitum* of Vesalius, and others of his time.

CORAL,

CORAL, *Corallium*, in *Natural History*, a production of the sea, formerly ranked among the number of marine plants, but now classed in the animal kingdom; since modern naturalists have discovered, that it is the structure and habitation of certain sea animals, and designed for their protection and support. See *Tab. V. Botany, Class 17.* and *Tab. II. Fossil, Class 7.*

Some have derived the term from the Greek *κορην*, to adorn, and *αλος*, the sea; because there is no other production of equal beauty.

The nature and origin of *coral* has been as much disputed as any subject in natural knowledge. Some, and particularly Dr. Woodward, considered this and the other harder productions of the sea, as stones; and they thought themselves justified in the opinion, from their excessive hardness, and their specific gravity; and likewise from observing, that, when these bodies were calcined, they were converted into lime. Guisónæus maintains, that *coral* is a real mineral, composed of much salt and a small quantity of earth; and that it derives its form from precipitation much in the same manner with the *ARBORE Dianæ* of the chemists. Others, as Dioscorides, Pliny, Cæsalpinus, Boccone, Ray, Tournefort, and Geoffroy, thought *coral* to be a plant. P. Kircher supposes, that there are entire forests of it at the bottom of the sea: Tournefort maintains, that it is multiplied by seed like other plants, and enumerates fourteen different species of it. Boccone confirmed this opinion by observing a milky juice (first indeed taken notice of by Cæsalpinus) at the top and in the cells of *coral*: and count de Marfigli, in 1706, discovered some parts in it, which, he conjectured, were its flowers. Agreeably to this notion, they described it as having roots, which are fastened to the rocks or stones on which it grows, as those of trees are to the earth: these roots, they say, are covered with a bark, often beset with starry pores which traverse them from top to bottom: above the roots they observe the ligneous part of the plant, which rather seems to resemble stone than wood. This trunk is divided into branches, having white streaks, representing a kind of fibre. The extremities are rounded with little bowls, ordinarily divided into six cells, filled with a fluid somewhat like milk, fat, sharp, and astringent: and these bowls are esteemed a kind of pods or capsules, containing the seed of the *coral*. It is even said, that in what place or on what matter soever this juice is shed, it carries fecundity with it, and produces a plant of *coral*. Marfigli observes, that *coral* grows chiefly in caverns, whose aperture is towards the south, and their concave arch nearly parallel to the surface of the earth; and that it vegetates, in a calm sea, in a direction contrary to all other plants; its foot adhering to the top of the cavern, and its branches shooting downwards: the foot takes the exact form of the solid to which it grows, and covers it, like a plate, to a certain extent; which, he thinks, is a proof, that its substance was originally fluid: and he adds to the same purpose, that it sometimes lines the inside of a shell. Marfigli, from examining the several parts of *coral*, concludes, that all its organism, with regard to vegetation, consists in its rind; that the tubules of this rind filtrate juice which fills the cellules, and runs along the canals as far as the extremities of the branches; and that this juice being petrified, both in the cells encompassing the coralline substance, and in those of the extremities of the branches whose substance is not yet formed, makes the plant grow both in height and bulk. M. de Reaumur considers the coarse visible rind, which is different from that which is properly called *coral*, and also another much finer rind, which is not always distinguished from the coralline substance covered by it, as the organized vegetating plant; and all the rest, that is, almost the whole coralline substance, he considers as a mere stone without any organization, formed by the plant which invests it for its support.

It has been long the received opinion, that *coral* was soft in the sea, and that it was hardened by the air, upon taking it out of the water. Mr. Boyle was of this opinion; but Boccone examined *coral* in the water, before it was taken up into the air, and invariably found it hard, except at its extremities, whence, by pressing it, flowed a small quantity of milky fluid, already taken notice of. We may therefore infer, that there is more of imagination than of truth in the name *gorgonium*, which the ancients gave to *coral*, and designed to shew that Medusa's head did not convert objects into stone, more surely than *coral* became petrified, as soon as it appeared in the air.

M. de Peyssonnel of Marseilles, has, in consequence of a series of experiments and observations from about the year 1720 to 1750, introduced a new system, with respect to the nature and production of *coral*, and similar marine substances. Those bodies, which the count de

Marfigli imagined to be flowers, this ingenious naturalist discovered to be insects inhabiting the *coral*; for, upon taking branches of it out of the water, the flowers, which proceeded from a number of white points answering to the holes that pierced the bark, and the radiation of which resembled the flower of the olive-tree, entered into the bark and disappeared; but, upon being again restored to the water, they were some hours after perceptible. These flowers spread on white paper lost their transparency, and became red as they dried. The holes in the bark correspond to small cavities upon the substance of the *coral*; and when the bark is removed, there may be seen an infinite quantity of little tubes connecting the bark with the inner substance, besides a great number of small glands adhering to them; and from these tubes and glands the milky juice of *coral* issues forth: the holes in the bark are the openings through which the insects, that form these substances for their habitation, come forth; and those cavities which are partly in the bark, and partly in the substance, are the cells which they inhabit. The organs of the animal are contained in the tubes, and the glandules are the extremities of his feet, and the milky liquor is the blood and juice of the animal, which are more or less abundant in proportion to its health and vigour. When the insects are dead, they corrupt and communicate to the water the smell of putrid fish. This juice or liquor runs along the furrows perceived upon the proper substance or body of *coral*, and stopping by little and little becomes fixed and hard, and is changed into stone; and being stopped in the bark, causes the *coral* to increase proportionably and in every direction. In forming *coral*, and other marine productions of this class, the animal labours like those of the testaceous kind, each according to his species; and their productions vary according to their several forms, magnitudes, and colours.

The *coral* insect, or *POLYPE*, M. Peyssonnel observes, expands itself in water, and contracts itself in air, or when it is touched with the hand in water, or acid liquors are poured upon it: and he actually saw these insects move their claws or legs, and expand themselves, when the sea-water containing *coral* was placed near the fire, and keep them in their expanded state when separated from the *coral* in boiling water. Broken branches of *coral* have been observed to fasten themselves to other branches, and have continued to grow; and this is the case, when they are connected with detached pieces of rock and other substances, from which no nourishment could be derived. The *coral* insects in their cells, not having been injured, continue their operations; and as they draw no nourishment from the stone of the *coral*, they are able to increase, in a detached and separate state. *Coral* was found to be equally red in the sea as out of it; and it was more shining, when just taken out of the water than even when it is polished; and the bark by being dried becomes somewhat pale. M. Peyssonnel found, that it grows in different directions, sometimes perpendicularly downwards, sometimes horizontally, and sometimes upwards; and in the caverns of the sea, open to every exposure.

The principles obtained from *coral*, by a chemical analysis, appeared to resemble those drawn from the human skull, hartshorn, and other parts of animals. See an account of a manuscript treatise, entitled *Traité du Corail*, presented to the Royal Society by Sieur de Peyssonnel in 1751. *Phil. Trans.* vol. xlvii. p. 445, &c. This system was little regarded, though first communicated to the Academy of Sciences at Paris in 1727, till Mr. Trembley's discovery of the fresh-water *POLYPE*; but since that time, it has been confirmed by the observations of M. Bernard de Jussieu on the sea-coasts of Normandy, and those of M. de Reaumur near Rochelle. M. Donati of Turin has also adopted the same hypothesis, viz. that *coral* is a mass of animals of the polype kind; and instead of representing the polype-beds and cells which they contain as the work of polypes, he thinks it more just to say, that *coral* and other coralline bodies have the same relation to the polypes united to them, that there is between the shell of a snail and the snail itself; or the bones of an animal and the animal itself. *Phil. Trans.* vol. l. p. 58.

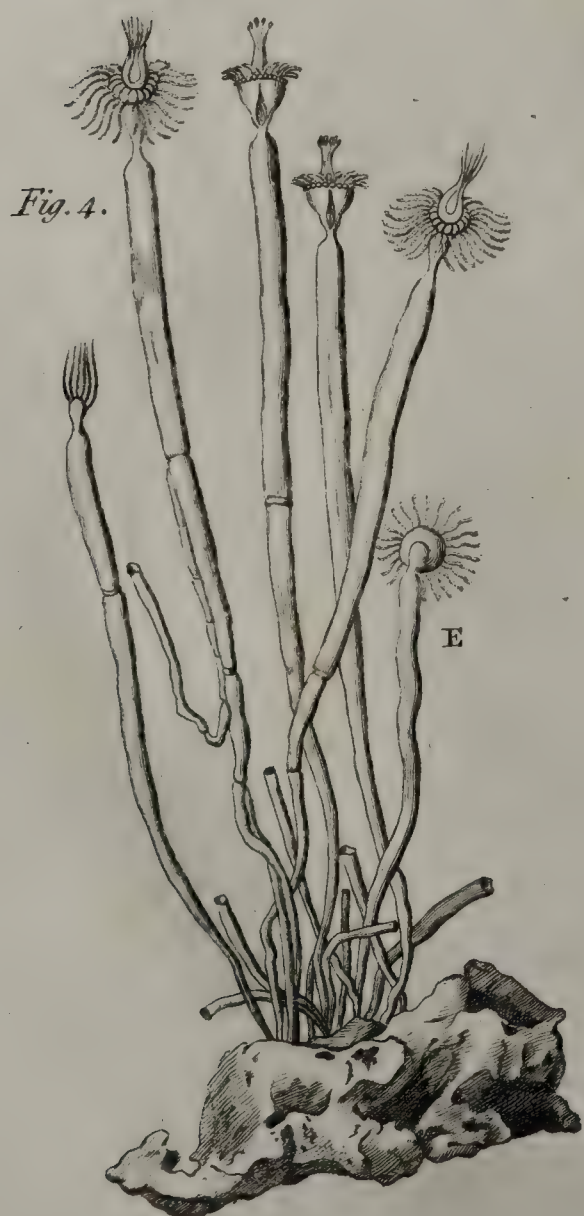
The same system has also been excellently illustrated and established by Mr. Ellis, in answer to the objections of Dr. Baster of Zealand, and Dr. Pallas of Berlin, who still refer *corallines* to the vegetable kingdom. *Phil. Trans.* vol. l. p. 280, &c. vol. lii. p. 111. vol. lvii. p. 404, &c. See also his excellent Essay towards the Natural History of the Corallines, and other Marine Productions of the like Kind, &c. 4to. 1775.

There are, properly, but three kinds of *coral*; red, white, and black: the black is the rarest, and most esteemed; but it is the red that is ordinarily used in medicine. It must

CORALLINE S.
VESICULATED.



TUBULAR.



CELLIFEROUS.





CORALLINES

TAB. II.

ARTICULATED.

KERATOPHYTA.



Fig. 6.

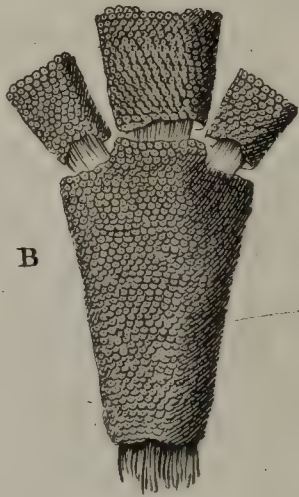
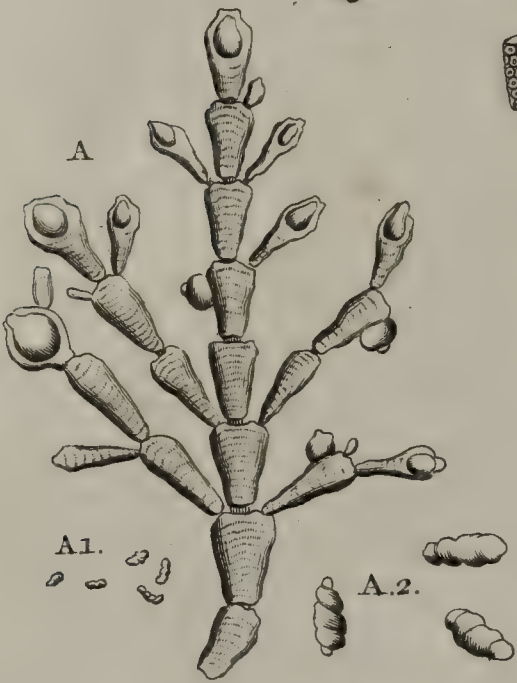
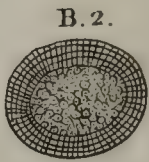
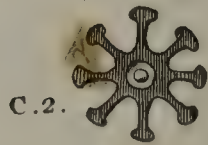


Fig. 7.



Fig. 8.



C.3.

ESCHAEA.

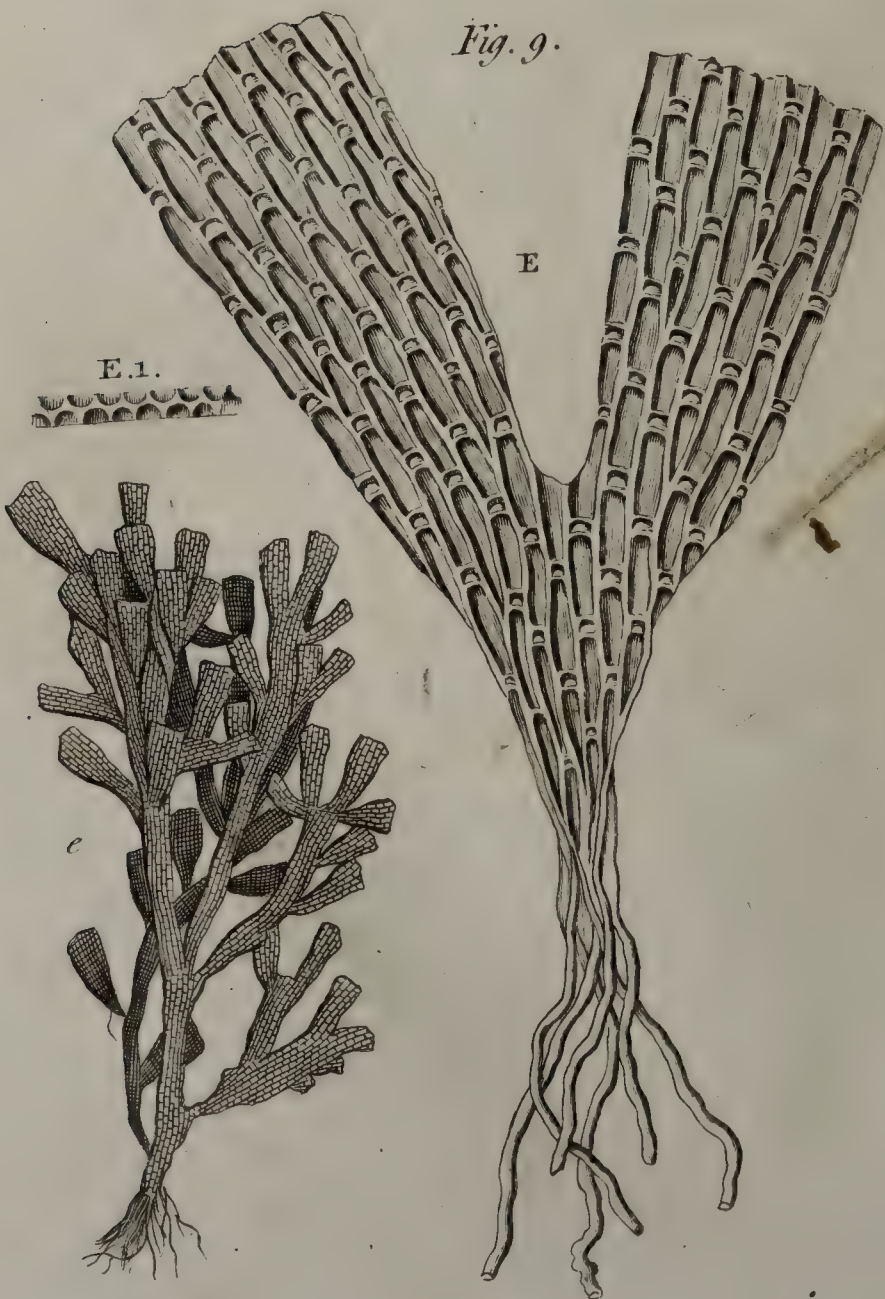


Fig. 9.



Fig. 10.



must be chosen thick, smooth, and shining, and of a beautiful red, not covered with any tartareous matter.

CORAL, black, a species of the GORGONIA in the Linnæan system. See ANTIPATHES.

CORAL, red, a species of the *ips* under the class of *zoophytes* in the Linnæan system. This appears to be formed of a succession of small tubes, many of which rise together, and branch out in different directions. The tubuli, being composed of a cretaceous matter, mixed with a viscid animal substance, shrink in and become as solid as their inhabitant deserts them. The effects of vegetable distilled oils on coral, by the help of a long digestion, are such as could not have been imagined, till the experiments of Dr. Langelot shewed that there were a sort of solvent for that refractory substance.

The common red coral yields, by distillation in a retort, a volatile vitreous spirit, in no inconsiderable quantity; this turns syrup of violets green, and makes an effervescence with acids, and renders a solution of corrosive sublimate white and milky. And the fixed salt drawn from the residuum produces a white coagulum in the same solution; from which it is evident that it is not a mere alkali, but a *sal salsum*, in some degree.

Red coral calcined, even in a very gentle fire, becomes white; the same change also happens to it when infused a long time in some oily substance, as the oils of anise, fennel, or in white wax kept in fusion. The menstrua in this case acquire a red colour in proportion as the coral loses it. It appears from these, and several other experiments, that coral is not, as some suppose, a mere terrestrial absorbent, but that it contains a volatile urinous salt, and a bituminous oil combined with its earthy matter; and on these its virtues in medicine principally depend. The red colour of coral is evidently owing to its bituminous oil, which it is found not difficult to separate, and wholly divest it of. It is observed, that coral newly taken up out of the sea, contains both the salt and oil in greater abundance than that which has been long kept; and it is suspected by many, that its external or cortical substance contains more of it than the interior, harder, and more stony matter.

The ancients used coral in many external medicines for distemperatures of the eyes: and internally as an astringent and refrigerating medicine. We use it only internally, and that principally in diarrhoeas, and bleedings, in too great evacuations of the menses, and in the *fluor albus*. The vulgar attribute to it, beside these virtues, many others; for which we have no sufficient warrant. Geoffroy, Mat. Med. vol. ii. p. 254.

CORAL, white. There is no part of the world where white coral is produced in such abundance as on the shores of the island of Ceylon, and other of the neighbouring Indian coasts. The lime used in that part of the world, for building houses, fortifications, &c. is all made by burning this coral. It lies in vast banks which are uncovered at low water, and it is spongy and porous. While young, it grows erect, in form of little shrubs, and is then firm and solid, and smooth on the surface; but the branches continually shoot out more, and these other new ones, till the whole is one confused bush. These branches are all covered with a white viscous matter, which, in time, hardens upon them, and becomes coral; and this filling up all the interstices between the branches, when they become so numerous, and hardening between and over them, the whole becomes one coarse rock, and the adjoining masses of this kind united to one another, form at last a continued bank, which has the appearance of a great white rock. Phil. Trans. N° 282. p. 1277. See MADREPERA.

CORAL, fossil. It has been matter of surprize to naturalists, that as red coral is so common in the sea, and is a substance of so firm and durable a nature, it is not frequently found among other remains of the sea productions in the fossil state. This had long puzzled the naturalists, when Agostino Scilla attempted to account for it by some specimens in his own custody. This gentleman, living at Messina, had an opportunity of searching the quarries in the neighbourhood of those seas, where red coral grows in abundance, and whither it might most easily be carried by any inundation. Accordingly he found, among a vast quantity of white coral, some specimens, which doubtless had once been red; and these, though they had in a great measure lost their colour on the outside, yet they retained so much of it within, as plainly shewed that they had once been red; and the whole truth seems to consist in this, that though the substance of the coral is permanent, the colour is not so.

Beside the great variety of corals found in their natural state, in the sea, we find great numbers buried in the earth, and immersed even in the bodies of solid stones, and marble; of these many are the same with the species

now known to us at sea, and many differ from all the known recent ones. The fossil corals are found sometimes nearly in their own natural state; but much more frequently they have their pores filled up with stony particles, so as to seem mere stones. Those which are not reducible to any of the known recent species, are probably the produce of seas and shores yet unsearched. Some naturalists talk of blue, green and yellow corals; and we are apt to despise such accounts, as knowing that all the corals preserved in the cabinets, and found in the works of artists in all nations, are either white or red. Those, indeed, which grow in deep water, are often covered completely over with a coat of a tough, gelatinous matter, resembling glue. This is frequently coloured with those elegant tinges which dye the bottom of the sea in deep water; and they in this state appear, as taken up out of the water, to be blue, green, purple, and the like. But this colour being only in the jelly that covers the substance, is not to be preserved, but if this is rubbed off, the surface goes with it, and leaves the substance itself of its natural colour; and if the whole be attempted to be dried together, the colour vanishes as the moisture evaporates, and the substance, when dried, is found only covered with a dirty yellowish crust. Marfigli, Hist. Phys. de la Mer.

Coral gives title to an officinal composition, called *syrup of coral*, sometimes prescribed by physicians; as is likewise the powder of coral finely ground, and afterwards levigated on a marble, and made up into a proper form. But there are few, except those who are fond of medicines with gems in them, that make use of it. By means of its exceeding hardness, it is suspected to take away with it a great deal of the levigating stone.

Dispensary writers have given us receipts for a great many preparations of coral, as magisteries, tinctures, salts, &c. none of which enter the present practice.

Coral and coralline being the shells of marine animals of the POLYPE kind, possess the same chemical properties as the fresh shells of oysters and other shell-fish, i. e. they are calcareous EARTHS impregnated with some animal principles.

CORAL, artificial, is made of cinnabar well beaten; a layer whereof is applied on a piece of wood well dried, and polished, first moistened with size: the whole is then again polished; and for varnish, rubbed over with the white of an egg. See GROTTA.

CORAL, fishery. The time for fishing coral is from April to July: the places are the Persian Gulf, Red Sea, coasts of Africa towards the Bastion of France, the isles of Majorca and Corsica, and the coasts of Provence and Catalonia.

The method of fishing is nearly the same in all places; that used at the Bastion of France, where there is an established fishery, under the direction of a company at Marseilles, is as follows.

Seven or eight men go in a boat, commanded by the patron or proprietor; the caster throws his net, if we may so call the machine wherewith he uses to tear up the coral from the bottom of the sea; and the other six manage the boat. The net is composed of two beams tied across, with a leaden weight to press them down; to the beams is fastened a great quantity of hemp loosely twisted round, among which they mix some strong nets. In this condition the machine is let down into the sea; and when the coral is pretty strongly embarrassed in the hemp and the nets, they draw it out by a rope; which they unwind according to the depth, and which sometimes requires half a dozen boats to draw. If the rope happen to break, the fishermen are in great danger of drowning. They have two machines one for fishing up the coral where the bottom is smooth; and the other, called in the Provençal language the *salabre*, so constructed as to be employed where the bottom of the sea is rocky and unequal.

Before the fishermen go out, they agree on the price of the coral, which is ordinarily at the rate of 4s. 6d. per pound.

When the fishery is over, which in a season usually amounts to twenty-five quintals of coral each boat, it is divided into thirteen parts; the patron whereof, or master coraller, has four, the caster two, and each of the six companions one: the thirteenth being reserved for the company, &c.

CORALLINES, Corallina, in *Natural History*, were formerly reckoned a genus of plants, and Mr. Tournefort enumerates thirty-six species of them; but in the Linnæan system they belong to the class of zoophytes, and are defined by modern naturalists to be submarine plant-like bodies, that consist of many slender finely divided and jointed branches, resembling some species of moss; or, animals growing in the form of plants, having their stems fixed to other bodies; these stems are composed of

capillary tubes, whose extremities pass through a calcareous crust, and open into the pores on the surface. The branches are often jointed, and always subdivided into smaller branches, which are either loose and unconnected, or joined as if they were glued together. They are distinguished from plants by their texture and hardness: they also yield in distillation a considerable quantity of volatile salt, and their smell, in burning, resembles that of burnt horns and other animal substances. Many of the *corallines* seem to consist of a single tube, containing a single parent animal. Every branch emitted contains an offspring of this parent dependent upon it, and yet capable of producing its like in the emission of a new branch. Others consist of many such tubes united, rising up together, and encircling the deserted tubes of their progenitors whose exuviae become the substratum of a rising generation. Mr. Ellis distributes *corallines* into the *vesiculated*, *tubular*, *celliferous*, and *articulated* kinds.

Vesiculated corallines are distinguished by their horny hollow ramifications; most of them are furnished with little denticles on their branches, like leaves on mosses; and at certain seasons of the year they are furnished with small bodies like bladders, proceeding from their stems and branches, and differing in form according to the different species. Their colour, when dry, is of a yellowish or pale brown, and their nature is elastic. They are found adhering to rocks, shells, and fucuses, by small root-like tubes: they recover their form in water, after having been dried; and when put into vinegar, they cause no effervescence. See *Tab. of Corallines*, fig. 1. *a* which represents the sea-tamarisk in its natural size, and *A* in which the denticles are magnified; fig. 2. *b*, *B* is the sea-cypress; fig. 3. *C d*, *CD* the small climbing *coralline* with well-shaped cups.

Tubular corallines are composed of a number of simple tubes, growing up nearly together; or of such branched ones as have neither denticles nor vesicles. These are horny and elastic like the former, and recover their original form in water. Some of them appear wrinkled like the wind-pipe, and others like the intestines of small animals. See fig. 4. *E*.

Celliferous corallines are those which appear, when magnified, to be fine thin cells, the habitations of small animals connected together, and disposed in a variety of elegant forms like branches. These effervesce with acids. See fig. 5. *f* and *F*.

Articulated corallines consist of short pieces of a stony or cretaceous brittle matter, whose surface is covered with pores or cells, which are joined by a tough membranous, flexible substance, composed of many small tubes of the like nature, compacted together. The stony part is soluble in vinegar, and the other part remains entire. See *Tab. II. of Corallines*, fig. 1.

See the description and drawings of a great variety of species belonging to each class, in Ellis's *Nat. Hist.* above cited. Besides these, he enumerates other genera of marine productions; as the *KERATOPHYTA*, *ESCARA*, *SPONGES*, and *ALCYONIUM*; all which are the nests or matrices of sea animals. See *POLYPE*. The last class of marine bodies is formed like funguses of various figures, and with different sorts of coverings; some having a gritty, and some a callous skin, with a spongy substance in the inside: other species are of a fleshy substance.

Mr. Ellis intimates, that the more compact bodies, such as star-stones, brain-stones, petrified fungi, and the like, may be produced in the same manner with the substances above described: in favour of which conjecture he observes, that all the warmer latitudes near the shores abound so much with animal life, that no inanimate body can long remain unoccupied by some species.

The ancients have said great things of the virtues of the common *coralline*. Dioscorides prescribes it for mitigating the pain of the gout, and for preventing stagnations of the humours in any part; he says nothing of its virtues against worms, which are what we alone esteem it for. We give it in powder from ten grains to a scruple or half a dram twice a day in these cases, and that with considerable good effect. Geoffroy, *Mat. Med.* vol. ii. p. 238.

CORALLINUM arcanum. See *ARCANUM*.

CORALLO-ACHATES, in the *Natural History of the Ancients*, the name of a very beautiful species of agate, found at this time in the East Indies, but not in any plenty. It is very hard, and capable of a fine polish; and, when wrought, is an extremely elegant stone.

CORALLODENDRON, *erythrina*, *coral-wood*, in *Botany*, the name of a genus of trees, of the *diadelphia decandria* class; the characters of which are these: the flower is of the butterfly kind, composed of five petals; the standard is spear-shaped, long, and rises upward; the two wings are scarce longer than the empalement; the keel is composed of two petals, which are longer than the wings; it hath ten stamina, which are joined below, and unequal in their length; with an awl-shaped ger-

men which afterward becomes a long swelling pod ending in an acute point, having one cell filled with kidney-shaped seeds. There are six species, natives of the warm parts of America.

These plants, when they produce their flowers, are some of the greatest ornaments of the stove; for their flowers are produced in large spikes, and are of a beautiful scarlet; but they do not often flower in the northern parts of Europe. Miller.

The inhabitants of Malabar make sheaths of the wood, for swords and knives. They use the same, together with the bark, in washing a sort of garments which they call *saraffas*; and make of the flowers, the confection *caryl*. The leaves pulverised and boiled with the mature *nux Indica*, or cocoa-nut, consume venereal buboes, and ease pains in the bones; bruised and applied to the temples, they cure the cephalæa, and ulcers: mixed with the sugar called *jagra*, they mitigate pains in the belly, especially in women; and the same effect follows from the use of the bark levigated with vinegar, or swallowing the kernel stripped of its red pellicle. The juice of the leaves taken with oil *sergelim*, mitigates venereal pains; drank with an infusion of rice, it stops fluxes; made into a cataplasm with the leaves of *beteleira*, it destroys worms in old ulcers; and worked with oil, it cures the psora and itching. Ray.

CORALLOFUNGUS, in *Botany*, the name by which Vaillant has called the *CLAVARIA*, a genus of fungus, growing erect, and having every where one even and uniform substance. This is called *fungoides* by others.

CORALLOIDE marble. See *Coralloide MARBLE*.

CORALLOIDES, in *Botany*, a term used by Mr. Tournefort to express a genus of mushrooms; the distinguishing characters of which are, that they are of a fleshy fungose texture, and are branched in the manner of coral.

The species of *coralloides* enumerated by Mr. Tournefort, are nineteen. *Tourn. Inst.* p. 564. See *CLAVARIA*. Their virtues in medicine are not much celebrated; they are said, however, to be strengthening and astringent.

CORALLOIDES is also used in a different sense. Bauhine and Chabræus have made it the name of the great *dentaria heptaphyllas*; and Dillenius, that of a whole genus of the dry leafless mosses. It is the *lichen* of Linnæus. See *LIVER-wort*, and *Tab. XIII. Botany*, N° 5.

It is also a name given by many authors to the *fossile CORALS*. See *KERATOPHYTA*.

CORALLORHIZA, in *Botany*, a name given by Ruppius to the plant called by Linnæus *neottia*, and by others *nidus avis*.

CORALLUM, in *Mineralogy*, a name given by some of the writers on these subjects to the common *PYRITES*.

CORAM non Judice, in *Law*, is when a cause is brought into a court whereof the judges have no jurisdiction.

CORANA, or *Nai CORANA*, the name of a peculiar sort of *phaseolus*, or kidney bean, the down of the pod of which is the couhage, or as it is commonly called, cowitch.

CORANTO, *courant*, French; *corrente*, Italian; and *cur-reus saltatio*, Latin; is a melody or air consisting of three crotches in a bar, but moving by quavers, in the measure of $\frac{3}{4}$, with two strains, each beginning with an odd quaver. The number of bars is no otherwise determinate than that it is a multiple of 8. Of dance tunes this is the most solemn.

CORAX piscis, the *crow-fish*, in *Ichthyology*, the name of a fish of the *cuculus* kind, and much approaching to the swallow-fish in shape and figure. The bones which cover the gills in this fish, all terminate in sharp thorns. See *FLYING-fish*.

CORBAN, a Scripture term, signifying an oblation, or offering, to God on the altar.

CORBAN also denotes a ceremony in use among the Mahometans, yearly performed at the foot of mount Ararat in Arabia, near Mecca. It consists in slaying a great number of sheep, and distributing them among the poor.

CORBEIL, in *Natural History*, the name of a curious species of *CHAMA*. It is of the larger kind, and is deeply striated, both longitudinally and transversely; so that it has a sort of reticulated surface, like basket-work.

CORBEILS, in *Fortification*, little baskets, about a foot and a half high, eight inches wide at the bottom, and twelve at the top; which being filled with earth, are frequently set one against another upon the parapet, or elsewhere; leaving certain port-holes, from whence to fire upon the enemy under covert, without being seen by them.

CORBEL, in *Architecture*, the representation of a basket, sometimes seen on the heads of caryatides.

The word is also used for the vase, or tambour, of the Corinthian column; so called from its resemblance of a basket, or because it was first formed on the model of a basket.

CORBEL, or *CORBIL*, is also used, in *Building*, for a short piece of timber placed in a wall, with its end sticking out

out six or eight inches, as occasion serves, in manner of a shoulder-piece. The under-part of the end, thus sticking out, is sometimes cut into the form of a bouldin; sometimes of an ogee, and sometimes of a face, &c. according to the workman's fancy; the upper side being plain and flat. See *Tab. Architecture*, fig. 19.

These *corbels* are usually placed for strength immediately under the semi-girders of a platform, and sometimes under the ends of chamber-beams: in which latter case, they are commonly placed a foot or two below the beam, and have a piece of timber standing upright close to the wall from the *corbel* to the beam.

CORBEL is also used by some architects for a niche, or hollow, left in walls for images, figures, or statues to stand in.

CORBETT, in *Architecture*, is used by some, as Harris, in his *Lexicon*, for **CORBEL**.

CORCELET, in *Natural History*, that part of the fly class which is analogous in its situation to the breast in other animals. Many have called it the breast in these also, but improperly; because the breast of other animals is the place of the lungs and *trachea*; but these organs are in the fly class distributed through the whole body. The wings are affixed to this part of the fly class: and there are some distinctions of great consequence in regard to the arrangement and distribution of those animals into genera. Reaumur's *Hist. Insect.* tom. iv. p. 126.

CORCHORUS, in *Botany*. See *Jew's MALLOW*.

CORCULUS, the *little heart*, in *Natural History*, a name given by authors to a small species of *cordiformis*, or *HEART-shell*, of a rose colour.

CORD, or **CHORD**, an assemblage of several threads of hemp, cabled or twisted together by means of a wheel.

The word comes from *χορδῆ*, which properly signifies an intestine, or gut, whereof *cords* may be made.

CORD of St. Francis, a kind of rope adorned with knots, worn by the brothers of the fraternity instituted in honour of that saint.

Some, as the Cordeliers, Capuchins, Minorites, and Recolets, wear it white; others, as the Pique-puces, black. Its design is to commemorate the bonds wherewith Jesus Christ was bound.

CORD, the *society of the*, includes a great number of people besides religious. To obtain indulgences, they are only obliged to say five Paters, Ave Marias and Gloria Patri's, and to wear this rope, which must have been first blessed by the superiors of the order.

CORD of wood, a certain quantity of wood for burning; so called, because formerly measured with a *cord*.

It is now measured between two stakes of wood, four feet high, and eight feet apart; and is to be four feet broad, or deep.

CORD-wood is properly new wood; and such as, when brought by water, comes aboard a vessel; in opposition to that which is floated. All burning wood, not exceeding eighteen inches circumference, is deemed *cord-wood*.

CORD, in *Geometry*, *Music*, &c. See **CHORD**, and **STRING**.

CORD, *magical*, an instrument in great use among the Laplanders, and supposed to be of great virtues among them.

It is a *cord* or rope, with three knots tied in it. They use many magical rites and ceremonies in the preparing and tying this *cord*; and when thus prepared, it is supposed to have power over the winds; and they will sell, by means of it, a good wind, or at least a promise of one, to a ship. If they untie only one of these knots, a moderate gale is to succeed; if two, it is to be much stronger; and if three, there is to be a storm.

CORD, *umbilical*. See **UMBILICALIS funiculus**.

CORDAGE, in the *Sea Language*, is used in general for all the *ROPES* and *cords*, big and small, used in the *RIGGING* and fitting out of a vessel. See **CABLE**.

The word is also used for the art of preparing and manufacturing the ropes, &c.

The *cordage* is said to be *baked*, when, having passed a stove, or other hot place, it is drained of all its moisture.

White cordage is that not yet pitched. *Cordage pitched in the stove*, is that which is passed through hot pitch as it comes out of the stove. Each quintal of *cordage* may take up about twenty pounds of pitch. The *cordage* is sometimes pitched in the thread.

When a rope is said to be of *six inches*, it is understood of six inches around, or in circumference.

The number of ropes required in fitting out a vessel is almost inconceivable; each has its particular name and use. The commerce of *cordage* is very considerable at Amsterdam: that made of Coningsberg hemp is valued at 20 per cent. more than that of Muscovy hemp. They are sold by weight.

The Spaniards make a kind of shoes of *cordage*, which they call *alpargates*, whereof they use great quantities at home, and yet drive a very considerable commerce to the Indies; so as to send away whole ship-loads thereof. The Indians make their *cordage* of the bark of cocoas, maguay, and other trees.

As to the strength of ropes, or *cordage*, Mr. Reaumur takes occasion, in the *Memoirs of the Royal Academy*, to consider the question, whether a rope composed of several twists, or strands, interwoven; v. gr. ten, have more strength to sustain a weight, than the ten twists would have separately, placed parallel over one another; or, which is the same thing, whether, if each twist be capable of sustaining the weight of a pound, the whole *cord* be able to sustain more than ten?

On the one hand, 1. By virtue of the twisting, the diameter of the rope is made larger than are those of the ten twists together; but it is apparently by its thickness that a rope sustains a weight, or resists a fracture. 2. Twisted strands have not all, as when parallel, a vertical direction with regard to the weight; several of them, and even the greatest part, have oblique directions, and of consequence do not bear all the share of the burden they would otherways bear. In effect, they are inclined planes that are only pressed with a part of the load.

Hence it would follow, that the surplus of the strength of the twists might be employed in raising a larger weight.

On the other hand, it is true, that, in twisting the strands, some are stretched, and others left more loose; and the new tension given the former, serves to weaken them, and has of itself the effect of a weight: thus they become less able to sustain one so large. Those more lax, on the contrary, evade, in some measure, the action of weight: for the action is distributed equally on the ten supposedly equal twists; and if some, by reason of their particular disposition, receive less than their quota, the weight will act more forcibly on the rest, and will break them first, as being more tense; after which, it will easily dispatch the rest, as not being in sufficient number to oppose it.

This is the sum of what can be urged for and against the twisting: to decide between them, Mr. Reaumur had recourse to experiment. The result was, that, contrary to all expectation, he still found the twisting diminished the strength of the rope: whence it is easily inferred, that it diminishes it the more, as the rope is the thicker. For inasmuch as the twisting diminishes; the more twisting, the more diminution.

The resistance or friction of *cordage* is very considerable; and by all means to be considered in calculating the power of machines. M. Amontons observes, in the *Memoirs of the Royal Academy*, that a rope is so much the more difficult to bend, 1. As it is stiffer, and more stretched by the weight it draws. 2. As it is thicker; and, 3. As it is to be more bent; i. e. as it is to be coiled for instance, into a smaller ring.

The same author has thought of ways to prove, in what proportion these different resistances increase: that arising from the stiffness or rigidity occasioned by the weight which draws the rope, increases in proportion to the weight; and that arising from its thickness, in proportion to the diameter. Lastly, That arising from the smallness of the gyres, or pulleys, about which it is to be wound, is indeed greater for smaller circumferences than large ones, but does not increase so much as in the proportion of those circumferences.

On this footing, the loss a machine sustains by the *cordage*, being estimated in pounds, becomes, as it were, a new weight, to be added to that which the machine is to raise. This augmentation of weight will render the *cords* still the more stiff; which excess is to be computed as before.

Thus we shall have several sums still decreasing; which are to be added together, as in the article of friction: and it will be surprising to see what a sum they will amount to. See **FRICTION**.

Where ropes are used in a machine, all the resistance resulting from their stiffness is to be put together; and all that occasioned by the friction; which will make so considerable an augmentation to the difficulty of the motion, that a power which to raise a weight of 3000 pounds, by means of a fixed and moveable pulley, needed only 1500 pounds, must, according to M. Amontons, have 3942 pounds, on account of the frictions and the resistance of the *cordage*.

CORDATED leaf, among *Botanists*. See **LEAF**.

CORDAX, in *Antiquity*, a gay sort of **DANCE**.

CORDED, in *Heraldry*. A cross **CORDED**, some take for a cross wound or wrenched about with *cords*: though others, with more probability, take it for a cross made of two pieces of *cord*.

CORDELIER, a Franciscan, or religious of the order of St. Francis.

The *Cordeliers* are clothed in thick grey cloth, with a little cowl, a chaperon, and cloak, of the same; having a girdle of rope, or **CORD**, tied with three knots: whence the name.

The *Cordeliers* are otherwise called *Minor Friars*, their original

original name. The denomination *Cordelier* is said to have been first given them in the war of St. Louis against the Infidels; wherein the *Friars Minor* having repulsed the Barabians, and that king have enquired their name, it was answered, they were people *cordeliers*, tied with ropes. The *Cordeliers* are, to a man, professed SCOTISTS.

CORDIA, in *Botany*, the name by which Linnæus and Plumier have called a genus of plants of the *pentandria monogynia* class, called *sebestena* by Dillenius in his *Hortus Elthamensis*. The characters are these: the flower hath one funnel-shaped petal, whose tube is the length of the empalement; the top is divided into four, five, or six parts. It has five stamina, and in the centre a roundish pointed germen, which afterward becomes a dry berry, which is globular and pointed, fastened to the empalement, enclosing a furrowed nut with two cells. There are three species; which being natives of warm countries, are too tender to live through the winter in England, unless preserved in a stove. A small piece of the wood of the tree, being put on a pan of lighted coals, will send forth a most agreeable odour, which will perfume a whole house. Miller's Gard. Dict.

The fruit is accounted cooling and moistening; useful against sharp thin defluxions upon the lungs, helping coughs and catarrhs, and taking off the heat of urine. Miller.

As in figure, so in virtue, they resemble damsons.

CORDIAL, *Cardiac*, in *Medicine*, a comforting, or refreshing remedy, that gives a sudden strength, and cheerfulness, by raising the spirits when depressed by too much exercise, some disease, or the like cause.

Cordials act by giving a springiness and force to the fibres, and by some of their fine particles directly entering the tubuli, or pores, of the nerves and minute vessels, and so mixing immediately with the fluids.

Thus, some of the particles of the spirit of lavender when dropped into fugar, and taken, are supposed to enter the nerves of the palate directly. Spirituous liquors, as brandy, cinnamon-water, &c. are supposed also to act immediately on the palate; but especially on the nervous coat of the stomach, and not by the common current of the circulation: by which means they often prove an immediate *cordial*.

In faintings, where the circulation of the blood is languid, sal volatile oleosum, or spirit of hartshorn, dropt in cold water, and drank immediately, occasion a contraction of the fibrillæ, the last by its coldness, and the first by entering the small vessels; and thus they instantly augment the circulation, or, in other words, prove *cordial*. In officinal compositions, the four *cordial* flowers are, burrage, bugloss, roses, and violets. The four *cordial* waters, are, those of burrage, bugloss, endive, and chicory; some add, those of *carduus benedictus* and scorzonera, scabiosa, sorrel, &c. See **CARDIAC**.

Cordial waters. See **Compound WATERS**.

CORDIFORMES, *conchæ*. See **HEART-SHELLS**.

CORDIS, *Capsula*, *Fovea*, *Mucro*, *Septum*. See **CAPSULA**, **FOVEA**, **MUCRO**, **SEPTUM**.

CORDON, in *Fortification*, a row of stones jutting out between the rampart and the basis of the parapet, like the tore of a column. The *cordons* range round the whole fortrefs, and serves to join the rampart, which is aslope, and the parapet, which is perpendicular, more agreeably together.

In fortifications raised of earth, this space is filled up with pointed stakes, instead of a *cordons*.

CORDWAINERS, or **CORDINERS**, the term whereby the statutes denominate *shoe-makers*.

The word is formed from the French *cordonnier*, which Menage derives from *cordouan*, a kind of leather brought from *Cordoua*, whereof they formerly made the upper-leathers of their shoes. Others derive it from *corde*, *rope*, because anciently shoes were made of cords; as they still are in some parts of Spain, under the name of *alpargates*. See **CORDAGE**. But the former etymology is better warranted: for, in effect, the French workmen who prepared the *cordouans* are still called *cordouanniers*.

In Paris they have two pious societies, under the titles of *Freres Cordonniers*, *Brothers Shoemakers*, established by authority towards the middle of the seventeenth century; the one under the protection of St. Crispin, the other of St. Crispianus, two saints who had formerly honoured the profession. They live in community, and under fixed statutes and officers; by which they are directed both in their spiritual and secular concerns. The produce of their shoes goes into a common stock, to furnish necessaries for their support; the rest to be distributed among the poor.

By stat. 1 Jac. I. c. 22. the masters and wardens of the *cordwainers* company in London are to appoint searchers and triers of leather; and leather is not to be sold before it is searched and sealed.

CORDYLA, or **CORDYLUS**, in *Ichthyology*, a name by which some authors call the *thynnus* or *TUNNY-fish*, while young and small. Willoughby.

CORDYLUS, in *Zoology*, the name of a species of lizard, called also *uromastyx* and *caudi-verba*. It is larger than the green lizard. Its tail is rounded, and is divided into a number of circles covered with scales, which coat them over, and cover the whole tail like the tiling of the roof of a house. Ray.

CORE, a disorder incident to sheep, occasioned by worms in their liver, resembling a plaice or flounder.

CORED herrings. See **HERRINGS**.

COREGONUS, in *Ichthyology*, the name of a genus of fishes of the malacopterygious, or soft-finned kind; the characters of which are these: the branchiostege membrane on each side contains seven, eight, nine, or ten bones; the *pinna dorsæ* is placed nearer the snout than the ventral fins are; the teeth are so small, that in several of the species they are scarce discernible.

The species of this genus, enumerated by Artedi, are four.

The name *coregonus* is formed of *κορη*, the pupil of the eye, and *γωνια*, an angle or corner; and is given it from the singular structure of this part of the eye, the pupil in this fish running out into an acute angular corner in the anterior part, and this regularly in all the species.

COREIA, in *Antiquity*, a festival in honour of Proserpine, named *Core*, *Κορη*, which in the Molossian dialect signifies a beautiful woman.

COREOPSIS, in *Botany*, *tickseed*; a genus of the *syngenesia polygamia frustranea* class. Its characters are these: the common empalement of the flower is double; the disk is composed of many hermaphrodite florets, which are tubular; these have each five hairy stamina; in their centre is situated a compressed germen with two horns, which afterward becomes a single orbicular seed. The border or rays is composed of eight female florets, which are tongue-shaped, indented in five parts: these have no stamina, but a germen like the other, and are abortive. There are five species, natives of North America. Miller.

CORETT, in *Ichthyology*, the name of a large East Indian fish of the *TUNNY* kind, and suspected to be no other than the common tunny. It grows to six or seven feet long. Its eyes are large, and their irises yellow; its tail is broad and forked, and in colour of a yellowish green; its belly-fins are yellowish, and its belly of a fine bright glossy blue, with a silvery cast. It is generally caught with hooks, and is a very fine tasted fish. Ray.

CORIANDER, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these: it is a plant with an umbellated flower, the proper empalement of which is divided into five parts; the rays of the principal umbel are difform. The hermaphrodite flowers which form the disk, have five equal heart-shaped petals, and have each five stamina. The germen which is situated under the flower, afterward becomes a spherical fruit divided into two parts, each having a hemispherical concave seed. There are two species; the first of which is the common kind, which is cultivated in the European gardens and fields for the seed, which is used in medicine: the second is seldom found but in botanic gardens in these parts of Europe. They both grow naturally in the southern parts of Europe.

This plant, while green, has a nauseous disagreeable smell, like bugs: but the seed, when dry, smells gratefully. It is reckoned strengthening to the stomach, and carminative; and therefore frequently used with purging medicines. Matthioli says it is antiseptic. *Coriander* seeds have also a great acrimony, when fresh gathered which they lose with time.

It is much used by the brewers, both in England and Holland, to give a flavour to their strongest beer. The ancients had a notion, that the juice of *coriander* would deprive people of their senses, and even of life.

CORIARA, in *Botany*. See *Myrtle-leaved SUMACH*.

CORICEUM, in *Antiquity*, the undressing-room belonging to the GYMNASIUM.

CORIDOR, or **CORRIDOR**, in *Fortification*, a road, or way, along the edge of the ditch, without-side: encompassing the whole fortification.

The word comes from the Italian *coridore*, or the Spanish *coridor*.

It is called the **COVERT-way**; because covered with a glacis, or esplanade, serving it as a parapet. The *coridor* is about twenty yards broad.

CORIDOR, is also used, in *Architecture*, for a gallery, or long isle, around a building leading to several chambers at a distance from each other, sometimes wholly inclosed, and sometimes open on one side.

CORINDUM, or **CARDIOSPERMUM**, in *Botany*. See **Heart-PEA**.

CORIN-

CORINTHIAN order, the fourth, or, as Scamozzi and M. Le Clerc make it, the fifth, and last, of the orders of ARCHITECTURE. See *Tab. Archit. fig. 27*.

The invention of this order most of the moderns, after Vitruvius, ascribe to Callimachus, a Corinthian sculptor. See ACANTHUS, and COLUMN.

Villalpandus will have the Corinthian capital to have taken its origin from an order in Solomon's Temple, the leaves whereof were those of the palm-tree.

The Corinthian order has several characters, whereby it is distinguished from the rest: its capital is adorned with two rows of leaves, between which rise little stalks, or caulicoles, whereof the volutes are formed which support the ABACUS, and which are in number sixteen.

It has no ovolo, nor even abacus, properly speaking; for the member which goes by that name, is quite different from the abacus in other orders; being cut with a sweep, in the middle of which is carved a rose, or other ornament.

Vitruvius observes, that the Corinthian order has no particular ordonnance for its cornice, or any of the other ornaments of its entablature; nor does he give it any other proportions than those of the Ionic order: so that if it appears higher than the Ionic, it is purely owing to the excess of the height of its capital.

He also makes the rest of the entablature the same; and the Attic base he uses indifferently for the one and the other.

But Vitruvius differs widely, in this order, from all the examples now remaining of antiquity; the most beautiful whereof have a particular base, and the whole order twenty modules in height; whereas the Ionic has but eighteen. Again, its capital is higher than that of Vitruvius by one third of a module; and its entablature, which has modillions, and sometimes dentils, together with modillions, is very different from the Ionic entablature.

Most of the modern architects set aside Vitruvius's Corinthian ordonnance, and follow that of the ancient buildings; selecting from them according to their several tastes: so that the modern Corinthian is a kind of composite; differing from any of the ancient buildings, and much more from Vitruvius's rules.

Vignola and M. Le Clerc make the Corinthian order 20 modules high; yet Serlio only makes it 18, and M. Perrault 18½; retrenching something from the 19 of Vitruvius.

The height of the shaft M. Perrault makes less than that of the Ionic, by reason of the excess of its capital.

CORINTHIAN brass. See *Æs Corinthian*.

CORION, in Botany, a name given by some authors to the plant which produces the coriander seeds, used in the shops.

CORIS, in Botany, *Heathblow Pine*, a genus of the *pentandria monogynia* class. Its characters are these: the flower hath one ringent petal, whose tube is the length of the empalement; it is spread open at the top, where it is divided into five oblong segments, and hath five bristly stamina. In the centre is situated a round germen; the empalement afterward becomes a globular capsule, having five valves, enclosing several small oval seeds. We have but one species, which grows in the south of France. Other botanists have given the name of *coris* to the bastard St. John's wort.

CORIS is also used in the East-Indies for a kind of shells which pass for money. See BIA.

CORISPERMUM, in Botany, a genus of the *monandria digynia* class. This plant, as well as *coreopsis*, is by Miller called tick-feed. Its characters are these: the flower hath no empalement, but two impressed incurved petals; it hath one, two, or three stamina, and a compressed pointed germen, which afterward becomes one oval compressed seed, with an acute border. There are two species.

CORIZIOLA, in the *Materia Medica*, is a name given by some authors, particularly by Rhasis, to the SCAMONY.

CORK, the bark of a tree of the same name, a species of the *holm oak*.

Its leaves are green above, and white underneath; and its fruit a real acorn, which seeds much more than that of the oak. It is found in great abundance in Spain, Italy, France, &c.

To take off the bark they make an incision from the top to the bottom of the tree, and at each extremity another round the tree, perpendicular to the first. When stripped from the tree, which does not therefore die, the bark is piled up in a pond, or ditch, and laden with heavy stones to flatten it, and reduce it into tables: hence it is taken to be dried; and when sufficiently dry, put in bales for carriage. If care be not taken to strip the bark, it splits and peels off itself; being pushed up by another bark formed underneath.

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The bark of *cork*, as well as the acorn, are of some use in medicine; being both reputed astringents, after being burnt and powdered when used externally; but the chief employ of the former is, to put in shoes, slippers, &c. and to stop bottles. The Spaniards burn it to make that kind of light black we call *Spanish black*, used by painters. Cups made of *cork*, are said by some to be good for hecatical persons to drink out of. The Egyptians made coffins of *cork*; which being lined with a resinous composition, preserved dead bodies uncorrupted. The Spaniards line stone-walls with it, which not only renders them very warm, but corrects the moisture of the air. The wood of the *cork-tree* is not only good for firing, but applicable to several other uses.

Besides the bark of a tree of the OAK kind, which grows in the southern parts of Europe, commonly called *cork*, there is what naturalists call *fossil cork*, or *suber montanum*. This is a sort of stone of the AMIANTHUS kind, the lightest of all stones. It is fusible by fire, and forms a black glass.

CORK, or **CORKING** of a saddle, are pieces of wood upon which the bolsters are made fast.

This part of the saddle was formerly made of *cork*, whence it still retains the name.

COR-MAS, the name of a grand procession, said to have been established at Dunkirk during the dominion of Charles V. and renewed on St. John's day, the twenty-fourth of June. After the celebration of high mass, the procession, consisting of the several tradesmen of the town, begins. Each person has a burning taper of wax in his hand; and after each company comes a pageant, followed by the patron-saint, usually of solid silver, richly wrought and adorned. The companies are followed by music; and after the musicians, the friars, in the habits of their order, the secular priests, and then the abbot magnificently adorned, and preceded by the host. Machines likewise of various fantastical forms and devices, and as variously accoutred, form a part of the shew on this occasion; which is described as one of the most superb and magnificent in the world, by an eye-witness, in 1755. *Gent. Mag. vol. xxix. p. 263.*

CORMORANT, in Ornithology, a large sea-bird, of the order of the *anser*, or goose kind, called by authors *CORVUS aquaticus*, or the *sea-RAVEN*. Our SHAGG is a true species of this bird.

CORN, a genus of plants, which produce a grain in an ear fit for bread, the ordinary food of man.

CORN is also used for the grain, or seed, of that plant separated from the spica, or ear.

In the commerce of grain, they distinguish three kinds; viz. *corn* properly so called, or WHEAT; RYE, which is a species very different, and of a quality far inferior; and a third kind resulting from a mixture of the two, and called *maslin*.

The farmers, indeed, rank among the number of *corns* several other grains; as barley, oats, and even pulse; as peas, vetches, &c. which, however, they sometimes distinguish by the denomination, *smaller corn*. Maize and farrasin are numbered among the *corns*; the first called *Turkey* and *Indian corn*, the second *French*, or *black corn*. See Buck-WHEAT.

Europe, in every part of it; Egypt, and some other cantons of Africa, particularly the coasts of Barbary; and some parts of America, cultivated by the Europeans, particularly New England, New France, and Acadia, are the places which produce *corn*. Other countries have maize and rice, in lieu of it; and some parts of America, both in the islands and continents, simple roots, such as potatoes, and manioc.

Egypt was anciently the most fertile of all countries in *corn*; as appears both from sacred and profane history. It furnished a good part of the people subject to the Roman empire, and was called the dry nurse of Rome and Italy. England, France, and Poland, seem now in the place of Egypt, and with their superfluities support a good part of Europe.

For the first discovery and culture of *corn*, authors are much divided: the common opinion is, that in the first ages men lived on the spontaneous fruits of the earth; as acorns, and the nut, or mast, produced by the beech; which, they say, took its name, *fagus*, from the Greek *φάγω*, *I eat*. It is added, that they had not either the use of *corn*, nor the art of preparing, or making it eatable. See BAKING.

Ceres has the credit of being the first that shewed the use of *corn*, on which account she was placed among the gods; others give the honour to Triptolemus; others share it between the two, making Ceres the first discoverer, and Triptolemus the first planter and cultivator of *corn*.

Diodorus Siculus ascribes the whole to Isis; in which Polydore Virgil observes, he does not differ from the rest; Isis and Ceres being, in reality, the same. The Athenians

nians pretend, it was among them the art began; and the Cretans, or Candiots, Sicilians, and Egyptians, lay claim to the same. Some think the title of the Sicilians best supported, that being the country of Ceres: and authors add, she did not teach the secret to the Athenians, till she had first instructed her own countrymen. Others say, Ceres passed first into Attica, thence into Crete, and, last of all, into Sicily: many of the learned, however, maintain, it was in Egypt the art of cultivating corn first began; and it is certain, there was corn in Egypt and the East, long before the time of Ceres.

The great business of the farmer is to produce the largest crops he can, and, at the same time, to injure his land the least. The common way of sowing exhausts the whole land, without giving half the nourishment that it might give the corn. Instead of the scattering way of sowing corn by the hand, if it be let in with the drill, in single, double, treble, or quadruple rows, and an interval of five feet of naked ground be left between these series of rows, the use of horse-hoeing in these intervals will be found to give all that the farmer requires: the crop will be larger, though so great a quantity of ground is left vacant, than if all were sown over, as the plants will stand vastly thicker in the rows, and will have twenty or thirty stalks a-piece; and the more the successive crops are planted, and the oftener the ground is hoed in this manner, the better will the plants be maintained, and every crop will be larger and larger from the same ground, without dunging, or without changing the sort of plant, as is usually necessary in other cases. See HUSBANDRY, and INTERVAL.

This is very evident in several parts of the same field, where this sort of husbandry has been entered upon at different times, and some have a first crop, others a second, and others a third, all growing up at the same time, the older worked land always invariably shewing the best crop. Dunging and fallowing are both necessary to recover the land to its virtue, in the common way, after a few crops. These are both of them expences to the farmer; but the horse-hoeing, when the corn is sown in rows, answers all the intent of them, and is much less expensive. It has, in short, every year, the good effect of a summer fallow, though it every year produces a good crop, and no time, or use of it, is lost to the farmer.

For the preservation of corn: it must be well dried and cleaned; the granary must have its openings to the north or east, and vent-holes a-top: for the first six months it must be well stirred every fifteen days; afterwards it will be sufficient to sift it once per month: after two years it heats no more; nor is there any thing to fear, but from the air and foreign moisture.

A little time after the siege of Metz, under Henry II. of France, in the year 1578, the duke d'Espèron laid up vast stores of corn in the citadel; which was preserved in good plight to the year 1707, when the French king and his retinue, passing that way, ate bread baked thereof.

The chief thing that contributes to the preservation of corn is, a crust which forms on its surface, by the germination of the grain next underneath, to the thickness of an inch and a half. On that at Metz people walked, without its giving the least way. At Sedan was a granary cut in a rock, wherein a heap of corn was preserved a hundred and ten years: it was covered with a crust a foot thick. At Chalons they have granaries where they still keep corn thirty or forty years: over the heap they strew quicklime, in fine dust, to the thickness of three inches, and sprinkle this over with water; whence arises a crust. The grain near the surface sprouts to the height of a foot and a half: these the winter kills; and the heap is left untouched, till necessity obliges them to it. See GRANARY.

No corn was formerly to be transported, without the king's licence, except for the victualling of ships, and in some special cases, from some ports only: and none may buy corn to sell again, without licence from justices, &c. Stat. 5 Eliz. cap. 12. But now corn, as wheat, barley, oats, &c. may be transported to states in amity, when they exceed not certain prices; viz. wheat 40s. the quarter; barley, 24s. oats 16s. &c. by many statutes; and the exporters of it shall pay no duty or custom, but be entitled to bounty-money, or a certain allowance for exportation; viz. 5s. for every quarter of wheat, 2s. 6d. for barley, &c. 3 Car. I. 12, 15, and 22 Car. II. 2 W. and M. &c. The transportation of corn to foreign parts was prohibited by 8 Anne, cap. 2. See stat. 2. Geo. II. cap. 18. A custom duty is granted on foreign corn imported, to be paid according to the price of English corn; and no foreign corn shall be transported from one port of Great Britain to another, on pain of forfeiture; and 20s. a bushel. Stat. 5 Geo. II. cap. 12.

See also 11 Geo. II. cap. 22. See HORDEUM, OATS, WHEAT, &c.

CORN-butterfly. See PAPILIO.

CORN-flag, in Botany. See FLAG.

CORN, Indian. See MAIZE.

CORN-measure. See MEASURE.

CORN-mill. See MILL.

CORN-rents, in Law, denote those third parts of the old rents on college leases, which were to be reserved by the lessees. Stat. 18 Eliz. cap. 6. These were the invention of lord-treasurer Burleigh, &c. for upholding the revenues of colleges.

CORN, sharpening. See SHARPING.

CORN, trug. See TRUG-corn.

CORN-bottle, or BLUE-bottle, in Botany. See CENTAURY.

CORN-marygold. See Corn MARYGOLD.

CORN-parsley. See SKIRRET.

CORN-rocket. See BUNIAS.

CORN-fallad, a species of the valerian. See VALERIAN.

CORN-violet. See CAMPANULA.

CORN, in Medicine and Surgery. See CLAVUS.

CORNACHINE powder, a purging powder, called also Earl of Warwick's powder, and pulvis de tribus.

It is composed of equal parts of antimonium diaphoreticum, diagyrium, and cream of tartar.

CORNAGE, an ancient TENURE, the SERVICE whereof was to blow a horn, when any invasion of the Scots was perceived.

This tenure was very frequent in the northern counties, near the Picts and the Roman walls; but by stat. 12 Car. II. all tenures are converted into free and common socage. An old rental calls cornage, newtgeldt, q. d. neat-geld. Lord Coke says, in old books, it is called HORNGELD.

CORNARISTS, in Ecclesiastical History, the disciples of Theodore Cornbert, an enthusiastic secretary of the states of Holland. He writ at the same time against the Catholics, Lutherans, and Calvinists. He maintained that every religious communion needed reformation; but he added, that no person had a right to engage in accomplishing it, without a mission supported by miracles. He was also of opinion, that a person might be a good Christian, without being a member of any visible church. Encyclop.

CORNEA tunica, in Anatomy, the second coat of the EYE; so called from its substance resembling the horn of a lantern, in Latin cornu.

It is situated in the fore-part; and is surrounded by the SCLEROTICA. It has a greater convexity than the rest of the globe of the eye, forming, according to M. Petit, a portion of a sphere, whose diameter is usually 7, $7\frac{1}{4}$, or $7\frac{1}{2}$ lines; its chord 5, $5\frac{1}{4}$, or $5\frac{1}{2}$ lines, and its thickness $\frac{1}{12}$ or $\frac{1}{10}$, of a line. Others have given it the figure of the vertical part of a parabolic or hyperbolic spheroid. It is composed of several parallel laminæ, which are nourished by many blood-vessels, so fine, as not to hinder even the smallest rays of light from entering the eye. It has a most exquisite sense, to the end that, upon the least pain, the tears may be squeezed out of the lachrymal gland, to wash off any filth, which, by sticking to the cornea, might render it cloudy and dim.

It is sometimes necessary to make incisions through this tunic, in order to discharge not only matter, but even blood, when extravasated by external injuries, if it will not give way to the common methods of dispersion, to prevent the stagnant blood from suppurating and destroying the eye. There have been instances when this has been done with great success, and without any deforming cicatrix, the sight having been also perfectly restored by it. Heister's Surgery, p. 427.

CORNELIAN, or CORNELIAN, CARNEOLUS, a precious stone, ordinarily red, bordering on orange; called also sardius, or the sardian stone.

The cornelian is otherwise called carneola and corneola: the Italians call it corniolis; it is said, from cornu, horn; on account of the resemblance it bears to horn in its transparency.

The characters are, that they are semi-pellucid stones, composed of crystal with a small admixture of earth, of a plain uniform structure, not tubulated nor crusted, and usually of one simple colour.

Of this genus there are three species. 1. The red cornelian, which is a very common stone among our jewellers, and is of all the degrees of red, from a deep blood-colour, to that of the water in which raw flesh has been soaked; and this last, if any can be called so, is its proper colour. It is usually found in a roundish, or pebble-like form, and its most frequent size is between half an inch and two inches in diameter, and is found in the East and West Indies, and in many parts of Europe. Our jewellers value none but the oriental, but there are very fine ones found in Silesia and Bohemia, and on the shores of the Rhine. The second species is the yellow cornelian.

cornelian. This is a stone, in the opinion of many, of greater value than the former, when in its most pure and perfect state. We have it principally from the East Indies; there are some specimens of it found in Germany, but they are neither very good nor very frequent; and in England we sometimes meet with large masses of it, but they are never thoroughly coloured. The third species is the *white cornelian*. This, though less beautiful than either of the others, is, however a very beautiful stone. It is found in the East Indies, and in many parts of Europe; France has afforded very fine pieces of it, and Germany produces it in great abundance; but the best next the oriental is that of New Spain.

It cuts easily; and we find most of the fine gravings of antiquity, whether in relievo, or indented, are on this stone.

To give these stones the greater lustre, in setting them they usually lay a piece of silver-leaf underneath.

The principal use made of *cornelians* is in seals; by reason they grave well, and take a fine polish.

Mr. du Fay, of the Academy of Sciences at Paris, accidentally hit upon a very fine way of turning any part of a red *cornelian* white, so as to form veins or clouds of that colour at pleasure in it, by filling up the lines with white enamel in powder, then putting it over the fire to melt the enamel. Mem. Acad. Par. 1732.

The powder of the *cornelian* is prescribed to be drank in all manner of hæmorrhages.

CORNER-stones, among *Builders*, the name of the two stones which stand one in each jamb of a chimney. Their faces are hollowed in breadth, being a certain sweep of a circle. The breadth of each stone is equal to that of the jamb, and their height reaches from the hearth to the mantle-tree.

Corner-stones are commonly made of Ryegate or fire-stone.

CORNER-teeth, are those which appear in a horse when he is coming five years old. See AGE.

CORNET, *CORNU*, a horn, or musical instrument, used by the ancients in their wars.

Vegetius informs us, that the legions had trumpets, *cornets*, and *buccinæ*; that when the cornets sounded, only the ensigns regarded; none of the soldiers: that when the ensigns were to march alone without the soldiers, the *cornet* alone was sounded: as, on the contrary, when the soldiers were to move without the ensigns, the trumpets alone were sounded: that the *cornets* and *buccinæ* sounded the charge and retreat; and the *cornets* and trumpets during the course of the battle.

This instrument was also used in ecclesiastical harmony to supply the acuter sounds. See *Tab. Music. fig. 2*.

The bass of this is the SERPENT.

CORNET is also the name of one of the compound stops of an organ, in which five pipes are made to speak at the touch of a single key.

CORNET, in *Conchyliology*, a name given by some French writers to a genus of shells, called by others *cuculli*, and by the generality of writers *VOLUTÆ*.

CORNET, in *Farriery*, an instrument used in bleeding horses.

CORNET, or **CORONET**, is sometimes used to denote the lowest part of the pasteron of a horse round the COFFIN.

CORNET, in *Modern War*, denotes an officer in the cavalry who bears the ensign, or colours, of a troop.

The *cornet* is the third officer in the company, and commands in the absence of the captain and lieutenant. He takes his title from his ensign, which is square, and is supposed to be called by that name, from *cornu*; because placed on the wings, which form a kind of points, or horns, of the army.

Others derive the name from *coronet*; alledging, that it was the ancient custom for these officers to wear coronets, or garlands, on their heads.

CORNICABRA, in *Botany*, a name by which the Spaniards call the turpentine-tree. The name is founded on the singular production of this tree, in form of a horn or pod. This is not the fruit of the turpentine-tree, as has been supposed by some; but it is a mere excrescence, of the nature of the galls on the leaves and stalks of other trees and plants, and is inhabited by small insects of the puceron kind.

CORNICHE, **CORNISH**, or **CORNICE**, in *Architecture*, the uppermost member of the entablature of a COLUMN; or that which crowns and finishes the order.

The word is formed from the Latin *coronis*, a crowning.

The *corniche* is the third grand division of the trabeation, commencing with the freeze, and ending with the cymatium.

The *corniche* is different in the different orders: in the Tuscan order it is the most plain. Vignola makes it to consist of an ovum, or quarter-round; an astragal, or baguette; a reglet, or fillet; a larmier, and a talon. — See *Tab. Archit. fig. 24*.

In the Doric, he uses capitals to the triglyphs of the freeze with their bandelettes, a talon, mutules, or dentils; a larmier, with its guttæ underneath, a talon, fillet, cavetto, and reglet. See *Tab. Archit. fig. 25*.

In the Ionic, the members are in most respects the same as in the Doric; except that they are frequently enriched with carving, and there are always dentils. See *Tab. Archit. fig. 26*.

In the Composite there are dentils; its mouldings are carved, and there are channels under the soffit. See *Tab. Archit. fig. 28*.

The Corinthian *corniche* is the richest; and is distinguished by having both modillions and dentils; contrary to the opinion of Vitruvius, who looks on those two ornaments as incompatible; and of M. Le Clerc, who regards the dentils as peculiar to the Ionic. See *Tab. Archit. fig. 27*.

For the heights and projectures of the corniches in the several orders. Goldman makes the height of the Tuscan $1\frac{1}{2}$, and its projecture $2\frac{2}{3}$ modules; the height of the Doric $1\frac{1}{2}$, its projecture $2\frac{2}{3}$; height of the Ionic $1\frac{1}{2}$, its projecture $2\frac{2}{3}$; height of the Composite $1\frac{1}{2}$, projecture $2\frac{1}{3}$; height of the Corinthian $1\frac{1}{2}$, projecture $2\frac{1}{3}$. See a table of the measures of the several parts of the *corniche* in the different orders, under COLUMN.

CORNICHE, *architrave*, is that immediately contiguous to the architrave; the freeze being retrenched.

CORNICHE, *mutilated*, is that whose projecture is omitted, or else interrupted, right to the larmier, or reduced into a plat-band with a cymatium.

CORNICHE, *cantaliver*, a term used, by the workmen for a *corniche* that has cantalivers underneath it. See CANTALIVER.

CORNICHE, *modillion*, a *corniche* with modillions under it. See MODILLION.

CORNICHE, *coving*, a *corniche* which has a great casement, or hollow in it; ordinarily lathed and plastered upon compasses, sprockets, or brackets.

CORNICHE is also used, in the general, for any little projecture, either of masonry, or joinery; even where there are no columns. Thus, we say, the *corniche* of a chimney, a beaufet, &c.

CORNICHE is also applied to the crownings of pedestals. See *Tab. Archit. fig. 24. 27. 25. 28. and 26*.

This *corniche* is different in the different orders: in the Tuscan, according to M. Perrault, it has a platband, which serves as a corona, and a cavetto with its fillet; in the Doric, it has a cavetto with a fillet, which bears a drip crowned with a square; in the Ionic, a cavetto with its fillet above, and a drip or pendent square crowned with an ogee and its fillet; in the Corinthian, an ogee with its fillet, a cymatium under the corona, which it hollows to make a drip, a corona, and an ogee, with its fillet: lastly, in the COMPOSITE, a FILLET with a sweep over the dye, an ASTRAGAL, CYMA with its fillet, CORONA, and OGEE with its fillet.

CORNICHE, *glacis of the*. See GLACIS.

CORNICE ring of a piece of ORDNANCE, is that which lies next the trunnion ring; or the next ring from the muzzle backwards.

CORNICULA, an instrument made of horn, almost in form of a cupping-glass, except that at the more slender extremity there is a small perforation. The wide end is laid upon emaciated parts, and a person applying his mouth to the perforation at the small extremity, by suction draws out the air. In consequence of this the part covered rises into the hollow of the instrument; and by this means the nutritious juices are thought to be invited to the emaciated part. Hildanus, cent. 1. obs. 80. relates a cure performed by this means, and gives a figure of the instrument. Tulpius, lib. iii. obs. 49. gives another instance of a cure performed by this means.

This instrument was by the ancients esteemed a species of cupping-glass.

CORNICULARIS *processus*, the process, or knob, of the shoulder-bone; thus called, as resembling the figure of a crow's beak.

CORNICULARIUS, in *Antiquity*, an officer in the Roman army, whose business was to aid and assist the military tribune in quality of lieutenant.

The *cornicularii* went the rounds in lieu of the tribune, visited the watch, and were nearly what the aids-major are in the French army.

The denomination *cornicularius* was given them from a little horn, called *corniculum*, which they used in giving orders to the soldiers: though Salmasius derives it from *corniculum*, the crest of a head-piece; it being an observation of Pliny, that they wore iron or brass horns on their helmets; and that these were called *cornicula*. In the *Notitia Imperii* we find a kind of secretary, or regifter, of the same name. His business was to attend the judge, and enter down his sentences and decisions.

The

The critics derive the word, in this sense, from *corniculum*, a little horn to put ink in.

CORNICULATE flowers. See FLOWER.

CORNICULATE plants are such as, after they have blown into flowers, produce many distinct and horned pods, or seed-vessels, called *siliquæ*; for which reason, the plants are also, by some, denominated *siliquous plants*.

Such are, the *sedum*, or *sempervivum*, *telephium*, *juncus floridus*, *helleborus niger*, *pæonia*, *caltha*, *palustris*, *althæa*, *lutea*, &c.

CORNISH. See CORNICHE.

CORNISH chough, in Zoology. See CORACIAS.

CORNISH diamond, a name given by many people to the CRYSTALS found in digging the mines of tin in Cornwall. These crystals are of the nature of the Kerry-stone of Ireland, but somewhat inferior to it; they are usually bright and clear, except toward the root, where they are coarse and foul, or whitish. They are usually found in the common form of an hexangular column, terminated at each end by an hexangular pyramid.

CORNISH ring, or *astrogal of a gun*, is the small ring near the muzzle.

CORNISH, or British Language. Some remains of this language were met with in Cornwall, so lately as the year 1768. See Archæol. vol. iii.

CORNISH bug. See HUG.

CORNIX, in Ornithology. See CORVUS and CROW.

CORNU Ammonis, in Natural History, an extraordinary kind of stone, some of which, in vinegar, juice of lemons, &c. have a motion like that of an animal.

It is rough, knotty, of an ash-colour, and twisted in manner of a ram's horn; such as those wherewith the ancients represented Jupiter Ammon; whence its name.

It is disputed, among naturalists, whether it be a native fossil, a *nautilus*, or a rock-plant? Camerarius maintains the first; urging, that it is frequently dug out of the tops of mountains; and that it is seldom found near the sea-shore.

Dr. Woodward asserts it a shell, and of the number of the nautili, formed in the sea, and carried thence, by the waters of the deluge, into the countries whence it is dug. He argues, that, if it be rarely found on the sea-coasts, it is because shells and other bodies lying in the bottom of the sea, as most kinds of the *cornua Ammonis* must do, are only to be torn thence, and driven ashore by tempests: but the most violent tempests never move the bottom of the sea, as the divers have put past doubt; so that it is no wonder, if none of these *cornua* be thrown up: but in the overturning of the earth by the deluge, these, with a thousand more productions of the sea, might be thrown from the bottom of the waters to the places where they are now found.

The *cornua Ammonis* are of different thicknesses and lengths; some of them weigh twenty pounds. They are found in several places in Germany, and elsewhere. From some experiments that have been made, some of them are found to contain a little quantity of gold, which sinks to the bottom upon pounding them small, and stirring them in a running water, till all the earthly parts be carried off. Mr. Beaumont's account of them is to be seen in the Phil. Transf. N° 129. See SNAKE stones.

CORNU cervi, hartshorn, in Medicine, makes one of the TESTACEOUS powders. See HART'S HORN.

Among chemists, the same name is used for the mouth of an alembic.

CORNUA uteri. See UTERUS, and WOMB.

CORNUCOPIA, among the Ancient Poets, a horn, out of which proceeded plenty of all things; by a particular privilege which Jupiter granted his nurse, supposed to be the goat Amalthea.

The real sense of the fable is this: that in Lybia there is a little territory shaped not unlike a bullock's horn, exceeding fertile, given by king Ammon to his daughter Amalthea, whom the poets feign to have been Jupiter's nurse.

In Architecture, and Sculpture, the *cornucopia*, or horn of plenty, is represented under the figure of a large horn, out of which issue fruits, flowers, &c. On medals, F. Joubert observes, the *cornucopia* is given to all deities, genii, and heroes.

CORNUCOPIÆ, in Botany, the name of one of the species of the grass kind, which, in the Linnæan System of Botany, makes a distinct genus of plants, of the *triandria digynia* class: the characters of which are, that the cup is a common perianthium of one leaf, very large, and made in the fashion of a funnel, indented at the edge, and obtuse, and somewhat erect, and spread open. The glume has two valves, and contains only one flower: the valves are oblong, obtusely pointed, and equal in size. The flower is composed of a single valve, in figure and situation much resembling the valves of the cup. The stamina are three capillary filaments, and the antheræ are

oblong. The germen of the pistil is of a turbinated form: the styles are two in number, and very slender: the stigma are fibrose. The flower contains the seed, which is single, of a turbinated form, and convex on one side, and plain on the other. There are two species.

CORNUS, in Botany. See CORNELIAN CHERRY.

CORNUTA, in Ichthyology, a name given by Gesner and others to the fish called also *lyra* and *lyra altera* by others. It is of the *trigla* kind, and is distinguished by Artedi by the name of the *trigla*, with many *cirri*, and with an octagonal body.

CORNUTIA, in Botany, a genus of the *didymia angiosperma* class. Its characters are these: the flower has one petal, with a cylindrical tube, which is divided into four parts at the top. It hath four stamens, two of which are longer than the tube, and the other shorter. In the centre is situated a roundish germen, which afterward becomes a globular berry, sitting upon the empalement, and enclosing several kidney-shaped seeds. There is but one species, a native of the West Indies.

CORNU TUM argumentum. See DILEMMA.

CORNU IUS piscis, in Ichthyology, a name given by Mr. Ray to the fish commonly called by the Dutch in the East Indies, where it is very common, *hoorn visch*. It has a horn of a very singular kind in the back part of its head, or beginning of its back, and two others on the belly: these are crooked, and very brittle. They seem much of the nature of the spines, which several fish have, placed before their neck and belly fins; and it is dangerous to be wounded by them, the wound being generally very difficult of cure, especially if any part of the horn or spine is left in it, which, from the brittleness of those substances, is generally the case. See Tab. of Fish, N° 66.

COROCORO, in Ichthyology, the name of a Brazilian fish, somewhat resembling the *CORACINUS* of the Mediterranean. It has a sinus in the back, in which, at pleasure, it can bury the fins. Marggrave's Hist. Brasil.

CORODIO habendo, a writ whereby to extract a *corody* of an abbey or religious house.

CORODY, CORRODY, or CORREDY, in Law, (*corrodium*, from *corrodo*, also *conredium* and *corredium*) a sum of money, or allowance of meat, drink, and clothing, due to the king from an abbey, or other house of religion, whereof he is the founder, towards the reasonable subsistence of any servant he thinks fit to bestow it on.

The difference between a *corody* and pension is said to be, that a *corody* is allowed towards the maintenance of any of the king's servants in an abbey; but a pension is given to one of the king's chaplains, for his better maintenance, till he may be provided with a benefice. See Fitzherb. Nat. Br. fol. 150. who sets down all the *corodies* and pensions certain, that abbeys, when they stood, were bound to perform to the king.

COROLLA, among Botanists, is the most conspicuous part of a flower. It expresses the coloured, tender part, which surrounds the organs of generation. The parts it is composed of are called *petals*; if it consist only of one piece, it is called *monopetalous*; if of more it is said to be *dipetalous*, *tripetalous*, *tetrapetalous*, and so on, as it consists of two, three, four, or more parts. See PETAL, &c.

COROLLARY, or CONSECTARY, in Mathematics, is used for a consequence drawn from some proposition already advanced or demonstrated: as if from this theorem, *That a triangle which has two equal sides, has only two equal angles*, this consequence should be drawn, *that a triangle, which hath the three sides equal, has also its three angles equal*.

COROLLISTÆ, among Botanical Authors. See BOTANY.

COROLLULA, among Botanists, a term used to express those little partial flowers, which together constitute the whole compound ones. They are of two kinds, the tubulated, and ligulated; the former are always furnished with a campanulated limb, divided into four or five segments: the latter, or ligulated *corollula*, have a flat linear limb, terminated by a single point, or by a broader extremity, divided into three or five segments.

CORON, a Jewish liquid measure, supposed to be the same with the HOMER.

CORONA, in Anatomy, is that edge of the glans of the penis, where the preputium begins.

CORONA, crown or crowning, in Architecture, a large, flat, massive member of the cornice; so called, because it crowns not only the cornice, but the entablature, and the whole order. See Tab. Archit. fig. 9.

The French call it *larmier*, our workmen the *drip*, as serving, by its great projecture, to screen the rest of the building from the rain.

Some Latin authors call it *supercilium*; but that, as it should seem, by mistake for *stillicidium*. Certain French writers call it *mouchette*; and certain Latin ones, *mentum*, *chin*; from its keeping off the weather from the parts underneath.

Some

Some call it absolutely the *corniche*, as being the principal member thereof. Vitruvius frequently uses the word *corona* for the whole corniche.

The *corona* is itself crowned, or finished with a reglet, or fillet. There are sometimes two *coronas* in a corniche; as in the Corinthian of the Rotundo.

CORONA, in *Optics*, signifies a luminous circle, generally coloured, round the sun, moon, or largest planets. See **HALO**.

CORONA Borealis, or *Septentrionalis*, *Northern Crown*, or *Garland*, in *Astronomy*, a constellation of the northern hemisphere; whose stars in Ptolemy's Catalogue, in Tycho's and in Hevelius's, are 8; in the Britannic Catalogue 21. Their order, names, longitudes, latitudes, magnitudes, &c. are as follow:

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
That preced. the <i>corona</i> , without side	α	m	2 5 16	45 57 52	6
That next the <i>Lucida</i> , towards the N.	β	n	2 44 45	46 49 30	5
Another following this, and more N.	γ	β	4 45 53	46 4 40	4
<i>Lucida</i> of the <i>corona</i>	δ	θ	5 5 20	48 34 50	4.5
1st of the informes over the crown	ε	α	7 55 56	44 21 17	2.3
Second	ζ	μ	0 58 43	55 48 50	5
That following the <i>Lucida</i> to the south	η	ς	3 58 22	53 59 31	4
N. in the circum. of the <i>corona</i>	θ	γ	10 31 50	44 32 18	4
S. in the circum. of the <i>corona</i>	ι	π	7 50 41	50 30 3	5
10.	κ	δ	12 38 14	44 53 5	4
3d of the informes over the crown	λ	κ	8 17 34	53 59 43	5
5th over the <i>corona</i>	μ	λ	8 18 21	56 25 32	5
3d of those following the <i>Lucida</i> south	ν	ι	14 46 15	46 6 27	4.5
Last of all in the <i>corona</i>	ξ	ι	14 39 38	49 11 21	5.6
6th over the <i>corona</i>	ο	ς	12 48 24	52 30 42	6
15.	π	τ	13 42 51	55 57 45	6
N. of those following the <i>corona</i>	σ	σ	17 4 43	53 52 41	6
Preced. of the middle	τ	υ	19 51 15	49 28 4	6
S. of those following the <i>corona</i>	υ	φ	20 54 10	51 27 0	5
Posterior of the middle ones	φ	1.υ	19 40 56	54 16 30	5
Another following them all	2.υ	2.υ	29 43 33	55 30 26	5
20.					

CORONA Australis, or *Meridionalis*, *Southern Crown*, a constellation of the southern hemisphere, whose stars in Ptolemy's Catalogue are 13; in the British Catalogue 12. Their order, names, longitudes, latitudes, magnitudes, &c. are as follow:

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude.	Magnitude.
Preceding those to the south	α	κ	0 18 13	22 36 23	4
Next in the <i>crown</i>	β	α	5 31 37	20 34 40	6
Following this	γ	ς	8 27 49	19 16 12	6
Middle of 3 before the knee of Sagittarius	δ	γ	9 41 31	17 48 8	6
5.	ε	γ	10 14 14	15 15 57	5
South	θ	θ	10 10 16	16 42 12	5
North	ι	θ	9 42 59	14 20 8	5
2d of the 2 in the N. circumference of the <i>crown</i>	κ	μ	8 9 38	14 13 8	6
First	λ	υ	7 41 38	14 24 16	6
Most north. of the <i>crown</i>	μ	ι	5 17 24	12 28 18	6
10.	ν	κ	2 51 2	15 23 15	6
More southerly	ξ	λ	2 39 46	18 59 50	6
More south. than last	ο	λ			

CORONA, among *Botanists*, expresses any thing growing on the head of the seed. The *coronæ* of seeds are of various kinds; sometimes simple, consisting only of a dentated membrane; sometimes pappose, consisting of downy matter, which in some cases is immediately fixed to the seeds; in others it has a pedicle growing from it. Sometimes the *coronæ* are composed of simple filaments, and sometimes they are ramose.

CORONA clericalis. See **CROWN**, and **COIF**.

CORONA Æthiopica, in *Natural History*, the name of a seashell of the **DOLIUM**, or *concha globosa* kind.

CORONA imperialis, in *Botany*. See **CROWN imperial**.

CORONA imperialis, in *Conchyliology*, a name given by authors to a kind of **VOLUTA**, differing from the other

shells of that family, by having its head ornamented with a number of points, forming a sort of crown.

There are four species of this shell found in the cabinets of the curious.

CORONÆ, Lucida. See **LUCIDA**, and **CORONA Borealis**.

CORONÆ jus. See **JUS**.

CORONÆ placitorum custos. See **CUSTOS**.

CORONA solis, in *Botany*. See **SUN-flower**.

CORONA solis Americana, the name of a marine insect. See **AMERICAN**, &c.

CORONALE os, in *Anatomy*, the bone of the forehead; called also **OS FRONTIS**, **os occipitis**, and **verecundum**.

CORONALIS, denotes the first **SUTURE** of the cranium, or skull.

The *coronal* future reaches transversely from one temple to the other; and joins the *os frontis*, with the *ossa parietalia*. See *Tab. Anat. (Osteol.) fig. 1. lit. g. and fig. 2. lit. b.*

It is open, the breadth of a finger or two, in the middle, in young children, but grows closer with age; though sometimes by convulsion-fits, or a bad conformation, it not only closes in children, but the edges shoot over one other, which is what the women call *head-mould-shot*; after which they seldom live long.

CORONARIA vasa, **CORONARY vessels**, the arteries and veins which surround the heart to nourish and supply it with blood, &c. See *Tab. Anat. (Splanchn.) fig. 12. lit. c. c.*

CORONARY arteries, are two arteries springing out of the *aorta*, before it leaves the *pericardium*; and serving to carry the blood into the substance of the heart.

They are called *coronary*, because of their spreading into branches, and encompassing the basis of the heart, in manner of a crown, or garland. In their progress they send out several branches lengthwise of the heart; and, as Ruysch observes, to the auricles, and into the very substance of the heart: after encompassing the basis, and meeting again, they inosculate with each other.

CORONARY ligament unites the **RADIUS** with the **CUBITUS**.

CORONARY vein, is a vein diffused over the exterior surface of the heart. It is formed of several branches arising from all parts of the viscus, and terminates in the *vena cava*, whither it conveys the remains of the blood brought by the *coronary* arteries.

At its rise out of the heart, there is a valve to hinder the reflux of the blood; first discovered by B. Eustachio, a native of San Severino.

CORONARY, stomachic, is a vein inserted into the trunk of the splenic vein; which, by uniting with the mesenteric, forms the *vena porta*.

CORONATION. See **CROWN**, **KING**, and **OATH**.

CORONATORE eligendo, in *Law*, a writ, which, after the death or discharge of any *coroner*, is directed to the sheriff, out of the chancery, to call together the freeholders of the county, for the choice of a new *coroner*, to certify into chancery both the election, and the name of the party elected, and to give him his oath, &c.

CORONATORE exonerando, in *Law*, is a writ for the discharge of a *coroner*, for negligence or insufficiency in the execution of his duty: and where coroners are so far engaged in any other public business, that they cannot attend the office; or if they are disabled by old age, or disease, to execute it; or have not sufficient lands, &c. they may be discharged by this writ.

CORONÆ, in *Anatomy*, a sharp-pointed eminence, or process of a bone. See *Tab. Anat. (Osteol.) fig. 2. lit. m.* See also **BONE**.

Of these there are several in the body, distinguished, according to their figures, by different names; e. gr. one of the *os petrosum*, called *styloides*, as being sloped like a bodkin; another called *mastoides*, from its resembling a nipple; another of the *amoplata*, called *corocoides*, as being of the figure of a crow's bill; lastly, another of the *os sphenoides*, called *pterygoides*, from its shape, which resembles the wings of a bat.

CORONEOLA, in *Botany*, a name given by some authors to the *lysimachia*, or purple willow herb, vulgarly called with us codlins and cream.

CORONER, an ancient officer in this kingdom, so called, because he hath principally to do with the pleas of the *crown*. There are usually four, sometimes six, and sometimes fewer, in each county. They are chosen by the freeholders of the county, by virtue of a writ out of chancery; and the choice is for life, unless they become sheriffs or verderors, or are discharged by the writ *de coronatore exonerando*, or by stat. 25 Geo. II. cap. 29. for extortion, neglect, or misbehaviour.

This officer, by the statute of Westminster, ought to be a knight; and there is a writ in the register, now obsolete, called *nisi sit miles*, whereby it appears to be a sufficient cause for removal of a *coroner* chosen, if he were not a knight, and had not a hundred shillings *per ann.* freehold.

Freehold. This qualification, however, is now disregarded; and persons are chosen into this office merely for the sake of the fees annexed to it by 3 Hen. VII. cap. 1. and 25 Geo. II. cap. 29.

Mention is made of this officer as early as the time of king Athelstan, anno 925.

Their authority is judicial and ministerial; judicial, where a person comes to a violent death, and to take and enter appeals of murder, pronounce judgment upon outlaws, &c. and to enquire of lands and goods, and escapes of murderers, treasure trove, wreck of the sea, deodands, &c. The ministerial power is where the coroners execute the king's writs, on exception to the sheriff, as being party to a suit, kin to either of the parties, on default of the sheriff, &c. In their former capacity the act of one has the same force as if they had all joined; in the latter, their acts are void, unless they join. 4 Inst. 271. 1 Plowd. 73. And the authority of coroners does not determine by the demise of the king; as that of judges, &c. doth, who act by the king's commission. 2 Inst. 174.

The lord chief justice of the king's bench is the sovereign coroner of the whole realm, or wheresoever he abides.

There are also certain special coroners within divers liberties as well as the ordinary officers in every county; and some colleges and corporations are empowered by their charters, to appoint the coroner within their own precincts.

CORONER of the king's household, hath an exempt jurisdiction within the verge, and the coroner of the county cannot intermeddle within it; as the coroner of the king's house may not intermeddle in the county, out of the verge. 2 Hawk. 45. If an inquisition be found before the coroner of the county, and the coroner of the verge, where the homicide was committed in the county, and so it is entered and certified, it will be error. 4 Rep. 45. But if a murder be committed within the verge, and the king removes before any indictment be taken by the coroner of the king's household; the coroner of the county, and the coroner of the king's house, shall enquire of the same: and according to sir Edward Coke, the coroner of the county might enquire thereof at the common law. 2 Hawk. 45. 2 Inst. 550. If the same person be coroner of the county, and also of the king's house, an indictment of death taken before him as coroner, both of the king's house, and of the county, is good. 4 Rep. 46. 3 Inst. 134. See stat. 33 Hen. VIII. 12 Parl. 1 & 3.

CORONER of London, is eligible by the mayor and commonalty of the city, and no other coroner has any power there.

CORONER, court of. See COURT.

CORONET, in Farriery. See CORNET.

CORONET, in Heraldry. See CROWN.

CORONILLA, in Botany, jointed podded colutea, a genus of the diadelphica decandria class. Its characters are these: it hath a butterfly-flower, with nine stamina, which are united, and one standing single, terminated by small summits; in the centre is situated an oblong taper germen, which afterward becomes a taper jointed pod, enclosing oblong seeds. Miller reckons seven, and Linnæus eleven species.

There have been pieces of amber found with the pinnated leaves of coronilla included in them, and as elegantly expanded as the most curious botanist could have expected it, for preserving them in his hortus siccus. Breynius gives us an account of one of those pieces of amber, in which the middle part of one of these leaves was thus elegantly preserved; he examined the specimen with the greatest accuracy, but could not find the least mark of fraud or deceit in it, and is very particular in the description of the piece, and in the disposition of the leaf in it. To this it is to be added, that the coronilla is a shrub commonly wild in Prussia, where amber is produced. Phil. Trans. N° 396.

CORONOPUS, in Botany. See PLAINTAIN.

COROPITÆ. See AGONISTICI.

CORPORA cavernosa, in Anatomy, two spongy bodies, called also corpora nervosa, and corpora spongiosa. See CAVERNOSA corpora, &c.

CORPORA olivaria. See OLIVARIA corpora.

CORPORA pyramidalia, are two protuberances of the under part of the CEREBELLUM, about an inch long; so called from their resemblance to a pyramid.

CORPORA striata, two protuberances of the crura of the MEDULLA oblongata.

CORPORA habeas, in Law. See HABEAS.

CORPORAL, an inferior officer in a company of foot, who has charge over one of the divisions: he places and relieves centinels, and keeps good order in the corps de garde; receiving, withal, the word of the inferior rounds that pass by his corps de garde. There are usually three corporals in each company.

The word comes from the Italian *caporale*, which signifies the same thing; and that from *caput*, head, chief; the corporal being the first of the company.

CORPORAL of a ship, is an officer who hath the charge of setting the watch and centries, and relieving them; and who sees that all the soldiers and sailors keep their arms neat and clean: he also teaches them how to use their arms, and hath a mate under him.

CORPORAL oath. See OATH.

CORPORAL, CORPORALE, is also an ancient church-term, signifying the sacred linen spread under the chalice in the eucharist and mass, to receive the fragments of the bread, if any chance to fall. Some say, it was pope Eusebius who first enjoined the use of the corporal; others ascribe it to St. Silvester. It was the custom to carry corporals, with some solemnity, to fires, and to heave them against the flames, in order to extinguish them. Philip de Comines says, the pope made Louis XI. a present of the corporale, whereon my lord St. Peter sung mass.

CORPORATE county. See COUNTY corporate.

CORPORATION, a body politic, or incorporate; so called, because the several members thereof are formed into one body; and are qualified to take, purchase, grant, have a common seal, sue and be sued, &c. in their joint capacity.

These political constitutions were first invented and introduced, according to Plutarch, among the Romans by Numa, in order to break the force of the two rival factions of Sabines and Romans; by instituting separate societies of every manual trade and profession.

A corporation may be established three ways, viz. by prescription, by letters patent, and by act of parliament.

Corporations are either ecclesiastical, or lay. Ecclesiastical are either regular, as abbeys, priories, chapters, &c. or secular, as bishopricks, deanries, archdeaconries, parsonages, &c. to which add, universities, colleges, hospitals, &c. See HOSPITAL, &c.

Lay corporations are again subdivided into civil and eleemosynary. Of the former sort are such as are established for a variety of temporal purposes; as those of cities, towns, mayoralities, bailiwicks, companies, or communities of commerce; and for the improvement of science, churchwardens, and the two universities. Thus the king is made a corporation, to prevent an interregnum; for on his demise, his successor is in full possession of the regal rights and dignity.

Eleemosynary corporations are such as are established for the distribution of the free alms of the founder, as hospitals and colleges.

Again, a corporation is either sole, when consisting of a single person, as the king, a bishop, dean, &c. or an aggregate of many, as the mayor and commonalty, dean, and chapter, &c. which last is what the civilians call a college. See COLLEGE, COMMUNITY, CITY, and CHARTERS of community.

CORPORATION courts are such as are held in corporations, by prescription, charter, or act of parliament. See COURT of Hustings and Mayor's COURTS.

CORPORATION act, is that which prevents any person from being legally elected to any office relating to the government of any city or corporation, unless, within a twelve-month before, he has received the sacrament of the Lord's supper, according to the rites of the church of England; and which enjoins him to take the oaths of ALLEGIANCE and SUPREMACY when he takes the oath of office; otherwise his election is void. Stat. 13 Car. II. stat. 2. cap. 1.

CORPOREAL. See INCORPOREAL.

CORPOREAL inheritance. See INHERITANCE.

CORPOREAL qualities. See QUALITY.

CORPOREITY, the quality of that which is corporeal, or has body; or that which constitutes or denominates it such.

The corporeity of God was the capital error of the Anthropomorphites. Some authors reproach Tertullian with admitting a corporeity in the Deity; but it is manifest, by body he means no more than substance.

The Mahometans reproach the Samaritans at this day, with a belief of the corporeity of God. Many of the ancients believed the corporeity of angels.

CORPOREITY, form of. See FORM.

CORPORIFICATION, in Chemistry, the operation of recovering spirits into the same body, or at least into a body nearly the same with that which they had before their spiritualization.

CORPS, in Architecture, is a term borrowed from the French, signifying any part that projects or advances beyond the naked of a wall: and which serves as a ground for some decoration, or the like.

CORPS de bataille is the main body of an army, drawn up for battle. See LINE, and GUARD.

CORPS de gards, a post in an army, sometimes under covert,

vert, sometimes in the open air, to receive a body of soldiery, who are relieved from time to time, and are to watch in their turns, for the security of a quarter, a camp, station, &c.

The word is also used for the men who watch therein.

It is usual to have, beside the *great*, a *little corps de garde*, at a good distance before the lines; to be the more readily advertised of the approach of the enemy.

CORPSE, *stealing of*, is not felony, but punishable as a misdemeanour by indictment at common law; but if a person in taking up a dead body steals the shroud, or other apparel, it is felony.

CORPULENCY, in *Medicine*, the state of a person too much loaded with flesh and fat.

Corpulency amounts to the same with what physicians call *obefitas*, and we popularly *fatness*.

Etmuller defines it to be such an increase both of the venter and limbs, as impede the actions of the body, especially motion and respiration.

Corpulency, or *obesity*, Boerhaave observes, does not consist in the solids of the body being increased, but in their being distended to a greater pitch by the abundance of humours collected in them.

Corpulency, or *fatness*, arises from a laudable, copious, oily, soft blood, containing less than its share of salt.

Such a constitution of blood occasioning but a feeble fermentation, there is less consumed than is made; the lymph, which seems to be the matter of nutrition, preserves its viscid consistence longer; and by that means adheres the more plentifully to the divers parts of the body. Add, that there is more fat separated from the blood than can well be deposited in the adipose cells. Hence the body grows very considerably, and the parts sometimes distend to a monstrous bulk.

Corpulency is promoted by any thing that tempers and softens the blood, and renders it less sharp and saline; such is want of exercise and motion, an indolent life, too much sleep, nourishing foods, &c. It is prevented, or removed, by the contrary causes; and particularly by the use of saline and acid meats, and drinks.

Corpulency is the occasion of divers diseases, and particularly the apoplexy. It was held infamous among the ancient Lacedæmonians.

Etmuller affirms, that there is no better remedy against excessive fatness, than *acetum scilliticum*. Borelli recommends the chewing of tobacco; which Etmuller however dissuades, lest it induce a consumption.

Sennertus mentions a man that weighed six hundred pounds; and a maid thirty-six years of age, who weighed four hundred and fifty. Bright of Malden, who died at the age of twenty-nine years, in 1750, weighed six hundred and sixteen pounds. Chiapin Vitelli, marquis of Cerona, a noted Spanish general in his time, from an excessive *corpulency*, is said to have reduced himself, by drinking of vinegar, to such a degree of leanness, that he could fold his skin several times round him.

Castile soap, in the form of a bolus, an electary, pills, or dissolved in a gill or more of soft water, from one to four drachms, taken at bed-time, is strongly recommended with a view of reducing *corpulency*, in a discourse on its nature, cause, and cure, by Malcolm Flemyng, M. D. Lond. 1760. See **ABSTEMIOUS**.

CORPUS, *body*, in *Anatomy*, is applied to several parts in the animal structure; as *corpus callosum*, *corpus glandulosum*, *corpus reticulare*, &c.

CORPUS callosum, is the upper part, or covering of the two lateral ventricles of the **BRAIN**, appearing immediately under the process of the dura mater, below the depth of all the circumsolutions; being formed by the union of the medullary fibres on each side.

CORPUS cavernosum urethæ. See **CAVERNOSUM**.

CORPUS glandulosum. See **PROSTATE**.

CORPUS pampiniforme. See **PAMPINIFORME**.

CORPUS pyramidale. See **PYRAMIDALE**.

CORPUS reticulare. See **RETICULAR body**.

CORPUS is also used in matters of learning, for several works of the same nature, collected, and bound together.

Gratian made a collection of the canons of the church, called *Corpus Canonum*. The *Corpus* of the civil law is composed of the Digest, Code, and Institutes. See also **CODE**, and **DIGEST**.

We have also a *corpus* of the Greek poets; and another of the Latin poets. See **BODY**.

CORPUS-Christi-day, a feast held always on the next Thursday after Trinity Sunday. It was instituted in the year 1264, in honour of the blessed sacrament, to which also a college in Oxford is dedicated. We find it mentioned in 32 Hen. VIII. cap. 21. By which statute Trinity-term is appointed for ever to begin the morrow after this feast.

CORPUS cum causa, in *Law*, a writ issuing out of chancery, to remove both the body, and record, touching the cause

of any man lying in execution upon a judgement for debt, into the king's bench, &c. there to lie till he has satisfied the judgment.

CORPUS cepi. See **CEPI**.

CORPUS habeo. See **HABEO**.

CORPUSCULE, in *Physics*, a diminutive of *corpus*, used to express the minute parts, or particles, that constitute natural bodies.

Corpuscles amount to much the same with what the ancients called *atoms*; and differ both from the elementary and hypostatical principles of the chemists, and the *materia subtilis* of the Cartesians.

Sir Isaac Newton shews a method of determining the sizes of the *corpuscles*, whereof the particles that compose natural bodies consist, from their colours.

CORPUSCULAR philosophy, that scheme or system of physics, wherein the phenomena of bodies are accounted for, from the motion, rest, position, arrangement, &c. of the minute *corpuscles*, or atoms, whereof bodies are composed.

The *corpuscular philosophy*, which now flourishes under the title of the *mechanical philosophy*, is exceedingly ancient. Leucippus and Democritus were the first who taught it in Greece; from them Epicurus received it, and improved it, inasmuch that it came at length to be denominated from him, and was called the *Epicurean philosophy*.

Leucippus, again, is said to have received it from Mochus, a Phœnician physiologist, before the time of the Trojan war, and the first who philosophized about atoms: though Gale, who borrows all prophane philosophy from the sacred philosophy in the books of Moses, is of opinion that he might take the hint from the Mosaic history of the formation of man out of the dust of the earth.

Indeed, Casaubon takes *Mochos*, or *Μοχος*, to be the name of a Tyrian, who among his own countrymen was called *Μωσe*, *Mosche*, or, according to the method of writing which then obtained, *Moses*: whence it is conjectured that the *Mosche*, or *Moschus* of the Tyrians, was, in effect, the *Moses* of the Hebrews.

This appears to be the sentiment of Selden, Arceus, &c. But the opinion of Bochart is more probable, who, from Posidonius and others, takes Mochus for an inhabitant of Sidon, and his philosophy to be nothing else but a physiological or natural history of the creation.

After Epicurus, the *corpuscular philosophy* gave way to the Peripatetic, which became the popular system.

Thus, in lieu of atoms, were introduced specific and substantial forms, qualities, sympathies, &c. which amused the world, till Gassendus, Charleton, Des Cartes, Boyle, Newton, and others, retrieved the old *corpuscularian* hypothesis; which is now become the basis of the mechanical, and experimental philosophy.

Mr. Boyle reduces the principles of the *corpuscular philosophy* to the four following heads.

1. That there is but one catholic, or universal matter, which is an extended, impenetrable, and divisible substance, common to all bodies, and capable of all forms.

This sir Isaac Newton finely improves on: "All things considered, says that great author, it appears probable to me, that God, in the beginning, created matter in solid, hard, impenetrable, moveable particles: of such sizes and figures, and with such other properties, as most conduced to the end for which he formed them; and that these primitive particles, being solids, are incomparably harder than any of the sensible porous bodies compounded of them; even so hard as never to wear, or break in pieces: no other power being able to divide what God made one in the first creation. While these *corpuscles* remain entire, they may compose bodies of one and the same nature and texture in all ages: but should they wear away, or break in pieces, the nature of things depending on them would be changed: water and earth, composed of old worn particles, and fragments of particles, would not be of the same nature and texture now, with water and earth composed of entire particles at the beginning. And therefore, that nature may be lasting, the changes of corporeal things are to be placed only in the various separations, and new associations, of these permanent *corpuscles*."

2. That this matter, in order to form the vast variety of natural bodies, must have motion in some, or all its assignable parts; and that this motion was given to matter by God, the creator of all things; and has all manner of directions and tendencies.

"These *corpuscles*, says sir Isaac Newton, have not only a vis inertiae, accompanied with such passive laws of motion as naturally result from that force; but also are moved by certain active principles; such as that

"of gravity, and that which causes fermentation, and the cohesion of bodies."

3. That matter must also be actually divided into parts; and each of those primitive particles, fragments or atoms of matter, must have its proper magnitude, figure, and shape.

4. That these differently sized and shaped particles have different orders, positions, situations and postures, from whence all the variety of compound bodies arises.

CORRECTED *calendar*. See CALENDAR.

CORRECTION, in the *Manege*, is used for aids given with severity. See CHASTISEMENTS.

CORRECTION, in *Printing*, the act of retrenching the faults in a work; or the reading, which the corrector gives the first proofs, to point out and amend the faults, to be rectified by the compositor.

The *corrections* are placed on the margin of each page, right against the line where the faults are found. There are different characters used to express different *corrections*, as D or d, *dele*, for any thing to be effaced, or left out. When any thing is to be inserted, the place is marked in the line with a caret ^, and the insertion added in the margin. When a word, syllable, &c. is to be altered, it is erased out of the proof, and that to be put in its room written in the margin; always observing, if there be several mistakes in the same line, that the *corrections* in the margin be separated by little bars, or strokes, |. If a space be omitted, its place is marked with a caret, and the margin with *. If a space be wrong placed, as in the middle of a word, the two parts are connected with a curve, and the same character put in the margin. If a letter be inverted, it is expressed on the margin with J. If any thing be transposed, it is marked thus: *The shortest [are the] [follies] best*; for the *shortest follies are the best*; and in the margin is added *tr.* in a circle. If Roman characters are to be changed for Italic, or *vice versa*, a line is drawn under them thus, and *Roman* or *Italic* added in the margin; if to capitals, a double line. If a word or sentence, is entirely omitted, the place is marked with a caret, and in the margin is inserted the word out. If the letters of a word stand too far asunder, a line is drawn under them, and in the margin is put a crooked line, or hook, thus ~.

CORRECTION, in *Rhetoric*. See EPANORTHOSIS.

CORRECTION, in *Pharmacy*. This word has several peculiar senses: and first, drastic medicines, or such as operate with violence, are said to be corrected, when in their composition some ingredient is added, which proves a kind of check to the operation, or prevent those misfortunes which they generally bring, without such correcting ingredient. Thus, for instance, some carminatives, as the seeds of fennel or anise, are added to senna leaves, which, when exhibited alone, generally excite flatulencies and gripes. The substances or ingredients thus added, with an intention to render the medicines more safe, are called *corrigentia*, or *correctoria*, *castigantia*, or *infrenantia*. Secondly, medicines which operate in a slow and languid manner, are said to be corrected, when they are so prepared as to accelerate or augment their operation: when, for instance, salts are mixed with evacuating medicines of a gumous or resinous nature, that by means of being more resolved or attenuated, they may operate more powerfully. With this intention salt of tartar, or *sal polychrestus*, are added to infusions of senna. Ingredients added with this view are called *adjuvantia*; and when more drastic substances of the same virtues are added, in order to augment the operation of the compositions, these are called *acuentia*. Thirdly, nauseous and ungrateful medicines are said to be corrected, when they are prepared in such manner as to be more agreeable and acceptable to the palate. James.

CORRECTOR of the *staple*, an officer, or clerk, belonging to the staple, who makes and records the bargains of merchants there made, anno 27 Edw. III. stat. 2. cap. 22, 23. The Romans called them *mensarii*.

CORRECTORS, in *Medicine*, such ingredients in a composition as guard against, or abate, the force, or dangerous qualities, of others. See CORRECTION.

CORREGIDOR, the name of an officer of justice in Spain, and countries subject to the Spanish government. He is the chief judge of a town or province.

CORRELATIVE, something opposed to another in any certain relation.

Thus, father and son are *correlatives*; *pater & filius sibi mutuo respondent*. Light and darkness, motion and rest, are *correlative* and opposite terms.

CORRESPONDENCE, and *Correspondency*, denotes the relation and reciprocal adaptation of one thing to another; and also intercourse and friendship.

CORRIDOR. See CORIDOR.

CORRIGIOLA, in *Botany*, a genus of the *pentandria tri-*

gynia class, with a five-leaved calyx, five petals, and a single seed, of a triquetrous, or three-sided form. There is one species.

CORRIVAL, a relative term, signifying, originally, a person, who derived water from the same source, or spring, with another; by means of some common canal, which carried it to both their lands; and which proved the occasion of frequent disputes. Hence the word came to be used for those who have the same pretensions; whether to glory, to love, or the like; but use has abridged the word; and we now both write and pronounce, *rival*.

CORROBORANTS. See STRENGTHENERS.

CORROBORATIVE, in *Medicine*, any thing that increases strength, or gives new force.

The word is likewise frequently applied to such medicines as are of use in particular weaknesses; as the fluor albus, gonorrhœas, &c. Such are terebinths, &c. All cardiacs are *corroborative*.

CORRODENTIA, or CORROSIVA, in *Medicine*, corrosives, or corroding medicines.

These are medicines of much use in surgery, which *corrode* whatever part of the body they are applied to.

Corrosives act by their acrimony, by which they destroy not only foreign substances adhering to animal bodies, but also the solids themselves, provided they meet with any moisture when applied to them; and particularly when confined upon the part by any adhesive plaster, so as to have their action excited by the heat of the body. In the two first cases they are called cathartics, in the last potential caustics. See CAUSTICS.

Corrosives are used for opening abscesses, for making issues, or artificial ulcers, for consuming tubercles, and callous excrescences; for separating and extirpating corrupted parts, and cleansing sordid ulcers; sometimes for stopping hæmorrhages. James.

CORROSION, the act of *corroding*, or gnawing away, by little and little, the continuity of the parts of bodies.

Acids *corrode* most natural bodies; and arsenic only kills, because it *corrodes* the bowels with its sharp-pointed particles.

CORROSION is used both in *Chemistry*, *Medicine*, and *Natural History*; where it stands for a particular species of DISSOLUTION, by an acid, or saline menstruum.

What *corrosion* has peculiar to it, is, that it is mostly designed for the resolution of bodies the most strongly compacted, as bones and metals; so that the menstrua employed require an uncommon moment, or force.

Now *corrosive* liquors, whether acid or urinous, are nothing but salts dissolved in a little phlegm: therefore these being solid, and consequently containing a considerable quantity of matter, do both attract one another the more, and are also more attracted by the particles of the body which is to be dissolved. And as their attractions at equal distances are proportional to their bulks, *ceteris paribus*; so when the more solid bodies are put into saline menstrua, the attraction is stronger than in other solution; and the motion, which is always proportional to the attraction, is more violent.

Hence we easily conceive, how they should drive those salts, like so many darts, into the pores of the bodies, and open and loosen the cohesion of them, though ever so firm. See ACID.

Again, we know, the more minute the particles of the menstruum are, the sooner they penetrate, and with the greater force; the motion produced by attraction being always greatest in the least corpuscles, and next to nothing in the large ones. Add to this another advantage gained by this minuteness of the particles: viz. that they approach nearer the body to be dissolved, without which the attractive force would be insensible. Hence, those very salts, which dissolved in water, will hardly touch metals, if once turned into acid spirits, easily penetrate them: for in distillation, not only a greater quantity of water remains, but the saline bodies are so minutely broken and divided by the fire, as to make them more readily capable of being moved by an attractive force; and, therefore, such a distilled menstruum is much more efficacious than any solution of salt made with water.

Corrosion is performed either by immersion or CEMENTATION, sprinkling, trituration, or mere contact with a proper MENSTRUUM.

CORROSIVE *sublimite of mercury*. See MERCURY.

CORRUGATOR, or CORRUGENS *supercilii*, a muscle arising from the great canthus of the orbit of the eye, and terminating in the skin about the middle of the eyebrows. See EYE.

Its name declares its use; being formed of *con*, together, and *ruga*, wrinkle.

Some reckon this muscle only a prolongation of the *frontales*.

CORRUGATOR *coiteri*, or *musculus frontalis verus*, in *Anatomy*. This muscle arises fleshy from the process of the

os frontis, next to the inner or great angle of the orbit, above the joining of the *os nasi*, and superior process of the *os maxillare* with this bone; from thence running obliquely outward and upward, it is inserted in the fleshy part of the *occipito-frontalis*; some of its fibrillæ passing through into the skin, a little higher than the middle region of the eyebrows.

Its use is to smooth the skin of the forehead, by pulling it down after the action of the *occipito-frontalis*; and when it acts more forcibly, it serves to wrinkle the skin of the front between the supercilia; as it happens when we frown, or knit the brows.

CORRUGATORIS *ordo exterior*, in *Anatomy*, a name given by Santorini to certain *fasciculi* of the great zygomatic muscle, running under the fleshy part of the lower lip. See *LABIUM attollens*, and *ZYGOMATICUS major*.

CORRUGATORIS *inferior ordo*, in *Anatomy*, a name given by Santorini, and some others, to that muscle of the mouth called by Albinus *orbicularis oris*; by Cowper *constrictor labiorum*; and by Douglas *sphincter labiorum*.

CORRUGENT *muscle*, the same as *corrugator supercilii*.

CORRUPTIBLE. See **INCORRUPTIBLE**.

CORRUPTICOLÆ, a sect who rose out of the Monophysites in Egypt about the year 519, under their chief, Severus, the pretended patriarch of Alexandria.

Their distinguishing doctrine, whence they derived their name, was, that the body of Jesus Christ was *corruptible*; that the fathers had owned it; and that to deny it, was to deny the truth of our Saviour's passion.

On the other hand, Julian of Halicarnassus, another Eutychian, a refugee, as well as Severus, in Alexandria, maintained that the body of Jesus Christ had been always *incorruptible*; that to say it was corruptible, was to make a distinction between Jesus Christ and the word, and by consequence to make two natures in Jesus Christ.

The people of Alexandria were divided between the two opinions; and the partisans of Severus were called *corrupticolæ*, q. d. worshippers of something *corruptible*: sometimes they were denominated *corruptibiles*; and the adherents of Julian *incorruptibiles*, or *phantasiastæ*. The clergy and secular powers favoured the first; the monks and the people the latter.

CORRUPTION, the extinction of any thing; or the act whereby it ceases to be what it was.

It is an axiom in philosophy, that *the corruption of one thing is the generation of another*.

Corruption differs from *generation*, as two contraries differ from each other.

It differs from *alteration* as a less from a greater, or a part from the whole: a thing being said to be *altered*, when it is not so far changed but it may be known, and still keeps its old name; both which it loses by *corruption*.

But, as in *generation*, no matter is produced that did not before exist; so in *corruption*, nothing is lost, but that particular modification which constituted its form, and made it to be of such a species.

Dr. Drake accounts for *corruption* in animal and vegetable bodies thus: "The principle of *corruption* is, perhaps, the same which in a state of circulation is the principle of life, viz. the air, which is found mixed in considerable quantities with all sorts of fluids; as necessary to vegetable as to animal life. Now this air has two motions, viz. an expansive one, from its natural elasticity, by means whereof it communicates that intestine motion which all juices have, and by which the containing parts are gradually extended and grow; and a circulatory or progressive motion, which is not essential to it, but is occasioned by the resistance of the solid parts of those bodies, which obliges it to take that course which is most free and open, which is through the vessels of animals and plants.

"Now, this course being stopped, the expansive motion still remains, and continues to act, till, by degrees, it has so far overcome the including bodies, as to bring itself to an equal degree of expansion with the external air; which it cannot do, without destroying the texture and continuity, or specific degree of cohesion, of those solids: which is that we call a *state of corruption*. This expansive or destructive quality of the air in bodies may be promoted two ways; and, therefore, *corruption* may be accelerated in as many, viz. either by weakening the tone or cohesion of the including parts, and so facilitating the work of the air; as is the case when fruit is bruised, which is found to corrupt much sooner there than in any other part: or, by extending the expansive force of the air itself, by heat, or some other co-operating circumstance; and so helping it to overcome the resistance the sooner." See **PUTREFACTION**.

CORRUPTION of blood in Law, an infection accruing to a man's state, attainted of felony, or treason, and to his issue. For, as he loses all to the prince, or other lord of the fee, so his heirs cannot be issue to him, or to any other ancestor by him; and if he were noble, or a gentleman, he and his heirs, are thereby ignobled and degraded. See **ESCHEAT**.

The king's pardon cleanses the *corruption* of blood in those children born after the pardon, not in those born before it; these latter continuing still incapable of inheriting the land of their father, purchased before the time of the pardon.

But note, there are several offences now made treason by act of parliament, which do not *corrupt* the blood; nor shall the criminal forfeit any thing thereby, besides what he has for life. See **ATTAINDER**.

CORSA, in *Architecture*, the same with **PLAT-band**.

CORSAIR, a pirate, or person who scours the seas, especially the Mediterranean, with a vessel armed for war, without commission from any prince, or power; to plunder merchant-vessels.

The word comes from the Italian *corsare*, of *corso*, or *à corsibus*, by reason of their courses, or excursions.

The name is commonly given to the piratical cruizers of Barbary, who had their rise about the beginning of the sixteenth century. See **PIRATES**.

A *corsair* is distinguished from a *privateer* in this, that the latter does it under a commission, and only attacks the vessels of those at war with the state whence his commission is derived. The punishment of a *corsair* is to be hanged without remission; whereas *privateers* are to be treated as prisoners of war. All *corsair* vessels are good prizes. See **PRIZE**.

CORSELET, a little **CUIRASSE**, according to some; and according to others, a coat, or cover for the whole trunk, anciently worn by the pikemen, commonly placed in the front and flanks of the battle, for the better resistance of the enemies assaults, and the surer guard of the soldiers placed behind, or within them. Vaugelas observes, that the seamen were anciently armed with *corselets*.

CORSEPRESENT, in *Ancient Authors*, denotes a *mortuary*. The word is formed of the French, *corps present*; and the reason of the denomination is probably this: that where a mortuary, after a man's death, became due, the best or second best beast was offered, or *presented* to the priest, and carried along with the *corps*.

CORSNED bread, *panis conjuratus*, or *curfed bread*, a superstitious manner of trial, used among our Saxon ancestors, by a piece of barley-bread, first execrated by the priest, then offered the suspected criminal to be swallowed by way of purgation: from an opinion that a guilty person could not swallow a piece of bread so accursed, or if he did, that it would choke him.

The ceremony was accompanied with a prayer, beseeching God, "That the criminal's jaws might be shut, his throat so narrow, that he might not swallow, and that he might cast it out of his mouth." Du-Cange.

CORSOIDES, in *Natural History*, a name given by some authors to a species of agate of a greyish white, full of slender veins, of a clearer white, resembling hairs. It is one of the German agates, and sometimes seen among our jewellers, cut into tops of snuff-boxes, and other toys, but is not much esteemed.

CORTES, a term purely Spanish, properly signifying the *courts*, i. e. the states, or assembly of the states, at Madrid.

CORTEX, a Latin name, denoting the **BARK**, or outer coat of a tree, or shrub.

CORTEX aurantiorum: the powder of *cortex aurantiorum* sometimes cures quartan agues. *Commerc. Norimb.* 1735. Hebd. 11. § 3.

CORTEX Peruvianus, called also *quinquina*, *kinkinna*, *quinaquina*, *pulvis patrum*, and popularly the *Jesuit's bark*, is the bark of a tree, growing in the West-Indies, called by the Spaniards *palo de calenturas*, q. d. *fever-wood*; by reason of its extraordinary virtue in removing all kinds of intermitting **FEVERS** and agues. See **CINCHONA**.

The Indians commonly call it the *fuddling tree*, from the property it has of intoxicating fishes, when either its wood or bark is beaten, and steeped in the water where they are. The tree that yields this noble specific, is only found in Peru; in the Province of San Francisco de Quito, or Quinto, near the city of Loxa; though some say it is also found in that of Potosi; and F. Labat, in the island of Guadeloupe. The bark, while on the tree, is streaked, of a whitish yellow without side, and a pale tan-colour within.

The Spaniards distinguish four sorts of this precious bark, viz. the *casarilla colorada*, or reddish bark; *amarylla*, or yellowish; *crepsilla*, or curling; and *blanca*, or whitish. The *colorada* and *amarylla* are reckoned the best: the *crepsilla* is the produce of the same sort of tree, only growing in a cold, frosty climate, which impairs the quality of the bark, and renders it whitish on the outside, and cinnamon-coloured within, and unfit for medicinal use. As to the *blanca*, as it is procured from another species of the tree of a much larger trunk, the leaves of a lighter green colour, and the bark of a very thick spongy substance, whitish on the outside; being withal so tough,

as to require the force of an ax to slice it from the tree. When first cut down it is as bitter as the best sort, and has then the same virtue in the cure of intermitting fevers; but when dry, and kept any length of time, it grows insipid, and good for nothing. In reality, both sorts are found to have much surer and quicker effects when green than when dry; so that the Europeans only come in for the second rate virtues: what is worse, the bad sort is in great plenty, and the good is very scarce, and hard to come at: for which reason, with a little of the fine bark sent yearly to Panama, for Europe, large quantities of the worst sort are usually mixed.

The *amarylla*, or small bark, which curls up like sticks of cinnamon, and which in England is much esteemed, as being supposed to be taken from the branches of the tree, and therefore more efficacious in the cure of fevers, is only the bark of the younger trees; which being very thin curls in this manner. For the bark of the branches is never gathered: it would not compensate the charge of cutting.

The season of cutting the bark is in August, the only settled dry time in the country. After a tree has been barked, it requires eighteen or twenty years for a good bark to grow again.

Mr. Arrot, a Scotch surgeon, who had gathered the bark in the place where it grows, and from whom we received this account, by means of Mr. Gray, at Carthagena, is of opinion, that the gathering the better sort of bark will soon be at end, or at least very much reduced, partly by reason of its distance from any inhabited place, and the impenetrability of the woods where it grows, and partly by the want of Indians to cut it, whose race, through the cruelties of the Spaniards, is like to be totally extinct.

The most accurate account we have ever received of the tree which produces the *quinquina*, or Peruvian bark, is from M. de la Condamine, who, in travelling through some parts of America, chose the route of Loxa, where the finest bark is gathered, and where the greatest number of the trees is found; and taking instructions from M. de Jussieu, informed himself concerning it. The *quinquina-tree* never grows in the plains; it is a constant inhabitant of the mountains, and is easily known from the trees among which it grows by its erect growth, and its height when of any considerable age, as it always carries its head above the rest, and also by its size. These trees are never found in clumps or clusters together, but always separate or single among other kinds.

It is very rare, however, to find any large ones at this time on the mountain where the bark is gathered, the great demand for it having made them bark all the trees, and these having all perished by it; for the old trees never recover the barking, though the young ones frequently do.

The bark is now gathered at all times, if the weather be dry. When the bark is taken off, it is laid in the sun till it is perfectly dry; the omitting this circumstance, and packing up the bark while moist, have occasioned it often to become mouldy, and spoil; and the merchants have attributed this to the taking it off in the wrong time of the moon, when it was wholly owing to its being put into the skin while too moist.

The leaves of the *quinquina-tree* stand on pedicles of about half an inch long: they are very smooth and glossy, and of a beautiful green; but somewhat paler on the under side than the upper. They are perfectly smooth at the edges, and are of an oblong figure, pointed at the end, and rounded at that part which joins to the stalk. They are from two and a half to three inches in length, and from an inch and an half to two inches in breadth. The middle rib of the leaf is rounded on the upper side, and is usually of a reddish colour, especially towards the pedicle; and the whole leaf often becomes red, when perfectly mature. All the small branches towards the top of the tree terminate in one or more clusters of flowers, which before they are open, resemble in their shape, and their bluish grey colour, those of the common lavender.

When these open they change their colour: each stalk that sustains one of these clusters of flowers arises from the axil of one of the leaves, and divides into a great number of small branches, each of which is terminated by a cup divided into five parts, which sustains a flower resembling that of the hyacinth. It is composed of a pipe of three quarters of an inch long, which at the end is divided into five, and sometimes into six segments. These are of a beautiful deep red within, and are serrated round the edges in a very elegant manner. From the bottom of the tube of the flower there arises a white pistil, terminated by a long green head; this arises above the level of the segments of the flower, and is surrounded by five stamina, which sustain apices of a pale yellow colour: these remain hid within the flowers. The tube is of a dirty red, and is covered with a sort of whitish down. When the flower is fallen, the cup

swells in the middle into the form of an olive, which by degrees grows into a fruit divided into two cells, which in drying become shorter, and the whole fruit rounder than in its natural condition.

This fruit finally opens longitudinally into two capsules, separated by a membranaceous septum, and coated by a thin yellowish skin; the seeds are of a reddish colour, and in shape are flattish, and, as it were, foliaceous; they are not more than the twentieth part of an inch in diameter, and are thickest in the middle, becoming thinner at each side. The plantula feminalis lies in the very centre of the seed, between two pellicles: these seeds are fastened in the manner of so many scales to a placenta of an oblong figure, pointed at the two extremities, so as somewhat to resemble a seed of the common oat, but that it is longer and flatter. This is joined to the septum, and has on that part a longitudinal furrow; but on the other side is convex, and somewhat rough all over. Mem. Acad. Scienc. Par. 1738.

By this description it appears, that they were very ignorant of the nature and characters of this tree, who, when it was first introduced among us, called it a species of *sebesten*.

The use of this febrifuge seems to have been very long known to the natives, probably as early as 1500, and their manner of taking it was by pounding the bark, and laying it to infuse in water, and drinking the infusion; their hatred to the Spaniards, their conquerors, made them keep it a long time a secret from them; and when the thing became known among the inhabitants of Loxa, it still remained a secret to the rest of the world, and its great value was never generally known till the year 1653; when the lady of the viceroy of Peru, the countess de Chinchon, being long ill of an intermitting fever, which would give way to none of the known remedies, the corregidor of Loxa sent to the viceroy a quantity of the *quinquina* bark, which he assured him would cure the lady, though all other means had failed. Upon this the corregidor was sent for to Lima, and after having given the medicine to many other persons with safety and success, the lady at length took it and was cured. She immediately on this sent for a large quantity of the bark, had it powdered, and herself dispersed it to those who had occasion for it; whence it obtained the name of the *countess's powder*: but this lady being soon tired of the office, gave it in charge to the Jesuits; and they continuing to give it to the sick with the same success, it then was called the *Jesuits powder*. These reverend fathers soon found means to send a quantity of it to cardinal Lugo, who dispersed it with the same success at Rome; and after him the apothecary to the college gave it gratis to the poor with the same good effects, and under the name of the *Jesuits*, or the *cardinal's powder*: afterwards the better sort were made to pay its weight in silver for it, to defray the expences of its importation, while the poor still had it gratis. Lewis XIV. at that time dauphin of France, was cured by it of a fever, which had not given way to other medicines.

When the count and countess of Chinchon returned to Spain, their physician, Juan de Vega, who brought a great quantity of it over with him, sold it at a considerable price; and soon after this, large quantities were sent over by the galleons: but the great demands from Europe causing the inhabitants of Loxa to adulterate it with other barks, it had like to have lost part of its just praise. The *quinquina-trees* are found at this time on all the chain of mountains adjoining to Cajanuma, and in many other parts of America.

When first introduced, it is said to have been sold for about eight shillings sterling the dose; which great price, with the little effects found from it, by reason of their ignorance of the manner of preparing and prescribing it, occasioned its being disused, till about the year 1679, that Mr. Talbor, an English practitioner in physic, brought it into vogue again, by the great number of cures wrought about the court and city of Paris with this powder, prepared after his manner: the secret whereof was soon after made public by the munificence of Louis XIV. who rewarded Talbor for the communication with five thousand crowns.

The *quinquina* is sold either in bark, or in powder: those who buy it in the bark, must choose it very dry and compact; such as has never been moistened, and which will break close and smooth, is friable between the teeth, is easily pulverized, and yields a powder of a pale cinnamon colour. It has a musty kind of smell, and yet so much of the aromatic, as not to be disagreeable. The inferior kinds, when broken, appear woody, and in chewing separate into fibres. The female bark is considerably thicker, whiter on the outside, redder within, and weaker in smell and taste than the former, and much inferior in medicinal virtue. The small, fine, quilled barks, shagreened without, and reddish within, of a bitter musty taste, are the most esteemed. The powder must

be well sifted, and care be taken to buy it of persons that may be trusted; it being very easy to sophisticate it, and difficult to find out the fraud. The *red bark* lately brought into reputation by the experiments of the ingenious Dr. Saunders, possesses the virtues of the common bark in a much higher degree. A quantity of it was introduced to London, as part of the cargo of a Spanish ship from Lima, taken by an English frigate in 1779 and carried into Lisbon. Whether this is the bark of the trunk of full-grown trees, the branches, or young trees yielding the pale bark, or whether the trees be of different species, is not yet accurately determined. In the province of Santa-Fe, there has been lately discovered two kinds of cinchona, one of which is the red bark of Peru, and the other, one of the white species.

The *cortex* is a bitter, absorbent, and astringent, or styptic: from its bitterness, M. Reneaume observes it becomes fit to soften four acrimonious juices; for a sour and a bitter make a sweet. Again, as an absorbent, it blunts the points of acids, and prevents their action; and, of consequence, preserves the fluidity of the juices, which acids would coagulate. As a styptic, it must have earthy parts to absorb ferocities, by which the parts, before moistened and relaxed, will contract themselves; and, by this means, the *cortex* augments the spring and tension of the fibres: As a bitter, it warms; and it facilitates perspiration by warming and augmenting the fluidity of the juices. Its primary operation is that of strengthening the solids. On these properties it is that its medicinal uses are ascertained.

Its chief use is in curing of agues, and intermitting fevers; for which purpose it is applied in all ages, and most constitutions.

Dr. Cockburn says, it produces this effect better than any other medicine of the same intention, in the ratio of 365 to 1. It is usual to give a gentle emetic of ipecacuanha before the exhibition of the *cortex*: by thus preparing the passages, the *cortex* has not only more success, but also is not subject to cause those indispositions, viz. swelling in the belly, nausea, &c. which often arise when such preparation is neglected.

The *cortex* must never be exhibited in the paroxysm of an ague, or intermitting fever; but given in such a quantity, at times, between the paroxysms, as to prevent a return of the fit.

The *cortex* exhibited in continual fevers, is held dangerous; and care must be taken, that the remission of a continual fever be not mistaken for its intermission, which happens at particular, or stated times.

The *cortex* is given several ways, viz. in powder, in form of electary, extract, bolus, infusion, tincture, &c. When the stomach will bear it, the preparation in very fine powder is the most useful and agreeable. The arcanum Talborianum is about two ounces of the *cortex* in powder, digested in a sand-heat, with about a quart of red wine: after digestion, the wine must be poured off, and two or three ounces given every three or four hours between the paroxysms, till the intention is answered.

If the bark take downward, Venice treacle, diascordium, conserve of roses, terra Japonica, doses of laudanum, &c. must be added to its preparations. When there happens to be an obstruction of the menses from the exhibition of the *cortex*, or to prevent it, it is advisable to add to its preparations the black hellebore, æthiops mineral, cinabar, &c. The *cortex* is often used for young children in agues, by way of clyster; and also applied to the wrists, and soles of the feet, wrought up in a stiff mass, with turpentine, Venice treacle, &c. which usually answers the purpose.

Dr. Helvetius, physician to the king of France, above twenty years ago, wrote a book entirely upon the subject of curing agues by giving the *cortex* clyster-wise; in which he pretends, that this is more safe, and no less certain, than the *cortex* given by the mouth.

Dr. Cockburn in his Treatise of Sea Diseases, asserts the contrary: he alleges, that the *cortex* given inwardly is as safe, and much more certain and expeditious: and notes, that we know how to remedy all the inconveniencies the *cortex* may occasion.

Dr. Sydenham, and after him M. Reneaume, and others, have prescribed the *cortex*, with success, in melancholic and hysteric affections, commonly called vapours.

The virtues of this medicine are at this time sufficiently known; but the largeness of its dose in the common forms of powder, or infusion in wine or in water, are great disadvantages; and our common method of giving it in the extract or resin, as we prepare them, not certain, and have their inconveniency.

Mr. Geoffroy has attempted a method of giving the bark in all its efficacy, without its ill taste, and in one third of the usual dose, by means of its dry extract; twenty-four grains of which, it is asserted, contain the whole efficacy of a dram of the choicest bark in powder. Hence it appears very evident, that when we take the

bark in substance, it is only about a third part of what we are forced to swallow that can be of any use to us; and that the same portion is all we can expect in the virtues of any decoction or infusion of it. Mem. Acad. Sci. Par. 1758.

Wine, which is a liquor partly aqueous, partly saline, and partly spirituous, is a menstruum much properer to extract the virtues of the bark than mere water, as it is much more able to dissolve the juices or sap condensed and inspissated in the bark of the tree; and for this reason a strong infusion of bark in this menstruum remains clear, and keeps the resin suspended when cold; in which respect it differs from the infusion in boiling water when cooled, as the resin precipitates itself. Thus it is the fire alone which can suspend the resin in a watery infusion of the bark; and in a vinous one, the spirituous and inflammable part of the liquor does the same thing: and as the resin of the bark, which there is great reason to believe possesses all the virtues of that medicine, is wholly precipitated from watery infusions when cold, it has been said there can be but very little dependence placed on the common clear infusions in this menstruum: the remaining taste in these infusions is only a faint bitterness, which arises from the gummy and saline parts of the dried juices of the bark: the whole concrete, which alone possesses the virtue of the medicine, being of the nature of those bodies properly called *gum resins*; which are but very imperfectly soluble in water, and of which wine is the proper dissolvent. It has been found, that cold water acting more gradually than boiling water, extracts both the gummy and resinous principles of bark. And infusions made by macerating one ounce of bark in fine powder, in eight or twelve of water, without heat, for twenty-four (or even twelve) hours, have been successfully administered in doses (of the clear liquor) of two or three ounces. It is a common opinion, that bark in substance is more effectual than any preparation of it. Lewis, Mat. Med.

Peruvian bark has been found very effectual in preventing colds. The method in which it was used, in a case mentioned in the Philosophical Transactions, was, after due preparation, by bleeding or purging, to take two ounces of it every spring and fall. By this method, an habitual taking of cold, and a consequent sore throat, was cured. Phil. Trans. N^o 478. p. 3.

The antiseptic power of the bark has been abundantly evinced, and we have many accounts of its great effects in the cure of gangrenes and mortifications. See Med. Eff. Edinb. vol. iii. art. 5. or its Abridgment, vol. i. p. 175, seq. We have also several accounts of the good effects of this medicine in ulcers and the small-pox, and also in scrophulous complaints. See Med. Eff. vol. v. art. 10. or Abridgment, vol. i. p. 187.

The bark probably in cases of this kind throws off by fermentation a quantity of subtile vapour, or *fixed AIR*, which is sufficient to saturate the acrimonious matter; and even when the putrefaction has made farther advances, larger quantities of this medicine will discharge more of the antiseptic vapour, which, reaching the blood, will restore its consistence, and correct its sharpness. Macbride's Essays, edit. 3. p. 140, &c. The bark has also been applied, in conjunction with other medicines, to the cure of periodic head-achs, hysterical, hypochondriacal, vertiginous and epileptic complaints. And it is a very useful medicine in weakness of the stomach, uterine fluxes, and sundry chronical diseases proceeding from a laxity and debility of the fibres.

Many instances are recorded by medical writers of the jaundice, dropsy, asthma, and all the train of nervous disorders, brought on in a surprising short time after an injudicious administration of the bark: among others, the curious may consult the Med. Eff. Edinb. vol. iv. art. 24. The Peruvian bark is discovered to be effectual in the cure of mortifications from an internal cause. The history of this discovery is: in 1715, Mr. Rushworth, surgeon in Northampton, gave it to a patient labouring under a mortification; and having afterwards other proofs of its good effects in this disease, communicated his discovery in 1731. Mr. Amyand soon tried it in such cases, and found it successful in seven. Mr. John Douglas confirmed this by the history of a patient of his, which he published in 1732; and Mr. Shipton soon after related his success by this medicine, to the Royal Society. Mr. Rushworth and Mr. Amyand confirmed its use to mortifications from an internal cause; the former thinks it is not proper in all cases of that kind, particularly where there is no intermission in the fever. Mr. Douglas seems to think it will succeed in all mortifications. All these three gentlemen gave half a dram for a dose every fourth hour. Mr. Shipton increased the dose to two scruples, and gave it while the fever continued. He proposed to have it tried in nomæ, phagedenæ, herpes, or other chi-ronion ulcers.

Some call the gentian-root the European *quinquina*, because good against intermitting fevers. The sea-side beech

of Jamaica, or *Cinchona Caribæa* of Linnæus, is a species of the Jesuits bark, produced in Jamaica and the Caribbee islands, which, together with its virtues, has lately been accurately described by Dr. Wright, who has found it very efficacious in the dangerous remittent fevers of the West Indies; and it has lately been administered in London in intermittents, in which it has effected a cure as completely as the Peruvian bark. Phil. Transf. vol. lxvii. 504. Med. Com. vol. v. p. 398. part ii.

CORTEX Winteranus, or *Winteri*, the bark of a tree brought from the streights of Magellan, by captain Winter, in his voyage with sir Francis Drake, in 1579. Clusius calls the tree, *Magellanica aromatica arbor*. See **WINTER'S bark**. The bark is aromatic, and found of good use at sea against the scurvy: half a dram of it, boiled with some carminative seeds, sweats and relieves scorbutic patients. It has also proved an antidote against a poisonous sort of seal, called a *sea lion*, frequent in those parts.

The bark sold in the shops under the name of *cortex Winteranus*, or wild cinnamon, Dr. Sloane observes, is not the true *cortex Winteranus*; they grow on different trees, and in different countries, and their appearance is very different: yet are they so like in taste, that he thinks they may be used as succedaneums to each other. The botanical characters of this latter are these: the trunk is about the thickness of one's thigh, rising about twenty or thirty feet high, having many branches and twigs hanging downwards, making a very comely top. The bark consists of two parts, viz. outward and inward. The outward bark is as thin as a milled shilling, of a whitish ash or grey colour, with some white spots here and there on it, and several shallow furrows of a darker colour, running variously through it, and making it rough; its taste is aromatic. The inward bark is much thicker than cinnamon, being equal in thickness to a milled crown-piece, smooth, of a whiter colour than the outward, of a much more biting and aromatic taste, something like that of cloves, and not glutinous like cinnamon, but dry and crumbling between the teeth. The leaves come out near the ends of the twigs, without any order, standing on inch-long foot-stalks; they are each of them two inches long, and one inch broad near the end where broadest, and roundish, being narrow at the beginning, and thence increasing in breadth to near its end, of a yellowish green colour, shining and smooth, without any incisures about its edges, and somewhat resembling the leaves of bay or *laurocerasus*. The ends of the twigs are branched into bunches of flowers, standing somewhat like umbels, each of which has a foot-stalk, on the top of which is a calyx made up of some foliola, within which stand five scarlet or purple petals, and within them a large stylus. To these follow so many cauliculated berries of the bigness of a large pea, roundish, green, and containing within a mucilaginous pale green thin pulp, four black shining seeds, or acini, of an irregular figure.

All the parts of this tree, when fresh, are very hot, aromatic, and biting to the taste, which is so troublesome as sometimes to need a remedy from fair water. It grows in the low-land, or savanna-woods, in Jamaica, Antigua, and other Caribbee islands.

The bark of this tree is what is chiefly in use, both in the plantations of the English between the tropics, in the West Indies, and in Europe, and is without any difficulty, cured by only cutting off the bark, and letting it dry in the shade.

The people of the West Indies use it instead of all other spices, being thought very good to consume the immoderate humidities of the stomach, help digestion, expel wind, &c.

It is likewise, as well there as in Europe, thought a very good remedy against the scurvy, and to cleanse and invigorate the blood, being among the apothecaries and druggists of London used for those purposes under this name, though differing from the true *cortex Winteranus*, as before observed. Phil. Transf. Abr. vol. ii. p. 666.

CORTEX caparis. See **CAPER**.

CORTEX cerebri, the *cortical*, or cineritious substance of the **BRAIN**. This is the exterior part of the brain and cerebellum; or that part immediately under the pia mater; so called, because of its investing the inner or medullary part, as a bark does a tree.

The same is also called the *cineritious substance*, from its greyish or ash-colour.

Archangelo Piccolomini, a Ferrarese, first introduced this division of the brain into *cortical* or cineritious, and medullary or fibrous substance, in the year 1526.

The *cortical* substance is more soft and moist than the medullary; and follows or attends it through all its prominences and sinuses. It is formed from the minute branches of the carotid arteries, interwoven in the meninges, and thence continued hither in infinitely fine ramifications.

Most anatomists, after Malpighi, agree in its being glandulous; and that the medullary parts are only a continuation thereof; Ruysch alone excepted; who, from his admirable skill in injections, and the discoveries he has made thereby, maintains that it has nothing glandular in it; and others have since adopted this opinion.

CORTIN, in *Fortification*. See **CURTIN**.

CORTUSA, in *Botany*. See *Bear's Ear* **SANICLE**.

CORU, in *Botany*, *arbutus vel malo aureæ similis* I. B. *Lufitanis herba Malabarica*. This is a dwarf-tree like the quince-tree, with leaves like it, and a yellow flower, having little or no smell; but Garcias makes it have leaves like those of the peach-tree, and a white flower smelling like the *periclymenum*. The bark of the root is of a watery green, light and thin, and if broken or wounded, distils a copious milky juice; more ropy and viscid than what flows from the macer; insipid, if not a little bitterish, cold and drying, but more drying than cold.

The inhabitants of Malabar, both pagans and Christians, make much use of the liquor of the green bark, though it be very ungrateful to the taste, on account of its surprising effects in all kinds of fluxes, as in the lientery, diarrhoea, and dysentery, from whatever cause they proceed. The dose is seven ounces in the morning, and as many in the evening, if necessity require it; but because the juice is bitter and unfavoury, they wash their mouths with whey, after taking it. James.

CORVET, or **CURVET**, from the Italian *corbetta*, a *crow*, in the *Manege*, an **AIR**, resembling the hops of a *crow*, in which the horse's legs are raised higher than in the demi-volt; being a kind of leap up and a little forwards, wherein the horse raises both his fore-legs at once, equally advanced (when he is going strait forward, and not in a circle); and as his fore-legs are falling, he immediately raises his hind-legs, equally advanced; and not one before the other: so that all his four legs are in the air at once; and as he sets them down, he marks but twice with them.

This air is performed, in equal time and measure, by keeping the horse in, and with a good and just appuy; the rider keeping himself strait, and well stretched down in the saddle, and lifting his hand about three fingers breadth above the pommel of the saddle, with his body a little forward, and putting no stress on his legs.

There are three actions to be used in making *curvets*; these are to raise the horse, by the action of the hand, to support him while he is in the air, and to make him go forward, while he is off the ground.

Horses that are very dull, or very fiery, are improper for *curvets*; this being the most difficult **AIR** they can make, and requiring a great deal of judgment in the rider, as well as patience in the horse, to perform it. See Berenger's Art of Horsemanship, vol. ii. p. 117, &c. Some derive the term from the Spanish *corva*, signifying the *hock* at the hinder leg, because the horse bends his hocks, and throws his weight upon them.

CORVINA, in *Ichthyology*. See **GUATUCUSA**.

CORVINDUM nella. See **NELLA** *corvindum*.

CORVINUS lapis, in *Natural History*, a name given by some to the *belemnites*; but by others to a very different body of a whitish colour, and oval figure, convex on one side, and concave on the other, and in the middle of the concave side there arises a tubercle: this is said to be taken out of the head of a fish; and it is very possible that the authors may mean by this no other than our crab's eyes.

CORVIPETA avis, in *Ornithology*. See **GUITEGUIT**.

CORVO, in *Ichthyology*, a name by which many call the **UMBRA**, or *chromis* of authors, a large sea-fish, common in the Mediterranean, and while young, brought to the markets of Italy.

CORUS, **OMER**, **HOMER**, or **CHOMER**, in the *Jewish Antiquities*, a measure containing ten baths, or seventy-five gallons, and five pints, as a measure of things liquid, and thirty-two pecks and one pint, as a measure for things dry. The *corus* or *omer*, was most commonly a measure for things dry, and the greatest that was used among the Jews. It contained, according to the rabbins, ten ephas, or thirty sata or seahs. *Corus* is the most usual term in the historical writers, and *omer* or *chomer* among the prophets.

CORUS is also used in some of our old writers for eight bushels, or a quarter; *decem coros tritici, five decem quarteria*.

CORUSCATION, glittering, or flashing, a gleam of light emitted from any thing.

The term is chiefly used for a flash of lightning nimbly darting down from the clouds, in time of **THUNDER**.

There is a method of producing *artificial coruscations*, or sparkling fiery meteors, which will be visible not only in the dark, but at noon day, and that from two liquors actually cold. The method is this: fifteen grains of the solid phosphorus are to be melted in about a dram of wa-

ter; when this is cold pour upon it two ounces of oil of vitriol; let these be shaken together, and they will at first heat, and afterwards they will throw up fiery balls in great numbers, which will adhere like so many stars to the sides of the glass, and continue burning a considerable time; after this, if a small quantity of oil of turpentine be poured in without shaking the phial, the mixture will of itself take fire, and burn very furiously. The vessel should be large, and open at the top. Phil. Trans. N° 150. See INFLAMMABILITY.

Artificial *coruscations* may also be produced by means of oil of vitriol and iron, in the following manner. Take a glass body, capable of holding three quarts; put into this three ounces of oil of vitriol, and twelve ounces of common water: then warming the mixture a little, throw in, at several times, two ounces or more of clean iron filings; upon this an ebullition, and white vapours, will arise: then present a lighted candle to the mouth of the vessel, and the vapour will take fire, and afford a bright fulmination, or flash, like lightning. Applying the candle in this manner several times, the effect will always be the same; and sometimes the fire will fill the whole body of the glass, and even circulate to the bottom of the liquor, and at others it will only reach a little way down its neck. The great caution to be used in this experiment is the making the matter of a proper heat; for, if too cold, few vapours will arise, and if made too hot, they will ascend too fast, and will only take fire in the neck of the glass, without any remarkable *coruscation*.

CORUSCATULA, in *Natural History*, a name given by Mr. Lhuyd to a species of *fossile PLANT* of the fern-kind, which that gentleman happened to find covered with a shining or glossy coat.

CORVUS, in *Ornithology* the *crow*, or *raven*. In the Linnæan system of *Zoology*, this makes a distinct genus of birds of the order of the *picæ*, the distinguishing character of which are, that the bill is convex and sharp, the nostrils covered with recumbent bristles, the tongue cartilaginous and bifid, and the feet formed for walking. Of this genus are the CROW, RAVEN, JACK-DAW, &c.

CORVUS, in *Ichthyology*, a name given by Paulus Jovius to the *faber*, or *DORÉE*.

CORVUS, in *Antiquity*, a machine invented by the Romans at the time of their wars in Sicily, when they first engaged the Carthaginian fleet. According to Polybius, the *corvus* was framed after this manner.

On the prow of their ships they erected a round piece of timber about a foot and a half in diameter, and twelve feet in length, on the top of which was a block, or pulley; round this piece of timber was a platform of boards four feet in length, which was about eighteen feet long, and well framed and fastened with iron; the entrance was longways, and it was moveable round the aforesaid upright piece of timber, and could also be hoisted up and down within six feet of the top: about this frame was a sort of parapet, knee high, which was defended with upright bars of iron, sharp at the ends, and towards the top there was a ring, by the help of which, and a pulley, or tackle, it was hoisted and lowered at pleasure; with this moveable gallery, they boarded the enemies ship (when they did not lie side by side) sometimes on their bow, and sometimes on the after-part of the ship: the soldiers keeping the boss of their bucklers level with the top of the parapet, &c. and by the means of this new engine got a victory over the Carthaginians in their first sea-fight with them, though the enemy were long before well skilled in naval affairs, and the Romans raw and ignorant.

CORVUS Raven, in *Astronomy*, a constellation of the southern hemisphere; whose stars in Ptolemy's Catalogue are 7; in Tycho's as many; in the Britannic Catalogue 9. The order, names, longitudes, latitudes, magnitudes &c. whereof are as follow.

Names and situations of the stars.	Bayer's Char.	Signs	Longitud.	Latitude.	Magnitude
			° ' "	° ' "	
That in the beak	α	♏	7 55 35	21 44 26	4
In the neck nigh the head	β	♏	7 21 58	19 39 41	4
Small one following these	γ	♏	8 0 25	20 27 45	6
In the preceding wing	δ	♏	6 25 58	14 29 0	3
In the breast	ε	♏	9 29 58	18 16 40	5
5.					
			11 16 15	20 23 42	6
Preced. of two in the hind wing	δ	♏	9 9 13	12 9 47	3
Subseq.	η	♏	9 31 7	11 39 55	5
In the foot, common with <i>Hydra</i>	β	♏	13 3 25	18 1 40	3

CORVUS aquaticus, *Pelecanus carbo*, of Linnæus, in *Ornithology*, the name given by authors to the bird commonly known by the name of the *cormorant*, or *corvorant*, on account of its voraciousness, which is owing to a great quantity of small worms filling its intestines, and causing a very sudden digestion. This bird has a rank swell, disagreeable form, and hoarse croaking voice. It is of the size of a goose, and is of a very deep dusky brown on the back, with some admixture of a greenish gloss, and white on the belly and breast. It builds not only among rocks, but often also on trees. These birds have been trained to fish, and are used by the Chinese for this purpose. *Tab. of Birds*, N° 9.

CORVUS aquaticus, the *water-raven*, is also a name given by some authors to the *ACACALOTL*, a very beautiful Mexican water-bird, of a shining, greenish, blackish, and purplish hue. It feeds on fish, and is eaten, but is of a coarse and fishy taste.

CORVUS aquaticus minor, in *Ornithology*, a name by which Mr. Ray has very properly called a bird common on our northern coasts, and called there the *SHAGGE*, and in some places the *crane*, it being a genuine species of *cormorant*.

CORVUS cornutus, in *Ornithology*, a name by which some have called the Indian raven, with the horned beak, more usually called the *RHINOCEROS-bird*.

CORVUS fluviatilis, the *river-raven*, a name given by some writers to a very remarkable bird of the Philippine islands resembling the common raven, but being of the amphibious kind. It is called in the language of the place *casili*, or *COLOCOLO*.

CORVUS Indicus, in *Ornithology*, the name of a bird of the raven kind, very common in the Molucca islands, very large, and armed with a very strong beak and claws; it does not feed on carrion, as our raven, but eats the nutmegs, and does vast damage in destroying that fruit. Its flesh is very delicate, and has plainly the aromatic flavour of its food. Ray's *Ornithol.* p. 86.

CORVUS sylvaticus, the *wood-raven*, in *Ornithology*, the name of a bird described by Gesner, and supposed by Mr. Willughby to be no other than the *coracias*, or *pyrrhocorax*; but, if rightly described, it differs essentially from that bird in size, and in having a crest on its head. Gesner says, it is of the size of the common hen; it appears at a distance of a deep black, but, when viewed nearer, and in the sunshine, it appears of a fine glossy green; its tail is short; its toes very long, and not webbed; and it has a crest on its head. It feeds on frogs, fish, and other small animals, and builds in the ruins of old buildings, and lays two or three eggs. They fly very high; the young ones are accounted a very well-tasted food. Ray's *Ornithol.* p. 566.

CORVUS piscis, the *crow-fish*, a river-fish of the *CHUB-kind*, common in Italy, and in some parts of Germany, and called by Gesner, *capito fluviatilis rapax*, and by the common people *roppe*. It seldom grows to more than six or seven pounds weight: it is an extremely rapacious fish, not less so than the pike, and very frequently chafes its prey so hard as to drive them out upon the bank, and in that case, he usually follows them also, and both are frequently taken, stranded together. It is caught at all seasons of the year, but never in any great abundance; it is esteemed a very delicate fish. Gesner de Pisc. p. 1267.

CORYBANTES, in *Antiquity*, priests of Cybele, who danced and capered to the sound of flutes and drums. See *CROTALUM*. Horace, lib. i. ode 16. ver. 8.

Catullus, in his poem called *Atys*, gives a beautiful description of them: representing them as madmen. Accordingly Maximus Tyrius says, that those possessed with the spirit of *Corybantes*, as soon as they heard the sound of a flute, were seized with an enthusiasm, and lost the use of their reason. And hence, the Greeks use the word *κορυβαντεν*, to *corybantize*, to signify a person's being transported, or possessed with a devil. See *ENTHUSIASM*.

Some say, that the *Corybantes* were all eunuchs; and that it is on this account Catullus, in his *Atys*, always uses feminine epithets and relatives in speaking of them. Diodorus Siculus remarks, that Corybas, son of Jason, and Cybele, passing into Phrygia with his uncle Dardanus, there instituted the worship of the mother of the gods, and gave his own name to the priests. Strabo relates it as the opinion of some, that the *Corybantes* were children of Jupiter and Calliope, and the same with the *Cabiri*. Others say, the word has its origin from this that the *Corybantes* always walked dancing (if the expression may be allowed) or tossing the head, *κορυπτοντες βαινοντες*.

CORYBANTICA, a festival held in Crete, in memory of the *Corybantes*, who educated Jupiter when he was concealed in that island, from his father Saturn, who would have devoured him.

CORYCEUM, in *Antiquity*, that part of the *gymnasium*, where people undressed. It was otherwise called *APODYTERION*.

CORYCUS, whence *CORYCOMACHIA*, among the Greeks, a kind of exercise with the hand-ball. The size of the ball, and the materials of which it was prepared, were adapted to the age and strength of those who used it. It was suspended from the ceiling, and thrown off with different degrees of force, so that on its return it might act with proportionable violence. It was recommended by the physicians as a salutary exercise. Hoffman.

CORYDALEPODIUM, in *Botany*, a name given by some authors to the *delphinium*, or *larkspur*.

CORYDALES, in *Botany*, an order of plants in the *fragmenta methodi naturalis* of Linnæus.

CORYDALIUM, or *CORYDALIS*, a name used by some authors for the *fumaria*, or *fumitory*, a red-flowered little plant, improperly called by some *mayweed*.

CORYLUS. See *HAZLE*.

CORYMBIFEROUS plants; these are distinguished into such as have a *radiate* flower: as, the *flos solis*, *calendula*, &c. and such as have a *naked* flower: as, the *abrotaneum* *fœmina*, *eupatorium*, and *artemisia*; to which are added the *corymbiferis affines*, or those akin hereunto; such as *scabious*, *dipsacus*, *carduus*, and the like.

CORYMBIUM, in *Antiquity*, an ornament of hair worn by the women. Its form was that of a *CORYMBUS*.

CORYMBIUM, in *Botany*, a genus of plants of the *syngenesia monogamia* class: the calyx is prismatic, consisting of two leaves, and a single flower; the corolla is regular, and monopetalous. It contains one seed, crowned with wool-like down.

CORYMBUS, in the general, signifies the top or summit of any thing; but among the ancient botanists it was particularly used to express the bunches or clusters of ivy-berries, &c.

Some also call the top of the stalk of a plant, when so subdivided, and adorned with flowers or fruits as to make a round spherical figure, by this name; as the tops of leeks, onions, and the like: others confound the word with *umbella*, which expresses the flowery tops of such plants as have their branches and flowers spread round, into the form of what the women now call an *umbrella*. But among the modern botanists, *corymbus* is chiefly used for a compound discous flower, whose seeds are not pappous, or winged with down: such are the flowers of daisies, common marigold, &c.

Mr. Ray, therefore, makes a distinct genus of plants of such as have a compound discous flower, but without any downy wings to carry off their seeds.

CORYPHA, in *Botany*, a name by which Linnæus calls a genus of plants, of the class of *palmeæ*, called *codda panna* in the *Hortus Malabaricus*, the characters of which are these: the cup of the flower is the whole compound *spatha*; the flower is divided into three obtuse, oval segments, which stand in an expanded form; the stamina are six pointed filaments, which are longer than the flower, with antheræ growing to them; the germen of the pistil is roundish; the style is subulated and short; the stigma simple; the fruit is a large unilocular berry, containing a large hard seed.

CORYPHÆNA, in *Ichthyology*, the name of a genus of fish of the *malacopterygious* kind, of the *thoracic* order in the Linnæan system, the characters of which are these: the branchiostegæ membrane contains on each side five bones, besides two others which lie under the bony coverings of the gills, and cannot be seen. The fins are seven in number, one upon the back, reaching from the top of the head to the tail; the head is very obtuse at the end, or, as it were, perpendicularly declivous from the vertex to the mouth; the head and body are both somewhat compressed.

There are three species of this genus enumerated by Artedi, and twelve by Linnæus.

CORYPHÆUS, in the *Ancient Tragedy*, was the chief or leader of the company that composed the chorus.

The word is formed from *κορυφή*, *tip of the head*.

The *coryphæus* spoke for all the rest, whenever the chorus took part in the action, in quality of a person of the drama, during the course of the acts.

Hence *coryphæus* has passed into a general name for the chief or principal of any company, corporation, sect, opinion, &c.

Thus, Eustatius of Antioch is called the *coryphæus* of the council of Nice; and Cicero calls Zeno the *coryphæus* of the Stoics.

CORYPHE, in *Medical Writers*, is used for the crown of the head; as also for the interior extremity of the fingers next the nails.

CORYZA, in *Medicine*, a running at the nose; or a defluxion of sharp serous humours from the glands of the head; arising from a diminution of perspiration, or catching of cold.

Signs of a coryza. This disease is generally preceded by an itching, and by sneezing; sometimes by what is called a *gravedo*, a congestion of matter without excretion; this is followed by the excretion of a serous and viscous matter by the nostrils and mouth, and sometimes by the eyes; the more thin and acrid this matter is, the more severely it affects the part through which it is evacuated, so that sometimes it is attended with a sensation of pain and soreness in them.

Causes. The general causes of these defluxions, are the obstruction or suppression of natural or customary evacuations, the cold and moist temperature of the air, or a sudden chilling of the body in a hot and moist place: the leaving off a copious use of tobacco, and the abuse of snuff, or other sternutatory powders. To these are to be added, every thing that impedes natural perspiration, and sometimes suppressions of urine.

Prognostics. The simple *coryza* and *gravedo* are attended with no great danger, not even when they are of long standing, provided that the constitution be strong and healthy in other respects. But this is not the case in old and weak people; for in these, this continual defluxion upon the head too often brings on vertiginous complaints, and sometimes paralytic, and even apoplectic disorders, or else asthmas, and suffocative catarrhs, are the consequence: and if this matter, so copiously secreted from the blood, be thrown upon the lungs, it may occasion exulcerations, and even a true phthisis.

Method of cure. This is a disease which few people trouble a physician about, being usually left to nature; but it is, however, in the power of medicine to do great service, and, usually, wholly to remove the complaint; which, even where it is not attended with danger, is so far troublesome, as that any one would wish to be rid of it.

Proper evacuations, as bleeding, epispastics, sternutatories, &c. are usual in cases of *coryzas*.

When the defluxion is very violent, Stahl recommends the use of gentle diaphoretics, and of a powder composed of cinnabar, and a gentle opiate. In cases where the matter of a *coryza* is very acrid, and there is a violent pain in the head, the external use of camphor is of great service; it is in this case to be applied to the temples; and the patient should at the same time take internally powders composed of nitre and the common absorbents, and diaphoretic antimony, and afterwards should take some gentle purges, and frequently bathe the feet in warm water. See *INFANT*.

COS, in *Medicine*. See *WHETSTONE*.

Cos, *whetstone*, in *Natural History*, a genus of sand-stones, consisting of fragments of an indeterminate figure, sub-opake, and granulated. There are several species of this genus, which are used for *MILL-stones*, &c.

COSCINOMANCY, the art of divination, by means of a sieve.

The word comes from *κοσκινον*, *cribrum*, a sieve and *μαντεία*, *divination*.

The sieve being suspended, after rehearsing a formula of words, it is taken between two fingers only; and the names of the parties suspected, repeated: he at whose name the sieve turns, trembles or shakes, is reputed guilty of the evil in question.

This must be a very ancient practice: Theocritus, in his third Idyllion, mentions a woman very skilful in it. It was sometimes also practised by suspending the sieve by a thread, or fixing it to the points of a pair of sheers, giving it room to turn, and naming, as before, the parties suspected: in which last manner, *coscinomancy* is still practised in some parts of England. It appears from Theocritus, that it was not only used to find out persons unknown, but also to discover the secrets of those that were known.

COSCYLIUM, in *Natural History*, a name given by some of the old writers to the *kermes*, the true nature of which they did not know, but supposed it to be a sort of scabrous excrescence, formed of the abundant juices of the tree, and of the nature of the galls on the oak, and other trees.

CO-SECANT, in *Geometry*, the SECANT of an arch, which arch is the COMPLEMENT of another arch to 90 degrees.

COSENAGE, in *Law*, a writ that lies where the trefail, that is, the tritavus, the father of the besail, or great grandfather, being seized in fee at his death of certain lands or tenements, dies; a stranger enters and abates; then shall his heir have this writ of *cosenage*; the form of which see in Fitzh. Nat. Br. fol. 221.

COSENING, in *Law*, an offence whereby any thing is done deceitfully, in, or out of, contracts, which cannot be fitly termed by any especial name. In the civil law, it is called *stellionatus*. See *STELLIONATE*.

COSHERING, in the *Feudal Customs*, a kind of right of the lords to lie, and feast themselves, and their followers, at their tenants houses.

We find this term in Harris's Lexicon Technicum, and in Jacobs' Law Dictionary, which last quotes Spelman of parliaments MSS. for it. The word *coshering* may perhaps be derived from the old English *coshe*, a cot, or cottage.

CO-SINE, is the right SINE of an arch, which is the complement of another to 90 degrees.

COSMETIC, from *κοσμειν*, to adorn, a term in *Physic*, used for any medicine, preparation, or means, employed to beautify and embellish the face, and preserve or improve the complexion; as cerufs, and the whole tribe of fucuses, washes, cold creams, lip-salves, &c. See **WATER**.

The Indians use the water of green CACAO-nuts as a grand *cosmetic*, which wonderfully improves their complexion.

COSMICAL, something that refers, or has a relation to the world; in Greek *κοσμος*.

COSMICAL aspect, among *Astrologers*, is the ASPECT of a planet with respect to our earth.

COSMICAL qualities are used by Mr. Boyle in the same sense with systematical ones.

Though, in considering the qualities of natural bodies, we usually only take in the powers any particular one has of acting on, or its capacity of suffering from the action of another, wherewith it is observed to have some manifest commerce, by a communication of impressions; yet there may be several alterations to which it may be liable, not barely on account of those qualities presumed to be evidently inherent in it, nor of the respects it bears to those other particular bodies, whereto it seems manifestly related; there may be many unheeded agents, which by unperceived means have great operations on the body we consider, and work such changes in it, as are not otherwise to be accounted for. And these are what Mr. Boyle calls *cosmical*, or *systematical qualities*.

To account for these *cosmical* qualities, the same author proposes some *cosmical* suspensions, as to some unobserved laws and orders of nature; and refers them principally to the action of certain effluvia hitherto unobserved.

COSMICAL, is also used, in *Astronomy*, to express one of the poetical risings of a star.

A star is said to rise *cosmically*, when it rises together with the sun; or with that degree of the ecliptic wherein the sun then abides.

Cosmical setting is, when a star sets and goes down in the west, at the same time the sun rises in the east.

But, according to Kepler, to rise or set *cosmically*, is only to ascend above, or descend below, the horizon.

COSMOGONY, in *Physic*, signifies the science of the formation of the universe. It is formed of *κοσμος*, the world, and *γενεα*, I am born. It differs from *cosmography*, which is the science of the parts of the universe, supposing it formed, and in the state in which we behold it; and from *cosmology*, which reasons on the actual and permanent state of the world formed as it now is; whereas *cosmogony* reasons on the variable state of the world at the time of its formation. In our conjectures about the formation of the world there are two principles which we ought never to lose sight of. 1. That of *creation*; for certainly matter could not give itself existence, it must have received it. 2. That of a *supreme* intelligence directing this *creation*, and the arrangement of the parts of matter, in consequence of which this WORLD was formed.

COSMOGRAPHY, the description of the world; or the art which teaches the construction, figure, disposition, and relation of all the parts of the world, with the manner of representing them on a plane.

The word comes from *κοσμος*, world, and *γραφω*, I describe.

Cosmography consists chiefly of two parts. **ASTRONOMY**, which shews the structure of the heavens, and the disposition of the stars; and **GEOGRAPHY**, which shews those of the earth.

COSMOLABE, from *κοσμος*, world, and *λαμβάνω*, I take, an ancient mathematical instrument, serving to measure distances, both in the heavens, and on earth.

The *cosmolabe* is in great measure the same with the *astrolabe*. It is also called *pantacosm*, or the *universal instrument*, by L. Morgard, in a treatise written expressly upon it, printed in 1612.

COSMOLOGY, from *κοσμος*, world, and *λογος*, discourse, the science of the world in general. This Wolfius calls *general*, or *transcendental cosmology*, and has written a treatise on the subject, wherein he endeavours to explain how the world arises from simple substances; and treats of the general principles of the modifications of material things, of the elements of bodies, of the laws of motion, of the perfection of the world, and of the order and course of nature. Wolf. *Cosmologia Generalis*, Francfort, & Leipzig, 1731. 4to.

COSMOPOLITE, or **COSMOPOLITAN**, a term sometimes used to signify a person who has no fixed living, or place of abode; or a man who is a stranger no-where.

The word comes from *κοσμος*, mundus, and *πολις*, city.

One of the ancient philosophers being interrogated what countryman he was, answered he was a *cosmopolite*, i. e. an inhabitant or citizen of the world. "I prefer, says another philosopher, my family to myself, my country to my family, and the human kind to my country."

COSSART, or *Coffet Lamb*, in *Husbandry*, is a lamb left by its dam's dying, before it is capable of shifting for itself: or a lamb taken from a ewe that brings several at a yeaning. The term is also applied to a colt, calf, &c.

COSSE de geniste, an order of knighthood instituted in 1234, by Lewis IX. at his marriage with Margaret of Provence. The motto on the collar of this order was, *exaltat humiles*.

COSTA canina, in *Botany*, a name given by some authors to the *plantago quinquenervia*, or narrow-leaved plantain, commonly called *ribwort*.

COSTÆ, in *Anatomy*. See **RIBS**.

COSTAL, in *Anatomy*. There are eight **VERTEBRÆ** distinguished by the name of *costales*, or *pleurites*; because serving to articulate the *costæ*, or ribs, which are lined with the *pleura*.

These *vertebræ* are the eight which follow the second, called the *axillary*; and are therefore the third, fourth, fifth, and to the tenth inclusive.

COSTARUM depressores proprii, in *Anatomy*, a name given by Douglas, from Cowper, to what Albinus affirms to be only that part of the internal **INTERCOSTAL** muscles which lie nearest the ribs.

COSTARUM levatores, a name given by Steno, Morgagni, and others, to the muscles of the ribs, called by Albinus the *levatores breviores costarum*, and by others the *supracostales*, the *sur costaux* of the French.

COSTEENING. See **MINERALOGY**.

COSTS, in *Law*, are *expensæ litis*, recovered by the plaintiff in a suit, together with his damages: and if the plaintiff be nonsuited or overthrown by lawful trial in any action, the defendant shall have *costs*. 4 Jac. I. cap. 3. Also putting off trials, insufficient pleas, &c. on their amendment, are liable to *costs*.

Costs are allowed in chancery, for failing to make answer to a bill exhibited; or making an insufficient answer: and if a first answer be certified by a master to be insufficient, the defendant is to pay 40s. *costs*; 3l. for a second insufficient answer; 4l. for a third, &c. But if the answer be reported good, the plaintiff shall pay the defendant 40s. *costs*. An answer is not to be filed (until when it is not reputed an answer) until *costs* for contempt in not answering, are paid. Pract. Attorn. i ed. p. 210. 212. If a plaintiff in chancery dismisses his bill, or the defendant; or if a decree be obtained for the defendant, *costs* are allowed, by stat. 4 and 5 Anne, c. 16.

COSTIVENESS, *obstructio alvi*, in *Medicine*, a preternatural detention of the excrements, with an unusual hardness and dryness thereof; and, thence, a difficulty of discharging them.

This is opposite to a diarrhoea, or looseness.

An *obstructio alvi* is sometimes idiopathic, where there is no other disease concurring to it: sometimes it is symptomatic, and depends entirely on other diseases, as on fevers, congestions, and the like.

COSTIVENESS, *signs of*. The first and most obvious of these is, the not going to stool in the space of twenty-four hours; this is usually succeeded by a dizziness, and vertiginous disorder of the head, painful congestions of blood about the head, flatulencies, oppression of the stomach, and straightness and anxiety about the præcordia. Junker's Consp. Med. p. 590.

COSTIVENESS, *persons subject to*. Men of sedentary, and idle lives, are more subject than others to this complaint, especially when subject to commotions of the blood, and of a dry choleric temperament, and such as are subject to hypochondriac affections, and to the gout, or to nephritic complaints, and to acute fevers.

COSTIVENESS, *causes of*. These are observed by writers to be of two kinds, the active, and the passive. The active cause is a certain stricture which comes on in the rectum in many different disorders; as in the stone, in nephritic complaints, and, in general, in all the congestions of blood towards the upper parts of the body. What is called the passive cause of *costiveness*, is that occasioned by a sort of sluggishness in nature, which leaves the peristaltic motion of the guts too languid, on occasion of which the fæces are easily indurated in the bowels. The occasional and accidental causes which contribute to this induration of the fæces are the following: a neglecting the usual time of going to stool, and checking the natural tendencies and motions towards it; an extraordinary heat of the body, and copious sweats; a larger quantity of solid food taken in the stomach than is proper for the

the quantity of fluids swallowed, and a common use of such food as is dry and hard of digestion.

COSTIVENESS, prognostics in. It is the origin of a great many disorders; and, in particular cases, is often attended with imminent danger. In choleric habits, in which persons are subject to large quantities of bilious matter being lodged in the *primæ viæ*, *costiveness* is usually attended with colics, and violent heats. The indurated excrements also, when they press upon the veins in the guts, very often prevent the circulation, and, by that means, bring on dangerous inflammations in the parts; and, in general, whatever disease is attended with *costiveness*, is rendered worse, and more violent by it.

COSTIVENESS, method of treatment in. An idiopathic *costiveness*, when grown into a habit by long sufferance, is best cured by means of drinking more liquids than usual, and giving the body a greater share of motion, but this motion must, by no means, be violent, for that always increases the disease, but when placid and easy, it tends greatly to the restoring the peristaltic motion of the bowels to its proper state. To this it is to be added, that many people have restored themselves from this distemperature to a good state, only by going to the close-stool every day, at a certain hour, and endeavouring for some time, but without great violence, to force a stool; the consequence of a continual practice of this, for some weeks together, has brought nature to expect it, and, in fine, to be prepared for it, and always to have fæces at the time ready to be discharged. The eating a small piece of bread with a large quantity of butter spread over it every day before dinner and supper is also a good custom; and purges taken every spring and autumn are a method of bringing nature into a proper course. When the case is violent, and calls for the assistance of medicine, there is always more benefit obtained from clysters than from purging medicines given internally. These last when given, must never be violent.

In a symptomatic *costiveness*, the primary disease is always to be first regarded, and this is, generally, not a little relieved by a proper removal of the *costiveness*. In chronic cases, the same rules are to be observed as in the cure of the idiopathic *costiveness*; but in acute cases recourse is to be had to clysters, and large draughts of warm, and weak fluids, such as barley-water and the like.

When *costiveness* is attended with no other complaint, but people enjoy their perfect health with it, there is no occasion for medicines, nature being in some constitutions habituated to it, and doing well with it. There are many persons who, in general, do not go to stool oftener than once in three days; some once in a week; and there have been instances of people, who, while they have enjoyed a perfect health, and eat very heartily, have not gone above once in three or four weeks. When habitual *costiveness* is to be cured by motion, and drinking more fluids, these must be always used together; for otherwise drink alone more relaxes the bowels, and motion alone dissipates the already too little humidity. Thus either of them alone must add to the disease, which, when given together, they cure. The common method of attempting to cure *costiveness* by repeated doses of purges, brings on a great many inconveniences, particularly they always leave the bowels more bound than before, and by that means add to the complaint they were meant to relieve; and even the gentlest purging medicines have this effect. Junker's *Consp. Med.* p. 391.

In cases of this kind, Dr Huxham recommends a medicine prepared with salt of hartshorn, saturated with spirit of vinegar, which not only takes away the foetid smell of the oil of the salt, but changes it into an agreeable aromatic. *Obs. de Aere, et Morb. epid.*

COSTIVENESS, in infants. See **INFANT**.

COSTIVENESS, in Farriery, is also a disease to which horses are subject, from violent exercise, or the want of exercise, and long feeding on hard meat. An opening diet, and lenitive mild purges, as of Glauber's salts, with lenitive electary, four ounces of each dissolved in warm ale or water, repeated every other day, and scalded bran, are recommended. But a natural or habitual *costiveness*, which is not uncommon, is not so easily removed. In this case the following purge is recommended; viz. Succotrine aloes six drams, spermaceti half an ounce, fennugreek seed in powder two ounces; the whole is to be made into two balls, with a sufficient quantity of honey or treacle, and given to the horse in a morning fasting. Scalded barley should also be used instead of bran, and the liquor given milk-warm for his drink. The above purge should be repeated once in four days, till he has taken six doses. Gibson's *Farriery*, vol. ii. p. 134.

COSTMARY, in Botany. See **TANZY**.

COSTOHYOIDES, in Anatomy, a name given by Santorini to one of the muscles of the mouth, now generally called the *coracohyoideus*.

COSTRANGULA, in Botany, a name used by some for the *scrophularia*, or *figwort*.

COSTUME. To observe the *costume*, among *Painters*, is to make every person and thing sustain their proper character, by not only observing the story, but the circumstances, the scene of action, the country or place, habit, manners, &c.

The word is Italian, signifying *custom*.

COSTUS, in Botany, a genus of the *monandria monogynia* class. Its characters are these: it hath a simple spadix and spathe, with a small empalement, divided into three parts, sitting on the germen; the flower hath three concave petals which are erect and equal, with a large oblong nectarium of one leaf, having two lips, the upper is shorter, and turns to a stamen. which is fastened to the upper lip of the nectarium; the germen is situated within the receptacle of the flower, and afterward becomes a roundish capsule with three cells, containing several triangular seeds. We know but one sort of this plant, which is the Arabian *costus*. This has a fleshy jointed root like that of ginger, and propagates under the surface as that doth.

The roots of this plant was formerly imported from India, and were much used in medicine; but of late years they have not been regarded, the roots of ginger being generally substituted for them.

Costus Arabicus is an attenuant, and sudorific; it is given in obstructions of the menses, and chronic cases, arising from infarctions of the viscera. Its dose is from ten grains to half a dram, but is seldom prescribed singly. Its chief use in medicine is as an ingredient in Venice treacle.

The best is heavy, of a cineritious colour withoutside, a reddish one within, difficult to break, of a strong smell, and an aromatic taste.

This root was formerly called *costus verus*, and was divided into two kinds, the *sweet* and the *bitter costus*: both of which are now uncommon. M. Charas, and others, are of opinion, there is but one kind of *costus*, which proves more or less sweet or bitter, according to the soil where it is produced, and the time in which it has been kept.

The root always contracts a bitterness, and grows darker coloured in keeping, though fresh it was pale and sweet; and hence the supposed difference, the descriptions of authors agreeing alike to each in all but these accidents.

Mr. Geoffroy has observed that this root seems to be a species of elecampane; and that our common elecampane, when plump, well fed, and carefully dried, after it has been kept a long time, assumes exactly the smell of the *costus*, and wholly differs from the common elecampane roots sold and used in the shops. *Mem. Acad. Scienc. Par.* 1740.

COSTUS Indicus, an American bark called also *costus corticofus*, *costus corticus*, or *Winter's bark*. The islands of Madagascar in Africa, or Domingo and Guadaloupe in America, are the places where the most and best is found.

CO-TANGENT, is the **TANGENT** of an arch, which is the complement of another arch to 90 degrees.

COTATUA, in Natural History, a name given by the people of the Philippine islands to a species of **PARROT**, called also *calangay*. It is all over white, and has a crest of feathers on the head. It is of the bigness of a common pigeon.

COTATUA major, in Ornithology, is a very beautiful species of parrot, common in the woods of the Philippine islands. This is of the size of a common hen. It is all over white, except that its beak and legs are black; its tongue also is black. This is the most easily taught to talk of any of the parrot-kind, and when taught, speaks the most distinctly of all the kinds.

COTE, a term used in coursing, to express the advantage one greyhound has over another, when he runs by the side of it, and, putting before it, gives the hare a turn. See **COURSING**.

COTE-gare, a kind of refuse wool, so clung or clotted together, that it cannot be pulled asunder. By 13 Rich. II. stat. 1. c. 9. it is provided, that neither denizen nor foreigner make any other refuse of wools but *cote-gare* and *vilain*. So the printed statute has it: but in the parliament-roll of that year, it is *cod-land* and *vilain*. *Cot*, or *cote*, signifies as much as cottage in many places, and was so used by the Saxons, according to Verstegan.

COTERELLUS, Cotarius, and Coterellus, according to Spelman and Du Fresne, are servile tenants: but in Domesday and other ancient MSS. there appears a distinction, as well in their tenure and quality as in their name. For the *cotarius* hath a free socage tenure, and paid a stated sum or rent in provisions or money, with some occasional customary services: whereas the *coterellus*

seems

seems to have held in mere villenage, and his person, issue, and goods, were disposable at the pleasure of the lord.

COTERIE, a term adopted from the French trading associations or partnerships, where each person advances his quota of stock, and receives his proportion of gain; and which retains its original meaning when applied to little assemblies or companies associated for mirth and good humour; where each one furnishes his quota of pleasure. Here they coin new words not understood elsewhere, but which it becomes fashionable for others to use: and they are thought ridiculous who are ignorant of them. It has been used of late to signify a club of ladies.

COTESIAN theorem, in *Geometry*, an appellation used for an elegant property of the circle discovered by Mr. Cotes. The theorem is:

If the factors of the binomial $a^{\lambda} \pm x^{\lambda}$ be required, the index λ being any integer: let the circumference ABCD, (*Tab. II. Analysis, fig. 42 and 43.*) the centre of which is O, be divided into as many equal parts as there are units in 2λ : and from all the divisions let there be drawn to any point P in the radius OA, produced if necessary, the right lines AP, BP, CP, DP, EP, FP, &c. then supposing $OA = a$, $OP = x$, the product of all the lines AP, CP, EP, &c. taken from the alternate divisions throughout the whole circumference, will be equal to $a^{\lambda} - x^{\lambda}$, or $x^{\lambda} - a^{\lambda}$, according as the point P is within or without the circle; and the product of the rest of the lines BP, DP, FP, in the remaining alternate places, will be equal to $a^{\lambda} + x^{\lambda}$.

For instance, if $\lambda = 5$, let the circumference be divided into 10 equal parts, and the point P be within the circle, then will $AP \times CP \times EP \times GP \times IP$ be equal to $OA^5 - OP^5$, and $BP \times DP \times FP \times HP \times KP = OA^5 + OP^5$. In like manner if λ be $= 6$, having divided the circumference into twelve equal parts, $AP \times CP \times EP \times GP \times IP \times LP$ will be equal to $OA^6 - OP^6$, and $BP \times DP \times FP \times HP \times KP \times MP = OA^6 + OP^6$.

The demonstration of this theorem may be seen in Dr. Pemberton's *Epist. de Cotesii inventis*.

By means of this theorem the acute and elegant author was enabled to make a farther progress in the inverse method of fluxions than had been done before. But in the application of his discovery, there still remained a limitation, which was removed by Mr. De Moivre. See Dr. Smith's *Theoremata Logometrica & Trigonometrica*, added to Cotes's *Harmonia Mensurarum*, p. 114, 115. De Moivre, *Miscel. Analyt.* p. 17.

COTESWOLD, several sheep-cotes, and sheep feeding on hills. It comes from the Saxon *cote*, i. e. *case*, a cottage, and *wold*, a place where there is no wood.

COTHURNUS, *buskin*, a very high shoe, or patten, raised on soles of cork; worn by the ancient actors in tragedy, to make them appear taller, and more like the heroes they represented; most of whom were supposed to be giants. See *BUSKIN*.

COTICE or **COTISE**, in *Heraldry*, is the fourth part of the bend; which, with us, is seldom or never borne but in couples, with a bend between them: whence, probably, the name; from the French *côté*, *side*, they being borne, as it were, a-side of the BEND.

A bend thus bordered is said to be *cotised*, *coticé*.—He bears sable on a bend *cotised* argent three cinquefoils. See *Tab. II. Herald. fig. 61*.

COTICULA, in the *Natural History of the Ancients*, the word by which the Romans expressed the *axom* of the Greeks; a stone of very great hardness, brought from Armenia, and used on many occasions; one of which was the working on such of the harder stones as iron instruments would not touch.

Many of the ancient Greeks, who had this stone from the island of Cyprus, called it, from its hardness, by the same name with the diamond, as they sometimes did iron also; which manner of writing has much misled those who have copied too carelessly from them; and even Pliny, who after having in one part of his book given a right account of this stone, and called it *cos*, in another gives a different history of it, mistaking it for a diamond.

This *coticula* was long in great esteem with the ancient artificers on gems, and served not only to work upon such of the gems as iron could not touch, but was used to bore holes through such as they strung on threads, and hung in rows in their ornaments of the bracelet-kind. And Pliny's account of the other gems being bored with Cyprian diamonds, means no more, than that they were worked with this *coticula*, which was anciently had from

the island of Cyprus, and afterwards from Armenia, and was called by some, in a metaphorical sense, *adamas*, from its great hardness.

COTICULA is also a name given by many to the touchstone; not from its being of the nature of the *coticula* of the Romans, but from its being, for the convenience of carriage and use, frequently found in the shape of a whetstone.

COTILLON, the name of a well-known brisk-dance, in which eight persons are employed. The term is French, and signifies an *under-petticoat*.

COTINUS was used by the ancients for the olive-tree, especially the *olea sylvestris*, or wild olive, which is called *κωτινος*, by the Greeks. To distinguish this from the shrub used in dying, and called by the same name, the Latins have added the epithet *coriaria* to this last: but as this is often omitted, some confusion has been occasioned by that omission. The *cōtinus* of the Latins, or *cōtinus coriaria*, is at present called by the Italians *scotano*, and is supposed by some to be the same with the *SCYTHICUM lignum*, but improperly.

COTONASTER, in *Botany*, a name given by several authors to a species of the *cratægus*; called by Mr. Tournefort the *CRATÆGUS* with oblong serrated leaves, green on both sides.

COTT, in *Sea Language*, a sort of bed-frame, suspended from the beams of a ship, in which the officers sleep between the decks. It is about six feet long, one foot deep, and between two and three feet wide. See *HAM-MOCK*.

COTTAGE, *cottagium*, is properly a little house for habitation, without lands belonging to it. Stat. 4 Edw. I. But by a later statute, 31 Eliz. c. 7. no man may build a *cottage*, unless he lay four acres of land thereto; except it be in market-towns or cities, or within a mile of the sea, or for the habitation of labourers in mines, sailors, foresters, shepherds, &c. and *cottages* erected by order of justices of peace for poor impotent people are excepted out of the statute. The four acres of land to make it a *cottage* within the law, are to be freehold, and land of inheritance; and four acres holden by copy, or for life or lives, or for any number of years, will not be sufficient to make a law *cottage*.

COTTON, *Gossypium*, in *Botany*, a genus of the *monadelphica polyandria* class. Its characters are these: the flower has a double empalement, with five plain heart-shaped petals, which join at their base, and a great number of stamina joined at bottom in a column, and inserted into the petals; it hath a round germen, supporting four styles, joined in the column; the germen afterwards becomes a roundish capsule, ending in a point, having four cells, which are filled with oval seeds wrapped up in down.

There are several varieties, and not a few distinct species of this plant, propagated in the gardens of the curious with us.

The most common species, which is the *xydon herbaceum*, or *herby cotton*, is cultivated very plentifully in Candia, Lemnos, Cyprus, Malta, Sicily, Naples, and also between Jerusalem and Damascus, from whence the *cotton* is annually brought in large quantities to us in the northern parts of Europe. It is sown on ploughed lands in spring, and is cut down as our corn in harvest-time, being an annual plant.

The *cotton* is a woolly or downy substance, which encloses the seed, and which is contained in a brown husk or seed-vessel. It is from this plant that most of the *cotton* we use is produced, the difference of the several sorts of it being owing to the different soil and climates it has grown in, and the different culture it has received.

The *cotton* in the wool, as it is usually called, is what we have from Cyprus. Damascus *cotton* is called *cotton* in the yarn; and the Jerusalem *cottons*, which are called *bazas*, are the finest kinds of all. There is also a silky *cotton* in the Antilles, called the white *cotton* of Siam, because the grain was brought from thence. This is very fine and soft; and the hosiery made of it exceeds those of silk in lustre and beauty.

All the kinds of *cotton* plants are propagated with us from seeds, which must be sown on a hot-bed early in the spring; and when the young plants are come up, they should be transplanted each into a separate pot of light earth, which is to be plunged into a moderate hot-bed of tanners bark, observing to water and shade them till they have taken root; after this they should be watered at times, and have as much air as the season will permit. As they enlarge in size, they must be shifted into larger pots; but they must be kept in a stove, where the herbaceous kinds will annually flower in autumn; but they will seldom bring their pods to any perfection.

One sort of *cotton* is a native of the East and West Indies.

COT

This is an annual plant, which perishes soon after the seeds are ripe. The staple of this is much finer than either of the other species; and is therefore well worth the attention of the British colonies in America, to cultivate and improve; since it will succeed in Carolina, where it has grown for some years. It might be a commodity worthy of encouragement by the public, could they contrive a proper gin to separate the cotton from the seeds, to which this sort adheres much closer than any of the other sorts. The cotton of this shrub is preferable to any other yet known. Miller's Gard. Dict.

The seed of the cotton being mixed in the fruit, together with the cotton itself, they have invented little machines, which being played by the motion of a wheel, the cotton falls on one side, and the seed on the other; and thus they are separated.

Cotton makes a very considerable article of commerce: it is distinguished into cotton in the wool, and spun-cotton. The first used for various purposes, is to be put between two stuffs, in quilts, night-gowns, &c. but the latter is most general; furnishing various cloths, muslins, callicoes, dimities, and hangings; besides that it is frequently joined with silk and flax, in the composition of other stuffs.

The first kind is ordinarily brought from Cyprus and Smyrna: near Smyrna its produce is greater than any where else. There are ordinarily brought from Smyrna ten thousand bails of cotton per annum; and yet there is, at least, as much more spent in the manufactures of the country.

As to the spun cottons, they are distinguished by various names: besides those from Jerusalem, called bazas, and those of Damascus, called cottons of the ounce, already mentioned, there are others called demi bazas, baladins, payas, cottons joseph, genegunso, &c.

Cotton anciently only grew in Egypt, and was used by the priests and sacrificers for a very singular kind of gowns, worn by them alone.

Cotton applied to the wounds in lieu of linen, produces an inflammation. Leewenhoeck, examining into the reasons of this with a microscope, found its fibres to have each two flat sides; whence he concludes, that each of its minute parts must have two acute angles, or edges; which acute edges being not only thinner and more subtil than the globules whereof the fleshy filaments consist, but also more firm and stiff than any of the globulous flesh, it follows, that upon the application of cotton to a wound, its edges must not only hurt and wound the globules of the flesh, but also cut incessantly the new matter brought to them to produce new flesh, and that with more ease, as this matter, not having attained the firmness and consistence of flesh, is the less able to resist its attacks: whereas the linen ordinarily used in wounds, being composed of little round parts, very close to each other, forms large masses, and is thus incapable of hurting the globous parts of the flesh.

COTTON-grass. See ERIOPHORUM.

COTTON, lavender. See LAVENDER-cotton.

COTTON-paper. See PAPER.

COTTON, philosophic, a name given by some chemical writers to the flowers of zinc, from their whiteness, and silky or cottony appearance.

COTTON-tree, silk. See BOMBAX.

COTTON-weed. See CUDWEED.

COTTONIAN Library, consisting of curious manuscripts, &c. was founded by sir Robert Cotton, who was forty years in collecting it; and at his death, in 1631, left the property of it to his family, though designed for public use. A large accession was made to this library by private benefactions before the death of the founder, and afterwards by the purchases of his heirs, and donations of others, who added to it a great number of books, chiefly relating to the history and antiquities of our own nation. An act of parliament was obtained, at the request of sir John Cotton, in 1700, for preserving it after his decease, under the above denomination, for public use. It is now fixed in the British Museum. For statutes relating to it, see 12 and 13 W. III. c. 5. and 5 Anne, cap. 30.

COTTUS, in Ichthyology, the name of a genus of the acanthopterygious fishes, the characters of which are these: the branchiostegic membrane on each side contains six very distinct bones: the head is broader than the body, and is depressed and prickly; there are two fins on the back; the foremost has several flexile prickles in it. The fins of the belly are small, and have only four bones in each, and the skin of the whole fish is smooth, not scaly. The species of this genus are three; one of which is the little fish known by the name of the miller's thumb. Artedi Gen. Pisc. 34. See DRACO Marinus.

COTULA. See CHAMOMILE.

COTULA fetida, in Botany, a name given by some to the stinking CHAMOMILE.

COU

The *cotula fetida* has all the virtues of castor, but in a more remiss degree. A decoction of it, when carefully dried, is of great use in all disorders of the hysteric kind. It is also used externally, by way of formentation, in pains and tumors. Some also use the expressed juice of the fresh leaves, as a remedy in scrophulous cases. The flowers have much the same virtues as those of the common chamomile.

COTYLA, or COTULA, a liquid MEASURE in use among the ancients, equal to the Roman semi-sextary.

Savor adds, that the Roman cotyla contained twelve ounces of any liquor: upon which principle there must have been as many cotylæ as there were liquors ordinarily sold; which is nothing strange, since, in several countries, we still find measures of different capacity, called by the same name, when they contain the same weights, though under different bulks.

Fannius says, the cotyla was the same thing with the hemina, which was half a sextary.

*At cotylas quas, si placeat, dixisse licebit
Hominas, recipit gemina sextarius unus.*

Chorier observes, that the cotyla was used as a dry measure as well as a liquid one; from the authority of Thucydides, who in one place mentions two cotylæ of wine, and in another two cotylæ of bread.

COTYLA, or COTYLE, or COTYLLOIDES, in Anatomy, is a name given the cavities at the extremities of large bones, encompassed with thick strong edges, which receive the heads, or apophyses of other bones articulated with them.

Such is the cavity in the ischion, or hip-bone, which receives the head of the bone of the thigh. It is also called acetabulum, i. e. cup.

COTYLEDON, in Botany, a name by which some authors call the umbilicus Veneris, or NAVEL-wort, a round leaved plant, found on old walls.

COTYLEDONES, in Anatomy, little glands dispersed throughout the outermost membrane of the fœtus, called chorion, and supposed to separate a nutritious juice for the subsistence of the fœtus.

Cotyledones, in this sense, are only found in sheep, goats, and some other animals; the BLACENTA in the womb supplying the place thereof in women.

Other authors use cotyledones for the apertures of the veins in the inner surface of the womb. See MATRIX.

COTYLISCUS, or COTYLUS, in Antiquity, a vessel with a narrow mouth, a very wide belly, and only one handle.

COTYTTIA, or COTYTTIS, in Antiquity, a nocturnal festival, in honour of Cotys, or Cotytia, the goddess of wantonness. They passed from Thrace to Athens, where they were introduced by Alcibiades.

COVALAM, in Botany, the name of a plant which grows in the East Indies, otherwise called *cucurbitifera trifolia Indica fructus pulpa cydonii amula*. *Cydonia exotica*. C. B. This is a tall tree which grows in Malabar, and the island of Ceylon, the fruit of which resembles a round apple in shape; it is covered with a greenish thin rind, under which lies another, which is hard and woody, enclosing a viscid, yellowish, moist substance, of a sweetish acid taste, in which are placed flat, oblong, white seeds, turgid, with a gummy pellucid juice.

The fruit, while tender, is preserved in sugar or vinegar; when ripe, they are eaten by the inhabitants of the country; while unripe, they stop a diarrhœa, or dysentery. A decoction is prepared of the bark and small roots with common water, which cures hypochondriac melancholy, palpitations of the heart, and faintings. An electary made of the bark in powder, with honey, promotes digestion, takes away head-achs and vertigos. A decoction of the leaves cures an asthma; from the flowers a water is distilled, possessed of cardiac and alexipharmic virtues. James.

COUARD, in Heraldry. See COWARD.

COUCH, in Heraldry, a term used to express the shield of a coat of arms, when it does not stand erect, but hangs downward. The origin of this position of the shield seems to have been, that the persons who were to fight in tournaments were compelled, from the time when proclamation was made, till the day of fighting, to hang up their shields, by one corner, from the windows or balconies of the neighbouring houses, or on the trees or barriers of the ground, if the exercise was performed in the fields. The horse combatants hung up their shields by the left corner, and the foot combatants by the right. Hence the left corner hanging became the most honourable; and we see, in all the sons of the royal blood of England and Scotland, that the shields with their arms all hang that way. Some writers on heraldry express this disposition by the word pendant.

COUCH, in Gaming. See BASSET.

COUCH, in Malting. See WET-couch.

Couch,

COUCH, in *Painting*, denotes a lay, or impression of colour, whether in oil or water, wherewith the painter covers his canvas, wall, wainscot, or other matter to be painted.

The word is also used for a lay or impression on any thing, to make it more firm and consistent, or to screen it from the weather.

Paintings are covered with a *couch* of varnish; a canvas to be painted must first have two *couches* of size, before the colours be laid; two or three *couches* of white lead are laid on wood, before the *couch* of gold be applied: the leather gilders lay a *couch* of water and whites of eggs, on the leather, before they apply the gold or silver leaf.

The gold wire-drawers also use the word *couch* for the gold or silver leaf wherewith they cover the mafs to be gilded or silvered, before they draw it through the iron that is to give it its proper thickness.

The gilders use *couch* for the quantity of gold or silver leaves applied on the metals in gilding or silvering. Each *couch* of gold is but one leaf, or two at most, and each of silver three, to gild: if the gilding be hatched, there are required from eight to twelve *couches*; and only three or four, if it be without hatching. To silver there are required from four to ten *couches*, according to the beauty of the work.

COUCH-grass. See GRASS.

COUCHANT, in *Heraldry*, is understood of a lion, or other beast, when lying down; but with his head lifted up; which distinguishes the posture of *couchant* from *dormant*, wherein he is supposed quite stretched out, and asleep.

COUCHANT and Levant, in *Law*. See LEVANT.

COUCHE', in *Heraldry*, denotes any thing laid all along: thus, a *chevron couché* is a chevron lying sidewise with the two ends on one side of the shield, which should properly rest on the base.

COUCHER, or **COURCHER**, in our *Statutes*, is used for a factor, or one that continues in some place or country for traffic; as formerly in Gascoign, for the buying of wines. Anno 37 Edw. III. c. 16.

COUCHER is also used for the general book, in which any religious house or corporation register their particular acts. Anno 3 & 4 Edw. VI. c. 10.

COUCHING of *cataracts*. See CATARACT.

COUCHING-needle. See NEEDLE.

COUDOU, or **KU-DU**, in *Zoology*, a species of DEER so called at the Cape of Good Hope. It is distinguished by the length of its body, which is disproportioned to its height: the delicate slenderness of its limbs: the uncommon stateliness and beauty of its horns, which are smooth, hollow, and as beautifully transparent as tortoise-shell; the stripes of white upon its skin: a black horny substance in its upper jaw, instead of teeth; a stripe of hair passing from the midst of the horns to the tail, which is white from the shoulder downwards; and a tuft of hair reaching from the neck to the breast. There are also animals of the same name, though different from each other, in Asia and America.

COVE, a small creek or bay, where boats and small vessels may ride at anchor, sheltered from the wind and sea.

COVENANT, the consent or agreement of two or more parties to do or perform something.

A *covenant* seems to be much the same with a *pañum*, or *conventum*, among the civilians.

Covenant is either in law or in fact.

COVENANT, in *Law*, is that which the law intends to be made, though it be not expressed in terms: as, if the lessor demise, and grant a tenement to the lessee for a certain term: the law intends a *covenant* on the lessor's part, that the lessee shall, during the term, quietly enjoy the lease against all lawful incumbrances.

COVENANT in fact, is that which is expressly agreed between the parties.

There is also a *covenant merely personal*, and a *covenant real*. Fitzherbert defines a *COVENANT real* to be that whereby a man ties himself to pass a thing real, as lands or tenements, or to levy a fine on lands, &c.

COVENANT merely personal, is where a man covenants with another by deed to build him a house, or to serve him, &c.

COVENANT to stand seised to uses, is when a man that hath a wife, children, brother, sister, or kindred both by *covenant* in writing under hand and seal, agree that for their or any of their provision or preferment, he and his heirs will stand seised of land to their use, either in fee-simple, fee-tail, or for life. The use being created by the stat. 27 Hen. I. c. 10. which conveyeth the estate as the uses are directed; this *covenant to stand seised* is become a conveyance of the land since the said statute. The considerations of these deeds are, natural affection, marriage, &c. and the law allows in such cases, considerations of blood and marriage to raise uses,

as well as money and other valuable consideration when a use is to a stranger.

COVENANT, in *Ecclesiastical History*, denotes a contract or convention agreed to by the Scots, in the year 1638, for maintaining their religion free from innovation. In 1581, the general assembly of Scotland drew up a confession of faith, or national *covenant*, condemning episcopal government, under the name of Hierarchy, which was signed by James I. and which he enjoined on all his subjects. It was again subscribed in 1590 and 1596. The subscription was renewed in 1638, and the subscribers engaged by oath to maintain religion in the same state as it was in 1580, and to reject all innovations introduced since that time. This oath annexed to the confession of faith received the name of the *covenant*; as those who subscribed it were called Covenanters.

COVENANT, in *Theology*, is much used in connection with other terms. Thus, the *covenant of grace* is that which is made between God and those who believe the Gospel, whereby they declare their subjection to him, and he declares his acceptance of them and favour to them. The Gospel is sometimes denominated a *covenant of grace*, in opposition to the Mosaic law.

Covenant of redemption denotes, a mutual stipulation, tacit or express, between Christ and the Father, relating to the redemption of sinners by him; previous to any act on Christ's part under the character of Mediator.

Covenant of works signifies, in the language of some divines, any *covenant* whereby God requires perfect obedience from his creatures, in such a manner as to make no express provision for the pardon of offences to be committed against the precepts of it, on the repentance of such supposed offenders, but pronounces a sentence of death upon them: such, they say, was the *covenant* made with Adam in a state of innocence, and that made with Israel at Mount Sinai.

COVENANT, *Solemn League and*, was established in the year 1643, and formed a bond of union between Scotland and England. It was sworn and subscribed by many in both nations, who hereby solemnly abjured popery and prelacy, and combined together for their mutual defence. It was approved by the parliament and assembly at Westminster, and ratified by the general assembly of Scotland in 1645. King Charles II. disapproved of it when he surrendered himself to the Scots army in 1646: but in 1650 he declared his approbation both of this and the national *covenant* by a solemn oath; and in August of the same year, made a farther declaration at Dumfermling to the same purpose, which was also renewed on occasion of his coronation at Scone in 1651. The *covenant* was ratified by parliament in this year, and the subscription of it required by every member, without which the constitution of the parliament was declared null and void. It produced a series of distractions in the subsequent history of that country, and was voted illegal by parliament, and provision made against it. Stat. 14 Car. II. c. 4.

COVENANT, *Suit*. See SUIT.

COVENANT, *Ark of the*. See ARK.

COVENTRY bell. See COMPANULA.

COVERED Flank, Fountain, Medals. See FLANK, FOUNTAIN, MEDAL.

COVERING, in *Architecture*, one of the principal parts of a building. See ROOFING.

COVERING, in *Painting*. See BODY.

CO-VERSED sine, a term which some people use for the remaining part of the diameter of a circle, after the VERSED SINE is taken from it.

COVERT, in *Law*.—*Feme COVERT* denotes a woman married, and so covered by; or under the protection of, her husband.

COVERT way, in *Fortification*, a space of ground level with the adjoining country; on the edge of the ditch; ranging quite round the half-moons, and other works without side the ditch. See Tab. *Fortification*, fig. 21. lit. b b; &c. See GLACIS.

It is otherwise called *corridor*, and hath a parapet together with its banquetie, and glacis; which form the height of the parapet.

One of the greatest difficulties in a siege, is to make a lodgment on the *covert-way*; because, usually, the besieged palisade it along the middle, and undermine it on all sides.

This is sometimes also called the *counterscarp*; because it is on the edge of the scarp.

COVERTURE, in *Law*, is particularly applied to the state and condition of a married woman; who, by the laws of our realm, is under *covert-baron*, or *sub proteſtate viri*, and called a *feme-covert*; and therefore disabled to make bargains with any, to the prejudice of herself, or her husband, without his consent or privity; or at least without his allowance and confirmation: and if the husband

husband alien the wife's lands, during the marriage, she cannot gain say it during his life.

By the law of England, *coverture*, in some cases, will excuse the woman from the pains of felony, &c. See *FEME covert*.

COUGH, in *Medicine*, a disease affecting the LUNGS, occasioned by a sharp serous humour, vellicating the fibrous coat thereof, and urging it to a discharge by spitting, &c.

Medical writers define a *cough* to be a discussory and elisory motion of the breast, by means of which nature attempts to throw off somewhat that is offensive to her.

Physicians distinguish *coughs* into the idiopathic and the symptomatic: the first is truly pectoral; the other only affects the breast, by means of the consent of parts. Of the symptomatic, or as some express themselves, the consensual *coughs*, some have a catarrhal disposition, and have a coryza for their origin or attendant, or, more strictly speaking, a gravedo; sometimes a bronchus, hoarseness, and inflammation of the tonsils; others are called hypochondriacal, which sometimes arise from disorders of the stomach, and are therefore called dry stomachic *coughs*; and sometimes from scirrhoties of the liver, whence they are common to people in cachexies, and in hectic and dropies.

A *cough*, which arises from internal causes, is to be carefully distinguished from one that rises from external. The dry and the moist *cough*, that is, those in which matter is spit up, and those in which nothing is evacuated, differ also greatly, as well in regard to their symptoms, as to the persons they attack. The dry *cough* is always more tedious to cure than the moist, and more easily returns. The stomachic *cough*, which is owing to consent of parts, is known by the quantity and thickness of the matter that is spit up, which is always most frequent after meals, and gives a tendency toward a reaching to vomit. This moist stomachic *cough* differs in this manner, in all particulars, from the dry *cough* of the same name and origin with it, as mentioned before.

The hypochondriac *cough* is abundantly distinguished from the other kinds, by its dryness, and by its vehement violence, for it always leaves a hoarseness behind it; it is always most violent after eating, and after drinking large draughts of cold liquors, or ascending steep places: as also by its bearing very well a cold and humid air, and not being exasperated by it, as the pectoral *coughs* are; and finally, by a sensation of a concussion of the diaphragm, when the effects in coughing are violent.

The common habitual dry *cough* is distinguished from the other kinds by its remarkable dryness; and the common moist habitual *cough* by its abundant quantity of matter discharged, and by its appearing pulpy and greenish, and not sanious, or streaked with blood, and continuing in the same degree usually for a considerable time. In this habitual *cough* there is no wasting of the flesh, nor is there that violent exacerbation on the taking of opiates, which is always found in the phthical *coughs*, to which all opiates seem the greatest enemies. This *cough* also always receives great benefit from purging medicines, but the phthical *cough* none at all: but both these differ greatly, according to the age and temperament of the body of the person afflicted with them.

Persons subject to coughs. The simple idiopathic *cough*, arising from internal causes, whether it be of the moist or dry kind, is almost peculiar to young people, and those of plethoric habits. The catarrhal symptomatic *cough*, which arises from external accidents, is common to persons of all states and ages, but is more frequent among old men than among others. The persons most subject to the common dry *cough*, are young people of a florid constitution and dry habit of body; and men of the middle or more advanced ages are sometimes also afflicted with it, from suppressions of the hæmorrhoidal discharges, or from omission of habitual bleedings; as are also people who are badly conformed, gibbous or crooked, and such as are afflicted with the evil, or have calculi in the bronchia, or nodes of a scirrhus nature in the lungs; and finally, such as have been ill treated in the small-pox, or have had the itch, or any other violent cutaneous eruption struck in upon them. People most subject to a common moist *cough*, are those of a phlegmatic habit, such as are apt to cool their neck and breast in autumn in damp cold air in evenings; such as have omitted their habitual bleedings, and such as have drank too freely of spirituous liquors, or taken too much of acids. The idiopathic pectoral *cough* arises from a congestion of humours in the breast; and the hypochondriac *cough* is either owing to a fault in the stomach, or to a scirrhoty in the liver.

Prognostics in coughs. The simple idiopathic pectoral *cough* very frequently goes off of itself, without the assistance of medicines; or with no farther assistance to na-

ture than bleeding, judiciously managed; but though thus gentle while recent, yet when it is become habitual, and fixed upon a person, it is very obstinate; and though at first it is far from a consumptive *cough*, yet there is no certainty but that it may, at some time or other, occasion ulcerations in the lungs. A dry *cough* in young people is much to be feared, when of long standing; for it not unfrequently degenerates into a spitting of blood, or into a consumption: this kind sometimes also changes into what authors call the *ferrine cough*, which is so violent, that persons afflicted with it are scarce able to recover themselves after a fit of it. In general, any *cough* that seizes a person in the spring, is much easier cured than one that attacks in autumn. Periodic *coughs*, that have been long used to return upon people at certain times, are always to be suspected of danger, if they leave them suddenly, and no natural or artificial evacuation is made in their place; for they too often bring on faults in digestion, and sometimes suffocative catarrhs, and paralytic disorders. A moist habitual *cough*, when it suddenly changes into a dry one, is also a bad prognostic. A violent dry hypochondriac *cough*, that frequently remits and recurs again, and is usually worst in the night, gives great reason to suspect a scirrhoty in the liver; and the more regularly it returns at stated times, the more certain is the defect of this or some other of the viscera; so that the prognostic is very fatal and very certain from it.

Method of cure. In case of a moist pectoral *cough*, it is proper first to give a purge, not violent, but yet moderately strong, to derive the matter from the breast; and the catarrhal matter must then be prepared for evacuation. When it is simply mucous, the common resolvent and discutient catarrhal medicines are to be depended upon; such are decoctions of the roots of pimpernel and iris, with the leaves of hyssop, horehound, scabious, and speedwell; with these are to be given the attenuant gums, as ammoniacum, benjamin, and sagapenum, with the warm carminative seeds. When the matter is too tough and viscous, the business then is, on the contrary, to incrassate and reduce it to a soft pulpy body. This is effected by liquorice-root or juice, with gum Arabic, figs, starch, together with all the sulphureous medicines. If, on the contrary, the matter is thin and acrimonious, and irritates violently, then the cure is to be effected by such things as obtund and sweeten it; of this kind are emulsions of almonds, and the cold seeds, with barley-water, water-gruel, the mucilages of quince and fleawort seeds, and the like; and to these are to be added occasionally spermaceti, and oil of sweet almonds. When the *cough* is habitual, laxatives are to be given after these, or in the intermediate times, during the taking them; and if the *cough* returns, when the matter of it is no longer the cause, it is to be quieted by gentle opiates, such is the storax pill; and finally, corroborants are to be given to restore the due tone of the lungs.

In the dry *cough*, the gentlest purges only can properly have place, and nothing is so proper as to begin with small doses of rhubarb; after this, to discuss the stagnating blood about the breast, decoctions of the pectoral herbs are to be taken in large quantity, such as coltsfoot, scabious, maiden-hair, and the like. While the patient is taking these, he should frequently wash his feet in warm water; and finally, the cure is to be completed by such corroborants as restore the due tone of the lungs; of this kind Stahl's tonico-nervine mixture is a very excellent medicine.

In the hypochondriacal *cough*, as there is generally a fault in the liver, the *cough* can never be cured, unless that defect can be removed. The *cough* is, therefore, to be judged, in this case, only a symptom of the disease, and the method of treatment must be the same as in the infarctions of the liver. See *HEPATIS infarctus*.

When this obstruction is removed, the *cough*, occasioned by it, goes off of itself. In cases where the hypochondriac *cough* depends on a fault in the stomach, the first consideration to be had, is, whether it be dry or moist: when it is dry, we may conclude that the fault is not so much in the stomach, as in the parts about it; and hence the motion of the congestions of blood toward the *vena porta* is to be regarded.

The moist stomachic *cough* always brings the breast into consent, and is hence often called *stomachico-pectoral cough*; for the mucous matter which lies in the fauces, and is daily evacuated rather by hawking than coughing, probably ascends up the *œsophagus*, and causes a slight *cough* in the day-time; but in the night, when that excretion ceases, it is easy for some little humidity to slip down the *aspera arteria*, and this will be again thrown up by coughing in the morning. In the cure of this, there must be first given some gentle purges; after these, such medicines as resolve viscosities in their first formation; in

in which intention the roots of elecampane and pimpernel, with that of Florentine orrice, are of great effect; and in the food it will be proper to eat large quantities of ginger, pepper, and the other spices; and at night, going to bed, drink a small glass of brandy. When the disease begins to mitigate, the essence of amber is a medicine that will do the greatest service.

Bleedings in *coughs* in general, when the constitution is plethoric, and they are done at proper times, are of great service in breaking the force of the disease; nay, in cases of a true phthisis, bleeding often greatly retards, and keeps off the bad symptoms. It is to be observed, however, in all these cases, that, when the constitution will bear it, the quantity taken away should be large, for otherwise they only invite a larger afflux of blood to the breast, and so increase instead of mitigating the force of the disease.

Bleeding is always more necessary in a dry *cough* than in a moist one, unless the suppression of some natural hæmorrhage, or the omission of the habitual bleedings, have been the occasion of it. Bleedings is also the more necessary in *coughs*, as they return at times with renewed violence, and hurt the breast and lungs; and in this case also, if cupping has been frequently used, and lately omitted, it must be had recourse to again. Purging medicines have the most speedy effects in moist *coughs* and indeed in dry ones they are not always safe, or, at the most, very gentle purgations alone are proper in this last case, where there is not a load of attending matter to be evacuated, as in the first. Sweating medicines are by some prescribed in *coughs*; but they have no proper place in any judicious regimen for these cases, unless after the *cough* is cured, and the matter carried off, when they may perhaps be of some service to complete the restoration of the constitution to its pristine state, by an equal distribution of the humours through the whole body. In simple *coughs* there is occasion for very few medicines, and, in general, inciding things, which dispose the matter to an easy evacuation, with gentle laxatives, do the whole business.

The commotions occasioned by humid *coughs* are never extremely violent, nor of any great danger, and therefore it is not necessary to be at any great pains to allay them by opiates; but these are very successfully given in cases where the emotions are greatly too violent for the quantity of matter, or where they continue after the matter is carried off and evacuated. In this case the storax pill is of great service. Juncker.

The method often followed in the convulsive *cough* is by evacuations; but this has been observed rather to prevent the disease from becoming fatal than to shorten it, such *coughs* continuing several months notwithstanding. However, a remission for some days happens after bleeding and purging, especially when the purgatives work upwards as well as downwards. Pectorals, balsamics, and attenuants, have been sometimes found to do little or no good, and opiates rather to do hurt.

COUGH, in infants. See INFANT.

COUGH, in Farriery, is a disease to which horses are very subject. Some of these are symptomatic of a CONSUMPTION, when they have been of long continuance, and are attended with loss of appetite, wasting of flesh, and weakness. Other *coughs* proceed from phlegm and slimy matter that stuff up the vessels of the lungs: in this case, which is of the asthmatic kind, the horse's flanks have a quick motion; he breathes quick; his *cough* is sometimes dry and husky, sometimes moist, before which he wheezes, rattles in the throat, and throws out of his nose and mouth a quantity of white phlegm, especially after drinking, or when he begins or ends his exercise. These *coughs* should be distinguished from that thickness of wind, which is occasioned by full or foul feeding, want of exercise, or their being taken up from winter's grass. These are easily cured by proper diet and exercise: and the other disorder may be relieved, and totally cured if it happens to a young horse, and is not of long continuance, by the following treatment. Bleeding should be used, in proportion to the state of the horse with respect to flesh; mercurial medicines are of great service: a mercurial ball with two drams of calomel may be given at night, and a common purge in the morning; or the following, which is recommended by Mr. Gibson: take gum galbanum, ammoniacum, and assa foetida, of each two drams; fine aloes, one ounce; saffron, one dram; oil of aniseed, two drams; oil of amber, one dram; with honey enough to form the whole into a ball. These may be repeated at proper intervals; and during the intervals, and for some time after, one of the following balls may be given every morning: take cinnabar of antimony; finely levigated, six ounces; gum ammoniacum, galbanum, and assa foetida, of each two ounces; garlic, four ounces; saffron, half an ounce; let the

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whole be mixed into a paste with honey. Exercise and moderate diet are also essential to the effect of any remedy. In dry *coughs*, which are the nervous asthmas of horses, moderate bleeding is proper; two drams of calomel, mixed with an ounce of diapente, may be given for two nights, and a purging-ball in the morning. This purge may be repeated with one mercurial ball once in eight or ten days; after which one of the following balls, about the size of a pigeon's egg, may be taken every day for two months or longer: take native cinnabar, half a pound; gum guaiacum, four ounces; myrrh, and gum ammoniacum, of each two ounces; Venice soap, half a pound; mix the whole with honey, or oxymel of squills. In obstinate dry *coughs*, the following has been found an useful remedy: take gum ammoniacum, squills, and Venice soap, of each four ounces; balsam of sulphur, with aniseeds, one ounce; beat them into a mass, and give them as the former. Young horses are subject to *coughs* in cutting their teeth; bleeding and warm mashes are generally sufficient for removing this complaint; but in such subjects the *cough* often proceeds from worms; if this be the case, anthelmintic medicines should be given. See ASCARIDES, and HORSE worms.

COUGH, Chin. See CHIN-cough.

COUGH, called the husk, is a disease to which young bullocks are subject. In this disorder, the wind-pipe and its branches are loaded with small taper worms. Farmers count the disease incurable; but fumigations with mercurials, as cinnabar, or with foetids, as tobacco, might prove serviceable. Phil. Trans. vol. xlix. part ii. p. 247.

COUHAGE, or *stinking-beans*; these are a kind of kidney-beans imported from the East Indies, where they are used as a cure for the dropsy.

The down growing on the outside of the pod is so pointed, as like a nettle to sting the flesh, though not with so painful a sensation. This, by a corruption of the word is called *cowitch*.

COVIN, a deceitful compact, or agreement between two or more, to deceive or prejudice a third person.

As, if a tenant for life conspire with another, that this other shall recover the land which the tenant holds, in prejudice of him in reversion.

Dr. Skinner takes the word to be a corruption of the Latin *conventum*, and therefore writes it *coven*. See CONSPIRACY.

COVING, in Building. When houses are built projecting over the ground plot, and the turned projecture arched with timber, lathed and plastered; the work is called *coving*.

COVING corniche, is a corniche with a great casement, or hollow therein.

COVINUS, among the *Ancients*, a kind of chariot, in which the Gauls and Britons used to fight in battles.

COUL, or *COWL*, a sort of monkish habit worn by the Bernardines, and Benedictines.

The word is formed from *cucullus*, by confounding the two first syllables into one, as being the same twice repeated.

There are two kinds of *couls*; the one white, very large, worn in ceremony, and when they assist at the office: the other black, worn on ordinary occasions, in the streets, &c.

F. Mabillon maintains the *coul* to be the same thing in its origin with the scapular. The author of the apology of the emperor Henry IV. distinguishes two forms of *couls*; the one a gown reaching to the feet, having sleeves, and a capuchin, used in ceremonies: the other a kind of hood to work in, called also a *scapular*, because it only covers the head and shoulders.

COULTER, in Husbandry, that part of a plough which forms the edge, standing before the share of the PLOUGH, and cutting the clods as the share tears them up. The *coulter* is an iron instrument of two feet eight inches in length, of near two inches breadth, and near one inch thick. It is driven through the beam of the plough, and fixed in its proper direction by a wedge.

The modern improvement of the plough by Mr. Tull, gives it four *coulters*; the consequence of which is, that the earth ploughed up is cut four times as small as by the common plough, which has only one.

In all *coulters*, the length and direction are to be nicely regulated. The cutting the hole and driving the wedge, regulate the direction; and its length is altered from the beam by the driving it farther down, as its point wears away.

None of these *coulters* ought to descend so low as the share, except when the land is to be ploughed very shallow; it is always sufficient for them to cut through the turf, let the plough go as deep as it will. In ploughing shallow, the fin of the share must also be broad enough to cut off the fourth piece or furrow; else that lying

very fast, will be apt to raise up the groundswift, and throw out the plough: but when the land is ploughed deeper, the groundswift will break off this fourth furrow, though the furrow be not broad enough to reach it. Tull's Husbandry.

COULTER-NEB, or **COUNTER-NEB**, in Zoology, a name by which the people in some parts of England call the *anas arctica chus*. See DUCK.

COUNCIL, or **COUNSEL**, an assembly, or meeting of divers considerable persons, or officers, to consider and concert measures touching the administration of public affairs, rendering justice, or the like.

The king's *privy-council* is the primum mobile of the civil government of England; and that from which all the inferior orbs derive their motion. See **PRIVY-COUNCIL**.

In the French polity, *councils* are very numerous: they have their *council of state*, *council of the finances*, *council of dispatches*, *council of directions*, *grand council*, *council of the regency*, *council of conscience*, &c.

COUNCIL, *Aulic*. See **AULIC**.

COUNCIL, in Church History and Polity, a synod or assembly of prelates and doctors, and deputies, met for the regulation of matters relating to the doctrine or discipline of the church. *Councils* of this kind were first introduced about the middle of the second century.

COUNCIL, *Provincial*, is an assembly of the prelates of a province under the metropolitan. See **CONVOCA-TION**.

COUNCIL, *National*, is an assembly of the prelates of a nation, under their **PRIMATE**, or patriarch.

COUNCIL, *Oecumenical* or *general*, is an assembly of all the prelates of Christendom, or of commissioners from all the churches in the Christian world, and representing the church universal. These were established by Constantine the Great, who assembled the first at Nice in 325. See **OECUMENICAL**.

Indeed to constitute a *general council*, it is not required, that all the prelates, should be actually present; it is sufficient, that the *council* be regularly appointed, and that they may be there, or are called thereto.

General councils are frequently called by ecclesiastical authors *plenary councils*. The Romanists reckon eighteen *general councils*: whereof only the first four are admitted by the reformed. The number is made out thus: two of Nice, four of Constantinople, one of Ephesus, one of Chalcedon, five of the Lateran, two of Lyons, one of Vienne, one of Florence, and the last of Trent, which held from 1545 to 1563. The *council* of Trent ordains *provincial councils* to be held every three years; yet the last held in France is that of Bourdeaux, a hundred years ago.

There have been various collections of the canons or decrees of *councils*; as that of Dr. Merlin at Paris in 1524; one of F. Crabbe, a Franciscan, in 1536; another of Surius, in 1567; another at Venice, in 1585; another at Rome, in 1608; one of Binius, canon of Cologne, in 1606, in ten volumes; another at the Louvre, in 1664, in thirty-seven volumes; another of F. Labbé and F. Cossart, Jesuits, in 1672, in seventeen volumes, more ample than the rest; lastly, another by F. Hardouin. See **CANON**.

COUNCIL of war, is an assembly of the principal officers of an army, or fleet, occasionally called by the general, or admiral, to consider of the present state of things, and concert measures for their conduct, with regard to sieges, retreats, engagements, &c.

The same term is sometimes also used for an assembly of the officers of a regiment, or ship; met to try soldiers or sailors accused of any crime.

COUNCIL, *Common*. See **MAYOR'S COURTS**.

COUNCIL and *Session* in Scotland. See **SESSIONS**.

COUNSELLOR, *Confiliarius*, in Law, is a person retained by a client to plead his cause in a court of judicature. A *counselor* at law hath a privilege to enforce any thing of which he is informed by his client, if pertinent to the matter, and is not to examine whether it be true or false; for it is at the peril of him who informs him. Cro. Jac. 60. But after the court hath delivered their opinions of the matter in law depending before them, the *counsel* at the bar are not to urge any thing farther in that cause. 1 Lill. Abr. 355. It has been held that the king's *counsel* ought not to be admitted to argue any cause against the king; though this was opposed by Serjeant Maynard. Hill. 21 Car. II. 1 Mod. 38.

No *counsel* is allowed a prisoner upon a general issue, on indictment of felony, &c. unless some doubtful point of law arise; the court is the prisoner's only *counsel*; and the behaviour of the prisoner in his own defence, is one means of discovering the truth: but this seems to be a defect in our common law. Blackst. Com. vol. iv. p. 349. In appeals and upon special pleadings, the prisoner shall have *counsel* assigned him by the court: though *counsel* is not to prompt the prisoners in matters of fact. 2 Hawk.

400, 401. Provision is made for *counsel* for prisoners in treason, by stat. 7 and 8 W. III. See **BARRISTERS** and **SERJEANTS**.

COUNSELLORS of honour. See **HONOUR**.

COUNT, **COUNTE**, **COMES**, a nobleman who possesses a domain erected into a **COUNTY**. See **VISCOUNT**.

English *counts* we distinguish by the title of *earls*; foreign ones still retain their proper name.

The dignity of a *count* is a medium between that of a duke and a baron.

According to the modern use, most plenipotentiaries and ambassadors assume the title of *counts*; though they have no county; as the *count d'Avaux*, &c.

Anciently, all generals, counsellors, judges, and secretaries of cities under Charlemagne were called *counts*; the distinguishing character of a duke and *count* being this, that the latter had but one town under him, but the former several.

A *count* has a right to bear on his arms a coronet, adorned with three precious stones, and surmounted with three large pearls, whereof those in the middle and extremities of the coronet advance above the rest.

Counts were originally lords of the court, or of the emperor's retinue, and had their name *comites*, à *comitando*, or à *commeando*: hence, those who were always in the palace, or at the emperor's side, were called *counts palatine*, or *comites à latere*. See **PALATINE**.—In the times of the commonwealth, *comites*, among the Romans, was a general name for all those who accompanied the proconsuls and proprætors into the provinces, there to serve the commonwealth; as the tribunes, præfects, scribes, &c.

Under the emperors, *comites* were the officers of the palace. The origin of what we now call *counts* seems owing to Augustus, who took several senators to be his *comites*, as Dion observes, i. e. to accompany him in his voyages and travels, and to assist him in the hearing of causes; which were thus judged with the same authority as in full senate. Gallienus seems to have abolished this council, by forbidding the senators being found in the armies: and none of his successors re-established it.

These counsellors of the emperor were really *counts*, *comites*, i. e. companions of the prince; and they sometimes took the title thereof, but always with the addition of the emperor's name whom they accompanied: so that it was rather a mark of their office than a title of dignity.

Constantine was the first who converted it into a dignity; and under him it was, that the name was first given absolutely.

The name once established, was in a little time indifferently conferred, not only on those who followed the court, and accompanied the emperor, but also on most kinds of officers; a long list whereof is given us by Ducange.

Eusebius tells us, that Constantine divided the *counts* into three classes; the first bore the title of *illustres*; the second that of *clarissimi*, and afterwards *spectabiles*; the third were called *perfectissimi*.

Of the two first classes was the senate composed; those of the third had no place in the senate, but enjoyed several other of the privileges of senators.

There were *counts* who served on land, others at sea; some in a civil, some in a religious, and some in a legal capacity: as, *comes ærarii*, *comes sacrarum largitionum*, *comes sacri consistorii*, *comes curiæ*, *comes capellæ*, *comes archiatrorum*, *comes commerciorum*, *comes vestiariæ*, *comes horreorum*, *comes opsoniorum* or *annonæ*, *comes domesticorum*, *comes equorum regiorum* or *comes stabuli*, *comes domorum*, *comes excubitorum*, *comes notariorum*, *comes legum* or *professor in jure*, *comes limitum*, or *marcarum*, *comes portus Romæ*, *comes patrimonii*, &c.

The Franks, Germans, &c. passing into Gaul and Germany, did not abolish the form of the Roman government; and as the governors of cities and provinces were called *counts*, *comites*, and *dukes*, *duces*, they continued to be called so.

These governors commanded in time of war; and in time of peace they administered justice. Thus, in the time of Charlemagne, *counts* were the ordinary judges and governors of the cities.

These *counts* of cities were beneath the dukes and *counts* who presided over provinces; the first being constituted in the particular cities under the jurisdiction of the latter. The *counts* of provinces were in nothing inferior to dukes, who themselves were only governors of provinces. Under the last of the second race of French kings, they got their dignity rendered hereditary: and even usurped the sovereignty when Hugh Capet came to the crown: his authority was not sufficient to oppose their encroachments: and hence it is they date the privilege of wearing coronets in their arms; they assumed it then, as enjoying the rights of sovereigns in their particular districts, or *counties*.

counties. But, by degrees, most of the counties became re-united to the crown.

The quality of *count* is now become very different from what it was anciently; being now no more than a title which a king grants upon erecting a territory into a county, with a reserve of jurisdiction and sovereignty to himself.

At first, there was no clause in the patent of erection, intimating the reversion of the county to the crown in default of heirs male; but Charles IX. to prevent their being too numerous, ordained that duchies and counties, in default of heirs male, should return to the crown.

The point of precedence between counts and marquises has been formerly much controverted: the reason was, that there are counts who are peers of France, but no marquises: but the point is now given up, and marquises take place; though anciently, when counts were governors of provinces, they were on a level even with dukes.

William the Conqueror, as is observed by Camden, gave the dignity of counts in fee to his nobles; annexing it to this or that county or province, and allotting for their maintenance a certain proportion of money, arising from the prince's profits in the pleadings and forfeitures of the provinces. To this purpose he quotes an ancient record, thus: Hen. II. *Rex Angliæ his verbis comitem creavit: scilicet nos fecisse Hugonem Bigot comitem de Norf. &c. de tertio denarii de Norwich & Norfolk, sicut aliquis comes Angliæ, &c.*

The Germans call a count, *graf*, or *graff*; which, according to a modern critic, properly signifies judge; and is derived from *gravis*, or *graffio*, of *γραφω*, I write. They have several kinds of these counts, or *graffs*; as *landgraves*, *marchgraves*, *burg-graves*, and *palsgraves*, or counts palatine. These last are of two kinds; the former are of the number of princes, and have the investiture of a palatinate; the others have only the title of count palatine, without the investiture of any palatinate.

Some assert, that by publicly professing the imperial laws for twenty years, the person acquires the dignity of a count palatine; and there are instances of professors in law, who have assumed the title accordingly: but there are others who question this right.

COUNT, in Law, denotes the original declaration in a real action; as the declaration is in a personal one; the libellus of the civilians answers to both.

Yet, count and declaration are sometimes confounded; and used for each other: as, *count in debt*, *count in appeal*, &c.

COUNT-WHEEL, in Clock-Work, a wheel which moves round in twelve hours; called also the *locking-wheel*. See CLOCK.

COUNTER, from *computare*, is the name of two prisons in London, for the use of the city, to confine debtors, breakers of the peace, &c.

COUNTERS, in Ship-Building, are distinguished into upper and lower. The upper counter is reckoned from the gallery to the lower part of the straight piece of the stern. The lower counter is between the transom and lower part of the gallery.

COUNTER of a horse, that part of a horse's fore-hand which lies between the shoulders and under the neck.

COUNTER, of the Latin preposition *contra*, against, is used in the composition of divers words in our Language; and generally implies the relation of opposition. As,

COUNTER-ALLEYS, in Gardening. See ALLEY.

COUNTER-APPROACHES, in Fortification, lines or trenches made by the besieged, when they come out to attack the lines of the besiegers in form.

COUNTER-APPROACH, line of, a trench which the besieged make from their covered-way to the right and left of the attacks, in order to scour or enfilade the enemy's works. It should commence in the angle of the place of arms of the half-moon that is not attacked, and of the bastion that is attacked; about fifty or sixty fathoms from the attacks; and continued as far as shall be found necessary in order to see the enemy in his trenches and parallels. This line must be perfectly enfiladed from the covered-way and the half-moon, that if the enemy get possession of it, it may be of no service to him. In this line the governor must frequently in the night-time send small parties of horse, or foot, to drive the workmen from their posts; and, if possible, to carry off the engineers, who have the direction of the works.

COUNTER-BARRY, or CONTRE-BARRE', is used by the French heralds for what we more ordinarily called *bendy sinister per bend counterchanged*. See BARRY.

COUNTER-BATTERY, a BATTERY raised to play on another, in order to dismount the guns.

COUNTER-BENDY, or CONTRE-BANDE', in Heraldry, is used by the French to express what we ordinarily call *BENDY of six per bend sinister counterchanged*.

COUNTER-BOND, is a bond given to save a person harm-

less, who has given his bond for another. This is also called *counter-security*.

COUNTER-BRACING. See TACKING.

COUNTER-BREAST-WORK in Fortification, a FAUSSE-BRAYE.

COUNTER-CHANGE, in Commerce, a mutual EXCHANGE between two parties.

COUNTER-CHANGED, in Heraldry, is when there is a mutual changing of the colours of the field and charge in an escutcheon, by means of one or more lines of partition. Thus, in the coat of the famous Chaucer; he beareth, party per pale argent and gules, a bend counter-changed; that is, that part of the bend, which is in that side of the escutcheon which is argent, is gules; and that part of it which is on the other, is argent. Vide Tab. II. Heraldry, fig. 30.

COUNTER-CHARGE, is a reciprocal charge, or RECRIMINATION brought against an accuser.

COUNTER-CHARM, a CHARM or SPELL, contrived to hinder the effect of another. See LIGATURE.

COUNTER-CHEVRONED, denotes a shield chevronny, or parted by some line of partition.

COUNTER-COLOURED. See CONTREBEND.

COUNTER-COMPONED, or CONTRE-COMPONE', or COUNTER-COMPONY, is when a bordure is compounded of two ranks of panes: as represented in Tab. Heraldry, fig. 51. When it consists but of one rank, it is called *componed*; and when of more than two, CHECKY.

COUNTER-DEED, a secret writing, or private act, either before a notary, or under a privy-seal: which destroys, changes, annuls, or alters, some more solemn and public act.

Counter-Deeds are rather tolerated than permitted: in many cases they are actually prohibited; as being usually no better than frauds. The custom of Paris annuls all counter-deeds, contrary to the tenor of a marriage.

COUNTER-DRAWING, in Painting, &c. the copying a design or painting, by means of a fine linen cloth, an oiled paper, or other transparent matter; whereon the strokes appearing through, are followed and traced with a pencil, with or without colour.

Sometimes they counter-draw on glass, and with frames or nets divided into squares, with silk, or with thread; and also by means of instruments invented for the purpose, as the parallelogram. See DESIGNING.

COUNTER-ERMINE. See ERMINE.

COUNTERFEIT Architecture. See ARCHITECTURE.

COUNTERFEITING the King's Coin and Seals. See TREASON.

COUNTERFEITS, in Law. See CHEATS.

COUNTER-FISSURE. See CONTRAFISSURE.

COUNTER-FOIL, or COUNTER-STOCK, is that part of a TALLY, struck in the EXCHEQUER, which is kept by an officer of the court.

COUNTERFORTS, Buttresses, or Spurs, are pillars of masonry, serving to prop or sustain walls, or terraces, subject to bulge, or be thrown down.

These works are usually turned archwise, and placed at a distance from each other, which is usually three times their thickness; and their length is one fourth of the height of the wall. Mr. Vauban places them at the same distance, whether the wall be high or low. See Muller's Mathem. vol. iv. p. 5, &c. who directs that their thickness should never be less than half their length.

When any thing is built on the descent of a mountain, it must be strengthened with counter-forts well bound to the wall, and at the distance of about twelve yards from each other.

COUNTER-FUGUE, in Music, is when FUGUES proceed contrary to one another.

COUNTER-GAGE, in Carpentry, a method used to measure the joints, by transferring, v. gr. the breadth of a mortise to the place in the timber where the tenon is to be, in order to make them fit each other.

COUNTER-GUARD, in Fortification, a work generally serving to cover a BASTION. It is composed of two faces, forming a salient angle before the flanked angle of a bastion. Next to the RAVELIN, it is one of the most useful outworks. They are sometimes made before the ravelins. See ENVELOPE.

COUNTER-HARMONICAL. See CONTRA-HARMONICAL.

COUNTER-INDICATION. See CONTRA-INDICATION.

COUNTER-LIGHT, a window, or light, opposite to any thing, which makes it appear to a disadvantage. A single counter-light is sufficient to take away all the beauty of a fine painting.

COUNTERMAND, in a general sense, a revocation of an order; on an excuse for setting aside, or deferring, a thing ordered to be done.

By the French law, a countermand differs from an *essoin*, i. In that, in the countermand, the consignment is proposed to be deferred to a day certain, which is not in the *essoin*.

effoin. 2. In the *effoin*, the cause of deferring the confinement is expressed, and affirmed to be true; but in a *countermand* that affirmation is not required.

COUNTERMAND, in the *English Law*, is where a thing, formerly executed, is afterward, by some act or ceremony, made void by the party that first did it.

As, if a man make his last will, and devise his land to T. S. and afterwards enfeoff another of the same land; this feoffment is a *countermand* of the will, and the will void as to the disposition of the land.

COUNTER-MANDATE. See *CONTRAMANDATUM*.

COUNTER-MARCH, in *War*, a change of the face, or wings, of a battalion; whereby the men, who were in the front, come to be in the rear.

This is an expedient they have recourse to, when the enemy attacks their rear; or when they change their march for a direction opposite to that wherein they had begun.

The *counter-march* is either made by files, or ranks: by files, when the men in the front of the battalion go into the rear; by ranks, when the wings, or flanks of the battalion change ground with one another.

The term is also used at sea, for the like change or motion of a squadron of ships.

COUNTER-MARK, a second or third mark, put on any thing marked before.

The word is applied, in commerce, to the several marks put on a bale of goods belonging to several merchants; that it may not be opened but in the presence of them all, or their agents.

In goldsmith's works, &c. the *counter-mark* is the mark, or punchion of the hall, or company, to shew the metal is standard, added to that of the artificer who made it.

Counter-mark of a horse, is an artificial cavity, which the jockeys make in the teeth of horses that have out-grown the natural mark; to disguise their age, and make them appear as if they were not above eight years old.

Counter-mark of a medal, is a mark added to a medal, a long time after its being struck.

Counter-marks appear to be faults, or flaws, in medals, disfiguring the ground, sometimes on the side of the head, and sometimes on the reverse; particularly in the large and middle-sized brass: yet they are esteemed as beauties among the curious, who set a particular value on such medals, because they know the several changes in value they have undergone; which are expressed by those *counter-marks*.

Antiquaries, however, are not well agreed about the signification of the characters they find on them. On some, N. PROB. on others, N. CAPR. on others, CASR. RM. NT. AUG. SC. Some have, for their *counter-mark*, an emperor's head; some several; some a cornucopia.

Care must be taken not to confound the monograms with the *counter-marks*: the method of distinguishing them is easy. The *counter-marks*, being struck after the medal, are dented, or sunk in; whereas the monograms; being struck at the same time with the medals, have rather a little relieve.

COUNTER-MINE, in *War*, a subterraneous vault, running the whole length of a wall, three feet broad, and six deep, with several holes and apertures therein: contrived to prevent the effect of mines, in case the enemy should make any to blow up the wall.

This kind of *counter-mine*, however, is now little in use. The modern *counter-mine* is a well, or pit, and a gallery, sunk on purpose, till it meet the enemy's mine, and prevent its effect: it being first pretty well known whereabouts that is.

COUNTER-MURE, **COUNTER-WALL**, a little wall built close to another, to fortify and secure it, that it may not receive any damage from the buildings contiguous to it. By the custom of Paris, if a stable be erected against a partition wall, there must be a *counter-wall* added, eight inches thick. M. Bullet observes, that the *counter-wall* ought never to be bound, or connected, with the proper wall.

COUNTER-MURE, in *Fortification*. See *CONTRA-MURE*.

COUNTER-PALED, **CONTRE-PALE**, in *Heraldry*, is when the escutcheon is divided into twelve pales parted per fesse, the two colours being counter-changed; so that the upper are of one colour, or metal, and the lower of another.

COUNTER-PART, a part of something opposite to another part.

Thus, in *Music*, the bass and treble are two *counter-parts*, or opposite parts.

COUNTER-PART, in *Law*, is the duplicate, or copy, of an indenture, or deed. That executed by the grantor is called the original, the rest are *counter-parts*; though it is better for all the parties to execute all, which renders them originals.

COUNTER-PASSANT, in *Heraldry*, is when two lions

are in a coat of arms, and one appears to be passing, or walking, quite the contrary way from the other. See *PASSANT*.

COUNTER-PLEA, in *Law*, a replication to a plea, or prayer.

When a tenant by courtesy, in dower, or other real action, prays the view or aid of the king, or him in the reversion, for his better defence; or if a stranger to the action begun desire to be admitted to say what he can for the safeguard of his estate: that which the demandant alleges against this request, why it should not be admitted, is called a *counter-plea*.

COUNTER-PLOT, a plot, or intrigue, contrived to thwart and overthrow another.

COUNTER-POINT, in *Music*, the art of composing harmony; or of disposing and concerting several parts so together, as that they make an agreeable whole.

Counter-point is divided into *simple*, and *figurative*; agreeably to the division of harmony, into the harmony of concords, and that of discords.

Counter-point took its name hence: when music in parts was first introduced, their harmony being so simple, they used no notes of different time, and marked their consonances by *points* set against each other. Hence, because of the equality of the notes of time, the parts were made to concord in every note.

This afterwards became denominated *simple* and *plain counter-point*; to distinguish it from another kind, wherein notes of different value were used, and discords brought in betwixt the parts; which they call *figurative counter-point*.

Simple counter-point, or the harmony of concords, consists of the imperfect as well as the perfect concords; and may therefore be denominated *perfect* or *imperfect*, according as the concords are, whereof it is composed: thus, the harmony arising from a conjunction of any note with its fifth and octave, is perfect; but with its third and sixth, imperfect.

Now to dispose the concords, or the natural notes, and their octaves, into any key, in *simple counter-point*: observe, with regard to the distinction into perfect and imperfect harmony, this general rule; viz. to the key *f*, to the fourth *f*, and to the fifth *f*, a perfect harmony must be joined; to the second *f*, the third *f*, and seventh *f*, an imperfect harmony is indispensable; to the sixth *f*, either an imperfect or perfect harmony.

In the composition of two parts, observe, that though a third appears only in the treble on the key *f*, the fourth *f*, and the fifth *f*; yet the perfect harmony of the fifth is always supposed, and must be supplied in the accompaniments of the thorough bass to these fundamental notes.

More particularly, in the composition of two parts, the rules are, that the KEY *f* may either have its octave, its third, or its fifth; the fourth *f*, and fifth *f*, may have either their respective thirds or fifths; and the first may have its sixth; as, to favour a contrary motion, the last may have its octave.

The sixth *f* may have either its third, its fifth, or its sixth. The second *f*, third *f*, and seventh *f*, may have either their respective thirds or sixths; and the last, on many occasions, its false fifth: which rules hold the same both in flat and sharp keys. For the rules of *counter-point*, with regard to the succession of concords, it must be observed, that as much as can be in parts, may proceed by a contrary motion; i. e. the bass may ascend when the treble descends, and *vice versa*. The parts moving either upwards or downwards the same way; two octaves, or two fifths, never to follow one another immediately. Two sixths / never to succeed each other immediately. Whenever the octave or fifth is to be made use of, the parts must proceed by a contrary motion, except the treble move into such octave or fifth gradually. If in a sharp key, the bass descend gradually from the fifth *f* to the fourth *f*; the last, in that case, must never have its proper harmony applied to it: but the notes that were harmony in the preceding fifth *f*, must be continued on the fourth *f*. Thirds and fifths may follow one another as often as one has a mind.

Figurative counter-point is of two kinds: in the one, discords are introduced occasionally; serving only as transpositions from concord to concord: in the other, the discord bears a chief part in the harmony.

For the first, nothing but CONCORDS are ever to be used on the accented parts of the measure; in the unaccented parts, discords may pass transiently, without any offence to the ear. This the French call *supposition*; because the transient discord always supposes a concord immediately following it: which is of infinite service in music.

For the second, wherein the DISCORDS are used as a solid and substantial part of the harmony; the discords that have place are the fifth when joined with the sixth, to which it stands in the relation of a discord: the fourth

when joined with a fifth; the ninth, which is in effect the second; the seventh; and the second and fourth. These discords are introduced into the harmony with due preparation, and are to be succeeded by concords: which is commonly called the *resolution of a discord*.

The discord is prepared by first subsisting in the harmony in quality of a concord; i. e. the same note which becomes the discord, is first a concord to the base note immediately preceding that to which it is a discord. The discord is resolved by being immediately succeeded by a concord descending from it by the distance only of second *g*, or second *l*.

As the discord makes a substantial part of the harmony, so it must always possess an accented part of the measure. Now to introduce the discords into HARMONY, it must be considered what concords may serve for their preparation and resolution; the fifth, then, may be prepared, either by being an octave, sixth, or third. It may be resolved either into the sixth or third. The fourth may be prepared in all the concords, and may be resolved into the sixth, third, or octave. The ninth may be prepared in all the concords except the octave; and may be resolved into the sixth, third, or octave. The seventh may be prepared in all the concords, and resolved into the third, sixth, or fifth. The second and fourth are used very differently from the rest; being prepared and resolved into the base. See farther under CLEF, and MODULATION.

It has been a question which has given birth to many learned disquisitions and disputes, whether the ancients had *counter-point*, or music in parts. See an account of what has been advanced on both sides, with the author's opinion on the negative, in Dr. Burney's General History of Music, vol. i. sect. 8. p. 112. 4to. 1776.

COUNTER-POINTED, by the French called *contre-pointé*, is when two chevrons in one escutcheon meet in the points; the one rising, as usual, from the base; and the other inverted, falling from the chief: so that they are *counter*, or opposite one another in the points.

They may also be *counter-pointed* the other way: that is, when they are founded on the sides of the shield, and the points meet that way; called *counter-pointed in fesse*.

COUNTER-POISE, any thing serving to weigh against another; particularly a piece of metal, ordinarily of brass or iron, making a part of the *statera Romana*, or STEEL YARD. It is contrived to slide along the beam; and from the division in which it keeps the balance in equilibrio, the weight of the body is determined.

It is also by some, called the *pear*, on account of its figure; and *mass*, by reason of its weight. Rope-dancers use a pole by way of *counter-poise*, to keep their bodies in equilibrio.

COUNTERPOISE, in the *Manege*, denotes the liberty of the action and feat of a horseman; so that in all the horse's motions he continues in the middle of the saddle, bearing equally on the stirrups.

COUNTER-POISON, an antidote or remedy, which prevents the effect of a poison.

Of this kind are Venice treacle, mithridate, orvietan, &c. *Counter-poisons* are either *general*, or *specific*: to the general kind belong angelica, carduus benedictus, the vincetoxicum, dittany, scorzonera, citrons, bezoar, hartshorn, &c. For specifics, citron-bark is supposed a *counter-poison* to nux vomica; Venice treacle to the bite of a viper; oil of scorpion to the bite of scorpions; oil of pine-apples to orpiment; gentian to the cicuta, &c.

Vander Linden, in his treatise De Venenis, says, that in every putrid indisposition, whether arising from the bite of venomous beasts, or from an alcali formed by putrefaction, vinegar drank is sovereign, either simple or distilled; either with honey in form of oxymel, or with squills.

COUNTER-POTENT, or *potent counter-potent*, by the French heralds called *contre-potence*, is reckoned a fur, as well as vair and ermine; but composed of such pieces as represent the tops of crutches, called in French *potences*, and in old English *potents*. See VAIRY-cuppy.

COUNTER-PROOF, in *Rolling-Press Printing*, a print taken off from another fresh printed; which, by being passed through the press, gives the figure of the former, but inverted.

To *counter-prove*, is also to pass a design in black lead, or red chalk, through the press, after having moistened with a sponge, both that, and the paper on which the *counter-proof* is to be taken.

COUNTER-QUARTERED, by the French called *contre-escartelé*, denotes the escutcheon, after being quartered, to have each quarter divided again into two: so that there are in it eight quarters, or divisions.

COUNTER-ROLL, a copy of the ROLLS relating to appeals, inquests, &c.

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COUNTER-ROUND, a body of officers going to visit and inspect the rounds.

COUNTER-SALIENT, is when two beasts are borne in a coat of arms in a posture of leaping from each other, directly the contrary way.

COUNTER-SCARP, in *Fortification*, the exterior slope, or acclivity of the ditch, looking towards the champagne. See *Tab. Fortification*, fig. 21. lit. c c.

COUNTER-SCARP is also used for the covert-way, and the glacis. *Counter-scarps* are sometimes made of stone, and without any slope.

To be lodged on the *counter-scarp*, is to be lodged on the covert-way, or the GLACIS.

COUNTER-SCARP, *angle of the*. See ANGLE.

COUNTER-SIGNING, the signing an order, or patent of a superior, in quality of secretary; to render the thing more authentic.

Charters, &c. are signed by the king, and *counter-signed* by a secretary of state, or the lord-chancellor.

COUNTER-SWALLOW-TAIL, an outwork, in form of a single tenaille, wider at the gorge, or next the place, than at the head, or next the champagne.

COUNTER-TALLY, one of the two tallies whereon any thing is scored.

COUNTER-TENOR, is one of the mean or middle parts of music: so called, as being opposite to the tenor. It is likewise applied to a voice which is of higher pitch than the tenor, but lower than the treble.

COUNTER-TIME, in the *Manege*, signifies the defence or resistance of a horse that interrupts his cadence, and the measure of his manege, occasioned either by a bad rider, or a malicious horse.

COUNTER-TRENCH, in *Fortification*, a trench of twelve or fifteen feet wide, made against the besiegers, and which, of consequence, has its parapet turned towards them.

There are usually a great many communications between this and the place, to prevent the enemy from making any use of it, in case they render themselves masters thereof.

COUNTER-TRIPPING, is when two beasts are borne in a coat of arms tripping, i. e. in a walking posture, and the head of the one to the tail of the other.

COUNTER-VAIR, in *Heraldry*, is when bells or cups of the same tincture are placed base against base, and point against point.

COUNTER-VALLATION. See CONTRAVALLATION.

COUNTER-VENTION. See CONTRAVENTION.

COUNTER-WORKING, in the *Military Art*, the raising of works, in order to oppose those of the enemy.

COUNTERESS's Powder. See SUFFOLK Powder.

COUNTING, or **COMPTING-HOUSE**. See COMPTING-HOUSE.

COUNTING-BOARD. See ABACUS.

COUNTORS, **CONTOURS**, or **COUNTERS**, has been used for serjeants at law, retained to defend a cause, or to speak for their client in any court of law.

It is of these Chaucer speaks:

— A sheriff had he been, and a *countour*,
Was no where such a worthy vavasour.

They were anciently called serjeant *contours*.

COUNTRIES, among the *Miners*, a term or appellation they give to their works under ground. Phil. Trans. N° 198.

COUNTRY-DANCE is of English origin, though transplanted into almost all the countries and courts of Europe. There is no established rule for the composition of tunes to this dance, because there is in music no kind of time whatever which may not be measured by the motions common in dancing; and there are few song-tunes of any note within the last century, that have not been applied to *country dances*.

COUNTRY fast. See SHELF.

COUNTRY, *trial by*, the same with trial by JURY.

COUNTRY wakes. See WAKES.

COUNTY, originally signifies the territory of a count, or earl. But now it is used in the same sense with SHIRE; the one word coming from the French, the other from the Saxon.

In this view, a *county* is a circuit, or portion of the realm; into fifty-two of which, the whole land, England and Wales, is divided, for its better government, and the more easy administration of justice.

These *counties* are subdivided into rapes, lathes, wapentakes, hundreds; and these again into tithings: a division owing to king Alfred.

For the execution of the laws in the several *counties*, excepting Cumberland, Westmoreland, and Durham, every Michaelmas term, officers are appointed, under the denomination of *sheriffs*. This officer has a double function: first, *ministerial*, to execute all processes and precepts of the courts of law directed to him: and secondly, *judicial*; whereby he has authority to hold two courts,

the one called the *sheriff's tourn*, the other the *county court*. Other officers of the several *counties* are, a *lord lieutenant*, who has the command of the militia of the *county*: *custodes rotulorum*, *justices of peace*, *bailiffs*, *high-constable*, and *coroner*. See farther under LORD LIEUTENANT, MILITIA, CUSTOS rotulorum, JUSTICE of the peace, High-CONSTABLE, BAILIFF, and CORONER.

Of the fifty-two *counties*, there are three of special note, which are therefore termed *counties palatine*, as Lancaster, Chester, and Durham. The two latter are such by prescription, or immemorial custom, at least as old as the Norman conquest; the former was created by Edward III. in favour of Henry Plantagenet, first earl and duke of Lancaster. Pembroke also, and Hexham, were anciently *counties palatine*; which last belonged to the archbishop of York, and was stripped of its privilege in the reign of queen Elizabeth, and reduced to be part of the *county* of Northumberland: the former was abolished in 27 Hen. VIII. the latter in 14 Eliz.

The chief governors of these *counties palatine*, heretofore, by a special charter from the king, sent out all writs in their own names; and touching justice, did all things as absolutely as the king himself in other *counties*; only acknowledging him their superior and governor: whence *palatine*, a *palatio*, because the owners of them had *jura regalia* as fully as the king hath in his palace. These privileges were probably granted to them because they bordered on enemies countries, viz. Wales and Scotland. But in Henry the Eighth's time, the said power was much abridged; though still all writs are witnessed in their names, and all forfeitures for treason by the common law accrue to them. The isle of Ely has been sometimes reckoned among the *counties palatine*, though it is properly only a royal franchise; the bishop having, by grant of king Henry I. *jura regalia* within the isle of Ely, whereby he exercises a jurisdiction over all causes, criminal and civil.

COUNTY-CORPORATE, is a title given to several cities, or ancient boroughs, on which the English monarchs have thought fit to bestow extraordinary privileges; annexing to them a particular territory, land, or jurisdiction; and making them counties of themselves, to be governed by their own sheriffs and magistrates.

The chief of these is the city of LONDON; with York, Canterbury, Bristol, Chester, Norwich; the towns of Kingston upon Hull, Newcastle upon Tyne, and Haverford West in Wales, &c.

COUNTY-court. See COUNTY COURT.

COUNTY-rates, are those ordered by justices of peace at their quarter sessions; collected by high constables of hundreds, and paid to treasurers appointed by the justices, for repairing bridges, &c. 12 Geo. II. c. 29.

COUNTY, Rier. See RIER.

COUP de bride, in the *Manege*. See EBRILLADE.

COUP de grace, in the *French Music*, the same as what the Italians call *TRONCO per grazia*.

COUPED, COUPEE', in *Heraldry*, expresses a head, limb, or other thing in an escutcheon, which is borne as if cut clear and even off, from the trunk; in opposition to its being forcibly torn off, which they call *erased*.

Thus, the arms of Ulster, which all baronets carry, is a dexter-hand *couped*, or cut off at the wrist.

COUPED, *Coupee'*, is also used to denote such crosses, bars, bends, chevrons, &c. as do not touch the sides of the escutcheon, but are, as it were, cut off from them.

COUPEE, a motion in dancing, wherein one leg is a little bent, and suspended from the ground; and with the other a motion is made forwards.

The word, in the original French, signifies a *cut*.

COUPLE *close*, in *Heraldry*, the fourth part of a chevron: never borne but in pairs, except a *SEVRON* be between, faith Guillim; though Bloom gives an instance to the contrary.

COUPLED columns. See COLUMN.

COUPLET, a division of a hymn, ode, song, or the like, wherein an equal number, or equal measure, of verses is found in each part.

The word is French, formed from the Latin *copula*.

In odes, these divisions are more ordinarily called STROPHES.

By an abuse, *couplet* is sometimes used to signify a couple of verses.

COURAGE, in *Ethics*, is that quality of the mind, derived either from constitution or principle, or both, that enables men to encounter difficulties and dangers.

COURANT, or CURRENT, a term used to express the present time: thus, the year 1786 is the *courant* year; the fifteenth *courant*, the fifteenth day of the month now running.

The term is French, and properly signifies running.

With regard to commerce, the *price current* of any merchandize, is the known and ordinary price accustomed to be given for it.

COURANT is also used for any thing that has course, or is received, in commerce: in which sense, we say, *courant*, or *current* coin, &c.

COURANT is also a term in *Music* and *Dancing*; being used to express both the tune or air, and the dance.

With regard to the first, *courant*, or *currant*, is a piece of music in triple time: the air of the *courant* is ordinarily noted in triples of minims; the parts to be repeated twice. It begins and ends, when he who beats the measure falls his hand; in contradistinction from the *faraband*, which ordinarily ends when the hand is raised. With regard to dancing, the *courant* was long the most common of all the dances practised in England: it consists, essentially, of a time, a step, a balance, and a couplee; though it also admits of other motions.

Formerly they leaped their steps; in which point, the *courant* differed from the low dances and pavades. There are *simple courants*, and *figured courants*, all danced by two persons.

COURAP, in *Medicine*, the Indian name for a distemper, which, as Bontius informs us, is very common in Java and other parts of the East Indies. It is a sort of herpes or itch, which generally breaks out on the arm-pits, breast, groin, and face, with such an intolerable itching, that the person affected cannot forbear scratching themselves perpetually: but they pay very dear for the ease this gives them; as an unsufferable pain succeeds in those parts which are rendered bare and denuded of the cuticula by the nails; these discharging an acrid humour which vellicates the parts, and causes the linen to adhere so fast to them, as not to be separated without tearing the crust formed thereon.

Courap is a general name for any sort of itch, but the inhabitants call this distemper thus by way of eminence. It is so extremely contagious, that very few escape it; and though it is an unseemly disorder, causing a roughness of the skin with scales and furfures, yet the inhabitants imagine it is attended with this advantage, that while a person is affected with it, he is sure to be troubled with no other dangerous distemper: and they look upon the disappearing of this, as a prognostic of some worse disorder. They are therefore very easy under it for years together, without being very solicitous about curing it. It is remarkable that the vulgar in Scotland are possessed of the same opinion with respect to the itch: and even carry it so far as to affirm, that the catching this distemper proves a cure for any other previous to it; considering it in the same light as others do the gout, and perhaps with equal foundation. James.

COURBARIL, the name of a genus of plants. See LOCUST-tree.

COURIER, or CURRIER, from the French *courir*, to run, a messenger sent post, or express, to carry dispatches.

Antiquity, too, had its *couriers*; we meet with two kinds, viz. those who ran on foot, called by the Greeks *hemi-rodromi*, q. d. *couriers of a day*. Pliny, Corn. Nepos, and Cæsar, mention some of these, who would run twenty, thirty, thirty-six, and, in the circus, even forty leagues per day. And *riding couriers*, *cursores equitantes*, who changed horses, as the modern *couriers* do.

Xenophon attributes the first *couriers* to Cyrus. Herodotus says they were very ordinary among the Persians, and that there was nothing in the world more swift than this kind of messengers. "That prince," says Xenophon, "examined how far a horse would go in a day; and built stables, at such distances from each other, where he lodged horses, and persons to take care of them; and at each place kept a person always ready to take the packet, mount a fresh horse, and forward it to the next stage: and thus quite through his empire." But it does not appear, that either the Greeks or Romans had any regular fixed *couriers*, till the time of Augustus: under that prince they travelled in cars; though it appears from Socrates, they afterwards went on horseback. Under the western empire, they were called *viatores*; and under that of Constantinople, *cursores*: whence the modern name. See POST.

COURIERS extraordinary. See EXTRAORDINARY.

COURIERS, *Van*. See VAN Couriers.

COURSE, in *Navigation*, the point of the compass, or horizon, on which a ship steers; or the angle which the rhumb line on which it sails makes with the meridian.

When a vessel begins its *course*, the wind wherewith it is driven makes a certain angle with the meridian of the place; and, as it is here supposed, the vessel follows exactly the direction of the wind; it makes the same angle with the meridian which the wind makes.

The wind is farther supposed always the same; and because each point, or instant of a *course*, may be regarded as the first; every moment of the *course* it makes the same angle with the wind.

Now a wind that is north-east, v. gr. here (and by consequence makes an angle of forty-five degrees with our meridian),

meridian), is north-east wherever it blows, and makes the same angle of forty-five degrees with all the meridians it meets.

The *course* of a vessel, therefore, driven by the same wind, makes the same angle with all the meridians on the surface of the globe.

If the vessel runs north and south, it makes an angle infinitely small with the meridian, i. e. is parallel to it, or never goes from it: if they run east and west, it cuts all the meridians at right angles. In the first case it describes a great circle; in the second, either a great circle, which is the equator, or a parallel. But if the *course* be between the two, it does not then describe a circle; because a circle drawn in such a manner, would cut all the meridians at unequal angles. It describes, therefore, a spiral or curve, the essential condition whereof is to cut all the meridians under the same angle; called the *loxodromic curve*, or *loxodromy*, popularly *rhumb*.

The ship's *course*, therefore, except in the two first cases, is always a loxodromic curve; and the hypotenuse of a rectangle triangle, the two other sides whereof are the ship's way in latitude and longitude.

The latitude is usually had by observation.

The rhumb, or angle of the *course*, is had by the compass, together with the one or other of the two sides; and what remains to be calculated in sailing, is the quantity of the longitude, and of the rhumb, or *course*.

COURSE, complement of the. See **COMPLEMENT**.

COURSE of a river. See **RIVER**.

COURSE, in *Architecture*, denotes a continued range of stones, level, or of the same height, throughout the whole length of the building; and not interrupted by any aperture. It forms a parapet to the intermediate space between the body of the building and the wings. See *Tab. Architecture*, fig. 16. and K, fig. 40. See also **BUILDING**, **WALL**, and **MASONRY**.

COURSE of *plinths*, is the continuity of a **PLINTH** of stone, or plaster, in the face of a building; to mark the separation of the stories.

COURSE is also used for a collection, or body of laws, canons, or the like. See **CORPUS**.

The *civil course*, is the collection of Roman laws, compiled by order of Justinian. See **CIVIL LAW**.—*Canonical course*, is the collection of the canon law, made by Gratian.

COURSE, again, is used for the time ordinarily spent in learning the principles of a science, or the usual points and questions therein. Thus, a student is said to have finished his *course* in the humanities, in philosophy, &c.

COURSE is also used for the elements of an art exhibited and explained, either in writing, or by actual experiment. Hence our *courses* of philosophy, anatomy, chemistry, mathematics, &c. probably so called, as going throughout, or running the whole length or *course* of the art, &c.

COURSE of the moon. See **MOON**.

COURSE, Paddock. See **PADDOCK**.

COURSES, in *Sea-Language*, is used for a ship's main-fail and fore-fail. When she fails under them only, without lacing on any bonnets, they say she goes under a *pair of courses*. Or more generally all the principal fails, viz. the main-fail, fore-fail, and mizen, are thus distinguished: and sometimes also the mizen-stay-fail and fore-fail, and all the main-stay-fails of brigs and schooners.

COURSING. There are three several *courses* with greyhounds. 1. At the hare. 2. At the fox. And, 3. At the deer.

For the deer there are two sorts of *courses*, the one in the paddock, the other either in the forest or parlieu. For the paddock *course*, there must be the greyhound and the terrier, and the mungrel greyhound, whose business it is to drive away the deer before the greyhounds are slipped; a brace, or a leash, are the usual number slipped at a time, seldom at the utmost more than two brace.

In *coursing* the deer in the forest or parlieu, there are two ways in use, the one is *coursing* from wood to wood, and the other upon the lawns by the keeper's lodge. In the *coursing* from wood to wood, the way is to throw in some young hounds into the wood, to bring out the deer; and if any deer come out that is not weighty, or a deer or antler, which is buck, fore, or forrel, then you are not to slip your greyhounds, which are held at the end of the wood, where the keepers, who can guess very well on these occasions, expect that the deer will come out. If a proper deer come out, and it is suspected that the brace or leash of greyhounds slipped after him, will not be able to kill him, it is proper to waylay him with a couple of fresh greyhounds.

The *coursing* upon the lawn is the most agreeable of all other ways. When the keeper has notice of this, he will lodge a deer for the *course*, and then by coming under the wind, the greyhound may be brought near enough to be slipped for a fair *course*.

The best method of *coursing* the hare, is to go out and find a hare sitting, which is easily done in the summer, by walking across the lands, either stubble, fallow, or corn grounds, and casting the eye up and down; for in summer they frequent these places for fear of the ticks, which are common in the woods at that season; and in autumn, the rains falling from the trees offend them. The rest of the year there requires more trouble, as the bushes and thickets must be beat to rouse them, and often they will lie so close, that they will not stir till the pole almost touches them: the sportsmen are always pleased with this, as it promises a good *course*.

If a hare lies near any close or covert, and with her head that way, it is always to be expected that she will take to that immediately on being put up: all the company are therefore to ride up, and place themselves between her and the covert before she is put up, that she may take the other way, and run on an open ground. When a hare is put up, it is always proper to give her ground or law, as it is called, that is to let her run twelve-score yards, or thereabouts, before the greyhounds are slipped at her, otherwise she is killed too soon, and the greatest part of the sport thrown away, and the pleasure of the several windings and turnings that the creature will make to get away, is all lost. A good sportsman had rather see a hare save herself, after a fair *course*, than see her murdered by the greyhounds as soon as she is up. In *coursing* the fox, no other art is required than standing close, and on a clear wind, on the outside of some grove, where it is expected he will come out; and when he is come out, he must have head enough allowed him, else he will turn back to the covert. The slowest greyhound will be able to overtake him after all the odds of distance necessary; and the only danger is the spoiling the dog by the fox, which too often happens; for this reason, no greyhound of any value should be run at this *course*, but the strong hard-bitten dogs, that will seize any thing.

For the laws of *coursing* established by the duke of Norfolk, and the sportsmen of the kingdom in the reign of queen Elizabeth, see Sportsman's Dict. in voc.

COURT, an appendage to a house or habitation; consisting of a piece of ground inclosed with walls, but open upwards.

The word is formed from the French *cour*, and that from the Latin *cobors*: whence also *cortis* and *curtis* are sometimes used for the same. In the laws of the Germans, there is one article, *De eo qui in curte regis furtum commiserit*; and another, *De eo qui in curte ducis hominem occiderit*. Others derive *court* from the Gaulish *cors*, formed of *cobors*, and *cobors* from *χρησθαι*. See **COHORT**.

The *court* before a house is properly called the *fore-court*; that behind the *back-court*; that where country affairs, &c. are managed, i. e. where cattle, &c. come, the *basse-court*.

COURT is also used for the palace, or place where a king or sovereign prince resides.

COURT, *Curia*, in a *Law Sense*, is the place where the judges distribute justice, or exercise their jurisdiction. Also the assembly of judges, jury, &c. in that place.

By the law of England, no *court* in this kingdom can claim any jurisdiction, unless it be some way or other derived from the crown; the king being the fountain of justice, and the supreme magistrate of the kingdom, intrusted with the whole executive power of the land.

Yet the king cannot give any addition of jurisdiction to an ancient *court*; but all such courts must be held in such manner, and proceed by such rules, as their known usage has limited and prescribed. Whence it follows, for instance, that the *court* of king's bench cannot be authorized to determine a mere real action between subject and subject; nor can the *court* of common pleas enquire of treason or felony.

In this sense, *courts* are divided into *sovereign* or *superior*, and *subaltern* or *inferior*: and, again, into *courts of record*, and *base courts*. Crompton describes thirty-two *courts* in England, most of them *courts of record*.

Courts of record are created by act of parliament, letters patent, or prescription.

The *supreme court* is the *court* of **PARLIAMENT**.

Superior courts of record are distinguished into *more principal*, and *less principal*.

The *more principal courts* are, the *house of lords*, the *court of chancery*, the *king's bench*, *common pleas*, and *exchequer*; and also, according to sir Mathew Hale, the *justices itinerant ad communia placita*, and *ad placita forestæ*.

The *less principal courts of record* are such as are held, 1. By commissions of *gaol-delivery*, *oyer and terminer*, *assize*, *nisi prius*, and some others. 2. By custom or charter; as the *courts* of the counties palatine of Lancaster, Chelster, Durham. 3. By virtue of an act of parliament, and

and the king's commission; as the *court of sewers, justices of the peace, &c.*

Inferior courts of record are, *corporation courts, courts leet, and the sheriff's tourn.*

Every *court of record* is the king's *court*, though the profits may be another's. If the judges of such courts err, a writ of error lies. The truth of its records shall be tried by the records themselves, and there can be no averment against the truth of the matter recorded. Coke, Litt. 117. b. 8. Coke 38. b.

Courts not of record are, the *courts baron, county courts, hundred courts, and others.*

These *courts* cannot impose any fine on an offender, nor award a *capias*, nor hold plea of debt or trespass, if the debt or damages amount to forty shillings; nor of a trespass done, *vi & armis*, though the damage be laid under forty shillings, and their proceedings may be denied, and tried by a jury; and a writ of false judgment, not of error, lies on their judgments.

The *court of chancery*, proceeding by *subpœna*, is not a *court of record*.

On the subject of *courts*, see New Abr. of the Law, tit. *Courts*.

Again, *courts* are either such as are held in the king's name, as all the ordinary *courts*, or those held by his authority, where the precepts are issued in the judges's name, *virtute magistratus sui*, as the admiral's *court*.

In England we have four principal *courts* subsisting; all established by ancient custom of the realm, rather than by any statute; though their establishments have been from time to time since confirmed by act of parliament. These are the *courts of king's bench; the common bench, or pleas; the exchequer; and the court of chancery.* See each in its alphabetical order, *infra*.

COURT of Admiralty, is a *court* held by the high admiral, or commissioners of the admiralty; to which belongs the decision of all maritime controversies, trials of malefactors, and the like.

The proceedings in this *court*, in all civil matters, are according to the civil law; because the sea is without the limits of the common law, and under the admiral's jurisdiction.

In criminal affairs, which ordinarily relate to piracy, the proceedings of this *court* were anciently likewise by information and accusation, according to the civil law; but that being found inconvenient, because no person could be convicted without either their own confession, or an eye-witness of the fact, so that the greatest offenders often escaped with impunity, there were two statutes made by Hen. VIII. enacting, that criminals should henceforth be there tried by witnesses and a jury; and this by special commission from the king to the lord admiral; wherein some of the judges of the realm are always to be commissioners; and the trial, according to the laws of England, directed by those statutes.

The *court of admiralty*, is said to have been first erected in 1357, by king Edward III. To the civil law first introduced in it by the founder, were afterwards added, by his successors, particularly Richard I. the laws of Oleron; and marine uses and constitutions of several people; as those of Genoa, Pisa, Marseilles, Messina, &c. The jurisdiction of this *court* was limited by Richard II.

Under this *court* is also a *court-merchant, or court of equity*; wherein all differences between merchants are decided, according to the rules of civil law.

Between the *courts of admiralty* and common law, there seems to be *divisum imperium*; for the sea, so far as the low-water mark, is accounted *infra corpus comitatus adjacentis*; and the causes thence arising are determinable by the common law: yet when the sea is full, the admiral has jurisdiction there also so long as the sea flows, over matters done between the low-water mark and the shore. The *admiralty court* is not allowed to be a *court of record*, because it proceeds by the civil law; and the judge has no power to take such a recognizance as a *court of record* may. The process and proceedings are in the name of the lord admiral, and by libel; and the plaintiff and defendant enter into a stipulation or bond for appearance, and to abide the sentence. 4 Inst. 134, 135.

If an erroneous judgment be given in the admiralty, appeal may be had to DELEGATES appointed by commission out of chancery, whose sentence shall be final. Stat. 8 Eliz. c. 5.

Among the Hollanders, the five *admiralties* are so many chambers composed of the deputies of the nobles, the provinces and the towns; to whom belong the equipping out of fleets, the furnishing provisions for them, and directing what relates to maritime affairs.

COURT of Aids, in France. See AID.

COURT of Arches, *Curia de arcubus*, the chief and most ancient consistory *court* belonging to the archbishop of Can-

terbury, for the debating of spiritual causes. It is so called from the church in London, commonly called St. Mary le Bow, where it was formerly held, which church had its name from the steeple, which was raised by pillars built archways, like bent bows. Cowel.

The judge of this *court* is styled *dean of the arches*, or official of the *arches court*. He hath extraordinary jurisdiction in all ecclesiastical causes, except what belong to the prerogative *court*; also all manner of appeals from bishops, or their chancellors or commissaries, deans and chapters, &c. first or last are directed hither. He hath ordinary jurisdiction throughout the whole province of Canterbury in cases of appeals; so that upon any appeal made, he, without any farther examination of the cause, sends out his citation to the appellee, and his inhibition to the judge from whom the appeal was made. Of this see more, 4 Inst. 337. But he cannot cite any person out of the diocese of another, unless it be on appeal, &c. 23 Hen. VIII. c. 9. In another sense, the dean of *arches* has a peculiar jurisdiction of thirteen parishes in London, called a deanery (being exempt from the authority of the bishop of London), of which the parish of Bow is the principal. The persons concerned in this *court*, are the judge, advocate, registers, proctors, &c. and the foundation of a suit in these *courts*, is a citation for the defendant to appear; then the libel is exhibited, which contains the action, to which the defendant must answer; whereupon the suit is contested, proofs are produced, and the cause determined by the judge, upon hearing the advocates on the law and fact; when follows the sentence and decree thereupon. Jacob. See AUDIENCE.

This *court*, as also the *court of peculiars*, the admiralty *court*, the prerogative *court*, and the *court of delegates*, for the most part is now held in the hall belonging to the college of civilians, commonly called Doctors Commons. Floy. 21.

From this *court*, the appeal is to the king in Chancery, by 25 Hen. VIII. c. 19.

COURT of Archdeacon, is the most inferior *court* in the whole ecclesiastical polity. It is held before the archdeacon or his official, and appeal lies to the bishop's *court*.

COURT of Assise. See ASSISE.

COURT of Augmentation, the name of a *court* erected, 27 Hen. VIII. for determining suits and controversies, relating to monasteries and abbey lands. The intent of this *court* was that the king might be justly dealt with, touching the profit of such religious houses, and their lands, as were given him by act of parliament the same year. This *court* was dissolved under queen Mary, by the parliament held the first year of her reign; but the office of *augmentation* remains to this day, in which are many valuable records. Terms de Ley. 68.

COURT of Barghmote. See BARGHMOTE.

COURTS Baron, are *courts* that all lords of manors, who were anciently called *barons*, have within their respective precincts. It is an inseparable incident to a manor; and must be held by prescription, for it cannot be created at this day. 1 Inst. 58. 4 Inst. 268.

A *court baron* must be kept on some part of the manor; and is twofold. 1. By custom: as, if a man having a manor in a town, grant the inheritance of the copyholds thereto belonging to another; this grantee may keep a *court* for the customary tenants, and accept surrenders to the use of others, and make both admittances and grants. 2. By common law. This is of freeholders, which is properly called a *court baron*, wherein the freeholders are judges: whereas of the other, the lord or his steward is judge.

COURT, Bishops, an ecclesiastical *court* held in the cathedral of each diocese; the judge whereof is the bishop's chancellor, anciently called *ecclesiasticus*, and *ecclesiæ causidicus*, q. d. the church-lawyer; who judges by the civil and canon law; and, if the diocese be large, has his commissaries in remote parts, who hold what they call *consistory courts*, for matters limited to them by their commission.

COURT of Chancery, the grand *court* of equity, and conscience, instituted to moderate the rigour of the other *courts* that are tied to the strictest letter of the law.

The judge of this *court* is the lord high chancellor, whose function, see under CHANCELLOR.

The proceedings of this *court* are either *ordinary*, like other *courts*, according to the laws, statutes, and customs of the nation, by granting out writs remedial and mandatory, writs of grace, &c. or *extraordinary*, according to equity and conscience, by bills, answers, and decrees, to examine frauds, combinations, trusts, secret uses, &c. to soften the severity of common law, and rescue people from oppression; to relieve them against cheats, unfortunate accidents, breaches of trust, &c.

Out of the *court of chancery*, are issued writs of *summonses*

monies for parliaments and convocations, edicts, proclamations, charters, protections, patents, safe-conducts, and writs of *moderata misericordia*, &c.

Here are also sealed and enrolled letters patent, treaties and leagues, deeds, writs, and commissions.

The officers of this court, beside the lord chancellor, who is supreme judge, are, the master of the rolls, who, in the chancellor's absence, hears causes, and gives decrees; and twelve masters of chancery, one of whom is the master of the rolls, who are assistants, and sit by turns on the bench.

For the equity part of this court there are six clerks, and their deputies, who have under them a number of others, called the sixty sworn clerks, in the nature of attorneys of the court; two chief examiners, for examining witnesses, who have each five or six clerks apiece; one principal register, who has four or five deputies; clerk of the crown, who makes out writs, commissions, &c. warden of the Fleet; serjeant at arms, who bears the mace before the chancellor; and the usher and crier of the court.

To the common law part belong the twenty-four curriers, and their clerks, who make out original writs; clerks of the petty bag; clerks of the hanaper; comptroller of the hanaper; clerk of appeals; clerk of the faculties; sealer; chafe-wax; clerks of the patents, of presentations, dismissions, licenses to alienate, enrollments, protections, subpoenas, affidavits, &c. See each under its proper article.

Appeals from the decrees of the court of chancery may be brought into the HOUSE of lords.

The jurisdiction of this court was impugned about the time of its original creation, and even in the reign of queen Elizabeth it was strongly holden by the judges of the common law courts, that the chancellor could not by his decree sequester the party's lands, that is, he could only *agere in personam*, but not *in rem*; and agreeably thereunto it was resolved, 16 Eliz. in the case of Coleston and Gardener, that if a man killed a sequestrator in the execution of such process, it was no murder. Vide New Abr. Law, vol. i. p. 588. Cro. Eliz. 651. 4 Inst. 84. 1 Rol. Rep. 86. 190. Lit. Rep. 166.

Also in the reigns of queen Elizabeth, and king James the First, there are several strong opinions, that a court of equity could not examine, or give redress in a cause after judgment at law; and that suits in equity, to relieve against a judgment at law, are within the statutes, which make it a *præmunire* to appeal to any foreign court, especially if the end thereof be to controvert the very point determined at law, or to seek relief after judgment in a case wherein the law may relieve, as against excess of damages. But such opinions seem now to be wholly exploded. Vide Caf. Eq. Abr. p. 130.

The ancient rule for the jurisdiction of the extraordinary court of chancery, was confined to frauds, accidents, and trusts; and though at this day, by its power of granting injunctions, it curbs the jurisdiction of other courts, and thereby has swallowed up the greatest part of the business of the common law; yet it is still under some of these notions, that it exercises a jurisdiction in relieving against forfeitures, penalties, where a compensation can be made, in preventing multiplicity of suits, decreeing a specific execution of agreements, assisting defective conveyances, &c. But in no case will it relieve against an act of parliament, nor directly against a fundamental rule or maxim of the common law, nor retain a suit where the party appears to have a plain and adequate remedy at law. Three things, says lord Coke, are to be adjudged in a court of equity. 1. All covins, frauds, and deceits, for which there is no remedy by the ordinary course of law. 2. Accidents, as when a servant, obligor, or mortgagor, is to pay money on a certain day, and they happened to be robbed in going to pay it. 3. Breaches of trust and confidence. 4. Inst. 84.

Upon this foundation, that a court of equity could not relieve against a maxim of the common law, it was formerly holden, that one executor could not compel the other to account; that one joint-tenant could not sue his companion; that if an obligee lost his bond, he was without remedy: so where the lessor entered upon his lessee, and suspended his rent, it was held that he had no remedy: so where the party became remediless by his own act, as by paying money without an acquittance: so where one on valuable consideration promised to make a lease, it was held that the party could not sue on this promise in equity, because he might have an action on the case. But these last opinions are now of no weight or authority, as appears by daily experience.

All matters of trust are particularly within the jurisdiction of the court of chancery.

COURT of Chivalry, or the Marshal's Court; a court whereof the judges are, the lord high constable, and the earl marshal of England.

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This court is the fountain of marshal law; and the earl marshal is not only one of the judges, but also to see execution done. 4 Inst. 123. See CHIVALRY.

COURT Christian, *Curia Christianitatis*, is an ecclesiastical judicature, opposed to the civil court, or lay tribunal; and as in secular courts, human laws are maintained; so in the court Christian, the laws of Christ should be the rule. The judges therefore are divines; as archbishops, bishops, archdeacons, &c. 2 Inst. 488. Courts Christian are so called, because they handle matters especially appertaining to Christianity. See COURTS Ecclesiastical, infra. See also CONSISTORY.

COURTS of Cinque-ports. See CINQUE-PORTS.

COURT of Common Pleas, *Communia placita*, or *Bancus communis*, one of the king's courts, held in Westminster-hall. Gwyn observes, that till the granting of Magna Charta, there were but two courts called the king's courts, viz. the exchequer, and the king's bench; and that upon the grant of that charter, the court of common pleas was erected, and fixed to a place certain, viz. Westminster-hall: whence the writs which before ran *coram me vel justiciariis meis*, simply, were now changed, and run *coram justiciariis meis apud Westmon.*

The jurisdiction of this court is founded on original writs, issuing out of the chancery, which are the king's mandates for them to proceed on to determine such and such causes. But this is to be understood when the cause is between common persons; for when an attorney, or any person belonging to the court, is plaintiff, he sues by writ of privilege, and is sued by bill, which is in nature of a petition; both which originally commence in the common pleas, and have no foundation in the chancery. 4 Inst. 99.

The jurisdiction of each court is at this day so well established, that as the court of king's bench cannot determine a mere real action, so neither can the court of common pleas enquire of felony or treason. Vide 2 Hawk. P. C. p. 2.

This court, without any writ, may upon a suggestion only, grant prohibition, to keep as well temporal as ecclesiastical courts within their bounds and jurisdiction. See 4 Inst. 99. and Vaughan's Reports, p. 157.

In term time, this court may award a habeas corpus by the common law, for any person committed for any cause under treason or felony; and thereupon discharge him, if it shall clearly appear, by the return, that the commitment was against law, as being made by one who had no jurisdiction of the cause, or for a matter, for which, by law, no man ought to be punished. Vide Vaughan, 154, seq. 2 Jones, 14.

All civil causes, both real, personal, and mixed, are tried in this court, according to the strict law of the realm: Fortescue represents it as the only court for real causes.

The chief justice hereof is called the *lord chief justice of the common pleas*, whose salary is 2500*l.* a year; who is accompanied with three of his associates, at a salary of 2000*l.* each, created by letters patent, and as it were judges installed or placed on the common bench by the lord chancellor, and the lord chief justice of the court.

The rest of the officers belonging to this court are, the *custos brevium*; three prothonotaries, or *prænotaries*, see PROTHONOTARY; a chirographer; seventeen filazers; exigenter; clerk of the warrants; clerk of the juries, or jurata writs; clerk of the treasury; clerk of the king's silver; clerk of the essoigns; clerk of the outlawries; clerk of the errors, &c. whose several functions see in their places, *CUSTOS brevium*, *CHIROGRAPHER*, *EXIGENTER*, *CLERK*, &c.

COURT of Conscience, *Curia conscientie*. In the 9th of Henry VIII. the court of conscience in London was erected: there was then made an act of common council, that the lord mayor and aldermen should assign monthly two aldermen and four discreet commoners, to be commissioners to sit in this court twice a week, to hear and determine all matters brought before them between party and party, between citizens and freemen of London, in all cases where the debt or damage was under forty shillings. And this act of common council is confirmed by the stat. 1 Jac. I. which empowers the commissioners of this court to make such orders between the parties touching such debts, as they shall find stand to equity and good conscience. Also the stat. 3 Jac. I. c. 15. since explained and amended by 14 Geo. II. c. 10. farther establishes this court; the course and practice whereof is by summons, to which if the party appear, the commissioners proceed summarily; examining the witnesses of both parties, or the parties themselves on oath; and as they see cause, give judgment. If the party summoned appear not, the commissioners have power to apprehend and commit him: also the commissioners have power to commit a person refusing to obey their orders, &c. Vide stat. 3 Jac. I.

There are many other *courts of conscience* lately established by act of parliament, of a similar nature; as that for Southwark, for Westminster, the Tower Hamlets, &c. &c.

COURT of the Coroner, is a *court* of record, to enquire when any one dies in prison, or comes to a sudden and violent death, by what manner he came to his end. See **CORONER**.

COURT, County, is a *court* of justice held in each county by the sheriff thereof, or his deputy, every month. See **SHERIFF**.

This *county court* had anciently the cognizance of matters of great moment; but it was much abridged by Magna Charta, and more by Edward IV. But it has still the determination of debts and trespasses under forty shillings. In effect, till the *courts* at Westminster were erected, the *county courts* were the chief *courts* of the kingdom.

Among the laws of king Edgar is this, viz. Let there be two *county courts* in a year, and let there be present a bishop and an alderman or earl; one whereof shall judge according to the common law, the other according to the ecclesiastical law.—The conjunction of these two powers to assist each other, is as ancient as the English government itself. They were first separated by William the Conqueror, who brought all the ecclesiastical business into a consistory, erected for that purpose; and the law business into the king's bench.

COURT of Delegates, is a *court* where delegates or commissioners are appointed by the king's commission, under the great seal, upon an appeal to him.

It is granted in three cases: first, when a sentence is given in an ecclesiastical cause, by the archbishop, or his official; secondly, when a sentence is given in an ecclesiastical cause, in places exempt; thirdly, when sentence is given in the admiralty *court*, in suits civil or marine, by order of the civil law. 4 Inst. 339. Stat. 25 Hen. VIII. c. 19.

This is the highest *court* for civil affairs concerning the church; for the jurisdiction whereof it was provided, 25 Hen. VIII. that it shall be lawful for the subject, in case of defect of justice in the ecclesiastical *courts*, to appeal to the sovereign in his court of chancery; whence a commission is directed under the great seal to particular persons therein mentioned, for redress of judgment.

From the highest ecclesiastical *court* there lies no appeal, but to the *court of delegates*; and beyond this to no other, except to the house of lords. But the king, of his free will, may grant a COMMISSION of review under the great seal. The citations run all in the king's name.

COURT, Duchy, a *court* wherein all matters belonging to the duchy or county palatine of Lancaster, are decided by decree of the chancellor of that *court*.

The original of this *court* was in Henry the Fourth's time, who obtaining the crown by deposit on of Richard II. and having the duchy of Lancaster, by descent, in right of his mother, became seized thereof as king, not as duke. So that all the liberties, franchises, and jurisdictions of the said county passed from the king, by his great seal, and not by livery, or attornment, as the earldom of March, and other possessions, which descended to him by other ancestors than the king's did.

Henry IV. by authority of parliament, severed the possessions, liberties, &c. of the said duchy from the crown: but Edward IV. restored them to their former nature.

The officers belonging to this *court* are, a CHANCELLOR, attorney-general, receiver-general, clerk of the court, and messenger; beside the assistants, as an attorney in the exchequer, another in chancery, and four counsellors. See **ATTORNEY of the Duchy**.

The duchy of Lancaster, says Gwyn, grew out of the grant of Edward III. who gave that duchy to his son John of Gaunt, and endowed it with royal rights, equal to those of the county palatine of Chester. And forasmuch as it came afterwards to be extinct in the person of king Henry IV. by reason of its union with the crown; the same king suspecting himself more rightfully duke of Lancaster than king of England, determined to save his right in the duchy, whatever should befall the kingdom. Accordingly, he separated the duchy from the crown; and settled it so in his own person, and heirs, as if he had been no king, or politic body at all: in which condition it continued during the reigns of Henry V. and VI. who descended from him; till Edward IV. who, by recovery of the crown, recontinued the right of the house of York, appropriated the duchy to the crown again; yet so, that he suffered the court and officers to remain as he found them. In this manner, it came, together with the crown, to Henry VII. who taking Henry the Fourth's policy (by whose right, indeed, he obtained the kingdom), re-separated the duchy, and so left it to his posterity, who still enjoy it.

COURTS Ecclesiastical, Curie ecclesiastica, are those *courts*

which are held by the king's authority, as supreme head of the church, for matters which chiefly regard religion. 4 Inst. 321.

The suits in *spiritual or ecclesiastical courts*, are for the reformation of manners, for punishing of heresy, defamation, laying violent hands on a clerk, and the like; and some of their suits are to recover tythes, legacies, contracts of marriage, &c. and in causes of this nature, the *courts* may give costs, but not damages. Things that properly belong to these jurisdictions, are matrimonial and testamentary; and defamatory words for which no action lies at law, as for calling a person adulterer, fornicator, usurer, or the like. 11 Rep. 54. Dyer. 240. The proceedings in the *ecclesiastical courts* are according to the civil and canon law; by citation, libel, answer upon oath, proof by witnesses, and presumptions, &c. and after sentence for contempt, by excommunication; and if the sentence is disliked, by appeal. The jurisdiction of these *courts* is voluntary or contentious; and the punishments inflicted by them, are censures and punishments *pro salute animæ*, by way of penance, &c. They are not *courts* of record. See **AUDIENCE**.

COURT of Exchequer, is a *court* wherein are tried all causes relating to the king's treasury, or revenue; as, touching accounts, disbursements, customs, fines, &c.

It consists of seven judges, viz. the lord treasurer, the chancellor of the exchequer, the lord chief baron with a salary of 3000*l.* a year, and three other barons of the exchequer at a salary of 2000*l.* a year each, with one curfitor baron.

The lord chief baron is the principal judge of the *court*. See **BARONS of the exchequer**.

The *court of exchequer* is divided into two: the one of law, the other of equity.

All judicial proceedings according to law, are styled, *coram baronibus* only: but the *court* of equity held in the exchequer chamber, is *coram thesaurario, cancellario, & baronibus*; before the treasurer, chancellor, and barons. For a long time after the Conquest, there sat in the exchequer, both spiritual and temporal barons of the realm: but of later times, there have sat in their places other judges, who, though no peers of the realm, yet retain the original denomination.

The common opinion of our historians is, that this *court* was erected by William the Conqueror, soon after his having obtained the kingdom; and that it took its form from the *exchequer*, or *scaccarium*, established in Normandy long before that time. In effect, the two exchequers have this in common, that the Norman was the supreme *court* of that duchy, or a general assize whereat all the great lords attended, to judge finally of all concerns of the greatest importance; and was ambulatory: and that the English exchequer was a *court* of the highest jurisdiction; that the acts thereof were not to be examined by any of the ordinary *courts*; that it was the repository of the records of all the other *courts*; and that it was to be held in the king's *court*, and before him; and that it was concerned in the prerogative as well as the revenue of the crown.

The immediate profits of the crown, as of franchises, lands, tenements, hereditaments, debts, duties, accounts, goods, chattels, all disbursements, seizures, and fines imposed on the subjects, &c. are all within the jurisdiction of the exchequer. And the king's attorney may exhibit bills, for any matter concerning the king in inheritance, or profits; so also may any person who finds himself aggrieved in any cause prosecuted against him on behalf of the king, or any patent by grant of the king, exhibit his bill against the king's attorney, &c. to be relieved by equity in this *court*.

To this *court* belong two officers; the king's remembrancer's office, and that of the lord treasurer's remembrancer. See **REMEMBRANCER**.

Authors are divided about the origin of the denomination of this *court*, exchequer. Du-Cange is of opinion, it came from a chequer-wrought carpet, covering the great table in that *court*; or from the pavement of the *court*, which was chequer-wise: others, from the comptants in this office using chequers, or chess-boards, in their computations.

In the exchequer there are seven *courts*: 1. The *court* of pleas. 2. The *court* of accounts. 3. The *court* of receipt, otherwise called the *lower exchequer*, as also the receipt of the exchequer and is the place wherein the king's revenue is received and disbursed. The principal officers hereof are, the lord treasurer, a secretary of the treasury, a chancellor of the exchequer, two chamberlains of the exchequer, an auditor of the receipts of the exchequer, four tellers, a clerk of the pells, an usher of the receipt, a tally-cutter, &c. See farther under **TREASURER**, **CHANCELLOR of the exchequer**, **SECRETARY**, **CHAMBERLAIN**, **UNDERCHAMBERLAIN**, **TELLER**, **PELLS**, **TALLY**,

TALLY, &c. 4. The *court of exchequer* chamber, being the assembly of all the judges of England for matters in law. 5. The *court of exchequer* chamber, for errors in the *court of exchequer*, established by 31 Edw. III. cap. 12. 6. The *court of exchequer* chamber, for errors in the king's bench, erected by 27 Eliz. cap. 8. 7. The *court of equity* in the *exchequer-chamber*. Vide New Abr. Law, vol. i. p. 597.

By the 33 Hen. VIII. cap. 39. the *court of exchequer* has power to discharge all debts and duties due to the king, upon an equity disclosed; and it is by virtue of this act, that they discharge recognizances: and it seems, by the said act, they may discharge penal laws made before this statute; but all penal laws made after the statute cannot be discharged, but must be compounded.

The *court of exchequer* in Scotland, has the same power, authority, privilege, and jurisdiction over the revenue of Scotland, as the *court of exchequer* in England has over the revenues there; and all things and matters competent to the *court of exchequer* in England, so far as they relate to the king's revenue, are likewise competent to the *exchequer* of Scotland. The judges are likewise invested with the power of passing signatures, gifts, and tutories, and to revise and compound them in the same manner as was done by the lord high treasurer, commissioners of the treasury, and *court of exchequer* in Scotland, before the union. All serjeants at law, barristers at law, of five years standing, in any of the four inns of court of England, and advocates of five years standing, in the college of justice in Scotland, are qualified for being barons of this *court*; whose commissions are *quam aui se bene gesserint*.

COURT of Faculties in England, belongs to the archbishop of Canterbury, and his officer is called *magister ad facultates*. His power is to grant dispensations, as to marry, for the son to succeed his father in his benefice, one to have two or more benefices incompatible, &c.

The office where such dispensations are taken out, is also called the *Faculty office*.

COURTS of Forest. See ATTACHMENTS, REGARD, SWANIMOTE, and JUSTICE of the forest.

COURT, Hundred, is a larger *court baron* held for all the inhabitants of a particular hundred, instead of a manor.

COURT of Hustings, a *court of common pleas*, held before the lord mayor and aldermen of London, in Guild-hall. 4 Inst. 247.

Of the great antiquity of this *court* we find this mention in the laws of king Edward the Confessor. *Debet etiam in London. quæ est caput regni & legum, semper curia domini regis singulis septimanis, die Lunæ hustingis sedere & teneri: fundata erat olim & ædificata ad instar & ad modum & in memoriam veteris magnæ Trogæ, & usque in hodiernum diem, leges, & jura & dignitates, & libertates regiaque consuetudines suas una semper inviolabilitate conservat.* Taylor, Hist. of Gavel-kind.

The *court of hustings* is the principal and highest of all the *courts* of the city. This *court* determines all pleas, real, personal, and mixt: and here all lands, tenements, and hereditaments, rents, and services within the city of London, and suburbs of the same, are pleadable in two hustings; the one called hustings of the plea of lands, and the other called hustings of the common pleas. Error or attain lies there of a judgment or false verdict in the sheriff's *courts*.

Other cities and towns had also *courts* of the same name; as Winchester, Lincoln, York, &c.

COURT of King's Bench, Bancus Regius, a *court*, or judgment-seat, so called, because the king is supposed to sit in person as judge of the *court*, which was formerly the case, and may do so whenever he pleases; for which reason all writs, and other process in this *court*, are made returnable *coram nobis*, that is, before the king himself, and not *coram justiciariis nostris*, as is the form in the common pleas. 4 Inst. 73.

The judges of this *court* are the lord chief justice, whose annual salary is 4000*l.* and three other puisne justices at 2000*l.* a year each.

In this *court* are principally determined matters relating to the crown, and the peace. When any person is aggrieved by an order of justices, or quarter-sessions, they have recourse thither; the rights of elections of mayors, bailiffs, constables, &c. are often upon mandamuses, brought before this *court* to be settled; and prohibitions are hence issued out to stay proceedings in the ecclesiastical, admiralty, or any inferior *court*, where the matter appears to be triable at common law. The subject has also a right to sue in this *court* for any debt or contract, as well as in any other *court*, and may as advantageously and expeditiously proceed.

The chief justice is constituted by writ, and he is to hold, *quandiu se bene gesserit*, and so cannot be displaced without some great misdemeanor; though formerly the

chief justice, and other inferior judges, were made only *durante beneplacito*, and accordingly were turned out at the king's pleasure. He presides under his majesty in this *court*; but when the *court* divides, in giving judgment upon any special argument, he hath but one voice; so that if the opinion of the *court* should be equally divided, the matter must rest till one of the judges shall see just reason to alter his opinion. He is to attend the lords in parliament, though he has no vote, unless he be a peer himself, but is to give his opinion and advice to the house by virtue of a writ of assistance; and is frequently therefore consulted by them, both in making and repealing laws, and in altering or explaining them. He makes a return of all writs of error in parliament directed to this *court*: and with his own hand delivers the writ of error, and a transcript of the proceedings in the cause into the house of lords.

The three puisne, or inferior judges of this *court*, go the circuits and are in commission of oyer and terminer at the Old Bailey. They, as well as the chief justice, are entitled to their salary, though they happen not to sit one day in *court* in the term, unless they give their assent so slightly, as on a *scire facias*, to be charged with negligence: these also hold by *quam diu se bene gesserint*.

There are several officers belonging to this *court*, as two chief clerks, or prothonotaries, who are supposed to enter all the pleadings and judgments between party and party; although this is in reality done by an entering-clerk under them; and all writs of *latitat non omittas*, bills of Middlesex, *habeas corpus*, &c. are subscribed with the names of these chief clerks.

The secondary acts as master of the office on the pleas side, and is the chief clerk's deputy; his business is to examine any person, who is to be sworn an entering-clerk, or attorney at large, whether he be duly qualified, and to present him to the chief justice. He also signs all judgments, and gives costs upon them; and the *court* upon any motion, in relation to the irregular practice of any clerk or attorney, generally refers the examination thereof to him. He also takes all affidavits in *court* (unless on the crown side); and the acknowledgment of all deeds in *court*.

This *court* was always ambulatory, and removed with the king wherever he went: hence the writs returnable in this *court* are *coram nobis ubicunque fuerimus in Anglia*; and all records there are styled *coram rege*, as it is still supposed to have always the king himself in person sitting in it; from whence it obtained the name of the *court of king's bench*, and hath always retained a supreme original jurisdiction in all criminal matters, for in these the process both issued, and was returnable into this *court*: but in trespass it might be made returnable into either the *king's bench*, or common pleas; because the plea was criminal as well as civil. Vide 4 Inst. 70. 2 Inst. 24. Coke, Lit. 71. Crompt. of Courts, 78. 1 Rol. Abr. 94. This *court* is often termed the *custos morum* of all the realm; and wherever it meets with an offence contrary to the first principles of justice, and of dangerous consequence, if not restrained, it may adapt a proper punishment to it. For the better restraining such offences, it has a discretionary power of inflicting exemplary punishment on offenders, either by fine, imprisonment, or other infamous punishment, as the nature of the crime, considered in all its circumstances, shall require. It may make use of any prison which shall seem most proper: and it is said, that no other *court* can remove or bail persons condemned to imprisonment by this *court*. 2 Hawk. P. C. p. 6.

An act of parliament, appointing, that all crimes of a certain denomination shall be tried before certain judges, does not exclude the jurisdiction of this *court*, without express negative words; and therefore it has been resolved, that 33 Hen. VIII. c. 12. which enacts that all treasons, &c. within the king's house, shall be determined before the lord steward of the king's house, does not restrain the *court of king's bench* from proceeding against such offences. 2 Inst. 549.

But when a statute creates a new offence, which was not taken notice of by the common law, and erects a new jurisdiction for the punishment of it, and prescribes a certain method of proceeding, it seems questionable how far this *court* has an implied jurisdiction in such a case.

The judges of this *court* are the sovereign justices of oyer and terminer, gaol-delivery, conservators of the peace, &c. As also the sovereign coroners; and therefore, where the sheriffs and coroners may receive appeals by the bill, *a fortiori*, this *court* may. Also this *court* may admit persons to bail in all cases according to their discretion. 4 Inst. 73. 9 Co. 118. b. 4 Inst. ibid. 4 Inst. 74. Vaugh. 157.

This

This *court* has not only a power to reverse erroneous judgments, for such errors as appear the defect of the understanding; but also to punish all inferior magistrates, and all officers of justice, for wilful and corrupt abuses of their authority against the obvious principles of natural justice.

This *court* being the supreme court of oyer and terminer, gaol-delivery, and eyre, its presence suspends the power, and avoids the proceedings of all other *courts* of the same nature in the county where it sits, during its sitting there.

4 Inst. 73. 3 Inst. 27.

The civil side of the King's Bench commences on a supposition of a trespass committed by the defendant in the county where it resides, and that he is taken up by process of this *court*, as the sovereign eyre, and being committed to the marshal, he may be declared against in any civil action whatsoever. The first process, therefore, is a bill either real or feigned; and so called, because its foundation was the bill of complaint in *court*, touching the trespass: in this is founded the *latitat*, which supposes that the defendant has escaped, and therefore issues in the king's name, to apprehend the party wherever he may be found. Vide New Abr. Law, vol. i. p. 595. and title *Process*.

COURT Leet, *Leta visus franci plegii*, is a *court* of record, ordained for punishing offences against the crown; and said to be the most ancient *court* of the land. 2 Danv. Abr. 289. It enquires of all offences under high treason; but those who are to be punished with loss of life or member, are only enquirable and presentable here, and to be certified over to the justices of assize. Stat. 1 Edw. III. And this *court* is called the view of frank pledge, because the king is to be there certified by the view of the steward, how many people are within every leet, and have an account of their good manners and government; and every person of the age of twelve years, who hath remained there for a year and a day, may be sworn to be faithful to the king, and the people are to be kept in peace, &c. A leet is incident to a hundred, as a court baron to a manor: for by grant of a hundred, a leet passeth; and a hundred cannot be without a leet. Kitch. 70.

The usual method of punishment in the *court leet*, is by fine and amercement; the former assessed by the steward, and the latter by the jury.

COURT of the Legate, was a *court* obtained by cardinal Wolsey of pope Leo X. in the ninth year of Henry VIII. wherein he, as legate of the pope, had power to prove wills, and dispense with offences against the spiritual laws, &c. It was but of short continuance.

COURT of Lord High Steward. See STEWARD.

COURT of Marshalsea, a *court* of record to hear and determine causes, between the servants of the king's household, and others within the verge: and hath jurisdiction of all matters within the verge of the *court*, and of pleas of trespass, where either part is of the king's family; and of all other actions personal, wherein both parties are the king's servants. This is the original jurisdiction of the *court of marshalsea*.

COURT Martial, *Curia Martialis*, is a *court* for punishing the offences of officers and soldiers, in time of war: and it appears by our books, that if any person in commission, in time of peace, put to death any man by martial law, it is against Magna Charta, and murder. 3 Inst. 52. Though temporal acts of parliament have of late enabled our kings to hold *courts martial*, in times of peace, &c. Desertion and mutiny are punishable by this *court*; which must consist of at least thirteen commission officers; nine of whom must concur in order to sentence of death. A field officer is not to be tried by any under the degree of a captain.

COURTS, Mayor's. To the lord mayor and city of London, belong several *courts* of judicature. The highest and most ancient is that called the *hustings*, destined to secure the laws, rights, franchises, and customs of the city. The second is a *court of request*, or of conscience; of which, before. The third is the *court of the lord mayor and aldermen*, where also the sheriffs sit: to which may be added, two *courts of sheriffs*; and the *court of the city orphans*, whereof the lord mayor and aldermen have the custody. Also, the *court of common council*, which is a *court* or assembly, wherein are made all bye-laws which bind the citizens of London. It consists, like the parliament, of two houses: an *upper*, consisting of the lord mayor and aldermen; and a *lower*, of a number of common councilmen, chosen by the several wards, as representatives of the body of the citizens. In the *court of common council*, are made laws for the advancement of trade; and committees yearly appointed, &c. But acts made by them are to have the assent of the lord mayor and aldermen, by stat. 11 Geo. I. Also, the *chamberlain's court*, where every thing relating to the rents and revenues of the city, as also the affairs of servants, &c. are transacted.

Lastly, to the lord mayor belong the *courts of coroner*, and of *escheator*; another *court* for the conservation of the river of Thames; another of *gaol delivery*, held usually eight times a year, at the Old Bailey, for the trial of criminals, whereof the lord mayor is himself the chief judge. There are other *courts* called *wardmotes*, or meetings of the wards: and *courts of balymote*, or assemblies of the several guilds and fraternities.

COURT, Palace, Curia Palatii, was erected by letters patent of 6 Charles I. and made a *court* of record to try all personal actions, as debt, trespass, slander, &c. between party and party within twelve miles of Whitehall. The judges of this *court* are, the steward of the king's household, the knight marshal, and the steward of the *court* or his deputy. This *court* is held with that of the marshalsea once a week in Southwark, and appeal lies to the *court* of King's Bench. The proceedings here are either by *capias* or attachment, which is to be served on the defendant by one of the knight marshal's men, who takes bond with sureties for their appearance at the next *court*: upon which appearance he must give bail, to answer the condemnation of the *court*; and the next *court* after the bail is taken, the plaintiff is to declare, and set forth the cause of his action, and afterwards proceed to issue and trial by a jury, according to the custom of the common law *courts*.

COURT of Parliament. See PARLIAMENT.

COURT of Peculiars, is a spiritual *court*, held in such parishes as are exempt from the jurisdiction of the bishops, and are peculiarly belonging to the archbishop of Canterbury. 4 Inst. 338. Stat. 22 and 23 Car. II. There are royal peculiars, and archbishop's peculiars; the king's chapel is a royal peculiar, exempted from all spiritual jurisdiction, and reserved to the immediate government of the king himself: and there are also some peculiar ecclesiastical jurisdictions belonging to the king, which formerly appertained to monasteries and religious houses.

There are some peculiars which belong to deans and chapters, or a prebendary exempted from the archdeacon only; they are derived from the bishop, of ancient composition, and may be visited by the bishop in his primary or triennial visitation: in the mean time, an official of the dean and chapter, or prebendary, is the judge; and from hence the appeal lies to the bishop of the diocese. Wood. 504. Appeal lieth from other *peculiar courts* to the king in chancery. Stat. 25 Hen. VIII.

The dean and chapter of St. Paul's have a *peculiar jurisdiction*; and the dean and chapter of Salisbury have a larger *peculiar* within that diocese; so have the dean and chapter of Litchfield, &c. 2 Nels. Abr. 1240, 1241. Where a man dies intestate, leaving goods in several *peculiars*, it has been held that the archbishop is to grant administration. Sid. 90. 5 Mod. 239. Appeal lies to the king in chancery.

COURT, Pie powder, an ancient *court* mentioned in many of our statutes, to be held in fairs, for the rendering of justice to buyers and sellers, and the redress of grievances arising therein.

It had its name either because most ordinarily held in summer, and that the suitors hereat were chiefly country clowns, with dusty feet, called by the French, *pieds poudreux*; or from the expedition intended in the hearing of causes proper thereto, before the dust went off the plaintiff and defendant's feet: or rather, from the old French *pied pudreux*, a pedlar; signifying the *court* of such petty chapmen as resort to fairs or markets.

The Saxons called it *coapung-gemot*, i. e. *court of merchandise*; or a *court* for the decision of disputes relating to buying and selling. It is a *court* of record held during the continuance of the fairs. The steward, who has the toll of the market, is the judge: and the trial is by merchants and traders in the fair. A writ of error lies to the *courts* at Westminster.

COURT, Prerogative, is a *court* belonging to the archbishop of Canterbury; wherein all wills are proved, and all administrations granted, that belong to the archbishop by his prerogative; that is, where the party at his death had *bona notabilia*, five pounds or upwards, out of the diocese where he died, and within the archbishop's province.

All citations and decrees of this *court* run in the name of the archbishop.

This *court*, for the province of Canterbury, is kept in the common hall in Doctors Commons, in the afternoon, next day after the arches.

The judge is attended by the register, who sets down the decrees and acts of *court*; and keeps records, &c. all original wills and testaments of parties dying, having *bona notabilia*.

The place is usually called the *Prerogative office*: it is now kept in Dean's court; where, for a moderate fee, a copy may be had of any such will. See WILL.

Appeal

Appeal lies from this *court* to the king in chancery, who appoints delegates, &c. 25 Hen. VIII. c. 19. though if the delegates revoke a will, &c. they cannot grant letters of administration; for their power is to hear and determine the appeal. 2 Bull. 2. Roll. Abr. 233. The archbishop hath probate of every bishop's testament, &c. though he hath not *bona notabilia* out of the diocese: so where a person dies beyond sea. 4 Inst. 335. The archbishop of York hath also the like *court*, called his *exchequer*.

COURT of Requests, was a *court* of equity, of the same nature with the *court* of chancery, but inferior to it; being principally instituted for the help of such petitioners, as, in conscionable cases, dealt by supplication to his majesty.

Of this *court* the lord privy seal was chief judge; assisted by the masters of requests. It had its beginning about 9 Hen. VII. according to sir Julius Cæsar's tract on this subject. Mich. 40 and 41 Eliz. in a *court* of common pleas, it was adjudged, upon solemn argument, that this *court of requests*, or the *Whitehall*, was no *court* that had the power of judicature, &c. Coke Inst. fol. 97. It had assumed so great power to itself, that it grew burdensome and grievous, and was therefore taken away, with some others, by a statute made 16 and 17 Car. I. cap. 10.

COURT of Session. See **SESSION**.

COURTS, Stannary. See **STANNARIES**.

COURT of Star-chamber, *Camera Stelata*, or *Chambre de Etoilets*, so called because the roof was originally painted with stars; or more probably because the contracts and obligations of the Jews, before their banishment under Edward I. which were called *stars*, from a corruption of the Hebrew word *shetar*, a *covenant*, were kept in chests in the king's exchequer. This is of an ancient standing; but its authority was very much heightened by Henry VII. and Henry VIII. who appointed, by two several statutes, that the chancellor, assisted by others there named, should have power to hear complaints against retainers, embracers, misdemeanors of officers, and other like offences, which, through the power and authority of those who committed them, did lift up the head above other faults; and for which inferior judges were not so meet to give correction, and the common law had not sufficiently provided.

By the statute 16 Car. I. the *court* called *star-chamber*, and all jurisdiction, power, and authority thereto belonging, are absolutely dissolved.

COURT Supreme. See **PEER**.

COURT of Verge. See **COURT Palace**.

COURT, University. The *courts* of the universities of Oxford and Cambridge, are of a particular nature: they were granted by charters, and confirmed by authority of parliament. See stat. 13 Eliz. 4 Inst. 227. These *courts* are called the chancellor's *courts*, and are kept by the vice-chancellors of the universities. Their jurisdiction extends to all causes ecclesiastical and civil (except for maihem, felony, and relating to freeholds); where a scholar, servant, or minister of the universities, is one of the parties to the suit.

COURTS of Wales, are established over the principality chiefly by 12 Edw. I. and 34 and 35 Hen. VIII. c. 26. Besides *courts* baron, hundred and county *courts*, like those in England, a session is held twice every year in each county, by judges appointed by the king; in which pleas and personal actions shall be held in the same manner, and with the same extent, as in the court of common pleas at Westminster; and writs of error shall lie from judgment in them to the court of king's bench. And the the proceedings are according to the laws of England.

COURT of Wards, a *court* first erected by king Henry VIII. and after augmented by him with the office of liveries: but now absolutely taken away and abolished, by a statute made 12 Car. II. cap. 24.

For the nature of this *court*, see Coke on Litt. tit. *Knight's service*.

COURT, Bouche of. See **BOUCHE**.

COURT, Despight of the. See **DEPARTURE**.

COURT, Forejudged the. See **FOREJUDGED**.

COURT, Inns of. See **INN**.

COURT, Perquisites of. See **PERQUISITE**.

COURT, Suit of. See **SUIT**.

COURT, Ambulatory. See **AMBULATORY**.

COURT, Base. See **BASE**.

COURT, Honour. See **HONOUR**.

COURT, Lawless. See **LAWLESS**.

COURT, Wood-plea. See **WOOD**.

COURT-DAYS, are days when the courts of judicature are open, and pleas held.

COURT-LANDS, such as the lord of the manor keeps in his own hands, for the use of his family, and for hospitality. See **MANOR**.

COURT-ROLL, a roll which contains an account of the number, &c. of lands depending on the lord of the manor; with the names of the **TENANTS**, &c.

Tenants holding by copy of this roll, are denominated **COPY-HOLDERS**.

COURTAIN. See **CURTIN**.

COURTESY, or **CURTESY of England**, a **TENURE**, whereby a man marrying an inheritrix, or a woman seised of lands in fee simple, or fee-tail general, or seised as heir of tail-special, and getting a child by her which cometh alive into the world, though both wife and child die forthwith; yet, if she were in possession, he shall keep the land during his life, and be called *tenant by the courtesy of England*; this privilege being not allowed in any other country, except Scotland, where it is called *curialitas Scoria*.

This tenure was introduced by the Conqueror, and borrowed by him from his own country, Normandy, where it obtained before, under the name of *veuveié*. It is said in the Mirror to have been introduced by Henry I.

COURTESY, Arms of. See **ARMS**.

COURTIN, or **COURTAIN**, in *Fortification*. See **CURTIN**.

COURTISAN, a term of infamy, applied to women who expose their persons, and make a trade of prostitution.

Lais, the famous Theban *courtisan*, stands on record for requiring no less than ten thousand crowns for a single night. Of all places in the world, Venice is that where *courtisans* abound the most; it is near three centuries, since the senate, which had expelled them, was obliged to recall them; to provide for the security of women of honour, and to keep the nobles employed, lest they should make innovations in the state.

COUSIN, a term of relation and kinship, applied to those who are issued from two brothers or two sisters.

The word is ordinarily derived from *consanguineus*; though Menage brings it from *congenius*; or *congeneus*, q. d. *ex eodem genere*.

In the first generation they are called *cousin germans*, i. e. next *cousins*: in the second, *second cousins*: in the third and fourth, *cousins in the third and fourth degrees*.

In the primitive times, it was allowed *cousin germans* to marry, to prevent their making alliances in heathen families: but Theodosius the Great prohibited it, under pain of death; on pretence that they were, in some sort, brothers and sisters, with regard to each other.

Paternal cousins, are those sprung from relations on the father's side. *Maternal*, those on the mother's.

COUSINS; Quater. See **QUATER**.

COUSIN is also a title of honour, which kings bestow on peers, or nobles, foreign princes of the blood, cardinals, and the principal persons of their state.

COUSSINE *Γ*, *cushion*, in *Architecture*, the stone that crowns a piedroit, or pier; or that lies immediately over the capital of the impost. Its under-side is level, and its upper curved; receiving the first rise or spring of the arch, or vault.

The word is used also to signify an ornament, in the Ionic capital, between the **ABACUS** and **ECHINUS**, or quarter-round; and which serves to form the volutes. It is thus denominated from its representing a pillow, or cushion, pressed by the weight over it; and bound with the strap, or girdle, called, by Vitruvius, *balthus*.

COUSU, in *Heraldry*, is used in the same sense as *remply*; viz. for a piece of another colour, or metal, placed on an ordinary as if it were sewed on; which the word, in the French language, naturally implies: because the additional piece is not properly on the field, but in the nature of a thing sewed on, *adjutus*. This is generally of colour on colour, or metal on metal, contrary to the general rule of heraldry.

COUTHUTLAUGH, from the Saxon *couth*, *knowing*, and *utlaugh*, *outlaw*; he that wittingly receives a man outlawed, and cherishes or conceals him: for which offence he was, in ancient time, subject to the same punishment with the outlawed himself.

COUVERT, in *Heraldry*, denotes something like a piece of hanging, or pavilion, falling over the top of a chief, or other ordinary; so as not to hide, but only be a shading thereto.

COW, in *Zoology*. See **BULL**, and **BOS**.

The *cow* ought to have a broad forehead, black eyes, large clean horns, a long thin neck, a large deep belly, thick thighs, round legs, large feet, short joints, and a white large udder with four teats.

The use of the *cow* is either for the dairy, or for the breed. The red *cow* is generally supposed to give the best milk, and the black *cow* to bring the best calves. The *cow* that gives the milk longest is the best both for the breed and dairy; and, for the latter use, it is most convenient that the *cow* should calve in the spring. Either in the month of March or April, when a *cow* is

near calving, she should be put into good grafs three or four weeks before the time; or if it happen in winter, she is to be fed well with hay. The day and night after she has calved, she should be kept in the house, and the water that she drinks should be a little warmed. The next day, at noon, she may be turned out; but she should be taken in at night, for three or four days afterwards, and then she may be left to herself. Every night that she is taken in, she should be kept till the cold of the morning is over, and a drink of warm water given her before she goes out.

The largest cows, in general, give the greatest quantity of milk; and it is always a good rule to take the cattle from a worse ground than that on which they are to be kept; for if from a better, they are apt to degenerate. The best time of a cow's life, for breeding of calves, is from three years old till twelve.

Cow, Sea. See SEA COW.

Cow-parsnep. See PARSNEP.

Cow-weed. See CHERVIL.

Cow-wheat. See WHEAT.

COWARD, in *Heraldry*. A lion borne, in an escutcheon, with his tail doubled, or turned in between his legs, is called a *lion coward*.

COWITCH. See COWAGE.

COWL, or COUL, *Cuculla*, a sort of hood, wore by certain monks. See COUL.

COWL, *Friar's*, in *Botany*. See WAKE ROBIN.

COWPER's Glands, in *Anatomy*, a pair of glands discovered by Mr. Cowper in 1699, and lying upon each side of the PERINEUM. See URETHRA.

COWRING, in *Falconry*, the quivering of young hawks, who shake their wings, in signs of obedience to the old ones.

COWSLIP, in *Botany*. See PRIMROSE.

COWSLIP of *Jerusalem*. See LUNGWORT.

COWSLIP, *French*. See AURICULA.

COXÆ os. See COCCYGIS.

COXÆ, COXENDICIS, *ossa*, and in English the *hip-bones*, called also *ossa innominata*, are two large bones, situate on either side the *os sacrum*. See *Tab. Anatomy (Osteol.)* fig. 3. n. 16, 17, 18, 19.

In infants, each of these consists of three distinct bones, separated by cartilages; which, in adults, grow up, and constitute one firm, solid bone; whose parts, however, retain three distinct names, according to their former division, viz. the *os ilium*, *os ischium*, by some peculiarly called *os coxenaicis*, and the *os pubis*.

COXÆ *musculus*, according to Dr. Drake, is a pair of muscles arising fleshy from the *os ischium*, between the *musculi marfupialis*, and *pyriformis*; and which, descending obliquely, terminate on each side the *os coccygis*, and adjoining part of the *os sacrum*; serving to draw the *os coccygis* upwards and inwards, as antagonists to two ligaments springing from the back part of the *os sacrum*, and terminating in the external surface of the *os coccygis*.

COXENDIX, in *Anatomy*, the *hip*. See its bones and muscles under COXÆ.

COXSWAIN, on board a ship. See COCKSWAIN.

COYA, or COYBA, a venomous insect in south America, of a fiery red colour, and about the size of a bug. The poisonous juices of this insect, when burst upon the skin of any animal, are often fatal. However, the Indians have an antidote against it, in the dried stems of a herb.

COYOLCOZQUE, in *Ornithology*, the name of an American bird, described by Hernandez and Nieremberg, as a species of quail, or partridge. Its back is of a mixt white and yellow colour; its breast and belly wholly yellow; and its head and neck are ornamented with spots of black and white: its eyes are black; and its legs yellow. It is very common in many parts of New Spain, and is a very well tasted bird. Ray.

COZCACOAUTLI, in *Ornithology*, the Mexican name of a large bird of the eagle kind, described by Nieremberg; and called *regina aurarum*, the *queen of the winds*, from its being able to fly against any wind.

CQUILAQUIL, in *Natural History*, a name given by the people of the Philippine islands, to the species of parrot common with them; and distinguished from all the other kinds, by being very large, and all over of a fine green.

CRAB, in *Zoology*, a genus of APTERA in the class of insects in the Linnæan system, comprehending no less than eighty-seven species. Its characters are, that it has eight or ten feet, rarely six, two of the feet are clawed; the two eyes are remote, generally placed on a stalk, and moveable: the two feelers are cheliferous; and the tail is articulated. To this genus belong the *crabs* properly so called, cray-fish, shrimp, lobster, &c. See SQUILLA.

The *cancer major*, or common large crab-fish, has its abode from twenty to forty fathom water. These animals herd together in distinct tribes, and have their separate haunts for feeding and breeding, and will not associate with their neighbours. This has been carefully

tried, by marking the shell of a crab, and carrying it to two or three miles distance, and there leaving it among the same species; this crab has, after this, found its way home, and been caught in its old abode by the same fishermen.

The fishermen find the *crabs* of this species from the size of a chestnut to twelve pounds weight.

The *cancer major*, and all species of *crabs*, cast their shells; though at what season of the year, or how frequently, is not exactly to be determined; but it is believed to be annually, at the beginning of the summer, sooner or later, according to the greater or less strength of the crab. A membrane, like wet parchment, with which the carcase is enveloped, hardens by degrees into a new shell.

Nothing, in the history of the crab, is so singular as its breaking off its own limbs, which it occasionally does, in the following manner: the creature is able to do this in any position, but the most advantageous way of making the experiment is to lay it on its back; then, with a pair of iron pincers, break the shell, and bruise the flesh of one of the outer joints of a small leg: the wound will bleed, and the creature shew signs of pain, by moving it about: afterwards it holds it quite still, in a direct and natural position, without touching any part of its body, or other legs with it; then, on a sudden, with a gentle crack, the wounded part of the leg drops off, at the internodium of the second joint from the body. If a hole be pierced in the great claws, or legs, and an iron put in to lacerate the muscle, the effect is the same, and this large limb is thrown off in the same manner, only with more violence.

When the leg is off, a mucus overspreads the wound, and stops the bleeding; and a small leg is by degrees, produced, which afterwards attains to the size of the former. Nature seems to have given this singular power to this creature for the preservation of its life, in the mutual quarrels it very frequently has with others of its own species: in these one crab lays hold of the claws of another, and crushes it in such a manner, that it would bleed to death, had it not this power of giving up the limb, and healing the wound. Phil. Trans. N° 478. S. 14. and vol. xlvii. N° 8. See EXUVIÆ.

CRAB, in *Mechanics*, an engine used for mounting guns on their carriages. See GIN.

CRAB, in *Sea Language*, a wooden pillar, whose lower end is let down through the ship's decks, and rests upon a socket like the CAPSTAN: in its upper end are three or four holes at different heights, through the middle of it, above one another; into which long bars are thrust, whose length is nearly equal to the breadth of the deck. It is employed to wind in the cable, and for other purposes requiring a great mechanical power.

The crab with three claws is used to launch ships, and to heave them into the dock or off the key. See *Tab. II. Mechanics*, fig. 30.

CRAB's claws, or CRAB's eyes, *Chelæ Cancrorum*, in the *Materia Medica*, the tips of the common crab broken off at the verge of the black part; so much of the extremity of the claws only being used in medicine, as is tinged with the colour. The blackness, however, is only superficial; they are of a greyish white within, and, when levigated, furnish a tolerable white powder: this is of the number of the alkaline absorbent powders, but superior to most of them. It makes the basis of the famous Gascoign powder, the *lapis contrayerva*, and many other of the compound sudorific powders; and is sometimes, though rarely, prescribed singly.

It is the common opinion, that these crab's eyes act as mere absorbents in the *primæ viæ*, and extend their efficacy no farther than those passages. The French Memoirs, however, give us an account of their certainly passing into the blood, in a remarkable case. Mem. Acad. Par. 1709.

CRAB's eyes, *Oculi Cancrorum*, or *Lapides Cancrorum*, in *Natural History* and *Medicine*, are little, white, round stones, ordinarily flat; so called, though really taken out of the cray-fish, or river-lobster: and bearing no great resemblance to eyes, though resembling them more than any other part. They are much used in medicine, as a powerful alkali, or absorbent.

The most able naturalists long imagined them formed in the brain of the animal. Van Helmont first found them in the region of the stomach: M. Geoffroy the younger has observed the manner of their formation much more accurately. Whilst the shell of the cray-fish, which it casts every year, is hardening, a white nutritious juice, secreted in two portions of the stomach, forms by degrees a soft calculeous substance, of a crustaceous texture, from successive appositions of the juice. Before the casting of the shell, the animal is in a weak and sickly state; takes no food for some days; and in this period the calculi seem to serve for its nourishment. And on this account the crab's eyes are met with only whilst the fish are losing their

their shells, and for a few days afterwards, and not for a considerable time after this period. Neumann.—See *CRAY-fish*.

CRAB-lice, a troublesome kind of vermin, which stick so fast with their claws to the skin, as to render it difficult to dislodge them. Being viewed with a glass, they nearly resemble the small crab-fish; whence they obtained their popular name. They are also called *plutulae*, *morpiones*, *petolae*, and *peffilatae*: they usually infest the arm-pits, eye-lids, eye-brows, and *puendo*.

The will be quickly destroyed, and drop off dead, upon the application of a rag wet with the milk of sublimatic. This sort of vermin is reckoned to prognosticate speedy mortality to those whom they abandon, without being removed by medicine.

CRAB-tree, *Malus sylvestris*, in *Botany*. See *APPLE-tree*.

CRABRO. See *HORNET*.

CRACKER, in *Zoology*. See *DUCK*.

CRADLE, a well-known machine, in which children are rocked to sleep.

It also denotes that part of the stock of a cross-bow, in which the bullet is put.

CRADLE, in *Engraving*, is the name of an instrument used in scraping mezzotintoes, and preparing the plate. It is formed of steel, resembling a chisel, with one sloping side, upon which are cut hollow lines very near each other, and at equal distances. The acting part of this tool is made circular, and the corners are rounded. After being properly tempered, it must be sharpened on the whetstone. There are various sizes of this instrument.

CRADLE, in *Husbandry*, a part often added to a scythe, in order to gather the corn into swaths, when it is mowed.

CRADLE, in *Ship-building*, a frame of timber raised along the outside of a ship, by the bidge, for the more commodious and secure launching of the vessel. The *cradle* is much used in Italy, Spain, and Turkey; where they also trim great vessels in the *cradle*.

CRADLE, in *Surgery*, a case in which a broken leg is laid, after being set.

CRAFT, a sea term, signifying all manner of lines, nets, hooks, and the like, which serve for fishing. See *FISHING*.

Hence, as those who use the fishing-trade, use small vessels, such as ketches, hoys, smacks, &c. they call such little vessels *small craft*.

CRAKE, in *Ornithology*. See *Land RAIL*.

CRAKE-berries, in *Botany*, *empetrum*. See *Berry-bearing HEATH*.

CRAMA, in *Metallurgy*, a name given by the ancients to brass, made by the mixture of copper and the *lapis calaminaris*, as at this time. They had also a kind of white brass, or mixt metal, made of copper, in use among them, which they esteemed much above the yellow. We find mention of this in Virgil, under the name of *album orichalcum*; and the other old writers often call it *album crama*. We know of many ways of turning copper white: arsenic and many other minerals will do it; and the spoons, and other utensils, which some years ago used to be made of a mixt metal, called alchymy metal, were a sort of white brass. But it does not appear, that any of our methods have been the same with that of the ancients; the copper is rendered more brittle, and in some sort debased, in all our compositions of this kind; but in those of the ancients, it seems to have been rendered more ductile than at first.

CRAMA, **CROMA**, and **CHRAMA**, in *Medical Writers*, are used to signify a mixture of things, whether medicines or elements.

CRAMBE, in *Botany*, the *sea-cabbage*, a genus of the *tetradynamia filiquosa* class. Its characters are these: the flower hath four petals, placed in form of a cross; and six stamina, two of which are the length of the empalement, the other four being longer; the petals have honey glands on their insides, which are longer than the stamina: it hath an oblong germen, which afterward becomes a round dry capsule, with one cell enclosing a roundish seed. There are five species; the first of which is found wild upon sea shores in divers parts of England, but particularly in Suffex and Dorsetshire, where the inhabitants gather it in spring to eat, preferring it to any of the cabbage kind. As it generally grows upon the gravelly shores, where the tide flows over it, the inhabitants observe where the gravel is thrust up by the root of this plant, and cut the shoots before they are exposed to the open air; whereby they appear as if they were blanched, and are very tender and sweet; but if they are suffered to grow until they are green, they become tough and bitter.

This plant may be propagated in a garden, by sowing the seed soon after it is ripe, in a sandy or gravelly soil,

where it will thrive exceedingly, and its creeping roots will soon overspread a large spot of ground; but the heads will not be fit to cut, until the plants have had a year's growth. In order to have it good, the bed, in which the plants grow, should at Michaelmas be covered over with sand or gravel about four or five inches thick, which will allow a proper depth for the shoots: and if this be repeated every autumn, in the same manner as is practised in earthing asparagus beds, they will require no other culture.

The other sorts are only preserved in curious gardens for variety. Miller.

It is esteemed more hot and dry than the cabbage. Dale informs us that the leaves heal wounds, and disperse inflammatory, and other tumors.

CRAMP, a kind of numbness, or convulsion, occasioned by a thick viscid vapour entering the membranes of the muscles, which contracts or extends the neck, arms, legs, &c. with a violent, but transitory pain; being usually driven off with friction alone.

The word comes from the German *krampfe*, which signifies the same.

A glass of tar water, to be drank night and morning, has been recommended; a roll of brimstone, when held in the hand, has given present relief.

CRAMP-fish, or **NUMB-fish**, in *Ichthyology*, the English name of the *TORPEDO*. See also *RAJA*.

CRAMP-iron, a piece of iron, bent at each extreme, serving to bind together pieces of wood, stones, or other things.

Some derive the word, by corruption, from the French *agrapon*, or the Italian *rampone*, which signify the same thing.

CRAMPER, in *Ichthyology*, a name given by some to the *BRAMA saxatilis*, or *pagrus Indicus*, a large and broad sea-fish, caught among the rocks on the shores of many parts of the East Indies.

CRAMPONEE', in *Heraldry*. A *cross cramponé*, is that which at each end has a *cramp*, or square piece coming from it: as represented in *Tab. II. Heraldry*, fig. 52.

CRANPOONS, **CRAMPONS**, pieces of iron, hooked at the ends: for the drawing or pulling up of timber, stones, &c.

CRANAGE, a liberty to use a crane, for drawing up wares out of a ship, or hoy, &c. at a wharf; and to make profit thereof.

The word also signifies the money taken, or paid for the same.

CRANBERRY, in *Botany*. See *WHORTLE-berry*.

CRANE, *Ardea grus*, in the Linnæan system of *Ornithology*, a species of the *ARDEA*, or *HERON*. The characteristic of this genus is, that the head is cristated or crested, and almost bare of feathers.

These birds are very tall, and remarkable for the length of their legs and neck, of which there are three known species. 1. The common *crane*, the body of which is so large, as sometimes to weigh ten or twelve pounds; and when measured from the tip of the beak to the toes extended, is six feet long. Its beak is of a greenish black, and is long and pointed; its wings are large; and its legs and feet black; its toes very long. But what is most observable in this bird, is the construction of its wind pipe, or *aspera arteria*, which runs deep into the breast, by means of a foramen prepared for it; and there suffering some windings and turnings, goes out again at the same passage, and then descends into the lungs. Phil. Trans. vol. lvi. p. 204.

It is a very common bird, in Italy, and other places; and formerly visited England, large flocks of them having been sometimes seen in Lincolnshire, and Cambridge-shire, in summer. But they have now forsaken our island, though formerly natives. It is supposed by many, that this bird eats fish, but erroneously; the structure of its stomach plainly shews it a granivorous bird; and its flesh is very delicate, and much valued in the Italian markets. The whole of this bird, its fat, gall, head, and eyes, its stomach, and the marrow of its legs, are used in medicine. The bird itself, because nervous, is said to be highly beneficial to the nervous and membranous parts; hence the use of it is recommended in colics. Its fat, dropped into the ears, lessens deafness, softens hardness and obstinate tumors of the spleen: it quickly relieves a stiffness of the neck; and is said to be of the same nature with the fat of the goose. The gall is beneficial to the eyes. The head, eyes, and stomach, when reduced to a powder, are sprinkled upon fistulas, cancers, and varicose ulcers. An ophthalmic ointment is prepared of the marrow of the legs.

2. The Indian *crane*. This is smaller than ours, and of the same grey colour; its tail is so short that the wings hide it, and it is not seen. Its beak is longer than that of our *crane*; but its most obvious distinction is, that it

has on the top of its head, from the insertion of the beak to the crown, a rough red skin, beset with a few loose hairs.

3. The last species is the *grus Balearica*, the Majorca crane; this is of the shape of the stork, but instead of its long beak, has that of the crane, and is distinguished by a fine thick shewy crest which it carries on its head. This is not made up of feathers, but of hairs like hog's bristles. It runs very swiftly, and feeds on herbs and corn like the hens and turkeys. Ray's Ornithol. p. 200, 201. See *Tab. Birds*, N^o 7.

The general distinctions of the crane kind from the herons, are these: 1. The claw of the middle toe is not serrated. 2. They are much larger. 3. Their beak is shorter. Beside these, the make of their stomach, guts, and above all, of their *aspera arteria*, greatly distinguish them.

CRANE is also improperly applied to the shag, or small cormorant, a bird common about our shores.

CRANE, *Numidian*. See DEMOISELLE.

CRANE, a machine used in *Building* and in *Commerce*, for raising large stones, and other weights.

M. Perrault, in his notes on Vitruvius, makes the crane the same with the *corvus*, or raven, of the ancients.

The modern crane consists of several members, or pieces, the principal whereof is a strong perpendicular beam, or arbor, firmly fixed in the ground, and sustained by eight arms, coming from the extremities of four pieces of wood laid across, through the middle whereof the foot of the beam passes. About the middle of the arbor the arms meet, and are mortised into it: its top ends in an iron pivot, whereon is borne a transverse piece, advancing out to a good distance in manner of a crane's neck; whence the name. The middle and extremity of this are again sustained by arms from the middle of the arbor: and over it comes a rope, or cable, to one end whereof the weight is fixed; the other is wound round the spindle of a wheel, which turned, draws the rope, and that heaves up the weight; to be afterwards applied to any side or quarter, by the mobility of the transverse piece on the pivot.

There are several improvements of this useful machine mentioned in Desaguliers's *Experim. Philos.* p. 178, seq. particularly how to prevent the inconveniencies arising from sudden jerks, as well as to increase its force by using a double axis in *peritrochio*, and two handles.

The crane is of two kinds; in the first kind, called the *rat-tailed crane*, the whole machine, with the load, turns upon a strong axis: in the second kind, the gibbet alone moves on its axis. We shall refer to Desaguliers *ubi supra* for a particular account of the different cranes, and of the gradual improvements they have received: and give a description of one, in which most of them are combined, invented by the late Mr. Padmore of Bristol. It consists of wheels, axles, pulleys, ropes, and a gib or gibbet. When the rope H is hooked to the weight K, a man turns the winch A, on the axis whereof is the trundle B, which turns the wheel C, on whose axis D is the trundle E, which turns the wheel F with its upright axis G, on which the great rope H H winds as the wheel turns; and going over a pulley I at the end of the arm d of the gib c c d e, it draws up the heavy burden K; which, being raised to a proper height as from a ship to the quay, is then brought over the quay by pulling the wheel Z round by the handles z, z, which turns the gib by means of the half wheel b fixt on the gib-post c c, and the strong pinion a fixt on the axis of the wheel Z. This wheel gives the man that turns it an absolute command over the gib, so as to prevent it from taking any unlucky swing, such as often happens when it is only guided by a rope tied to its arm d; and people are frequently hurt, sometimes killed, by such accidents.

The great rope goes between two upright rollers i and k, which turn upon gudgeons in the fixed beams f and g; and as the gib is turned towards either side, the rope bends upon the roller next that side. Were it not for these rollers, the gib would be quite unmanageable; for the moment it were turned ever so little towards any side, the weight K would begin to descend, because the rope would be shortened between the pulley I and axis G; and so the gib would be pulled violently to that side, and either be broke to pieces, or break every thing that came in its way. These rollers must be placed so, that the sides of them, round which the rope bends, may keep the middle of the bended part directly even with the centre of the hole in which the upper gudgeon of the gib turns in the beam f. The truer these rollers are placed, the easier the gib is managed, and the less apt to swing either way by the force of the weight K.

A ratchet-wheel Q is fixt upon the axis D, near the trundle E; and into this wheel falls the catch or click R. This hinders the machine from running back by

the weight of the burden K, if the man who raises it should happen to be careless, and so leave off working at the winch A sooner than he ought to do.

When the burden K is raised to its proper height from the ship, and brought over the quay by turning the gib about, it is let down gently upon the quay, or into a cart standing thereon, in the following manner. A man takes hold of the rope t t (which goes over the pulley v, and is tied to a hook at S in the catch R), and so disengages the catch from the ratchet-wheel Q; and then, the man at the winch A turns it backward, and lets down the weight K. But if the weight pulls too hard against this man, another lays hold of the handle V, and by pulling it downward, draws the gripe U close to the wheel Y, which, by rubbing hard against the gripe, hinders the too quick descent of the weight; and not only so, but even stops it at any time, if required. By this means, heavy goods may be either raised or let down at pleasure, without any danger of hurting the men who work the engine.

When part of the goods are craned up, and the rope is to be let down for more, the catch R is first disengaged from the ratchet-wheel Q, by pulling the cord t; then the handle q is turned half round backward, which by the crank n n in the piece o, pulls down the frame b between the guides m and m (in which it slides in a groove) and so disengages the trundle B from the wheel C: and then, the heavy hook β at the end of the rope H descends by its own weight, and turns back the great wheel F with its trundle E, and the wheel C; and this last wheel acts like a fly against the wheel F and hook β , and so hinders it from going down too quick; whilst the weight X keeps up the gripe U from rubbing against the wheel Y, by means of a cord going from the weight, over the pulley w to the hook W in the gripe; so that the gripe never touches the wheel, unless it be pulled down by the handle V.

When the crane is to be set at work again, for drawing up another burden, the handle q is turned half round forwards; which, by the crank n n, raises up the frame b, and causes the trundle B to lay hold of the wheel C; and then, by turning the winch A, the burden of goods K is drawn up as before. See *Tab. II. Mechanics*, fig. 31.

The crank n n turns pretty stiff in the mortise near o, and stops against the farther end of it when it has got just a little beyond the perpendicular; so that it can never come back of itself: and therefore the trundle B can never come away from the wheel C, until the handle q be turned half round.

The great rope runs upon rollers in the lever LM, which keep it from bending between the axle at G and the pulley I. This lever turns upon the axis N by means of the weight O, which is just sufficient to keep its end L up to the rope; so that, as the great axle turns, and the rope coils round it, the lever rises with the rope, and prevents the coils from going over one another.

The power, of this crane may be estimated thus: suppose the trundle B to have 13 staves or rounds, and the wheel C to have 78 spur cogs; the trundle E to have 14 staves, and the wheel F 56 cogs. Then, by multiplying the staves of the trundles, 13 and 14, into one another, their product will be 182; and by multiplying the cogs of the wheels, 78 and 56, into one another, their product will be 4368, and dividing 4368 by 182, the quotient will be 24; which shews that the winch A makes 24 turns for one turn of the wheel F and its axle G on which the great rope or chain H H winds. So that, if the length or radius of the winch A were only equal to half the diameter of the great axle G, added to half the thickness of the rope H, the power of the crane would be as 24 to 1: but the radius of the winch being double the above length, it doubles the said power, and so makes it as 48 to 1: in which case, a man may raise 48 times as much weight by this engine as he could do by his natural strength without it, making proper allowance for the friction of the working parts. Two men may work at once, by having another winch on the opposite end of the axis of the trundle under B; and so make the power still double.

If this power be thought greater than what may be generally wanted, the wheels may be made with fewer cogs in proportion to the staves in the trundles; and so the power may be of whatever degree is judged to be requisite. But if the weight be so great as will require yet more power to raise it (suppose a double quantity), then the rope H may be put under a moveable pulley, as s, and the end of it tied to a hook in a gib at e; which will give a double power to the machine, and so raise a double weight hooked to the block of the moveable pulley.

When only small burdens are to be raised, this may be

quickly done by men pushing the axle G round by the handspokes y, y, y, y; having first disengaged the trundle B from the wheel C: and then, this wheel will only act as a fly upon the wheel F; and the catch R will prevent its running back, if the men should inadvertently leave off pushing before the burden be unhooked from B.

Lastly, when very heavy burdens are to be raised, which might endanger the breaking of the cogs in the wheel F; their force against these cogs may be much abated by men pushing round the handspokes y, y, y, y, whilst the man at A turns the winch. Fergusson's Lectures on Select Subjects, 4to. p. 52, &c.

If the axis G G be placed horizontally, and instead of the wheel F a larger wheel be fixed to it, which may be turned by men walking in it, we shall have another kind of crane; the rope will coil round the axle as the wheel turns, and the gib-work is the same as in the other sort of crane. Mr. Padmore contrived to prevent the danger attending the use of this construction, by putting cogs all round the outside of the wheel, and applying a trundle to turn it; by which addition the power is increased in the proportion of the number of cogs to the number of staves in the trundle: and in order to hinder its running back by the force of the weight, should the men within it slip, or leave off walking, he added a ratchet-wheel to the axis of the trundle, like that already described. Two winches may also be fixed to the ends of the axle, by working which the men in the wheel would be much assisted. On the axle he likewise fixed a gripe-wheel, such as has been already described, by means of which heavy burdens may be let down without the least danger.

Mr. Fergusson has contrived and described a new and safe crane, with four different powers adapted to different weights. In this crane (see Tab. II. Mechanics, fig. 32.) A represents the great wheel, and B its axle, on which the rope C winds. This rope goes over a pulley D in the end of the arm of the gib E, and draws up the weight F, as the winch G is turned round. H is the largest trundle, I the next, and K is the axis of the smallest trundle, which is supposed to be hid from view by the upright supporter L. A trundle M is turned by the great wheel, and on the axis of this trundle is fixed the ratchet-wheel N, into the teeth of which the catch O falls. P is the lever, from which goes a rope, Q Q, over a pulley R to the catch; one end of the rope being fixed to the lever, and the other end to the catch. S is an elastic bar of wood, one end of which is screwed to the floor: and, from the other end goes a rope (out of sight in the figure) to the farther end of the lever, beyond the pin or axis on which it turns in the upright supporter T. The use of this bar is to keep up the lever from rubbing against the edge of the wheel U, and to let the catch keep in the teeth of the ratchet-wheel: but a weight hung to the farther end of the lever, would do full as well as the elastic bar and rope.

When the lever is pulled down, it lifts the catch out of the ratchet-wheel, by means of the rope Q Q, and gives the weight F liberty to descend: but if the lever P be pulled a little farther down than what is sufficient to lift the catch O out of the ratchet-wheel N, it will rub against the edge of the wheel U, and thereby hinder the too quick descent of the weight; and will quite stop the weight if pulled hard. And if the man who pulls the lever should happen inadvertently to let it go; the elastic bar will suddenly pull it up, and the catch will fall down and stop the machine.

W W are two upright rollers, above the axis or upper gudgeon of the gib E: their use is to let the rope C bend upon them, as the gib is turned to either side, in order to bring the weight over the place where it is intended to be let down: which ought to be so placed, that if the rope C be stretched close by their outmost sides, the half thickness of the rope may be perpendicularly over the centre of the upper gudgeon of the gib; for then the length of the rope between the pulley in the gib and the axle of the great wheels, will be always the same, in all positions of the gib, and the gib will remain in any position to which it is turned.

The powers of this machine may be easily calculated: the horizontal-wheel has ninety-six cogs, the largest trundle twenty-four staves, the next largest has twelve, and the smallest has six. So that the largest trundle makes four revolutions for one revolution of the wheel; the next makes eight; and the smallest makes sixteen. When a winch is occasionally put upon the axis of either of these trundles for turning it, the handle of the winch describes a circle in every revolution equal to twice the circumference of the axle of the wheel; and therefore the length of the winch doubles the power gained by

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each trundle. So that if the winch be applied to the axle of the largest trundle and turned four times round, the wheel and axle will be turned once round, and the power will move through eight times as much space as the weight rises through: in which case the power will be to the weight as eight to one; i. e. a man may raise eight times as much weight by the crane, as he might by his natural strength without it. If the second trundle be used, the proportion of the power to the weight will be as sixteen to one; and with the smallest trundle, as thirty-two to one. The power may again be doubled by drawing up the weight by one of the parts of a double rope, going under a pulley in the moveable block which is hooked to the weight below the arm of the gib; for then the power will be as sixty-four to one: and by increasing the number of pulleys, the power will be proportionably increased. See Supplement to Fergusson's Lectures, p. 3, &c. or Phil. Trans. vol. liv. art. 3. p. 24.

CRANE is the name of a southern constellation. See GRUS.

CRANE is also a popular name for a SIPHON.

CRANE's bill, a kind of forceps used by surgeons, and so named from its figure.

CRANE's bill, in Botany, &c. See GERANIUM.

CRANE-fly, a name given by some to the creature we commonly call *father long-legs*; and the authors of histories of insects, *tipula terrestris*. This creature affords the microscopic observers many curious particulars; but the most remarkable is, the surprising contraction of the muscular fibres in the legs. These being dissected in a drop of water, and placed before the microscope, the fleshy fibres contract and distend themselves in a manner not to be imagined, and continue this motion for several minutes; and this is constantly to be observed in this insect, and never in any other, so far as has been yet observed. Leewenhoeck, Arcan. Nat. tom. iii. p. 109. The intestines of this creature are also very wonderful, consisting of numberless vessels and organs, which may be seen as plainly by the microscope, as the bowels of larger animals can by the naked eye. The tails both of the male and female are also of an amazing structure; the female's ends in a sharp point, with which she perforates the ground, and deposits her eggs under the grass in meadows.

CRANE-lines, in a ship, are lines going from the upper end of the sprit-fail-top-mast, to the middle of the fore-stays; serving to keep the sprit-fail-top-mast upright and steady. See Tab. Ship. fig. 1. 137.

CRANE-neck of a carriage. See PERCH.

CRANIOLARIA, in Botany, a genus of the *didymia angiospermia* class. Martynia, Houtt. Gen. Its characters are these: the flower hath a permanent empalement, composed of four short narrow leaves and a swollen hood, which is cut longitudinally on the side; the flower hath one petal, which is unequal, having a very long tube, whose brim is divided into two lips; it hath four stamina, two of which are the length of the tube, and two are shorter; at the bottom of the tube is situated an oval germen, which afterward becomes an oval leathery fruit, pointed at both ends, opening with two valves, inclosing a depressed woody nut, pointed at both ends and recurved, having two or three furrows, so as to resemble a skull opening in two parts. There are two species, natives of Spanish America.

CRANIUM, in Anatomy, an assemblage of several bones, which cover and enclose the brain and cerebellum; popularly called the SKULL. See Tab. Anatomy (Osteol.) fig. 1 and 2.

The word comes from the Greek *κρανιον*, of *κρανος*, *galea*, helmet; because it serves to defend the brain, like a head-piece. Pezron, again, derives *κρανιον* from the Celtic *cren*, because of its roundness.

CRANIUM, in Natural History, the name of a species of the *echinus marinus*, of the genus of the BRISSOIDES.

CRANK, a contrivance in machines, in manner of an elbow, only of a square form; projecting out from an axis, or spindle; and serving, by its rotation, to raise and fall the pistons of engines for raising water, or the like.

CRANK, in Sea Language. A ship is said to be *crank-sided*, when, for want of a sufficient quantity of ballast or cargo, she cannot bear her sails, or can bear but small sail for fear of oversetting.

She is said to be *crank by the ground*, when her floor is so narrow, that she cannot be brought on ground without danger.

CRANK, is also an iron brace which supports the lanterns on the poop-quarters, &c.

CRANNY, in the Glass Trade, a round iron, whereon the workmen in the glass-houses roll the glass, to make the neck of it small.

CRAPE, a light transparent stuff, in manner of gauze; made of raw silk, gummed and twisted on the mill; woven without crossing, and much used in mourning.

Crapes are either *craped*, i. e. *crisped*, or *smooth*: the first *double*, expressing a closer mourning; the latter *single*, used for that less deep. Note, White is reserved for young people, or those devoted to virginity.

The silk destined for the first is more twisted than that for the second; it being the greater or less degree of twisting, especially of the warp, which produces the crisping given it when taken out of the loom, steeped in clear water, and rubbed with a piece of wax for the purpose.

Crapes are all dyed raw. The invention of this stuff came originally from Bologna: but the chief manufacture hereof is said to be at Lyons.

History tells us, that St. Bathilda, queen of France, made fine *crape*, *crepa*, of gold and silver, to lay over the body of St. Eloy. The Bollandists own they cannot find what this *crepa* was. Binet says, it was a frame to cover the body of the saint; but others, with reason, take it to be a transparent stuff, through which the body might be seen; and that this was the *crepa* whence our word *crape* was formed.

CRAPULA, a SURFEIT by over-eating and drinking.

CRASIS of the blood, denotes a due temperament or constitution of that humour; wherein the several principles, viz. salt and oil, whereof it is composed, are found in their just proportion and purity: in contradistinction to *dyscrasy*, which consists in an improper mixture of the principles, or an unnatural state of some of the ingredients thereof.

The word is Greek *κρασις*, from *κραννυμι*, *I mix*: signifying *mixing*, *temperament*.

The chief dyscrasies the blood is susceptible of, whence flow most of the diseases of the bodies, are coagulation, dissolution, oiliness, fizziness, and saltiness.

CRASIS, in *Grammar*, is a figure, whereby two different letters are either contracted into one long letter, or a diphthong. Such, e. gr. is *οφίς* for *οφίας*; *αληθη* for *αληθεα*, &c. *τυχας* for *τυχεος*, &c. where *i* and *a* are contracted into *i*; *e* and *a* into *e*; and *e* and *o* into *o*.

CRASPEDARIA, from *κρασπεδον*, *fringe*, in *Zoology*, a genus of animalcules, without any visible limbs or tails; but with an apparent mouth, and a series of fimbriae round it in the manner of a fringe.

Of this genus there are three species: 1. The *craspedarium* with a roundish body. 2. The *craspedarium* with an oval body. 3. The *craspedarium* with a cylindric body.

CRASSAMENTUM, a term used by some *Anatomists*, for the CRUOR of the blood; on that part which, upon standing to cool, and separate, forms the coagulum: in opposition to the *serum*, or whey, wherein it swims.

Some authors have supposed the *crassamentum* to be specifically lighter than the *serum*; but Dr. Jurin shews the contrary from repeated experiments.

Some have supposed that the immediate cause of animal heat is the action of the *crassamentum* in attracting and retaining the fire which is dispersed through the earth. On the due proportion of the *crassamentum* or red globules depend the health and life of man. This consists of two parts, one of which gives it solidity, and is called the fibrous part of the blood, but more properly the *coagulable LYMPH*, and of another which gives the red colour to the blood. See an account of Dr. Hewson's curious experiments and observations, in *Phil. Trans.* vol. ix. art. 32, 33, 34.

CRASSIROSTRÆ, in *Ornithology*, the name of a genus of small birds, distinguished by the thickness of their beaks; as the sparrow, greenfinch, and the like.

CRASSULA, in *Botany*; Dillen. Hort. Elth. 14. *lesser orpine*, *live for ever*, and *bastard navel-wort*; a genus of the *pentandria pentagynia* class. Its characters are these: the flower consists of five narrow petals, joined at their base, but reflexed and spread open at their brim: in the bottom of the tube are situated five nectaria, and five stamina situated round these. At the bottom of the tube are situated five oblong pointed germina, which, after the flower is past, become five capsules, opening lengthways, and filled with small seeds. There are eleven species.

CRATÆGUS, in *Botany*. See *Wild SERVICE*.

CRATCHES, in *Farriery*, a swelling on the pastern under the fetlock, and sometimes under the hoof.

CRATER, *Cup*, in *Astronomy*, a constellation of the southern hemisphere; whose stars, in Ptolemy's Catalogue are seven; in Tycho's eight; in Hevelius's, ten; in the Britannic Catalogue thirty-one. The order, names, longitudes, latitudes, &c. whereof are as follow:

Names and situations of the stars.	Bayer's Char.	Signs.	Longitud.	Latitude.	Magnitude.
	α	♊	12 58 27	23 14 2	6
	β	♊	13 45 56	23 29 50	5
North. of two below the base of the Cup.	γ	♊	15 54 24	23 4 24	6
Following.	δ	♊	16 3 39	21 49 28	4
	ε	♊	17 26 16	23 45 3	6
5.	ζ	♊	18 44 33	24 59 42	6
	η	♊	19 26 43	22 42 0	4
	θ	♊	24 3 28	30 8 48	6
South. of two below the base of the Cup.	ι	♊	25 1 40	30 16 31	5
	κ	♊	26 14 11	30 41 12	6
10.					
N. of two below the base of the Cup.	λ	♊	24 15 35	5 37 33	3.4
N. of two in the middle of the Cup.	μ	♊	22 23 50	17 35 20	4
	ν	♊	25 6 43	20 49 31	5.6
In N. part of the circumf. of the mouth.	ξ	♊	21 55 59	13 28 28	4
S. in the middle of the Cup.	ο	♊	24 56 16	19 39 22	4
15.					
	π	♊	23 9 20	14 35 16	5
	ρ	♊	2 6 56	29 22 14	6
	σ	♊	3 11 25	30 55 59	6
First of three after 20th in the triangle.	τ	♊	3 37 47	31 35 55	4
	υ	♊	4 34 51	32 21 21	6
20.					
In N. handle of the Cup.	φ	♊	24 16 26	11 18 33	4
	χ	♊	5 54 10	23 39 23	7
	ψ	♊	5 7 46	32 12 27	6
Middle of three after 20th in the triangle.	ω	♊	26 8 52	14 13 32	5
	α	♊	6 47 26	33 26 39	5
25.					
	β	♊	5 35 23	18 40 6	6
In S. circumf. of the mouth.	γ	♊	29 45 50	18 17 29	4
	δ	♊	9 4 47	31 28 16	4
	ε	♊	6 53 32	26 21 30	6
In S. handle of the Cup.	ζ	♊	1 47 42	16 4 46	4
30.					
	η	♊	3 58 41	17 52 59	5.6

CRATER, in *Falconry*, denotes a line on which hawks are fastened when reclaimed.

CRATERITES, in *Natural History*, the name of a gem mentioned by Pliny, and said to be extremely hard, and of a middle colour between that of the chrysolite, and of the common yellow amber. This was plainly a species of **CHRYSLITE**.

CRATEVA, in *Botany*, a genus of the *decandria monogynia* class; the *garlic pear*. Its characters are these: the flower hath four oval petals, which are narrow at the base and broad at the top; it hath many bristly stamina, which are longer than the petals; and a long incurved style, upon which sits an oval germen, which afterward becomes a large fleshy globular fruit with one cell, including many kidney-shaped seeds. There are two species, natives of both the Indies.

CRATICULA, a chemical instrument, made of square pieces of iron, of about a finger's thickness, placed so as to have half a finger's space betwixt them. It is used in making of fires to keep up the coals.

The word is Latin, importing a roaster or gridiron.

CRATICULAR *Etype* and *Prototype*. See **ANAMORPHOSIS**.

CRAVANT, in *Ornithology*, a name by which Bellonius and some others have called the **BARNACLE**, a small species of wild goose, common in winter on the coasts of Lancashire.

CRAVEN, or **CRAVENT**, in *British Antiquity*, a term of reproach used in trials by battle.

The law was, that the victory should be proclaimed, and the vanquished acknowledge his fault, in the presence of the people, or pronounce the word *cravent*, in the name of recreantice, or cowardice, &c. and, presently, judgment to be given; and the recreant *amittere legem terræ*, i. e. become infamous.

Coke observes, that if the appellant join battle, and cry *craven*, he is to lose *liberam legem*. if the appelled cry *craven*, he is to be hanged.

CRAW, *Crop*, or *Ingluvies*, a part in granivorous fowls which serve for the immediate reception of the food; where it remains some time for maceration, before it be transmitted to the stomach.

This *ingluvies* is furnished with glands, which the patrons of fermentation maintain, convey a menstruum thither

thither, that impregnates the aliment, and serves instead of mastication.

CRAX, in *Ornithology*, a name given by the ancients to the *ortygometra*, or *DAKER-ben*, a bird larger than the quail and common in Ireland and some of the northern countries of England. Ray's *Ornithology*, p. 122.

CRAX, in the Linnæan system of *Ornithology*, the name of a distinct genus of birds, the distinguishing character of which from the rest of the *gallinæ* is, that the feet have each four toes, and the head is ornamented with a kind of feathery crown, bending backwards. Linnæi Syst. Nat. p. 47. Phil. Transf. vol. lvi. p. 204.

CRAY-fish, in *Ichthyology*, a species of the *Cancer*.

Cray-fish, or *cancer asellus* of Linnæus are found in rivers and fresh water; their flesh is cooling, moistening, and adapted to nourish such as labour under atrophies. There are various methods of preparing these animals; they may be either boiled or fried, and then taken out of their shells and made up in variety of dishes; but no parts of them are eatable except their claws and tail. Preparations and broths of *cray-fish* are celebrated not only for a palatable aliment, but also for answering some medicinal intentions as being of a moistening quality, and sheathing up and correcting acrimony. The broth is prepared of four or five *cray-fish*, which having their heads cut off, and their intestines extracted, are to be bruised and boiled in the broth of flesh or poultry, until they become sufficiently red; after which the liquor is to be strained off and seasoned, as the case may require. This broth may be rendered still more medicinal by the addition of herbs, snails, or other substances; according to the intention of the physician. The flesh is counted best in the summer months.

The delicate flavour of these fish depends in a great measure on their food. When they have well-tasted food, their flesh preserves the relish of it: but when they feed on other things, they are often rendered of no value, by the flavour communicated to their flesh by them. There are great quantities of these fish in the river Odra, on the borders of Silesia; but the people find them scarce eatable, because of a bitter aromatic flavour, very disagreeable in food. It has been since observed, that the *calamus aromaticus* grows in vast abundance on the banks of that river, and that these creatures feed very greedily upon its roots. These have a very remarkable bitterness mixed with their aromatic flavour, while fresh, which goes off very much in the drying; and on comparing the taste of these roots with that of the *cray-fish*, there remains no doubt of the one being owing to the other. Act. Leipf. 1690.

They abound in the river Don in Muscovy, where they are laid in heaps to putrefy; after which the stones, called crab's eyes, are picked out.

These animals are very greedy of flesh, and flock in great numbers about carcases thrown into the water where they are, and never leave it while any remains. They also feed on dead frogs when they come in their way. James.

In Switzerland, there are some *cray-fish* which are red, while they are alive, and others bluish. Some kinds of them also will never become red, even by boiling, but continue blackish.

The *cray-fish* discharges itself of its stomach, and as M. Geoffroy thinks, of its intestines too. These, as they putrefy and dissolve, serve for food to the animal; during the time of the reformation, the old stomach seems to be the first food the new one digests. It is only at this time, that the stones are found called *CRAB's eyes*; they begin to be formed when the old stomach is destroyed, and are afterwards wrapped up in the new one, where they decrease by degrees till they entirely disappear.

CRAYER, a kind of small sea-vessel or ship. It is mentioned in the stat. 14 Car. II. c. 27. and in old records, *Et transitus craerarum & batellorum cum victualibus & aliis necessariis, &c.* Parl. 6 Ric. II. Par. 2. M. 13.

CRAYON, a general name for all coloured stones, earths, or other minerals and substances, used in designing, or painting in pastel; whether they have been beaten and reduced to a paste, or are used in their primitive consistence, after sawing or cutting them into long narrow slips.

In this last manner are red *crayons* made, of blood-stone, or red chalk; black ones, of charcoal and black lead. The best charcoal is that of willow, on account of its softness. *Crayons* of all other colours are compositions of earths reduced to paste.

CRAZE-mill, or **CRAZING-mill**, a mill in all respects like a grist-mill to grind corn, and is so called by the tinminers, who use it to grind their tin, which is yet too great, after trampling, and then it is trampled only.

CREAM is a name applicable to all substances, which separate from a liquor, and collect on its surface: but it is particularly applied to the following.

CREAM of lime, is that matter which separates from lime-water by crystallization, during the evaporation of the water; forming on the surface a semi-transparent pellicle, which gradually thickens, till at length it subsides in the form of scales. This is a calcareous earth, which, having once lost its GAS or fixed AIR by calcination, is recombined with it after being dissolved in water, and exposed again to the air, and hereby becomes mild, crystallizable, unsoluble in water, and recovers its original state before calcination. Macquer, Dict. Chem. Eng. ed. 1777.

CREAM of milk, is the most oily part of it, which being specifically lighter than the other parts, collects, and swims on the surface; being that of which **BUTTER** is made.

The word is derived from *cremor*, which signifies the same; though in the lower Latin we find *crema lactis*.

CREAM of tartar, *cremor tartari*, is that part of the concrete acid of tartar which crystallizes first, and forms a pellicle on the surface of the water in which tartar has been boiled. This has been a general name comprehending this saline pellicle and the crystal of **TARTAR**.

CREASE-TYLES. See **TYLE**.

CREAT, in the *Manege*, an usher to a riding master.

CREATION. See **GENESIS**.

CREATION, *epocha of the*. See **EPOCHA**.

CREDENTIALS, letters of credit and recommendation; especially such as are given to ambassadors, plenipotentiaries, &c. sent to foreign court.

CREDIBILITY, a quality in objects whereby they become fit to be believed. See **FAITH**.

A thing is said to be *credible*, which is not apparent of itself, nor is certainly to be inferred either from the cause or effect; and yet has the attestation of a truth. Things which appear immediately true, as the whiteness of snow, or that the whole is equal to its parts; are not said to be *credible*, but evident. Those to which we only give our assent in virtue of some competent authority or testimony of others, are by the schoolmen, said to be *credible*. In the Philosophical Transactions we have a mathematical computation of the *credibility* of human testimony. See **EVIDENCE**.

CREDIT, in *Commerce*, a mutual trust or loan of merchandise or money, on the reputation of the probity and solvability of a dealer.

Credit is either *public* or *private*.

Every trader ought to have some estate, stock, or portion of his own, sufficient to carry on the traffic he is engaged in: they should also keep their dealings within the extent of their capital, so that no disappointment in their returns may incapacitate them from supporting their *credit*. Yet traders of worth and judgment may sometimes lie under the necessity of borrowing money for carrying on their business to the best advantage; but then the borrower ought to be so just to his own reputation and to his creditors, as to be well assured that he has sufficient effects within his power, to pay off his obligations in due time. But if a trader should borrow money to the extent of his *credit*, and launch out into trade, so as to employ it with the same freedom as if it was his own proper stock; such a way of management is very precarious, and may be attended with dangerous consequences. Merchants ought never to purchase their goods for exportation upon long *credit*, with intent to discharge the debt by the return of the same goods; for this has an injurious influence on trade several ways: and if any merchant has occasion to make use of his *credit*, it should always be for the borrowing of money, but never for the buying of goods; nor is the large *credit* given to wholesale traders, a prudential or justifiable practice in trade.

The public *credit* of a nation is said to run high, when the commodities of that nation find a ready vent, are sold at a good price, and when dealers may be safely trusted with them: also when lands and houses find ready purchasers; when money is to be borrowed at a low interest; when people think it safe and advantageous to venture large stocks in trade; and when notes, mortgages, &c. will pass for money. Post. Dict. Com.

CREDIT, *letters of*, are those given to persons in whom a merchant, &c. can trust, to take money of his correspondent abroad, in case he happens to need it.

CREDIT is also used for the currency which papers, or bills, have in the public, or among dealers.

In this sense, *credit* is said to *rise*, when in negotiating the shares of a company, they are received and sold at prices above *par*, or the standard of their first creation.

Discredit is opposed to *credit*, and is used where money, bills, &c. fall below *par*.

CREDIT was also anciently a right which lords had over their vassals; consisting in this, that during a certain time they might oblige them to lend them money.

In this sense, the duke of Brittany had *credit* during fifteen

fifteen days on his own subjects, and those of the bishop of Nantes: and the bishop had the same *credit* or right among his subjects, and those of that prince.

CREDITOR, a person to whom any sum of money is due, either by obligation, promise, or otherwise.

The laws of the Twelve Tables, which were the foundation of the Roman jurisprudence, allowed the *creditor* to tear or cut his debtor to pieces, in case he proved insolvent.

CREDITOR, in *Book-keeping*. See **BOOK-KEEPING**.

CREDULITY denotes a weakness of mind, by reason of which a person yields his assent to propositions or facts, before he has considered their **EVIDENCE**.

CREED, CREDO, a short, or summary account of the chief articles of the Christian faith; thus called from the first word thereof in Latin, *credo, I believe*. See **SYMBOL**.

The principal of these are the *Apostles*, the *Athanasian*, and the *Nicene*.

CREED, Apostles, is so called, because for many ages it was believed to have been framed by the apostles before they left Jerusalem. The first person who gave this account of its original was St. Ambrose, towards the latter end of the fourth century: in which he is followed by Rufinus, Jerom, and several others; and some have even asserted, that each apostle supplied his particular article. See **SYMBOL**. But there are many reasons why this account cannot be admitted: if a *creed* of such high authority had existed in the Christian church, it is reasonable to suppose that it would have been mentioned by St. Luke in the history of the Acts of the Apostles, or by some of the earlier writers in the four first centuries, before the time of St. Ambrose; that it would have been referred to as a standard of doctrine by the more ancient councils; and that it would have superseded the necessity of composing new *creeds*, which was done on many occasions. Besides, the several copies of this *creed*, of which the principal are the vulgar or Roman, the Aquileian, and the Oriental, differ from one another in many articles; and this difference cannot easily be reconciled with the notion, that it was framed by the apostles, and transmitted from them to their successors. To which we may add, that some of the articles contained in it were inserted in opposition to errors that sprung up in the Christian church, long after the time of the apostles. However, this *creed* is a very ancient composition, and upon the whole an unexceptionable summary of the Christian doctrine, and much superior to compositions of a similar kind of later date. It might in part have been transmitted down from the apostles, and afterwards gradually enlarged in its present form as occasion required. Lord King's Crit. Hist. of the Apostles' Creed. See **SYMBOL**.

CREED, Athanasian, has been falsely attributed to Athanasius bishop of Alexandria, who lived and wrote in the fourth century: it is neither mentioned nor referred to in any of his genuine works; no notice is taken of it by writers who immediately succeeded him: it was never appealed to for the decision of the controversy relating to the procession of the Spirit between the Eastern and Western churches, in the seventh and ninth centuries; nor is it quoted, say some, till one thousand years after Christ. Fabricius is of opinion, that it was first writ in Latin long after the fifth century, and afterwards translated into Greek. It is appointed to be read in the service of the Church of England thirteen times in the year. Vossii Diff. de Symbolis. Fabr. Bib. Græc. vol. v.

CREED, Nicene, was composed and established as a proper summary of the Christian Faith by the council at Nice, A. D. 325. against the Arians. This is also called the Constantinopolitan *creed*, because it was confirmed with some few alterations by the council of Constantinople, A. D. 381.

These three *creeds* are used in the public offices of the church of England, and subscription to them is required of the clergy, and was formerly required of dissenting teachers properly qualified by the **TOLERATION** act, as the eighth **ARTICLE** declares that they may be proved by the surest testimonies of Scripture.

CREEK, a part of a haven, where any thing is landed from the sea.

So many landing-places as there are in a **HARBOUR** or port, so many *creeks* there are.

It is also said to be a shore or bank whereon the water beats, running in a small channel from any part of the sea; from the Latin *crepido*. This word is used in the stat. 4 Hen. IV. c. 20. and 5 Eliz. c. 5.

CREENGLES, Cringles, probably derived from *krinckelen* (Belg.) to run into twigs; in *Naval Architecture*, are small ropes spliced into the bolt-ropes of the sails of the main-mast and fore-mast, into which the bowling-bridles are made fast; and are also to hold by, when a bonnet is shaken off.

Harris, in his *Lexicon Technicum*, has the same description under *Crenyles*; and the Gentleman's Dictionary under *Crencles*.

CREEPER, the English name of a species of **ISPIDA**, which, though very unlike the common **KING's fisher** both in colour and figure, yet is comprehended under that genus on account of the structure of its feet.

This small bird, which is hardly larger than a **WREN**, has likewise been called the *certhia* and *certhius*, by authors, and in English the *ox-eye*.

It climbs trees exactly like the wood-pecker, in which it is greatly assisted by the rigidity of its tail. It builds in holes of trees, and lays a great number of eggs, sometimes eighteen or twenty. Ray's Ornith. p. 100.

CREEPER, in *Sea Language*, a sort of grapnel, having a shank and four hooks or claws, but without flocks; used for recovering things that may be cast overboard.

CREMASTERS, in *Anatomy*, an epithet given to two muscles, otherwise called *suspensores*; serving to raise, or draw up the testicles. See *Tab. Anat. (Myol.) fig. 2. n. 32.*

The word comes from the Greek *κρεμαω, suspendo, I suspend.*

CREMATION is sometimes used for burning, particularly when applied to the ancient custom of burning the dead. This custom is well known to have prevailed among most eastern nations, and continued with their descendants after they had peopled the different parts of Europe. Hence we find it prevailing in Greece, Italy, Gaul, Britain, Germany, Sweden, Norway, and Denmark, till Christianity abolished it. Phil. Transf. N^o 458. 1st.

CRENATED leaves. See **LEAF**.

CRENELLE, *embattled*, in *Heraldry*, is when any honourable ordinary is dented, after the manner of battlements of a wall. See *Tab. II. Heraldry, fig. 59.*

The French word comes from *crena, a notch, or interval*; the English from its being a place of fighting, or battle. Upton, in Latin, calls this *imbatalatum*, a word forged from the English; but most others term it *pinna-tum*, from *pinna, a battlement*.

The origin hereof is, doubtless, from the figures of such walls being given to warriors, either for having been the first at mounting, or the chief in defending them.

CRENOPHYLAX. The *crenophylaces* at Athens were magistrates who had the inspection and management of fountains under their care.

CREODIBA, in the *Customs of the Middle Age*, a robbery and murder committed in a wood, where the body of the person killed was burnt, in order to prevent any discovery of the crime. The word says Wendelinus, is compounded of *cray* and *diven*, that is, *wood-robbers*.

CREOLES, a name given to the families descended from the Spaniards who first settled at Mexico, in America. These are much more numerous than the Spaniards properly so called, and the Mulattoes, which two other species of inhabitants they distinguish; and are excluded from all considerable employments.

CREPANU, in the *Manege*, a chop in a horse's leg, made by the spunges of the shoes of one of the hinder feet, crossing and striking against the other.

CREPIDÆ, among the Romans, a kind of slippers or shoes, which were always worn with the *pallium*, as the *calcei* were with the *toga*.

CREPIS, in *Botany*, bastard hawkweed. See **HAWK-WEED**.

CREPITATION, that noise, which some salts make over the fire in **CALCINATION**; called also *detonation*.

CREPITATION, is also used in *Surgery*, for the noise made by the ends or pieces of bones, when the surgeon moves a limb to assure himself by his ear of the existence of a fracture.

This is one of the evident indications of a fracture of bones; and to judge by it with the greater ease to the patient, it is necessary that the upper part of the limb be held fast, while the lower part is gently moved. The jar of the bones will likewise be sometimes felt by the hand, when nothing is heard.

CREPITUS lupi, in *Natural History*, a kind of fungus, popularly called *puff-ball*.

Mr. Derham observes, that upon examining the powder thereof with a microscope, he found the seeds to be so many exceeding small puff-balls, with round heads, and long sharp-pointed stalks, as if made on purpose to prick into the ground.

The seeds become hurtful to the eyes, probably by their sharp stalks pricking and wounding them.

CREPUNDIA, in *Antiquity*, tokens left with exposed children, by which they might be afterwards known. These were of considerable value, if the child happened to be nobly born, in order to defray part of the expence of its education.

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CREPUNDIA was also used, in a less proper sense, for the swaddling cloths in which children were exposed; because by them they might be known again. See *EXPOSING of children*.

CREPUSCULUM, in *Astronomy*, twilight; the time from the first dawn or appearance of the morning, to the rising of the sun; and again, between the setting of the sun, and the last remains of day.

Papius derives the word from *creperus*; which, he says, anciently signified *uncertain, doubtful*, q. d. *a dubious light*. The *crepusculum* is usually computed to begin and end when the sun is about eighteen degrees below the horizon; for then stars of the sixth magnitude disappear in the morning, and appear in the evening. It is of longer duration in the solstices than in the equinoxes, and longer in an oblique than in a right sphere.

The *crepuscula* are occasioned by the sun's rays refracted in our atmosphere, and reflected from the particles thereof to the eye. For suppose an observer in O (*Tab. Astronomy, fig. 41.*), the sensible horizon AB, and the sun under the horizon in HK; and let the ray SE fall on the atmosphere below the horizon. Since it passes out of a rarer into a thicker medium, it will be refracted, and that towards the perpendicular, i. e. towards the semidiameter CE. It will not, therefore, proceed to T, but touching the earth in D, it will fall upon A, the eastern part of the sensible horizon; nor can any other ray besides AD, of all those refracted in E, arrive at A. But now, since the particles of the atmosphere reflect the sun's rays (see *REFLECTION*); and since the angle DAC is equal to CAO; the rays reflected in A will be carried to O, the place of the spectator; who will therefore see the particle A shining in the sensible horizon, and consequently the beginning of the morning *crepusculum*.

And in the same manner might be shewn the refraction and reflection of the sun's rays in the atmosphere, in the evening *crepusculum*.

Kepler, indeed, assigns another cause of the *crepusculum*; viz. the luminous matter around the sun; which, arising near the horizon, in a circular figure, exhibits the *crepusculum*; in no wise, as he would shew, owing to the refraction of the atmosphere.

The sun's luminous atmosphere, though neither the sole nor principal cause of twilight, may lengthen its duration, by illuminating our air, when the sun is too low to reach it with his own light. *Greg. Ast. book ii. prop. 8.*

The depth of the sun below the horizon, at the beginning of the morning *crepusculum*, or end of the evening one, is determined in the same manner as the arch of vision; viz. by observing the moment wherein the air first begins to shine in the morning *crepusculum*, and that wherein it ceases in the evening; and finding the sun's place for that moment.

Alhazen found it 19° ; Tycho, 17° ; Rothmannus, 24° ; Stevenius, 18° ; Cassini, 15° ; Ricciolus, in the equinox in the morning 6° , in the evening $20^{\circ} 30'$; in the summer solstice in the morning $21^{\circ} 25'$, in the winter solstice in the morning $17^{\circ} 25'$.

Nor need we wonder at this difference among astronomers; the cause of the *crepusculum* being inconstant: for, if the exhalations in the atmosphere be either more copious, or higher, than ordinary; the morning *crepusculum* will begin sooner, and the evening hold longer than ordinary: for the more copious the exhalations are, the more rays will they reflect, consequently the more will they shine; and the higher they are, the sooner they will be illumined by the sun. On this account, the evening twilight is longer than the morning, at the same time of the year in the same place. To this it may be added, that in a denser air, the refraction is greater; and that not only the brightness of the atmosphere is variable, but also its height from the earth: and therefore the twilight is longer in hot weather than in cold, in summer than in winter, and also in hot countries than in cold, other circumstances being the same. But the principal differences are owing to the different situations of places upon the earth, or to the difference of the sun's place in the heavens. Thus, the twilight is longest in a parallel sphere, and shortest in a right sphere, and longer to places in an oblique sphere in proportion to their nearness to one of the poles: a circumstance which affords relief to the inhabitants of the more northern countries, in their long winter nights. And the twilights are longest in all places which have north latitude, when the sun is in the tropic of Cancer; and to those in south latitude, when he is in the tropic of Capricorn. The time of the shortest twilight is different in different latitudes; in England, it is about the beginning of October and of March, when the sun is in the signs π and \times . For the method of determining it trigonometrically, see *Greg. Astron. book ii. prob. 41.*

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Hence, when the difference between the sun's declination and the depth of the equator is less than 18° , so that the sun does not descend more than 18° below the horizon; the *crepusculum* will continue the whole night. The elevation of the pole PR (*fig. 42.*), and the sun's declination OS, being given; to find the beginning of the morning *crepusculum*; or end of the evening. Since in the triangle PSZ the several sides are given; viz. PZ the complement of the elevation of the pole PR, and PS the complement of the declination OS, and SZ the aggregate of the quadrant ZD, and the sun's depth DS; find the angle ZPS, whose measure is the arch AO. See *TRIANGLE*.

Convert AO into solar time: thus have you the time elapsed from the beginning of the morning *crepusculum*, to noon.

To find the *crepusculum* by the artificial globe, see *GLOBE*. Supposing the depression of the sun at which twilight begins or ends to be 18° , it is easy to determine the height of the ATMOSPHERE. Let A E F G (*Tab. II. Astronomy, fig. 65.*) be the earth, the pointed circle surrounding it the outward surface of the atmosphere, the height of which DB is to be found: let A be the place of an observer, *h* o his sensible, H O his rational horizon; let I K L M be the sun, E N G the shadow of the earth, I B a ray from the upper edge of the sun, touching the earth in E, and falling upon the outward surface of the atmosphere at B, whence it is reflected to the eye of the observer at A in the line of his sensible horizon BA: since the sun is larger than the earth, he enlightens a little more than a hemisphere, or that part represented by the arc EFG = $180^{\circ} 32'$ because ECF + ECN = two right angles, and ECN is less than a right angle by the angle ENC = $16'$; consequently, the half of EFG or the angle ECS = $90^{\circ} 16'$; and therefore taking away OCS the sun's depression = 18° , there will remain ECO = $72^{\circ} 16'$; and as ACO = 90° , ACE will be = $17^{\circ} 44'$, and DCA, its half = $8^{\circ} 52'$. Then in the right-angled triangle BAC, the angles and one side AC are known, therefore the side BC may be found. AC being made radius, BC will be the secant of the angle BCA = $8^{\circ} 52'$: therefore 10000000 : 10120948 :: 3967 $\frac{1}{2}$ the miles in the earth's semidiameter : 4015 $\frac{1}{2}$ the distance from the centre to the outward surface of the atmosphere, from which subtract the semidiameter, and the remainder, 48 miles, will be the height of the atmosphere. If allowance of 34' is made for the horizontal refraction, the angle BCA will be $8^{\circ} 18'$, the secant of which is 10105851, whence the height of the atmosphere will be 42 miles. *Long's Ast. vol. i. p. 260.* See *ATMOSPHERE*.

CRESCENT, the new moon, which, as it begins to recede from the sun, shews a little rim of light, terminating in points, or horns, which are still increasing, till it become full and round in the opposition.

The word is formed from *creasco*, I grow.

The term is also used for the same figure of the moon in its wane, or decrease, but improperly; because the points or horns are then turned towards the west, whereas they look to the east in the just *crecent*.

CRESCENT, in *Heraldry*, is a bearing in form of a half-moon. The Ottomans bear sinople, a *crecent* montant, argent.

The *crecent* is frequently used as a difference in coat-armour, to distinguish it for that of a second brother, or junior family.

The figure of the *crecent* is the Turkish symbol; or rather, is that of the city Byzantium, which bore this device from all antiquity; as appears from medals struck in honour of Augustus, Trajan, &c.

The *crecent* is sometimes *montant*, i. e. its points look toward the top of the chief, which is its most ordinary representation; whence some contend, that the *crecent* absolutely so called, implies that situation; though other authors blazon it *montant*, when the horns are toward the dexter-side of the escutcheon, in which position others call it *incroissant*.

*Crecent*s are said to be *adossed*, when their backs or thickest parts are turned toward each other; their points looking to the sides of the shield.

Crecent inverted, is that whose points look toward the bottom: *turned crecent*s, are placed like those *adossed*; the difference is, that all their points look to the dexter-side of the shield: *conturned crecent*s, on the contrary, look to the sinister side: *affronted* or *appointed crecent*s, are contrary to the *adossed*, the points looking toward each other.

CRESCENT is also the name of a military order, instituted by Renatus of Anjou, king of Sicily, &c. in 1448; so called from the badge, or symbol thereof, a *crecent* of gold enamelled.

What gave occasion to this establishment was, that Renatus took for his device a *crecent*, with the word

loz, praise; which, in the style of rebus, makes *loz in crescent*, q. d. by advancing in virtue, one merits praise.

CRESCENTIA, in Botany. See CALABASH-tree.

CRESSA, in Botany, a genus of the *pentandria digynia* class, with a five-leaved calyx, a saucer-shaped corolla, and a two-valved capsule containing a single seed. There is one species.

CRESSES, in Botany, *nasturtium*. In the Linnæan system this is joined to LEPIDIUM. The characters are these: the flower hath a four-leaved empalement, and four petals placed like a cross, with six awl-shaped stamina, four of which are the same length of the empalement, two being shorter. In the centre is situated a heart-shaped germen, which afterward turns to a heart-shaped short capsule with acute borders, having two cells, each containing one or two oval seeds. There are only three species cultivated in gardens.

The common *crefs* is a plant so well known as to need no description. There is a variety of this, whose lower leaves are much curled on the edges, and was formerly cultivated in greater plenty than at present. Whether this is a distinct species, or only a variety, is not yet determined; though it has been found to retain its difference for some years.

It is commonly cultivated in gardens as a salad-herb, and being one of the warm kinds, is chiefly esteemed during the winter and spring. During the winter season it must be sown upon a gentle hot-bed, covered from rains and frosts. In the spring it must be sown in warm borders, where if it be defended from cold winds it will thrive very well: but if it is intended to continue it in summer, it must be sown every third day in shady borders; otherwise it will grow too fast for use.

Creffes are good for the scurvy, for which the Dutch commonly eat them in May, with bread and butter.

A cataplasm of the leaves with hog's lard, cures scald heads; the seed likewise helps the scurvy and dropsy, swelling of the spleen, and opens obstructions of the female sex. Miller's Bot. Off.

The herb, but especially the seed, are hot and acrimonious; whence they are attenuating, absterfive, and aperitive.

CRESSES, *Indian, tropæolum*, in Botany, a genus of the *octandria monogynia* class. Its characters are these: the empalement of the flower is of one leaf, ending in five points; it is erect, spreading, and falls off. The two under segments are narrow, their tail ends in a nectareous horn, which is larger than the empalement. The flower has five roundish petals inserted in the segments of the empalement; the two upper sit close to the foot-stalk, but the lower have oblong hairy tails. It has eight short awl-shaped stamina, which decline, and are unequal; terminated by oblong rising summits, having four cells, and a roundish germen with three lobes which are streaked, supporting a single erect style, crowned by an acute trifid stigma. The germen afterward becomes a solid fruit in three parts, convex on the outside, angular within, having many furrows; each part or cell including one furrowed seed, convex on one side, and angular on the other. Linnæus enumerates four, and Miller two species, natives of South America.

Both kinds of this plant are easily propagated, by sowing their seeds in March or April, in a good soil, and warm situation; and should be planted near a hedge or wall, being great climbers, and their lying on the ground being subject to rot them. They flower in June, and continue flowering till October, when the frosts soon destroy the whole plant.

The double-flowered kind produces no seeds, and must therefore be propagated by planting cuttings of it. This may be done in any of the summer months; but the plants must be carefully preserved in winter, being very subject to rot. If this be confined in pots, and those filled with a poor soil, it will ramble less in the branches and will produce more flowers. The flowers of this kind, though very beautiful, are not nearly so well tasted in salads as those of the single kind, which are very warm, and agreeable; and are esteemed very wholesome. The seed is pickled, and by some preferred to most kinds of pickles for sauce.

CRESSES, *Meadow*. See CARDAMINE.

CRESSES, *Scitica, iberis*, in Botany, a genus of the *tetradynamia filiculosa* class. Its characters are these: the flower hath an empalement of four oval leaves, which spread open, are hollowed, and fall away. It hath four unequal, oval, obtuse petals, which are spread open; and six awl-shaped erect stamina, terminated by roundish summits: the germen is in the centre of the tube, round and compressed; and supporting a short single style, crowned by an obtuse stigma, which afterwards becomes a roundish compressed vessel, having two cells, each containing one oval seed. Miller enumerates eight, and Linnæus twelve species. See DITTANDER.

CRESSES, *Spanish, vella*, in Botany, a genus of the *tetradynamia filiculosa* class. Its characters are these: the empalement of the flower is cylindrical, and composed of four linear obtuse leaves, which drop off. The flower has four petals placed in form of a cross, whose tails are the length of the empalement; and six stamina of the same length, two of which are a little shorter, terminated by single summits, and an oval germen, supporting a conical style, crowned by a single stigma. The germen afterwards turns to a globular capsule with two cells, divided by an intermediate partition twice as large as the pod, oval, erect, stretching beyond the capsule, each cell containing one seed. There are two species. Miller.

CRESSES, *Swine's*. See COCHLEARIA.

CRESSES, *Wall*. See TURRITIS.

CRESSES, *Water, silybrium*, in Botany, a genus of the *tetradynamia filiculosa* class. Its characters are these: the flower has a spreading empalement, composed of four linear, spear-shaped, coloured leaves, which fall off: it has four oblong spreading petals, placed in form of a cross, and six stamina, four of which are longer than the empalement, the other two which are opposite are shorter, terminated by single summits. It has an oblong slender germen, with scarcely any style, crowned by an obtuse stigma. The germen afterwards becomes a taper, oblong incurved pod, having two cells opening with two valves, which are shorter than the intermediate partition, filled with small seeds. Linnæus enumerates twenty-six, and Miller nine species; the first of which is the common *water-creffe*, which grows naturally in ditches and rills of water in most parts of England, in which places they are generally gathered for market. But it may be easily cultivated, by taking some of the plants early in the spring, from the places of their natural growth; preserving the roots as entire as possible, and planting them into mud, and then letting the water in upon them by degrees. When they have taken root, they will soon flourish and spread over a large compass of water; but should not be cut the first season, but suffered to run to seed, which falling into the water, will furnish a sufficient supply of plants afterward.

But where the water is so deep that it will not be easy to plant them, the best method will be to get a quantity of the plants just as their seed is ripening, and throw them on the surface of the water where they are wanted to grow; here the seeds will ripen and fall to the bottom, where they will take root, and produce a supply of these plants.

Some of those people who gather this herb for use, either through ignorance, or some worse design, have frequently taken the creeping water-parsnip, and sold it for *water-creffes*; whereby many persons have been injured by eating it: but they may easily be distinguished by the shape of the leaves; those of the *water-creffes* being roundish, almost heart-shaped lobes, with a few indentures on their edges, and are of a dark green; but those of the water-parsnip have oblong lobes ending in points, which are of a light green sawed on their edges. Miller.

Water-creffes are frequently eaten in spring as a salad. The whole plant is of a very acrid taste, and is a powerful attenuant and resolvent. It is recommended as a kind of specific in the scurvy, and is eaten in great quantities by many with that intent. It is good against all obstructions of the *viscera*; and consequently in jaundices, and other chronic diseases. It is also a powerful diuretic, and promoter of the *menfes*. People have pretended to preserve the virtues of this plant in waters, syrups, and conserves; but the best way of taking it is either to eat it as a salad, or to drink its expressed juice singly, or mixed with that of the other antiscorbutic plants, as brook-lime, &c. which is often done.

CREST, in Armoury, the uppermost part of the defensive armour of the head; rising over the rest, in manner of the comb or tuft of a cock; to sustain the effort of very keen scimitars, &c. It has its name from *crista*, *cock's comb*.—Hence, also,

CREST, in Heraldry, denotes the uppermost part of an armoury; or that part rising over the CASK, or helmet.

Next to the mantle, says Guillim, the *crest* or *cognizance* claims the highest place, being seated on the most eminent part of the helmet; yet so, as to admit an interposition of some escrol, wreath, chapeau, crown, &c.

The ancient warriors wore *crests* to strike terror in their enemies, as the sight of the spoils of animals they had killed; or to give them the more formidable mien, by making them appear taller, &c.

In the ancient tournaments, the cavaliers had plumes of feathers, especially those of ostriches and herons, for their *crests*; these tufts they called *plumarts*; and were placed in tubes, on the tops of high caps, or bonnets. Some had their *crests* of leather; others of parchment, paste-

pasteboard, &c. painted or varnished, to keep out the weather; others of steel, wood &c. on which were sometimes represented a member or ordinary of the coat; as, an eagle, fleur de lys, &c. but never any of those called honourable ordinaries, as pale, fesse, &c. The crests were changeable at pleasure; being reputed no other than as an arbitrary device, or ornament.

Herodotus attributes the rise of crests to the Carians, who first bore feathers on their casks, and painted figures on their bucklers; whence the Persians called them *cocks*.

The crest is esteemed a greater mark of nobility than the armoury, as being born at tournaments; to which none were admitted, till they had given proof of their nobility. Sometimes it serves to distinguish the several branches of a family. It has also served, on occasion, as the distinguishing badge of factions. Sometimes the crest is taken from the device; but more usually it is formed of some piece of the arms: thus, the emperor's crest is an eagle; that of Castile, a castle, &c. Families that exchange arms, as the houses of Brunswick and Cologne have done, do not change their crests; the first still retain the horse, and the latter the mermaid.

The crest of the arms of England is a lion passant gardant, crowned with an imperial crown; that of France, a fleur-de-lys.

CREST, among *Carvers*, an imagery, or carved work, to adorn the head, or top, of any thing; like our modern corniche.

CRESTED, in *Heraldry*, is a term applied to a cock, or other bird, whose crest is of a different tincture from other parts.

CRESTED grass. See *GRASS*.

CRESTED stalk. See *STALK*.

CREST-FALLEN, is spoken of a horse, when the upper part of the neck, on which the mane grows, does not stand upright, but hangs either to one side or the other.

CRETA, in *Natural History*, and in *Medicine*. See *CHALK*.

CRETIO, in *Antiquity*, a certain number of days allowed the heir to consider, whether he would act as heir to the deceased, or not; after which time if he did not act, he was excluded from the estate.

CREUX, a term in *Sculpture*, much used by the French; though not yet, that we know of, naturalized among us: but the want of a word of equal import in English, as it has frequently put us under a necessity of using this in the course of the present work; so it pleads strongly for its admission into our language.

Creux originally signifies a hollow, cavity, or pit, out of which something has been scooped, or dug: hence it is used to denote that kind of sculpture, and graving, where the lines and figures are cut and formed within the face, or plane of the plate, or matter engraven on.

In which sense, it stands opposed to *relievo*; where the lines and figures are embossed, and appear prominent above the face of the matter.

CREW, the company of sailors belonging to a ship, boat, or other vessel.

The sailors that are to work and manage a ship are regulated by the number of lasts it may carry; each last making two tun.

The crew of a Dutch ship, from 40 to 50 lasts, is seven sailors and a swabber; from 50 to 60 lasts, the crew consists of eight men and swabber; and thus increases at the rate of one man for every ten lasts; so that a ship of 100 lasts has twelve men, &c. English and French crews are usually stronger than Dutch; but always in about the same proportion.

In a ship of war there are several particular crews, or gangs, as the boatswain's crew, the carpenter's crew, the gunner's crew, &c.

CREX, in *Ornithology*, the name of a bird, common about the Nile, and remarkable for the noise which it makes, which is no other than *crex, crex*, whence it has its name. Its beak is moderately long and black, as are also its head and its legs; its neck, back, and breast, are white, but the back a little greyish; the wings are black, variegated with white. It feeds on insects, and generally makes a very loud noise all the time it is on the wing. Bellonius de Avibus. See *Land RAIL*.

CRIB in the English *Salt Works*, the name given to a sort of case used in some places instead of the *DRAB*, to put the salt into as it is taken out of the boiling-pan.

These *cribs*, are like hay-racks, wide at the top, and tapering to a narrow bottom, with wooden tops on each side, placed so close, that the salt cannot easily fall through them. Through these apertures, however, the superfluous saline liquor drains out, and leaves the salt, after a few days, dry enough to be added to the heaps, that stand ready for sale. At Lymington, and in some other places, they use, instead of these *cribs*, a sort of wooden troughs with holes in the bottom, through which the saline liquor drains from the salt, and falls into ves-

sels placed underneath to receive it; and in other places they use barrows or wicker baskets, out of which the liquor runs with great ease on all sides at once.

CRIBBAGE, a game at cards, wherein no cards are thrown out, and the set makes sixty one: it being an advantage to deal, by reason of the crib, it is proper to l.f. for it; and he who has the least card, deals.

CRIBRATION, in *Pharmacy*, *sifting*; the act of separating the finer parts of a medicine, whether dry or humid, from the grosser; the latter by means of a pulping-sieve, the former by a fine sieve.

With respect to *cribration*, Quincy, a very good judge of pharmacy, makes the following remark, in order to obviate the mischiefs and inconveniences which, through inadvertency or haste, frequently happen in the practical shops: which is, that whatsoever is to be powdered, the whole ingredient or ingredients, with all their parts, to be used, should pass the sieve, and be all mixed equally together, before any be used. For through neglect of this caution, several medicines which come under this kind of management, will, in their different parts, be of different efficacies, according as that part of most virtue, being more or less friable, may pass through first, which will make that much too strong, or remain behind to the same prejudice. In composition likewise of ingredients of different textures or cohesions, some run through much sooner than others; so that there is an absolute necessity of mixing the whole carefully after all is passed.

CRIBROSUM *os*, or *Os CRIBRIFORME*, in *Anatomy*, a little bone at the top of the nose, pierced like a sieve, to let pass several little fibres, arising from the mamillary productions, and terminating in the membrane that lines the cavity of the nostrils; called also *os ethmoides*.

CRICELASIA, formed of *κρικος*, ring, and *ελαυνω*, I drive, among the Greeks, the exercise of rolling the circle or *trochus*. This was a species of exercise in use among the ancients; and is, though not very distinctly, observed by Oribasius, in his Medicinal collections, lib. vi. cap. 26. from Antyllus. It should seem to be little more than driving the hoop, as is now practised by boys. The hoop was so large as to reach as high as the breast of the person who used it: the instrument by which it was driven along was of iron, with a wooden handle; and small rings, *κρικαι*, were fastened to the hoop, to jingle and divert the person who exercised himself with it; which Oribasius considers of importance. This exercise was recommended for rendering the limbs pliable, and strengthening weak nerves.

CRICETUS, in *Zoology*, the name of an animal of the mouse kind. Its size is between that of a common rat and a rabbit. Its legs are very short; its back is of the colour of a hare's; its sides have more redness; and its belly is black; each side is also variegated with three large white spots. The hairs of this creature are so firmly rooted in the skin, that they can by no means be pulled out, but sooner tear away the skin with them; and for this reason, as well as for the variety of colours, the skins are much valued. It is a very bold and desperate creature; and if a man on horseback molest it, will fly up at the nose of the horse, and hold him very fast. It lives in holes of the earth, as the rabbit, and heaps up large quantities of vegetable fruits and corn for its store, and is usually found very fat. It is very apt to sit on its buttocks, and in that posture looks like a little bear, whence some have called it *arctomys Palaestinarum*. It has two large teeth in the front of each jaw, and it uses its fore-feet by way of hands, like the squirrel. Ray's Syst. Quad. p. 201.

CRICKET, *Gryllus*, in *Natural History*, the name of a genus of insects of the *hemiptera* class, nearly allied to the locust kind. The two principal kinds are the house and field-cricket, and they are hostile to each other. The first of these are smaller, and is of a brown colour spotted with black. The latter is more than an inch long, and has a great head and very large eyes. The antennæ in this species have no articulations.

Crickets are thought to be ruminating animals, and certainly are furnished with several different stomachs. In medicine they are believed to be diuretic, and less dangerous than cantharides; for which intention they are dried, and powdered, and given in doses from twelve grains to a scruple. The house-cricket only flies from the light, as many other insects do; it feeds almost on every thing; the males only chirp; and their monotony, however disagreeable to some people, is pleasant enough to their own females, for it is the voice of love; and it is continual, night and day, except in very cold weather. They become habituated to bear all kinds of noise, but the field-cricket is very timorous, and chirps only in the heat of the finest days of summer. Coll. Acad. tom. vii. P. E. 3. p. 209.

CRICKET.

CRICKET, *balm*. See CICADA.

CRICKET, *mole*, *Gryllotalpa*, a species of the *gryllus*, in *Natural History*, a creature approaching to the locust kind, and very properly called by this name by Mouffet, as it has much the form of the *cricket*, and makes a noise like it in the evening, and is like the mole, continually employed in digging the ground. It is an insect of a very unpleasant form. It is of the length and thickness of a man's little finger, and is of a brown colour; which is darker in the male than the female. There are on each side of the anus two hairy processes, resembling the tails of mice; its belly is composed of eight joints, and is covered with as many scales, which are of a pale flesh-colour, and are covered with short hair. The back is covered by a pair of pointed wings, along each of which there runs a black streak or line. These wings fold any way at the creature's pleasure, and when fully expanded are very large. Over these lie the antennæ; these are variegated also with black, and reach about half the length of the wings. It has only four legs; the hinder pair are long and fit for hopping; the anterior pair are short, and furnished with a sort of hands for digging in the manner of the mole. The breast is covered with a crustaceous substance, which is blackish, and hairy on the outside, and smooth and pale within. The eyes are very bright and black, and are very hard, and the mouth is wide, and has two tonsils, and teeth in both jaws. This creature lives under ground, and is principally found in damp and boggy places. They come out in the dusk of the evening, and make a very loud noise of the nature of that of the *cricket*.

The *mole-cricket* moves very slowly: and Goedartius is of opinion, that its wings are given it rather as an ornament than as a thing of use; or if they have any real use, that it is the covering and defending the tender body of the creature, which is very soft, and easily liable to accidents; and Mouffet says, that its flights are no more than long leaps. But we have a very different account of the use this creature makes of its wings, in the German *Ephemerides*. Mentzelius, in a paper there, declares this to be one the most mischievous insects of the creation. He says it is a kind of amphibious creature, and that it lives equally well under ground, in the air, or under water; that while it is under ground, it does infinite mischief by burrowing under the beds of a garden, and eating the roots of flowers, and that in the night it comes out, and taking wing, it settles upon the fruit-trees, where it does little mischief; and all this the author affirms from his own experience, in the gardens which he observed.

This creature is very nice in the construction of its nest. This is always under ground, and it chooses a solid clay for the purpose. All its precautions seem to be necessary to secure its eggs from becoming a prey to a kind of black fly, which conceals itself under ground. The noise of the *cricket* is variously accounted for by naturalists; but is most probably effected by the play of organs in their belly, of a singular construction. This is certain that if the head of the animal be taken off, or if it be severed in the middle, it continues to live, and even to chirp for some considerable time.

It is remarkable of this creature, that it can move backward as fast as forward, and often does so when frightened.

CRICKET is also the name of an exercise, or game, with bats and a ball.

CRICOARYTÆNOIDÆUS, in *Anatomy*, a name given to two pair of muscles, serving to open the larynx.

The *cricorytænoidæi* are either *posterior* or *lateral*: the former are the first pair of openers of the larynx; the latter, the second pair.

The *lateral* have the origin in the edge of the lateral and superior part of the cartilage *cricoides*, and are inserted into the lateral and superior part of the arytenoides.

The *posterior* have their origin in the posterior and lower part of the *cricoides*: and hence the reason and etymology of the name are evident.

CRICOIDES, in *Anatomy*, a cartilage of the larynx; so called as being round, like a ring, and encompassing the whole larynx.

The word is formed from *κρίκος*, used by transposition for *κύκλος*, circle, and *εἶδος*, form.

The *cricioides* is the second cartilage of the larynx; it is narrow before, thick behind; and serves as a base to all the other cartilages; being, as it were, let into the thyroids.

It is by means of this, that the other cartilages are joined to the trachea; on which account it is immoveable.

CRICO-PHARINGEI, muscles which arise from the lower part of the side of the cricoid cartilage.

CRICOTHYROIDÆUS, in *Anatomy*, a name given to the first pair of muscles proper to the larynx.

Their name is derived hence, that they have their origin

in the lateral and interior part of the *cricoides*; and are inserted into the inferior parts of the thyroids.—Their use is to dilate the scutiform cartilage.

CRIER, *common*, an officer in the city of London, to whom, and to the serjeant at arms, it belongs to summon all executors and administrators of freemen to appear, and to bring the inventories of the personal estates of freemen within two months after their decease: who is also to have notice of their appraisements. He is also to attend the lord-mayor on set days, and at the courts held weekly by the mayor and aldermen.

CRIME, a breach or transgression of a law, or an action contrary to the purport of a law, either natural or divine, civil, or ecclesiastic: to which a penalty is annexed.

The term *crime* includes in it the idea of determination and design formed to do an injury. It is derived from the Latin *crimen*, of *κρίνω*, *judico*, I judge.

The Romans distinguished two kinds of *crimes*; viz. *private*, which only affected particular persons; the prosecution whereof was not allowed by the law to any but those interested therein; as *adultery*, &c. and *public crimes*; the prosecution whereof was submitted to all persons, though in no-wise immediately interested.

With us, *crimes* are distinguished into *capital*; as *treason*, *murder*, *robberies*, &c. and *common*, as *perjuries*, &c.

They are again divided into crimes cognizable by the king's judges; as those above mentioned: and such as are only cognizable in the spiritual courts, as *simple fornication*, &c.

There is an excellent book on the subject of *crimes* and PUNISHMENTS, published by the marquis de Beccaria.

CRIME, *quasi*. See QUASI crime.

CRIMEN *falsi*. See FALSI.

CRIMINAL law, is that which discusses the nature of crimes and inflicts suitable penalties; or, as it is more usually denominated in England, the doctrine of the PLEAS of the crown.

CRIMNOIDES, or CRIMOIDES, formed of *κρίνον*, *brandy*, in *Medical Writers*, is used for urine with thick sediments at the bottom, like brandy.

CRIMSON, one of the seven red COLOURS of the dyers.

The word comes from the Arabic *kermisi*, of *kermes*, red. The Bollandists insinuate, that *crimson* comes from *Cremona*, and is used for *Cremonois*.

The stuffs to be dyed in *crimson*, after they have been cleared of their soap and strongly alumed, are put in a decoction of cochineal, each according to its colour.

In a less durable *crimson*, by BRAZIL-wood, and for the colour called by dyers *demi-crimson*, the root of Madder is mixed with cochineal.

To dye a lively *crimson*; first wet the goods well, and for every pound of stuff, to make the suds, use two ounces and a half of tempered aqua fortis, three ounces and a half of tartar, and ounce and a half of cochineal, and eight ounces of alum. Boil the goods with all these for half an hour, let them cool, and rinse them out. To finish the dye, boil four ounces of cochineal, three ounces of starch, three ounces of white wine tartar, and half an ounce of white arsenic together, for a quarter of an hour; then put in the goods, and let them boil for above half an hour, or until they have taken the dye well and equally. See DYING.

CRIMSON grass vetch, in *Botany*. See Chickling VETCH.

CRINONES, from *crinis*, hair, in *Medicine*, a sort of worms, sometimes found under the skin, in children; resembling short thick hairs, or bristles.

They are called *dracunculi*, and *comedones*, from the Latin *comedere*, to eat, from their preying upon the substance of the child, or consuming its nourishment. See DRACUNCULI.

The common way of getting out these worms is by the point of a needle; and to prevent their forming there again, the usual custom is to wash the parts with wine or vinegar, with alum, nitre, or common salt, or with a strong lixivium of oak ashes, and afterwards anointing them with an ointment of the common kind, used for scorbutic eruptions, with a small mixture of quicksilver.

CRINONIA, a kind of cap, worn by the emperors of Constantinople on solemn occasions.

CRINUM, in *Botany*. See Asphodel LILY.

CRISIS, from *κρίνω*, I judge, in *Medicine*, a change, or turn, in acute diseases; wherein the morbid matter is so altered as to determine the patient either for recovery or death; the doctrine of which formed a principal part of ancient medicine.

The cause of such change is owing to the remaining vital forces being irritated by the matter of the disease so or so conditioned; i. e. fit either to be evacuated, or transfused, or to kill.

If the matter be disposed for evacuation or translation, but is not salubrious, it produces a change called a *critical perturbation*, or *imperfect crisis*.

If the change become sensible, they are called *critical symptoms*, or *signs of a crisis*, either future or present: See SIGN.

The symptoms of the *crisis* are frequently confounded with those arising from the cause of the disease, and the disease itself, or the matter of the disease; whence have sprung the most unhappy consequences.

The differences between critical symptoms and morbid ones are, that the first proceed from the vital powers prevailing over the force of the disease; but the latter from the disease prevailing over the vital faculty: that the first are preceded by a manifest concoction, but the latter are formed even in crudities: that the former happen about the critical times, but the latter at all times of the disease, chiefly during its increase.

The principal symptoms of an approaching *crisis* are, after digestion, and about the critical time, a sudden stupor, drowsiness, waking, delirium, anxiety, dyspnoea, grief, redness, titillation, pricking, heaviness, darkness, light, spontaneous tears, nausea, heat, thirst, trembling of the lower lip, &c.

The symptoms and effects of a present *crisis* are, after the preceding ones, a vomiting, salivation, looseness, thick sediment in the urine, bleeding at the nose, hæmorrhoids, sweat, abscesses, pustules, tumors, buboes, purules, aphthæ, &c.

Dr. Albertinus observes, that all feverish, nay, almost all diseases, are followed by *crises*, and that particularly after intermitting fevers are stopped by the bark, critical evacuations are to be expected. If they do not come timely, the patient is in danger of some other disease, especially if any usual evacuation has been hindered; in which case it is dangerous to give the bark, unless we promote a suitable excretion, if a *crisis* does not soon come.

Dr. Martine defends the ancients in the rules they have laid down concerning the periods and *crises* of diseases, endeavouring to prove that they are founded on accurate observations.

CRISP leaf, *crispum folium*, among Botanists. See LEAF.

CRISTA galli, in Anatomy, an eminence in the middle of the *os ethmoides*, advancing within the cavity of the cranium; and to which is fastened that part of the dura mater which divides the brain, called *falx*.

It has its name from its figure, which resembles that of a cock's comb. In adults, this process appears of a piece with the *septum narium*.

CRISTA galli, in Conchyliology, the name of a peculiar species of oyster, called also by some *auris porci*, or the hog's ear-shell.

CRISTÆ is also a term used in Surgery, for certain preternatural excrescences arising about the fundament, resembling cocks combs.

These, M. Dionis says, are taken off either by ligature, cauterization, or amputation. When they have other figures, they have other names, as *ficus*, &c. See CONDYLOMA.

CRISTA is also used for a crooked, twisted, spiral eminence, in the middle of the spine of the *onoplosa*.

CRISTA pavonis, in Botany, a name by which some authors have called the POINCIANA.

CRISTA pavonis is also a name given to the tree, the wood of which is usually denominated LOGWOOD.

CRITERIUM, or CRITERION, formed of *κρίνω*, *I determine*, a rule or standard, whereby to compare propositions and opinions, in order to discover their truth or falsehood.

The doctrine of *criteria*, and the characters and rules thereof, make the first part of the Epicurean philosophy. EVIDENCE is the grand *criterion* of truth.

CRITHE, *Κριθῆ*, in Medicine, a small tubercle, hard, red, and immovable, seated upon the eye-lid, above the cilia, or range of hairs. It is always included in a kind of cyst, and by inflammation degenerates into a thickish matter, from whence frequently proceed intense pains, and various disorders of the sight. It is sometimes seated immediately under the skin of the eye-lid; sometimes it is within, under the muscle. When this tubercle is movable, it is generally called *chalazium*, or in English, *stye*, or *stibe*. Heister's Surgery, p. 365.

CRITHMUM, *samphire*, in Botany. See SAMPHIRE.

CRITHOMANCY, a kind of divination, performed by considering the dough, or matter of the cakes offered in sacrifice; and the meal strewed over the victims to be killed. Hence, in regard they ordinarily used barley-meal in these ceremonies, this kind of divination was called *crithomancy*, from *κριθῆ*, *barley*, and *μαντεία*, *divination*.

CRITICAL days, symptoms, &c. are certain days, and symptoms usually arising in the course of acute diseases, as fevers, small-pox, &c. which indicate the patient's state, and determine him either to recover, or grow worse. The word comes from *κρίνω*, *judico*, *I judge*.

The *crises* have been frequently observed to happen on the seventh, fourteenth, or twentieth day; whence those are denominated *critical days*.

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For the theory of *critical days*, it may be observed, that the concoction of any morbid matter, and the humour to be secreted, is nothing else but a change thereof into such a due magnitude, or smallness, as it may be carried by the circulating blood along the canals, and excreted by vessels destined for that purpose. But if the morbid matter cannot be reduced to such a magnitude or smallness as may correspond to the orifices of the secretory vessels; then either an abscess or hæmorrhage will follow, if a crisis be begun; for which reason, abscesses, &c. are accounted less perfect crises. But, that the morbid matter may be reduced to a due magnitude, or smallness, and its wished-for discharge take place, there is required a considerable time, if the quantity of matter be large; that is, if the distemper be great and severe: and since there are a great many causes, and those very constant, which may occasion the blood, and offending humours therein, to be of a different fluidity in the inhabitants of different climates, it is impossible but that different spaces of time should be required for the finishing concoction: which makes it impossible to determine the *critical days* in one climate, from what they are found to be in another.

The causes of real *critical days*, that is, such on which happens the last concoction of the morbid matter, which is always attended with expulsion, are all those things which occasion the humours to become of such a certain magnitude or minuteness, and of a greater or lesser cohesion; but with any given power, bodies unequally large, or unequally cohering, cannot be concocted in an equal time: wherefore it is to be found by the observations made by all nations among themselves, which are the usual causes and conditions of those diseases, that require a certain number of days to finish such a concoction in it.

CRITICISM, the art of judging concerning discourse and writings. See JUDGMENT.

Some define *criticism*, more amply, the art of judging of a history, or a work of genius, with the various incidents there met with, their style, and authors.

On which footing, M. le Clerc seems to have given a defective idea of *criticism*, when he defines it simply the art of entering into the meaning of ancient authors, and of making a just discernment of their genuine works. True *criticism*, says Dr. Blair, is the application of TASTE and of good sense to the several fine arts. The object which it proposes is to distinguish what is beautiful and what is faulty in every performance; from particular instances to ascend to general principles; and so to form rules or conclusions concerning the several kinds of beauty in works of genius. Lect. on Rhetoric, &c. vol. i. p. 36. We may distinguish divers sorts, or branches, of this art: as,

CRITICISM, *philosophical*, or the art of judging of opinions and hypotheses in philosophy.

CRITICISM, *theological*, the art of judging of explications of doctrines of faith, &c.

CRITICISM, *political*, the art of judging of the means of governing, acquiring, and preserving states.

But the ordinary use of the word is restrained to

CRITICISM, *literary*, which, however, is of great extent, as it takes in the art of judging of facts; a branch of *criticism*, which regards not only history, but also the discernment of the real works of an author, the real author of a work, the genuine reading of a text, and the art of discovering supposititious monuments, charters, interpolated passages, &c.

The other parts of *literary criticism* are, the art of judging of works of genius, their excellencies and defects. We have also

CRITICISM, *grammatical*, or the art of interpreting and discovering the words and meanings of an author.

CRITICISM of *antiques*, which consists in distinguishing genuine medals, and the different taste and spirit found among them, according to the different people, the different country, and the different times wherein they were struck; the distinguishing between what is cast, and what struck; what has been retouched, and repaired or added, from what is really antique; the genuine from the spurious, &c. and to decypher and explain them, &c.

CRITICISM, *sacred*, in general, is that employed in ecclesiastical matters, the history of the church, the works of the fathers, councils, lives of the saints, &c. but more particularly what concerns the books of the Holy Scriptures, and the canon thereof.

Aristotle, if we believe Halicarnassus, is the first inventor of the art of *criticism*. Aristarchus, Dionysius Halicarnassus himself, Varro, and Longinus, distinguished themselves therein in their days. Among the Christians, Dionysius Alexandrinus, Hesychius, Eusebius, St. Jerom, and Theodoret, were the greatest masters in this art. The decree of pope Gelasius about the apocryphal books, required a good share of *criticism*.

But the critical art fell with other arts; and lay unknown till the time of Charlemagne, when it was re-established under him and his sons. The care which the religious Cistercians took to correct the manuscript of the Bible, shew that the rules of *criticism* were not entirely unknown in the eleventh century. The works of Johannes Sarisburiensis, Eustathius, and Tzetzes, make it evident it was cultivated in the twelfth. The manuscripts of the Bible, corrected by the Dominicans of Paris, and the doctors of the Sorbonne, in the thirteenth, shew it was subsisting then. In the following ages, it was still cultivated with more earnestness; especially in the sixteenth, seventeenth, and eighteenth centuries, when all the world made it their study. From the whole, it follows, that *criticism* does, indeed, suppose an uncommon stock of knowledge of the subject whereon it is employed; but that *criticism*, itself, is nothing else but good sense perfected by grammar and logic.

CRIZZELLING, in the *Glass Trade*, a kind of roughness arising on the surface of some kinds of glass. This was the fault of a peculiar sort of glass made in Oxfordshire, and some other places, of black flints, a crystallized sand, and a large quantity of nitre, tartar, and borax. The glass thus made is very beautiful, but, from the too great quantities of the salts in the mixture, is subject to *crizzel*; that is, the salts in the mixture, from their too great proportion, are subject, either from the adventitious nitre of the air from without, or from warm liquor put in them, to be either increased in quantity, or dissolved, and thereby induce a scabrities, or roughness, irrecoverably clouding the transparency of the glass. This is what was called *crizzelling*; but by using an Italian white pebble, and abating the proportions of the salts, the manufacture is now carried on with advantage, and the glass made with these salts is whiter than the finest Venetian, and is subject to no faults. Plott's Oxfordshire, p. 258.

CROCALLIS, in *Natural History*, the name given by the ancients to a stone famous for its virtues against poisons, and venomous bites. All the description Pliny gives of it is, that it was of the size and shape of a cherry.

CROCARDS, an old name given by the Irish to a certain kind of money brought over into that kingdom from France, and other parts beyond the seas, and uttered there for pennies, though not really worth so much as a halfpenny. They were a small sort of coin, made of a mixture of copper, sulphur, and a small quantity of silver, and were called by several other names, as *mitres*, *lionines*, *rosaries*, and the like, from the figures they were impressed with. They were current in Ireland, and in some parts of England, a great many years; but were afterwards denied, and prohibited importation, both in England and Ireland, under the penalty of the forfeiture of life and effects. At this time, mints were set up in Dublin, for the coining of good money, and, in a few years, the whole quantity of the *crocards* was destroyed. See **POLLARDS**.

CROCEUS, in *Natural History*, is said to be an amphibious animal, which is neither fish nor bird, but both. All the summer it is a bird of a saffron colour, and flies through the mountains: but towards the end of autumn it returns to the sea, and becomes a fish. It is only in winter that they catch it, when it is very good food.

CROCHES, among *Hunters*, the little buds about the top of a deer's horns.

CROCI, among *Botanists*, the apices, or small knobs, on the tops of flowers.

CROCIA, a bishop's or abbot's **CROSIER**, or pastoral staff.

CROCIAS lapis, in *Natural History*, a name given by some of the old authors to a species of agate, of a yellowish colour, but deeper than the cerachates, or wax-coloured agate, and approaching to what is called a saffron colour.

CROCINUM, a name given by the ancient physicians to a sort of oil of saffron, which is thus described by Dioscorides.

Eight drams of saffron are to be put into three pints of inspissated oil, and they are to be stirred together several times in a day, for five days together; then the oil is to be separated from the saffron, and a like quantity is to be added to the same saffron, and stirred about at times, for three days; then this oil is to be cleansed off, and to it are to be added fifty ounces of powdered myrrh. These having been well stirred together, are then to be set by for use.

Some used an oil impregnated with aromatics, in the composition of the *crocinum*; but that was usually esteemed best which smelt the most strongly of saffron, or else of myrrh.

The *crocinum* was esteemed heating and narcotic; whence it was frequently prescribed by way of embrocation, or else held in the nose in phrenesies. It was also esteemed

useful as a suppurative, and to cleanse old ulcers: it was much esteemed also in hardnesses, obstructions, and other disorders of the uterus, being used with wax, marrow, and double the quantity of oil; for a *glaucoma* it was also used with success, when mixed with water, and the eyes anointed frequently with it.

CROCODILADES. See **THISTLE**.

CROCODILE, in *Zoology*, a species of lizard, with a two-edged tail, and triangular feet, the fore ones having five, and the hinder only four toes.

This animal is the largest of the **LIZARD** kind, growing to twenty-five feet in length, and about the thickness of a man's body; its nose is like that of a hog; the opening of its mouth monstrously large, reaching even to the ears, and the upper-jaw moving in the opening of it, gives it a very terrible aspect. The teeth are large, white, and very numerous, and set by one another, like the teeth of a comb; there are two long teeth in the lower-jaw, which pass into two holes in the upper. Herodotus affirms that the *crocodile* has no tongue; but he is observed to have a fleshy substance like a tongue, that is fixed to the lower-jaw, which serves to turn his meat. The legs stand sideways; and the feet are armed with extremely sharp claws. The length of the tail is equal to that of the whole body; the skin of the belly is soft, and easily wounded, but that of the rest of the body so hard as to be impenetrable to spears or darts, and is covered with strong prickly scales. The colour is in some a dusky reddish yellow, but in most a disagreeable brown, with a mixture of grey; and even those which, when alive, had much yellowness, always acquire this dusky colour in dying.

It is a native of the torrid zone, frequenting salt-water rivers, where it lies concealed among the reeds or rushes, until it finds an opportunity to seize men or other animals, which it drags into the water; always taking this method of drowning them first, that it may afterward swallow them without resistance; its general food, however, is fish. The Africans and Indians eat its flesh, which is white, and has a kind of perfumed flavour.

Its eggs are about the size of a goose egg, and it lays fifty of these for one brood, burying them in the sands, and leaving them for the sun to hatch them. As soon as they are hatched, which takes twenty-five or thirty days, the parent takes care of the young, which run with them into the water. The *crocodile* is found in the great rivers, as the Nile, the Niger, and the Ganges, and in some other places. Ray's Syn. Quad. p. 261. Worm. Mus. p. 815. Pococke's Descr. of the East, vol. i. p. 202, &c.

The *crocodile* was worshipped by the Egyptians.

See an account of a peculiar species of *crocodile*, distinguished by a narrow beak, resembling the bill of a goose-ander, and by a pouch under the belly, probably formed for receiving its young in times of danger, with a drawing by Mr. G. Edwards, in the Phil. Trans. vol. xlix. art. 95. p. 639.

CROCODILE, *fossile*. One of the greatest curiosities in the fossil world, which the late ages have produced, is the skeleton of a large *crocodile*, almost entire, found at a great depth under ground, bedded in stone. This was in the possession of Linkius, who wrote many pieces in natural history, and particularly an accurate description of this curious fossil. It was found in the side of a large mountain, in the midland part of Germany, and in a stratum of a black fossil stone, somewhat like our common slate, but of a coarser texture, the same with that in which the fossil fish of many parts of the world are found. This skeleton had the back and ribs very plain, and was of much deeper black than the rest of the stone, as is also the case in the fossil fishes, which are preserved in this manner. The part of the stone where the head lay was not found, this being broken off just at the shoulders, but that irregularly, so that, in one place, a part of the back of the head was visible in its natural form. The two shoulder-bones were very fair, and three of the feet were well preserved; the legs were of their natural shape and size, and the feet preserved, even to the extremities of the five toes of each.

CROCODILE, **CROCODILUS**, in *Rhetoric*, a captious and sophistical kind of argumentation; contrived to seduce the unwary, and draw them speciously into a snare.

It has its name, *crocodile*, from the following occasion, invented by the poets. A poor woman, begging a *crocodile* that had caught her son walking by the river-side, to spare him and restore him, was answered, that he would restore him, provided she should give a true answer to a question he should propose: the question was, *Will I restore thy son, or not?* To this the poor woman, suspecting a deceit, sorrowfully answered, *Thou wilt not*: and demanded to have him restored, because she had answered truly. Thou liest, says the *crocodile*: for if I restore him, thou hast not answered truly: I cannot therefore restore

restore him, without making thy answer false. Under this head may be reduced the propositions called *mentientes*, or *insolubiles*; which destroy themselves. Such is that of the Cretan poet: *Omnes ad unum Cretenses semper mentiuntur*: All the Cretans to a man, always lye. Either then, the poet lyes, when he asserts that the Cretans all lye; or the Cretans do not all lye.

CROCODILION, in *Botany*, a name given by some authors to the plant commonly called the *ECHINOPUS*, or *globe-thistle*.

CROCOMAGMA, in *Pharmacy*, a name given by some to torches composed of saffron, myrrh, red roses, starch, and gum Arabic: thus called from *κροκος*, saffron, and *μαγμα*, a mass of any thing.

CROCOTTA, in *Natural History*, a name given by the ancients to a very fierce and terrible animal, produced by copulation between the large hyæna and the lionsess. See **LEOCROCOTTA**.

CROCUS, in *Botany*. For the characters, see **SAFFRON**. The variety of the several species of *crocus* produced in the gardens of the curious, by raising them from well chosen seeds, is almost incredible.

They are very hardy, and will increase exceedingly by the roots, if suffered to remain some years in the ground. They will grow in all soils and situations, and are great ornaments to a garden, as they flower when scarce any thing else is up. The fibres of these roots perish when their leaves do, and they may, therefore, like all other roots of that kind, be taken up as soon as the leaves appear dead, and laid by, in a dry place, till September, at which time they must be planted again for the spring-flowering. They should be planted in holes made with a dibble, about two inches deep, and at two inches distance from one another; the earth being raked over them, they should remain covered about an inch deep with it. If the weather is mild, they will, in January, appear above ground, and in February they will be in full flower. The leaves are so short when the flower appears, that it seems produced on a naked stalk, but as that decays they grow to a considerable length; these look but unsightly after the flower is gone, but they should not be cut, for that greatly weakens the root for the next year's flowering.

CROCUS, in *Chemistry*. The preparations of metals which are generally known by this name, as the *crocus Martis*, and the like, seem to have obtained it from the saffron-like colour. They are the calxes of metals, consisting of their fixed parts separated from their sulphureous; they are made either by the means of fire, or by the action of salts of various kinds: and are naturally in a powder, or very easily reducible into one.

The general subjects of this sort of process are gold, silver, iron, and antimony, and there are many ways of making the processes. The virtues ascribed to the gold and silver *crocuses* seem, in a great measure, imaginary: those of antimony are far from being the best sort of preparations of that metal; but those of iron are, more than all others, useful in medicine. Hoffman, in his *Acta Laboratorii*, has many improvements on the common processes for the making these preparations.

CROCUS antimonii, or *metallorum*, in *Pharmacy* and *Chemistry*, the name given in the late London Dispensatory, to the preparation of antimony and nitre commonly known by the name of *crocus metallorum*. It is made of equal parts of antimony and nitre, powdered fine, and thrown gradually into a red-hot crucible, and, when thoroughly melted, poured out, and separated from its scoræ. This looks more yellow the longer it has been melted: it is but little used, except among horses; but when intended for internal use among men, should be procured faithfully prepared in this manner; for our chemists generally abate of the nitre to save charges, and render the medicine of a very different effect. Pemberton's *Lond. Dis.* p. 230.

Washed *crocus* of antimony is made by boiling the *crocus* of antimony, reduced to a very fine powder, in water, still changing the water, till it comes off insipid. Of this is made the *vinum antimoniale*, called also *VINUM emeticum*, and *benedictum*.

The medicinal *crocus* of antimony consists of eight ounces of antimony, and one ounce of nitre, pulverized, mixed, and deflagrated: the matter is then taken from the fire, and cooled and powdered for use. A dose from eight to twenty grains will operate gently both as an emetic and purge. The milder *crocus* of antimony is prepared with two pounds of crude antimony, and one of nitre, much in the same manner as the former.

CROCUS Indicus, *Indian saffron*, in the *Materia Medica*, a name given by some authors to the *curcuma*, or *turmeric* root of the shops.

CROCUS martis, a preparation of iron; which is of two kinds, viz. *crocus martis aperiens*, and *crocus martis astringens*.

CROCUS Martis aperiens, opening saffron of Mars, is a preparation of iron plates, made by first washing them, then exposing them to the dew, till they have contracted a rust; which rust is scraped off, and the plates exposed for more.

Others prepare it by calcining iron filings with an equal weight of sulphur. Others, by clapping a bar of iron, red, or rather white hot, between two rolls of brimstone; in which case, the iron melts, and runs down into a vessel of water below: which some call *Mars cum sulphure præparatus*. Others have other preparations.

Crocus Martis aperiens is prescribed in cases of obstructions, the dose being from ten to thirty grains.

M. Lemery endeavours to shew, that iron taken in substance, is much more salutary and efficacious than when thus prepared; the process tending to strip it of its oily part, wherein its chief virtue resides; leaving nothing behind but the mere ferruginous earthy part.

CROCUS Martis astringens, binding saffron of iron, is a preparation of iron filings; wherein they are deprived of their more saline parts by washing them five or six times in strong vinegar, and calcining them five or six hours. It is prescribed in hæmorrhages, dysenteries, and diarrhœas, the dose being the same as in the former. The best way is to give it in a bolus, or pills, because in liquid it sinks to the bottom too suddenly to be taken without waste.

Crocus Martis is a chemical preparation, used by the glass-makers to give a red colour to glass. The glass-makers prepare this for themselves, and have four ways of doing it. The first is this: take filings of iron, mix them with three parts of powdered brimstone, and keep them in a melting-pot, in a furnace, to calcine, and burn off the sulphur; let them stand four hours in this state, then take them out, and, when cold, powder and sift them, and put the powder into a crucible, which lute over, and set it in the leer of the furnace for fifteen days, or more; it will then be of a reddish purple, and must be kept for use.

The second way of making this, is by sprinkling filings of iron with strong vinegar, and setting them in the sun to dry; when dry, powder and sift them, and wet them again with vinegar, and, when dry, powder them again. Repeat this eight times, and then powder the whole, and sift it fine for use.

The third way is to use aqua fortis, instead of vinegar, in the same manner.

The fourth way, which is the best of all, is this: dissolve filings of iron in aqua regia, and let the solution stand three days in a vessel close stopped, shaking it about at times; then evaporate the liquor gently, and there will remain a most valuable *crocus Martis*.

CROFT, **CROFTUM**, a little close adjoining to a dwelling house, either for pasture or tillage.

Possunt etiam dicti monachi de eisdem mariscis versus occidentem jacentibus pro se, & hominibus suis, includere croftos, five pratum juxta pontem, specialiter, quantum illius placuerit. Ingulf.

In some ancient deeds, *crusia* occurs as the Latin word for a croft; but *cum tofts* & *croftis* is more frequent. *Croft* is translated in Abbo Floriacensis, by *prædium*, a farm.

CROISADE, **CRUSADE**, or **CRUSADO**, a holy war, or an expedition against infidels and heretics; particularly against the Turks, for the recovery of Palestine.

People anciently flocked on these *croisades* out of devotion; the popes bulls, and the preaching of the priests of those days, making it appear a point of conscience. Hence several orders of knighthood took their rise.

Many circumstances contributed to give rise to these expeditions. The desire of visiting a country which had been the scene of very important transactions, and in which the Son of God had accomplished the redemption of mankind, together with the idea of peculiar merit, acquired by a particular pilgrimage of this kind, and of its serving as a general expiation for almost every crime, had no small influence on this occasion. Besides, an opinion prevailed, that the thousand years mentioned by St. John, Rev. xx. 2, 3, 4. were accomplished, and that the end of the world approached; many thus hurried into the Holy Land, where they imagined that Christ would quickly appear to judge the world. Christians also thought it reproachful to suffer a country, which had been so signally distinguished, and whence they derived the most valuable benefits, to be abandoned to the enemies of the Christian name; and they thought it meritorious to avenge the calamities and injuries which its professors had suffered under the Mahometan yoke. Moreover, pilgrims were encouraged in their resort to Jerusalem, whilst Palestine continued subject to the caliphs; but when the Turks conquered Syria, about the middle of the eleventh century, they were exposed to every kind of outrage from these barbarians, and re-

turned with exaggerated accounts of the vexations they had endured. Accordingly, the first signal was given by Silvester II. towards the close of the tenth century, in an epistle wrote in the name of the church of Jerusalem to the church universal throughout the world, in which all the European powers are intreated and exhorted to succour and rescue the Christians in Palestine. This effort of zeal, however, produced no immediate effect. Gregory VII. in the beginning of the eleventh century, renewed the undertaking, and proposed in person to invade the Holy Land. Though he was prevented from executing this design, the spirit of the people was inflamed; and Peter the Hermit, returning from a voyage which he had made through Palestine, A. D. 1039, complained of the extreme sufferings of the Christians, applied to Urban II. for succour, and ran from province to province with a crucifix in his hand, exciting princes and people to this holy war, and pretending a divine commission for this purpose. At length Urban II. finding a general ardour for the cause, assembled a grand and numerous council at Placentia, A. D. 1095, and warmly recommended this expedition. Soon after the proposal was renewed with success at the council of Clermont. In 1096, an army of 800,000 men set out for Constantinople, in separate bodies, under the command of Peter the Hermit, of Godfrey of Bulloin, and many other noble and illustrious leaders. Nor need we wonder at the multitude who flocked to the standard of the cross, when we consider the natural operation of frantic zeal, and the numberless privileges which the croisaders acquired; such as exemptions from prosecutions for debt, from paying interest for money, and from taxes; the power of alienating their lands without consent of their lord, the protection of St. Peter, the immunities of ecclesiastics, and the plenary remission of their sins. Du-Cange.

The first efforts of these adventurers were irresistible, and they gained considerable advantages; but before the expiration of the thirteenth century, the Christians were driven out of all their Asiatic possessions; and the enterprise remains a singular monument of human folly. Nevertheless, many substantial benefits accrued from it in a political and commercial view, however injurious it was to individuals, and to the cause of religion in general. To these wild expeditions we owe the first gleams of light which tended to dispel barbarity and ignorance. They were the means of introducing a more general and steady administration of justice, and of establishing regal government in the several kingdoms of Europe, and extending commerce. Robertson's Hist. ch. v. p. 26, &c. Mosheim's Eccl. Hist. Eng. ed. 8vo. vol. ii. p. 189. 231, &c.

Those who engaged to go on this service, distinguished themselves by crosses of different colours, worn on their cloaths; ordered, it is said, by the council of Clermont; and were thence called *croises*, or cross-bearers, of whom, contemporary authors tell us, there were six millions: the English wore them white; the French, red; the Flemish, green; the German's black; and the Italians, yellow.

The following are the principal *croisades* for the conquest of the Holy Land: the first undertaken in 1095, at the council of Clermont; the second in 1147, under Louis VII. and the pontificate of Eugenius III. at the instigation of Bernard, abbot of Clairval; the third in 1189, and 1190, by Frederic I. surnamed Barbarossa, emperor of Germany, Henry II. of England, and Philip Augustus of France; the fourth in 1195, by pope Celestin III. and the emperor Henry VI. the fifth published in 1198, by order of Innocent III. wherein the French, Germans, and Venetians, engaged; the sixth undertaken in the year 1217, under the pontificate of Honorius III. by the confederate armies of Italy and Germany, which ended in the rout of the Christians; the seventh under Frederic II. emperor of Germany: who set out in the year 1228, and concluded a truce of ten years with the sultan of Egypt in 1229, which was succeeded by inconsiderable and very unsuccessful expeditions in 1239, under Theobald VI. king of Navarre; and in 1240, under Richard earl of Cornwall, brother to Henry III. of England; the eighth under Louis IX. of France, in consequence of a vow which he had made in 1248; and the ninth, and last renewed by the same valiant, but unfortunate monarch, who died of a pestilential disease in the harbour of Tunis, in the year 1270. These expeditions cost Europe at least two millions of its inhabitants, and an immense sum of money.

The abbot Justiniani makes an order of knighthood of the *croises*, who served in the *croisades*.

Towards the middle of the twelfth century, there was also a *croisade* of the Saxons, against the pagans of the North; wherein the archbishop of Magdeburg, the bishops of Halberstadt, Munster, Meriburg, Branden-

burgh, &c. with several lay-lords, embarked. And towards the beginning of the same century, under the pontificate of Innocent, there were also a *croisade* undertaken against the Albigenes; who were become powerful in Languedoc, &c.

CROISES, or **CROIZES**, in our *Ancient Customs*, pilgrims bound for the Holy Land, or who had already been there: so called from a badge which they wore on their garments, representing a cross.

The word *croises* is also extended to the knights of St. John of Jerusalem, created for the defence and protection of pilgrims; and all those of the nobility, gentry, &c. who in the reigns of king Henry II. Richard I. Henry III. and Edward I. were *cruce signati*, i. e. dedicated themselves to the wars, for the recovery of the Holy Land.

CROISIERS, **CRUCIGERI**, or *cross-bearers*, a religious order, or congregation of regular canons, so called.

There are three orders which have, or do still bear this name; one in Italy; another in the Low Countries; and a third in Bohemia.

The first pretend to be derived from St. Clet; and add, that St. Quiriacus the Jew, who shewed St. Helena the place of the true cross, and was afterwards converted, reformed them. All we know for certain is, that they subsisted in Italy before Alexander III. mounted the throne; for that pontiff, flying from Frederic Barbarossa, found an asylum in the monasteries of the *Croisiers*, which he afterwards, in 1169, took under his protection, giving them the rule of St. Augustine, &c.

They were confirmed by Pius V. but the discipline being much relaxed, they were suppressed in 1656, by Alexander VII.

Matt. Paris says, that the *croisiers*, bearing staffs with crosses at the end, came into England in 1244, and presented themselves before a synod held by the bishop of Rochester, demanding to be admitted. They were here called *crouched friars*.

Dodsworth and Dugdale mention two monasteries of this order in England, one at London, the other at Ryegate; the first founded in 1245, the latter in 1298; some add a third at Oxford, where they were received in 1349. M. Allemand says, there were fourteen monasteries of *Cross-bearers* in England; adding, that they came from Italy; those of the Low Countries disowning them.

The *Croisiers* of the Low Countries and France were founded in 1211, Theodore de Celles, son of Boson, who having served in a *croisade* in Palestine, in 1188, and there found some of the *Croisiers* instituted by St. Clet, conceived a design of instituting another congregation in his own country. This is certain, that Theodore in his return from Palestine, engaged himself in the ecclesiastical state; and went in quality of missionary to the *croisade* against the Albigenes: and that at his return in 1211, the bishop of Liege gave him the church of St. Thibault, near Huy; where, with four companions, he laid the foundation of his order; which was confirmed by Innocent III. and Honorius III. Theodore sent his religious to Thoulouse, to join those of St. Dominic, and combat the Albigenes; and the congregation multiplied in France. The popes have endeavoured to bring the *Croisiers* of Italy under those of Flanders. The *Croisiers*, or *port croix with a star*, in Bohemia, derive their origin from St. Quiriacus, and say they came from Palestine into Europe, where they embraced the rule of St. Augustine, and built monasteries. They add, that St. Agnes of Bohemia, to distinguish them from other *Croisiers*, obtained of Innocent IV. to add a star to their habit. But the story of St. Quiriacus has no foundation; and it was Agnes herself, daughter to Primislaus king of Bohemia, who instituted the order at Prague, in 1234. They are very numerous; and have now two generals.

CROISSANTE, in *Heraldry*. *Croix croissanté* is a cross crescented; that is, having a crescent, or half-moon, fixed on each end thereof.

CROM-LECHE, in *British Antiquity*, derived according to the conjecture of Mr. Rowlands, from the Hebrew *carem-luach*, a devoted stone or altar, are huge, broad, flat stones, raised upon other stones set up on end for that purpose. They are common in Anglesey; and Mr. Rowlands supposes, that they are the remains of altars erected there by the first colonists. *Mona Antiqua restaurata*.

CRONICAL, in *Astronomy*. See **ACRONICAL**.

CRONIUS, in *Chronology*, the ancient name of the Athenian month **HECATOMBÆON**, which was the first of their year, and answered to the latter part of our June and beginning of July.

There were feasts called *Cronienes*, celebrated at Athens in this month, in honour of Saturn, answering to the *Sa-turnalia* of the Romans.

CROOK-

CROOKEDNESS. See **DISTORTION**.

CROOTES, a substance found about the ore in the lead-mines, at Mendip, being a mealy, white, soft stone, matted with ore.

CROPPER, or *Dutch Cropper*, in *Zoology*, the name of a particular species of pigeon, called the *columba gutturosa Bataviae*, by Moore. It is naturally thick, and has its name from its large crop, or bag of wind, which it carries under its beak, and can, at pleasure, either raise or depress. These are thick-bodied, and short; their legs are also thick and short, and are feathered down to the feet; the crop is large, and hangs low; the feathers on the thighs hang loose; and their legs stand wide; they are gravel-eyed, and are generally very bad feeders. There are of these pigeons of all colours, and those who are careful of them, generally take them away from their proper parent, while young, and breed them under the females of other species.

CROSETTES, in *Architecture*, the returns in the corners of chambranes, or door-cases, or window-frames; called also *ears*, *elbows*, *ancones*, *prothyrides*, &c.

CROSIER, or **CROZIER**, *shepherd's crook*, a symbol of pastoral authority, consisting of a gold or silver staff, crooked a-top, carried occasionally before **BISHOPS** and **ABBOTS**, and held in the hand when they give solemn benediction. At one end it is crooked, at the other pointed; expressed in the verse:

Curva trahit mites, pars pungit acuta rebelles.

The custom of bearing a pastoral staff before bishops is very ancient, as appears from the life of St. Cæsarea of Arles, who lived about the year 500. Among the Greeks, none but the patriarchs had a right to the *crozier*. The *croziers* were at first no more than simple wooden staves, in form of a T, used to rest and lean upon: by degrees they were made longer; and at length arrived to the form we now see them of. *Tab. III. Heraldry, fig. 122.*

Regular abbots are allowed to officiate with a **MITRE** and a *crozier*.

CROSIER, in *Astronomy*, four stars, in form of a cross; by help whereof, those who sail in the southern hemisphere find the antarctic pole.

CROSS, **CRUX**, a sort of instrument, composed of two pieces of wood, traversing and cutting each other, ordinarily at right angles.

Pezron derives the word *crux* from the Celtic *croug*, and *croas*; though, perhaps, *croug* and *croas* might with as much justice be derived from *crux*.

The *cross* was used amongst the ancients as a punishment for malefactors and slaves; and was planted at several places, *in terrorem*, as our gallows, &c.

Sozomen observes, that it was Constantine who by law first abolished the punishment of the *cross*, which had obtained among the Romans till his time. It had also been in use among the Assyrians, Egyptians, Persians, Carthaginians, and even the Greeks.

As to crucifixion, or the manner wherein the punishment of the *cross* was effected, the critics, both ancient and modern, are exceedingly divided: the points in dispute are, Whether the criminal was fastened with three nails, or with four; whether the feet were immediately fastened to the *cross*, or whether they rested on a little piece of wood, in manner of a step, or rest, called *στυμνα*; whether the *cross* was planted in the earth before the person was nailed on, fastening him afterwards by means of a scaffold raised to the height of the place where the feet were to be nailed; or whether he was nailed before the *cross* was raised or planted, as the painters represent it: or lastly, whether the patient was fastened quite naked, or covered: questions that have all been occasioned by the *crucifixion* of Jesus Christ.

CROSSES were usually in former times erected on the tops of houses, by which tenants pretended to claim the privileges of the Templars Hospitallers, to defend themselves against their rightful lords. This was condemned by the statute Will. II. c. 37. It was usual also, in those days, to set up *crosses* in places where the corpse of any of the nobility rested, as it was carried to be buried, that *a transeuntibus pro ejus animo deprecetur*.

Crosses, &c. are forbid to be brought into England, by 13 Eliz. c. 2. on pain of a *præmunire*, &c.

CROSS, *Invention of the, inventio crucis*, an ancient feast, solemnized on the third of May, in memory of St. Helena's (the mother of Constantine) finding the true *cross* of Christ deep in the ground, on mount Calvary; where she erected a church for the preservation of part of it: the rest being brought to Rome, and reposit in the church of the *Holy Cross* of Jerusalem. See **FEAST**.

Theodoret mentions the finding of three *crosses*, that of Jesus Christ, and those of the two thieves; and that they distinguished between them by means of a sick wo-

man, who was immediately healed by touching the true *cross*.

The place is said to have been pointed out to her by St. Quiriacus, then a Jew, afterwards converted and canonized.

CROSS, *Exaltation of the*, an ancient feast, held on the fourteenth of September, in memory of this, that Heraclius restored to mount Calvary the true *cross*, in 642, which had been carried off fourteen years before, by Cosroes king of Persia, upon his taking Jerusalem from the emperor Phocas.

The adoration of the *cross* appears to have been practised in the ancient church, in as much as the heathens, particularly Julian, reproach the primitive Christians with it. And we do not find that their apologists disclaimed the charge. Mornay, indeed, asserted, that this had been done by St. Cyril, but could not support his allegation at the conference of Fontainebleau. St. Helena is said to have reduced the adoration of the *cross* to its just principle, since she adored in the wood, not the wood itself, which had been direct idolatry and heathenism, but him who had been nailed to this wood. With such modifications some protestants have been induced to admit the adoration of the *cross*. John Hufs allowed of the phrase, provided it were expressly added, that the adoration was relative to the person of Christ. But however Roman catholics may seem to triumph by virtue of such distinction and mitigations, it is well known they have no great place in their own practice. Imbert, the good prior of Galcony, was severely prosecuted in 1683, for telling the people, that in the ceremony of adoring the *cross*, practised in that church on Good Friday, they were not to adore the wood, but Christ who was crucified on it: the curate of the parish told them the contrary: it was the wood! the wood! they were to adore. Imbert replied, it was Christ, not the wood: for which he was cited before the archbishop of Bourdeaux, suspended from his functions, and even threatened with chains and perpetual imprisonment. It little availed him, to cite the bishop of Meaux's distinction; it was answered, that the church allowed it not.

CROSS-BEARER, *port-croix*, *cruciger*, in the *Romish Church*, the chaplain of an archbishop, or a primate, who bears a *cross* before him on solemn occasions.

The pope has the *cross* borne before him every where; a patriarch any where out of Rome: and primates, metropolitans, and those who have a right to the pallium, throughout their respective jurisdictions.

Gregory XI. forbid all patriarchs and prelates to have it borne in presence of cardinals. A prelate bears a single *cross*, a patriarch a double *cross*, and the pope a triple one on their arms.

CROSS-BEARERS, also denote certain officers in the **INQUISITION**, who make a vow before the inquisitors, or their vicars, to defend the catholic faith, though with the loss of fortune and life. Their business is to provide the inquisitors with necessaries. They were formerly of great use; but in process of time, some of their constitutions were changed, and they were called, of the penance of St. Dominic. Limborch's Hist. Inq. by Chandler, ch. x. See **FAMILIARS**; and **INQUISITION**.

CROSS, *pectoral*, is a *cross* of gold or silver, or other precious materials, often enriched with diamonds, which the bishops, archbishops, &c. and regular abbesses, wear hanging from the neck.

CROSS, *order of the*, or **CROISADE**, an order of ladies instituted in 1668, by the empress Eleanora de Gonzaga, wife of the emperor Leopold; on occasion of the miraculous recovery of a little golden *cross*, wherein were enclosed two pieces of the *true cross*, out of the ashes of part of the palace. It seems the fire had burnt the case wherein it was inclosed, and melted the crystal; yet the wood remained untouched.

CROSS, *Maids of the*, a community of young women instituted in 1265, at Roye, in Picardy, and since dispersed to Paris and other towns. They instruct young persons of their own sex; some take the three vows of poverty, chastity, and obedience; others retain their liberty. They are under the direction of a superior.

CROSS, *judgment of the*, a custom in France, at the beginning of the ninth century, of giving judgment in favour of one of two contending parties, who held his arms for the longest time lifted up to a *cross*.

CROSS, in *Botany*, is used to express the arrangement of the petals of certain flowers; called *plantæ flore cruciformi*. See **PLANT**, and **FLOWER**.

The flowers are not to have either more or less than four petals; and their calyx only to consist of four pieces. The pistil generally becomes a fruit called *siliqua*. See **CRUCIFORM flowers**.

CROSS, in *Coins*, a name given to the face, or right side, the other being called the *pile*, or *reverse*. It has been

a common error that the reverse was meant by the *cross*, because at this time with us marked with figures disposed in that form; but the stamping the head of the prince in these kingdoms, on the right side of the coin, was preceded by a general custom of striking on that part the figure of a *cross*, while the other, called the pile, contained the arms, or some other device.

Cross, in *Dialling*: See **DIAL**.

Cross, in *Heraldry*, is defined by Guillim, an ordinary composed of fourfold lines; whereof two are perpendicular, and the other two transverse; for so we must conceive of them, though they be not drawn throughout but meet by couples, in four right angles, near the fess-point the escutcheon. See **ORDINARY**.

The content of a *cross* is not always the same; for when it is not charged, cantoned, nor accompanied, it has only the fifth part of the field; but if it be charged, it must contain the third part thereof.

This bearing was first bestowed on such as had performed or at least undertaken, some service for Christ, and the Christian profession; and is held, by divers, the most honourable charge in all heraldry. What brought it into such frequent use, was the ancient expeditions into the Holy Land; and the holy war pilgrims, after their pilgrimage, taking the *cross* for their cognizance; and the ensign of that war being the *cross*.

In those wars, says Mackenzy, the Scots carried St. Andrew's *cross*; the French a *cross* argent; the English a *cross* or; the Germans, sable; the Italians, azure; the Spaniards, gules.

St. George's *cross*, or the red *cross*, in a field argent, is now the standard of England; that saint being the reputed patron of this nation.

Guillim enumerates thirty-nine different sorts of *crosses* used in heraldry, the several names whereof here follow; the descriptions whereof are to be looked for under their proper articles. A *cross* voided; a *cross* wavy-voided, a *cross* patée fimbriated, a *cross* patée fitched on the foot, a *cross* patée on three parts and fitched on the fourth, a *cross* engrailed, a *cross* patonée, a *cross* flory, a *cross* patonée voided, a *cross* avelane, a *cross* patée lambeaux, a *cross* furchée, a *cross* croiset, a *cross* croiset fitchée at the point, a *cross* bottonée, a *cross* pommée, a *cross* urdée, a *cross* degraded fitchée, a *cross* potent, a *cross* potent fitched, a *cross* calvary, a *cross* croiset set in degrees, a *cross* patriarchal, a *cross* anchored, a *cross* molinée, a *cross* clechée, a *cross* flory or fleur de lys, a *cross* double fitchée, a *cross* a-seize points, a *cross* milrinée, a *cross* raguled, a *cross* pointed voided; a *cross* pall, a tau or St. Antony's *cross*, a *cross* voided and coupé, a *cross* coupé pierced, a *cross* molinée pierced lozenge ways, a *cross* molinée quarter-pierced, a saltire of St. Andrew's *cross*, which will be distinctly spoken of under that denomination; and so all the other may be found more particularly described under the names of the several differences.

Colombiere makes seventy-two distinct sorts of *crosses*, of which we shall only mention those that differ from such as have been mentioned above; as a *cross* remply, which is only one *cross* charged with another; a *cross* party, that is, one half of one colour, and the other of another; a *cross* quartered, that is, the opposite quarters of several colours; a *cross* of five pieces, that is, if so many colours; a *cross* mouffue, and abaissé; a *cross* barbée; a *cross* croissantante, or crescented, that is, having a crescent at each end; a *cross* forked of three points; a *cross* pometée of three pieces; a *cross* ressercelée; a *cross* pointed; a *cross* ankered, and sur-ankeré; a *cross* ankered with snakes heads; a *cross* orlé; a high *cross*; a *cross* rayonnant, or casting out rays of glory; a *cross* of Malta; a *cross* of the Holy Ghost; a *cross* forked like the ancient rests for musquets; a *cross* with eight points; a *cross* bourdonnée; a *cross* cramponnée and tournée; a *cross* cablée; a *cross* inclining; a *cross* pater noster, that is, made of beads; a *cross* tressé; a *cross* fleuronée; a *cross* vuidee, elechée, and pometée; a *cross* crenellée and bastiée; a *cross* with four steps to every arm; a *cross* rounded; a *cross* and an half; a *cross* estoilée, or star-ways; a *cross* corded; a *cross* doubled of six pieces set together; a double *cross* split in pale; a long *cross* cut in pieces and dismembered; a *cross* coupé or cut through in fesse, of the two contrary colours to the field; a chevron surmounted by an half *cross*; four tails of ermine in a *cross*, the tops of the ermines opposite to each other in the middle; four pieces of vair placed *cross*-ways, and counter-pointing in the centre; the *cross* or sword of St. James; *cross* potence cramponnée on the dexter upper arm, and a potence about the middle of the shaft.

These are the various *crosses* we find in the aforesaid authors; which some may think too many, as not being all used in England; but heraldry extends to all countries; and all terms used require to be explained.

Nor is it only in *crosses* that the variety is so great; the

like is found in many other bearings, and particularly in lions, and the parts of them; whereof the same Colombiere gives us no less than ninety-six varieties. Leigh mentions but forty-six several *crosses*; Sylvanus Morgan, twenty-six; Upton, thirty; Johannes de Bado Aureo, twelve; and so others, whom it is needless to mention. Upton owns he dares not presume to ascertain all the various *crosses* used in arms; for that they are at present almost innumerable: and therefore he only takes notice of such as he had seen used in his own time.

Crosses, in *Mining*, are two nicks cut on the superficies of the earth, thus +, which the miners make when they take the ground to dig for ore. This *cross* gives the miners three days liberty to make, and set on stones. As many of these *crosses* as the miner makes, so many mears of ground he may have in the vein, if he set on stones within three days after the making his *cross* or *crosses*. But if he make but one *cross*, and a stander-by makes the second, and a stranger makes the third, every one is served with the next mear, according as they have first or last, sooner or later, made their *cross*, or *crosses*, upon the ground.

Cross, in *Surveying*, is an instrument consisting of a brass circle, divided into four equal parts, by two lines cutting each other in the centre: at each extremity of either line is fixed a sight or perpendicular over the lines; with holes below each slit, for the better discovery of distant objects. The *cross* is mounted on a staff, or stand, for use. Sometimes, instead of four sights there are eight. The *surveying cross* is but little known or used among us: abroad it is of more account. The manner of applying it is as follows.

Suppose the field ABCDE (*Tab. Surveying, fig. 9.*) required to be surveyed: plant poles at all the angles; measure the line AC, and the perpendiculars let fall from the angles to the line: take down the dimensions of each. Now, to find the point F, plant poles at pleasure in the line AC, and at the foot of the instrument in the same line, in such manner, as that through two of the opposite sights you may observe two of the staves; and through the other two, the staff E. If in this station E be not visible, remove the instrument backwards or forwards, till the lines AF, EF, make a right angle in F; by which means, the plot of the triangle AFE will be had. After the same manner is the point H found, where the perpendicular DH falls; whose length, together with that of HF, is measured, to have the plot of the trapeziums EFHD.

Again measure HC, making a right angle with HD, and the plot of the triangle DHC will be had. All that now remains is to find the point G, where the perpendicular BG falls: which being found after the same manner as the rest, we have the plot of the whole field A, B, C, D, E. The area whereof is had by adding the triangles and trapeziums together.

Cross-bar shot, in the *Military Art*, a round shot, or great bullet, with a bar of iron put through it, coming out at both ends six or eight inches. It is of good use in fight, for cutting and spoiling ropes, sails, &c.

Cross battery, in *War*. See **BATTERY**.

Cross bill, in *Ornithology*, the English name of the LOXIA, small bird remarkable for its beak, which is hooked both ways, and has the points crossing one another. It feeds on the kernels of fruits, and is very destructive in orchards.

In the Linnæan system of *Zoology*, *loxia* is used for the name of a genus of birds of the *passeres* kind; the distinguishing characters of which are, that the tongue is plain, equal, and whole; the beak large, thick, and short, and crooked and convex both ways.

Of this genus are the *coccothraustes*, *loxia*, or *cross-bill*, &c. It is about the size of the green-finch, and much of the same shape. Its beak is very hard, thick, strong, and black; and contrary to the custom of nature, in all other birds, both parts of it are crooked, and that contrary ways; the upper chap being bent a point downwards, and the lower one hooked and brought upwards to one as sharp, so that the ends stand across. They do not always observe the same side of falling over; the upper one sometimes lying on the right, sometimes on the left side of the under. One would think this *cross* structure of the beak but a bad one for feeding with, yet the bird is very voracious; it feeds on seeds, which it picks up with great dexterity; in particular, it is fond of the kernels of the apple, and to get at them, splits an apple in two with one stroke of its oddly fashioned beak, by which it does infinite mischief in orchards. It is common in Germany, Sweden, and some other countries, and sometimes in autumn comes over to us in vast abundance, doing great mischief to the orchards in the west of England. It sings very sweetly, and, as it is said, only in winter. See *Tab. Birds*, N^o 36.

Cross.

Cross-bill, in *Chancery*, is an original bill, by which the defendant prays relief against the plaintiff.

Cross-bows. See *Bows*, and *ARCHERY*.

Cross, instead of a signature to a deed, &c. is derived from the Saxon practice of affixing the sign of the *cross* whether they could write or not.

Cross-grained stuff, in *Foinery*. Wood is said to be *cross-grained*, when a bough or branch has shot out of it: for the grain of the branch, shooting forward, runs athwart that of the trunk.

In wood well grown this defect is scarce perceivable, except in working; but in deal-boards these boughs make knots. If the bough grew up with the young trunk, instead of a knot is found a *curling in the stuff*; very sensible under the plane.

Cross-jack, in a ship, is a sail extended on the lower-yard of the mizen-mast, which is hence called the *cross-jack-yard*. It is seldom used.

Cross multiplication, a method of multiplying feet and inches, by feet and inches, or the like; so called, because the members are multiplied *cross-wise*. See *MULTIPLICATION*.

Cross-piece, in *Ship-Building*, a rail of timber extended over the windlafs of a merchant-ship, from the knight-heads to the belfry. It is stuck full of wooden-pins, which are used to fasten the running-rigging as occasion requires.

Cross-staff, a mathematical instrument, otherwise called the *FORE-staff*.

Cross-tining, in *Husbandry*, a method of harrowing land, consisting of drawing the harrow up the interval it went down before, and down that which it was drawn up.

Cross-trees, in a ship, *cross* pieces of timber set on the head of the mast, and bolted, and let into one another very strongly. They are four in number, and are generally called *cross-trees*, but, strictly speaking, only those which go thwart ships, are called *cross-trees*; the other, in the largest ships, are called *treissel-trees*. Their use is to keep and bear the top-masts up; for the foot of the top-mast is always fastened into them, so that they bear all the stress. They also bear the tops, and are necessary to all masts which carry any other top, or flag-staff, at the head. Manwayring.

Cross-tree-yard is a yard standing square, just under the mizen-top, and to it the mizen-top is fastened below. See *CROSS-jack*.

Cross, *Winter*, in *Botany*, *Erysimum*. See *Hedge MUSTARD*.

Cross-wort, *Cruciata*, in *Botany*, the name of a genus of plants the characters of which are these: that the flowers and fruit wholly agree with those of the aparine but the leaves grow in form of stars round the stalks, and are only four at a joint. This is a species of *VALANTIA* in the Linnæan system.

The species of *cross-wort* enumerated by Mr. Tournefort are nine. Tourn. Inst. p. 115.

A decoction of this plant in wine has been recommended as a very excellent vulnerary and detergent. Camerarius tells us, that it is of great efficacy in attenuating and expectorating tough humours.

CROSSE, a name given by the people of Guinea, and some other parts of Africa, to a kind of fruit very common among them. It very much resembles our common hazel-nut, but that the shell is not so hard. Phil. Trans. N° 108.

CROSSELET, *little cross*, a diminutive of *cross*, used in *Heraldry*, where we frequently see the shield covered with *croselets*; also fesses, or other honourable ordinaries charged or accompanied with *croselets*.

Crosses themselves frequently terminate in *croselets*: as in *Tab. II. Heraldry fig. 54*.

CROTALARIA, in *Botany*, a genus of the *diadelphia decandria* class. Its characters are these: the flower is of the butterfly-kind, the standard large, heart-shaped, and pointed; the wings are oval, and half the length of the standard; the keel is pointed, and as long as the wings; it hath ten stamina, which are united, and an oblong reflexed germen, which afterwards becomes a short turgid pod, with one cell, opening with two valves, and filled with kidney-shaped seeds. There are nine species, natives of the East and West Indies.

CROTALOPHORUS anguis, in *Zoology*, the name used by the generality of authors for the *rattle-SNAKE*.

CROTALOPHORUS anguis, in *Zoology*, is also the name of a very remarkable species of serpent, more usually known by the name of *COBRA de capello*.

CROTALUM, an ancient kind of castagnetta, or musical instrument, found on medals, in the hands of the priests of Cybele.

The *crotalum* differed from the *sistrum*; though authors frequently confound the two. It consisted of two little brass plates, or rods, which were shaken in the hand, and in striking against each other made a noise.

It was sometimes also made of a reed split lengthwise; one part whereof they struck against the other: and as this made a noise something like that of a crane's bill, they called that bird *crotalistrin*, a player on the *crotala*: and Aristophanes calls a great talker a *crotalum*.

Clemens Alexandrinus attributes the invention to the Sicilians; and forbids the use thereof to the Christians, because of the indecent motions and gestures that accompany it.

CROTALO, an instrument of military music, like that described in the preceding article. The Turks are the first, among the moderns, who introduced the use of it for their troops. It is now common in Flanders and Florence, and other territories on the continent. It has only one tone; but its effect in marking time may be distinctly heard through the noise of forty drums. This is the same instrument with the ancient *CYMBALUM*.

CROTALYSTRIÆ, in *Antiquity*, a kind of morice dancers, admitted to entertainments, in order to divert the company with their dancing, and playing on an instrument called *CROTALUM*, whence they had their name.

CROTAPHIC artery is used, by some medical writers, to denote the tendon of the muscle call *CROTAPHITES*, or *temporalis*.


CROTAPHITES, in *Anatomy*, a muscle of the lower-jaw, serving to draw it downwards. Its fibres spring severally from the bones of the forehead, the sinciput, sphenoides and temporale; which meeting, and, as it were, centering under the *os jugale*, whence also this muscle receives some fibres, proceed to the *processus corone*, into which they are inserted.

CROTAPHIUM, in *Medical Writers*, is used for a pain in the head. See *HEAD-ach*.

CROTCHES Crocia, in *Sea-Language*, a name given to those crooked timbers that are placed upon the keel, in the fore and hind-parts of a ship, upon which the frame of her hull grows narrower below, as it approaches the stem afore, and the stern-post abaft.


CROTCHES are also certain pieces of wood or iron, whose upper parts open into two horns, or arms, like a half-moon. They are fixed in different parts of a ship, according to the uses for which they may be designed, which is usually to support the spare masts, yards, &c.

CROTCHET, in *Musical*, one of the notes, or characters

of time, marked thus  equal to half a minim, and

double a quaver.

It is not easy to conceive how this character comes by the name *crotchet*: the word is apparently borrowed from the French *crochet*, of *croc*, a *crook* or *hook*, used by them for what we call the *quaver*, or *half crotchet*; by reason of the additional stroke at bottom, which gives it an appearance of a crook.

A dot added to the *crochet*, thus  increases its time by half; that is, makes it equal to a *crochet* and a half, or to three quavers.

CROTCHET, in *Printing*, denotes a sort of line, sometimes strait, sometimes waved, but always turned up at each extreme: serving to bind or link together several articles, that are to be read together, before you proceed to the subdivisions, placed aside of them with similar or smaller *crochets*; much used in genealogies, analytical tables, &c. for facilitating the division and subdivision of any subject.

CROTCHETS are also used for two opposite characters, serving to inclose what we call a *parenthesis*, or any other part of a discourse, to be distinguished from the rest of the work; sometimes in this form [], and sometimes in this ().

CROTON, in *Botany*, a genus of the *monoecia monadelphia* class, *bastard ricinus*, or *tallow-tree*. Its characters are these: it hath male and female flowers on the same plant; the flowers have five petals, those of the male being no larger than the leaves of the empalement; and they have five nectarious glands, which are fixed to the receptacle. They have ten or fifteen stamina, which are joined at their base. The female flowers have a roundish germen, with three reflexed styles, which afterward become a roundish three-cornered capsule with three cells, each containing a single seed. There are nine species, natives of the West Indies, and south of France.

CROUP, in *Medicine*, *suffocatio stridula*, is a disease to which children, chiefly under twelve years of age, are subject in cold and wet seasons, and most commonly on the sea-coast, and in low marshy countries. It is a species of *ASTHMA* or *CATARRH*, attended with an inflammatory fever, and many violent symptoms. It is seated in the cavity of the wind-pipe, a little below the glottis downwards, and affects the mucus separated there, which is so thickened, as to fill up the passage of the

the trachea. It often proceeds from catarrhs, occasioned by the measles, hooping-cough, small-pox, or cold damp weather. It is indicated by a frequent pulse, quick and laborious breathing, which is performed with a peculiar kind of croaking noise; the voice is sharp and shrill, and the face generally much flushed; though sometimes of a livid colour. When a child is seized with the above symptoms, his feet should be put into warm water; he should be bled, and a laxative clyster administered as soon as possible. He should be made to breathe over the steams of warm water and vinegar; an emollient decoction and cataplasms, or fomentations may be applied round the neck; blister-plaster may be also applied to the neck, or shoulders. A mixture of syrup of althea, and balsamic syrup, an ounce each, with three ounces of pennyroyal water, may be given in the quantity of a table spoonful frequently. Asta-fœtida has likewise been of service. This disorder is in some places called the chock, and the stuffing or rising of the lights. Buchan's Domestic Med. ed. 5. p. 606. Home's Inquiry into the Nature and Cure of the Croup.

CROUP of a horse, in the *Manege*, the extremity of the reins above the hips. It should be large and round, so that the tops of the two haunch-bones be not within view of each other. It should have its compass from the haunch-bones to the very dock or onset of the tail; and should be divided in two by a channel, or hollow, all along to the neck. A rocking croup is when a horse's fore-quarters go right, but his croup swings from side to side; when such a horse trots, one of the haunch-bones will fall, and the other rise like the beams of a balance; a sign that he will not be very vigorous.

CROUPE, in the *Manege*, a leap, higher than the curvert, wherein the fore and hind-parts of the horse keep an equal height; his legs being trussed under his belly, without stretching them out, or shewing his shoes.

CROUPER, or **CRUPPER**. See **CRUPPER**.

CROUTE, *Sour-croute*, or **KROUTE**. As this preparation of CABBAGE has been found of sovereign efficacy as a preservative in long voyages from the sea-scurvy, it may not be unacceptable to give a concise account of the process for making it, according to the information communicated by an ingenious German gentleman.

The soundest and most solid cabbages are selected for this use, and cut very small, commonly with an instrument made for this purpose; not unlike the plane which is used in this country for slicing cucumbers. A knife is used, when the preparation is made with greater nicety. The cabbage thus minced is put into a barrel in layers, hand high, and over each is strewed a handful of salt and caraway seeds, in this manner it is rammed down with a rammer *stratum super stratum*, till the barrel be full; when a cover is put over it, and pressed down with a heavy weight. After standing some time in this state, it begins to ferment; and it is not till the fermentation has entirely subsided, that the head is fitted to it, and the barrel is finally shut up, and preserved for use. There is not a drop of vinegar employed in this preparation. The Germans write this preparation in the following manner: *Sauer kraut*, or *saurer kohl*, that is, in their language, sour herb, or sour cabbage.

CROW, *Cornix*, in *Ornithology*. See **CORVUS**.

The carrion crow, *cornix*, or *corvus corona* of Linnæus, agrees in the form of its body with the RAVEN, and in its food, which is carrion, and other filth. It will also eat grain and insects, and, like the raven, pick out the eyes of lambs just dropped. Ben Johnson in his Fox, act i. scene 2. calls it the *gor*, or *gor-crow*, and classes it with the vultur, kite, and raven, as birds of prey. Virgil says that its croaking foreboded rain:

Tum cornix plena pluviam vocat improba voce.

And it was thought to be a bird of bad omen, when seen on the left hand:

Sæpe sinistra cava prædixit ab illice cornix.

England formerly abounded with crows; and in the reign of Henry VIII. an act was passed for their destruction.

CROW, *hooded*, *corvus*, *cornix*, agrees in the shape of its bill with the ROOK, and resembles it also in its manners, flying in flocks, and feeding on insects. In England it is a bird of passage, visits us in the beginning of winter, and leaves us with the woodcocks. It is common in Scotland, and is the only species of genuine crow in many parts of the Highlands, and in all the Hebrides, Orkneys, and Shetlands, where it continues the whole year. They have a shriller note than the common crows, and are much more mischievous. The head, and under-side of the neck and wings, are black, glossed over with a fine blue; the breast, belly, back, and upper part of the neck, are of a pale ash-colour; the irides hazel, the legs black, and the toes broad and flat, to enable them to walk without sinking in marshy and muddy ground.

CROW, in *Mechanics*, an iron lever, furnished with a sharp point at one end, and two claws at the other. It has various uses, in heaving or purchasing great weights.

The name *crow*, or *raven*, *corvus*, was anciently given to several machines of war, used in the defence of places: one invented by Diades; another by the Tyrians, mentioned by Q. Curtius; another by Cn. Ovilius. Vitruvius calls the first the *demolishing crow*, *corvus*, *demolitor*, and also *depredator*: others call it the *crane*, *grus*. Polybius describes another invented by C. Duillius used against the Carthaginian fleet.

They were all a kind of grappling-hooks; serving to drag things towards the engineer. That described by Q. Curtius was thrown out of a balista.

CROW-berries, in *Botany*, *Empetrum*. See *Berry-bearing HEATH*.

CROWS-bill, an instrument used by surgeons, in their operations; especially for drawing bullets and other foreign bodies out of wounds. It has its name from its figure.

CROW's-feet, in the *Military Art*. See **CALTROP**.

CROW's-feet, in a *Ship*, are small ropes, or lines, sometimes six, eight, or ten, reeved through the dead man's eye. They are used to suspend the awnings; or to keep the top-sails from fretting against the edges of the tops.

CROW-foot, *musk-wood*. See **ADOXA**.

CROW's-foot, in *Botany*. See **RANUNCULUS**.

CROW-flowers. See **CAMPION**.

CROW-garlic, a name given to a species of **ONION**.

CROW-net. See **NET**.

CROW, *scare*, in *Ornithology*, a species of the *larus*. See **GULL**.

CROW-slaves, in *Agriculture*, a name given to a part of a plough, signifying two upright pieces standing perpendicularly, inserted into the box of the plough, near the wheels, and each pierced with two rows of holes; by means of which they support a transverse piece, called the pillow of the plough, running across them, and serving to raise or sink the beam, by being pinned higher or lower, according as the ground is to be ploughed deeper or shallower. See **PLOUGH**.

CROWD, *to*, in *Sea Language*, is to carry an extraordinary force of sail on a ship, in order to accelerate her course on some important occasion.

CROWN, *Corona*, a mark of regal dignity; being an ornament worn on the head by kings and sovereigns, as a symbol of their authority.

Gallot derives the word *corona*, whence *crown*, from the Latin *cornu*, *horn*; because the ancient crowns were pointed in manner of horns; which were anciently, both by Jews and Gentiles, esteemed as marks of power, strength, authority, and empire. Hence, in the Holy Scripture, horns are used for the regal dignity: and accordingly, *horn* and *crown*, in the Hebrew, are expressed by the same word.

In the remotest antiquity, the crown was only given to gods. Pliny says, that Bacchus was the first who used it. Pherecydes, cited by Tertullian *De Corona*, says, Saturn. Diodorus ascribes it to Jupiter, after his victory over the Titans. Q. Fabius Pictor attributes the invention to Janus; adding, that it was an ornament he used in sacrificing. Leo the Egyptian says, it was Isis who first wore a crown; and that it consisted of ears of corn, the use whereof she first taught men.

In this most authors agree, that the crown, originally, was rather a religious than a civil ornament; rather one of the pontificalia, than the regalia; that it only became common to kings, as the ancient kings were priests as well as princes; and that the modern princes are entitled to it, in their ecclesiastical capacity rather than their temporal. See **KING**, &c.

The first crowns were no more than a bandelet, or head-band, drawn round the head, and tied behind; as we still see it represented on medals, around the heads of Jupiter, the Ptolemies, and the kings of Syria.

Afterwards they consisted of two bandelets; by degrees they took branches of trees of divers kinds: at length they added flowers; insomuch that Tertullian, *De Corona*, assures us (from Claudius Saturninus, who had written expressly on the subject) there was not any plant whereof crowns had not been made.

The woods and groves were searched, to find different crowns for the several deities: thus, on medals we find Jupiter's crown of flowers, more frequently of laurel; Juno's of the vine; that of Bacchus, the vine with grapes, vine-leaves, and branches of ivy, with flowers and berries: those of Castor, Pollux, and the river-gods, of bulrushes; that of Apollo, sometimes of laurel, sometimes of rushes; that of Saturn, new figs; that of Hercules, poplar; that of Pan, pine or alder; that of Lucina, dittany; that of Horæ, the fruits proper to each season; that of the Graces, olive-branches, as well as that of Minerva; that of Venus, roses; of Ceres, ears of corn, as well as that of Isis; that of the Lares, myrtle or rosemary, &c.

Crowns were not only used on the statues and images of the gods, by the priests in sacrificing, and by kings and emperors; but also on altars, temples, doors of houses, sacred vessels, victims, ships, &c.

The *agonotheta* crowned those who were victors in the solemn games, warriors, &c.

Among the Romans, there were various kinds of *crowns*, distributed as rewards of military achievements. The *oval crown* was the first, made of myrtle; and was bestowed on generals who had been victorious over slaves or enemies unworthy of the Roman valour, and who were entitled to the honours of the lesser triumph, called *ovation*. Tab. III. *Heraldry* fig. 96.

The second was the *naval* or *rostral crown*, consisting of a circle of gold, raised with prows and poops of ships; given to the captain who first grappled, or the soldier who first jumped aboard an enemy's ship. Fig. 97.

The third called *vallis*, or *castrensis*, was also a circle of gold, raised with piles or pallisades; given to him who first leaped into the enemy's camp, or forced the pallisades. Fig. 98.

The fourth, called *mural crown*, was a circle of gold, indented or embattled; given to him who first mounted the wall of a place besieged; and there lodged a standard; this *crown* we also find given, on medals, to the particular genii and guardians of provinces and places. Fig. 99.

The fifth, the *civic crown*; made of a branch of green oak; given to him who had saved the life of a citizen in a battle or assault. This was conferred on Cicero for detecting Cataline's conspiracy, and afterwards on Augustus Cæsar himself. Fig. 100.

The sixth was the *triumphal crown*, made of branches of laurel, or bay-tree, given to a general who had gained a battle, or conquered a province. This was afterwards made of gold. Fig. 101.

The seventh the *corona obsidionalis*, or *graminea*, made of grafs or herbs found on the ground; given to generals who had delivered a Roman army besieged by the enemy, and obliged him to decamp. Fig. 102.

The eighth was also a *crown* of laurel, given by the Greeks to their athletes; and by the Romans, to those who had negociated, or confirmed a peace with an enemy: this was the least esteemed. Besides these, in antiquity, we meet with *radial crowns*, given to princes at their translation among the gods; whether before or after their death. Fig. 103. Casaubon says, this sort of *crown* was peculiar to deities; yet it is certain Nero took it in his life-time.

Athletic crowns were destined to crown victors at the public games.

From some passages in Eusebius Cæsariensis, some authors conclude, that bishops had likewise anciently their *crowns*.

The Roman emperors had four kinds of *crowns*, still seen on medals, viz. a *crown* of laurel, a radiating *crown*, a *crown* adorned with pearls and precious stones, and the fourth a kind of bonnet, or cap, something like the mortar.

The first was ordinarily that used from the time of Julius Cæsar: the right of bearing it was granted him by the senate; some say on account of his baldness; and afterwards continued to his successors. Justinian was the first who took that of the bonnet-kind.

The *papal crown* is composed of a cap or tiara, enclosed by three marquises cornets, having two pendants, like the bishops mitres; and on its top a mound of gold; these three *crowns* represent the pretended triple capacity of the pope, viz. as high-priest, supreme judge, and sole legislator of the Christians. Fig. 104.

The *imperial crown* is a bonnet or tiara, voided at the top like a crescent, with a circle of gold, adorned with precious stones and pearls, heightened with fleurs-de-lys, supporting a globe, with a cross at the top. Fig. 105.

The *English crown* is adorned with four crosses, in the manner of those of Malta; between which are fleurs-de-lys. It is covered with four diadems, which meet at a little globe supporting a cross. Fig. 106.

The *French crown*, is a circle, enamelled, of eight fleurs-de-lys, encompassed with eight arched diadems: bearing a-top a double fleur-de-lys, which is the crest of France. Fig. 107.

The *Spanish crown* is adorned with large indented leaves, covered with diadems; bordering on a globe, surmounted with a cross. Fig. 108. Those of Portugal, Poland, Denmark, and Sweden, are of the same form.

The *crowns* of most other kings are circles of gold, adorned with precious stones, and heightened up with large trefoils, and closed by four, six, or eight diadems, supporting a mound, surmounted with a cross.

The great Turk bears over his arms a turband, enriched with pearls and diamonds, under two coronets, the first of which is made of pyramidal points, heightened up

with large pearls, and the uppermost is surrounded with crescents. Fig. 109.

The *Electoral crown*, or *coronet*, is a scarlet cap, turned up with ermine, and closed with a semi-circle of gold, all covered with pearls. On the top of it there is a globe with a cross thereon. Fig. 110.

CROWNS, or *coronets*, of *British princes of the blood royal*.

1. The *crown* of the prince of Wales; this was formerly a circle of gold, set round with four crosses-patee, and as many fleurs-de-lys alternately; but now consists of one arch, adorned with pearls; in the middle of which is a ball and cross, and bordered with ermine, as in the royal diadem. Fig. 111. Besides this, the prince of Wales has another distinguishing mark of honour, viz. a plume of three ostrich feathers, with an ancient coronet of a prince of Wales, with this motto, *Ich dien*, i. e. *I serve*. This device was at first taken by Edward prince of Wales, commonly called the Black Prince, after the battle of Cressy, where, having killed John king of Bohemia, he took from his head such a plume, and put it on his own. Fig. 112. 2. That of the younger sons and brothers of the king, consists likewise of a circle of gold, bordered with ermine, and heightened with four crosses and fleurs-de-lys alternately, but without any arch, or being surmounted with a globe and cross on the top. Fig. 113. 3. That of the other princes of the blood consists alternately of crosses and leaves, like those in the coronets of dukes, &c. Fig. 114. Those of the princesses have the addition of strawberry-leaves. Fig. 115.

CROWNS, or *coronets*, of the *British nobility*. 1. That of a duke is a circle of gold, bordered with ermine, and enriched with pearls and precious stones, and set round with eight large leaves of parsley, or strawberry. Fig. 116. 2. That of a marquis is set round with four strawberry-leaves, and as many pearls, on pyramidal points of equal height, alternately. Fig. 117. 3. An earl's has eight pyramidal points, with as many large pearls on the tops of them, placed alternately, with as many strawberry-leaves, lower than the pearls. Fig. 118. 4. The viscount has only pearls, without any limited number, placed on the circle itself, all round. Fig. 119. 5. A baron has only six pearls, set at equal distance, on the golden border of ermine; not raised, to distinguish him from the earl; and limited, to shew that he is inferior to the viscount. Fig. 110.

The eldest sons of peers above the degree of a baron, use the *CORONET* appertaining to the father's second title; and none of the younger sons use *coronets*.

The *coronet* of a French earl is a circle of gold, with eighteen pearls set on the brim of it; that of a French viscount an enamelled circle of gold, charged with four large pearls; and that of a French baron a circle of gold enamelled, and bound about with a double bracelet of pearls. All these are used on their coats of arms, and not worn on their head, as British noblemen and their ladies do at the king's coronation.

Ch. Paschal has wrote expressly de Coronis. Baudelot, in his History of Ptolemy Auletes, has a number of curious observations on the same subject, that had escaped Paschal. Du-Cange gives us a curious dissertation on *crowns*; and Schmeizell, a German, a treatise of royal *crowns*, both ancient and modern.

CROWN, in *Architecture*, denotes the uppermost member of the cornice; called also *CORONA* and *LARMIER*.

CROWN, in *Astronomy*, is a name given to two constellations; the one called *septentrionalis*, and the other *meridionalis*. See *CORONA*.

CROWN, in *Commerce*, is a general name for coins both foreign and domestic, of or near the value of five shillings sterling.

In its limited sense, *crown* is only applicable to that popular English coin which bears the name, and which is equivalent to sixty English pence, or five shillings; or to six livres French money. But, in its extensive sense, it takes in several others; as the French *ecu*, which we call the French *crown*, struck in 1641 for sixty sols, or three livres; also the patagon, dollar, ducatoon, rix-dollar, and piastre, or piece of eight.

CROWN, in an *Ecclesiastical Sense*, is used for the clerical tonsure; which is the mark, or character, of the Romish ecclesiastics.

This is a little circle of hair, shaved off from the *crown* of the head; more or less broad, according to the quality of the orders received. That of a mere clerk is the smallest; that of priests and monks the largest.

The *clerical crown* was anciently a round list of hair, shaved off around the head, representing a real *crown*; this is easily observable in several ancient statues, &c.

The religious of St. Dominic and St. Francis still retain it.

CROWN of the *Virgin*. See *ROSARY*.

CROWN, in *Geometry*, a plane ring included between two parallel

parallel or concentric peripheries, of unequal circles; generated by the motion of some part of a right line round a centre, the moving part not being contiguous to the centre.

The area of this is had by multiplying its breadth by the length of a middle periphery, which is a mean proportional between the two peripheries that bound it.

Let D be the middle point of the breadth A B (*Tab. II. Analysis, fig. 39.*): let C B = a ; and C A = r . Let the circumference of the outer circle be c , and its area will be $\frac{ca}{2}$, and the area of the inner circle will be $\frac{cr^2}{2a}$, this

quantity being a fourth proportional to a^2 , r^2 , and $\frac{ca}{2a}$;

then the difference of these two areas, or the area of the crown, will be $\frac{ca}{2} - \frac{cr^2}{2a} = \frac{c}{a-r} \times \frac{c}{2} \times \frac{a+r}{a}$; but $a-r$

is equal to A B, the breadth of the crown, and $\frac{c}{2} \times \frac{a+r}{a}$

is the circumference of the circle, whose radius is C D; because C D is an arithmetic mean between C A and

C B, and therefore equal to $\frac{r+a}{2}$, and the circumfer-

ences of circles are as their radii, or $a : c :: \frac{r+a}{2} : \frac{c}{a} \times$

$\frac{a+r}{2}$.

CROWN, or **CORONET**, in *Heraldry*, is used for the representation of that ornament, in the mantling of an armoury; to express the dignity of the person who bears it. The crown here is of more antiquity even than the helmet; and it was used as a symbol of victory and triumph.

CROWN, among *Jewellers*, the upper work of the rose diamond, which all centres in the point at the top, and is bounded by the horizontal ribs.

CROWNS, *pearled*, or *flowered*, those with pearls, or leaves of smillage, parsley, &c. Such were anciently almost all crowns, even those of sovereign princes: though they were not used in their armours till about two hundred years ago.

CROWNS, *radiated*, or *pointed*, are those of the ancient emperors, which had twelve points; representing, as some will have it, the twelve months of the year.

CROWN Royal, *order of*, an order of knighthood, which, some say, was instituted in 802; the knights of which bore a crown embroidered with gold, on a white robe. Others deny the existence of such an order.

CROWN of colours, in *Meteorology*, certain coloured rings, which, like halos, appear about the body of the sun and moon, but of the colours of the rainbow; and at a less distance than the common halos. These crowns Sir Isaac Newton shews to be made by the sun's shining in a fair day, or the moon in a clear night, through a thin cloud of globules of water or hail, all of the same bigness; and according as these globules are bigger or less, the diameter of these crowns will be larger or smaller; and the more equal these globules are to each other, the more crowns of colours will appear; and the colours will be the more lively.

CROWN, in *Music*, a **REST** marked by a reversed C, with a point in the middle of it thus ω .

CROWN, *clerk of the*. See **CLERK**.

CROWN, *pleas of the*. See **PLEA**.

CROWN, *officers of the*. See **OFFICER**.

CROWN-glass, denotes the finest sort of window-glass. See **GLASS**.

CROWN-grafting. See **ENGRAFTING**.

CROWN imperial, in *Botany*. For the characters, see **FRI-TILLARIA**.

There are several distinct species of this plant preserved in the gardens of the curious, all which make a very elegant appearance; there are also a great number of varieties which are propagated from the seeds of one or other of the species, in the same manner with those of the **TULIP**.

When they are thus raised, the best time for transplanting their roots is in July or August, before they push forth new fibres: or they may be taken up out of the ground in June, after their green leaves are decayed, and kept till August, and then planted out into beds of rich earth, with some rotten dung buried deep in them. The most pleasing method of planting them is at eight or ten feet distance, in the middle of long flower-beds: a hole of six inches deep should be opened with a spade, and the root put into it, and the earth put in with the hand upon it, and all the stones picked out, and the lumps broke. They now require no farther care, but in February will shoot up, and grow so quick, if the weather be mild, as to flower in March. As this is usually a windy season, it is proper to plant stakes in the earth, to

tye these plants to, to prevent their being blown down; and it is a good caution never to gather the flowers, which much weakens the roots; they should, therefore, always be suffered to die upon the stalks. The roots should be removed once in three years, and their off-sets separated, and planted in beds.

CROWN imperial shell, in *Conchyliology*. See **VOLUTA**.

CROWN-office, a court or office under the king's-bench, so called, because the crown is more immediately concerned in what is therein transacted. See **COURT of King's-bench**. Though none of the officers under the lord chief-justice of the king's-bench are employed in summoning a parliament; yet many of them have business in other matters, during the sitting of the parliament: as in cases of error, &c. but more especially on trials of peers; where, in the clerk of the crown is chief manager. He has likewise, out of parliament, all indictments in the crown, informations, recognizances; and a multitude of other business runs through his hands, as the writings of all pleadings, declarations, and other proceedings upon records: but the executive part is left to his secondary or deputy.

CROWN-post, in *Architecture*, a post which in some building stands upright in the middle, between two principal rafters; and from which there go struts or braces to the middle of each rafter. It is otherwise called a *king's-piece*, or *joggle-piece*. See **POST**.

CROWN-scab, in *Farriery*, a disease in horses, consisting in a humour that breaks out round the coronet, of a sharp itching nature, and attended with scurfiness. The best remedy for this disorder is a mixture of equal parts of marshmallow ointment, and yellow basilicon, spread on tow, and laid round the coronet.

CROWN, *right of*, **JUS CORONÆ**, in *British History*, denotes the right of succession to the throne of these kingdoms. In this sense the crown, according to judge Blackstone, is, by common law and constitutional custom, hereditary, in a manner peculiar to itself; so that the right of inheritance may from time to time be changed, or limited by act of parliament. This succession is such that the next heir of the crown takes possession on the death or demise of the last proprietor; not by any *jure divino* title, but that kind of hereditary right which owes its origin solely to the founders of our constitution. The succession likewise resembles that of the heirs to landed estates, under particular exceptions: thus, the crown descends lineally to the issue of the reigning monarch, as from king John to Richard II. and to the first born of the male issue, as in the case of Edward V. who was preferred to Richard his younger brother, and Elizabeth his elder sister; but on failure of the male line, it descends to the female issue: thus Mary I. succeeded Edward VI. and the line of Margaret queen of Scots, the daughter of Henry VII. inherited on failure of the descendants of Henry VIII. Among the females, the crown descends to the eldest daughter and her issue, and not, like common inheritances, to all the daughters at once: thus queen Mary, on her brother's death, was the sole successor, though her sister Elizabeth was living. Moreover, the lineal descendants of any person deceased claim as their ancestor would have done, if he had been still living. Thus, Richard II. succeeded his grandfather Edward III. in right of his father the Black Prince, to the exclusion of all his uncles. On failure of lineal descendants, the crown is vested in the next collateral relations of the late king, as if they are lineally descended from the blood royal, as in the case of Henry I. who succeeded to William II. John to Richard I. and James I. to Elizabeth, being all derived from the Conqueror, who was then the only regal stock: nor is there any exception, as in common descents, to collateral relations of the half-blood. Thus Mary I. inherited after Edward VI. and Elizabeth after Mary, though born of Henry VIII. by different mothers.

However this hereditary right is by no means indefeasible; because the immediate heir has been, and may be excluded by the supreme legislative authority of this kingdom. Under this controul, the crown naturally descends either to the *hæres natus*, if the course of descent is unimpeached, or to the *hæres factus*, in consequence of a particular settlement: because the KING never dies, and there can be no *interregnum*.

Egbert, in the beginning of the ninth century, was the sole monarch of this kingdom. From Egbert, to the death of Edmund Ironside, through a succession of fifteen princes, the crown descended regularly, with very little deviation. In the three succeeding reigns, the succession was suspended by force; at length the Saxon line was restored in Edward the Confessor, who indeed was not the next heir, because his brother Edmund Ironside had a son living, then an outlaw in Hungary. On his decease Harold II. usurped the throne, though the right remained in Edgar Atheling, son of Edward the Outlaw.

At

At this time William the Norman invaded England, pretending a right to the *crown* from a grant of Edward the Confessor; and his conquest transferred the succession of the *crown* to a new family. From the Conqueror it descended to his sons William II. and Henry I. the eldest son Robert being kept out of possession by his brethren. Henry was succeeded by Stephen of Blois, grandson of William I. by his daughter Adelicia, his elder brother Theobald waving his claim, and Matilda or Maud, the daughter of Henry I. and the grand-daughter of Edward the Outlaw, to whom the succession properly belonged, being excluded by force. However, her son Henry II. as heir to the Conqueror, succeeded Stephen, though the proper heirs in the Saxon line were the sons of Malcolm king of Scotland, by Margaret the daughter of Edward the Outlaw. From Henry II. the *crown* descended to his eldest son Richard I. and on his death was seized by his brother John, the youngest son of Henry, the right being vested in his nephew Arthur. On the death of Arthur, and his sister Eleanor, without issue, the *crown* properly descended to Henry III. the son of John, and from him, in an hereditary line of six generations, to Richard II. and this right of succession was declared in parliament by stat. 25 Edw. III. When Richard resigned the *crown* the right resulted to the issue of his grandfather Edw. III. and particularly to the posterity of Lionel duke of Clarence; but Henry duke of Lancaster usurped the *crown* under the title of Henry IV. pretending to be a successor by right line of the blood royal. Parliament, by stat. 7 Hen. IV. c. 2. settled the inheritance of the *crown* and kingdom in him and his heirs. He was regularly succeeded by his son and grandson, Henry V. and VI. In the last of these reigns the house of York began to assert their dormant title, and established it in the person of Edward IV. At his accession, the distinction of a king *de jure*, and a king *de facto*, first occurs; and by stat. 1 Edw. IV. c. 1. the three Henries are styled kings *in dede*, and *not of right*. This king was succeeded by his eldest son Edward V. who was deposed by his unnatural uncle Richard III. under a pretence of bastardy. During the tyrannical reign of Richard, Henry VII. earl of Richmond, assumed the regal dignity, and his possession was established by parliament in the first year of his reign. He afterwards married Elizabeth of York, the undoubted heiress of the Conqueror, in whom the right of the *crown* was vested. Henry VIII. succeeded by indisputable hereditary right, and transmitted the *crown* to his three children in successive order; and stat. 25 Hen. VIII. cap. 12. provides for the regular succession in his descendants. This statute was repealed by 28 Hen. VIII. c. 7. by which Elizabeth and Mary were bastardized, after the king's divorce from Anne Boleyn. They were again legitimated, and the succession restored by 35 Hen. VIII. c. 1. The right both of Mary and Elizabeth is again expressly recognized by parliament, after their respective accession; and parliament explicitly asserts its right of directing the succession of the *crown*, by stat. 13 Eliz. c. 1. On the death of queen Elizabeth, James VI. of Scotland, and I. of England, was the lineal descendant, from the alliance of Margaret, eldest daughter of Henry VII. by Elizabeth of York with James IV. of Scotland; and in him were united not only the claims of different competitors since the Conquest, but likewise the right of the Saxon monarchs, because he was the direct lineal heir of Malcolm, who married Margaret, grand-daughter of Edmund Ironside. Several instances have occurred, in this abstract of the history of the descent of the *crown*, in which parliament has interposed to fix, direct, and limit the succession; particularly, under Henry IV. Henry VII. Henry VIII. queen Mary, and queen Elizabeth; to which we may also add the stat. 1 Jac. I. c. 1. which recognizes the succession as lawfully descending to king James. The attempt to obtain a bill of EXCLUSION in the latter end of the reign of Charles II. evidently supposed that the *crown* was hereditary, and at the same time liable to the controul of parliament. This attempt proved ineffectual, and James II. succeeded. However, in consequence of his abdication in 1688, and the declared vacancy of the throne, the lords and commons, representing all estates of the people of the realm, invited over William prince of Orange, and the princess Mary, eldest daughter of king James II. and declared them king and queen, during their lives, and the life of the survivor of them; and settled the *crown* on the issue of queen Mary; and on failure of such issue, on the princess Anne of Denmark, and her issue. Stat. 1 W. and M. c. 2. By stat. 12 and 13 W. III. c. 2. the princess Sophia, youngest daughter of Elizabeth queen of Bohemia, who was the daughter of James I. and the heirs of her body, being protestants, and married to none but protestants,

were declared next in succession after king William, the princess Anne, and their issue; and it is enacted that they should join in communion with the church of England, as by law established. After the death of queen Anne, the *crown* descended to George I. eldest son of the princess Sophia; from him to George II. and last of all to our present sovereign George III. Blackstone's Commentaries, vol. i. chap. 3. See KING and PARLIAMENT.

CROWN-wheel of a WATCH, is the upper wheel next the balance, or that which drives the balance.

CROWN-work, in Fortification, is an out-work running into the field; designed to keep off the enemy, gain some hill, or advantageous post, and cover the other works of the place. See *Tab. Fortific. fig. 21. lit. 11.*

The *crown-work* consists of two demi-bastions at the extremes, and an entire bastion in the middle, with curtains.

CROWN, the American sea-fun. See AMERICAN, &c.

CROWNED, in Farriery. A horse is said to be crowned, when by a fall, or other accident, the knee is so hurt that the hair falls off, without growing again.

CROWNED horn-work, is a HORN-work, with a *crown-work* before it.

CROWNING, in Architecture, is understood, in the general, of any thing that terminates, or finishes a member or decoration.

Thus, a cornice, a pediment, a croteria, &c. are called *crownings*. Thus, also, the ABACUS is said to crown the capital; and thus any member or moulding is said to be crowned, when it has a fillet over it; and a niche is crowned, when it is covered with a capital.

CROWNING, in Sea-Language, denotes the finishing part of a knot made at the end of a rope. It is performed by interweaving the ends of the different strands artfully amongst each other, so as that they may not become loosened or untwisted. They are useful in all kinds of stoppers.

CROWTH, or CRUTH, an instrument of music (see *Tab. Music, fig. 3.*) resembling a violin, formerly in common use in the principality of Wales, as a tenor accompaniment to the harp. It has six strings, supported by a flat bridge, placed obliquely to the sides, and is played on with a bow. Two or three of the lower strings are often struck with the thumb, and serve as a base accompaniment to the notes sounded with the bow. A A represents the apertures for the hand; B B the strings conducted under the end board; C C the pegs, and d d the found holes. The fifth and sixth strings are the unison and octavo of G, the fourth and third the same of C, and the second and first the same of D; so that the second pair of strings are a fourth, and the third a fifth to the first.

This instrument was not peculiar to Wales; since a figure of it has been lately discovered among the outside ornaments of the abbey church of Melrofs in Scotland, built about the time of Edward II.

From the name *crowth* is derived *crowther*, a crowder, as a common fiddler is now called. The use of this instrument is almost lost. Hawkins's History of Music, vol. ii. p. 273. The Welch had also a three-stringed *crowth*, which was the ancient base-viol.

CROZIERED abbots. See ABBOT.

CRUCIAL incision, in Chirurgery, an incision, or cut, into some fleshy parts, in form of a cross.

CRUCIAN, in Ichthyology, the CYPRINUS *carassius* of Linnaeus, is common in many of the fish-ponds about London, and other parts of the South of England, though probably not a native fish. The meat of it is coarse, and little esteemed. For the characters, see CARASSIUS.

CRUCIANELLA, in Botany, a genus of the *tetrandria monogynia* class; *petty madder*. Its characters are these: the flower hath one petal, with a slender cylindrical tube, longer than the empalement, cut into four parts at the brim; it hath four stamina situated in the mouth of the tube; it has a compressed germen situated at the bottom of the tube, which afterward becomes two twin capsules, each containing one oblong seed. There are three species, natives of the southern parts of Europe.

CRUCIATA. See CROSS-work.

CRUCIBLE, in Chemistry, &c. a little vessel, ordinarily of earth, sometimes of iron, without any handle; wherein chemists, coiners, goldsmiths, glaziers, and other artificers, use to melt and calcine gold, silver, or other metals, whereon they work.

The word is formed from the French *creuset*, which signifies the same. Du-Cange derives this farther from *cruselinum*; which, in the lower Latin, signifies a little drinking vessel.

Earthen crucibles are made of potters clay, with stone potters pounded and sifted: they are of various sizes, but generally of the same form, which resembles that of an inverted cone, or pyramid. These are chiefly used

in coinage, as being the only ones in which gold will melt kindly. Iron *crucibles* are in form of little buckets without handles, made of iron, well forged and hammered; in these they melt silver, copper, &c.

There are earthen *crucibles* that hold from 800 to 24 or 2500 ounces; but those ordinarily used are but of 800. The iron ones are larger; some holding 10,000 ounces: these are not taken off the furnaces when the plates are to be run, but the metal is laded out with an iron ladle. It is a rule, never to put as much metal in the *crucible* as it will hold.

The *crucibles* used by goldsmiths and founders, are like those used in COINAGE; those of chemists, &c. are of all sizes, according to the quantity and quality of the metal to be put in them.

These vessels, so much used by assayers, &c. are best made of a pure and well-washed clay, with an admixture of the purest sand, powder of flint, or the powder of other broken *crucibles*, which have already sustained a great fire, and are very clear. They are formed in wooden, or brass moulds, divided longitudinally into two parts, and to be disjoined or put together again at pleasure; for this purpose also a broad iron ring is adapted to the outside of the mould, in such manner, that the two sides are kept firmly together while this ring is on, and fall asunder as soon as it is taken off. This mould, however, gives only the outer shape of the *crucible*; its cavity must be made by a pestle, or other such instrument.

When these vessels are to be made, the ring is put upon the mould and the whole set upon a strong support: then the cavity of the mould is to be filled with the matter very stiff; this is to be pressed down first with the fingers, or with a stick, making a hollow in the middle, and leaving the edges of the matter above the sides of the mould; then apply to this hollow the pestle, rubbed over with the fat of bacon, and drive it in with several strong strokes of a mallet: then take away the pestle, and, taking the ring from off the mould, the *crucible* is taken out perfect, and finished, and is to be dried, and baked in a potter's kiln. See *Tab. of Chemistry*, N° 25. If, from the too great moisture of the matter, when put into the mould, or from any inequalities or roughnesses in the mould, the *crucible* will not readily separate from its sides, as soon as made, place the mould in a dry, warm place, for a few minutes, and the vessel will, after that, come out easily.

In making these vessels, a sufficient quantity of the matter must always be put at once into the mould; for if you add to the matter once compressed, a new lump of the same, it will not cohere with the first. If the matter be put into the mould in small masses, not moulded thoroughly together first by handling, these never cohere; but the vessel, when finished, will be full of chinks and pores, which, though not to be discovered either by the eye, or by the sound of the vessel when struck, yet let the salts in fusion pass through them.

If these vessels are not made with a large bottom, the concave mould must not be greased; for if it be, the vessel comes out of it with the pestle, and sticks so firmly to it, as not to be got off without breaking. Cramer, *Art. of Ass.* p. 66.

Others order a large piece of chalk to be cut into the form of a *crucible*, and boiled in linseed-oil for twenty-four hours: this, when dry, they use as a *crucible*.

Mr. Scheffer says, that *crucibles* may be made much more durable and solid, by steeping them for a few days in linseed-oil, and strewing powdered borax on them before they are dried. *Mem. Sued.* 1752.

On the method of preparing *crucibles*, so as to stand sulphureous mixtures, &c. see Lewis's *Commercium P. Technic.* p. 156.

Black lead *crucibles* are preferred for melting of GOLD, because very smooth, and less apt to retain the particles of this costly metal; and also because less liable to crack, so that they may be used for several fusions, and with less precaution. *Ibid.* p. 67.

The best *crucibles* for sustaining the action of violent fire, and of chemical solvents, are prepared of good baked clay; but as these are liable to be broken by a sudden application of heat or cold, another sort is made of a mixture of refractory clay, with two parts of sand, of a middling fineness; and the addition of sand makes the clay leaner, and prevents its cracking whilst it dries, and likewise preserves it from becoming too compact, by being baked. These are better adapted to contain metals in fusion, and less subject to break than those made of pure clay. The best of this kind are brought from Hesse in Germany. *Crucibles* that are designed for containing glass, and vitrifying matters for a long time in fusion, should have no mixture of sand, flints, and vitrifiable earths, because they are acted upon by the vitreous matters, and the *crucibles* are soon penetrated and melted.

For this purpose the powder of baked clay should be substituted in the room of sand; and thus pots are prepared for glass-houses which will bear a violent and constant fire for several months. Of this kind are the *crucibles* which are made in France. Every laboratory, then, should be furnished with *crucibles* of different kinds; Paris *crucibles* for a more gentle fire; those of Hesse for a more violent heat; and those of baked clay for vitrescent matters, and penetrating fluxes. Pott's *Dissertation on Chemical Vessels.* See POTTERY.

CRUCICOLÆ, q. d. *worshippers of the cross*, a designation given to the primitive Christians, by the heathens.

CRUCIFIX, a cross, whereon the body of Jesus Christ is fastened in effigy; much used by the Romanists in their churches, and other places to recognize the passion of Jesus Christ, and direct their prayers to.

There are some chapters wherein Jesus Christ is the first canon, and the income of the canonry goes to the subsistence of the *crucifix*.

CRUCIFIXION, an ancient form of execution, by fastening the criminal to an erected cross.

CRUCIFORM *flowers.* See FLOWER.

CRUCIFORM *hyperbola.* See CURVES.

CRUCIS *experimentum.* See EXPERIMENTUM.

CRUDE, something that has not passed the fire, or has not had the degree of concoction, i. e. of heat, requisite to prepare it for eating, or some other use.

Crude, or raw silk, is that which has not been put in boiling water, to unwind it from off the cod; nor boiled in water and soap, to fit it for dyeing.

CRUDE *sugar.* See SUGAR.

CRUDE *antimony*, is that which comes immediately from the mines, without any preparation, except once melting.

CRUDE *humours*, in *Medicine*, are those which want that preparation and elaboration which they ordinarily receive from a thorough digestion.

The retainers to the doctrine of trituration hold, that the *crudity* of the humours only consists in this; that they are not broken and comminuted so much as they should be by the ordinary action of the stomach.

CRUDITY, sometimes denotes that state of a disease, wherein the morbid matter is of such bulk, figure, cohesion, mobility, or inactivity, as creates or increases the DISEASE.

The *crudity* is discovered, 1. From the disease continuing its degree of strength, or increasing. 2. From a continual increase of symptoms. 3. From a disorderly exercise of the functions. 4. But chiefly from a fault in the quantity or quality of the humours; both those still circulating, and those secreted; as of sweat, tears, mucus of the nose, saliva, sputum, the bile, urine, ichor, pus, blood, menses, lochia, milk, apthæ, &c.

That state of the disease wherein the *crude* matter is changed, and rendered less peccant, and laudable, is called *digestion*, *concoction*, or *maturation*.

CRUISE, from the German *kruis*, a cross, signifies to cross to and fro, to sail up and down within a certain space of the sea, called the *cruising* latitudes, in quest of vessels, or fleets of an enemy, &c.

CRUISERS, in the Navy, are small men of war, made use of to and fro in the Channel, and elsewhere, to secure our merchant-ships and vessels, from the enemy's small frigates and privateers. They are generally such as sail well, and are commonly well manned: and, indeed, the safety of the trade in the Channel, and up and down the soundings, and other places, absolutely requires the constant keeping out of such ships at sea.

CRUMENA, from *κρεμνω*, *pendeo*, I hang, in Zoology, the name given by Cardan, and some others, to the purse, or pouch, which the opossum has under its belly, and into which it receives the young in time of danger.

Scaliger, supposing there might be other animals, as well as the opossum, to which nature might have given this sort of pouch, has erected a generical distinction, under the name of *animalia crumentata*; but the opossum is the only species yet known to belong to this genus. The only instance that naturalists seem to afford us of a like provision of nature for the care of the young, is what is related of some of the fish kind. Oppian, in his *Hali-eutics*, mentions this property of receiving the young into the body, in time of danger, to be in the dog-fish, and in the squatina, and some others; and Tyson observes, that, in the anatomy of a female dog-fish, he saw two slits under the belly, closed up in their natural state, but easily distensible, so as to be capable of receiving the young fish; and that these went not into the womb, nor any other peculiar part, but only into the cavity of the abdomen.

The account given by Oppian is, that, in time of danger from a storm, or from any fish of prey pursuing the young fry, they go into their parent's belly. If therefore, after this account of Tyson's, any young fish should ever be found loose in the cavity of the mother's belly,

CRUSTACEOUS & TESTACEOUS Animals. Tab. III.

SQUILLA lutaria 25



PAGURUS 26



CANCER raniformis 27

CANCER lunaris 28

CANCER floridus 29



CANCER spinosus 30

CANCER spinosus longimanus major 31



CANCER. The rots-crab 32



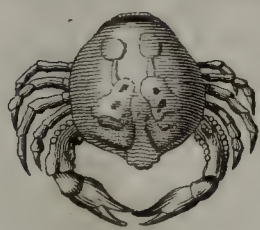
PEDICULUS marinus 33



CANCER arachnoides 34.



CANCELLUS vulgaris 35



CANCELLUS rotundus 36



CANCELLUS crispus 37

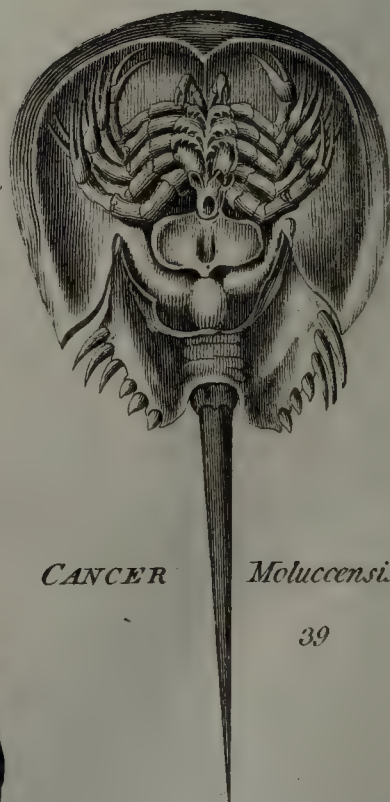


CANCER calappoides 38



CANCER Moluccensis

39



it will prove the truth of this passage in Oppian, which has been so much disputed. Phil. Trans. N° 239. p. 120.

CRUMENTATA, a term used by Julius Scaliger to express such animals as have a pouch, or bag under their belly, into which young ones may be received in time of danger. See **OPOSSUM**.

CRUOR, from *κρως*, cold, according to Ainsworth, or perhaps from *χρως*, colour, a term used by anatomists for the red globules of the blood; in contradistinction to the limpid or serous part.

Some authors, as Dr. Keill and Dr. Woodward, suppose these globules replete with an elastic aura, or air; and on this principle account for some of the phenomena of the animal economy; particularly muscular motion, &c. But Dr. Jurin has overturned that supposition.

Van Helmont uses the word *crur* for the blood in the veins; in contradistinction to the blood in the arteries, which he calls *sanguis*. See **BLOOD**.

CRUPEZIA, in *Antiquity*, wooden shoes, or clogs, worn by the **MESOCHORI**.

CRUPINA, in *Botany*, a name by which some authors call the *carduus stellatus*, or star-thistle.

CRUPPER is used by some for the hind part of a horse, comprehended between the place of the saddle and the tail.

The word is formed from the French *crouppe*, which signifies the same. It denotes also a thong of leather put under a horse's tail, and fixed to the saddle, to prevent it from being thrown forward.

CRURA clitoridis, in *Anatomy*. Between the *corpora nervosa* of the clitoris, runs a *septum*, or membranous partition, from the glans to its divarication at the *os pubis*; dividing the clitoris into two parts, called the *crura* of the clitoris. See *Tab. Anatomy (Splanchn.) fig. 13. lit. bb.*

These are three times as long as the ordinary trunk of the clitoris itself.

CRURA of the medulla oblongata are two of the four roots whence the *medulla oblongata* springs, in the brain.

The *crura* are the larger roots; the two smaller are called *pedunculi*.

CRURÆUS, in *Anatomy, a muscle arising from the fore-part of the thigh-bone, between the lesser and great trochanter, and lying close upon the bone, joins its tendon with three others, which altogether make one broad tendon, that passes over the *patella*, and is inserted into the little tuberosity on the upper and fore-part of the *tibia*. Its use is to extend the leg. See *Tab. Anatomy, (Myol.) fig. 2. n. 40.**

It is called *cruræus*, as being fastened to the thigh-bone in the same manner as the *brachæus* to the arm.

CRURAL, in *Anatomy*, an epithet given to the large artery and vein of the thigh.

The *crural* artery arises from the iliac artery; or rather, it is the iliac itself, under another name; being called *crural*, from the place of its entrance into the thigh. See *Tab. Anatomy (Angeiol.) fig. 1. n. 69.*

It conveys blood through all the part, by means of a great number of branches disseminated through its substance.

The *crural* vein is the production of the external iliac vein, and is formed of six other veins, viz. the *great* and *little sciatica*, the *musculosa*, the *poplitea*, the *fural*, and the *saphena*.

CRURAL nerves. See **NERVE**.

CRUS, among *Anatomists*, denotes all that part of the body which reaches from the buttocks to the toes; and is divided into **THIGH**, **LEG**, and **FOOT**.

CRUSCA, an Italian term, signifying *bran*, or what remains of meal after the flour has been sifted out. It is only in use among us to denote that celebrated academy called *Della Crusca*, established at Florence, for purifying and perfecting the Tuscan language.

The academy took its name from its office, and the end proposed by it, which is to refine the language, and, as it were, to separate it from the bran. Accordingly, its device is a sieve, and its motto, *Il piu bel fior ne coglie*; that is, *It gathers the finest flour thereof*.

In the hall or apartment where the academy meets, M. Monconis informs us, every thing bears allusion to the name and device: the seats are in form of a baker's basket; their backs like a shovel for moving of corn; the cushions of grey fatten in form of sacks, or wallets; and the branches where the lights are placed, likewise resemble sacks.

The vocabulary *Della Crusca* is an excellent Italian dictionary, composed by this academy.

CRUSTA lactea, *Achor*, in *Surgery*, signifies a crust of scabby ulcers, apt to affect the faces of children. The cure of it depends principally on regulating the diet of the nurse, and giving her gentle purges, and sweetening

powders; the infant ought also to take at times a few gentle doses of physic, and, in the intervals, between the purges, to take powders of crude, or diaphoretic antimony, with flour of brimstone, and crabs claws, and other of the testaceous powders. When this method has been pursued for some time, the parts may be anointed with cream, with a small quantity of chalk, or ceruse, mixed in it, or with a mixture of oil of eggs, with a small quantity of oil of bricks. Ointments of mercury, or sulphur, are very dangerous in the beginning of this disorder, or to weakly infants; and when such have been used by ignorant persons, the best method to be taken, is the endeavouring to throw out the humour again by sudorifics. Heister's Surgery, p. 269.

CRUSTA villosa, in *Anatomy*, the fourth tunic or coat of the **STOMACH**.

On the inner surface of the coat are seen innumerable villi, or fibrillæ, rising every where perpendicularly from it; which some will have to serve for nothing but a defensive to the stomach, to preserve it from acrimonious humours; but Dr. Drake rather takes them to be excretory ducts to the subjacent glands; which some authors would have to be that now exploded thing a parenchyma; but which are, indeed, the organs by which most of that humour which is discharged into the stomach, is separated; and these villi the immediate channels through which it is conveyed.

CRUSTACEOUS fish, in *Natural History*, are those covered with shells, consisting of several pieces or scales; as those of crabs, lobsters, &c. See **SQUILLA**.

These are usually softer than the shells of the testaceous kind, which consist of a single piece, and usually much thicker and stronger than the former; such as those of the oyster, scallop, cockle, &c. See **TESTACEOUS animals**.

Dr. Woodward observes, in his *Natural History*, that of all the shells found in beds of all the different matters dug out of the earth, there are scarce any of the *crustaceous* kind: the reason he gives for it is, that these being much lighter than the rest, must have floated on the surface at the time of the deluge, when all the strata were formed; and there have corrupted and perished.

CRUSTULA, in *Medical Writers*, the same as *ecchymoma*, in the eye, being a descent of the blood from the arteries into the *tunica conjunctiva*, occasioned by a wound, stroke, &c.

CRUX herrings. See **HERRING**.

CRUYSHAGE, in *Ichthyology*, the name of a fish of the shark kind, somewhat approaching to that strange fish, the *zygæna*, but much less monstrous, its head being only triangular, or something like the figure of a heart, whence Willughby has named it *zygæna affinis capite triangulo*. The eyes are very small, and are placed as in the *zygæna*, at the sides of the head: the mouth is small and triangular, and placed a vast way below the end of the nose, and is furnished with three rows of very small teeth.

CRUZADO, or **CROISADE**, an expedition to the Holy Land.

CRUZADO, or **CRUSADE**, in *Commerce*, is a Portuguese coin, struck under Alphonso V. about the year 1457, at the time when pope Calixtus sent thither the bull for a croisade against the infidels. See **COIN**.

It had its name from a cross, which it bears on one side; the arms of Portugal being on the other.

CRUZITA, in *Botany*, a genus of the *tetrandria digynia* class, with a four-leaved calyx, corolla, and a single seed.

CRY. See **HUE**, **CLAMOR**, **HARO**, &c.

CRYMODES, from *κρως*, cold, in *Medical Writers*, a cold shivering fever, but often accompanied with an inflammation of the inner parts.

CRYPTA, a subterraneous cell, or vault; especially under a church for the interment of particular families, or persons.

S. Ciampini, describing the outside of the Vatican, speaks of the *cryptæ* of St. Andrew, St. Paul, &c.

The word is formed of *κρυπτω*, *abscondo*, *I hide*; whence *κρυπτη*, *crypta*.

Vitruvius uses the word *crypta* for a part of a building, answering nearly to our cellar; Juvenal, for a *cloaca*.

Hence *crypta-porticus*, a subterraneous place, arched, or vaulted; used as an under-work, or passage, in old walls.

The same is also used for the decoration at the entry of a grotto.

CRYPTA is also used by some of our ancient writers, for a chapel, or oratory under-ground.

CRYPTA, in *Anatomy*, a name given by Ruysch to **GLANDS** situated at the back of the tongue, and to glands of the intestines.

CRYPTOGAMIA, in *Botany*, a class of plants whose flowers

flowers are either wholly invisible, or scarce discernible by the eye.

The word is formed of *κρυπτος*, *hidden*, and *γαμος*, *marriage*. These are a class of plants whose fructification is concealed, and under it are comprehended those plants which either flower, as is generally supposed, within the fruit, or have the organs of their fructification so minute as to escape our observation. This class comprehends four orders, viz. the *filices*, or ferns, the *musci*, or mosses, the *algæ*, or flags, and the *fungi*, or mushrooms. See *Tab. I. of Botany, Cryptogamia*; and *Tab. II. Filices*, &c.

CRYPTOGRAPHY, the art of secret writing, or writing in CIPHER. See **DECIPHERING**.

The word is compounded of *κρυπτω*, *I hide*, and *γραφω*, *I describe*.

CRYSTALS, in *Natural History*, are defined to be hard, pellucid, and naturally colourless bodies, of regularly angular figures, composed of simple not filamentous plates, not flexible nor elastic, giving fire with steel, not fermenting in acid menstrua, and calcining in a strong fire. They possess the general properties of the earths called vitrifiable. Most of the coloured crystals are fusible by a violent fire; and probably derive both their colour and fusibility from their metallic substances.

The word comes from *κρυσταλλος*, *glacies*, formed of *κρυ*, *frigus*, and *ελλω*, *conireſco*; because of its resembling ice.

The ancients were but little acquainted with the nature of *crystal*. Pliny speaks of it as hardened petrified water, which was the popular opinion of those days; but experience has shewn us the contrary; for by a chemical analysis, instead of resolving into water, it yields nothing but a calx, earth, and salts.

For the places where it is found, Pliny adds, that he has seen it dug from off the highest and roughest rocks of the Alps; whence, doubtless, its name of *rock-crystal*. It is sometimes also found in brooks and rivers, but not formed there; only washed down thither from the mountains by the violent rains.

Several mountains of Europe, and some of Asia, produce *rock-crystal*. If we may believe the French relation of Madagascar, that island yields more than all the world beside.

Its perfection consists in its lustre and transparency; that with straws, dust, clouds, &c. is little valued.

This class of bodies is arranged into three distinct orders, and under those into nine genera.

Of the *first order*, are the perfect columnar crystals, with double pyramids, composed of eighteen planes, in an hexangular column, terminated by an hexangular pyramid at each end. See *Tab. Fossils, Class 3*.

Of the *second order*, are the perfect crystals, with double pyramids, and without a column. These are composed either of twelve or sixteen planes, in two hexangular pyramids, joined closely base to base, without the intervention of any column.

Of the *third order*, are the imperfect crystals, with single pyramids. These are crystals of the common kind, and are composed either of ten or twelve planes, in an hexangular or pentangular column, affixed irregularly at one end to some solid body, and terminated at the other by an hexangular or pentangular pyramid. There are several genera in each order.

Adding to these regular genera the accidental varieties of crystals, owing to the admixture of metaline particles, influencing their shape as well as colour; the three principal of which are those impregnated with lead, iron, and tin; the first cubic, the second rhomboidal, and the last quadrilateral pyramids, without columns; we have the whole series of the figured crystals: the first of these are called *molybdia*, the second *fideria*, and the third *caſſiteria*. Beside all these, crystal is also sometimes found in a pebble-like form, which is an accidental variety, like those in the crystallizations of salts, where many concretions entirely want their naturally angular form. It is cut, or engraved, in the same manner, with the same instruments, and by the same workmen, as diamonds. See **DIATRATA**.

The origin and formation of crystals, as to the time and manner of them, deserve a very nice enquiry, since many of the more compound fossile bodies are principally composed either of crystal, or spar, a body in many things resembling it; and the ascertaining the great question, whether it was all formed at one time, and that long since, or does continue to be formed at this day, will so far also ascertain the time of the coalescence of those other bodies, of which it is the basis.

The original coalescence and formation of those bodies of which spar is the basis, we well know may have been but of yesterday, since we have evident proofs, that spar is concreting to this day, and that sparry bodies are form-

ing every moment. This is evident from the sparry *stalactitæ* in the arches of modern buildings, particularly in one so lately built as the new bridge at Westminster, the roofs of the arches of which were filled with these spars within a year after the arches were built; and there are evident proofs, that spars are not made of matter endued from the stone, since brick arches equally abound with them; and the brick vault which supports part of the grand terrace at Windsor, has been so full of them, that there was not room to walk.

From these observations, as also those of the sparry incrustations round vegetable, and other bodies in springs, and at the bottoms of our tea-kettles, which are all incruſted with it, we have evident proof, that sparry bodies are formed to this day, but we have no such clear evidence of the present growth of crystal.

The subject of enquiry, therefore, may be reduced to a narrow compass; and all that experiments have to determine is, 1. Whether crystal or spar are at this time found suspended in water, in imperceptible particles, or whether they are not; and, 2. If they are thus suspended, whether they are or are not capable of being raised in vapours.

The substance encrusting tea-kettles, &c. is found to be a genuine spar, with a greater or less admixture of earth, and is wholly the same with the encrustations on vegetables in springs, &c. Here, therefore, is a proof of spar and earth being suspended in common water, but none of crystal. This was alone to be determined by repeated and cautious distillations. In distilling the water of the same spring, with different degrees of fire, a different quantity of matter was found left at the bottom of the vessel. It appeared hence, that in a greater degree of heat, a great part of the matter had been raised in vapour, and the remainder, on trial, always proved to be only spar and earth. Here were, therefore, both the questions answered in the affirmative, in regard to spar, viz. that it is continually suspended in water, and may be raised in vapour. The water of these distillations being returned into the cucurbit, and redistilled, leaves a second sediment in small quantity, and of a whiter colour. This being examined according to the known laws of fossils, proves to be part spar, and part crystal, an undissolved powder remaining from it, after pouring on aqua fortis to take up the spar; and this, in all tests, appearing to be true and perfectly pure crystal. A third distillation of the same water, produced not the least residuum. Hence, therefore, it is evident, that crystal as well as spar, is continually suspended in water, and may be raised in vapour, and separated by no other agent than heat. And hence the conclusion is plain, that crystalline as well as sparry bodies may be, and doubtless, are continually formed in the earth to this day. Hill's Hist. of Fossils, p. 157.

Crystals are probably formed by the accession of crystalline or saline particles, which are diffused through the whole globe, and mixed in some degree with most strata; these particles being gradually carried along by the moisture or vapours which soak through the pores, till they come to some cavity, where their progress is obstructed, and they collect together in drops, and, by their mutual attraction, form crystalline bodies. By the accession of more particles, their pores are diminished, and they gradually increase in transparency; agreeably to the hypothesis of sir Isaac Newton, that the transparency of bodies is occasioned by the minuteness of their pores, and their opacity by the largeness of the pores. Phil. Trans. vol. lvii. p. 61.

Having thus from experiments gone through the history of what may be the origin of many of the crystalline bodies we daily meet with, it remains to say something of their form.

The perfect regularity of the figures of crystals, cannot but be the effect of some fixed, permanent, and invariable cause; these being ever, unless altered by accidents, which rarely happen, the very same in the same genus.

Signior Lana, who had an opportunity in the Val-sabbia, of seeing many of the perfect double-pointed kinds, imagined that they owed their origin to dews congealed by nitrous exhalations. Rohault imagines the figure of common crystal the effect of six drops of water thrown together.

Others are for its being formed of radiations; others, from all its parts being like the whole; and others from the mutual tendency of the parts of it toward the same centre. But all these the laws of action in matter, and the structure of crystal in the several species, easily shew to be erroneous.

Many think they have solved all difficulties, when they say that crystals are salts; but we know no more of the true

true cause of the figure of salts, than we do of those of *crystals*. And it is to be added, that if *crystals* are salts, then salts are something else from what we have been taught to think they are, *crystals* by no means answering to the definitions given us of them by authors. As we yet know so little of the causes of the regular crystallizations of salts, why are we to suppose no other bodies but salts capable of such crystallizations.

Henkel, a very accurate chemist, gives us a remarkable account of the formation of *crystal* out of human urine, which seems so strange, that it would have been despised had it come from an author of less credit; and as it is, will require repeated experiments to convince the world there was no error in the case. He tells us, that he once filled a large round glass vessel half way up, with the recent urine of a young lad, and tying a bladder over the mouth of the vessel, he set it in a stove for four years together, never stirring it during that whole time. At the end of this time he found a number of small white stones growing to the inside of the glass; they were of the size of an oat seed, of a prismatic figure, and tolerably pellucid, they stuck so fast to the sides of the glass, as not to be washed off by the shaking about of the urine, and, when taken out, had no salt taste, and were not soluble, even in hot water. Act. Erudit. ann. 1720, p. 272.

When any piece of workmanship in *crystal* is become foul and dark, the method of recovering its lustre without hurting its polish, is this: mix together six parts common water, and one part brandy; boil these over a brisk fire, and let the *crystal* be kept in it, in a boiling state, a quarter of an hour; then take it out, and rub it carefully over with a brush dipped in the same liquor; after this, it is not to be left to dry, of itself, but to be wiped with a clean napkin, and its surface will by this means be perfectly cleaned, and rendered as bright as at first, without that injury to the points of the cutting, or to the surfaces of the planes or facets, which would naturally have been the consequence of doing it by mere rubbing or wiping.

Natural *crystal* may be reduced, by calcination, into the state of the bodies proper for making glass with alkaline salts, and makes a most fine and valuable FRITT. The method of doing it is this: calcine natural *crystal* in a crucible; when it is red-hot, throw it into cold water to quench it; repeat this eight times, covering the crucible, that no dust or ashes may get in and mix with the *crystal*; dry this calcined mass, and reduce it to an impalpable powder; mix three pounds of this powder with two pounds of pure salts of pulverine, or with a quarter of a pound of red lead, and with these make fritt, and with the proper quantity of manganese, or other tinging substance; wash this often in cold water, and after a proper time, work it; it will yield a most beautiful GLASS. Some have pretended to colour *crystals* by thus fusing them, and imparting the various tinges to them, while in a melted state. But as they cannot be fused by the heat of furnaces, without the medium of some fluxing body added to them, their texture and properties are so changed, or rather the glass produced by the composition is so different from the *crystal* itself, that there does not appear to be any advantage in employing rock *crystal* in such a composition preferable to flints. Hand. Arts, vol. ii. p. 327.

Natural *crystal* may be coloured of several colours, without melting or running it into glass, in the following manner. Take a number of pieces of fine, clear, and pure *crystal*, of various sizes, of white arsenic, and yellow orpiment in powder, of each two ounces; sal ammoniac, one ounce; powder this also, and mix them well together; put this powder into a strong crucible; and lay upon it the pieces of *crystal* in their natural state, then cover this crucible with another, mouth to mouth; lute them well, and when the lute is dry, set them in coals, which kindle by little and little; and when they begin to fire, let them kindle of themselves, and they will then smother very much. Let this be done in a large chimney, taking care to avoid the fumes. When it fumes no more, let the fire go out of itself, and let all stand till cool; then unlute the crucibles, and take out the *crystals*; those at top will be coloured to a fine yellow, with a deep and pale red, the colours of the common fine and balass ruby, with beautiful spots; and those which are at the bottom upon the powder, will be of a watery colour, mottled like that of the viper. This *crystal* comes out so fair from this process, that it may be cut as a gem; and though many are spoiled, yet, in making a large quantity, there are always some fair and perfect. Neri's Art of Glass. p. 117. See DOUBLETS, and OPAL.

Baptista Porta directs to colour *crystals* by keeping them immersed for four or five hours in a melted mixture of sulphur, crude antimony, orpiment, arsenic, and tutty.

In these operations, the *crystals* seem to imbibe some of the vapours of the metallic substances; though the method of giving colours to *crystals* by cementation seldom or ever fairly succeeds.

CRYSTALS, *improper*, a term introduced into the world by Dr. Coppel, in his Prodomus Crystallographiæ, to distinguish bodies which have the figure of *crystals*, but are not such, from the proper or true genuine *crystals*.

In proper *crystals* are, according to this author, such bodies, either stones, metals, or salts, as have any resemblance to true *crystal*, either as to their multangular, regular, or irregular figure; as to their pellucidity, or any other of their essential properties. As the number of these bodies is very extensive, it was a work of great accuracy to arrange them into any sort of order; but this is one of the principal attempts of the author. Among the first class of improper *crystals*, that is, such as are stones, come all those gems which have any determinate figure, as the diamond, emerald, amethyst, and the like. To the second belong all sorts of regularly figured, metalline bodies, such as *pyrites* and marcasites, as also those ores of silver, where the native metal has assumed some regular form; as when this or any other metal shoots, in its natural bed, into the form of a tree or the like.

Under the third class of improper *crystals*, including the salts, come in all the chemical preparations of salt and saline bodies. The figure in this class is more determinate and accurate than in either of the former classes of bodies. See Tab. Crystallization of Microscopical Objects. We are happy enough to have at present much better arrangements of FOSSILS than this.

CRYSTAL, *pebble*, a species of petridia. See PETRIDIA.

CRYSTAL, *prepared*, a term among the makers of counterfeit gems, for a powder of natural *crystal*, made for their purpose. The manner of preparing it is as follows: take the purest and clearest natural *crystal*, put it into a crucible covered at the top, set it among burning coals; let the *crystal* be made red-hot, then plunge it into a large vessel of cold water. When the *crystal* is cold, put it into the fire again, heat it red-hot, and quench it again; and repeat this operation twelve times, carefully keeping ashes or any other foulness out of the crucible. When the calcination is finished, the *crystal* will be brittle and crumbly, powder it, and levigate it on a porphyry to an impalpable powder. This powder must be made perfectly fine, otherwise the gems made with it will be all foul and coarse, and no brass or copper vessels must be used about the operation. If the *crystal* should be powdered in a brass or bell-metal mortar, there could be no gem, but an emerald, ever be made of it, from the quantity of copper it would take up in the powdering. When carefully prepared, it receives all the colours of the gems, by proper additions, and affords a mass softer indeed, but not less bright and pellucid, or not less beautifully tinged than the finest of the oriental gems. Neri's Art of Glass. p. 125.

CRYSTAL, *rock*, otherwise called *spring-crystal*, in Natural History, a name given to the third order of *crystals*, from their being affixed to a rock, or other solid body.

This kind of *crystal* is the most common of all others, and is what the generality of authors describe under the name of *crystal of the shops*, being that kept for medicinal purposes.

The clearest, purest, and most transparent that can be had, ought to be chosen; and to prove its genuineness, it may be tried with aqua fortis, true *crystal* making no effervescence with that menstruum.

CRYSTAL, in Medicine, has many virtues attributed to it, being esteemed an astringent and lithontriptic; hence it has been given in diarrhoeas, the fluor albus, and in cases of gravel in the kidneys. Its dose is a scruple, or half a dram, being first reduced to a fine powder, by repeated calcinations, and extinctions in cold water.

Many are afraid of the use of these stony medicines, in nephritic cases. The objection against spar will hold good against *crystal*; but there wants sufficient proofs to determine this point. In general, however, SPAR is an alkali, which *crystal* is not.

Crystal has been recommended by some, as a dentrifice, and there is no doubt of its cleaning the teeth; but, like other hard bodies, it is apt to wear away their enamel, and thereby subject them to decay.

CRYSTAL is also used for a factitious body, cast in the glass-houses, called also *crystal-glass*.

It is, in effect, glass; but carried, in the melting, and in the matter whereof it is composed, to a degree of perfection beyond the common glass. It is similar in appearance to the whitest and most transparent natural *crystal*, though much less hard, and more fusible.

The best artificial *crystals* are said to be those made at Moran, near Venice; called *Venice crystals*.

CRYSTALS,

CRYSTALS, in *Chemistry*, express salts, or other matters, shot, or congealed, in manner of *crystal*. See **CRYSTALLIZATION**. Thus,

CRYSTAL of alum, is alum purified, and reduced into *crystals*, in the same manner as tartar. In like manner are vitriol, nitre, and other salts, *crystallized*.

Crystals of alum are quadrangular, and brilliant, like diamonds; those of nitre, white, and oblong; those of vitriol, green, angular, and shining. See **SALT**.

CRYSTAL, or **CREAM of tartar**, is tartar purified and dissolved, and again coagulated in form of *crystals*.

To prepare it, they boil tartar in water, skim it, and strain it; when cool, there are formed little white shining *crystals*, at the edges; as also a pellicle, or cream swimming a-top.

The cream and *crystals* were anciently supposed to be different; but are now found the same thing.

Crystal of tartar is esteemed purgative, and aperitive; proper in hydropical and asthmatical cases, and in intermitting fevers.

CRYSTAL of tartar chalybeated, is when it is impregnated with the most dissoluble parts of iron.

CRYSTAL of tartar emetic, is when it is charged with the sulphureous parts of antimony, to render it vomitive.

CRYSTAL mineral, called also *mineral anodyne*, and *sal prunella*, is nitre detonated with sulphur, thus: put a pound of nitre in a crucible, and set that in a furnace; and when the nitre is in fusion, let it be detonated with a dram of sulphur; in which it is to be agitated, whilst in a fluid state, that it may fix in the form of cakes, or tablets. After the flame is over, invert the crucible into a brass or copper basin.

This is esteemed good against the squinancy, when its name of *sal prunella*; *pruna*, or *prunella*, expressing that disease. It is cooling, sedative, aperitive, and diuretic.

CRYSTALS of silver, or *luna*, denote silver penetrated and reduced into the form of salts, by the strong acid of spirit of nitre; or by a solution in a weaker acid, if the liquor be left to cool, and the water to evaporate. These *crystals* are white, flattened like thin scales, and not very hard.

It is used for making eschars, by applying it to any part: it is also of use internally, in dropsies, and diseases of the brain; though its corrosive qualities seem to render it unfit for this latter purpose.

Mr. Boyle commends it highly in this view; and proposes a method of rendering it mild, which is not likely to prove effectual; and therefore its use in medicine is not yet established. Macquer.

CRYSTALS of Mars, called also *salt*, or *vitriol of Mars*, is iron reduced into a salt by an acid liquor; used in diseases arising from obstructions.

CRYSTALS of Venus, or of *copper*, called also *vitriol of Venus*, is copper reduced into the form of **VITRIOL** by spirit of nitre, or by dissolving verdegrise in good distilled vinegar, till the acid be saturated; it is very caustic, and used to eat off proud flesh. It is also used by painters, and manufacturers, and sold under the name of *distilled verdegrise*. It is also called *radical VINEGAR*.

CRYSTAL of Iceland, or *Iceland*, a transparent fissile stone, brought from Iceland, soft as talc, clear as rock-crystal, and without colour; famous among optic writers for its unusual refractions.

It is there found in great abundance all over the country, but is particularly plentiful in a mountain not far from the bay of Røezfiord, where the finest and most pellucid pieces are found on digging. The mountain lies in sixty-five degrees latitude, and has its whole outside made up of it; but, though this makes a very bright and glittering appearance, it is not so fine as that which lies at a little depth, and is met with on opening the surface. This is generally taken up out of the earth in masses a foot long, and its corners very frequently are terminated in these large masses, by a sort of *crystals*, very different in figure and qualities from the rest of the mass. The stone itself is of a parallelopiped figure; but these excrescences are either single pyramids, affixed to columns, like common *crystal*, or double pyramids, with or without columns between. The stone itself is soft, these are hard, and cut glass; the stone calcines to lime in the fire, these run into glass; in short the stone itself is true spar, and these are true *crystal*: beside these, there sometimes grows out of the ends of the larger masses a pure fine asbestos. This likewise is the case sometimes in the spar found about Barege in France, and shews how nearly together the formation of bodies, wholly different from one another, may happen. The general figure of the stone is parallelopiped; or, as some express it, rhomboide; and it retains this not only while whole, but also when broken to pieces. Every fragment it naturally falls into, though ever so small, being truly of that shape.

But it is remarkable, that in some places of this mountain, the same sort of matter is found in form of triangular pyramids, all which have the same property of the double refraction with the parallelopeds of the same substance; so that the original error of supposing its qualities owing to its shape, is refuted by this, as well as by the trials made with other pellucid bodies of the same figure, which do not shew this remarkable property. Phil. Transf. N^o 67.

The *Iceland crystal* is electrical, and when rubbed will draw up straws, feathers, and other light substances, in the same manner that amber does.

The vast masses of white spar which are found in the lead mines of Derbyshire, though they are not externally of the parallelopiped figure of the *Iceland crystal*, nor have any thing of its brightness or transparency in the general lump; yet, when they are broken, they separate into rhomboidal fragments, and some of these are found to be tolerably pellucid: all those which are so, have the property of the *Iceland crystal*; and being laid upon paper, where a black line is drawn, they all shew that line double in the same manner as the real *Iceland crystal* does.

Iceland crystal bears a red heat without losing its transparency; and, in a very intense heat, calcines without fusion: steeped a day or two in water, it loses its natural polish.

It is very soft, and easily scratched with the point of a pin; it will not give fire on being struck against steel; and ferments, and is perfectly dissolved in aqua fortis. It is found in Iceland, from whence it has its name; and in France, Germany, and in many other places. In England, fragments of other spars are very often mistaken for it, many of them having, in some degree, the same property.

It has none of the distinguishing characters of *crystal*, and is plainly a genus of spars, called, from their figure, *parallelopipedia*, which, as well as some other bodies of a different genus, have the same properties. Bartholine, Huygens, and sir Isaac Newton, have described the body at large, but have accounted it either a *crystal* or a talc; errors which could not have happened, had the criterions of fossils been at that time fixed; since sir Isaac Newton has recorded its property of making an ebullition with aqua fortis, which alone must prove that it is neither talc nor *crystal*, both those bodies being wholly unaffected by that menstruum.

It is always found in form of an oblique parallelopiped, with six sides, and is found of various sizes, from a quarter of an inch to three inches or more in diameter. It is pellucid, and not much less bright than the purest *crystal*, and its planes are all tolerably smooth, though when nicely viewed, they are found to be waved with crooked lines made by the edges of imperfect plates. What appears very singular in the structure of this body is, that all the surfaces are placed in the same manner, and consequently it will split off into thin plates, either horizontally or perpendicularly; but this is found, on a microscopic examination, to be owing to the regularity of figure, smoothness of surface, and nice joining of the several small parallelopiped concretions, of which the whole is composed, and to the same cause is probably owing its remarkable property in refraction. Hill. See **PARALLELOPIPEDIA**.

The phenomena of this stone are very remarkable, were first suggested by Bartholin, and have been examined with great accuracy by M. Huygens, and sir Isaac Newton. 1. Whereas in other pellucid bodies there is only one refraction, in this there are two; so that objects viewed through it appear double.

2. Whereas in other transparent bodies, a ray falling perpendicularly on the surface, passes straight through, without suffering any refraction; and an oblique ray is always divided; in *Iceland crystal*, every ray, whether perpendicular or oblique, becomes divided into two, by means of the double refraction. One of these refractions is, according to the ordinary rule, the sine of incidence out of air into *crystal*, being to the sine of refraction as five to three; but the other is perfectly new. The like double refraction is also observed in *crystal of the rock*, though much less sensibly.

When an incident ray is thus divided, and each moiety arrives at the farther surface, that refracted in the first surface after the usual manner, is refracted entirely after the usual manner at the second; and that refracted in the unusual manner in the first, is entirely refracted after the like manner in the second; so that each emerges out of the second surface, parallel to the first incident ray. Again, if two pieces of this *crystal* be placed over each other, so that the surfaces of the one be parallel to the corresponding ones of the other; the rays refracted in the usual manner in the first surface of the first, are refracted after

after the usual manner in all the other surfaces; and the same uniformity appears in the rays refracted after the unusual manner; and this in any inclination of the surfaces, provided their planes of perpendicular refraction be parallel.

From these phenomena Sir Isaac Newton infers, that there is an original difference in the rays of light: by means whereof some are, here, constantly refracted after the usual manner; and others in the unusual manner. Were not the difference original, and did it arise from any new modifications impressed on the rays at their first refraction, it would be altered by new modifications in the three following ones; whereas, in fact, it suffers no alteration at all.

Again, he hence takes occasion to suspect, that the rays of light have several sides, endued with several original properties; for it appears from the circumstances, that these are not two sorts of rays differing in their nature from each other, one constantly, and in all positions, refracted in the usual, and the other in the unusual manner; the difference in the experiment mentioned, being only in the position of the sides of the rays, to the plane of perpendicular refraction. For one and the same ray is refracted sometimes after the usual, and sometimes after the unusual manner, according to the position of its sides to the *crystal*: the refraction being alike in both when the sides of the rays are posited the same way to both, but different, when different.

Every ray, therefore, may be considered as having four sides, or quarters: two of which, opposite to each other dispose the ray to be refracted after the unusual manner; and the other two in the usual. These dispositions, being in the rays before their incidence on the second, third, and fourth surfaces; and suffering no alterations, for what appears in their passage through them, must be original and connate.

Father Beccaria corrects the observations of Huygens and Newton concerning the refraction of rock or mountain *crystal*. The double refraction of the latter happens, when a ray passes through two sides that are inclined to each other, and consequently issues coloured; whereas that of the Iceland *crystal* is made by the passage of a ray through two parallel sides, and therefore it issues colourless. He suggests, that there may be other substances, in which there is a manifold refraction. s'Gravesande had a prism of Brasil pebble, which had a double refraction at each angle, but of a different kind from one another. Phil. Transf. vol. lii. part ii. p. 487, &c. Mr. B. Martin prepared several prisms of Iceland *crystal*, which exhibited not only a double but a multiple refraction. A single prism produced a six-fold refraction; and by combining several prisms, a number of refractions was obtained equal to the product of those of the single prisms; i. e. a prism which afforded two images applied to one of six, produced a prism of twelve images, &c. He farther observes, with respect to Iceland *crystal*, that though the sides of its plane of perpendicular refraction be parallel to one another, a beam of light transmitted through them will not be colourless; in which property it differs from all other known substances. See Martin's Essay on Iceland Crystal, or Priestley's Hist. of Vision, period vii. § 8. p. 548, &c.

CRYSTALLI, among *Physicians*, denote pustules dispersed all over the body, white and transparent, and of the bigness of a lupine: much the same with what are otherwise called *phlyctenæ*.

CRYSTALLINE humour is a thick, compact humour of the eye, in form of a flatish convex lens, situate in the middle of the eye: serving to make that refraction of the rays of light, necessary to have them meet in the retina, and form an image thereon, whereby vision may be performed.

The *crystalline* is set in the anterior part of the vitreous humour, like a diamond in its collet; and is retained there by a membrane which surrounds it; and which, for that reason, is called the *capsula of the crystalline*.—This membrane is sometimes also called *crystalloides*; and by others, on account of its fineness, which resembles that of a spider's web, *arachnoides*.

It is the configuration of the *crystalline* that occasions persons to be either *myopes*, or *presbytes*: i. e. to be either long, or short-sighted; a discovery first suggested, and proved by Maurolycus of Messina, in a treatise, De Lumine & Umbra, published in 1575. Bapt. Porta thought that this humour was the principal seat of vision.

The *crystalline* being of two consistences, outwardly like a jelly, but toward the centre as hard as salt: hence some authors think, that its figure may be varied; which variation they suppose to be effected by the ligamentum ciliare. Hence, Dr. Grew, and others, ascribe to the ciliary ligament a power of making the *crystalline* more convex, as well as of moving it to or from the retina:

accordingly, by the laws of optics, something of this kind is absolutely necessary to distinct vision: for, as the rays from distant objects diverge less than those from nigh ones; either the *crystalline humour* must be capable of being made more convex, or more flat; or else there must be an elongation of the eye, or of the distance between that and the retina.

The *crystalline humour*, when dried, appears to consist of a vast number of thin, spherical laminæ, or scales, lying over one another. Leewenhoeck reckons there may be two thousand of them in one *crystalline*: each of these he says, he has discovered to consist of a single fibre, or fine thread, wound up in a stupendous manner, this way and that, so as to run several courses, and meet in as many centres; and yet not interfere nor cross in any place. Phil. Transf. N° 165, and 293.

The vessels of the *crystalline humour* of the eye are all the branches of an artery, which being sent off from the artery which enters at the central part of the retina, passes through the vitreous humour, and when it reaches the *crystalline*, disperses its branches along the surface of the lens like radii, till they are exceeding minute, when they pierce into its substance. Med. Ess. Edinb. vol. i. p. 337.

M. Petit, the physician, has many minute observations and experiments on the colour, consistence, measure, weight, &c. of the *crystalline humour* of the eye, and its *capsula* in different animals: but his observations are so numerous that we can only take notice of some of them. He observed, that in serpents and fishes the *crystalline* is nearly spherical, whereas in all other animals which he examined it was lenticular, the anterior surface being less convex than the posterior.

This humour hardens with age, and is not so hard in men as in birds, quadrupeds, and fishes; its hardness increasing in the order here expressed.

He also observes, that the *crystalline* changes colour with age, becoming gradually more and more tinged with yellow after the age of twenty-five years, in proportion to its hardness.

He shews, in confirmation of Leewenhoeck's discovery, that the *crystalline* consists of concentric laminæ: he always found the capsula transparent, and denies any connection between this membrane and the *crystalline*, or that there are any vessels going from the one to the other; but affirms that the *crystalline* is nourished by absorbing the lymph lodged between it and its capsula.

But Albinus discovered this to be a mistake; and that, on the contrary, it is connected with the capsula by means of several vessels, which, passing through small perforations in the capsula, are inserted at the extremities of it, and spread along the back part of it; and that it receives its nourishment by vessels, which are the branches of the central artery passing through the vitreous humour, and divided into several branches in the back part of the capsula, and transmitted to the interior parts of the *crystalline*, by which it is also suspended.

Dr. Porterfield has accounted for the greater central hardness of the *crystalline*; as the rays of light, which fall near its axis, and would consequently be less refracted than those that fall more obliquely nearer the extremities, have hereby their refraction increased, and are made to converge and meet with those at the same point with those that pass through it nearer its edge.

When the *crystalline* or vitreous humours are fallen out of the eye, it is easy to conceive, that not only the sight, but the figure of the eye, must be entirely destroyed; therefore, an accident of this kind must at first be dressed with compresses dipped in warm wine, or spirit of wine, and afterwards with some vulnerary balsam. But it sometimes happens, when only the *tunica albuginea*, and sclerotica, are slightly wounded, the cornea and uvea remaining unhurt, that the eye recovers itself: and though both the vitreous and *crystalline* humours fall out by the wound, yet they are renewed again by the efficacy of nature, and the office of sight performed as well as before the injury happened. Heister.

The *crystalline* is the subject of the disease called a **CATARACT**, and the operation of **COUCHING**. See **EYE**.

CRYSTALLINE heavens, in the *Old Astronomy*, two orbs imagined between the *primum mobile* and the firmament, in the Ptolemaic system, where the heavens were supposed solid, and only susceptible of a single motion.

King Alphonsus of Arragon is said to have introduced the *crystallines*, to explain what they called the *motion of trepidation*, or *titubation*.

The first *crystalline*, according to Regiomontanus, &c. serves to account for the slow motion of the fixed stars; which makes them advance a degree in seventy years, according to the order of the signs, viz. from west to east; which occasions the precession of the equinox.

The second serves to account for the motion of libration,

or trepidation; whereby the celestial sphere librates from one pole towards another, occasioning a difference in the sun's greatest declination.

But the moderns account for these motions in a much more natural and easy manner.

CRYSTALLINE *arsenic*. See ARSENIC.

CRYSTALLIZATION, in *Chemistry*, a kind of congelation befalling essential, fixed, and volatile salts: when, being set free from the greatest part of their humidity, they are left to harden, dry, and shoot into crystals.

The term has been extended to denote any regular arrangement of the parts of a body which is capable of it, whether the aggregate masses be transparent or not. Opaque stones, pyrites, and minerals, when regularly formed, are said to be crystallized, as well as transparent stones and salts. Ice is a true *crystallization*, formed of long needle-like masses, flattened on one side, and joined together in such a manner, that the smaller are inserted into the sides of the greater; making, as M. Mairan has observed, constantly the same angle, i. e. either 60° , or 120° . Melted metals, and other bodies, which become solid after fusion, assume a regular arrangement, whenever they are cooled slowly enough for that purpose; and thus all kinds of earths, and metallic and mineral matters, whose integrant parts swim separately in water, are *crystallized*, by slowly evaporating the watery fluid that separates their parts, and allowing them to approximate and unite by the most suitable sides, forming masses of a determinate figure. See CRYSTAL, *Rock*.

The ordinary method of *crystallization* is performed by dissolving the saline body in water, filtering it, and letting it evaporate slowly, till a film appears at the top; and lastly, letting it stand to shoot.

Crystallization may also be effected by the application of cold to the water suspending the salt. As most salts are dissolved more easily, and in greater quantity, by hot than cold water it is plain, that if the water is suffered gradually to cool, the portion of salt, which was dissolved merely by the heat of the water, will be collected and crystallized; and the crystals will be both larger, and more regular, as the water cools the more slowly. Another method of *crystallizing* salts, is by adding to a solution of salt, a substance which has no action on that salt, but which has a greater affinity with the water: and this will serve to take away from the salt a portion of water, which keeps it dissolved. Spirit of wine will answer this purpose with regard to many salts.

This shooting is accounted for, on sir Isaac Newton's principles, from that attractive force which is in all bodies, and particularly in salt, by reason of its solidity: whereby, when the menstruum or fluid, in which such particles float, is fated enough, or evaporated (which brings it to the same), so that the saline particles are within each other's attractive powers, and can draw one another more than they are drawn by the fluid, they will run into *crystals*.

This is peculiar to SALTS; that, let them be ever so much divided and reduced into minute particles, yet, when they are formed into *crystals*, they each of them re-assume their proper figures; so that one might as easily divest and deprive them of their saltiness, as of their figure. See VEGETATION of *salts*.

Saline *crystals* retain part of the water with which they were united in solution: and to this they owe their form, transparency, and even the cohesion of their parts. This is called by chemists *the water of crystallization*; the quantity of it varies in different salts, being greater or less, as the acid in them is less or more firmly combined with its basis. M. Baumé has discovered, that, when the *crystallization* is properly conducted, this water is perfectly pure, without the mixture of any substance foreign to the crystallized salt.

This being an immutable and perpetual law, by knowing the figure of the *crystals*, we may understand what the texture of the particles ought to be, which can form those *crystals*: and, on the other hand, by knowing the texture of the particles, may be determined the figures of the *crystals*.

For since the figures of the most simple parts remain always the same; it is evident, that the figures they run into, when compounded and united must be uniform and constant; and since the force of attraction may be stronger on one side of a particle than on another, there will consequently be a greater accretion of salts upon those sides which attract more strongly; from which it may easily be demonstrated, that the figure of the least particles is entirely different from that which appears in the CRYSTAL. See Macquer's Chem. Dict.

A great number of pigments or colours are obtainable by *crystallization* from metalline bodies; but these are subject to corrode and eat the canvas, &c. and are not capable

of washing, by which some naturally corrosive colours are rendered mild and harmless. The blue and green vitriols, or *crystals* of copper, cannot be deprived of their aqueous, or saline parts, by a dry air, or by washing, without suffering extreme alterations, or being left in the form of a dry, gross, terrestrial matter, differently coloured from what they were before; and thus the fine green *crystals* of iron, being exposed to the air, become white; and when well washed in water, lose their greenness, and turn to a reddish, or yellow, ochreous earth; and if deprived of their saline and aqueous parts, by a strong distillation, they leave behind a brown, or red caput mortuum, which being washed in water, affords not a green, but a brown-coloured pigment; and as this holds proportionably of other colours obtained by *crystallization*, there are little hopes of procuring durable pigments by this operation, which shall be of the same colour with themselves, though, after washing, some other colours may be thus procured. Shaw's Lectures, p. 187.

CRYSTALLOIDES, the crystalline coat of the EYE; a fine membrane, immediately encompassing, and containing the crystalline humour; and supposed to serve, by constringing or dilating that humour, to vary the place of its focus.

Anatomists are divided about the reality of such tunic, which is also, from its fine texture, called *arana tunica*, or *arachnoides*.

CRYSTALLOMANCY, the art of divining, or foretelling, future events, by means of a mirror; wherein the things required are represented.

It is also called catoptrromancy. The first from *κρυσταλλος*, *congealed water*, or *crystal*; and the second from *κατοπτρον*, *mirror*, and *μαντεια*, *divination*.

CRYSTALLUS *lapis*, a word used by some of the old authors, not in the express sense in which we now make it signify *rock crystal*, but as a general term for all pellucid stones. Some extend it even to the facitious, as well as the natural gems.

CRYSFINE, a silver coin in Sweden, equal to fourteen sols and eleven deniers French. They have also *demi-crysfines*.

CTENIA, or CTENOIDES, names sometimes given to those pectens which have one of their shells very convex. See PECTEN.

CUANDA, in *Zoology*. See PORCUPINE.

CUB denotes a bear's whelp; a fox and martin of the first year are also called by this name.

CUBA, in *Mythology*, a goddess among the Romans, thus called from *cubo*, *I lie down*, who was invoked, in order to make children sleep.

CUBATURE, or CUBATION, of a solid; the measuring of the space comprehended in a solid; as a cone, pyramid, cylinder &c. or finding the solid content thereof. The *cubature* regards the content of a solid, as the quadrature does the superficies of a figure: so that the *cubature* of the sphere turns on the same thing as the quadrature of the circle.

CUBBITTING, in *Farriery*, a vice of horses, consisting in their catching hold of the manger, sucking in the air, and wallowing it down in such large quantities that they are ready to burst. No method has yet been devised of curing this vice.

CUBBRIDGE-heads, in *Ship-Building*, is sometimes used for the bulk-heads of the fore-castle, and the half-deck: the first being called the *cubbridge-head before*; the other the *cubbridge-head abaft*.

CUBE, in *Geometry*, a regular or solid body, consisting of six square and equal faces, or sides; and its angles all right, and therefore equal.

The word comes from *κὺβος*, *testera*, *die*.

The cube is also called *hexædron*, because of its six sides. The cube is supposed to be generated by the motion of a square plane, along a line equal to one of its sides, and at right angles thereto: whence it follows, that the planes of all sections, parallel to the base, are squares equal thereto; and, consequently, to one another.

To describe a rate, or net, whence any given cube may be constructed, or wherewith it may be covered. On the right line AB (*Tab. Geometry*, fig. 11.) set off the side of the cube four times: on A erect a perpendicular, AC, equal to the side of the cube AI, and complete the parallelogram ACDB: with the interval of the side of the cube, in the line CD, determine the points K, M, and O; lastly, draw the right lines, IK, LM, NO, and BD, produce IK and LM, each way to E and F, and to G and H; till EI=IK=KF, and GL=LM=MH, and draw the right lines EG, FH.

To determine the surface and solidity of a cube. As the surface of a cube consists of six equal squares, a side multiplied by itself and the product by six, will give the superficies; and the same product, again, multiplied by the side, the solidity.

Hence,

C U B

Hence, if the side of the *cube* be 10, the solidity will be 1000; if that be 12, this will be 1728: wherefore the geometrical perch being 10 feet, and the geometrical feet twelve digits, &c. the *cubic* perch is 1000 *cubic* feet, and a *cubic* foot 1728 *cubic* digits, &c.

Hence, also, *cubes* are in the triplicate ratio of their sides; and are equal, if their sides be so.

CUBE, duplication of *a*. See **DUPLICATION**.

CUBE, scenography of *a*. See **SCENOGRAPHY**.

CUBE, or **CUBIC number**, in *Arithmetic*, is a number arising from the multiplication of a square number by its root.

Thus, if the square number four be multiplied by its root two, the factum eight is a *cube* or *cubic number*; and the number two, with respect thereto, a *cube root*.

Hence, since, as unity is to the root, so is the root to the square; and as unity is to the root, so is the square to the *cube*: the root will, also, be to the square, as the square to the *cube*: that is, unity, the root, the square, and the *cube*, are in continual proportion; and the *cube root* is the first of two numbers that are mean proportionals between unity and the *cube*.

CUBIC numbers, for the composition of. Every *cubic number* of a binomial root is composed of the *cubic numbers* of the two parts of the factum, of thrice the square of the first part into the second, and of the factum of thrice the square of the second part into the first.

Demonst. For a *cubic number* is produced by multiplying the square by the root; but the square of a binomial root is composed of the squares of the parts, and double the factum of one part into the other.

Wherefore, the *cubic number* is composed of the *cube* of the first part, of the triple factum of the square of the first part into the second, and of the triple factum of the square of the second part into the first.

An ocular demonstration of this we have in the following example, where multiplication alone is used. Suppose, v. gr. the root 24, or $20 + 4$.

Here $24^2 = 20^2 + 2 \times 4 \times 20 + 4^2$
 $20 + 4$

$$\begin{array}{r} 4 \times 20^2 + 2 \times 4^2 \times 20 + 4^3 \\ 20^3 + 2 \times 4 \times 20^2 + 4^2 \times 20 \end{array}$$

Then $24^3 = 20^3 + 3 \times 4 \times 20^2 + 3 \times 4^2 \times 20 + 4^3$
 $20^3 = 8000$
 $3 \times 4 \times 20^2 = 4800$
 $3 \times 4^2 \times 20 = 960$
 $4^3 = 64$

$$24^3 = 13824$$

Hence, as the part on the right-hand is placed among units, and that on the left among tens; the *cubic number* of the right-hand part must be put in the right-hand place; the factum of its triple square into the left, in the second place; and the factum of the triple square of the left into the right, in the third: lastly, the *cube* of the left-hand part falls in the fourth place.

If the root be a multinomial, two or more characters on the right must be esteemed as one, that it may have the form of a binomial. It is obvious, that any *cube* is composed of the *cubes* of the several parts of the root, and of the factums of the triple square of any of the left-hand characters into the next on the right; and also of the factums of the triple square of the right-hand characters into all the left. Suppose, v. gr. the root 243; take 240 for one part of the root, three will be the other part; consequently,

$$\begin{array}{r} 240^3 = 13824000 \\ 3 \times 240^2 \times 3 = 518400 \\ 3 \times 240 \times 3^2 = 6480 \\ 3^3 = 27 \end{array}$$

$$243^3 = 14348907$$

The places of the several factums are determined from what was observed above: for regard must here, too, be had to the ciphers to be added to the numbers multiplied by each other, if they be placed alone.

This composition of *cubic numbers* once well conceived, the **EXTRACTION** of *cubic roots* will be easy.

CUBE root, or **CUBIC root**, the origin of a *cubic number*; or a number by whose multiplication into itself, and again into the product, any given number is formed.

The *extraction of the cube root* is the same thing as the finding any number, v. gr. 2; by whose multiplication into itself twice continually, a given number, v. gr. 8, is produced: the process whereof, see under the article **EXTRACTION**.

CUBEBS, in *Pharmacy*, a fruit brought from the island of Java, in grains, or seeds, resembling pepper, both in form and size; whence some call it *wild pepper*.

This is a small round fruit or berry, rather less than pep-

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per, with a dark-brown wrinkled outside, and whitish within, having a little short stalk at one end; whence it has been called *piper caudatum*, or pepper with a tail. It is not near so hot and biting as pepper, but is of an aromatic smell and taste.

Botanical writers differ as to their opinion of the growth of *cubebis*; some, as Mr. Ray, Dr. Plukenet, and others, believe that they grow on trees as big as apple-trees, in bunches like grapes; of which Dr. Plukenet gives a figure. Others, as Herman and Pomet, will have them to grow on a scandent plant like pepper.

Cubebis are heating and drying, strengthen the stomach expel wind, comfort the brain and nerves, and are particularly useful against the vertigo or giddiness, with other disorders of the head. Miller's Bot. Off.

They are recommended in a hoarseness and loss of voice, especially when the tonsils are stuffed and obstructed. The dose is from ten to twenty-four grains in substance, to be chewed, or from a dram to a dram and a half in infusion.

They are farther recommended in disorders of the spleen, and in cold distemperatures of the uterus.

It is said, the natives of the place boil it before they allow it to be exported, to prevent its being sown in other countries.

CUBIC equation. See **EQUATION**.

For the construction of cubic equations, see **CONSTRUCTION**.—

For the resolution, see **RESOLUTION**.—For their root, see **ROOT**, and **EXTRACTION**.

CUBIC foot. See **FOOT**.

CUBIC hyperbola, in *Conics*, one expressed by the equation $xy^2 = a$, having two asymptotes, and consisting of two hyperbolas, lying in the adjoining angles of the asymptotes, and not in the opposite angles, like the *Apollonian hyperbola*. It is also called an *hyperbolismus* of a *parabola*.

CUBICAL parabola, a term used by some writers for a parabola of the higher kind; v. gr. where $a^2x = y^3$, &c. See **CURVE** and **PARABOLA**.

CUBICLE. See **CHAMBER**.

CUBIDIA, in *Natural History*, the name of a genus of spars.

The word is derived from *κύβη*, a die, and is given them from their being of the shape of a common die, or of a cubic figure. These bodies owe this shape to an admixture of particles of lead, and there are only two known species of the genus. 1. A colourless crystalline one, with thin flakes, found in the lead mines of Yorkshire, and some other parts of the kingdom. And, 2. A milky white one, with thicker crusts. This is found in the lead-mines of Derbyshire and Yorkshire, but is usually small, and is not found plentifully.

CUBING of a solid. See **CUBATURE** and **SOLID**.

CUBIT, a long measure, used by the ancients, especially the Hebrews; taken from the ordinary extent of a man's arm, between the elbow and the tip of the hand.

In the Scripture, we find *cubits* of two lengths; the one equal, according to Dr. Arbuthnot, to 1 foot 9 inches $\frac{1}{10}$ of an inch, our measure; being the fourth part of the fathom, double the span, and six times the palm: the other equal to 1 $\frac{3}{4}$ foot, or the four hundredth part of a stadium. The Romans, too, had a *cubit*, equal to 1 English foot, 5 inches, $\frac{1}{10}$ of an inch. F. Merfenne makes the Hebrew *cubit* 1 foot 4 digits and 5 lines, with regard to the foot of the Capitol. According to Hero, the geometrical *cubit* is 24 digits; and according to Vitruvius, the foot is $\frac{2}{3}$ of the Roman *cubit*, i. e. 16 digits, or *FINGER'S-breadth*.

CUBITÆUS externus, or *ulnaris*, in *Anatomy*, the first of the extensor muscles of the fingers; thus called, as being placed along the *cubitus* externally.—It rises from the external protuberance of the humerus, and passing its tendon under the *ligamentum annulare*, is inserted into the fourth bone of the metacarpus, that sustains the little finger.

CUBITÆUS internus, the first of the flexors, placed along the *cubitus*, within the arm. It rises from the internal protuberance of the humerus, and part of the *ulna*; upon which it runs along till it passes under the *ligamentum annulare*, and is inserted by a strong and short tendon into the fourth bone of the first order of the *carpus*.

CUBITI biceps. See **BICEPS**.

CUBITI brevis. See **BREVIS**.

CUBITI longus. See **LONGUS**.

CUBITUS, in *Anatomy*, a bone of the arm, reaching from the elbow to the wrist; otherwise called *ulna*, or the *greater foci*. Some use the word for all that part of the arm between the elbow and the wrist; including the *ulna*, or *cubitus*, properly so called, and the *radius*.

CUBITUS, fractured. The lower part of the arm, which is called the *cubitus*, contains two bones, the *radius* and *ulna*: fractures of this part, therefore, sometimes happen only to one, sometimes to both these bones, and that sometimes

sometimes near their extremities, but oftener towards their middle: but, when they are both broke together, the bones are not only very easily distorted from each other, but they are not to be replaced without very great difficulty also: if one only should, on the contrary, be broken, while the other remains whole, the fractured parts do not much recede out of their places, nor are they very difficult to reduce and retain; for the bone remaining sound, is found, in this case, to be a better direction and support than either splints, or bandages. When the fracture happens towards the lower head, near the pronator quadratus muscle, the fractured part is strongly drawn by that muscle, and the intervening ligament that is extended between the radius and ulna, toward the sound bone; and this makes it more difficult to replace. If the radius is to be replaced, whose fragment is contracted towards the ulna, an assistant must hold the arm, while the surgeon inclines the patient's hand towards the ulna, to draw back the contracted part of the radius. When this is done, he must carefully reduce them by compression on both sides with his hands, so as to restore the compressed muscle between the radius and ulna, and the fragments of the radius, to their proper places. The arm is then to be bound up with the proper bandage, and the limb must afterward be placed in a sort of case made of pasteboard, or light wood, to be suspended in a sling put about the neck.

In setting a fracture of the ulna, the whole method must be the same with this of the radius, except that in the extension, the hand must be bend toward the thumb, and radius, before the distorted part of the ulna can be compressed into its proper place. When both bones of the *cubitus* are broken, the method of cure is much the same with that used to each of them, when broken singly: but there is required more strength and circumspection, both in replacing them, and a great deal of caution in applying the bandage to retain them. Care must also be taken, that, while the arm continues in this case a great while, without motion, the mucilage of the joint does not harden, or the ligament become stiff, and the arm, or *cubitus*, be thereby rendered immoveable. To guard against this, it will be proper to unbind the arm once in two or three days, and to move it a little, carefully and gently, backwards and forwards; and sometimes to foment it with warm water or oil; by which means its motion will be preserved.

CUBITUS, *luxated*. The *cubitus* consisting of two bones, the ulna and radius, is articulated by a ginglymus; and the connection of these bones is such, that the ulna, or *cubitus*, as being the largest bone, and seated in the lower part of the arm, does of itself perform the whole flexion, and extension of the arm, yet it cannot perform those motions without carrying the radius along with it; but, on the other hand, the radius may be turned along with the hand both inward and outward, without at all moving or bending the ulna, as when the pronation and supination of the hand are made thereby. Both these bones of the *cubitus* are so articulated with the lower head of the *os humeri*, that large protuberances are received into deep cavities, or grooves, and the whole invested and fastened with exceeding strong ligaments; so that, notwithstanding the *cubitus* may be luxated in all four directions, outward or inward, backward or forward, yet it is but seldom that it suffers a perfect or entire dislocation, unless the upper part of the ulna be broken, or the ligament of the *cubitus* much weakened by some great external violence. The slighter, and more recent luxations of this kind are, the more easy is the reduction of them. Be the case better or worse, however, the patient must be placed in a chair, and both parts of the limb, the humerus and the *cubitus*, must be extended in opposite or contrary directions, by two strong assistants, till the muscles are found pretty tight, with a free space between the bones: then the luxated bone must be replaced, either with the surgeon's hands alone, or with the assistance of bandages, that the processes may fall into their sinuses; and when that is done, the *cubitus* must be suddenly bent. But if the tendons and ligaments are so violently strained that they can scarce perform their office, it will be proper to anoint them with emollient oils, ointments, and the fat of animals; or to apply emollient cataplasms and fomentations. As soon as the reduction has been effected, the articulation must be bound up with a proper bandage, and the arm afterwards suspended in a sling hung about the neck. But care must be taken that the bandage is not kept on too long, nor the arm kept entirely without motion all the time, lest the mucilage of the joint should become inspissated, and the articulation rendered, by that means, stiff, or the motion of the part be entirely lost. To prevent this, it will be proper to undress the bandage every other day, and gently to bend, and extend the limb: af-

terwards compresses dipt in warm wine may be applied, and held on with the bandage. Heister's Surg. p. 164.

CUBO-CUBO-CUBUS. See **CUBUS-CUBI**.

CUBO-CUBUS, the term whereby Diophantus, Vieta, &c. distinguish the sixth power; which the Arabs call *quadratum cubi*.

CUBOIDES, or *Os CUBIFORME*, in *Anatomy*, the seventh bone of the foot; so called, from its being in form of a cube, or die. See *Tab. Anat. (Osteol.) fig. 7. lit. b b*. See also **FOOT**.

Some also call it *multiforme*: it is situated before the *os calcis*, on the side of the *os scaphoides*: it is a mass with six sides, all very unequal and very irregular. The upper side is flat and rough, for the insertion of the ligaments which connect it with the neighbouring bones: the lower side has an oblique eminence, and, immediately below that, a canal, or groove, which is also oblique: the eminence divides this side into two, and is a little cartilaginous on that side next the groove; the groove appears to be cartilaginous from a ligament which lines it, and both that, and the edge of the eminence, serve for the insertion of an annular ligament, and for the passage of the tendon of the *peronæus longus*. The posterior side is cartilaginous, broad, oblique, partly convex, and partly concave, answering to the anterior side of the *os calcis*. The anterior side is pretty broad, and is divided into two portions by a narrow prominent line, by which portions this bone is articulated with the third and fourth bones of the metatarsus. The inner side is the longest of all: it has a small cartilaginous surface, by which it is articulated with one of the two *ossa cuneiformia*; the rest is rough, with several depressions, in which vessels and glands are lodged. Behind the cartilaginous portion there is, in some subjects, another narrow surface, which is articulated with the neighbouring portion of the circumference of the *os scaphoides*. This articulation, when wanting, is supplied by ligaments. The outside is the least of all; it is irregular, short, and narrow; and it has a notch which communicates with the groove, on the lower side. Winflow's Anatomy, p. 99.

CUBROS *Gezira*. See **GEZIRA** *Cubros*.

CUBUS-CUBI, a name whereby the Arab writers, and those who follow them, denominate the ninth power, or a number multiplied eight times by itself continually; which Diophantus, and after him Vieta, Oughtred, &c. call *cubo-cubo-cubus*.

CUCKING-STOOL, **CUKESTOOL**, or **CASTIGATORY**, anciently called *tumbrel*, and *trebucket*; an engine for the punishment of scolds, and unquiet women, by ducking them in the water.

Kitchen says, "Every one having a view of frank-pledge, ought to have a pillory and a tumbrel." This machine was much in use, even among our Saxon ancestors, who called it *scædding-stole*, or *scolding-stool*.

The punishment was anciently also inflicted on brewers, and bakers, transgressing the law; who were thereupon, in such a stool or chair, to be ducked in *stercore*, some muddy or stinking-pond. This was anciently written *gaging-stool*; in *Domesday* it is called *cathedra stercoris*.

CUCKOW, *Cuckoo*, *Cuculus*, in the Linnæan system of *Ornithology*, makes a distinct genus of birds of the order of the *picæ*. The characters of this genus are, that the feet are climbing, having two toes before, and two behind; the bill is smooth, and a little arched; the tail whole, and composed but of ten feathers; the tongue short and membranaceous, and terminated by hairs, and the nostrils prominent.

The *cuckow* is a bird well known in England by the singularity of its note; its beak is long and strait, only it is a little hooked at the end, of a blackish brown above, and of a yellowish white below; its mouth is yellow within, and the iris of its eyes of a hazel colour; its nostrils round, open, and standing out beyond the surface of the bill, by which mark alone it is to be distinguished from all other birds; its throat, breast, and belly, are white, variegated with transverse streaks of brown; the feathers of its head are brown, with white edges, and its rump is grey; its back, neck, and wings, are of a brownish hue; its long-winged feathers have white tips, and are variegated with black, brown, and white; and the tail-feathers are beautifully variegated with white. Its feet and legs are yellow; its food is caterpillars, and other insects. Ray's Ornithol. p. 63.

It never builds itself a nest, but seizes upon that of any other small bird, and, destroying its eggs, leaves its own in its place. The water wag-tail, yellow-hammer, or a hedge-sparrow, &c. is generally the nurse of the young *cuckow*.

The stomach of this bird reaches almost to the vent; and on account of this formation, which disables it from incubation, and not from want of affection, it probably leaves its young to be hatched by other birds.

Whether

Whether it hides in hollow trees, &c. during the winter, with us, or whether it leaves us for a warmer climate, is not certainly known. It is pretended that many have been found in hollow trees, but the truth of it has never been well attested. It is probably a bird of passage, appears early in the spring, and makes a short stay with us. The continuance of the *cuckow's* song is said to coincide with the season of the mackerel's being in full roe, viz. from the middle of April to the end of June. The note of this bird is a call to love, and peculiar to the male: from this its name is derived. The *cuckow* was admired for its delicacy as a food by the Romans, and is now eat in France and Italy.

The whole bird and its dung are used in medicine. The bird burnt whole is recommended for the gravel, pains and excessive humidity of the stomach. Rondel.

It is given with good success also in the paroxysms of fevers. The dung of the *cuckow* drank is said to cure the bite of a mad dog.

CUCKOW-flower, or Lady's smock. See **CARDAMINE**.

CUCKOW-pint, Arum. See **WAKE-robin**.

CUCKOW-spit, a frothy substance found on several plants. See **CICADULA**.

CUCKSOO, the name of a common dish among the Moors of Africa, made of flour, and prepared for several ways of dressing afterwards. They take fine wheat-flour, or, when that is scarce, barley, millet, or Indian corn flour is made to serve: they first sprinkle some water over the bottom of an unglazed earthen pan, and then shake some of this flour into it; they knead this together with their hands, and roll it backwards and forwards under their open palms; by this means they work it into grains like fago, and then it is fit for use: when they have meat to stew, they do this in an earthen pot, and over the mouth of this they place a colander, in which is put a quantity of this granulated paste; over this colander is fixed on a top or cover for the pot, and by this means as the meat stews, all the vapour that ascends from it is received into the grains of *cucksoo*; by that time the meat is done enough, the *cucksoo* is so too; and opening the pot, they first take out this, which is soft, swelled, and tender, and piling it up in a dish, they make a hollow in the top of the heap, in which they lay the meat, and then add their spices, which are better than those of many neighbouring nations; the poorest using pepper, ginger, and saffron, the richer a great variety.

CUCUBALUS, in *Botany*. See *Berry-bearing*. **CHICK-WEED**.

CUCULARIA, in *Botany*. See **FUMITORY**.

CUCULLA, a cowl. See **ABBOT**, and **COWL**.

CUCULARIS, in *Anatomy*, a muscle of the scapula, so called from the resemblance it is supposed to bear to a monk's cowl; and *trapezius*, from its resemblance to a geometrical figure called a *trapezium*. See *Tab. Anat. (Myol.) fig. 6. n. 9. fig. 2. n. 4. fig. 1. n. 18*.

The fibres of this muscle have various originations and actions; whence Dr. Drake thinks, it may be more properly called three, than one muscle. The upper order of fibres, or muscles, springs from the *os occipitis*; the second from the spine of the vertebrae of the neck, and the third from the spines of the eight upper vertebrae of the thorax, or back; and are inserted into the spine, acromium, and basis of the scapula, and part of the clavicle.

From the different dispositions of these fibres, the scapula is drawn different ways; the first pulling obliquely upwards, the last obliquely downwards, and the middle backwards: when they act all three together, they are said to draw backwards only; i. e. the two extremes antagonizing, the middle one alone is at liberty to act.

CUCULATE flowers, among *Botanists*, are such as resemble a *cucullus*, or monk's hood, or cowl. See **FLOWER**.

CUCULLUS was anciently a traveller's cap; called also *cowl*, *goul*, or *gula*: whence the name passed to the monks, among whom it signified their frock and cap, which were of one piece.

CUCULLUS, in *Conchyliology*, the name of a genus of shells. called by other authors *cornet shells*, or *volutæ*. See **VOLUTA**.

CUCULLUS indicator, a species of *cuckow* found in the interior parts of Africa, at a considerable distance from the Cape of Good Hope, and called by the Dutch settlers *bonig-wyzer*, or *honey-guide*. It is of a smaller size than the common *cuckow*. It is famous for conducting those who observe its motions, to the wild bee-hives, by a shrill note, sounding *cherr, cherr*. This note is answered with a soft whistle, and repeated by the bird till the hive is found. Phil. Transf. vol. lxxvii. part i. p. 43.

CUCUMBER, *Cucumis*, in *Botany*, a genus of the *monocotyledon* class. Its characters are these: it hath male and female flowers on the same plant, which are bell-shaped, of one petal, which adheres to the empalement,

and is cut into five oval rough segments. The male flowers have three short stamina, which are inserted in the empalement; the female flowers have no stamina, but have three small pointed filaments, without summits. The germen is situated under the flower, which afterwards becomes an oblong fleshy fruit with three cells, including many oval, flat, pointed seeds.

There are three species of this plant cultivated in gardens, the common kind, the white one, and the long green one. The first is what we bring to market in England; the second is the common Dutch kind, and is greatly preferable to ours, as being much firmer, and having fewer seeds; and the third is better even than that, but it is raised with difficulty.

The common one, which is what our gardeners almost solely cultivate, is raised at three different seasons of the year; the first is on hot-beds, under garden-frames, for early fruit; the second is under bell, or hand-glasses, which is for the middle crop; and the third is on the common ground, which is for a late crop, or to pickle. The *cucumbers* which are ripe before April are unwholesome, being raised wholly by the ferment of dung, not by the sun's heat. Those ripe in April are good fruit, and are raised in the following manner: toward Christmas, or the beginning of January, a quantity of fresh horse-dung must be procured, with the litter among it, and a small proportion of sea-coal ashes should be added to it. In four or five days the dung will begin to heat, at which time a little of it may be drawn flat on the outside, and covered with two inches thickness of good earth: this must be covered with a bell-glass, and after two days, when the earth is warm, the seeds must be sown on it, covered with a quarter of an inch of fresh earth, and the glass then set on again. The glass must be covered with a mat at nights, and in four days, the young plants will appear; when these are seen, the rest of the dung must be made up into a bed for one or more lights. This must be three feet thick, and beat close together, and covered three inches deep with fine fresh earth; the frames must then be put on, and covered at night, or in bad weather with mats.

When the earth is hot enough, the plants from under the bell must be transplanted into it, and set at two inches distance. The glasses must be now and then a little raised to give air to the plants, and turned often, to prevent the wet from the steam of the dung from dropping down upon them. The plants must be watered at times, with water set on dung till as warm as the air in the frame: and as the young plants grow up, the stalks of of them should be earthed up, which will give them great additional strength. If the bed is not hot enough, some fresh litter should be laid round its sides; and if too hot, some holes should be bored into several parts of it with a stake, which will let out the heat; and when the bed is thus brought up to a proper coolness, the holes are to be stopped up again with fresh dung. When these plants begin to shoot their third, or rough leaf, another bed must be prepared for them like the first, and when it is properly warm through the earth, the plants of the other bed must be taken up, and planted in this, in which there must be a hole in the middle of each light, of about a foot deep, and nine inches over, filled with light and fine fresh earth, laid hollow, in form of a basin: in each of these holes there must be set four plants; these must be, for two or three days, shaded from the sun, that they may take firm root, after which they must have all the sun they can, and now and then a little fresh air, as the weather will permit. When the plants are four or five inches high, their stalks should be gently pegged down toward the earth, in as different directions as may be from one another, and the branches afterwards produced, should be treated in the same manner. In a month after this, the flowers will appear, and soon after, the rudiments of the fruit. The glasses must now be carefully covered at nights, and in the day-time they should have gentle waterings, sprinkling over the whole plants. These will produce fruit till about Midsummer, at which time those of the second crop will come in to supply their place: these are to be raised in the same manner as the early crop, only they do not require so much care and trouble. This second crop should be sowed in the middle, or towards the end of March. Miller.

The season for sowing the *cucumbers* for the last crop, and for pickling, is toward the latter end of May, when the weather is settled: these are sown in holes dug to a little depth, and filled up with fine earth, in form of a basin, eight or nine seeds in each hole. These will come up in five or six days, and, till they are about a week old, are in great danger from the sparrows; after this they require only watering now and then, and keeping clear from weeds. There should be only five plants left at first

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in each hole, and when they are grown a little farther up, the worst of these is to be pulled up, that there may finally remain only four. The plants of this crop will begin to produce fruit in July.

The *Historia Plantarum*, published under the name of Boerhaave, informs us, that if the branches of cucumbers are much trodden upon, the fruit will be bitter and emetic; and that a water distilled from cucumbers when full ripe, and beginning to putrify, purges smartly, in the quantity of a dram.

The cucumber is one of the four great coolers of the shops. It is almost an universal ingredient in emulsions, and is found of service in fevers, and nephritic complaints.

CUCUMBER, *single-seeded, Sicyos*, in *Botany*, a genus of the *monoecia syngenesia* class. Its characters are these: it hath male and female flowers on the same plant; the male flowers have a bell-shaped empalement of one leaf, with five indentures, the petal is bell-shaped, growing on the empalement, and they have each three stamina, which are united above, terminated by summits, joined in a head; the female flowers are like the male, and sit upon the germen; they have no stamina, but the germen supports a cylindrical style, crowned by a thick three-pointed stigma. The germen becomes an oval fruit, set with bristly hairs, having one cell, containing a single seed of the same shape. There are three species, natives of North America, and the West Indies.

CUCUMBER, *wild, Egyptian, or squirting*, in *Botany*. See *Male Balsam Apple*, and *ELATERIUM*.

CUCUMBER, *small creeping*. See *MELOTHERIA*.

CUCUMBER, *serpent*. See *TRICHOSANTHES*.

CUCUMIS *capparis*, in the *Botanical Writings* of the Arabians, a name given by Avicenna, and others, to the plant which produced the fruit called *BEL*. This fruit was like the capers in shape, and had a hard shell over its kernel, like that of a hazel-nut. Such is the description they give of it, and of the *FEL* and *SEL*, two other fruits as like it in shape, and other respects, as in virtue.

CUCUPHA, an ancient form of medicine: being a cap, or cover for the head, with cephalic powders quilted in it; worn in many nervous distempers, and particularly such as more immediately affect the head: as against catarrhs, defluxions, &c. It is now much out of use.

CUCURBIT, **CUCURBITA**, in *Chemistry*, an earthen, or glass vessel, called also *body*; of the figure of a gourd, or a pear; wherein are put the matters to be distilled. It is sometimes also made of tin, and sometimes of brass, tinned. When a distillation is to be made, they fit on to it a glass head with an aperture, and a neck proportional. Thus fitted, it is called an *ALEMBIC*.

CUCURBITACEOUS plants, a class of plants, so called from their resemblance to the *GOURD*, called by the Latins *cucurbita*, which is the head of this family. Plants of the *cucurbitaceous* kind send out their branches every way; which are soft and generally beset with tendrils, by means whereof they cling to the bodies that are near them.

Their flowers are either sterile, or fertile: the last knit, and yield fleshy fruits of various figures; containing within them several flat seeds placed in three or four lodges, or even a greater number.

These seeds have usually a white sweetish kernel; the greatest part of them being of those called *frigidae majores*, or the greater cold seeds.

The pumpkin, melon, &c. are of the *cucurbitaceous* kind.

CUCURBITINI *lumbrici*, are broad worms that breed in the intestines, like the seed of a gourd.

CUCURBITULA, in *Chirurgery*, a *CUPPING-GLASS*, or instrument, used in the operation of cupping.

CUCURI, in *Ichthyology*, the Brazilian name of a fish of the shark kind, but not mischievous, called *cassao* by the Portuguese.

It is about two feet and a half long. The head ends in an hyperbolic figure, and the mouth is placed far below its end; it has only one row of teeth, and those very small; its eyes are of the size of a large pea; its belly is of a silver white. Willughby.

CUCURUCU, in *Zoology*, the name of a serpent found in America, growing to ten or twelve feet long. It is very thick also in proportion to its length, and is of a yellowish colour, strongly variegated with black spots, which are irregularly mixed among the yellow, and often have spots of yellow within them, and are plainly black. It is a very poisonous species, and greatly dreaded by the natives; but its flesh is a very rich food, and greatly esteemed among them, when properly prepared. Ray.

CUD, sometimes means the inside of the throat in beasts, and sometimes the food that they keep there, and chew over again, from whence, to chew the *cud*, signifies to ponder, think, or ruminate upon a thing.

CUD *lost*; cattle sometimes lose the *cud* by chance, some-

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times by sickness, poverty, mourning, &c. to cure which, take four leaven of rye bread, and salt, and mixing it with human urine and barm, beat it in a mortar: then making a large ball or two thereof, put them down the beast's throat.

CUDDY, in a *First-rate Man of War*, is a place lying between the captain-lieutenant's cabin, and the quarter-deck; and divided into partitions, for the master, and other officers. See *Tab. Ship. fig. 2. lit. r.*

It denotes also a kind of cabin near the stern of a lighter, or barge of burden.

CUDWEED, *Gnaphalium*, in *Botany*, the name of a genus of plants of the *syngenesia polygamia superflua* class. The characters of which are these: the flower is of the flos-culous kind, and is composed of several floscules, which are divided into many segments, and formed like a star at the ends: these are placed upon the embryo fruit, and are contained in a general cup, which is of a scaly or squamose structure, but is not at all bright or shining.

The species of *cudweed* enumerated by Mr. Tournfort, are eight. The common *cudweed* is desiccative and astringent, and is of great efficacy in hæmorrhages of all kinds. In dysenteries, and in floodings of the menses, it has been known to do great cures. Some have recommended the distilled water of it in cancers, but this seems to have no very great foundation. A decoction of it in small beer is a common medicine among country people for quinies, and is said sometimes to have done remarkable cures in them.

CUDWEED, *Bastard, Micropus, or Gnaphaloides*, in *Botany*, a genus of the *syngenesia polygamia necessaria* class. The characters are: it hath hermaphrodite and female flowers, included in the same double empalement; ten hermaphrodite flowers compose the disk, which have one petal, are funnel-shaped, cut into five parts at the top, and have five short bristly stamina, terminated by cylindrical summits. In the same empalement are five female flowers in the circumference, which have each an oval germen, compressed, hid under the scales of the interior empalement, each having a style by their side, which is bristly, turning towards the hermaphrodite flowers, crowned by slender acute-pointed stigmas, divided into two parts. The female flowers are succeeded by a single oval seed; the hermaphrodite flowers are barren. Miller.

CUE, an *item*, or *innuendo*, given to the actors on the stage, what, or when, to speak. See *PROMPTER*.

CUERPO. To *walk in cuerpo*, is a Spanish phrase for going without a cloke; or without all the formalities of a full dress.

CUGNACUARANA, in *Zoology*, the name of an American beast of prey, usually confounded with the tyger, and described by Marggrave as one of the three species of American tygers, the *jaaguara* and *jaguarete* being the two others. Those two animals are plainly rather of the leopard, or lynx, than of the tyger kind; and perhaps this is as little of the tyger as they. It is a large and very fierce beast, of the shape of the jaguara, but of one simple colour, which is a very pale tawney, like the colour of some goats, but not so strong. It is a little duskier on the back than of the sides, and there is a little white under the chin, and on the belly. Its hair is very short. Ray.

CUGUACUETE, and **CUGUACUAPARA**, in *Zoology*, the Brazilian names of an animal of the caprea kind, seeming to be the male and female of the same species, and not distinct animals. The former has no horns, the latter has, and is probably the male; the horns are composed of three branches; they send out one near the insertion, and from this they run up single to the extremity, where they are bifid.

We have not seen the animal in England; but its horns, which are very singular in their shape, are preserved in the museum of the Royal Society. This is the animal which Johnson has figured under the name of the *capreolus marinus*. *Tab. 33.*

CUGUPUGUACU, in *Ichthyology*, a name by which many call the *MEROS*, a Brazilian fish of considerable size, and a very good taste.

CUI ante divortium, in *Law*, a writ, which a woman divorced from her husband hath, to recover lands or tenements from him to whom her husband alienated them during marriage; because during the marriage she could not gainsay it.

CUI in vita is a writ of entry, which a widow hath against him to whom her husband alienated her lands or tenements in his life-time; specifying that, during his life, she could not withstand it.

CUJETE, in *Botany*. See *CALABASH Tree*.

CUIRASSE, a piece of defensive armour, made of an iron plate well hammered; serving to cover the body, from the neck to the girdle, both before and behind.

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Some derive the word, by corruption, from the Italian *cuore*, heart; because it covers that part: others from the French *cuir*, or the Latin *corium*, leather; whence *coriaceus*: because defensive arms were originally made of leather.

The *cuirasse* was not brought into use till about the year 1300, though they were known both to the ancient Greeks and Romans in different forms.

Hence, *cuirassiers*, the cavalry armed with *cuirasses*.

The French have still a regiment of *cuirassiers*; and a good part of the German cavalry are *cuirassed*: but the *cuirasse* is principally confined to general officers, and officers of the cavalry. Others bear only a plate of iron, which covers them before.

In the Roman calendar, we find the name of St. Dominic the *Cuirassed*; a title given a saint of the eleventh century, from his constant wearing of an iron *cuirasse*, by way of penance.

CUIRIRI, in *Ornithology*, the name of a Brazilian bird of the starling kind, very like the common starling, and no way differing from the *pitanguaguacu*, but that it has a yellow spot upon its head.

Probably this is the male of the same species.

CUITPALLI, in *Natural History*, the American name of a very beautifully variegated stone, found in New Spain, and some other places: its name expresses the painted stone. It is a species of jasper of a beautiful green, variegated with very beautiful lines, and clouds of black, and is in some parts transparent.

CUL de lamp, a French term, properly signifying the bottom of a lamp. It is applied in architecture to several decorations, both of masonry and joinery, used, in vaults and ciellings, to finish the bottom of works, and wreathed somewhat in manner of a *testudo*; particularly a kind of pendentive in Gothic vaults.

CUL de four, a sort of low, spherical VAULT, oven-like.

Coul de four of a niche, denotes the arched roof of a niche on a circular plan. See *Mem. Acad. Scienc. an. 1719*, p. 363.

CULCASIA, in *Botany*, a name given by some of the old writers to an Egyptian plant growing near the sea-shores. It is by many supposed to have been the *colocasia*, but improperly. The resemblance of the name was the only thing that gave the idea of its being this plant; but the virtues attributed to it, and the uses it was put to in the common affairs of life, shew that it was the *kali*, or *cali*, the plant of whose ashes they made a salt useful in many arts, and still the basis of the glass and soap manufactures, and called by Avicenna *usnen*.

CULCUL, a sort of grain brought from Egypt to Constantinople, where it is much esteemed, especially when fresh. Authors are not agreed what plant it is produced from.

CULDEES, in *Church History*, a designation given to the monks, or priests, in Scotland, in the first ages of Christianity, whence the term passed into Ireland.

They were called *culdees*, quasi *culteres dei*, from their great piety and devotion.

CULEUS, the name of a measure of liquids, the greatest of all the measures among the Romans: it contained twenty amphoræ. Columella reckons the *culeus* of wine, at the vineyard, to be worth three hundred nummi, or seventy-five denarii, that is, according to English rate, a hundred and forty gallons three pints and a half, for two pounds eight shillings and five pence farthing, which is about a halfpenny the pint. Columella, lib. iii. cap. 3.

The *culeus* is, by others, described to contain 160 congii, or 960 sextarii. We read of *dolia culearia*, and *sesquiculearia*, the latter of which must have been very large, being about $3\frac{1}{2}$ hogheads, and therefore larger than our pipes.

The word *culeus* is used also by some Roman authors for a leather sack.

CULEX, in *Zoology*, the name of a genus of two-winged flies, comprehending the GNATS and HUMBLE-bee flies. The distinguishing characteristic of this genus is, that their head is furnished with a siphon, or sucker, very slender, oblong, and filiform.

CULINARY, an epithet frequently added to FIRE; determining it to be a common fire, excited in wood, coals, or other ordinary fuel; in contradistinction to solar fire, or that raised by the action of a burning-glass; also to central fire; to animal fire, &c.

The word is formed from the Latina *culina*, kitchen; this being the chief place of such fires.

Culinary fire, according to Boerhaave, consists of a portion of pure elementary, or solar fire, attracted by the oily, or sulphureous parts of the fuel, with such velocity, as that it moves the same, agitates and whirls them violently about, and by degrees breaks and attenuates

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them; renders them volatile, and disperses them in air.

The effect of air upon this fire is, to make, as it were, a vault around it, and, by that means, restrain and keep it in, determine it upon the sulphur, and thus prevent its too hasty dissipation.

CULLIAGE, or **CULLAGE**, a right usurped by the ancient lords, and established by a shameful custom, which gave them the first night with their vassals' brides.

The word is formed from the French *cul*, *podex*, the breech.

It is said this right was established by Evenus III king of Scotland, and finally abolished by Malcolm III. a compensation being settled in its stead; as occasioning frequent revolts of the vassals against their lords. See *MARCHETA*.

CULLION, in *Botany*. See *ORCHIS*.

CULM, among *Botanists*, a term expressing the STALK of gramineous plants.

The *culmus*, and *culmen*, of the Latins, and the *καλαμος* of the Greeks, are what we call a stalk of corn or grass. In grasses and corns, the *culm* or stalk corresponds to the caudex or trunk in trees; and to the *calamus* in the cyperus and bulrush: so that it generally denotes that part which reaches between the root and the ear, or panicle. Hence it appears in general what plants are of the culmiferous kind: but these are variously limited by the founders of different botanic systems, who have adopted them for constituting particular genera of plants.

CULMIFEROUS, in *Botany*, a term applied to such plants as have a smooth jointed stalk, usually hollow; the stalk wrapped about, at each joint, with single narrow, sharp-pointed leaves; and the seeds contained in chaffy husks. *Culmiferous plants* are divided by Ray into two kinds; those with a greater, and those with a smaller seed.

Those with a larger seed are called *frumentaceous*, or *cereales*; and are again divided into *spicata*, as wheat, rye, spelt, barley, rice, peas, &c. and *paniculata* or *jubata*, as oats, scordium, milium, and maize.

CULMINATION, in *Astronomy*, the transit of a star or planet over the meridian, or that point of its orbit wherein it is at its greatest altitude.

Hence, a star is said to *culminate*, when it passes the meridian.

To find the culmination of a star, or the time wherein it passes the meridian. On a meridian line AB (*Tab. II. Astronomy*, fig. 66.) stretch a thread, DC, perpendicularly; and from D to E, another DE, cutting the meridian obliquely, at any angle: the triangular thread, DCE, will cut the plane of the horizon in the meridian line, or at right angles; and consequently will be in the plane of the meridian.

The eye, therefore, being so placed, as that the thread DE may cover the thread DC; wait till the star be bisected by the triangle DCE; for then the eye and the star will, together with the triangle DCE; be in the same plane: consequently the star is in the meridian.

To find the culmination of a star by the globe, see *GLOBE*.

To find the time of a star's culminating; its right ascension, and the sun's place in the ecliptic, being given.—From the sun's place find his right ascension; and from this subtract the right ascension of the star: the difference being converted into solar time, gives the time elapsed from mid-day to the time of the star's culmination.

CULPABILIS. See *NON est culpabilis*.

CULPRIT, in *Law*, a term used by the clerk of the arraignments, when a person is indicted for a criminal matter.

After the indictment is read in court (which is the crown's charge against the prisoner at the bar), he is asked if guilty, or not guilty? If he answers *not guilty*, there is next a replication from the crown, by continuing the charge of guilt upon him; which is expressed by pronouncing the word *cul-prit*; *cul* being an abbreviation of the Latin word *culpa*, guilt, or *culpabilis*, guilty, and *prit* (now *pret*) the old French word for ready; or, as others rather think, the Latin *apparet*, appears.

From this formula, therefore, of the clerk of the arraignments, the prisoner is deemed guilty of the crime charged on him; and that the crown is ready to prove it upon him.

That this is the true explanation of the term, seems evident from the form of the entry of the record of the trial, when drawn at large.

CULTELLATION, a term which some authors use for the measuring of heights, and distances, by piecemeal: that is, by instruments which give us such heights and distances by parts, and not all at one operation.

CULTIVATOR, in *Husbandry*, the name given by foreigners to instruments used for stirring the earth, answering to our horse-hoes.

CULTRARIUS. See *POPÆ*.

CULTURE,

CULTURE. See AGRICULTURE, and HORTICULTURE.

CULTURE of hops. See HOPS.

CULVERIN, in *War*, a long slender piece of ordnance and artillery, serving to carry a ball to a great distance. Menage derives the word from the Latin *colubrina*; others from *coluber*, *snake*; either on account of the length and slenderness of the piece, or of the ravages it makes. Of these there are three kinds; viz. the *culverin extraordinary*, the *ordinary*, and the *least sized*.

The *culverin extraordinary* has $5\frac{1}{2}$ inches bore; its length 32 calibers, or 13 feet; it weighs 4800 pound; its load is above 12 pound; carries a shot 5 inches $\frac{1}{4}$ diameter, weighing twenty pound weight.

The *ordinary culverin* is 12 feet long; carries a ball of 17 pound five ounces; caliber $5\frac{1}{2}$ inches; its weight 4500 pound.

The *culverin of the least size* has its diameter 5 inches; is 12 feet long; weighing about 4000 pounds; carries a shot 3 inches $\frac{1}{4}$ diameter, weighing 14 pounds 9 ounces. See DEMI-CULVERIN.

CULVERTAIL, in *Ship-Building*, is used for a manner of letting one timber into another, so that they cannot slip afunder. The fastening of a ship's *carlings* into the beam is so performed. See DOVE-TAIL.

CUMAMUS, in the *Materia Medica*, a name given by many of the ancients to CUBEBS.

CUMANDA Guacu, in *Botany*, a name for certain very large Indian kidney-beans, which roasted, contused, and exhibited with an egg, are given for fluxes of the belly; boiled, made into a cataplasm, and applied to the belly, they are said to cure colic pains; and they are in this form applied to apostemations, with a view of resolving them.

CUMELE, in *Botany*, the name by which the ancient Greek writers have described the *lupulus* or hop, with which we make our malt liquors bitter.

CUMELOBOTANE, in *Modern Greek Writers*, is also a name given to the *lupulus*, or plant which produces the hops.

CUMIN, **COMINUM**, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these: it hath an umbelliferous flower, the involucre of which is longer than the umbel; the great umbel is uniform, the flowers have five unequal petals, whose borders are inflexed; and five single stamina, with a large germen situated under the flower, supporting two small styles, which afterward becomes an oval striated fruit, composed of two oval seeds, which are convex, and furrowed on one side, and plain on the other. We have but one species of this genus.

Miller derives *cumin* from *κύνιν*, to bring forth, because it is said to be effectual in curing sterility.

The seed of this plant is much like that of fennel; and grows abundantly in the isle of Malta, where it is sown and cultivated after the manner of corn.

The French frequently call it *anis aigre*, sharp or sour anis.

It is used with success in vertigos, wind-colics, tympanies, &c. It is esteemed excellent to retrieve the natural heat in stallions, bulls, &c. Pigeons are exceedingly fond of it; whence some make use of it to stock their dove-houses; incorporating it with an earth naturally saline, or some other earth that has imbibed urine.

This seed, as well as the common anise, yields, by expression, a kind of oil, esteemed sovereign in the rheumatisms; provided it be used with precaution, and in small quantities.

CUMIN, *bastard*, or *wild*, **Cuminoides**, **Lagœcia**, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: it hath many flowers collected into a head, in one common empalement, composed of eight indented leaves; the flower consists of five horned petals, at the bottom of which is situated a pointal, attended by five stamina; the pointal afterward becomes an oval seed, crowned with the impalement. There is only one known species of this plant, which is the *cuminum sylvestre*, or wild cummin of authors.

CUMPETES, in the *Materia Medica*, a name given by some of the Greek writers to the *carpesia* of Galen and others. This was an aromatic drug, and was the younger shoots and tender twigs of an odoriferous tree, growing on some mountains in Pamphylia, which were collected in the spring, and, when dried, were used as a succedaneum for the cinnamon. The word *cumpetes* often occurs in Myrepsus; but there is some doubt in the orthography, whether it be *cumpetes* or *cumpepes*; there seems most reason to believe the latter is the proper word. Charito mentions this drug in his antidotes, and the commentators usually explain it by the word *carpesia* or *carpasus*, a name by which they understood, though improperly, the cubebs. The Greeks of the later ages, and

the Latin writers who succeeded them, all fell into the same error, of calling the *carpesia* the cubeb; though the accounts of the ancient Greeks are against it. Nay, Avicenna seems to have given into the same error; for he has transcribed into his chapter of cubebs what Galen says of the *carpesia*.

CUN, or **CUNNING**, at Sea. See COND.

CUNEI, in *Natural History*, a name given to those *tellinæ*, which have one side of their shell much more extended than the other. See MUSCLE.

CUNEIFORM leaf, among *Botanists*. See LEAF.

CUNEIFORME os, in *Anatomy*. See SPHENOIDES.

CUNEIFORMIA ossa denote the fourth, fifth, and sixth bones of the foot; thus called from their wedge-like shape, being large above, and narrow below. See *Tab. Anat. (Osteol.) fig. 7. lit. c. c. fig. 3. n. 27. 27.*

They lie all three aside of one another, and are of different sizes; their upper side convex, and their under hollow, by which means the muscles and tendons in the bottom of the foot are not hurt in walking.

At one end they have each a sinus, which receives the *os naviculare*; and at the other end they are joined each to one of the three inner bones of the *metatarsus*. See Winslow's *Anatomy*, p. 83, and 100.

CUNETIE, or **CUVETTE**, in *Fortification*, a deep trench, about three or four fathom wide, sunk along the middle of a dry moat, to lade out the water; or make the passage more difficult to the enemy.

CUNEUS, one of the *mechanical powers*, more usually, by English writers, called the **WEDGE**.

CUNEUS, among the Romans, a term often used to signify that part of the theatre where the spectators sat, on account of its resembling the figure of a wedge.

CUNEUS, the **WEDGE**, was also a form of **BATTLE** frequent among the Romans.

CUNEUS, *parabolic*. See **PARABOLIC Cuneus**.

CUNICULUS, in *Zoology*, a genus of animals of the *lepus*, or **HARE-kind**, called in English **RABBIT**.

CUNICULUS Americanus, in *Zoology*, a name given by some to the creature called **TAPETI**, a small species of rabbit.

CUNICULUS Brasiliensis, a species of rabbit called **APERE-REA**.

CUNICULUS Sibericus, the name of the long-tailed Siberian rabbit, the fur of which is much valued. During the summer months many of them are beautifully variegated with oblique and transverse streaks of black and grey.

CUNICULUS, in *Mining*, a term used by authors, in distinction from *puteus*, to express the several sorts of passages and cuts in these subterranean works. The *cuniculi* are those direct passages in mines, where they walk on horizontally; but the *putei* are the perpendicular cuts or descents.

It is an observation with our miners, that the damps so much dreaded in all mines, happen generally in the horizontal cuts; but Dr. Brown, in his examination of the gold and silver mines in Hungary, observes, that they as often happen there in the *putei* or *schachts*, as in the *cuniculi* or *stollen*. Another observation as to damps with us is, that they are most frequent in clayey and soft places under ground; but in those mines they are as frequent where the matter is hard stone; and one of the most mischievous that had then lately happened, was in a place every way surrounded with stone so hard, that the tools of the miners could scarce work through it; and the descent had, in the very spot where the damp was, been made by means of gunpowder. In some of the *cuniculi* in these mines, there are damps that regularly return on certain occasions; as if the lower end of the *cuniculus* be filled up with water, certain parts in going to it are always affected with damps, which will put out a lamp or candle the moment it enters them, and often do great mischief to the miners in passing them. *Phil. Transf. N° 48.* See **DAMP**.

CUNILA bubula, in *Botany*, a name by which Pliny, and some other authors, have called the wild marjoram or *origanum*.

CUNILA, in *Botany*. See **IRON-wort**.

CUNILA, in the *Linnæan System*, makes a distinct genus of the *diandria monogynia* class; with a ringent corolla; the upper-lip is erect and plane; there are two torn filaments, and the germen turns to four seeds.

CUNILAGO, in *Botany*, is used by some authors for the *coryza*.

CUNINA, in *Mythology*, a goddess who had the care of little children.

CUNNUS, the **PUDENDUM muliebre**; or the anterior parts of the genitals of a woman, including the *labia pudendi*, and *mons Veneris*.

CUNOCEPHALI, in *Mythology*, from *κύν*, dog, and *κεφαλή*, head, a kind of baboons, or animals with heads like those of dogs, which were wonderfully endowed and preserved, with great veneration, by the Egyptians, in

in many of their temples. It is related, that by their assistance the Egyptians found out the particular periods of the sun and moon; and that one half of the animal was often buried, while the other half survived; and that they could read and write. This strange history, Dr. Bryant imagines, relates to the priests of Egypt, styled *caben*, to the novices in their temples, and to the examination they were obliged to undergo, before they could be admitted to the priesthood. The Egyptian colleges were situated upon rocks and hills, called *caph*, and from their consecration to the sun, *caph-el*; whence the Greeks deduced *κεφαλη*, and from *caben-caph-el* they formed *κυνεφαλος*. So that *caben-caph-el* was some royal seminary in Upper Egypt, whence they drafted novices to supply their colleges and temples. By this etymology he explains the above history. The death of one part, while the other survived, denoted the regular succession of the Egyptian priesthood. The *cunocephali* are also found in India, and other parts of the world. These and the *acephali* were thus denominated from their place of residence, and from their worship. Bryant's Analysis of Ancient Mythology, vol. i. p. 329, &c.

CUNODONTES, a people mentioned by Solinus, and Isidorus, and by them supposed to have the teeth of dogs. They were probably denominated, says Dr. Bryant, from the object of their worship, the deity *Chan-Adon*, which the Greeks expressed *Κυνόδων*, and thence called his votaries *Cunodontes*. Ibid. vol. i. p. 341.

CUNONIA, in Botany, a genus of the *decandria digynia* class, with a five-petalled corolla; a five-leaved calyx, a bilocular, acuminate, polyspermous capsule, and styles longer than the flower.

CUP, *Calyx*, a vessel so called, of various forms and uses. In the Ephem. German. we have a description of a *cup* made of a common pepper-corn, by Oswald Nerlinger; which holds one thousand two hundred other ivory cups, each having its several handle, all gilt on the edges; with room for four hundred more.

CUPS, among *Herbalists*, are those short green husks in which flowers grow; some being divided into two, three, four, five, or six leaves. See **CALYX**.

CUP-fountain. See **FOUNTAIN**.

CUP-galls, in *Natural History*, a name given by authors to a very singular kind of galls found on the leaves of the oak, and some other trees. They are of the figure of a cup, or drinking-glass, without its foot, being regular cones, adhering by their point or apex to the leaf; and the top, or broad part, is hollowed a little way. Beside this species of gall, the oak-leaves furnish us with several others; some of which are oblong, some round, and others flattened; these are of various sizes, and appear on the leaves at various seasons of the year. They all contain the worm of some small fly; and this creature passes all its changes in this its habitation, being sometimes found in the worm, sometimes in the nymph, and sometimes in the fly state, in the cavity of it. See *Tab. of Insects*, N^o 25.

CUP shell. See **SHELL**.

CUPA, among the *Ancients*, a kind of boats, used in laying bridges over rivers, being broad below, and narrow above.

CUPANIA, in Botany, a genus of the *monoecia monadelphia* class. The male of this genus hath a three leaved-calyx, a five-petalled corolla, and five stamina; the female hath a three-leaved calyx, three petalled corolla, a style divided into three parts, a three-celled capsule, and a double seed.

CUPOLA, in *Architecture*, the same with **DOME**.

The word is Italian, formed of the barbarous Latin *cup-pola*, otherwise called *thola*, and *fornix*.

CUPPEL, **CUPEL**, or **COPPEL**, among *Chemists*, a vessel or utensil, used in the trying and purifying of gold, and silver, called also **TEST**. See **COPPEL**.

CUPPELLATION, in *Chemistry*. See **COPELLING**.

CUPPING, an operation in *Chirurgery*, for the discharge of blood, and other humours, by the skin.

It is performed by collecting the humours into a tumor under the *cutis*; and letting them out thence, by scarification; i. e. by several incisions made with a scarificator.

The instruments used herein are the *cucurbitulae*, or *cupping-glasses*, and *scarificator*: the description of each whereof see under their proper head.

The use of *cupping-glasses* is very extensive, comprehending almost the whole body: but their application is to be considered under two different circumstances: for, they are either applied to the place first scarified with a knife, or to a whole skin. This latter is called *dry*, and the other sanguineous, or *wet cupping*.

Cupping is performed either *with* or *without* fire.

Cupping with fire is the more usual process; and is commonly, among us, thus effected: the air in the cavity

of the *cucurbitula* is heated, and so rarefied, by the application of the flame of a lamp, or the like; and the vessel immediately applied to the part to be *cupped*.

Others, especially the French, proceed thus: a piece of card is cut round, and a lamp, or four little wax candles, affixed to it: this is placed after the manner of a candlestick, on the part whereon the operation is to be performed, and covered with a *cucurbitula* or *cupping-glass*. After the included air has been well heated and rarefied with the flames of the candles, the glass is clapped close to the skin; which is no sooner touched, than the candles are extinguished, and the tumor is raised.

In *cupping without fire*, instead of rarefying the air included in the *cupping-glass* by heat, it is done by a syringe applied to the neck of the *cupping-glass*, fitted with a brass collar, cap, and valve; the *cupping-glass* being applied to the skin, and the **SYRINGE** wrought, part of the air is pumped out of the *cucurbitula*; and thus the tumor rises, as in the former case.

The reason of the phenomenon is this: the air included in the *cupping-glass* being rarefied, a great part of the load which before pressed the part, and kept it down, and which still continues to press the rest of the body, is taken off; upon which the air, known to be contained in the vessels of the body, and mixed with the blood and juices, expands itself, and raises a tumor, carrying with it the fluids wherewith it is mingled.

The operation is performed on the back, and on the breasts and thighs, to stop or promote the menses: on the navel, for the colic. *Cupping* is also used for defluxions on the eyes, for venomous wounds and buboes; on the head, for apoplexies, &c.

In *dry cupping*, before the application of the glass, a lighted candle or fire is to be conveyed into it, that the air being expelled by the heat, the glass may immediately be adapted to, and impressed upon the body, until it adheres firmly; an operation which the practitioners at bagnios perform with great dexterity.

The use of *dry cupping* is twofold; either to make a revulsion of the blood from some particular part affected, or else to cause a derivation of it into the affected part upon which the glass is applied. It is in the first sense that Hippocrates orders a large *cupping-glass* to be applied under the breasts of women, who have a too profuse discharge of the menses, intending thereby to cause a revulsion of the blood upwards to the uterus. And upon the same principle have hæmorrhages at the nose been stopped by applying *cupping-glasses* to the legs and feet, particularly about the ankles and knees. Spitting of blood from the lungs has also been cured by the same method; and Scultetus gives a remarkable instance of a woman, who by the repeated application of six *cupping-glasses*, without scarification, to her thighs, was not only relieved of the troublesome symptoms arising from an obstruction of the menses, but was also freed from the obstruction itself.

Dry cupping is also used with success to make a revulsion by applying the glasses to the temples, behind the ears, or to the neck and shoulders, for the removal of pains, vertigoes, and other disorders of the head. They are also applied to the upper and lower limbs, to drive blood and spirits into them when they are paralytic; and lastly, to remove the sciatica, or other pains in the joints. The operation in these cases, is to be repeated till the part looks red, and becomes painful. Heister's Surgery, p. 308.

CUPPING-glass, *cucurbitula*, in *Chirurgery*, a glass vessel, applied to certain parts of the body, to draw the blood and other humours from within, outwards; to be discharged through several incisions made with a scarificator. See the preceding article.

The vessel is of various dimensions: sometimes, instead of glass, it is made of wood, horn, brass, silver, &c.

CUPRESSUS, in Botany. See **CYPRESS**.

CUPRUM. See **COPPER**.

CURA avenacea, a diet-drink of OATS, much recommended by some authors in various distempers.

CURATAS. See **CAZIC**.

CURATE is properly a **PARSON**, or vicar of a parish, who hath the charge or cure of the parishioners' souls.

CURATE is now more generally used for a deputy, or substitute of the parson; or one who officiates in the place of the incumbent, or beneficiary. And in case of plurality of livings, or where a clergyman is old and infirm, it is requisite there should be a curate to perform the cure of the church. He is to be licenced and admitted by the bishop of the diocese, or by an ordinary, having episcopal jurisdiction: and when a curate hath the approbation of the bishop, he usually appoints the salary too; and in such case, if he be not paid, the *curate* hath a proper remedy in the ecclesiastical court, by a sequestration of the profits of the benefice: but if he hath no licence from

the bishop, he is put to his remedy at common law; where he must prove the agreement, &c. Rights of Clergy, 127. By statute, where *curates* are licensed by the bishop, they are to be appointed by him a stipend not exceeding 50 *l.* nor less than 20 *l.* *per annum*; according to the value of the livings: to be paid by the rector or vicar: and the same may be done on any complaint made. Stat. 12 Anne, c. 2.

There are perpetual *curates* as well as temporary, who are appointed where tythes are impropriate, and no vicarage endowed. These are not removeable, and the impropriators are obliged to find them, some whereof have certain portions of the tythes settled on them. Stat. 29 Car. II.

CURATELLA, in *Botany*, a genus of the *polyandria digynia* class; having a five-leaved calyx, four petals, two styles, a bipartite capsule, with double-seeded cells.

CURATIVE indication, among *Physicians*, that which directs what is to be done for the cure of a disease. See **SYMPTOM**, and **INDICATION**.

CURATOR, among the Romans, an officer under the emperors who regulated the price of all kinds of merchandize and vendible commodities in the cities of the empire.

They had likewise the superintendence of the customs and tributes; whence also they were called *logistæ*.

CURATOR, in *Civil Law*, a trustee, or person nominated to take care of the affairs and interests of a person emancipated, or interdicted.

In countries where the Roman law prevails, between the age of fourteen and twenty-four years, minors have *curators* assigned them; till fourteen, they have tutors.

CURATOR of an university, in the United Provinces, is an elective office, to which belong the direction of the affairs of the university; as, the administration of the revenues, the inspection of the professors, &c.

The *curators* are chosen by the states of each province; the university of Leyden has three; the burgher-masters of the city have the fourth.

CURB, in the *Manege*, a chain of iron fastened to the upper part of the branches of a bridle, in the part called the eye, and running over the horse's beard. Care should be taken that it be neither too long nor too short, and the links be large and smooth.

CURB, in *Farriery*, is a hard and callous swelling on the hind part of the hock, attended with stiffness, and sometimes with pain and lameness. See **SPAVIN**.

CURCAS, in *Botany*, a name given in Egypt to an esculent root, approaching to the taste and virtues of the *colocasia*.

It is also a name used in Malabar for a small fruit of the shape and size of a hazel nut. Both these things have the credit of being great provocatives: and it is very probable that the *curcas* of the East Indies may be the fruit called *bel* by Avicenna, and said to possess the same famous virtues. Garcias has been led into a very great error by this similarity of names and virtues, and supposes the *curcas* of Egypt the same with the *curcas* of the East Indies.

CURCULIO, in *Zoology*, the name of a genus of beetles, distinguished by having their antennæ affixed to an elongated horny snout. See **SCARABÆUS**.

CURCUM, in the *Materia Medica* of the *Arabians*, the name of the large celandine; the roots of which, when dried, were used by the dyers of those times as a yellow colour, and by the physicians as deobstruents.

CURCUMA, *turmeric*. See **TURMERIC**.

CURDLING, the coagulating or fixing any fluid body; particularly milk.

Pausanias says, that Aristæus son of Apollo, and Cyrene daughter of the river Penens, were the first who found the secret of *curdling* milk.

At Florence they *curdle* their milk for the making of cheese with artichoke flowers, in lieu of the rennet used for the same purpose among us.

The *Bisaltæ*, a people of Macedonia, Rochfort observes, live wholly upon *curdled* milk, i. e. on curds. He adds that curds are the whole food of the people of Upper Auvergne in France, and whey their only drink.

Women newly delivered are subject to have their milk *curdled*, converted into little grumæ, in their breast, which occasions violent pains; with shiverings in the back.

It is owing to the want of being sucked; whence the method of remedying, and preventing it is apparent.

CURE, in *Medicine*. See **PALLIATIVE** cure.

CURE of souls, a benefice, the incumbent whereof has the charge and guidance of the souls of the people within a certain extent of ground called a *parish*.

Such are a vicar, a rector, &c. in contradistinction to a prebend, a dean, a chanter, &c.

CURES, *sine*. See **SINE**.

CURE, in *Fakerry*, the same with **CASTING**.

CUREMA, in *Ichthyology*, the name of a fish of the mullet kind, but of a remarkable size, growing to two feet long, and having a very large moveable upper lip; the under one being small, triangular in figure, and scarce visible, being something shorter than the upper. Its eyes are large, and its fins of a fine silvery white; in all other respects it resembles the common mullet.

CURETES, in *Antiquity*, a sort of priests, or people of the isle of Crete; called also *corybantes*.

The name *curetes*, according to Strabo, was given them because of their cutting off the hair before, to prevent the enemy's taking hold thereof: the word being Greek *κῦρτες*, of *κῦρα*, *tonsure*, from *κῦρα*, *tondo*. Others derive it from *κῦροποιος*, the feeding or educating of a child; because they are said to have educated Jupiter.

The *curetes* are said to have been originally of mount Ida in Phrygia; for which reason they were also called *Idæi Dactylis*. Ovid says, they had their origin from a huge shower of rain: Lucian and Diodorus Siculus represent them as very expert in casting of darts; though other authors give them no weapons but bucklers and pikes: but all agree in furnishing them with tabors and castanets; and relate, that they used to dance much to the noise and clashing thereof.

Some authors, however, give a different account of the *curetes*: according to Pezron, and others, the *curetes* were, in the times of Saturn, &c. and in the countries of Crete and Phrygia, what the druids and bards were afterwards among the Gauls, &c. i. e. they were priests who had the care of what related to religion, and the worship of the gods.

Hence, as in those days it was supposed there was no communication with the gods but by divinations, auguries, and the operations of magic, the *curetes* passed for magicians and enchanters: to these they added the study of the stars, of nature, and poesy; and so were philosophers, astronomers, &c.

Such were the *curetes*, and after them the druids; with this difference, that the *curetes*, in the time of the Titans, went to the wars: for which reason they were armed, and were wonderfully dextrous in dancing cap-a-pie, shaking their bucklers and javelins; from which action, Pezron conjectures, they took their name *curetes*; *curo*, in the Celtic, being the same with *κῦρα* in the Greek, q. d. *I strike*, or *beat*.

According to Kircher, the *curetes* were what the *spirits* are among the Cabbalists, the *powers* in Dionysius, the *dæmons* among the Platonists, and the *gemi* among the Egyptians.

Vossius, De Idololat. distinguishes three kinds of *curetes*; those of Ætolia, those of Phrygia, and those of Crete, who were originally derived from the Phrygians.

The first, he says, took their name from *κῦρα*, *tonsure*; because, from the time of a combat, wherein the enemy seized their long hair, they always kept it cut: those of Phrygia and Crete, he supposes, were so called from *κῦρος*, *young man*; because they were young, or because they nursed Jupiter when he was young.

CURFEU, q. d. *couvre-feu*, a signal of retreat, given in cities taken in war, &c. to advertise the inhabitants to go to bed, and not to stir out any more.

The *curfeu-bell*, wherewith the signal was anciently given, was sometimes hung up as a punishment of sedition. Pasquier says, it was called *carfeu*, and *garfeu*; as being intended to advertise the people to secure themselves from the robbers and debauchees of the night.

The most ancient *curfeu* was that established in England by William the Conqueror; who appointed, under severe penalties, that, at the ringing of a bell at eight o'clock in the evening, every one should put out their lights, cover, or rake up their fires, and go to bed. Whence, to this day, where a bell is accustomed to be rung about bed-time it is called *curfeu-bell*. It was abolished by Henry I.

CURIA, in our *Ancient Customs*. It was usual for the kings of England to summon the bishops, peers, and great men of the kingdom, to some particular place, at the chief festivals in the year; and this assembly is called by our historians, *curia*: because they were consulted about the weighty affairs of the nation: whence it was sometimes also called *solemnis curia*, *generalis curia*, *Augustalis curia*, and *curia publica*, &c.

CURIA *advizare vult*, in *Law*, is a deliberation which the court sometimes take, before they give judgment in a cause wherein there seems to be any point of difficulty.

CURIAM, *accedas ad*. See **ACCEDAS**.

CURIÆ, *auxilium*. See **AUXILIUM**.

CURIA *baronum*. See **COURT**-baron.

CURIA *claudenda*, is a writ that lies against him who should fence and inclose the ground, but refuses or defers to do it.

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CURIA militum, a court so called; anciently held at Carisbrook castle, in the isle of Wight.

Et idem dominus Willielmus de insula facere debet sectam ad curiam domini castri de Carisbroc, de tribus septimanis in tres septimanas, in curia quæ vocatur curia militum.

CURIA, reclus in. See **RECTUS**.

CURIA, among the Romans, denoted a portion, or division, of a tribe.

In the time of Romulus, a tribe consisted of ten *curiæ*, or a thousand men; each *curia* being one hundred; that legislator made the first division of his people into thirty *curiæ*.

Afterwards, *curia*, or *domus curialis*, became used for the place where each *curia* held its assemblies.

Hence, also, *curia* passed to the senate-house; and it is from hence the moderns come to use the word *curia*, **COURT**, for a place of justice, and for the judges, &c. there assembled.

Varro derives the word from *cura*, *care*, q. d. an assembly of people charged with the care of public affairs: others deduce it from the Greeks; maintaining, that at Athens they called *κῦρια* the place where the magistrate held his assises, and the people used to assemble: *κῦρια*, again, may come from *κῦρος*, *authority*, *power*; because it was here the laws were made.

CURIALITAS Angliæ. See **COURTESY of England**.

CURIASSIERS, in *War*, horsemen that wear armour.

These have sometimes only breast-plates.

CURIATA comitia. See **COMITIA curiata**.

CURIACACA, in *Ornithology*, the name of a Brazilian bird, called *majorino* by the Portuguese. It is a very large bird, approaching to the size of a goose, but in shape resembling the curlew. Its beak is six fingers breadth long; its head and neck are covered with white and yellow feathers; and its whole body is black, except that on the back, the head, and the lower part of the belly, it has a greyish cast. It is much esteemed at table. There is another species of it smaller than the former, not exceeding the size of a pullet. It is common about the rivers.

CURIMATA, in *Ichthyology*, a name by which some authors have called the **LAVARETUS**, a small fish, of a sort of middle nature, between truttaceous and the herring kind, and caught in the American and German lakes.

CURING, is used for the preserving fish, flesh, and other animal substances, by means of certain additions of things, to prevent putrefaction. One great method of doing this, is by smoaking the bodies; that is, the making them imbibe a great quantity of vegetable fumes; for this is usually done where wood is burnt. The reason of this sort of preservation is easily seen by the curious enquirer, since wherever wood, or any vegetable of the acid tribe is burnt, the acid particles go off with the smoke, and in this form penetrate into, and lodge themselves in animal substances exposed thereto; by which means this smoke acts upon them in the same manner that the fumes of spirit of nitre would do: and whether it be not a nitrous acid that tinges hams, herrings, &c. to a redness in the drying, is a subject worth enquiry. Shaw's Lectures, p. 152.

CURIO, the chief, and priest of a **CURIA**.

Romulus, upon dividing the people into *curiæ*; gave each division a chief, who was to be priest of that *curia*, under the titles of *curio*, and *flamen curialis*.

His business was to provide and officiate at the sacrifices of the *curia*; which were called *curionia*; the *curia* furnishing him with a sum of money on that consideration: which pension or appointment was called *curionium*.

Each division had the election of its *curio*; but all these particular *curios* were under the direction of a superior, or general, called *curio maximus*; who was the head of the body, and elected by all the *curios*, assembled in the *comitia curialis*.

All these institutions were introduced by Romulus, and confirmed by Numa, as Halicarnæus relates it. Godwin will have two *curios* in each *curia*.

CURIOSUS, an officer of the Roman empire, during the middle age, appointed to take care that no frauds and irregularities were committed; particularly no abuses in what related to the posts, the roads, &c. and to give intelligence to the court of what passed in the provinces. This made the *curiosi* people of importance; and put them in a condition of doing more harm than they prevented: on which account, Honorius cashiered them, at least in some parts of the empire, anno 415.

The *curiosi* came pretty near to what we call *controllers*: they had their name from *cura*, *care*; *quod curis agendis & evectionibus curis publicis inspicendis operam darent.*

CURIOSI Naturæ, Academy of the. See **ACADEMY**.

CURLEW, the English name of the **ARQUATA** or **numenius**. Curlews frequent our coasts in winter in large flocks, but retire to breed in summer on the more mountainous parts

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of the country. Their flesh is rank and fishy, though some have highly commended it.

CURLEW, Stone, a species of the **CHARADRIUS**. It is a migratory bird, appears in England about the middle of April, and retires in autumn. It is remarkable for a piercing shrill noise, which it begins in the evening: it breeds in rabbit-burrows, and also lays its eggs, which are two, of a copper colour, among the stones on the bare ground. It feeds in the night on worms and caterpillars, and it is said they will catch mice. Its flesh is esteemed very delicate food. In habit, make, and manners, this bird approaches near to the **BUSTARD**.

CURMI, a name given by the ancients to a sort of malt liquor or ale. It was made of barley, and was drank by the people of many nations instead of wine, according to Dioscorides's account. He accuses it of causing pains in the head, generating bad juices, and disordering the nervous system. He also says, that in the western part of Iberia, and in Britain, such a sort of liquor was in his time prepared from wheat instead of barley.

CURNOCK, a measure of corn, containing four bushels or half a quarter.

CURRENT-tree, ribes, in *Betany*, a genus of the *pentandria monogynia* class. Its characters are these: the flower has a bellied empalement, cut at the top into five obtuse concave segments; it has five small, obtuse, erect petals, growing to the border of the empalement, and five awl-shaped stamina inserted in the empalement, terminated by incumbent compressed summits; a roundish germen is situated under the flower, supporting a bifid style, crowned by obtuse stigmas, which afterward becomes a globular umbilicated fruit, with one cell, containing many roundish compressed seeds. There are four species. The *current-tree* is said to have been first brought from the isle of Zant belonging to Venice; and planted in England in the year 1533.

The first sort grows naturally in the northern parts of Europe, but has been long cultivated in the gardens, and greatly improved; so that at present there are the following varieties in the English gardens; viz. The common *current* with small red fruit, the same with white fruit, and another with pale fruit, which is commonly called the *Champagne current*: but since the two sorts of Dutch *currents* have been introduced, and become common in the gardens, the old red and white *currents* have been almost banished. The second sort, called the sweet alpine *current*, is kept in a few gardens for the sake of variety; but as the fruit is very small, and has little flavour, it is not much cultivated. The third sort, which is a black *current*, grows naturally in Helvetia, Sweden, and other northern countries; and is sometimes cultivated in gardens for its fruit, of which is made a rob very much esteemed for sore throats; from whence the fruit has been called squinancy berries, on account of their great use in quinsies. As this fruit has a strong disagreeable flavour, it is seldom admitted to the table. The fourth sort grows naturally in Pennsylvania; but the fruit does not merit cultivation.

The fruit of the red and white *currents*, are greatly esteemed for the table, and are also very good in fevers: they are cooling and grateful to the stomach, quench thirst, and are somewhat restraining. The jelly made with the juice of this fruit and sugar, is very grateful in fevers, and is used as sauce to the table. This fruit may be procured good much longer than most others, upon the plants, by planting them in different situations: for if they are planted against pales or walls exposed to the south, the fruit will ripen in June; and by planting some against north walls, if they are screened from birds, and covered from the autumnal frosts, they may hang until November; and as the fruit is greatly used for tarts, it is very convenient to keep a succession of them for so long a time.

The several species of *currents* are very easily propagated, by planting their cuttings any time from September to March, upon a spot of fresh earth, which must be carefully kept clear from weeds in the spring; and in the dry weather, the young plants must be frequently watered. When they have stood about two years in this place, they will be fit to transplant to the places where they are to remain: and this should be done when the leaves are just decayed, that they may have time to be rooted before winter. If they are for standards, they should be planted in rows of ten feet distance from one another, and the trees in each row four feet from each other; but the much better way is to train them in espaliers, in which state they take up much less room, and their fruit is much the finer. They should be placed at eight feet distant in espaliers, and all their branches trained horizontally. They are to be allowed the same distance when set against walls or pales.

Current-trees produce their first fruit on the former year's wood,

wood, and also on small snags that come out of the old wood. This may give a caution as to the manner in which they are to be pruned.

They will thrive in any soil or situation; but this fruit is always best tasted when they grow in a dry soil, and an open spot of ground. Miller.

CURRENTS, in *Commerce*, a kind of little raisins, or dried grapes of different colours, black, white, or red; brought from several places of the Archipelago, and among others from the isthmus of Corinth; whence their name, *currants*, q. d. *Corinths*.

They must be chosen new, small, and in large masses; and care be taken, that the little Spanish *currants* be not soiled in their room. When made up in bales, they may keep two or three years, without stirring, or giving them air. Their use is in seasoning several viands, and in some medicinal compositions; where they serve in lieu of raisins. Sir George Wheeler's account of these fruits, and the manner of preparing them, is very curious. The island of Zant, he observes, is the chief place whence *currants* are brought: the Morea, or the isthmus of Corinth, which was anciently the principal plantation, and whence the Latins denominated them *uva Corinthiaca*, now produces no more, as having been much neglected; the jealousy of the Turks not allowing large vessels to enter the gulf to take them off their hands.

They do not grow on bushes, like our gooseberries, though that be the common opinion, but on vines, like other grapes; except that the leaves are somewhat thicker, and the grapes somewhat smaller: they have no stone, and in this country, are red, or rather black.

They gather them in August, dispose them in couches on the ground till they be dry, clean them, and lay them up in magazines, which the natives call *seraglios*; pouring them in at a hole, till the magazine be full. They cling so fast together by their own weight, that they are forced to be dug out with iron instruments.

To barrel them for sending abroad, they have people who grease their feet, and legs, and tread them close, that they may keep better. They are sold for about twelve crowns the thousand weight; and pay as much custom to the state of Venice.

Zant produces enough yearly to load five or six vessels; Cephalonia three or four; and the other islands one. The English have a factory at Zant; the Dutch two or three merchants, and the French one: the English consuming more than six times the quantity that both France and Holland do together. Those of Zant know but little of the use we make of them; being persuaded they only serve in dying of cloth; and being entirely ignorant of the luxury of Christmas pyes, and English puddings.

CURRENT, or **COURANT money**, good money, or that which passes in commerce from one to another. See **COURANT**.

CURRENT accmpts. See **BOOK**.

CURRENT coins. See **COINS**.

CURRENT price. See **PRICE**.

CURRENT, *Curranto*, also denotes a sort of running French dance; sometimes a musical air in triple time. See **COURANT**.

CURRE, an English name for the fish called by authors *cuculus*, and by us more frequently named the *red GURNARD*.

CURRENCY. *Paper currency*, with respect to the British colonies in America.

On the first settlement of these colonies, an English crown was five shillings in denomination; but the trade there was chiefly carried on by exchanging one commodity for another, and with little or no silver or gold: sugar, tobacco, and rice, served as a medium for trade in some of the plantations.

As the American commerce flourished, foreign specie were introduced, and became a medium for trade; and bills of credit, commonly called paper credit, or paper currency, were remitted to some colonies by their governments, to be discharged by a tax or otherwise, at certain times to come, which added to their medium of trade and circulation, and answered the intention of these colonies while they kept within due bounds.

As the said silver coin went by tale, and were not milled, they were clipped to such a degree, that the exchange to England varied in proportion; and the paper currency also varied in value, and was depreciated in several of the colonies, occasioned by their remitting more than their trade and property could bear, or from some other mistaken conduct.

Now for the better regulating all money and exchange throughout his majesty's colonies and plantations in America, it may be proposed that there be an equal and fixed price for silver throughout all those colonies; and

that all contracts or bargains from some certain day to come, be made for such money; and such money to be accounted, received, taken, paid, sued for, and recovered accordingly. And no recovery to be made for any money of different sorts or denominations, that shall be contracted for after such time, except for such money and at such prices as shall thus be settled. This will naturally be called sterling money, proclamation money, or new money; and what is now current, be it what it will, will be called old currency, or old money.

Notwithstanding such a regulation, there would still be a small exchange in the several plantations, in proportion to the risk, charge, and other incidents attending the transporting money from one colony to another: but every one for the future may expect an equal value upon the repayment of the money he shall credit, lend, or trade for, without having the value of his property diminished by any law or custom while it is in other people's hands, which is the principal aim of the proposition.

CURRENT, from *curro*, *I run*, in *Hydrography*, a stream or flux of water in any direction. The setting of the *current*, is that point of the compass towards which the waters run; the drift of a *current*, is the rate it runs an hour.

Currents, in the sea, are either *natural* and *general*, as arising from the diurnal rotation of the earth on its axis; or *accidental* and *particular*, caused by the waters being driven against promontories, or into gulfs and freights, where, wanting room to spread, they are driven back, and thus disturb the ordinary flux of the sea.

The *currents* are so violent under the equator, where the motion of the earth is the greatest, that they carry vessels very speedily from Africa to America; but absolutely prevent their return the same way: so that ships are forced to run as far as the fortieth degree of latitude, to find a passage into Europe.

In the Straights of Gibraltar, the *currents* almost constantly drive to the eastward, and carry ships into the Mediterranean; they are usually, too, found to drive the same way in St. George's Channel. The great violence and danger of the sea in the Straights of Magellan, is attributed to two contrary *currents* setting in, one from the South, and the other from the North sea.

CURRENTS, with respect to *Navigation*, may be defined, certain progressive motions of the water of the sea, in several places; by which a ship may happen to be carried forward more swiftly, or retarded, in her course, according to the direction or setting of the *current*, in, with, or against, the course or way of the ship.

The business of *currents* making a considerable article in navigation; the way they set, together with their strength is to be carefully observed: this some do by the rippings of the water, and by the driving of the froth along the shore, when in sight of it; but the more usual as well as more accurate way, is thus: they first fix their boat, by throwing out a triangular piece of wood, with a piece of lead fastened to it, and tied to the stem of the boat with a cord, and letting it sink eighty or a hundred fathom; or sometimes by a kettle tied by the bowl, and sunk as the other. By either of these means, the boat is brought to ride as at anchor; which done, the log is cast over, the glass turned, and as the log-line veers out, the drift of the log is set with the compass. See **CALM**.

This shews whether there be any *current*, or none; and if any, which way it sets, and at what rate it drives: observing, however, to add something to the drift, for the boat's drift; for though she appear to stand still, yet, in reality, she is found to move. This addition, experience has thus determined: if the line she ride by be sixty fathom, a third part of the drift to be added; if eighty fathom, a fourth; if a hundred, a fifth.

If a ship sail along the direction of a *current*, it is evident the velocity of the *current* must be added to that of the vessel: if her course be directly against the *current*, it must be subtracted: if she sail athwart the *current*, her motion will be compounded with that of the *current*; and her velocity augmented, or retarded, according to the angle of her direction with that of the direction of the *current*; i. e. she will proceed in the diagonal of the two lines of direction, and will describe or pass through that diagonal in the same time wherein she would have described either of the sides, by the separate forces.

To determine a ship's course and distance, sailing obliquely with, or against, a *current*. Suppose, v. gr. she sails N. E. 110 miles, in a *current* which sets S. W. 30 miles in the same time: to solve the problem geometrically; set off four points from N towards E (*Tab. Navigation*, fig. 15.), and draw AC equal to 110 miles; from C draw CB, parallel to the line NNE, and equal to 30 miles: lastly, draw AB, which will be the ship's true course and distance.

To find which trigonometrically. In the triangle ABC, there are given AC 110, BC 30, and the angle C $22^{\circ} 30'$: then, $AC+BC$; $AC-BC$: : t , $\frac{1}{2}A+B$: : t , $\frac{1}{2}B-A$. That is, as the sum of AC and BC, viz. 140, is to their difference 80: : so is the tangent of $78^{\circ} 45'$ to the tangent of $70^{\circ} 49'$. Hence her true course appears to be N. E. $7^{\circ} 56'$ easterly. For her distance; as the sine of the angle A, $7^{\circ} 56'$, is to the drift of the current BC, 30, so is the sine of the angle at C $22^{\circ} 30'$, to the distance run, viz. 83 miles.

CURRENTS, Under, are distinct from the upper or apparent, and in different places set or drive a contrary way. Dr. Thomas Smith, Phil. Trans. N^o 158. or Abr. vol. ii. p. 288, 289, makes it highly probable, that in the Downs, in the Streights of Gibraltar, &c. there is an under-current, whereby as much water is carried out, as is brought in by the upper-currents.

This he argues from the offing between the north and south Foreland, where it runs tide and half-tide, i. e. it is either ebb or flood in that part of the Downs three hours before it is so off at sea: a certain sign, that though the tide of flood runs aloft, yet the tide of ebb runs under-foot, i. e. close by the ground: and so at the tide of ebb it will flow under-foot.

This he confirms by an experiment in the Baltic Sound, communicated to him by an able seaman present at the making it: being there, then, with one of the king's frigates, they went with their pinnace into the mid-stream, and were carried violently by the current. Soon after that, they sunk a basket with a large cannon-bullet, to a certain depth of water, which gave check to the boat's motion; and sinking it still lower and lower, the boat was driven a-head to the windward, against the upper-current; the current aloft not being above four or five fathom deep. He added, that the lower the basket was let down, the stronger the under-current was found.

From this principle, it is easy to account for that continual in-draught of water out of the Atlantic into the Mediterranean, through the Streights of Gibraltar; a passage about twenty miles broad: yet, without any sensible rising of the water along the coasts of Barbary, &c. or any overflowing of the lands, which there lie very low.

Dr. Halley solves the currents setting in at the Streights without overflowing the banks, by the great evaporation; without supposing any under-current.

CURRICULUS, in our Ancient Writers, denotes the year, or course of a year.

Actum est hoc annorum dominicæ incarnationis quater quinquagenis & quinquies, quinis lustris, & tribus curriculis; i. e. in the year 1028: for four times fifty makes two hundred, and five times two hundred makes one thousand; five lustris are twenty five-years, and three curriculi are three years.

CURRIED hide. See HIDE.

CURRIERS are those who dress and colour leather, after it comes from the tan-yard. If curriers do not carry leather that is sent to them, within sixteen days between Michaelmas and Lady-day, and in eight days at other times, they are liable to a forfeiture of 5*l.* on conviction before a justice, to be levied by distress, &c. but subject to a mitigation. 12 Geo. II. c. 25.

CURRODREPANUS, formed of *currus*, chariot and *σπαρῶν*, scythe, or sickle; in Antiquity, a kind of chariot armed with scythes. The driver of these chariots was obliged to ride on one of the horses, as there was no other seat for him; the usual place for him being all armed with knives, as was likewise the hinder part of the chariot. There were no scythes pointing down to the earth, either from the beam or axle-tree; but these were fixed at the head of the axle-tree in such a manner, as to be moveable by means of a rope, and thereby could be raised or let down, and drawn forward or let fall backward, by relaxing the rope.

CURRY-comb, an instrument full of small teeth, used for currying horses.

CURRYING is the art of dressing cow-hides, calves-skins, seal-skins, &c. principally for shoes: and this is done either upon the flesh or the grain.

In dressing leather for shoes on the flesh, the first operation is soaking the leather in water, until it be thoroughly wet; then the flesh-side is shaved on a beam, about seven or eight inches broad, with a knife of a peculiar construction, to a proper substance, according to the custom of the country, and the uses to which it is to be applied.

This is one of the most curious and laborious operations in the whole mystery of currying. The knife used for this purpose is of a rectangular form, with two handles, one at each end, and a double edge. They are manufactured at Cirencester, and composed of iron and steel: the edge is given to them by rubbing them on a flat stone

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of a sharp gritty substance, till it comes to a kind of wire; this wire is taken off by a fine stone; and the edge is then turned to a kind of groove wire by a piece of steel, in form of a bodkin, which steel is used to renew the edge in the operation.

After the leather is properly shaved, it is thrown into the water again, and scoured upon a board or stone commonly appropriated to that use. Scouring is performed by rubbing the grain or hair-side with a piece of pumice-stone, or with some other stone of a good grit, not unlike in thickness and shape to the slate with which some houses are covered. These stones force out of the leather a white sort of substance, called the bloom, produced by the oak-bark in tanning. The hide or skin is then conveyed to the shade or drying place, where the oily substances are applied, termed stuffing or dubbing: the oil used for this purpose is prepared by the oil leather-dressers, by boiling sheep-skins or doe-skins in cod oil. This is put on both sides of the leather, but in a greater and thicker quantity on the flesh, than on the grain or hair-side.

Thus we have pursued the currying of leather in its wet state, and through its first stage, commonly called getting out.

When it is thoroughly dry, an instrument with teeth on the under-side, called a graining board, is first applied to the flesh-side, which is termed graining; then to the grain-side, called bruising: the whole of this operation is intended to soften the piece of leather, to which it is applied. Whitening or paring succeeds, which is performed with a fine edge on the knife already described, and used in taking off the grease from the flesh. It is then boarded up or grained again, by applying the graining board, first to the grain, and then to the flesh.

It is now fit for waxing, which begins with colouring. This is performed by rubbing with a brush dipped in a composition of oil and lamp-black on the flesh, till it be thoroughly black: it is then fixed, called black sizing, with a brush or sponge, dried, tallowed with a woollen cloth; and slicked upon the flesh with a broad smooth piece of glass, sized again with a sponge: and when dry, this sort of leather, called waxed or black on the flesh, is curried.

Currying leather on the hair or grain-side, termed black on the grain, is the same in the first operation with that dressed on the flesh, till it is scoured. Then the first black is applied to it, while wet; which black is a solution of copperas in fair water, or in the water in which the skins, as they come from the tanner, have been soaked: this is first put upon the grain, after it has been rubbed with a stone; then rubbed over with a brush dipped in stale urine; slicked out with an iron slicker, in order to make the grain come out as fine as possible; and then stuffed, in the manner already described among the first operations of currying: and when dry, it is seasoned, i. e. rubbed over with a brush dipped in copperas water on the grain, till it be perfectly black; then slicked with a stone of a good grit, to take out the wrinkles and coarse grain as much as possible: after this the grain is raised with a fine graining board, by turning the skin or piece of leather in various directions; and when a little dried, it is bruised, in order to soften it. When it is thoroughly dry, it is whitened, bruised again, and grained in two or three different ways; and when oiled upon the grain with a mixture of oil and tallow, it is finished.

Bull and cow-hides are sometimes curried for the use of saddlers and collar-makers; but the principal operations are much the same as those we have already described. It should, however, be observed, that only a small portion of flesh is taken off from hides designed for these purposes. Hides for the roofs of coaches, &c. are shaved nearly as thin as shoe-hides, and blacked on the grain.

CURSED. See ACCURSED, and CORZNED.

CURSITOR, an officer or clerk belonging to the court of chancery, who maketh out original writs.

These are also called clerks of the course, and are twenty-four in number; making a corporation of themselves. To each of them are allotted several shires; in which shires they make out such original writs as are by the subject required.

CURSOR, a little ruler, or label of brass, divided like a line of fines, and sliding in a groove, or notch, along the middle of another label, or ruler, representing the horizon, and always at right angles to it. It is used in the analemma.

CURSOR is also used for a point screwed on the beam-compass; and which may be moved, or slid along the beam thereof, for the striking of greater or less circles.

CURTAILING, in the Manege, the docking, or cutting off a horse's tail.

The practice of *curtailing* is no where in vogue so much as in England; it being a popular opinion, that the cutting off the tail renders the horse's chine or back the stronger, and more able to bear burdens.

The amputation is usually made between the fourth and fifth joints of the tail; a ligature being first tied tight about the place, to prevent the flux of blood; and the raw stump afterwards seared up with a hot iron, till the extremities of the vessels be all stopped.

This absurd and barbarous custom is now in great measure out of fashion; and horses are allowed to enjoy the use, and retain the beauty of their tails, as given to them by nature.

CURTAIN, in *Fortification*, See **CURTIN**.

CURTAINS, in a *Fire-ship*, are pieces of a coarse canvas, about three quarters of a yard wide, and a yard long, thickened in a melted composition of pitch, sulphur, rosin, tallow, and tar, and covered with saw-dust on both sides.

CURTATE distance, in *Astronomy*, the distance of a planet's place from the sun, reduced to the ecliptic: or, the interval between the sun, and that point where a perpendicular, let fall from the planet, meets with the ecliptic.

CURTATION, in *Astronomy*, the interval between a planet's distance from the sun, and the *curtate* distance.

From the preceding article, it is easy to find the *curtate* distance; whence the manner of constructing tables of *curtation* is obvious.

The quantity of inclination, reduction, and *curtation* of a planet, depending on the argument of the latitude. Kepler, in his Rudolphin Tables, reduces the tables of them all into one, under the title of *Tabulæ Latitudinariæ*.

CURTESY. See **COURTESY**.

CURTEYN, *Curtana*, a name given to king Edward the Confessor's sword, which is the first sword that is carried before the kings of England at their coronation.

It is said, the point of it is broken, as an emblem of mercy.

CURTICONE, in *Geometry*, a cone whose top is cut off by a plane parallel to its basis; called also **TRUNCATED cone**.

CURTILAGE, *Curtilagium*, in *Law*, a yard, backside, or piece of ground, lying near a dwelling-house.

CURTILLA, in *Zoology*, a name given by some to the *corvus sylvaticus* of Gesner.

CURTIN, **CURTAIN**, or **COURTINE**, in *Fortification*, that part of a wall, or rampart, which is between two bastions; or which joins the **FLANKS** thereof. See *Tab. Fortification*, fig. 21. *lit. q q*.

Du-Cange derives the word from the Latin, *cortina*, *quasi minor cortis*, a little county-court, inclosed with walls: he says, it was in imitation hereof, that they gave this name to the walls and parapets of cities, which inclose them like courts: he adds, that the *curtains* of beds take their name from the same origin; that *cortis* was the name of the general's, or prince's tent; and that those who guarded it were called *cortinarii* and *curtisani*.

The *curtin* is usually bordered with a parapet five feet high; behind which the soldiers stand to fire upon the covert-way, and into the moat.

Besiegers seldom carry on their attacks against the *curtin*, because it is the best flanked of any part.

CURTIN, *angle of the*. See **ANGLE**.

CURTIN, *complement of the*. See **COMPLEMENT**.

CURVATAPINIMA, in *Ichthyology*, a name by which some authors call the fish more frequently named the **BONITO**.

CURVATOR coccygis, in *Anatomy*, a name given by Albinus to a muscle of the coccyx discovered by himself, and not described by any other author. It is an oblong, thin, and small muscle, and for the most part tendinous. It arises with a double head, one from the inner, and the other from the lower and lateral part of the *os sacrum*; and, descending, terminates in three extremities. He calls it the *curvator coccygis* from its office, which is the bending the coccyx; and says, that he found it in different states, in three subjects: one very perfect and entire; in a second, more imperfect and degenerating; and in the third, resembling a ligament rather than a muscle.

CURVATURE of a line, is its bending, or flexure; whereby it becomes a curve, of any peculiar form and properties.

Thus, the *curvature* of the circle is such, as that all points of the periphery are equally distant from one point within, called the *centre*.

The *curvatures* of different circles are to each other reciprocally as their radii.

The theory of the *curvature* of lines is of great use in geometry, in the physico-mathematical sciences. Hence mathematicians have treated this subject fully. We shall

here insert as much of this doctrine as seems necessary to enable beginners to form a just notion of the subject, and refer those who desire a farther knowledge to Mr. Mac Laurin's Treatise of Fluxions, whom we have in this, as in many other articles, followed; because he every where endeavours to avoid that air of paradox and mystery, which has been more than once made a reproach to modern mathematicians.

Any two right lines applied to each other, perfectly coincide; and the rectitude of lines admits of no variety. Arches of equal circles applied upon each other, perfectly coincide likewise; and the *curvature* is uniform in all the parts of the same, or of equal circles. Arches of unequal circles cannot be applied upon each other so as to coincide; but when they touch each other, the arch of the greater circle is less inflected from the common tangent, and passes betwixt it and the arch of the lesser circle, through the angle of contacts formed by them, and is therefore less curve. Any two arches of curve lines touch each other when the same right line is the tangent of both at the same point; but when they are applied upon each other in this manner, they never perfectly coincide, unless they be similar arches of equal and similar figures: and the *curvature* of lines admits of indefinite variety. As the *curvature* is uniform in a given circle, and may be varied at pleasure in circles by increasing or diminishing their diameters, their flexure or *curvature* will therefore serve for measuring that of other lines. Only one right line can be the tangent of a given arch of a curve at the same point; but an indefinite variety of circles may touch it there; and these have various degrees of more and less intimate contact with it. And as of all the right lines that can be drawn through a given point in the arch of a curve, that is the tangent which touches the arches so closely that no right line can be drawn between them: so of all the circles that touch a curve in any given point, that is said to have the same *curvature*; with it, which touches it so closely that no circle can be drawn through the point of contact between them, all other circles passing either within or without them both.

This circle is called the *circle of curvature*; its centre, the *centre of curvature*; and its semidiameter, the *ray* or *radius of curvature*, belonging to the point of contact. It is also called, especially by foreign mathematicians, the *osculatory circle*.

The arch of this circle cannot coincide with the arch of the curve, but it is sufficient to denote it the circle of *curvature*, that no other can pass between them; as the tangent of the arch of a curve cannot coincide with it, but is applied to it so that no right line can be drawn between them.

As in all figures, rectilinear ones excepted, the position of the tangent is continually varying; so the *curvature* is continually varying in all curvilinear figures, the circle only excepted.

As the curve is separated from its tangent by its flexure or *curvature*, so it is separated from the circle of *curvature* in consequence of the increase or decrease of its *curvature*; and as its *curvature* is greater or less, according as it is more or less inflected from the tangent, so the variation of *curvature* is the greater or less, according as it is more or less separated from the circle of *curvature*.

It is manifest, that there is but one circle of *curvature* belonging to an arch of a curve at the same point. For if there were two such circles, any circle described between these through that point, would pass between the curve and circle of *curvature*; against the supposition.

When any two curves touch each other in such a manner that no circle can pass between them, they must have the same *curvature*; for the circle that touches the one so closely that no circle can pass between them, must touch the other in the same manner.

It appears from the demonstration of geometers, that circles may touch curve lines in this manner; that there may be indefinite degrees of more or less intimate contact between the curve and the circle of *curvature*; and that a conic section may be described that shall have the same *curvature* with a given line at a given point, and the same variation of *curvature*, or a contact of the same kind, with the circle of *curvature*.

If we conceive the tangent of any proposed curve to be a base, and that a new line be described, whose ordinate is a third proportional to the ordinate and base of the first; this new line will determine the chord of the circle of *curvature*, by its intersection with the ordinate at the point of contact; and by the tangent of the angle in which it cuts that circle, it will measure the variation of the *curvature*. The less this angle is, the closer is the contact of the curve and circle of *curvature*: and of this contact there may be indefinite degrees.

To give an example: let any curve EMH (*Tab. II. Analysis*,

Analysis, fig. 44.), and a circle ERB touch the right line ET on the same side at E ; let any right line TK , parallel to the chord EB , meet the tangent in T , EMH in M , and a curve BKF that passes through B in K : then if the rectangle MTK be always equal to the square of ET , the *curvature* of EMH at E will be the same as that of the circle ERB ; and the contact EM and ER will always be the closer, the less the angle is that is contained at B by the curve BKF , and the circle of *curvature* BQE .

For it is demonstrable from the elements of geometry (see Mac Laurin's Fluxions, art. 366.) that all the circles that can be described through E fall without both ER and EM , or within them both, and no circle whatever can pass between them when the rectangle MTK is always equal to the square of ET , and the curve in which K is always found, passes through B , and consequently the circle ERB , and the curve EM , have the same *curvature* at E .

Now let Em (*fig. 45.*), any other curve touching ET in E , and fkB another curve passing through B meet TK in m and k , and let the rectangle mTk be likewise equal to the square of ET ; then will the *curvature* of Em at E be the same as that of the curve EM , as has been mentioned. But the rectangle mTk , MTK , RTQ being equal to each other, and their sides therefore in a reciprocal proportion to each other, it is plain that if the arch Bk pass between BK the arch of the curve BKF , and BQ the arch of the circle BQE ; the curve Em must pass between EM the arch of the curve EMH , and ER the arch of the circle of *curvature* ERB : so that Em must have a closer contact with this circle than EM has with it; and the less the angle is that is formed by the curve FKB and the circle of *curvature* EQB at B , the closer is the contact at E of the curve EMH and the circle of *curvature* ERB . Thus the curve BKF , by its intersection with EB , determines the *curvature* of EM ; and by the angle in which it cuts the circle of *curvature* it determines the degree of contact of EM and that circle, the angle BET and the right line ET being given.

Hence it follows, that the contact of the curve EMH and the circle of *curvature*, is closest when the curve BK touches the arch BQ in B , the angle BET being given; but it is farthest from this, or is most open, when BK touches the right line EB in B .

Hence, also, there may be indefinite degrees of more and more intimate contact between a circle and a curve. The first degree is, when the same right line touches them both in the same point; and a contact of this sort may take place betwixt any circle and any arch of a curve. The second is when the curve EMH and circle ERB have the same *curvature*, and the tangents of the curve BKF and circle BQE intersect each other at B in any assignable angle. The contact of the curve EM and circle of *curvature* ER at E , is of the third degree, or order, and their osculation is of the second, when the curve BKF touches the circle BQE at B , but so as not to have the same *curvature* with it. The contact is of the fourth degree, or order, and their osculation of the third, when the curve BKF has the same *curvature* with the circle BQE at B , but so as that their contact is only of the second degree: and this gradation of more and more intimate contact, or of approximation towards coincidence, may be continued indefinitely, the contact of EM and ER at E being always of an order two degrees closer than that of BK and BQ at B . There is also an indefinite variety comprehended under each order: thus, when EM and ER have the same *curvature*, the angle formed by the tangents of BK and BQ admits of indefinite variety, and the contact of EM and ER is the closer, the less that angle is. And when that angle is of the same magnitude, the contact of EM and ER is the closer the greater the circle of *curvature* is. When BK and BQ touch at B , they may touch on the same or on different sides of their common tangent; and the angle of contact KBQ may admit of the same variety with the angle of contact MER ; but as there is seldom occasion for considering those higher degrees of more intimate contact of the curve EMH and circle of *curvature* ERB , Mr. Mac Laurin calls the contact or osculation of the same kind, when the chord EB and angle BET being given, the angle contained by the tangents of BK and BQ is of the same magnitude.

When the *curvature* of EMH increases from E towards H , and consequently corresponds to that of a circle gradually less and less, the arch EM falls within ER , the arch of the circle of *curvature* and BK is within BQ . The contrary happens when the *curvature* of EM decreases from E towards H , and consequently corresponds to that of a circle that is gradually greater and greater, the arch EM falls without ER , the arch of the circle of

curvature, and BK is without BQ . And according as the *curvature* of EM varies more or less, it is more or less unlike to the uniform *curvature* of a circle; the arch of the curve EMH separates more or less from the arch of the circle of *curvature* ERB , and the angle contained by the tangents of BKF and BQE at B , is greater or less. Thus the quality of *curvature*, as it is called by sir Isaac Newton, depends on the angle contained by the tangents of BK and BQ at B ; and the measure of the inequability or variation of *curvature*, is as the tangent of this angle, the radius being given, and the angle BET being right.

The rays of *curvature* of similar arches in similar figures, are in the same ratio as any homologous lines of these figures; and the variation of *curvature* is the same. See Mac Laurin, lib. cit. sect. 370.

When the proposed curve EMH is a conic section, the new line BKF is also a conic section; and it is a right line when EMH is a parabola, to the axis of which the ordinates TK are parallel. BKF is also a right line when EMH is an hyperbola, to one asymptote of which the ordinate TK is parallel.

When the ordinate EB , at the point of contact E , instead of meeting the new curve BK , is an asymptote to it, the *curvature* of EM will be less than in any circle; and this is the case in which it is said to be infinitely little, or that the radius of *curvature* is infinitely great. Of this kind is the *curvature* at the points of contrary flexure in lines of the third order.

When the curve BK passes through the point of contact E , the *curvature* is greater than in any circle, or the radius of *curvature* vanishes; and in this case the *curvature* is said to be infinitely great. Of this kind is the *curvature* at the cusps of the lines of the third order.

As to the circles of *curvature* for lines of the third or higher orders, see lib. cit. art. 379. and art. 380. when the proposed curve is mechanical.

As lines which pass through the same point have the same tangent when the first fluxions of the ordinates are equal, so they have the same *curvature* when the second fluxions of the ordinate are likewise equal; and half the chord of the circle of *curvature* that is intercepted between the points wherein it intersects the ordinate, is a third proportional to the right lines that measure the second fluxion of the ordinate and first fluxion of the curve, the base being supposed to flow uniformly. When a ray revolving about a given point, and terminated by the curve, becomes perpendicular to it, the first fluxion of the radius vanishes: and if its second fluxion vanishes at the same time, that point must be the centre of *curvature*. The same may be said, when the angular motion of the ray about that point is equal to the angular motion of the tangent of the curve; as the angular motion of the radius of a circle about its centre is always equal to the angular motion of the tangent of the circle. Hence the various properties of the circle may suggest several theorems for determining the centre of *curvature*.

See also art. 396. of the said treatise, and the following, concerning the *curvature* of lines that are described by means of right lines revolving about given poles, or of angles that either revolve about such poles, or are carried along fixed lines.

It is to be observed, that as when a right line intersects an arch of a curve in two points, if by varying the position of that line the two intersections unite in one point it then becomes the tangent of the arch; so when a circle touches a curve in one point and intersects it in another, if, by varying the centre, this intersection joins the point of contact, the circle then has the closest contact with the arch, and becomes the circle of *curvature*; but it still continues to intersect the curve at the same point where it touches it, that is, where the same right line is their common tangent, unless another intersection join that point at the same time. In general, the circle of *curvature* intersects the curve at the point of osculation, only, when the number of the successive orders of fluxions of the radius of *curvature*, that vanishes at the term of time when this radius comes to the point of osculation, is an even number.

It has been supposed by some, that two points of contact, or four intersections of the curve and circle of *curvature*, must join to form an osculation. But Mr. James Bernoulli insisted justly, that the coalition of one point of contact and one intersection, or of three intersections, was sufficient. In which case, and in general, when an odd number of intersections only join each other, the point where they coincide continues to be an intersection of the curve and circle of *curvature*, as well as point of their mutual contact and osculation. See Mac Laurin's Fluxions, art. 493.

From these principles the circle of *curvature* at any point of a conic section may be determined. Suppose EMH

(fig. 46,) to be any conic section, ET the tangent at E , HI a tangent parallel to EB (a chord of the circle of curvature) that meets ET in I , and let EMH meet EB in G . Take EB to EG , in the same ratio as the square of EI is to the square of HI ; or, when the section has a centre as in the ellipsis and hyperbola, as the square of the semi-diameter Oa parallel to ET , is to the square of the semi-diameter OA parallel to EB ; and a circle described upon the chord EB that touches ET , will be the circle of curvature.

When BEI is a right angle, or EB is the diameter of the circle of curvature, EG will be the axis of the conic section, and EB will be the parameter of this axis; and when the point G where the conic section cuts EB , and B are on the same side of the point E , EMG will be an ellipsis, and EG the greater or lesser axis, according as EG is greater or less than EB .

The propositions relating to the curvature of the conic sections, commonly given by authors, follow without much difficulty from this construction.

1. When the chord of curvature thus found passes through the centre of the conic section, it will then be equal to the parameter of the diameter that passes through the point of contact.

2. The square of the semi-diameter Oa , is to the rectangle of half the transverse and half the conjugate axis, as the ray of curvature CE is to Oa . And therefore the cube of the semi-diameter Oa , parallel to the tangent ET , is equal to the solid contained by the radius of curvature CE , and the rectangle of the two axes.

3. The perpendicular to either axis bisects the angle made by the chord of curvature, and the common tangent of the conic section and circle of curvature.

4. The chord of the circle of curvature that passes through the focus, the diameter conjugate to that which passes through the point of contact, and the transverse axis of the figure, are in continued proportion.

5. When the section is an ellipsis, if the circle of curvature at E meet Oa in d , the square of Ed will be equal to twice the square of Oa . Hence $Ed : Oa :: \sqrt{2} : 1$. Which gives an easy method of determining the circle of curvature to any point E , when the semi-diameter Oa is given in magnitude and position.

Several other properties of the circle of curvature, and methods of determining it when the section is given; or vice versa, of determining the section when the circle of curvature is given, may be seen in Mr. MacLaurin's Fluxions, art. 375.

CURVATURE, variation of. See **VARIATION**.

CURVATURE, double, is used for the curvature of a line, all the parts of which are not situated in the same plane.

CURUCUI, in *Ornithology*, the name of an American bird of the wood-pecker kind, and very remarkably beautiful.

CURVE, in *Geometry*, a **LINE** whose several points tend several ways, or are posited towards different quarters.

In this sense, the word is used in opposition to a straight line, whose several points are posited towards the same quarter.

Hence, figures terminated with lines of the first sort are called *curvilinear* figures; in opposition to those terminated with the latter, called *rectilinear* figures.

The doctrine of curves, and of the figures and solids generated from them, constitute what we call the *higher geometry*.

In a curve, the line AD (*Tab. Geometry*, fig. 12.) bisecting the parallel lines MM , is called the *diameter*: if the lines be equidistant, and it cut them at right angles, it is called the *axis*; and the point A , whence the diameter is drawn, is called the *vertex*.

The equidistant lines, MM , are called *ordinates*, or *applicates*; and their halves, PM , *semiordinates*.

The portion of the diameter AP , between the vertex, or other fixed point, and an ordinate, is called the *abscisse*. And the concourse of all the diameters, the *centre*.

Modern geometers frequently consider curves as composed of an infinite number of infinitely small right lines; and it is often said, that the ancients also considered curves as polygons of an infinite number of sides. But it is certain, that this principle no where appears in their writings. We never find them resolving any figure into infinitely small elements. On the contrary, they seem to avoid such suppositions, as if they judged them unfit to be received into geometry; though it was sometimes obvious, that their demonstrations might have been abridged, by admitting such notions. They considered curvilinear areas as the limits of circumscribed or inscribed figures of a more simple kind, which approach to these limits; so that the difference between them may become less than any given quantity. The inscribed and circumscribed figures were always conceived to be of a magnitude and number that is assignable; and they demonstrated the mensuration, or the

proportions of the curvilinear limits themselves, by arguments *ab absurdo*.

But modern geometers have abandoned the foundations of the ancients. It was thought unnecessary to conceive the figures circumscribed or inscribed, in the curvilinear area, or solid, as being always assignable and finite; and the precautions of Archimedes and the ancients came to be considered as a check upon geometers, serving only to retard this progress. Therefore, instead of assignable finite figures, indivisible, or infinitely small elements were substituted; and these being supposed infinite in number, their sum was supposed to coincide with the curvilinear area or solid. See MacLaurin's Fluxions, in the Intro.

Curves are distinguished into *algebraic*, frequently with Des Cartes called *geometrical*; and *transcendental*, called by the same Cartes, &c. *mechanical curves*.

CURVES, *Algebraical*, are those wherein the relation of the abscisses AP , AP , AP , fig. 13. to the semiordinates MP , MP , MP , may be expressed by an algebraic equation.

Suppose, v. gr. in a circle, $AB=a$, $AP=x$, $PM=y$; then will $BP=a-x$; consequently, as $PM^2=AP \times PB$, $y^2=ax-x^2$. Or, suppose, $PC=x$, $AC=a$, $PM=y$; then will $MC^2-PC^2=PM^2$; that is, $a^2-x^2=y^2$.

Note. Those are also called *algebraical curves*, which are of a determinate order; so, as that the equation always continues the same in the several points of the curve.

Most authors, after Des Cartes, call *algebraic curves* *geometrical* ones; as admitting none else into the construction of problems, nor, consequently, into geometry. But sir Isaac Newton, and after him Mess. Leibnitz, and Wolfius, are of another opinion; and think, that in the construction of a problem, one curve is not to be preferred to another, for its being defined by a more simple equation, but for its being more easily described.

CURVE, *Transcendental*, is that which cannot be defined by an algebraic equation. See **TRANSCENDENTAL** curve.

Algebraic CURVES of the same kind or order, are those whose equations rise to the same dimension.

Geometrical lines being defined by the relation between the ordinates and abscisses (or, which is the same, by the number of points wherein they may be cut by a right line), are well distinguished into two kinds, or orders: in which view, lines of the first order will be right lines; and those of the second, or quadratic order, will be curves, viz. the conic sections.

Now, a curve of the first kind is the same with a line of the second (a right line not being numbered among curves): and a curve of the second kind is the same with a line of the third. Thus, curves of the first kind, are those whose equations rise to two dimensions; if they rise to three, the curves are of the second kind; if to four, of the third, &c.

Thus, e. gr. the equation for a circle is, $y^2=ax-x^2$ or $a^2-x^2=y^2$. A circle, therefore, is a curve of the first kind.

Again, a curve of the first kind, is that defined by the equation $ax=y^2$; and a curve of the second kind, that defined by the equation $a^2x=y^3$.

For the various curves of the first kind, and their properties, see **CONIC** sections.

For curves of the second kind, sir Isaac Newton has a distinct treatise, under the title of *Enumeratio Linearum Tertii Ordinis*, which was first printed at the end of Dr. Clarke's Latin translation of sir Isaac's Optics; and since published more correctly by the late Mr. Jones in 1711, with the treatise of Quadratures, and other tracts of its illustrious author: since illustrated by Mr. Stirling, in his *Lineæ Tertie Ordinis Newtonianæ*. Oxon. 1717. Curves of the second and other higher kinds, he observes, have parts and properties similar to those of the first. Thus, as the conic sections have diameters and axes; the lines cut or bisected by these, are called *ordinates*; and the intersection of the curve and diameter, the *vertex*; so, in curves of the second kind, any two parallel right lines being drawn so as to meet the curve in three points; a right line cutting these parallels so, as that the sum of the two parts between the secant and the curve on one side, is equal to the third part terminated by the curve on the other side, will cut, in the same manner, all other right lines parallel to these, and that meet the curve on three points, i. e. so, as that the sum of the two parts on one side, will be still equal to the third part on the other side.

These three parts, therefore, thus, equal, may be called *ordinates*, or *applicates*; the secant, the *diameter*; and where it cuts the ordinates at right angles, the *axis*: the intersection of the diameter and the curve, the *vertex*; and the concurrence of the two diameters, the *centre*; and the

the concurrence of all the diameters, the *common or general centre*.

Again, as an hyperbola of the first kind has two asymptotes; that of the second has three; that of the third, four, &c. and as the parts of any right line between the conic HYPERBOLA and its two asymptotes are equal on either side; so, in hyperbolas of the second kind, any right line cutting the *curve* and its three asymptotes in three points; the sum of the two parts of that right line, extended from any two asymptotes, the same way, to two points of the *curve*, is equal to the third part, extended from the third ASYMPTOTE, the contrary way, to the third point of the *curve*.

Again, as in other conic sections, not parabolical, the square of an ordinate, i. e. the rectangle of the ordinates drawn to contrary parts of the diameter, is to the rectangle of the parts of the diameter terminated at the vertices of an ellipsis or hyperbola, as a given line, called the *latus rectum*, is to that part of the diameter which lies between the vertices, and called the *latus transversum*: so, in *curves of the second kind*, not parabolical, the parallelopiped under there ordinates, is to the parallelopiped under the parts of the diameter cut off at the ordinates and the three vertices of the figure, in a given ratio: wherein, if there be taken three right lines situate at the three parts of the diameter between the vertices of the figure, each to each; then those three right lines may be called the *latera recta* of the figure, and the parts of the diameter between the vertices, the *latera transversa*.

And, as in a conic parabola, which has only one vertex to one and the same diameter; the rectangle under the ordinates is equal to the rectangle under the part of the diameter cut off at the ordinates and vertex, and a given right line called the *latus rectum*: so, in *curves of the second kind*, which have only two vertices to the same diameter, the parallelopiped under three ordinates is equal to the parallelopiped under two parts of the diameter cut off at the ordinates and the two vertices, and a given right line, which may therefore be called the *latus transversum*.

Further, as in the conic sections, where two parallels terminated on each side by a *curve*, are cut by two parallels terminated on each side by a *curve*, the first by the third, and the second by the fourth: the rectangle of the parts of the first is to the rectangle of the parts of the second, as that of the second is to that of the fourth: so, when four such right lines occur in a *curve* of the second kind, each in three points; the parallelopiped of the parts of the first will be to that of the parts of the second as that of the second to the parts of the fourth.

Lastly, the legs of *curves*, both of the *first*, *second*, and *higher kinds*, are either of the parabolic or hyperbolic kind: an hyperbolic leg being that which approaches infinitely towards some asymptote; a parabolic, that which has no asymptote.

These legs are best distinguished by their tangents; for, if the point of contact go off to an infinite distance, the tangent of the hyperbolic leg will coincide with the asymptote; and that of the parabolic leg, recede infinitely, and vanish. The asymptote, therefore, of any leg, is found by seeking the tangent of that leg to a point infinitely distant; and the bearing of an infinite leg is found by seeking the position of a right line parallel to the tangent, when the point of contact is infinitely remote: for this line tends the same way towards which the infinite leg is directed.

Reduction of CURVES of the second kind. Sir Isaac Newton reduces all *curves of the second kind* to four cases of equations: in the first, the relation between the ordinate and absciss, making the absciss x , and the ordinate y , assumes this form, $xy - ey = ax^2 + bx + c$. In the second case, the equation assumes this form, $xy = ax^3 + bx^2 + cx + d$. In the third case, the equation is $y = ax^2 + bx + c$. In the fourth, the equation is of this form, $y = ax^3 + bx^2 + cx + d$. See Stirling's *Linear*, &c. p. 83. &c.

Enumeration of the CURVES of the second kind. Under these four cases the same author brings a vast number of different forms of *curves*, to which he gives different names.

An hyperbola lying wholly within the angle of the asymptotes, like a conic hyperbola, he calls an *inscribed hyperbola*; that which cuts the asymptotes, and contains the parts cut off within its own periphery, a *circumscribed hyperbola*; that, one of whose infinite legs is inscribed, the other circumscribed, he calls *ambigenal*; that whose legs look toward each other, and are directed the same way, *converging*; that where they look contrary ways, *diverging*; that where they are convex different ways, *cross-legged*; that applied to its asymptotes with a concave vertex, and diverging legs, *conchoidal*; that which cuts its asymptote with contrary flexures, and is produced

each way into contrary legs, *anguineous*, or *snake-like*; that which cuts its conjugate across, *cruciform*; that which returning around cuts itself, *nodated*; that whose parts concur in the angle of contact, and there terminate, *cuspidated*; that whose conjugate is oval, and infinitely small, i. e. a point, *pointed*; that which, from the impossibility of its two roots, is without either oval, node, cusp, or point, *pure*: and in the same manner he denominates a parabola to be *converging*, *diverging*, *cruciform*, &c. Where the number of hyperbolic legs exceeds that of the conic hyperbola, he denominates the hyperbola *redundant*.

Now the various *curves* which he enumerates under these four cases, are in number seventy-two; whereof nine are *redundant* hyperbolas, without diameters, having three asymptotes including a triangle; the first consisting of three hyperbolas, one *inscribed*, another *circumscribed*, another *ambigenal*, with an *oval*; the second *nodated*; the third *cuspidated*; the fourth, *pointed*; the fifth and sixth, *pure*; the seventh and eighth, *cruciform*; the last, *anguineal*. There are twelve *redundant* hyperbolas, having only one diameter: the first *oval*: the second, *nodated*; the third *cuspidated*; the fourth, *pointed*; the fifth, sixth, seventh, and eighth, *pure*; the ninth and tenth, *cruciform*; the eleventh and twelfth, *conchoidal*. Mr Stirling makes these fourteen. Two are *redundant* hyperbolas, with three diameters. Nine are *redundant* hyperbolas, with three asymptotes converging to a common point; the first formed of the fifth and sixth *redundant* parabolas, whose asymptotes include a triangle; the second, of the seventh and eighth; the third and fourth, of the ninth; the fifth is formed of the fifth and seventh of the *redundant* hyperbolas, with one diameter; the sixth, of the sixth and seventh; the seventh, of the eighth and ninth; the eighth, of the tenth and eleventh; the ninth, of the twelfth and thirteenth: all which conversions are effected, by distinguishing the triangle comprehended between the asymptotes, till it vanish into a point.

Six are *defective* parabolas, having no diameters: the first, *oval*; the second, *nodated*; the third, *cuspidated*; the fourth, *pointed*; the fifth, *pure*, &c.

Seven are *defective* hyperbolas, having diameters: the first and second, *conchoidal*, with an *oval*; the third, *nodated*; the fourth, *cuspidated*, which is the cissoid of the ancients; the fifth and sixth, *pointed*; the seventh, *pure*. Seven are *parabolic* hyperbolas, having diameters: the first, *oval*; the second, *nodated*; the third, *cuspidated*; the fourth, *pointed*; the fifth, *pure*; the sixth, *cruciform*; the seventh, *anguineous*.

Four are *parabolic* hyperbolas: four are *hyperbolisms* of the hyperbola: three, *hyperbolas* of the ellipsis: two, *hyperbolisms* of the parabola.

Six are *diverging* parabolas: one, a *trident*; the second, *oval*; the third, *nodated*; the fourth, *pointed*; the fifth, *cuspidated* (this is Neil's *parabola*, usually called the *semicubic parabola*); the sixth, *pure*.

Lastly, one commonly called the *cubic parabola*.

Mr. Stirling and Mr. Stone have shewn this enumeration to be imperfect; and Mr. Murdoch has since found some new species. See his *Genesis Curvarum per Umbras*.

Organical description of CURVES. 1. If two angles, given in magnitude, PAD, PBD (*Tab. Geometry, fig. 14.*) revolve round poles given in position, A and B; and their legs, AP, BP, with their point of concurrence P, pass over another right line: the other two legs AD, BD, with their point of concurrence D, will describe a conic section passing through the poles AB; unless that line happen to pass through either of the poles A or B; or unless the angles BAD and ABD vanish together; in which cases, the point will describe a right line.

2. Now, if the legs AP, BP, by their point of concurrence P, thus describe a conic section passing through one of the poles, A; the other two AD, BD, with their point of concurrence D, will describe a *curve of the second kind*, passing through the other pole B, and having a double point in the first pole A: unless the angles BAD, ABD, vanish together; in which case, the point D will describe another conic section, passing through the pole A.

3. If the conic section, described by the point P, pass through neither of the poles A, B; the point D will describe a *curve of the second or third kind*, having a double point: which double point will be found in the concurrence of the describing legs AD, BD, when the two angles BAP, ABP, vanish together. The *curve* described will be of the *second kind*, when the angles BAD, ABD, vanish together; otherwise of the *third kind*, having two other double points in the poles A and B.

With regard to *double points of the curves*: we have ob-

ferred, that *curves* of the second kind may be cut by a right line in those two points: now two of these sometimes coincide, v. gr. when the right line passes through an infinitely small oval, or through the concourse of two parts of a *curve*, mutually cutting each other, and uniting in a cusp. Sometimes all the right lines only cut the *curve* in one point; as in ordinates of the Cartesian and cubic parabola, &c. in which case, we must conceive the right line passing through two other points of the *curve*, placed, as it were, at an infinite distance: two of these coincident intersections, whether at a finite or infinite distance, make what we call a *double point*.

The theory of *curves* is a very considerable branch of the mathematical sciences. Those who are curious of advancing beyond the knowledge of the circle and the conic sections, and to consider geometrical *curves* of a higher nature, and in a general view, will do well to study Mr. Cramer's *Introduction à l'Analyse des Lignes Courbes Algebriques*, printed at Geneva, 4to. 1750, which the learned and ingenious author composed for the use of beginners. We have an elegant posthumous work of Mr. Maclaurin, printed at the end of his *Algebra*, and entitled *De Linearum Geometricarum Proprietatibus Generalibus*. The same author, at a very early age, gave a remarkable specimen of his genius and knowledge in his *Geometria Organica*, and carried these speculations farther afterwards, as may be seen in the theorems he has given us in the *Philosophical Transactions*. See Martyn's *Abridg.* vol. viii. p. 62, seq.

Curves may be organically described by the rotation of angles, in the manner mentioned above; but there is another general method of describing *curves* by the rotation of rulers or straight lines, instead of angles.

Thus, if instead of angles we use three rulers, DQ, CN, SP (*Tab. II. Analysis, fig. 47.*) which are supposed to revolve about the poles D, C, S, and to cut one another always in three points, N, Q, and P; if any two of these intersections, as N and Q, be carried along the given straight lines AE, EB, the third intersection P will describe a conic section.

If you assume any number of poles whatsoever, and make rulers revolve about each of them, and all the intersections but one, be carried along given right lines, that one shall never describe a line of a higher nature than a conic section. And if instead of rulers you substitute given angles which move on the same poles, the *curve* described will still be no more than a conic section.

But by carrying one of the intersections necessary in the description over a conic section, lines of higher orders may be described.

The Rev. Mr. Brakenridge has given us a general method of describing *curves*, by the intersection of right lines moving about points in a given plane. See *Phil. Trans.* N^o 436. Martyn's *Abridg.* vol. viii. p. 58, seq. But the demonstrations are not yet extant, excepting the particular cases demonstrated in his *Exercitatio Geometrica de Curvarum Descriptione*. Lond. 1733. 4to.

Curves may also be described by the projection, or shadows of other *curves*. Thus the projection, or shadow of the circle upon different planes, will form the rest of the lines of the second order, or conic sections. This is evident, because the rays of light proceeding from a point out of the plane of a circle, and falling upon the circumference of that circle from a cone, which being cut by the plane upon which the shadow of the circle is projected, the different conic sections will be formed according to the position of the intersecting plane.

In like manner, the projections or shadows of lines of the third order, will form other lines of the third order; and projections or shadows of lines of the fourth order, will form lines of the fourth order, &c.

And as the circle, by the projection of its shadow, forms the conic sections, so the five diverging parabolas among the lines of the third order, will, by their shadows, form and exhibit all the rest of the lines of that order. See Newton, *Enumerat. Lin. Terti. Ordin.* published by Mr. Jones, 1711.

This hint of sir Isaac Newton has been lately pursued and illustrated with great elegance by Mr. Murdoch, in his treatise entitled *Newtoni Genesis Curvarum per Umbras, seu Perspectivæ Universalis Elementa*. Lond. 1746, 8vo.

By an accurate enumeration of these projections, Mr. Murdoch finds, that the number of species of the lines of the third order amount to seventy-eight in all.

Description of CURVES of the second order, having double points. These are all described from seven given points, whereof one is the double point itself: thus, let there be given any seven points of the *curve* to be described; as, v. gr.

A, B, C, D, E, F, G (*Tab. Geometry, fig. 15.*) whereof

A is the double point: join the point A, and any other two points, v. gr. B and C; and let the angle CAB, of the triangle ABC, revolve about its vertex A; and another of the angles ABC, about its vertex B: and when the point of concourse C, of the legs AC, BC, is successively applied to the four other points D, E, F, G, let the concourse of the remaining legs AB and BA fall on the four points P, Q, R, S.

Through those four points, and the fifth A, describe a conic section; and let the forementioned angles CAB, CBA, so revolve, as that the point of concourse of the legs AB, BA, may pass over that conic section; and the concourse of the other legs AC, BC, will describe the proposed *curve*.

Use of these CURVES in the construction of equations. The use of *curves* in geometry is, by means of the intersections thereof, to solve problems. See CONSTRUCTION.

Suppose, v. gr. an equation to be constructed of nine dimensions, as $x^9 + b x^7 + c x^6 + d x^5 + e x^4 + (m + f) x^3 + g x^2 + h x + k = 0$; where $b, c, d, \&c.$ signify any given quantities affected with the signs + or - : assume the equation to a cubic parabola $x^3 = y$; and the first equation writing y for x^3 , will come out $y^3 + b x y^2 + c y^2 + d x^2 y + e x y + m y + f x^3 + g x^2 + h x + k = 0$; an equation to another *curve* of the second kind, where m or f may be assumed or annulled at pleasure; and by the descriptions and intersections of these *curves* will be given the roots of the equation to be constructed. It is sufficient to describe the cubic parabola once. If the equation to be constructed, by omitting the two last terms $h x$ and k , be reduced to seven dimensions; the other *curve* by expunging m , will have the double point in the beginning of the absciss, and may be easily described as above: if it be reduced to six dimensions, by omitting the three last terms, taking $g x^2 + h x + k$; the other *curve*, by expunging f , will become a conic section: and if, by omitting the three last terms, the equation be reduced to three dimensions, we shall fall on Dr. Wallis's construction by the cubic parabola and right line.

CURVE of a double curvature, or CURVE having a double curvature, is used for a *curve*, all the parts of which do not lie in the same plane, that is, such as cannot be described on the same plane.

The *curves* commonly treated of in geometry, are supposed to be described, or to have all their points placed in the same plane; but if a *curve* be supposed to be described on a *curve* surface, in such a manner that all the points of that *curve* cannot lie or be situated in one and the same plane, then will the *curve* so described have a *double curvature*.

Monsieur Clairaut has published an ingenious treatise on *curves of a double curvature*. See his *Recherches sur les Courbes, à double Courbure*, Paris, 4to. 1731. Mr. Euler has also treated this subject in the Appendix to his *Analysis Infinitorum*, vol. ii. p. 323.

CURVE, rectification of a, denotes the finding a right line equal to a *curve*. For the praxis hereof, see RECTIFICATION of *curves*.

CURVE, inflection of a. See INFLECTION.

CURVE, quadrature of a, the finding the area, or space included, by a *curve*; or the assigning a square equal to a curvilinear space.

CURVES, family of, is an assemblage of several *curves* of different kinds, all defined by the same equation of an intermediate degree; but differently according to the diversity of their kind.

E. gr. Suppose an equation of an indeterminate degree, $a^m - 1 x = y^m$. If $m=2$, then will $a x = y^2$; if $m=3$, then will $a^2 x = y^3$; if $m=4$, then $a^3 x = y^4$, &c. all which *curves* are said to be of the same family, or tribe.

The equations whereby the families of *curves* are defined, are not to be confounded with the transcendental ones: for though, with regard to the whole family, they be of an indeterminate degree; yet with respect to each several *curve* of the family, they are determinate; whereas transcendent equations are of an indefinite degree, with respect to the same *curve*.

All algebraic *curves*, therefore, compose a certain family, consisting of innumerable others; each whereof comprehends infinite kinds. For since the equations whereby the *curves* are defined enter the facta, either of the powers of the abscissas and semiordinates into the given co-efficients, or of the power of the abscissas into the powers of the semiordinates, or of the mere given quantities; and all equations may be equal to nothing (v. gr. if $a x = y^2$, then $a x - y^2 = 0$); the equation for all algebraic *curves* will be

$$\left. \begin{aligned} a y^m + b x y^{m-1} + n x^2 y^{m-2} \&c. + f y^m \\ + f y^m - 1 + k x y^{m-2} \\ + g y^{m-2} \end{aligned} \right\} = 0.$$

CURVE, caustic, in the higher geometry, a *curve* formed by

by the concurrence, or coincidence of the rays of light reflected, or refracted from some other *curve*.

Every *curve* has its twofold caustic; accordingly, caustics are divided into *catacaustics*, and *diacaustics*; the one formed by reflection, the angle of reflection being equal to that of incidence, the other by refraction.

The genesis of these *curves* may be thus conceived: let A B, A B, &c. *Tab. II. Analysis, fig. 48.* represent an infinite number of incident rays, that lie all in one plane of incidence; it is evident, that after reflection or refraction, they will not belong to a single point or focus, but cut one another in an infinite number of points: then, if a *curve* be supposed of such a shape as to touch every one of the reflected or refracted rays B F, B F, &c. produced, if need be, in the points F, F, &c. the *curve* F F F is called a *caustic* by reflection or refraction, as the name is applied to reflected or refracted rays. It is plain, that if two tangents B F, B F intersect one another in G, and be supposed to approach one another till they coincide, the points of contact and of intersection will also coincide: and therefore the reflected or refracted ray touches the *caustic* in that point of the ray, where its intersection with the next ray vanished, when they were supposed to coincide. And if two incident rays infinitely near to each other be conceived to revolve about their focus A, in the plane of incidence, the focus F or point of intersection of the reflected or refracted rays will describe the *caustic* above defined; which is real or imaginary, as F is the focus of converging or diverging rays.

Or, a *caustic* by refraction, called a *diacaustic*, may be supposed to be thus generated. Imagine an infinite number of rays, as B A, B M, B D, &c. (*Tab. Geom. fig. 20.*) issuing from the same luminous point, B, to be refracted from, or to the perpendicular M C, in the *curve* A M D; and so, as that C E, the sines of the angles of incidence C M E be always to C G, the sines of the refracted angles C N G, in a given ratio: then the *curve* line, which touches all the refracted rays, is called the *diacaustic*.

M. Bouguer observes, that there are two *caustics* formed at the same time, by convex and concave surfaces; and that they occasion two different images of objects seen by reflection from them. See his *Traité d'Optique*; or Priestley's *Hist. of Vision*, p. 233. See also on this subject, Smith's *Optics*, p. 171—181.

Caustic curves have this remarkable property, that when the *curves* that produce them are geometrical, they are equal to known right lines.

Thus, the *caustic* formed by reflected rays from a quadrant of a circle, which came at first parallel to the diameter, is equal to three fourths of the diameter; which is a sort of rectification of *curves* that preceded the invention of the new doctrine of infinites, on which most of our rectifications are built.

Caustic curves are usually supposed to be the invention of M. Tschirnhausen; but it is only the name he invented. The first mention he made of them was in the year 1682, when he produced no instance but that of the caustic in a circle, which he might have learned from Dr. Barrow's *Lectiones Opticæ*, published in 1669. It would have been easy for him to have done the same for any *curve*, by the help of the radius of curvature published by Huygens in his *Horologium Oscillatorium*, in 1673. It is certain this had been done by sir Isaac Newton as early as the year 1669, as appears from his *Lectiones Opticæ*, which were read that year at Cambridge, though not published till after his death, viz. in 1728. *Act. Erud. Lips. ann. 1682. p. 364. Newt. Lect. Opt. sect. 4. Pref. Stat. Rep. Lett. tom. i. p. 50, seq.*

CURVE reflectoire, in *Optics*, so called because it is the appearance of the plane bottom of a basin covered with water to an eye perpendicularly over it. In this position the bottom of the basin will appear to rise upwards from the centre outwards; but the curvature will be less and less, and at last the surface of the water will be an asymptote to it. M. Mairan, who first conceived this idea from the phenomena of LIGHT, found also several kinds of these *curves*; and he gives a geometrical deduction of their properties, shewing their analogy to caustics by refraction. *Ac. Par. 1740. H. 121. M. 1. Dr. Priestley's Hist. of Vision, p. 752.*

CURVES by the light, or *COURBES a la lumiere*, in *Optics*, a name given to certain *curves* by M. Kurdwanowski, a Polish gentleman. He observed that any line straight or curved, exposed to the action of a luminous point, received the light differently in its different parts, according to their distance from the light. These different effects of the light upon each point of the line, may be represented by the ordinates of some *curve* which will

vary precisely with these effects. Dr. Priestley's *Hist. of Vision*, p. 752.

CURVE, exponential, is that defined by an exponential equation; that is, by an equation wherein is an exponential quantity, v. gr. x^x , a^x , &c.

The symptoms, properties, geneses, &c. of particular *curves*, v. gr. the cycloid, conchoid &c. see under their proper heads, CYCLOID, CONCHOID, &c.

CURVE, logarithmic.

This *curve* was called *logarithmic* or *logistic* by Huygens: though others had considered it before him, none had named it. He has given us several curious properties relating to it, at the end of his *Treatise of the Cause of Gravity*, but without demonstrations. These have been since supplied by Guido Grandi. See Huyg. *Oper. vol. ii. Amstel. 1728.*

These properties are, 1. The spaces comprehended between two ordinates, are as the difference of those ordinates. Thus, let A V D (*Tab. II. Analysis, fig. 50.*) be a logarithmic, and its ordinates A B, V C, D Q; let the two last continued meet A K, a parallel to the asymptote B O, in E and K, then will the spaces A B C V, A B Q D be to each other as E V to K D.

2. If A O be a tangent in A, intersecting C E and K Q in I, G; the spaces A V E, A D K will be to each other as V I and D G.

3. The space A B Q D is to the infinite space beyond Q D, and lying between the *curve* and its asymptote, as K D to D Q.

The accurate author observes, that when he says the infinite space has a certain proportion to a finite one, he means that this infinite, or indefinite space, may approach so near to a given space, having that certain proportion to another, that the difference may become less than any assigned quantity.

4. The sub-tangent is constant.

5. This sub-tangent may be found by approximation, and is to the portion of the asymptote intercepted between ordinates in the ratio of 2 to 1, as 43429, &c. to 30103, or nearly as 13 to 9; that is, as the modulus of Briggs's system, to the logarithm of 2. See LOGARITHM.

6. If there be three ordinates, as A D, G H, B F, *fig. 51.* and if from the extremity B of the least, there be drawn a parallel to the asymptote B K, cutting the other two ordinates in R, K; as also a tangent B Q, cutting them in N, Q; the trilinear spaces A B K, H B R will be to each other as the portions of the ordinates intercepted between the *curve* and the tangent, that is, as A Q, H N.

7. The infinite space between the *curve* and its asymptote, lying beyond any ordinate B F, is double of the triangle B F O, formed by that ordinate, the sub-tangent and tangent. In which sense this is to be understood. See above N° 3.

8. The space comprehended between two ordinates is equal to the rectangle under the sub-tangent and the difference of the ordinates. Thus the space A B F D is equal to the rectangle under F O, A K, or to B M X Y.

9. The solid formed by the revolution of the infinite space lying beyond any ordinate about the asymptote, is to a cone of the height of the sub-tangent, with a base equal to a circle described with that ordinate as radius, as 3 to 2. Thus the solid formed by the revolution of the indefinite space Z F B T, about F Z, is to the cone formed by the revolution of the triangle F B O, as 3 to 2.

10. The solid formed by the revolution of the same infinite space about the ordinate F B, is sextuple of the cone formed by the triangle F B O, revolving about F B.

11. The distance of the centre of gravity of this infinite plain space from the ordinate B F, is the length of the sub-tangent F O.

12. The distance of this centre from the asymptote is one fourth of the ordinate.

13. The distance of the centre of gravity of the first of the before mentioned solids, from its base, is one half of the sub-tangent.

14. The distance of the centre of gravity of the other solid, from its infinite base, is one eighth of its axis.

15. If there be two segments of an hyperbola, *fig. 52.* comprized between ordinates to one of its asymptotes, and if the ordinates of the one be to each other, as the ordinates A D, H G of the logarithmic; and if the ordinates of the other be as B F to C E; then will the hyperbolic spaces be to each other, as D G to F E. And these hyperbolic spaces are to the parallelogram of the hyperbola, as the lines D G, F E are to the sub-tangent F O. So that if this parallelogram be supposed equal to 0.4342944819, every hyperbolic space com-

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prized between two ordinates to one of the asymptotes, will be to this parallelogram, as the logarithm of the ratio of the two ordinates, or the difference of the logarithms of the numbers expressing the proportions of those ordinates, is to 0.4342944819: taking the logarithms of 10 figures besides the characteristic.

We have mentioned one method of finding the sub-tangent of a given logarithmic from Huygens in N^o 4. But this may be otherwise done thus: produce any ordinate CD, fig. 53. from C to E, so that the ratio of CE to CD be equal to the *ratio modularis*; and the right line EB drawn from E parallel to the asymptote, and meeting the curve in B, will be equal to the sub-tangent. The *ratio modularis* is 2.7182818, &c. to 1, or 1 to 0.3678794, &c. for which may be substituted the approximations 11 to 4, 87 to 32, &c. greater than the true, and 8 to 3, 19 to 7, 106 to 39, &c. less than the true ratio. See Cotes, Harm. Mens. p. 7 and 16.

While the base OP increases uniformly, let the ordinate Pp, fig. 54. increase or decrease proportionally, as mentioned under the head LOGARITHM; that is, let the velocity of p in the direction Oo, be always as the ordinate Pp; then will the point p describe the *logarithmic curve*. The base OP is always the logarithm of the ordinate; Pp and if the uniform motion of P be equal to the motion of p at o in the direction Oo, then is the ordinate Oo the modulus of this system of logarithms; and the fluxion of any ordinate is to the fluxion of the base, as that ordinate is to Oo.

By the general property of tangents, the fluxion of any ordinate is to the fluxion of the base, as that ordinate is to the sub-tangent. Hence the sub-tangent OT, or AT, will be equal to Oo. The sub-tangent will therefore be constant. In any other *logarithmic curve*, the sub-tangent will always be equal to that ordinate, whose fluxion is equal to the fluxion of the base; that is, the modulus always expresses the sub-tangent of the *logarithmic curve*. See LOGARITHM.

The sub-tangent of the logarithmic expressing the modulus of that system of the logarithms, sub-tangent will be the logarithm of the *ratio modularis*, that is, of the ratio of two ordinates raised at the extremities of the sub-tangent; and as the *ratio modularis* is the same in all systems of the logarithms, so the ratio of the two ordinates placed at the extremities of their respective sub-tangents, is the same in all *logarithmic curves* whatsoever.

When the *logarithmic curve* is supposed to be described, exponential quantities are easily determined by it. Let the ordinate Aa be expressed by A; let OP be to OA as any quantity expressed by x is to 1: then the ordinate Pp may be expressed by A^x, an exponential quantity of the first degree when x is variable. See EXPONENTIAL.

To rectify the logarithmic CURVE. Let it be required to find the length of the logarithmic arc Ee, fig. 55. Draw the perpendiculars ELA, e la, to the asymptote; and having drawn the tangents EF, ef, take AL equal to the excess of tangent above the sub-tangent AF, and al equal to the excess of the tangent ef above af; then having drawn LM, lm parallel to the asymptote, if the difference of the tangents EF—ef, be added to the difference of the parallels lm—LM, the aggregate will be equal to the arc Ee. Cotes, Harm. Mens. p. 23, 24.

CURVES, *radial*, is a denomination given by some authors to curves of the spiral kind, whose ordinates if they may be so called, do all terminate in the centre of the including circle, and appear like so many radii of that circle; whence the name.

CURVES, *regular*, are such whose curvity proceeds continually in the same uniform geometrical manner. Such are the primeters of the CONIC section, &c.

Such as have a point of inflection, or regression, and which being continued to a certain point, turn themselves a contrary way, are called *irregular curves*. Such are the conchoid, and the solid parabola, which has a square for its parameter. See FLEXION and RETROGRESSION.

CURVE, *characteristic triangle of a*, in the higher geometry, is a rectilinear right-angled triangle, whose hypotenuse make a part of the curve, not so sensibly different from a right line. It is so called, because curve lines are used to be distinguished hereby.

Suppose, e. gr. the semiordinate pm (Tab. Analysis, fig. 7.) infinitely near another PM; then will Pp be the differential of the absciss: and letting fall a perpendicular, MR=Pp, Rm will be the differential of the semiordinate. Draw, therefore, a tangent TM; and the infinitely small arch Mm will not differ from a right line: consequently MmR is a rectilinear right-angled

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triangle, and constitutes the characteristic triangle of that curve.

CURVET, in the *Manege*. See CORVET.

CURVICAUDA, in *Natural History*, the name of a species of bee-fly, very common in England, and very troublesome to horses, commonly known by the name of the WRINGLE-TAIL.

CURVILINEAR, or CURVILINEAL figures in *Geometry*, are spaces bounded by crooked lines; as the circle, ellipsis, spherical triangle, &c.

CURVILINEAR angle, and superficies. See ANGLE, and SUPERFICIES.

CURVIROSTRA, in *Ornithology*, a species of LOXIA.

CURVIROSTRA fossilis, in *Natural History*, the name of a species of fossil shell, found very frequently in the stone quarries of Northamptonshire, and the neighbouring counties. It is a species of cockle, and is distinguished by its beak not standing in the middle, but always inclining to one or the other side. The shell is sometimes found remaining entire, and in its native state and condition, but more frequently there is stony matter deposited in its place.

CURULE chair, sella CURULIS, in *Antiquity*, a high ivory chair, wherein certain of the Roman magistrates had a right to sit.

The curule magistrates were, the ædiles, prætors, censors, and consuls.

The senators, who had born these charges, were carried to the senate on curule chairs, as also those who triumphed: the chair being fitted into a kind of chariot, currus; whence the origin of the word curulis.

The curule chair is used on medals, to express a curule magistracy; when traversed by a hasta, it is the symbol of Juno, and serves to express the conversation of princesses.

CURULE statues. See STATUE.

CURURU, in *Botany*, a name used by Plumier in the same sense with the *seriana* of the same author, in its generical characters, and called by Linnæus PAULINIA.

CURURUCA, in *Ichthyology*, the name of an American fresh-water fish, of an oblong, and not flatted, body. It grows to a foot and a half in length; its mouth is very large. It is eaten in the Brasils.

CUSCASOW, the name of a Moorish dish eaten in Egypt. It is made of flour tempered with water, rolled in the hands into small pieces, and then put into a colander, over a boiling pot, stopped close round; so that it is dressed with the steam; and when it is done enough, they put butter to it.

CUSCUTA. See DODDER.

CUSHION, *Ladies*, in *Botany*. See SAXIFRAGE.

CUSHION, *Sea*, *Statice*. See THRIFT.

CUSHION, a rubber, in *Electricity*. See ELECTRICAL machine.

CUSHION, in *Engraving*, is a bag of leather filled with sand commonly about nine inches square, and three or four thick, used for supporting the plate to be engraved.

CUSHION, in *Gilding*, is made of leather, fastened to a square board, from fourteen inches square to ten, with a handle. The vacuity between the leather and board is stuffed with fine tow or wool, so that the outer surface may be flat and even. It is used for receiving the leaves of gold from the paper, in order to its being cut into proper size and figures.

CUSI, in *Natural History*, a name given by the people of the Philippine islands to a very small and very beautiful species of PARROT.

CUSP, *cuspis*, properly denotes the point of a spear, or sword; but is used in *Astronomy* to express the points, or horns, of the moon, or any other luminary.

CUSP, in *Astrology*, is used for the first point of each of the twelve houses, in a figure, or scheme, of the heavens. See HOUSE.

CUSPIDATED, in *Botany*, is when the leaves of a flower end in a cusp, or point, resembling that of a spear.

CUSPIDATED hyperbola, &c. See CURVE.

CUSTARD apple. See CUSTARD-APPLE.

CUSTODE admittendo, and CUSTODE amovendo, are writs for the admitting, or removing, of guardians.

CUSTODES libertatis Angliæ autoritate parliamenti, was the style, or title, in which writs, and other judicial proceedings, did run in the time from the death of Charles I. till Oliver was declared protector, &c.

CUSTODIA. See RECTO de custodia terræ & hæredis.

Hærede deliberando alii qui habet CUSTODIAM terræ. See HEREDE.

CUSTOM is used to denote the manners, ceremonies, or ways of living of a people, which in time have turned into habit, and by usage obtained the force of laws.

In this sense, *custom* implies things that were at first voluntary, but are become necessary by use.

CUSTOM, *Consuetudo*, in *Law*, is a law not written, established by long usage, and the consent of our ancestors. No law can oblige a people without their consent: so wherever they consent and use a certain rule or method as a law, such rule, &c. gives it the power of a law; and if it is universal, then it is common law; if particular to this or that place, then it is *custom*. 3 Salk. 112. And as to the rise of *customs*, when a reasonable act once done, was found to be good, and beneficial to the people, then did they use it often; and by frequent repetitions of the act, it became a *custom*; which being continued without interruption time out of mind, it obtained the force of a law, to bind the particular places, persons, and things concerned therein. Thus a *custom* had beginning, and grew to perfection; and a good *custom* must be grounded on antiquity, continuance, certainty, and reason; antiquity, for that it hath been time out of memory, or three score years, as limited by the statute; and time out of mind, is where no man then living hath heard or known any proof to the contrary. It is sufficient, if two or more witnesses depose, they heard their fathers say the same of their time. If it be matter of record, the continuance of one hundred years is sufficient.

The effect of a *custom* thus circumstantiated, is, that in popular states, and limited monarchies, it serves to interpret the written laws: for in absolute monarchies, it is the king alone who has the power of interpreting laws. Hence, the word *custom* is still retained, and serves to express the particular rights, and municipal laws, established by usage in particular provinces, &c. after they are reduced into written laws.

In this sense most of the common law of England is *lex non scripta*; being originally no more than the *customs* of our forefathers.

Lex non scripta, in this sense, is used in opposition to *statutes*, or *acts of parliament*; which commence laws at once.

Cowel distinguishes *custom* from *prescription*, in that the former is more general, and relates to several persons; whereas the latter is usually confined to this or that man. Five years time, too, are ordinarily sufficient for prescription; whereas, for *custom*, there are required a hundred.

Customs are real things, and are included within their limits or territories: they are either *local*, i. e. restrained to this or that place; or *general*.

The *custom* of Paris serves as a rule for all the other places of France, where they have no provisions contrary to it.

The Romans were governed by *customs*, or unwritten laws, after the expulsion of their kings.

CUSTOM of London. The principal local *customs* of this city are the following: if a citizen and freeman dies, his goods and chattels shall be divided into three parts; the wife shall have one part, the executors another, to discharge legacies, &c. and the children unprovided for the other third part. If he has no wife, half of his personal estate goes to his children, and the other moiety is at his own disposal: if he has a wife and no children, half belongs to her. By stat. 11 Geo. I. c. 18. the above *custom* takes place only when a freeman dies intestate; but he is impowered by will to dispose of his personal estate as he pleases. A woman in London, that uses a trade, without her husband, is chargeable without him, as a *feme sole* merchant; and if condemned may be put in prison till she pay the debt; and her bail are liable, if she absents herself, and the husband shall not be charged. It is the *custom* of the city of London, that a person educated in one trade may set up in another. And if a debtor be a fugitive, he may be arrested before the day to find better security. Every tenant at will of a house above 40s. *per ann.* in the city, ought to give and receive half a year's warning on leaving it. Any *customs* are tried by writ to the lord mayor and aldermen, who certify whether there be such a *custom* as is pleaded by their recorder: and the *customs* of London are taken notice of in the courts at Westminster.

CUSTOM of Merchants, denotes certain rules of judging in relation to contracts, bills, &c. established by the usual proceeding of merchants.

CUSTOM, *Dower* by. See **DOWER**.

CUSTOM, *Suit*. See **SUIT**.

CUSTOMS, in *Commerce*, the dues, duties, or tolls, paid by merchants to the king, for carrying out, and bringing in, of merchandizes.

Some have imagined that they are called *customs*, because they were the inheritance of the king by immemorial usage and the common law, and not granted him by any statute; but sir Edward Coke has clearly

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shewn, that the king's first claim to them was by grant of parliament 3 Edw. I. and this is expressly acknowledged by stat. 25 Edw. I. c. 7. with respect to the *customs* on exported wools, skins, and leather, which were called the staple commodities of the kingdom; and these *customs* were formerly denominated the hereditary *customs* of the crown. They were also called *custuma antiqua five magna*, in contradistinction to *custuma parva et nova*, being an impost of three pence in the pound paid by merchant strangers on all commodities imported and exported. This was called the alien's duty, and first granted in the 31st year of Edward I.

There is another hereditary duty pertaining to the crown, called the **PRISAGE** or **BUTLERAGE** of wines, considerably older than the *customs*; to which we may add other *customs* payable on exports and imports, and distinguishable into **SUBSIDIES**, imposed by parliament on the fore-mentioned staple commodities, **TONNAGE**, **POUNDAGE**, and other imposts.

It was enacted, anno 6 Edw. III. that no new *custom* could be levied, nor old ones increased, but by authority of parliament; which was afterwards confirmed by 16 Car. I. c. 8.

By the term *customs*, as it is now understood, we mean such duty or subsidy as is paid by the merchant at the quay, on all imported as well as exported commodities, by authority of parliament; unless where particular restrictions and allowances are specified. The duty of tonnage and poundage was granted to Charles II. for his life, and to his two immediate successors; but now by three several statutes, 9 Ann. c. 6. 1 Geo. I. c. 12. and 3 Geo. I. c. 7. it is made perpetual, and mortgaged for the debt of the public. The *customs* imposed by parliament are chiefly contained in two **BOOKS of rates**; to which many subsequent additions have been made. Aliens pay a larger proportion than natural subjects. Blackst. Com. vol. i. p. 313, &c. See **DUTY**, and **NATURALIZATION**.

The amount of the *customs* in England, being the medium of the payments into the Exchequer, for three years, ending in 1773, as stated by Dr. Price, a late writer on finance, is 2,528,275*l.* and the expence of collecting, being the average of 1771 and 1772, bounties included, 15 *per cent.* of the gross produce, exclusive of drawbacks and over-entries, or 468,703*l.* and that of the *customs* in Scotland estimated in the same manner, is 68,369*l.*

In case goods and merchandize are brought to a port, and part of the goods are sold there, but never landed, they must pay the *customs*. Ships outward-bound, and coming from beyond sea, having goods and merchandize on board, are to be entered at the *custom-house*, and the *customs* paid or agreed for, under penalties and forfeiture of the goods; one moiety to the king, and another to the seisor, &c. 13 and 14 Car. II. Officers of the *customs* may search ships; and having writ of assistance, search houses. By other statutes, foreign goods, taken in at sea by any coasting vessel, shall be forfeited, and treble value: and, for prevention of clandestine running of goods, if any foreign brandy, &c. is imported in vessels under forty tons, the importer shall forfeit the vessel and brandy. Run goods concealed or offered for sale, are liable to forfeiture and treble value. 8 and 11 Geo. I. When three persons are assembled and armed with fire-arms, &c. to be assisting in running goods, they shall be adjudged guilty of felony. And two or more found in company within five miles of the sea-coast, with any horses, carts, &c. on which are put above six pounds of tea, or five gallons of brandy, or other foreign goods of 30*l.* value, landed without entry, and not having permits, who shall carry any offensive weapons, &c. or assault any officer of the *customs*, shall be deemed runners of goods, treated as felons, and the goods shall be seized and forfeited. If any person offers any tea, brandy, &c. to sale, without a permit, the persons to whom it is offered may seize and carry it to the next warehouse belonging to the *customs* or excise, and be entitled to a third part of the produce on condemnation. And persons offering any bribe to officers of the *customs* to connive at the running of goods, are liable to a forfeiture of 50*l.* obstructing such officers in entering and searching ships, incurs a forfeiture of 100*l.* and if the officers are wounded or beaten on board any ship, the offenders incur the penalty of transportation, &c. 9 Geo. II. See **DRAWBACK**, **EXCISE**, and **SMUGGLING**.

CUSTOM-HOUSE, an office established on the frontiers of a state, or in some chief city, or port, for the receipt of the *customs* and duties of importation and exportation, imposed on merchandizes, by the authority of the sovereign, and regulated by tariffs, or books of rates. There are several *custom-houses* in the several ports of England: the most considerable is that of London. It

is under the direction of nine commissioners appointed by patent; who have the charge and management of all the customs (the petty farms alone excepted) in all the ports of England.

Other officers are, a secretary, solicitor, receiver-general, comptroller of the issues and payments of the receiver-general, comptroller-general, inspector of the out-port-collectors accounts, inspector-general of the exports and imports, register-general of all ships of Great Britain, surveyor-general, surveyor of the out-ports, register of the seizures, &c. all holding their places by patents: with other inferior officers, appointed by warrant from the board of treasury. These officers shall have no ships of their own, nor use merchandize, factorage, &c. under penalty of 40*l*. They are also prohibited to trade in any excisable liquor, on pain of 50*l*. and forfeiture of office: for taking a bribe they shall forfeit 100*l*. and 500*l*. for making collusive seizures.

CUSTOMARY tenants, **CUSTOMARII**, or *tenentes per consuetudinem*, are such tenants as hold by the custom of the manor as their special evidence.

These were anciently bondmen, or those that held *tenura bondagii*. *Et omnes illi qui tenuerint in bondagii tenura, solebant vocari customarii*. MS. de Consuetud. Man. de Sutton Colfield, de anno 3 Edw. II.

CUSTOS brevium, the name of an office belonging to the court of common pleas, executed by four persons, and a deputy, who receive and keep all the writs, and put them upon files, every return by itself; and at the end of each term receive of the prothonotaries all the records of the *nisi prius*, called the *postea*.

The writs are first brought in, by the clerks of assize of every county, to the prothonotary who entered the issue in that matter, to enter judgment. Four days after the return, the prothonotary enters the verdict, and judgment thereupon, into the rolls of the court; and then delivers them over to the *custos brevium*.

The *custos brevium* also makes entry of writs of covenant, and concords on fines; and makes copies and exemplifications of all writs and records in his office, and of all fines levied: the fines, when engrossed, are divided between the *custos brevium* and chirographer; the former keeping the writ of covenant and the note, the latter the concord and foot of the fine.

In the court of king's bench there is likewise a *custos brevium & rotulorum*, who files such writs as are there used to be filed, and all warrants of attorney; and transcribes or makes out records of *nisi prius*, &c.

CUSTOS placitorum coronæ, in our *Ancient Writers of Law*, seems to be the same with him we now call *custos rotulorum*, which is mentioned in the writ *de odio & atia*.

CUSTOS rotulorum, he who has the custody of the rolls, or records, of the sessions of peace; and, some say, of the commissions of peace itself; appointed by a writing signed by the king's hand.

He is always a justice of peace, and quorum, in the county where he hath his office; and by his office appears to be rather a minister than a judge: because the commission of the peace, by express words, lays this special charge upon him: *Quod ad dies & loca prædicta, brevia, præcepta, processus, & indictamenta prædicta coram te & dictis sociis tuis venire facias*. It is his province to appoint the clerk of the peace.

CUSTOS spiritualium, he who exercises spiritual or ecclesiastical jurisdiction, in any diocese, during the vacancy of the see.

This, by the canon law, belongs to the dean and chapter; but, in England, to the archbishop of the province, by prescription: though divers deans and chapters do challenge it, by ancient charters, from kings of this land.

CUSTOS temporalium, the person to whose custody a vacant see was committed by the king, as supreme lord; who, as a steward of the goods and profits, was to give an account to the escheator, and he into the exchequer.

His trust continued till the vacancy was supplied by a successor, who obtained the king's writ *de restitutione temporalium*; which was commonly after consecration, but sometimes before.

CUT a feather, in *Sea Language*, is when a well-bowed ship so swiftly presses the water, that it foams, or froths. To *cut the sail*, is to unfurl it, and let it fall down.

CUT-bastion. See **BASTION**.

CUT-purse, in *Law*; if any person *clam & secrete*, and without the knowledge of another, cut his purse or pick his pocket, and steal from thence above the value of twelve pence, it is felony excluded clergy. 8 Eliz. 3 Inst. 68.

Cut-purses or *saccularii* were more severely punished than common thieves, by the Roman and Athenian laws.

CUT-roof. See **ROOF**.

CUT-water, the sharp part of the head of a ship below the

beak. It is so called because it cuts or divides the water before it comes to the bow, that it may not come too suddenly to the breadth of the SHIP, which would retard her.

CUTAMBULI, a name given by the old writers on medicine to certain worms bred under the skin, and causing by their creeping a very uneasy sensation. Afterwards the same word was used to express certain uneasy itchings caused by a scorbutic habit, and resembling the crawling of worms.

CUTANEOUS, something that concerns the *cutis*, or skin; whether in the way of distemper, or remedy.

Thus, we say, *cutaneous eruptions*; the itch is a *cutaneous* disease.

CUTANEOUS eruptions, in infants. See **INFANT**.

CUTHBERT duck, in *Ornithology*. See **DUCK**.

CUTICULA, **CUTICLE**, in *Anatomy*, a thin, pellucid membrane, void of sense; serving as a cover to the *cutis*, or skin. See *Tab. Anat. (Mol.) fig. 9*.

The *cuticula* is that first, and outermost covering of the body, called also *epidermis*, but more commonly the *scarf skin*; or that soft tegument which rises in a blister upon a burn, or the application of a cautery.

It sticks close to the surface of the *cutis*, or true skin, to which it is also tied by the vessels that feed it; though these are so small as not to be seen.

When examined by a microscope, it appears to consist of several lays of exceeding small scales, which cover one another, more or less, according to its different thickness, in the several parts of the body; and in the lips, where the scales appear plainest because the skin is thinnest, they do little more than barely touch.

These scales are either the excretory ducts of the glands of the *cutis*, as is the case apparently in fishes; or else the glands have their tubes, opening between the scales.

See **MILIARY gland**.

Leewenhoeck reckons, that in one *cuticular* scale there may be 500 excretory ducts; and that a grain of sand will cover 250 scales: so that one grain of sand will cover 125,000 pores, or orifices, through which we daily perspire. See **SKIN**.

Yet, notwithstanding the exceeding porosity of the *cuticula*, it obstructs a great part of the ferous humours, which would otherwise be evacuated by the glands of the *cutis*; as is evident, from that plentiful discharge consequent on the application of a blister, or other accident, whereby the *cuticula* is removed, and the *cutis* bared.

The scales are often glued together by the grosser parts of our insensible transpiration hardening upon them by the heat of the body, which carries off the more volatile particles; and in this is supposed to consist that indisposition we popularly call a cold.

The humour which is thenceforward separated by the glands of the skin, being pent in between the scales, causes frequent itching; and when the matter has been long pent up, small pimples, and other foulnesses: for removing of which, nature directs to those wholesome remedies of frequent rubbing, washing, or bathing.

Some imagine the *cuticle* to be formed from the grosser parts of the excrementitious ferous humour, eliminated through the pores of the *cutis*, and condensed on the surface; like the pellicle which appears, upon evaporation, on the surface of the serum of the blood: but Leewenhoeck, with more probability, takes it to be from an expansion of the excretory ducts of the glands of the skin. Its use is to defend the nerves of the *cutis*, which are the origin of the sense of feeling, from the injuries of rough and hard bodies, as well as the air: for either of those would make too exquisite and painful an impression on the naked nerves: or the air would dry them, so as that they would be less susceptible of the nicer touches of pleasure.

Riolanus, and several others, maintain that the *cuticula* of women has no pores: Molinette argues the contrary from their sweating; but maintains, also, that this is true of dogs and cats, who never sweat, how much soever fatigued.

CUTICULAR glove, in the *Phil. Trans.* denotes a separation of the *cuticle* from the *cutis*, from the wrist to the finger's-ends, &c. in the form of gloves, occasioned by a singular kind of fever. See the case and history related, *ibid.* vol. lix. N^o 38. an. 1769. See **SKIN**.

CUTICULARES carunculæ. See **CARUNCULÆ cuticulares**.

CUTIS, in *Anatomy*, the *skin*; a reticular plexus, or body of vessels, immediately under the *cuticle*, or scarf skin. See *Tab. Anat. (Mol.) fig. 8*. See **SKIN**.

The vesicles of the *cutis* contain a mucous liquor; from the tincture of which, Malpighi, and others, take the colour of the skin to be derived; founded on this, that the *cutis*, as well as *cuticle* of blacks, is white, and the blood red, &c. and that the only thing they have peculiar in this part, is the colour of this liquor.

The

The *cutis* consists of fibres of its own; or, according to Steno, is formed out of the productions of the tendons of the subjacent parts: which terminate in an infinite number of pyramidal papillæ, interwoven with innumerable nervous fibres, and other vessels forming what we call a PARENCHYMA. It is by means of these papillæ that the *cutis* becomes the organ of feeling.

Dr. Hunter says, that when the skin is once destroyed, it is never regenerated, and that the cicatrix is hardened flesh.

The *cutis* is generally connected to the subjacent parts by the *membrana adiposa*, and its proper vessels, the veins, arteries, nerves, &c. Its use is to wrap up and cover the whole body; to be a general emunctory for the matter of perspiration; and to be the organ of feeling.

The diseases of the *cuticula* and *cutis* are, the itch, leprosy, small-pox, measles, scarlet-fever, and erysipellatous inflammations.

CUTTER, in *Sea Language*, denotes a small vessel commonly navigated in the English Channel, furnished with one mast, and rigged as a sloop. Many of these are used in an illicit trade; and others employed, under the direction of the admiralty or custom-house, by government to seize them.

CUTTER is also the name of a small boat belonging to ships of war. It is broader, deeper, and shorter than the BARGE or PINNACE: fitter for sailing; and usually employed in carrying stores, provisions, &c. to and from the ship. CLINCHER-work is used in the structure of these boats.

CUTTER of the *tallies*, an officer of the exchequer, who provides wood for the tallies, and cuts the sum paid upon them. See TALLY.

CUTTING, a term used in various senses, and various arts; in the general, it implies a division or separation.

CUTTING is particularly used in *Heraldry*, where the shield is divided into two equal parts, from right to left, parallel to the horizon, or in the fesse-way.

The word is also applied to the honourable ordinaries, and even to animals and moveables, when they are divided equally the same way: so, however, as that one moiety is colour, the other metal. The ordinaries are said to be *cut*, *couped*, when they do not come full to the extremities of the shield.

CUTTING, in *Chirurgery*, denotes the operation of extracting the STONE out of the bladder by section. See LITHOTOMY.

CUTTING-glass, in *Chirurgery*. See CUPPING-glass.

CUTTING, in *Coinage*. When the laminæ, or plates of the metal, be it gold, silver, or copper, are brought to the thickness of the species to be coined, pieces are cut out, of the thickness, and nearly of the weight, of the intended coin; which are now called *planchets*, till the king's image hath been stamped on them.

The instrument wherewith they cut, consists of two pieces of steel, very sharp, and placed over one another; the lower a little hollow, representing a mortar, the other a pestle. The metal put between the two, is cut out in the manner described under COINAGE.

Note. Medallions, where the relieve is to be great, are not cut, but cast, or moulded.

CUTTING, in the *Manege*, is when the horse's feet interfere; or when with the shoe of one foot he beats off the skin from the pastern joint of another foot.

This is more frequent in the hind feet than the fore: the causes are either weariness, weakness in the reins, not knowing how to go, or ill shoeing.

CUTTING, in *Painting*, the laying one strong lively colour over another, without any shade or softening. The cutting of colours has always a disagreeable effect.

CUTTING in wood, a particular kind of sculpture, or engraving; denominated from the matter wherein it is employed.

It is used for various purposes; as, for figured letters, head and tail-pieces of books; and even for schemes, and other figures, to save the expences of engraving on copper: and for prints, and stamps for paper, calicoes, linens, &c.

The invention of *cutting in wood*, as well as that in copper, is ascribed to a goldsmith in Florence; but it is to Albert Durer, and Lucas, they are both indebted for their perfection. See ENGRAVING and PRINTING.

One Hugo de Carpi invented a manner of *cutting in wood*, by means whereof, the prints appeared as if painted in *claire-obscur*. In order to this, he made three kinds of stamps for the same design; which were drawn, after one another, through the press for the same print: they were so conducted, as that one served for the grand lights, a second for the demi-tints, and a third for the outlines and the deep shadows.

The art of *cutting in wood*, was certainly carried to a very great pitch above two hundred years ago; and might

even vie, for beauty and justness, with that of engraving in copper. At present it is in a low condition, as having been long neglected, and the application of artists wholly employed on copper, as the more easy and promising province: not but that wooden cuts have the advantage of those in copper on many accounts; chiefly for figures and devices in books; as being printed at the same time, and in the same press, as the letters: whereas, for the other, there is required a particular impression. In the representation of plants and flowers, and in designs for paper-hangings, where the outline only is wanted to be printed, in a bold full manner, this method will be found cheaper and more effectual than the use of copper-plates.

The cutters in wood begin with preparing a plank or block, of the size and thickness required, and very even and smooth on the side to be cut: for this, they usually take beech, pear-tree, or box; though the latter is the best, as being the closest, and least liable to be worm-eaten. The wood being cut into a proper form and size, should be planed as even and truly as possible; it is then fit to receive the drawing or chalking of the design to be engraved. But the effect may be made more apparent, and the ink, if any be used in drawing, be prevented from running, by spreading thinly on the surface of the wood, white lead, tempered with water, by grinding with a brush pencil, and afterwards rubbing it well with a fine linen rag, whilst it is wet; and when it is dry, brushing off any loose or powdery part with a soft pencil.

On this block they draw their design with a pen, or pencil, just as they would have it printed. Those who cannot draw their own design, as there are many who cannot, make use of a design furnished them by another; fastening it upon the block with paste made of flour and water, with a little vinegar, or gum tragacanth; the strokes or lines turned towards the wood.

When the paper is dry, they wash it gently over with a sponge dipped in water: which done, they take off the paper by little and little, still rubbing it a little first, with the tip of the finger; till at length there be nothing left on the block, but the strokes of ink that form the design, which mark out so much of the block as is to be spared, or left standing. Figures are sometimes cut out of prints, by taking away all the white part or blank paper, and cemented with gum-water to the surface of the wood.

The rest they cut off, and take away very curiously with the points of very sharp knives, or little chisels, or gravers, according to the bigness or delicacy of the work; for they need no other instruments.

It differs from engraving in copper, because in the former, the impression comes from the prominent parts, or strokes left uncut; whereas in the latter, it comes from the channels cut in the metal.

The manner of printing with wooden prints is much more expeditious and easy than that of copper-plate: because they require only to be dipt in the printing-ink, and impressed on the object in the same manner, and with the same apparatus as the letter printing is managed; and for purposes that do not require great correctness, the impression is made by the hand only, a proper handle being fixed to the middle of the print, by which it is first dipped in the ink, spread by means of a brush, on a block of proportionable size covered with leather; and then lifted up instantly, and dropped with some little force on the paper, which is to receive the impression. Handmaid to the Arts, vol. ii. p. 222.

CUTTINGS, or *slips*, in *Gardening*, the branches or sprigs of trees, or plants, cut or slipped off to set again; which is done in any moist fine earth.

The best season is from August to April; but care is to be taken, when it is done, the sap be not too much in the top, lest the cut die before that part in the earth have root enough to support it: nor yet must it be too dry or scanty; the sap in the branches assisting it to take root.

In providing the cuttings, such branches as have joints, knots, or burrs, are to be cut off two or three inches beneath them, and the leaves to be stripped off so far as they are set in the earth. Small top-branches, of two or three years growth, are fittest for this operation.

CUTTING-teeth, in *Anatomy*. See TEETH.

CUTTLE-fish, *Sepia*, in *Ichthyology*, the name of a genus of sea-insects of the *gymnarthria* kind, called also the *INK-fish*. See SEPIA.

The body of the *sepia* is of an oblong figure, and depressed; it is furnished with ten tentacula, two of which are longer than the others, and are pedunculated. It is often six inches in length, and three and a half in diameter.

It is supported by an oblong, light, and spongy substance,

of a friable texture, and lined with a light fungous pith. This is used by the silver-smiths, and as a dentrifice, under the name of *os sepium*, *os sepia*, or *cuttle-fish bone*. This animal, when it is in danger of being taken, is said to emit a black liquor like INK, out of its mouth in considerable quantities, whereby the water being obscured, it finds an opportunity of escaping; and from this property it has got the name of the *ink-fish*. It is not wholly a stranger to our seas, as appears from its bone being found on our shores.

CUTTLE-fish bone, *Sepia os*, or *testa*, is a white, spongy, testaceous substance, growing on the back of the *cuttle-fish*, and seeming almost to be calcined by the sun. It is rough and absterfve, and chiefly used in medicine as a dentrifice. It is hard on one side, but soft on the other, so as to receive neat impressions from medals, and to serve as a mould for the casting of metals, which thus take the figure of the original. It is likewise used for polishing or cleansing silver. See Lewis's Com. P. T. p. 333, & seq.

CUTTOFOE, in *Botany*, a name given by the people of Guinea to a plant which they esteem greatly for its medicinal virtues. They boil it in water, and give the decoction in all cases of the colic, in which it proves a cure. It is a species of the *anonis*, or rest-harrow, and is common to Africa, and the West Indies. Sir Hans Sloane has very well figured, and described it, under the name of *anonis non spinosa minor glabra procumbens flore late*, the yellow flowered, small, procumbent, smooth *anonis*, without thorns.

It is found in vast abundance on the banks of the Rio Cobre, near the city of St. Jago de la Vega, or Spanish Town. Phil. Trans. N° 232.

CUTTS, flat-bottomed boats, built low and commodiously, used in the channel for transporting horses. Stow, Annal. p. 412.

CUVETTE. See **CUNETTE**.

CUURDO, in *Botany*, is, with some authors, the name of the cinnamon-tree.

CYAMEA, in *Natural History*, the name by which the ancients call the black flinty eagle-stone. Pliny describes its blackish colour, and says, that when broken, there was found within it another stone of the bigness of a horse-bean. This is what rattles in it when shaken.

CYANELLA, in *Botany*, a genus of the *hexandria monogynia* class. The corolla consists of six petals. The fruit is a roundish trifurcated capsule, consisting of three valves, and containing three cells: the seeds are numerous and oblong. There is one species.

CYANEUS, in *Zoology*. See **COLUBER**.

CYANUS, in *Botany*. See **BLUE-bottle** and **CENTAURY**.

CYANUS, in the *Natural History of the Ancients*, is used to express two different substances. The one, the *lapis lazuli*; the other, the *lapis armenus*, a substance used by the painters in its native state, and very improperly called a stone, being a mere earth, and being truly to copper, what yellow ochre is to iron.

CYATHUS, from *χύνειν*, to pour out, in *Antiquity*, a liquid measure among the Romans, being the twelfth part of the *SEXTARIUS*. It only held as much as a man could easily drink at one draught, and was divided into twelve parts, called *UNCIAE*.

CYBÆ, in *Antiquity*, a kind of ship used in commerce, of a roundish form.

CYBELE, in *Mythology*, a heathen goddess; the daughter of heaven and earth, wife of Saturn, and mother of the gods. She was adored under the names of Ops, Rhea, Vesta, the Good Goddess, Dyndimene, Berecynthia, &c. and was called *Cybele* from Mount Cybelus in Phrygia. She is represented in a chariot drawn by lions, her garments flowered, a key in her hand, and a turret on her head.

CYBELICUM marmor, a name given by the ancients to a species of marble, dug in a mountain of that name in Phrygia. It was of an extremely bright white, with broad veins of a bluish black.

CYBOMANTIA, a species of divination performed by lots.

CYCAS, in *Botany*, a genus of the *palmae*; the fruit of which is a dry drupe, with a bivalve nut. There is one species.

CYCEON, from *μικρὸν*, to mix; a name given by the *Ancient Poets and Physicians*, to a mixture of meal and water, and sometimes of other ingredients. These constituted the two kinds of *cyceon*; the coarser being of the water and meal alone; the richer and more delicate composed of wine, honey, flour, water, and cheese. Homer, in the eleventh Iliad, talks of *cyceon* made with cheese and the meal of barley, mixed with wine, but without any mention either of honey or water; and Ovid, describing the draught of *cyceon* given by the old women of Athens to Ceres, mentions only flour and water. Dioscorides understood the word in both these

senses: but extolled it most in the coarse and simple kind: he says, when prepared with water alone, it refrigerates and nourishes greatly.

CYCINNIS, a Grecian dance, so called from the name of its inventor, one of the Satyrs belonging to Bacchus. It consisted of a combination of grave and gay movements.

CYCLAMEN, in *Botany*. See **Sow-bread**.

CYCLAS, in our *Old Writers*, a long garment, close upwards, and open, or large below. Matt. Paris, speaking of the citizens of London, tells us they were *cericis vestimentis ornati, cycladibus auri textis circumdati*. Anno 1236.

CYCLE, from *κυκλῶν*, I revolve, in *Chronology*, a certain PERIOD, or series of numbers proceeding orderly from first to last, and recurring again from last to first, successively, and without interruption.

The origin of *cycles* was thus: the apparent revolution of the sun round the earth, has been divided, arbitrarily, into twenty-four hours; the basis and foundation of all our mensuration of time. Civil use knows none but hours; or rather multiples of hours, as days, and years. But neither the annual motion of the sun, nor that of the other heavenly bodies, can be measured exactly, and without any remainder, by hours, or their multiples. That of the sun, v. gr. is three hundred and sixty-five days, five hours, forty-nine minutes, nearly; that of the moon, twenty-nine days, twelve hours, forty-four minutes.

Hence, to swallow up these fractions in whole numbers, and yet in numbers which only express days and years, *cycles* have been invented: which, comprehending several revolutions of the same body, replace it, after a certain number of years, in the same points of the heaven whence it first departed; or, which is the same thing, in the same place of the civil calendar.

Such is the famous *cycle* of 19 years, called also the **CYCLE of the moon**, or **lunar CYCLE**, a period of 19 solar years; equivalent to 19 lunar years, and seven intercalary months, which was thought to contain exactly 6940 days, or 235 synodical months: in which time the new and full moons are supposed to return to the same day of the Julian year. See **CALIPPIC**.

This is also called the *Metonic period*, from its inventor Meton, the Athenian; and the *golden number*. Though, in propriety, the golden number is rather the particular number which shews the year of the lunar *cycle*, which any given year is in. This *cycle* of the moon only holds true for 310.7 years: for, though the new moons do return to the same day after 19 years; yet not to the same time of the day, but near an hour and a half sooner; which error, in 310.7 years, amounts to an entire day. Yet those employed in reforming the calendar went on a supposition of the lunations returning precisely from 19 years to 19 years, for ever.

The use of this *cycle*, in the ancient calendar, is to shew the new moon of each year, and the time of Easter.

In the new one, it only serves to find the **EPACTS**; which shew in either calendar, that the new moon falls eleven days too late.

As the orientals began the use of this *cycle* at the time of the council of Nice in 325, they assumed, for the first year of the *cycle*, the paschal new moon to fall on the thirteenth of March: on which foot the lunar *cycle* three fell on the first of January, in the third year.

The occidentals, on the contrary, put the number one to the first of January, which occasioned a considerable difference in the time of Easter: hence Dionysius Exiguus, upon framing a new calendar, persuaded the Christians of the West to save the difference, and come into the practice of the church of Alexandria.—To find the year of the lunar **CYCLE**, is to find the **golden NUMBER**.

CYCLE of indiction is a series of fifteen years, returning constantly around, like the other *cycles*; and commencing from the third year before Christ. See **INDICTION**.

CYCLE of the sun, or **solar CYCLE**, a revolution of 28 years: beginning with 1, and ending with 28; which elapsed, the Dominical or Sunday-letters, and those that express the other feasts, &c. return into their former place, and proceed in the same order as before. The days of the month return again to the same days of the week; the sun's place to the same signs and degrees of the ecliptic on the same months and days, so as not to differ one degree in a hundred years; and the leap-years begin the same course with respect to the days of the week on which the days of the month fall.

It is called *solar cycle*, not with regard to the sun's course, which has nothing to do herein; but from Sunday anciently called *dies solis*, the day of the sun: in regard the **DOMINICAL** letter is principally sought for from this revolution.

The reformation of the calendar under pope Gregory occasioned

occasioned a considerable alteration of this *cycle*: in the Gregorian calendar, the *solar cycle* is not constant and perpetual; because every fourth secular year is common; whereas, in the Julian, it is bissextile. The epocha, or beginning of the *solar cycle*, both Julian and Gregorian, is the ninth year before Christ.

To find the cycle of the sun for any given year: add nine to the number given, and divide the sum by 28; the number remaining will be the number of the *cycle*, and the quotient the number of revolutions since Christ.

If there be no remainder, it will be the twenty-eighth, or last year of the *cycle*.

CYCLE of the Sun in Julian Years.

1	GF	5	BA	9	DC	13	FE	17	AG	21	CB	25	ED
2	E	6	G	10	B	14	D	18	F	22	A	26	C
3	D	7	F	11	A	15	C	19	E	23	G	27	B
4	C	8	E	12	G	16	B	20	D	24	F	28	A

CYCLE of the Sun from the Gregorian Year 1700, to the year 1800.

1	DC	5	FE	9	AG	13	CB	17	ED	21	GF	25	BA
2	B	6	D	10	F	14	A	18	C	22	E	26	G
3	A	7	C	11	E	15	G	19	B	23	D	27	F
4	G	8	B	12	D	16	F	20	A	24	C	28	E

CYCLE, it may be observed, is not only applied in general to all the numbers that compose the series; but to each number in particular: thus we compute, that the ordinary epocha from the birth of Jesus Christ had the *solar cycle* 10; the *lunar cycle*, or the golden number, 2; the Dominical letter B; and the *cycle of indiction* 4.

CYCLE, great Paschal, is another name for the *Victorian*, or *Dionysian PERIOD*.

CYCLISCUS (from κυκλος, *circulus*), an instrument in form of a half-moon; used by the surgeons to scrape the skull, in fractures of that part.

CYCLOID, in *Geometry*, one of the mechanical, or, as others term them, transcendental curves; called also the *trochoid*.

CYCLOID, the genesis of the, may be conceived by imagining a nail in the circumference of a wheel: the line which the nail describes in the air, while the wheel revolves on a right line, is the *cycloid*. Hence it is called *trochoides*, from τροχος, a wheel.

It is described by the motion of a point C (*Tab. Geometry, fig. 16.*) in the periphery of a circle CDH, while the circle makes a revolution along the right line AB. This line is called the base; the line EF bisecting it at right angles in F is called the axis; and the point E the vertex of the *cycloid*. The circle by which it is described is called the generating circle. Hence we may easily deduce and demonstrate the properties of this curve. The right line AB is equal to the periphery of the generating circle CDH, and AF equal to the semi-periphery: and in any situation of this circle, the right line AD is equal to the arc CD, and therefore the arc CH = DF = IK = CG; but CH is equal to the arc EG; therefore CG = arc EG, and the ordinate CK equal to the sum of the arc EG, and its right sine GK.

Again, a line CH parallel to the chord EG, is a tangent to the *cycloid* in C. Let an ordinate ck be drawn very near CK, as in the figure; let Cu and Gn be parallel to the axis, and meet it in u and n; and from O, the centre of the circle EGF, draw the radius OG. Since ck = Eg + gk, cu will be = Gg + gn. Let the ordinate ck approach to CK, and at length coincide with it, as Gg and Gn vanish, the triangles Ggn and GOK become similar; because the arc Gg in this evanescent state coincides with its tangent, the angle OGG is a right angle = nGK; and therefore gGn = OGK: whence Gg : gn :: OG : OK, and Gg + gn : gn :: OG + OK (= FK) : OK. But Gn : gn :: GK : OK, therefore Gg + gn : Gn :: FK : GK :: GK : EK; and consequently cu : Cu :: GK : EK; and supposing the chord Cc to be drawn, the triangles Cuc, EKG will be similar, because they have equal right angles, and the sides about those angles proportional; and therefore the chord Cc, as the points C and c coincide, becomes parallel to EG, since the angles on the same side of the crossing line are equal: therefore the tangent of the *cycloid* at C is parallel to the chord EG.

Farther, the arc of the *cycloid* EL is double of the chord EM of the corresponding arc of the generating circle EMF.

Let KL and kS be two very near ordinates of the *cycloid*, meeting the generating circle in M and Q; produce the chord till it meets the ordinate kS in P; let Qo be perpendicular from Q on MP, and draw the lines EN and MN touching the circle in E and M. The triangles ENM and PQM are similar, because of the equal

right angles, and the equal vertical angles, QM being indefinitely small, and coinciding with the tangent; and EN = NM as tangents to the same circle meeting in N; therefore PQ = QM, and Qo bisects the base of the isosceles triangle, and consequently MP = 2Mo; but LS, being an indefinitely small part of the curve, and coincident with the tangent, is parallel to MP, the chord produced, and equal to it; therefore LS = 2Mo. But as LS is the increment of the curve generated in the same time in which the chord EM increases by MO, since EQ supposed to be drawn is equal to Eo, when Q and M coincide; consequently the curve increases twice as fast as the chord, and as they begin to increase together, the arc of the *cycloid* EL will be always double of the chord EM. Hence it appears that the semi-*cycloid* ELB is equal to twice the diameter of the generating circle, EF; and the whole *cycloid* = 4 EF.

Again, let ER be parallel to the base AB, and CR parallel to the axis of the *cycloid*; the space ECR, bounded by the arc of the *cycloid* EC, and the lines ER and RC, will be equal to the circular area ECK. Draw cr parallel to CR; since cu : Cu :: GK : EK, as we have already proved, EK × cu = GK × Cu; and therefore CR × Rr = GK × Kk, and the little space CRrc = GKkg: consequently the areas ECR, ECK increase by equal increments; and as they begin to flow together, they must be equal. Whence it follows, making AT perpendicular to the base at A, that the space ETACE is equal to the semicircular area EGF: and consequently, that the area ECAFE, or semi-*cycloidal* space is equal to three times the area of the generating semicircle EGF; because AF is equal to the semiperiphery, and therefore EFA T being a rectangle under the diameter and semiperiphery, is equal to four times the semicircle EGF. Thus it appears, that the whole *cycloidal* space is triple the area of the generating circle.

This property of the *cycloid* might likewise be easily proved, by supposing a line αβ to be drawn at a distance below the centre equal to that of CK above it: let it intersect the generating circle EGE in γ; then αγ + CG = Eγ or (FG) + EG = the semiperiphery EGF: and thus the sum of every pair of lines drawn in the same manner will be EGF; and the number of them would be as OE; therefore the part of the *cycloidal* space ECA FGE, supposed to be formed by these lines, would be equal to OE × EGF = to the area of the generating circle; then, adding to each the semicircular area, and the semi-*cycloidal* space ECAFE, will appear to be equal to three times the semicircular area, &c.

Lastly, if the line EA be drawn, the area intercepted between the *cycloid* ECA, and this line will be equal to the semicircle EGF; for the area ECAFE = 3 EGF, and the triangle EAF = AF × ½ EF = the rectangle of the semicircle and radius = 2 EGF; therefore their difference, the area ECAE, is equal to EGF.

The *cycloid* is reputed a modern curve, and its invention ascribed, by some, to Mersenne; by others, to Galileo; but Dr. Wallis shews it of an older standing, and to have been known to Bovillus about the year 1500, and even considered by cardinal Cusanus much earlier, viz. before the year 1451. *Phil. Trans. abr. vol. i. p. 116.*

Mr. Huygens has demonstrated, that from whatever point or height, a heavy body, oscillating on a fixed centre (v. gr. a pendulum), begins to descend; while it continues to move in a *cycloid*, the times of its falls, or oscillations, will be equal to each other. This property M. Fontenelle states thus: the nature of the *cycloid* is such, that if a body, which describes it, fall from a greater height, and by that means acquire a certain augmentation of velocity, as in Galileo's theory, the greater *cycloidal* arch which it describes, takes up precisely that excess of velocity: so that the body does not describe it either sooner for its being accelerated, or later for having a greater space to move: and hence arises an equality in time, notwithstanding the inequality of arches.

This is easily demonstrated; since the force by which the motion of the pendulum is accelerated in any point M (*Tab. III. Mechanics, fig. 33.*) of the *cycloid*, is as the arc of the *cycloid* VM, that remains to be described. The force of gravity, supposed to be invariable, acting in the direction of the diameter DV, may be represented by DV; and it may be resolved into the two forces DQ and VQ; the first of which, in a direction parallel to the string suspending the pendulum CM, serves only to stretch the string, and does not contribute to accelerate the motion of the pendulum: it is only that part of the force of gravity represented by the chord VQ, which accelerates the motion of it along the curve Mm, and is altogether employed to produce that effect, since the direction VQ is parallel to the tangent of the *cycloid* at M. But VM = 2 VQ; therefore the force that accelerates the pendulum at M is as the arc of the curve VM;

and it is a well known theorem in mechanics, that, when the accelerating forces are as the spaces to be described, those spaces will be described in equal times. It appears from the foregoing demonstration, that the part of the gravity, which the string sustains in any point M, is to the whole weight of the pendulum, as the chord DQ to the diameter.

It is also demonstrated by writers on this subject, that the time of a complete oscillation in the *cycloid* is to the time in which a body would fall through its axis, as the circumference of a circle to its diameter (Prop. 25. Horol. Oscil. and Keil's Introd. Lect. xv. prop. 46.) whence we may easily infer, that the vibrations in unequal arcs are performed in equal times.

The *cycloid* is a line of the swiftest descent; and some have imagined that a ray of light passing through the ATMOSPHERE describes this curve. See farther on this subject, Phil. Trans. abr. vol. i. p. 462, &c. vol. iv. p. 351, &c. Maclaurin's Fluxions, art. 405—408. Account of Newton's Phil. Disc. p. 209, &c. Cotes's Opera. Misc. p. 80. Stirling Lineæ tertii Ordinis. Appendix.

On this foundation it is that the pendulum clock is built: on the subject whereof the same M. Huygens has written a large volume, under the title of Horologium Oscillatorium. See PENDULUM, and OSCILLATION.

CYCLOIDAL space, the space contained between the *cycloid*, and its subtense.

CYCLOMETRY, from *κυκλος*, circle, and *μετρον*, I measure, the art of measuring cycles, or circles.

CYCLOPÆDIA, from *κυκλος* and *παιδια*, instruction, the circle, or compass of arts and sciences; more ordinarily called *encyclopædia*.

The word *cyclopædia* is not of classical authority, though frequent enough among modern writers, to have got into several of our dictionaries. Some have censured us for having called the present work by this name; not considering that names and titles of books, engines, instruments, &c. are in a great measure arbitrary; and that authors make no scruple even of coining new words on such occasions when there are no old ones to their mind. Thus it is Dr. Hooke calls his fine book of microscopical observations, *Micrographia*; Wolfius his book on the air, *Aerometria*; Drake his book of anatomy, *Anthropologia*, &c. all of them words of modern, if not of their own fabric; and on no better authority stand the names of half our later inventions, as *microscope*, *telescope*, *barometer*, *thermometer*, *micrometer*, &c. But it is suggested the word *cyclopædia* is ambiguous, and may denote the science of a circle, as well as the circle of sciences: we answer, that as custom, the only sovereign rule of language, has determined the word to the latter sense, it is no more chargeable with ambiguity than a thousand other words of received use; no more, for instance, than *micrometer*, which might either denote a little measure, as a measure of little things.

CYCLOPES, from *κυκλος*, and *ωψ*, eye, in *Mythology*, a people who were said to inhabit the island of Sicily, in the primitive times, together with the *Lestrigones*. According to Hesiod they were the sons of heaven and earth; but of Neptune and Amphitrite, according to Euripides and Lucian. They were called *Cyclopes* from their being described with but one eye, placed in the middle of their forehead, and were of gigantic stature: they were said to be the companions of Vulcan. They are represented as a people lawless, savage, and delighting in human flesh; which character arose from the cruel custom of sacrificing strangers whom fortune brought upon their coast. It is related that Apollo killed the principal among them for having forged the thunderbolts which Jupiter hurled against his son *Æsculapius*. The adventures of Polyphemus with Ulysses and Galatea are well known.

The explanation of this allegory has been represented to be man in a state of uncultivated nature; unskilled in the laws of civil society, and living in a state of brutal force, having but one sense, which was sight. Him Ulysses overcame by superior knowledge and experience. The *Cyclopes*, according to Dr. Bryant, were a tribe of the ancient Ammonians, who settled in many parts of Greece. They were famous for architecture; and the idea of this people was borrowed from the lofty towers which they erected. As these buildings were often light-houses, and had, in their upper story, one round casement, by which they afforded light in the night, the Greeks made this circumstance a characteristic of the people. They supposed this aperture to have been an eye, which was fiery and glaring, and placed in the middle of their foreheads. The *Cyclopi*an deity was *Ouranus*, and the *Cyclopi*ans were his priests and votaries. *Ouranus* was often called *Cæl*, or *Cælus*, and worshipped under the name of a serpent, *Ops*, or *Opis*. Hence

the temple of the deity might have been called *Cu-Cælo-ops*, *Domus Cæli Pythonis*, whence *Κυκλωψ*, and the priests and people *Cucelopians*. Analysis of Ant. Mythol. vol. i. p. 491, &c.

CYCLOPTERUS, in *Ichthyology*, the name of a genus of the branchiostegous fishes, the characters of which are these: the branchiostegite membrane on each side contains six small and cylindric bones; the body is of an oblong, globose figure; the belly-fins unite at their extremities, so as to form one circular fin, of the shape of a funnel; the fins are six in number. We at present know only one species, which is the *LUMP-fish*, or sea-owl.

The name is formed of *κυκλος*, a circle, and *πτερον*, a fin; and expresses that this fish has something circular in its fins, those of the belly being concentered into this form. See *Tab. of Fishes*, N° 32.

This is a genus of the *nantes amphibia*, in the Linnæan system.

CYDER, a brisk, tart, cool liquor, prepared from apples. The apples should remain on the tree, till they are quite ripe; and this is a circumstance of great importance with respect to the quality of the *cyder*. They should be gathered by the hand in dry weather, and the driest part of the day, that they may be guarded both from bruises and moisture. They should then be sorted, according to their various degrees of maturity; and laid in separate heaps to sweat and meliorate: sweating, however, seems to be necessary only for apples, that are not quite ripe; though some recommend it as proper for all apples. The duration of the time of sweating is best determined by the smell of the fruit; different kinds require different lengths of time, viz. from eight or ten days to six weeks. The harsher the apple is, the more time it needs; they should be well wiped before they are used; the rotten part, if any, should be thoroughly pared off, and the stalk taken out.

CYDER, manner of making. The fruit is first ground in a mill, or pounded in a trough, and the juice squeezed out of the pomice in a press; then it is strained through a sieve, or other filtre, and tunned up; the vessel is not to be full. It is better to put the *cyder* into tubs or vats during the first fermentation, than to tun it immediately from the press. The curious in the manufacture of it have a large vessel in the shape of an inverted cone, with a part cut off near the vertex, holding from five to twenty hogsheads, in which they ferment it. In this vessel the heavier lees subside, and the lighter forms a crust at the surface, by the breaking and sinking of which they judge when it is fit for racking; and it is drawn off by a tap near the bottom. For two or three days it is to be stopped closely, then quite closed with clay; a small vent-hole should be left open for several days, or loosely stopped up with a peg, till the wild spirit of the liquor be spent; afterwards both the vent-hole and bung may be closed. Henceforward, a small quantity is to be drawn every day for some weeks, till such time as it be supposed pretty clear: then it is pierced, to see how fine it is; the summer fruit after a month: the gennet-moil after the first frosts; the redstreak not till after January; and the other winter fruits about the same time.

If it be now not found fine enough, it stands a month longer; and if after this it be defective, it is racked off like wine, so as to keep out the air.

Some, instead of racking, fine it with isinglass, steeped in white wine, and dissolved over the fire; this they boil in a quantity of the liquor to be fined, and then mix it with the rest: and others, instead of dissolving the isinglass over the fire, let it steep in the white wine for about a month, in which time it dissolves into a jelly of itself; a quantity of this is mixed with some of the liquor, and the whole beat to a froth; then mingled, together with some broom, with the rest. The liquor, once fine, it is drawn out, or bottled off, as occasion requires.

Some recommend frequent racking, and other means, for renewing and increasing the fermentation; but this should be regulated according to the strength or weakness of the *cyder*.

When the *cyder* has done fermenting, two or three handfuls of wheat bran, thrown into each vessel, will thicken the head or cream of the liquor, and make it keep better; and the *cyder* is much improved by putting into each hogshead about three quarts of good wheat, first boiled and hulled. Dead or flat *cyder* may be revived by grinding a small parcel of apples, and putting them into the cask, to renew the fermentation. This *cyder*, however, should be drawn off in a few days; otherwise the must will corrupt the whole mass.

Flat *cyder* in bottles may be also remedied, by adding a spoonful or two of new must to each bottle, and stopping it again. Tart or sourish *cyder* may be amended and

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preserved by adding wheat to it, in the proportion of about a gallon to a hogshead; and a greater degree of acidity may be corrected by egg-shells, powdered alabaster, &c. Ginger is used for accelerating the maturation of *cyder*, helping its fermentation, preserving it, and correcting its flatulence.

It is observed, that a mixture of fruits is of great advantage to *cyder*; the worst apples, mixed together, making as good *cyder* as the best make alone: always observing, however, that they be of equal ripeness.

The best mixture, according to Mr. Worlidge, is that of red streaks with golden rennets: bitter apples spoil the cyder, but the juice of them, and of crabs, yield as good spirits as the best apples, when fermented: neither the sour nor bitter taste arising with the spirit upon distillation.

The fire, under-leaf, fox-whelp, and golden pippin, have not yet been found to do so well in mixtures, as each of them does by itself.

If the apples be pounded in a stone mortar, which is the custom of some, the kernels and stalks are bruised with them, which gives the liquor an ill flavour.

The best *cyder* of all the kinds is that made from the red-streak apple, grafted upon a gennet-moil stock. These two sorts of apple-trees always agree very well, and the stalks scarce ever canker, as the crab-stalks usually do, when this apple-tree is grafted upon them. The fruit of the redstreak, on the stock here recommended, is always larger and milder, and, when ripe, is a very good eating apple, and the *cyder* made from it is mellow, and has not the over roughness and austerity that has, which is made from the same apple on the crab-stock: the apples also need less mellowing, in order to their making into *cyder*, the stalk in a great degree, meliorating the fruit: for as an apple grafted on a crab becomes better by obtaining an acrimony and quickness from the fruit, so a crab, and the redstreak apple, as it is called, which is in itself no other, obtains softness, mellowness, and bigness, by being grafted on a good apple. Phil. Trans. N^o 70.

It might be a great improvement to many estates, to cultivate on the grounds not fit for corn, the proper sorts of apples for *cyder*. It is a marketable commodity at all times, and costs no fuel to brew it; and the labour is but once in the year. The greater quantities of *cyder* are made together, the better it usually succeeds, but the vessels should also be large in which it is kept. In this case it will not only keep many years, but will improve all the time. Phil. Transf. N^o 134.

Hugh Stafford, esq. a Devonshire gentleman, published, about 1753, a pamphlet in 4to. on *cyder-making*, which may afford some instruction and entertainment to those who cultivate apples, and make *cyder*.

By six several acts, for every hogshead of *cyder* and *PERRY* made in Great Britain, and sold by retail, there shall be paid by the retailer the sum of 6*s.* and 8*d.* and by 12 Ann. stat. 1. 4*s.* more to be paid by the first buyer or retailer: and by 1 Geo. III. cap. 3. 4*s.* more over and above all other duties payable for *cyder* and perry sold by retail: and by 6 Geo. III. cap. 14. 6*s.* more; and for every hogshead consigned to an agent or factor 16*s.* and 8*d.* By 10 Geo. III. cap. 2. it is declared, that *cyder* and perry made in Great Britain shall in no case whatever be chargeable with more than 16*s.* and 8*d.* a hogshead.

head.

CYDER, *Pippin*. This is a sort of *cyder*, which in many places, might be made in great quantities, where the redstreak *cyder* apple will not thrive: the harshness that is apt to be in this sort of *cyder*, is the only objection to its value, it being of a good body, and otherwise, in all respects, commendable: the great reason of this harshness is the light foulness; or, as the *cyder* people express it, the flying lee that always is in this sort. But it is easy by watching a proper time, to draw off the liquor from this into other vessels, or to strain it through a cloth: in either case, much of the lee will be left out, and the *cyder* lose its harshness. Phil Trans. N^o 70.

CYDER spirit, a spirituous liquor drawn from *cyder* by distillation, in the same manner as brandy from wine. The particular flavour of this spirit is not the most agreeable, but it may, with care, be divested wholly of it, and rendered a perfectly pure and insipid spirit, upon rectification. The traders in spirituous liquors are well enough acquainted with the value of such a spirit as this; they can give it the flavours of some other kinds, and sell it under their names, or mix it in large proportion with the foreign brandy, rum, and arrack, in the sale, without danger of a discovery of the cheat.

CYDER Vinegar. See VINEGAR.

CYDER *Vinegar*. See VINEGAR.
CYDERKIN, *Purre*, or *Perkin*, is a liquor made of the
murk, or gross matter remaining after the *cyder* is pressed
out.

For this purpose, the muck is put in a large vat, with a proper quantity of boiled water, which had stood till it be cold again : if half the quantity of water be used that there was of *cyder*, it will be good ; if the quantities be equal, the *cyderkin* will be small. The whole is left to infuse forty-eight hours, and then well pressed : what is squeezed out of the press, is immediately tunned up and stopp'd ; it is fit to drink in a few days.

It clarifies of itself, and serves in families instead of small beer. It will keep if boiled, after pressure, with a convenient quantity of hops.

CYDONIA. See QUINCE.

CYDONITES *Vinum*. See VINUM.

CYGNUS, or CYCNU8, Gallina, the SWAN, in *Astronomy*,
a CONSTELLATION, of the northern hemisphere, between
Lyra and Cepheus.

The stars in the constellation *Cygnus*, in Ptolemy's Catalogue, are 19; in Tycho's, 18; in Hevelius's 47; in the Britannic Catalogue, 81. The order, names, longitudes, latitudes, magnitudes, &c. whereof are as follow:

Names and situations of the stars.	Bayer's Cha.	Signs.	Longitud.	Latitude. N.	Magnitude.
In the right north wing	α	♈	10 38 18 25 18 47 24 16 45 28 51 20 Unknown	73 50 11 50 57 30 46 25 40 7 20 44 Unknown	4 5 6 6
In the mouth	β	♈	26 55 37 13 44 40 29 56 17 Unknown	49 0 31 72 10 10 55 15 18 Unknown	3.4 6 6
Middle of the 3 in right wing	γ	♈	13 42 43	71 28 38	6
South of the 3 in right wing	δ	♈	2 38 16 0 36 19 14 22 42 7 54 44 5 50 43	57 23 36 50 39 38 69 37 56 62 42 5 57 15 9	6 5 4 6 6
In the corner of the right wing	ε	♈	17 1 8 4 36 37 11 57 7 8 53 22 24 15 34	69 30 50 53 42 33 64 27 14 58 7 12 70 53 26	6 5 3.4 6 5.6
In the middle of the neck	ζ	♈	8 37 28 10 31 20 4 48 48 Unknown 10 58 10	54 18 48 57 31 43 74 10 15 Unknown 55 54 29	6 6 6 5 6
First of the two in right foot	η	♈	23 44 12 12 30 29 13 57 43 15 34 43 23 46 19	67 33 40 54 28 16 55 1 40 54 36 33 63 43 29	6 5 5 6 4
Second	θ	♈	23 47 55 25 31 58 Unknown	63 38 3 64 18 53 Unknown	5 5.6
New star of the year 1600	ι	♈	17 29 14 15 44 13	55 29 20 52 36 15	6 6
In the breast	κ	♈	17 2 13 20 32 51 Unknown 15 42 22 20 51 50	54 33 16 57 9 20 Unknown 49 36 33 55 4 46	6 3 6 6
In the right knee	λ	♈	16 24 20 20 0 57 1 22 17 20 50 54 1 46 7	47 28 53 53 7 6 64 41 46 53 25 24 64 3 51	4 6 6 5 5
In the bright tail	μ	♈	2 31 4 20 37 18 19 28 17 20 54 55 1 1 32	64 10 7 51 38 16 47 57 16 48 21 13 59 56 37	5 6 6 6 2
In the corner of the left wing	ν	♈	7 17 32 21 21 29	64 4 18 46 30 26	6 6
In the middle of the same wing	ξ	♈	23 22 52 25 26 47 4 8 54	49 26 21 51 38 37 59 57 10	3 4 6
In the left foot	ο	♈	2 22 56 3 39 19 1 51 21 8 49 9 7 42 10	58 5 31 58 5 13 54 56 25 60 6 19 58 50 19	6 6 4 5.6 6

Names and situations of the stars.	Signs.	Longit.	Latitude. N.	Magnitude.
60.		0 57 35 50 30	6	
In the left knee	♈	6 32 35 56 36	5	4
In the extremity of left wing	♈	10 50 41 59 33	40	6
Southern of the 2 under left wing	♈	28 44 36 43 43	13	3
65.	♈	4 10 38 50 32	40	4
Northern	♈	2 57 29 47 29	10	5
	♈	6 3 49 51 30	45	4
	A	Unknown	Unknown	6
		6 41 40 48 25	8	6
		7 1 15 48 34	55	6
70.	♈	15 39 45 56 25	36	6
	♈	9 59 28 49 7	0	6
	S	15 53 18 55 12	51	4
		12 1 23 50 32	2	6
		15 15 52 52 39	30	6
75.		13 31 55 50 25	21	6
		13 56 49 50 34	26	6
		6 8 0 39 32	16	3.4
		Unknown	Unknown	6
80.	♈	24 1 45 58 52	37	4
	♈	23 17 18 57 12	6	5

CYGNUS, in Ornithology. See SWAN.

CYGNUS cucullatus, the hooded swan, a name very improperly given by some authors to the DODO, a very large bird, rather approaching to the cassowary kind, but not so long-legged, or long-necked. Ray.

CYLINDER, in Geometry, a solid body, contained under three surfaces; supposed to be generated by the rotation of a parallelogram, as CBEF (Tab. Geometry, fig. 17.) about one of its sides, CF.

If the generating parallelogram be rectangular, as CBEF, the cylinder it produces will be a right cylinder, i. e. a cylinder whose axis is perpendicular to its base.

If the parallelogram be a rhombus, or rhomboides, the cylinder will be oblique, or selenous.

The surface of a right cylinder, exclusive of its bases, is demonstrated to be equal to a rectangle contained under the periphery, and the altitude of the cylinder.

The periphery, therefore, of the base, and thence the base itself, being found, and multiplied by two, and the product added to the rectangle of the height, and periphery of the cylinder, the sum will be the area or superficies of the cylinder: multiply this by the area of the base; and the product will be the solidity of the cylinder.

For it is demonstrated, that a circle is equal to a triangle, whose base is equal to the periphery, and height to the radius; and also, that a cylinder is equal to a triangular prism, having the same base and altitude with itself: its solidity, therefore, must be had by multiplying the superficies into the base.

Again, since a cone may be esteemed an infinite-angular pyramid, and a cylinder an infinite-angular prism; a cone is one third part of a cylinder, upon an equal base, and of the same height.

Farther, a cylinder is to a sphere of the same base and altitude as 3 to 2.

Lastly, it is demonstrated in mechanics, that the solidity of a cylinder is the factum of the generating rectangle ABCD, (Tab. Mechanics, fig. 28.) into the periphery of the circle described by the radius EG, which is subdule of EF, or the semidiameter of this cylinder. See CENTRO-BARYE method.

CYLINDERS, for the ratio of. As all cylinders, cones, &c. are in a ratio composed of their bases and altitudes; hence if their bases be equal, they will be in the ratio of their heights; if their altitudes be equal, in the ratio of their bases.

Hence, also, the bases of cylinders and cones being circles; and circles being in a duplicate ratio of their diameters; all cylinders and cones are in a ratio compounded of the direct ratio of the altitude, and the duplicate one of their diameters; and, if they be equally high, as the squares of the diameters.

Hence, again, if in cylinders, the altitude be equal to the diameter of the bases, they will be in a triplicate ratio of the diameters of the base. All cylinders, cones, &c. are in a triplicate ratio of their homologous sides; as also of their altitudes.

Again, equal cylinders, cones, &c. reciprocate their bases and altitudes. See CONE, &c.

Lastly, a cylinder, whose altitude is equal to the diameter of the base, is to the cube of its diameter, as 785 to 1000.

To find a circle equal to the surface of a given CYLINDER, we

have this theorem: the surface of a cylinder is equal to circle, whose radius is a mean proportional between the diameter and height of the cylinder.

The diameter of a sphere, and altitude of a CYLINDER equal thereto, being given, to find the diameter of the cylinder: the theorem is, the square of the diameter of the sphere is to the square of the diameter of the cylinder equal to it, nearly, as triple the altitude of the cylinder to double the diameter of the sphere. See SPHERE.

To find a rete, or cage, wherewith a cylinder may be formed, or wherewith any cylinder may be covered. With the diameter of the base describe two circles; find their peripheries: and, upon a line equal to the altitude of the cylinder, form a rectangle, whose other dimension is equal to the found periphery. Thus may the cylinder required be formed, or covered.

When the cylinder is oblique, the estimate of its superficies depends upon the rectification of the ellipse; for a plane cutting the cylinder at right angles to the axis will produce an ellipse, and the superficies will be equal to the product of this elliptic periphery by the side of the cylinder.

CYLINDER, resistance of a. See RESISTANCE.

CYLINDER, scenography of a. See SCENOGRAPHY.

CYLINDER charge, in Gunnery, is that part of a great gun which is possessed by the powder and ball.

CYLINDER concave, in Gunnery, is all the chase, or hollow length, of a piece of ordnance.

CYLINDER vacant, in Gunnery, is that part of the hollow that remains empty, after the gun is charged. See CANON.

CYLINDER, rolling, in Mechanics, a cylinder which rolls up an inclined plane.

The phenomena of the rolling cylinder may be easily accounted for from what we have observed under centre of gravity.

For let ABED (Tab. III. Mechanics, fig. 34.) represent the section of a cylinder of wood, biased on one side by a cylindrical piece of lead as B, which will bring the centre of gravity out of the centre of magnitude C to some point G between C and B. Let FH be an inclined plane, whose base is FL. It is evident the cylinder laid upon the plane will no where rest but there, where a perpendicular to the horizon FL passes through the centre of gravity G, and that point of the plane E, in which the cylinder touches it; and this, in all angles of inclination of the plane less than that whose sine is equal to CG, the radius being CD, will be in two situations ABED, and abed: because when the cylinder moves, the centre of gravity describing a circle round the centre of magnitude C, this circle will meet the perpendicular in two points G and g, in each of which the centre of gravity being supposed, the cylinder will rest. Therefore the cylinder moves from E to e by the descent of the centre of gravity from G to g, in the arch of the cycloid Gbg.

If the cylinder ABED, fig. 35. insisting on the horizontal line EL, in the point E, has the centre of gravity G in the horizontal diameter DB, it will gravitate in the perpendicular Ge: if therefore the plane FH touch the cylinder in the point e, it is evident the cylinder cannot either ascend or descend on such a plane. Because G in any situation between e and H, or e and F, will gravitate to the left or right from the point in which the cylinder touches the plane; and so will in either case bring it back to the point e. And as the angle ECe is equal to HFL, it follows, that a cylinder cannot ascend on a plane whose inclination is greater than that angle.

CYLINDRICAL, Column, Compasses, Mirrors, Wax-Candles. See the several substantives.

CYLINDROID, in Geometry, a solid body, approaching the figure of a cylinder; but differing from it in some respect, e. gr. as having its bases elliptical, but parallel and equal.

The word comes from κυλινδρος, cylinder; and εἶδος, form.

CYLINDROID, hyperbolic. See HYPERBOLIC.

CYLINDRUS, in Conchyliology, the name of a genus of shell fish, of which there are many very elegant and precious species. This genus is more generally, at present, called rhombus, though this is very improper, the word cylindrus very aptly expressing the shape of the shell, which is cylindric and oblong, and the rhombus, which signifies that figure we call a lozenge, not being at all expressive of it.

The characters of this genus are these; it is an univalve shell, of an oblong cylindric figure, with an oblong mouth, and sometimes having the clavicle separated from the body by a circle: the columella, is in some species, smooth, in others, rough. The most obvious character of this genus, without having recourse to the mouth, is, its having in all the species, both ends of the shell nearly

of the same size, the tail part being always, however, somewhat smaller than the head. The head is not separated from the body by an elevated rib, as in the volutæ, but follows the shape of the body, though sometimes it is separated by a dentated furrow; and in some, though very few species, by a rib, or rising circle. This is a very puzzling circumstance in the distinction of the shell, bringing it to a near alliance with the volutæ: but, in this case, the point of the shell must be regarded, which in the *cylindrus* is always obtuse, but in the voluta always pointed. See *Tab. III. of Fossils, Class 9. and Tab. of Shells, N° 12.* Among the species of this family of shells, there are found two very remarkable distinctions; the one is in the species just mentioned, which has a rib near the head; the other is in the olive *cylindrus*, the two extremities of which are nearly equal, but the middle very considerably swelled.

The family of the *cylindri* are very numerous. See farther *Hist. Nat. Eclair. p. 284.* See LIMAX.

CYLISTI, in *Antiquity*, a designation given to the *pancratiæ*; because when the weaker found himself forepressed by his adversary, he fell down, and fought, rolling on the ground. See PANCRA TIUM.

The word is formed κυλιω, to roll, or tumble.

CYLLOSIS, the same with CYLLUM.

CYLLUM, from κυλλος, lame, in *Medical Writers*, is used to signify a leg put out of joint outwardly; also one that is lame and crooked.

CYMA, in *Botany*, a term signifying the tender sprout of any plant, especially of the cabbage kind.

CYMA, in *Architecture*. See CIMA, and CYMATIUM.

CYMATITES, in *Natural History*, a name given by some writers to a species of ASTROITES, the lineations of which are indented and represent waves.

CYMATIUM, CIMATIUM, or CIMA, in *Architecture*, a member or moulding of the cornice, whose profile is waved; i. e. concave at top, and convex at bottom; frequently also called *doucine*, *gorge*, or *gula recta*; especially by the French: by the Italians *golletta*, i. e. *parva gula*; but more usually *cymatium*, among us; being the last, or uppermost member of the cornice. See *Tab. Architecture, fig. 8.*

Some write the word *simaise*, from *simus*, *camus*, *flat-nosed*; but this etymology is improbable: the beauty of the moulding consists in its having its projecture equal to its height. M. Felibien therefore rejects this origin; contending, that the moulding is not so denominated from its being the uppermost member of the cornice, but, according to the sentiment of Vitruvius, from its being waved, from the Greek κυματιον, *undula*, of κυμα, *wave*. This is certain, that Vitruvius sometimes uses the word *unda* for *cymatium*; and sometimes *lysis*, i. e. *solution*, *separation*; because corniches, where the *cymais* are found, separate one piece of architecture from another; as the pedestal from the column, and the frieze from the cornice. But it must be observed, that he does not confine *cymatium* to the cornice, but uses it for any similar moulding, wherever he meets with it: in which he differs from the more accurate among the moderns.

Felibien makes two kinds of *cymatiums*; the one *right*, the other *inverted*: in the first, that part which projects the farthest is concave, and is otherwise called *gula recta*, and DOUCINE. In the other, the part that projects farthest is convex, called *gula inversa*, or TALON.

Our architects do not chuse to give the name *cymatium* to these mouldings, except when found on the tops of corniches, but the workmen apply the name indifferently, wherever they find them. Palladio distinguishes the *cymatium* of the cornice by the name *intavolata*.

CYMATIUM, *Tuscan*, consists of an ovolo, or quarter round. Philander makes two Doric *cymatiums*, whereof this is one: Baldus calls this the Lesbian *astragal*.

CYMATIUM, *Doric*, is a cavetto; or a cavity less than a semicircle, having its projecture subduple its height. See *Tab. Architecture, fig. 25. N° 6.*

CYMATIUM, *Lesbian*, according to Vitruvius, is what we otherwise call *talon*; viz. a concavo-convex member, having its projecture subduple its height.

CYMBAL, a musical instrument, used among the ancients; called by the Greeks κυμβαλον, and by the Latins *cymbalum*.

Sylburgius derives the word from three several roots, viz. from κυφος, *crooked*; from κυπελλον, *cup*; and from φωνη, *voice*. Isidore derives it from *cum*, and *ballematica*, an immodest dance used to accompany this instrument. The real etymology appears to be from κυμβος, *cavity*.

The cymbal was of brass, like our kettle drums; and as some think, resembling them in their form, but smaller, and applied to a different use.

Castiodorus and Isidore call it *acetabulum*, the name of a cup or cavity of a bone wherein another is articulated; and Xenophon compares it to a horse's hoof; whence it must have been hollow: which appears, too, from the

figure of several other things denominated from it: as a basin, caldron, goblet, casque; and even a shoe, such as those of Empedocles, which were of brass.

In reality, the ancient *cymbals* appear to have been very different from our kettle-drums, and their use of another kind: to their exterior cavity was fastened a handle; whence Pliny compares them to the upper part of the thigh, *coxendicibus*; and Rabanus to phials.

They were struck against one another, in cadence, and made a very acute sound. Their invention was attributed to Cybele; whence their use in feasts and sacrifices setting aside this occasion, they were seldom used but by dissolute and effeminate people. M. Lampe, who has written expressly on the subject, attributes the invention to the Curetes or inhabitants of mount Ida, in Crete: it is certain these, as well as the Corybantes, or guards of the kings of Crete, and those of Rhodes and Samothracia, were reputed to excel in the music of the cymbal. See CORYBANTES.

The *cymbals* of Bacchus were two small brass vessels, somewhat in the form of a shield, which being struck together by the hands, give a sound. The well-known statute of the dancing fawn has one of these in each hand. The Jews, too, had their *cymbals*, which they called צלצלים, or תצלתיים; or, at least, instruments which the Greek, Latin, and English translators, render *cymbals*; for as to their matter, form, &c. the critics are wholly in the dark.

The modern *cymbal* is a mean instrument, chiefly in use among vagrants, gypsies, &c. It consists of steel wire, in a triangular form, whereon are passed five rings, which are touched and shifted along the triangle with an iron rod held in the left hand, while it is supported in the right by a ring, to give it the freer motion. Durandus says, that the monks used the word *cymbal* for the cloister-bell, used to call them to the refectory. See BELL.

CYMATIUS *storax*. See STORAX.

CYMBARIA, in *Botany*, the name of a genus of plants, of the *didynamia angiospermia* class; the characters of which are these: the perianthium is erect, and divided into several segments; two of them, which stand opposite to one another, are larger and broader than the rest; the other ten are very narrow; this cup does not fall with the flower: the flower is monopetalous, and its tube is oblong and inflated; the mouth is open; the upper lip is reflex, obtuse, and divided into two segments; the lower one is obtuse also, and is divided into three; the stamina are four filaments, of the length of the tube; the antheræ are bifid, and prominent; the germen of the pistil is oval; the style is capillary, and of the length of the stamina, and the top of it is bent; the stigma is obtuse; the fruit is an oval capsule, composed of two valves, and having only one cell; this is square, and contains a number of smooth angular seeds.

CYMBIFORME, *Os*, in *Anatomy*. See NAVICULARE *Os*.

CYMBIUM, in *Natural History*, a name given by many authors to a kind of sea-shell, commonly called the GONDOLA shell. It is of the genus of the *concha globosa*, or *dolium*, and there are several species of it.

CYMENE, in *Botany*, a name given by the ancient Greeks to a plant with which they have used to dye woollen things yellow, and with which the women also used to tinge the hair yellow. The *cymene* of the Greeks is evidently the same plant with the *lutum* or *lutea herba* of the Latins; and this is described to have leaves like the *linum*, or flax, and flowers like the *genista*, or broom. It is plain from this, that the *lutum* of the Romans was the plant we call *genistella*, *tindoria*, or dyer's weed, still used to dye yellow, and which answers to all the characters of the Roman description.

CYMINALIS, in *Botany*, a name used by some authors for the *gentian*, the plant whose root is the fine bitter drug of that name.

CYMINO, *Cataplasme*. See CATAPLASM.

CYNAPIUM, in *Botany*, a name used by authors for the lesser hemlock, or fool's parsley.

CYNANCHE, and LYNANCHE, in *Medical Writers*, an inflammation of the inner muscles of the larynx, accompanied with a difficulty of breathing, and a continual fever, so called, because it is frequently incident to dogs and wolves.

CYNANCHUM, in *Botany*. See Bastard Dog's-Bane.

CYNANTHEMIS, in *Botany*, a name given by some authors to the *COTULA fetida*, or stinking May-weed. Ger. Emac. Ind. 2.

CYNANTHROPIA, from κυων, *dog* and ανθρωπος, *man*; a term used for madness given by a dog, wherein the patient avoids light, or any thing bright, fears water, and trembles at the sight and remembrance of it. It proceeds usually from a poisonous bite, or the like, of some mad creature, as a dog, a wolf, &c.

CYNARA, in *Botany*, a name generally esteemed synonymous with the word *cinara*, but erroneously; the *cinara* being

being properly the **ARTICHOKE**, and *cynara* the chardoon, or some other thistle nearly allied to the artichoke kind, of which the ancient Greeks eat the young and blanched stalks, as we do the chardoons.

CYNEBOTE, the same with **CENEGILD**.

CYNEGETICS, from *κυνηγος*, *hunter*, of *κυν*, *dog*, and *αγω*, *I lead out*, books treating of the art of hunting. Grattius Faliscus has written a *Cynegetica* with applause.

CYNICS, a sect of ancient philosophers, who valued themselves on their contempt of every thing, especially riches and state, arts and sciences; all excepting morality.

The founder of this sect is said to have been Antisthenes, a disciple of Socrates; who, after his master's death, quitting the Pyreum, retired to Cynosarges, a kind of academy, not far from the gates of Athens.

Hence, some will have it, came the name *κυνικος*, *cynicus*, viz. from *cynosarges*. But others, with more probability, derive it from *κυν*, *dog*, because of their severity and importunity in reprehending vice. Thus, Aristotle observes, *οι δεικνυμικοι*, &c. *the Cynics were so called from their free way of rebuking*, &c. Hence, Diogenes the Cynic said of himself, *I bite the evil*; and Antisthenes himself was called *απλος κυων*, *an ingenious and sincere dog*: it being the distinguishing character of the Cynics to attack and bark at the ill, and to defend and fawn on the good.

Arrian very much extols the Cynical genius; "a Cynic" (says he) is a messenger sent from Jupiter to overlook "human affairs; a public doctor, and tutor of mankind; who instructs and chastises at the same time; an Æsculapius; a lord and king, adorned with a sceptre and diadem, who governs the people; and this voluntarily, without trembling, without guards, &c. but by a good conscience." The ground of this encomium may be owing, in some measure, to the affinity between the Stoics and Cynics: the chief difference between them consisted in this, that the former were more modest and reserved than the latter; who were said to have banished all shame, and were able to practise any obscenity without blushing.

Hence, Laertius observes of Diogenes, that he did every thing openly, whether it belonged to Ceres or to Venus: though the same Laertius adds, that he did it in imitation of the chorididascali, i. e. he only ran to an excess of impudence, to put others out of conceit with it.

CYNIC Period. See **EGYPTIAN YEAR**.

CYNIC spasm, *spasmus CYNICUS*, a sort of convulsion, whereby the patient is brought to imitate the gestures, snarlings, howlings, &c. of a dog. See **SPASM**.

Dr. Freind, in the Philosophical Transactions, gives us an account of a very extraordinary *spasmus* of this kind, wherewith two families, at Blackthorn in Oxfordshire, were seized.

The novelty of the thing drew abundance of visitors to the village, and among the rest Dr. Willis; who, a good while before he reached the place, heard a terrible noise of barking and howling: upon his entering the house, he was immediately saluted by five girls, bawling, and answering each other by turns, with violent motions of the head. In their face there was no convulsion seen, beside *cynic* distortions and oscillations of the mouth: their pulse was pretty regular; their noise was rather like that of the howling, than of the barking of dogs; though its returns were more frequent, with deep sighings between.

The *spasmus* had seized them all equally: whereof the youngest was but six, and the eldest fifteen years of age: at intervals they had their reason and senses entire; but not long, before one of them, returning to her yelling, set on the rest: till at length, all fainting, they fell, like epileptics, on a bed laid in the middle of the room to receive them.

A little while they would lie quietly and decently together; but upon a new orgasm of the spirits, they began to beat and bruise each other. Two of the youngest awaked while the doctor stayed, and left their sisters on the bed: but the *spasmus* soon had hold on them again.

In July, 1700. Dr. Freind himself visited another family, in the same village; where one boy and three girls had been seized ten weeks, without any apparent preceding cause. A girl had had it first; and the rest, as the mother informed him, were so struck with their sister's disorder, that they too were seized. At his arrival, they were all at play, very briskly, and unconcernedly, before the doors; at length the eldest girl, about fourteen years of age, was seized as usual.

The only symptom of its approach, was a swelling of the stomach; which rising gradually up the throat, set the muscles of the larynx and the head upon their usual convulsions: this rising was a certain symptom of an approaching paroxysm in them all; and if they endeavoured to stop it, it burst out with the greater violence, and held the longer.

The noise they made was incessant, and disagreeable; yet not so much like the barking and howling of dogs, as had been given out, as a quaint kind of a song, consisting of three notes, or tones, repeated twice over; and closed by deep sighs, &c. accompanied by extraordinary gestures and nutations of the head.

This disease the doctor takes to be natural; and to rise from the common cause of all convulsions, viz. from the animal spirits growing unruly in the nerves, and driving the muscles into various contractions, according the circumstances of the indisposition.

CYNIPS, in *Zoology*, a genus of four-winged insects of the *hymenoptera* order; without a proboscis, and with a spiral sting, most commonly concealed.

CYNOCEPHALUS, from *κυν*, *dog*, and *κεφαλη*, *head*, in *Zoology*, the name of one of the genera of monkeys which have a long nose, and resemble a dog about the head. These have all tails, some longer, some shorter, and are what we call in English *baboons*. There are several species of these, some of which are very large.

CYNOCRAMBE, in *Botany*, *Theligonum*. See **DOG'S CABBAGE**.

CYNOCTONON. See **ACONITE**.

CYNODESMUS, or **CYNODESMION**, among *Anatomists*, the band, or ligament, which ties the prepuce of the yard to the nut or glans.

CYNOGLOSSUM, from *κυν*, *dog*, add *γλωσσα*, *tongue*, in *Botany*. See **HOUNDS-TONGUE**.

CYNOGLOSSI radix, *hound's-tongue root*, in the *Materia Medica*, is emollient, anodyne, and narcotic; it is also gently astringent, and is esteemed a good medicine in catarrhs, diarrhoeas, dysenteries, and hæmorrhages of all kinds; also in the fluor albus, and gonorrhœa.

CYNOGLOSSUS, in *Ichthyology*, the name of a fish common in the Mediterranean sea, and brought to market at Rome, Venice, and elsewhere. It much resembles the foal-fish, but is a worse fish for the table.

CYNOGLOSSOIDES. See **BORRAGE**.

CYNOGLUCOS, from *κυν*, *dog*, and *λυκος*, *wolf*, in *Natural History*, a name given by the ancient writers to a creature which had the shape partly of a dog, and partly of a wolf; and was generated, according to their accounts, by a mixture of those two species of animals in copulation, as the **LEOCROCOTTA** was between the hyena and lions.

CYNOMITRA, in *Botany*, a genus of the *decandria monogynia* class of plants; the cup of which is four-leaved, and the fruit a fleshy, lunated pod, containing a single seed.

CYNOMORIUM, from *κυν*, *dog*, and *μορον*, *fruit*, in *Botany*, a name given by Micheli, and continued by Linnaeus, to a genus of plants, of the *monoecia monandria* class; the characters of which are these: it produces separate male and female flowers, but they stand almost close to one another, in the same amentum or ear. In the male flowers the general cup is an erect amentum, imbricated on every side, and composed of oblong, erect, truncated squammæ, each containing one flower, and formed narrow at the bottom, and gibbous on one side and hollow on the other; there are no petals, and in the midst there arises, by way of a stamen, one firm and strait filament, longer than the cup, and crowned with a double apex. In the female flowers the common amentum is the same as in the male, but they have no other cup than is formed by the leaves of the plant; the germen of the pistil is globose; the style is single, erect, firm, and of the length of the cup; the stigma is obtuse; the seed is single and naked.

CYNOMUIA, the *dog-fly*, as the Greek term imports, in *Zoology*. See **DOG-FLY**.

CYNOPHONTIS, in *Antiquity*, a festival observed in the dog-days at Argos, and so called *απο της κυνης φονειν*, i. e. from killing dogs; because it was usual on this day to kill the dogs they met with.

CYNOREXY, or **CYNODES OREXIS**, an immoderate appetite to the degree of a disease; called also *fames canina*, and **BULIMY**.

CYNORRHODON, in *Botany*, the *dog-rose*, as the Greek term signifies; the common wild brier, or wild white rose, so common in our hedges.

CYNOSBATOS, from *κυν*, *dog*, and *βατος*, *bush*, in *Botany*, a word used as the name of different shrubs by different authors. It is now generally used as the name of the wild, or *dog-rose*; but some authors have applied it to the common bramble; others to the *oxycanthus*, and others to the *CAPER-bush*.

The fruit of the *wild rose* is the hip, used in conserve, and said to be good in disorders of the breast, &c.

CYNOSPASTOS, in *Botany*, a name used by some authors for the *garden piony*.

CYNOSURA, in *Astronomy*, a denomination given by the Greeks to **URSA minor**, or the Little Bear.

The word is formed of *κυνοςουρα*, q. d. the *dog's tail*. This is the constellation next our pole, consisting of seven stars;

stars; four whereof are disposed like the four wheels of a chariot; and three lengthwise, representing the beam: whence some give it the name of the *chariot*, or *Charles's wain*: a name now more commonly given to the seven principal stars forming the same kind of figure in the Great Bear.

From these seven stars it is the pole takes its name, *Septentrionalis*; and the rest of the hemisphere, as far as the line, *Septentriones*.

CYNOSURUS, *dog's-tail*, in *Botany*, a kind of grass called *criflata* by Scheuchzer, and other authors; but in the Linnæan system of Botany, by this name. See *Dog's Tail*.

CYNTHIUS, and **CYNTHIA**, in *Mythology*, surnames of Apollo and Diana, derived from Cynthia, the name of a mountain in the middle of the island of Delos.

CYNOZOLOS, in *Botany*, a name given by some of the old Greek writers, and, from them, copied by Pliny and the Latins, to express the black *chamaeleon thistle*, a poisonous plant, which it was very necessary to distinguish perfectly from the plant called white *chamaeleon thistle*, which was a safe and esculent plant.

CYON, or **CION**, a **GRAFT**, sprig, or sucker.

CYPERUS, in *Botany*, a genus of plants of the *triandry monogynia* class; the characters of which are, that the cup is an imbricated spike, the several scales of which are somewhat bent, of an oval figure, and boat-like form, and serve to keep the flowers separate; it has no petals; the stamina are three extremely short filaments; and the antheræ are oblong and furrowed; the germen of the pistillum is extremely small; the style is thread-like, and very long; the stigmata are three, and of a capillary form; it has properly no fruit but a single, three-cornered, pointed, and naked seed. See *Tab. V. of Botany, Class 15. Phil. Trans. vol. xlix. part ii. p. 88.*

CYPERUS root, in the *Materia Medica*, the name of a root used in medicine, of which there are two kinds, the long and the round; the long *cyperus* is of our own growth; the round, when genuine, we have from the East Indies, but what is usually sold is the root of a bastard kind, common about our own ditches, and called by authors, by way of distinction from the Indian and, *cyperus rotundus nostras*.

The Indian round *cyperus*, is a knobbed root, full of small specks and tubercles, brown on the outside, and greyish within, of a slightly sweet smell, and of an acrid taste. The long *cyperus* is an oblong root, covered with a great number of fibres, not easily broke, of a dusky brown without, and a pale bright grey within, of an acrid taste, and very agreeable smell, when fresh and good. The plants which produce them both, grow in watery places, and have leaves and flowers in some measure resembling the water-grasses, which, from their resemblance to these, are called *cyperus* grasses. They are possessed of the same virtues, cure ill-scented breaths, are good in nervous disorders, in colics, and in disorders of the womb. They are taken in powder, or decoction.

The roots of *cyperus* are attenuants, and deobstruents, promote urine, and the menses, are good stomachics, and serviceable in the first stages of the dropsy.

CYPHER. See **CIPHER**.

CYPHI, a term in the *Arabian Pharmacy*, signifying a kind of cordial perfume.

Mithridates gave the appellation *cyphi* to the rocks wherewith the Egyptian priests used to sweeten their gods, to make them grant what they requested. He used the same in the composition of mithridate, on account of their efficacy against poisons, defluxions, &c.

The *cyphi* are composed of raisins, or dried grapes, turpentine, myrrh, bdellium, spica nardi, cassia ligea, aspalathum, saffron, &c. tempered into a mass with honey and a little wine.

CYPHOMA, **CYPHOS**, and **CYPHOSIS**, in *Medical Writers*, an incurvation of the spine, forming a crookedness of the back.

CYPHON, in *Antiquity*, a kind of punishment used by the Athenians; it was a collar made of wood, so caed, because it constrained the criminal, who had his punishment inflicted on him, to bow down his head.

CYPHONISM, **CYPHONISMUS**, from *κυφωσις*, which has various significations, derived from *κυφος*, *crooked*, a kind of torture, or punishment, in use among the ancients.

The learned are at a loss to determine what it was: some will have it to be that mentioned by St. Jerom, in his Life of Paul the Hermit, chap. 2. which consisted in smearing the body over with honey; and thus exposing the party with his hands tied, to the warm sun, to invite the flies and other vermin to persecute him.

CYPRÆA, in *Zoology*, a genus of snail-shells of an oval contorted figure, and with a longitudinal aperture, comprehending a great variety of species.

CYPRESS, *Cupressus*, in *Botany*, a genus of the *monoecia monadelphica* class. Its characters are these: it hath male

and female flowers on the same plant; the male flowers are formed into oval catkins, in which the flowers are placed thinly; they have no petals nor stamina, but have four summits, which adhere to the bottom of the scales; the female flowers are formed in a roundish cone, each containing eight or ten flowers; the germen is scarcely visible, but afterward becomes a globular cone, opening in angular target-shaped scales, under which are situated angular seeds. There are six species. See *Tab. V. of Botany, Class 19.*

All the species of *cypresses* are propagated from seeds: these should be sown early in the spring, on a bed of warm, dry, sandy earth, which should be levelled very smooth. If the weather prove warm and dry, it will be proper to water the bed, taking care not to wash the seeds out of the ground: in about a month's time, the plants will appear above ground, which ought to be kept free from weeds. After remaining two years in this bed, they may be transplanted into a nursery: the best season for removing them is in April, on a cloudy day that seems to threaten rain; and, in taking them out of the seed-bed, the roots should be preserved entire, with a ball of earth to each plant. When they have been three or four years in the nursery, they may be planted out for good; and, if designed for timber, the distance of eighteen or twenty feet should be allowed every way around them. They must be well watered at first to settle the earth to their roots, which ought to be frequently repeated, if the weather proves dry.

The *cypress* tree, though found in most of our old gardens, is, at present, less regarded than it really deserves. It adds a considerable beauty to wildernesses, or clumps of evergreens. But, besides this, it ought to be cultivated on account of its valuable wood.

This tree is also recommended by many for purifying the air, and relieving weak lungs. On this account the ancient physicians of the eastern countries used to send their patients with weak lungs to the island of Candia, which then abounded with these trees. Miller.

The wood is very compact, and heavy; and its smell as agreeable as that of saunders. It scarce ever rots, decays, or is worm-eaten, any more than cedar, or ebony: for which reason, the ancients used it to make the statues of their gods.

It is good for making chests, musical instruments, and other utensils. It never cleaves, and is extremely hard and durable; its bitter juice resisting worms and putrefaction. Thus we are told, that the gates of St. Peter's church at Rome, made of *cypress* wood, had lasted from the time of Constantine, eleven hundred years, as fresh as new, when pope Eugenius IV. ordered gates of brass in their stead.

Some will have it, that the wood, gophir, of which Noah's ark was made, was *cypress*; which Plato preferred to brass itself, for writing his laws on.

The coffins in which, according to Thucydides, the Athenians buried their heroes, were of this wood, as are also many of the Egyptian mummy chests. See on the *cypripus* of the ancients, *Phil. Trans. vol. xlv. p. 564, &c.* *Cypress* nut is a very powerful astringent and balsamic: In diarrhoeas, and dysenteries, there is scarce any simple medicine preferable to it. It is said to be a good febrifuge; but at present is little regarded in the shops.

CYPRESS, *summer*, a name used by some for the *chenopodium* of authors. See *GOOSE-foot*.

CYPRIANUS, in *Ichthyology*, the name given by Aristotle to the *CARP*. He has also called it *CYPRINUS*; and Athenæus, Oppian, and many other writers, use indifferently the one or the other of the words.

CYPRINE, in *Mythology*, a surname of Venus, because the island of Cyprus was consecrated to her.

CYPRINUS, in the *Artedean Ichthyology*, the name of a very extensive genus of fishes, comprehending what have been before esteemed many different genera; the characters are these: the branchiostegic membrane on each side contains three bones; the whole mouth is smooth and toothless, but low down in the jaws there are two hard and serrated bones, which serve as teeth, and over against these there is one soft oval bone to answer them. The air-bladder is as it were tied with a thread in the middle, and so divided into two parts. The fish is of the malacopterygious kind, and the two jaws are usually of the same length, and sometimes the lower one is somewhat longer than the upper. Artedi enumerates nineteen species. *Gen. Pisc. 3.*

Of this genus are the barbel, bleak, bream, carp, chub, gudgeon, roach, and tench; which see under their several articles.

In the Linnæan system this is a genus of the *abdominal* fishes.

CYPRINUS latus, the broad *carp*, in *Ichthyology*, a name given by many authors to the common *BREAM*.

CYPRIPEDIUM, in *Botany*. See *LADY'S slipper*.

CYPRUS

CYPRUS lapis, a kind of adamant brought from Cyprus with which the ancients used to perforate other gems.

CYPRUS, an order of knights, called also knights of *Silence*, and knights of the *Sword*; instituted by Guy de Lusignan, king of Cyprus, in 1192.

The design of the institution was, to oppose the inroads and irruptions of the infidels in that island: accordingly, their motto was *securitas regni*.

CYPRUS bird, in *Ornithology*, a common name for the *atricapilla*, or *black-cap*, a very small bird, well known in England, and much more plentiful in the island of Cyprus, where it is esteemed a very delicate bird at table.

CYPRUS vitriol. See **VITRIOL**.

CYPRUS wood, in the *Materia Medica*, a name given by some authors to the *rose-wood*, because much of it is brought from the island of Cyprus.

CYRBASIA, *Κυρβασία*, among the Greeks, a kind of caps with high tops, in form of a cone, which were worn by the priests.

CYRENAICI, a sect of ancient philosophers; so called from their chief, Aristippus of Cyrene, a disciple of Socrates. See **SOCRATIC**.

Their leading tenet was, that man is born for pleasure, and that virtue is only so far laudable as it conduces thereto. By pleasure, they meant, not only a privation of pain, and a tranquillity of mind, like what Epicurus taught; but an assemblage of all the positive pleasures both of the mind and the senses, especially the last. See **EPICUREAN**.

Cicero makes frequent mention of Aristippus's school; and speaks of it as yielding debauchees.

Three disciples of Aristippus, after his death, divided the sect into three branches; under which division it languished and sunk: the first called the *Hegesiac* school; the second the *Annicrian*, and the third the *Theodoran*; from the names of their authors.

CYRILLA, in *Botany*, a genus of the *pentandria monogynia* class, with an acute petal inserted in the receptacle; a double-celled capsule, and a bifid, permanent style.

CYROCEPHALUS, in *Botany*, the name given by some authors to the *antirrhinum*, the *calves-snout*, or *SNAP-dragon*.

CYRTOMA, a bunch or curvity of the back. See **GIBBOUS**.

CYST, in *Surgery*, the bag, or membrane, in which an encysted tumor of the steatomatous, atheromatous, or sarcomatous kind, is included. In extirpating these tumors, if, by neglect, or accident, the *cyst* or any considerable part of it be left behind, the tumor will not fail to return. Indeed, if the tumor be a scirrhus, the contents are hard enough to make clear extirpation of it, notwithstanding its including coats be wounded: but when the matter of the tumor is soft, or fluid, by its escaping the tumor will become flaccid; so that it will be hardly possible to make a clear extirpation of the *cyst*, without leaving some fragments of it behind, which must, in that case, be brought away afterwards by suppuratives, digestives, and a proper treatment; and when the sinus is, by this means, cleared, the wound may be safely healed, without any danger of the return of the complaint. Heister's *Surgery*, p. 237.

CYST-HYPATIC duct, a canal, by which the *porus biliaris* discharges a part of its bile into the gall-bladder.

It was first described by Dr. Glisson, and long afterwards pretended to be discovered by M. Perrault. See *Tab. Anatomy (Splanchn.) fig. 5. lit. c c.*

Verheyen, from the course of the bile, inverts the name, and more properly calls it *hepaticocysticus*.

CYSTIC, an epithet given to two arteries, and two veins opening into the gall-bladder. See *Tab. Anatomy (Angeiol.) fig. 1. n. 34.*

The *cystic arteries*, *cysticae gamellae*, are two branches from the *cœliac*, bestowed on the gall-bladder, and bringing blood to the same. The *cystic veins* return the remains of this blood into the *vena porta*.

CYSTICS, denote medicines against distempers of the bladder. See **STONE**, **LITHONTRIPTIC**, &c.

CYSTICAPNOS, in *Botany*. See **FUMITORY**.

CYSTICUS ductus, or *meatus*, a biliary duct, about the bigness of a goose's quill; joined to the *meatus hepaticus*, at about two inches distance from the gall-bladder; the two together forming the *ductus communis*. See *Tab. Anatomy (Splanchn.) fig. 1. lit. d. fig. 5. lit. g g.*

CYSTIS, in *Botany*, a name by which many authors have called the *alkekengi*, or *winter-cherry*. It had this name

cystis from the remarkable character of its fruits being contained in a skinny bladder, or bag. It was generally, however, called *halicaccabum*.

CYSTIS, the same with *vesica*, or **BLADDER**.

The word is *κυστις*, which signifies the same.

CYSTIS choledocha, the same with *felliculus*, or **VESICULA fellis**.

CYTHARA. See **CITHARA**.

CYTHEREA, in *Mythology*, the surname of Venus, so called from Cythera, at present Cerigo, an island opposite to Crete, where she had a temple, esteemed the most ancient in Greece, and on the shores of which she was believed to be borne by the Zephyrs, surrounded by the Loves, the Tritons, and Nereides, reclining in a languishing posture, in a sea-shell. They give the name of *Cytheriades* to the Graces which attended her on the shore without quitting her, except on those occasions, when she rather chose to be waited on by the Pleasures.

CYTHINON, in *Botany*, a name given by the ancient Greeks to the yellow wood, called also *ibaphum* and *chrysoxylon*, a wood used in dying cloths, &c. See **CYMENE**. It was also called *Scythicum lignum*, Scythian wood, from the country whence it was brought: and from this last name it is easy to deduce the name *cythinon*. The old Greeks often wrote *cythinon* for *scythicon*, and the leaving out the initial *s*, which was a common practice among them, reduces this word to *cythinon*. Familiar instances of this practice occur to us in the words *mitax* for *smilax*, *maragdus* for *smaragdus*, &c.

CYINUS, in *Botany*, a genus of the *gynandria dodecandria* class; the calyx is parted into four segments, there is no corolla; with sixteen sessile antheræ, and an eight-lobed berry, enclosing many seeds.

CYISO Genista. See **BROOM-tree**.

CYSISUS. See **Base TREFOIL**.

CYICENS, **CYZICENA**, among the ancient Greeks, were sort of magnificent banquetting-houses, always looking towards the north, and usually opening upon gardens. They had their name from Cyzicus, a city very considerable for the grandeur of its buildings; situate in an island of Myia, bearing the same name. These *cyzicens* were among the Greeks what the *triclinia* and *cænacula* were among the Romans.

CYCUM marmor, a species of marble so called by the ancients from the great use made of it by a statuary called Cyzicus. It was white, with fine narrow veins of black, and was called also **PROCONNESIUM marmor**.

CZA, a title of honour, assumed by the grand-dukes, or, as they are now styled, emperors of Russia.

The natives pronounce it *tzar*, or *zaar*; and this, by corruption, from *Cæsar*, emperor; from some fancied relation to the Roman emperors; on account of which they also bear the eagle as a symbol of their empire.

The first who bore the title of *czar*, was Basil, son of Basilides, who freed his country from its subjection to the Tartars, about the year 1470.

M. perlingius, in his dissertation on the majesty of the name *konning*, observes, that the Russian princes never bore the name *czar*, till their people had embraced the Greek faith: before that time, he says, they were called *konig*, KING.

When the *czar* Peter I. required his imperial title to be acknowledged by the court of Vienna, there was great difficulty made about it: but the *czar* shewing them by his ambassador an original letter of Maximilian I. to the *czar* John Basilowitz, the count Sinsendorff, grand chancellor of the court of Vienna, caused the archives of the house of Austria to be searched for the original of that letter but no such letter was found: however, the handwriting of the secretary, and the signature of Maximilian, being known and acknowledged, the title of emperor was allowed to Peter and his successors, which they continue to enjoy. This anecdote, M. l'Abbé Langlet acknowledges to have received from count Sinsendorff himself, in 1722. *Encycl.*

CZEMER, in *Medicine*, a name given by the people of Hungary, and some of the neighbouring nations, to a very troublesome distemperature of the wrists, and lower part of the arms, to which the people of this part of the world are very subject. It consists of a tumor not hard, but very painful to the touch. The general method of cure is by giving first a strong emetic, and then confining the patient to his bed, and to the use of sudorifics, which in some days carry it off. *Phil. Trans.* N° 243.

